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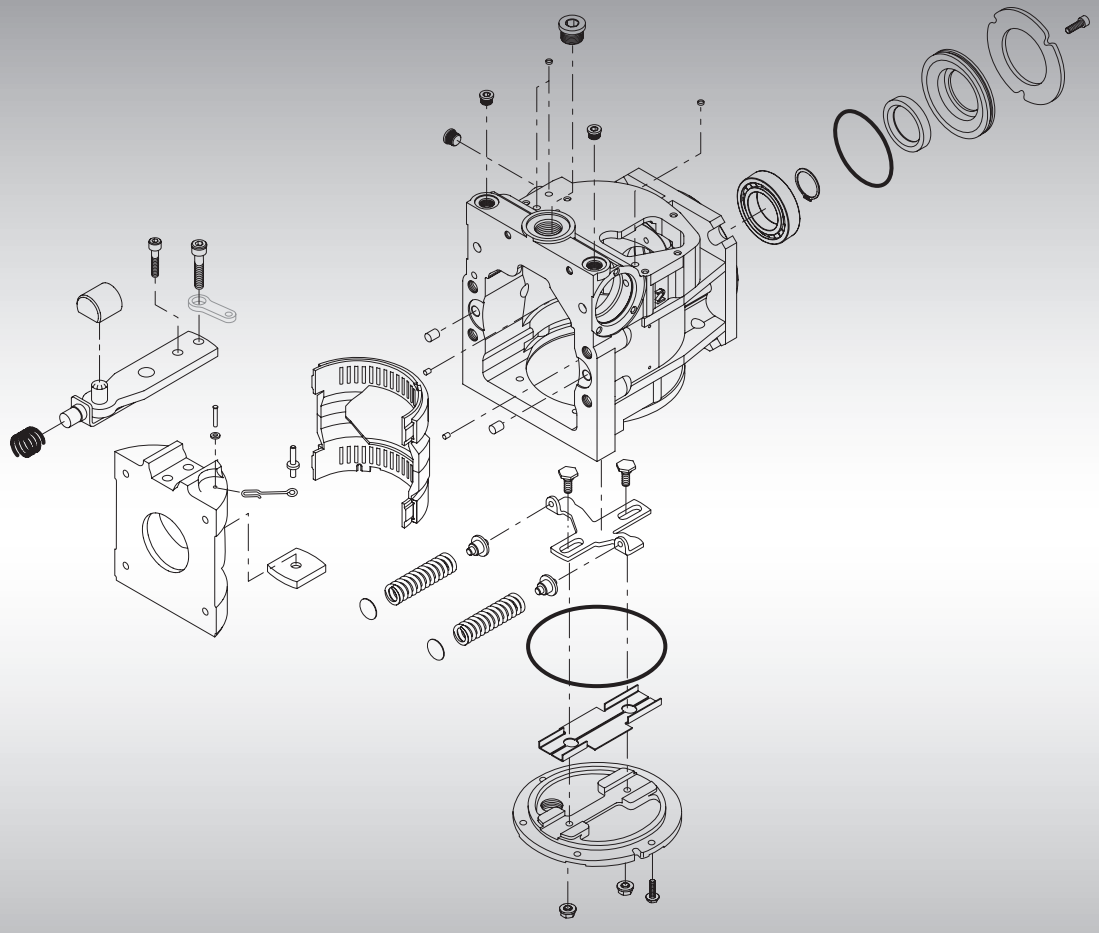
Parts Manual

# Series 90

# 55cc Axial Piston Pump



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## Contents

**General information**

Service parts identification ..... 4
Nameplate ..... 4
Date code ..... 5
Service bulletins ..... 5
Procedure to identify a part ..... 5
Order code ..... 7

**Variable displacement pump**

Common parts ..... 8-21
Special hardware ..... 10-21
Displacement limitation ..... 22-33
End cap ..... 34-37
Charging system ..... 38-39
Auxiliary mounting ..... 40-47
Charge pressure setting ..... 46-47
Shaft ..... 46-47
Control ..... 48-93
Filtration ..... 94-95
High pressure protection ..... 96-101
Orifice ..... 102-113
Overhaul seal kit ..... 114

## Contents

**Service bulletin**


BLN-10107 (charge pump design change) ..... 115-116
SB-1988-009 (servo arm/swashplate change) ..... 117
SB-1988-016 (slipper holddown clearance) ..... 118
SB-1988-023 (piston improvement) ..... 119
SB-1988-024 (remote pressure filtration change) ..... 120
SB-1989-002 (incorporation of adjustable charge relief valve) ..... 121
SB-1989-003 (leveler/servo pressure check valves) ..... 122
SB-1989-006 (charge pump redesign) ..... 123-124
SB-1989-009 (end cap gasket consolidation) ..... 125
SB-1989-037 (end cap/housing change) ..... 126
SB-1992-003 (pump redesign) ..... 127
SB-1992-011 (feedback link retention) ..... 128
SB-1993-001 (charge pump redesign) ..... 129-130
SB-1993-002 (HDC gasket change) ..... 131
SB-1993-015 (servo arm/speed ring interference) ..... 132
SB-1994-017 (swashplate cage locator) ..... 133
SB-1994-018 (Side cover washer elimination) ..... 134
SB-1994-036 (Integral filtration manifold) ..... 135
SB-1995-003 (MDC w/electric solenoid override manifold change) ..... 136
SB-1995-025 (side cover design change) ..... 137
SB-1995-026 (valve plate change) ..... 138
SB-1996-009 (feedback link change) ..... 139
SB-1998-018 (cage locator pin) ..... 140
SB-1998-041 (piston holddown redesign) ..... 141-142
SB-1998-066 (charge pump shaft) ..... 143-144
SB-1999-019 (feedback link change) ..... 145
SB-1999-041 (side cover insert material change) ..... 144
SB-2000-041 (leveler spring shim) ..... 147
SB-2002-050 (auxiliary mounting pad) ..... 148
SB-2004-012 (cage locator pin) ..... 149
SB-2005-011 (auxiliary flange charge pump cover ..... 150
SB-2007-027 (SAE A auxiliary mounting flange ..... 151-152
SB-2007-051 (SAE C auxiliary mounting flange ..... 153-154
SB-2007-055 (SAE B auxiliary mounting flange ..... 155-156
SB-2009-038 (slipper hold down spacer) ..... 157
SB-2010-005 (SAE B auxiliary mounting flange) ..... 158-159
SB-2010-025 (shaft seal change) ..... 160
SB-2013-011 (feedback link) ..... 161
SB-2014-020 (control solenoid valve) ..... 162-163
SB-2015-005 (slider block change) ..... 164

## General information

### Service parts indentification

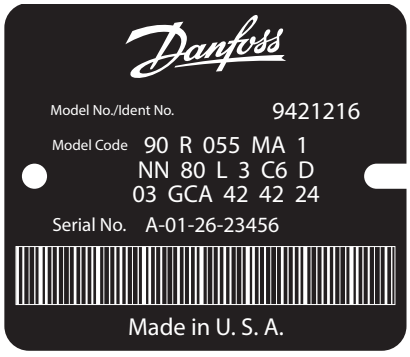
The following information and procedure is used to identify the module group, item number, manufacture date, part number, and part name of the parts included in the Series 90 55 cc variable displacement pumps.

The parts listed include all parts which may be used when performing either "Minor Repairs", "Major Repairs" or "Conversions" on the Series 90 55 cc pump.

### Nameplate

Each unit will have a nameplate affixed to the housing. The nameplate will include the following information.

**Model Code**
The Sauer-Danfoss model code completely defines the specific unit and must be used when ordering parts to service this product.




**Model Number**
The Sauer-Danfoss model number is used by the factory in manufacturing. On repeat orders, a complete unit can be ordered by the model number.

**Serial Number**
The Sauer-Danfoss serial number is used to identify the manufacture date and the unit sequence in the build. The serial number is also used to identify the units warranty time period.

The letter code indicates the location of original manufacture (assembly). "A" indicates the unit was originally assembled in Ames, Iowa, USA.

The first number (2 digits) indicates the year of manufacture. ("01" would indicate the unit was manufactured in 2001)

The second number (2 digits) indicates the calendar week of manufacture.

The third number (5 digits) is a sequential number used to identify a specific unit.

## General information

### Date code

The date code is defined as the year and week of manufacture. The same item number may list more than one part number. This indicates that there is more than one configuration for that item number. You will see that there are different date codes for the different part numbers. Find the date code of your unit from the nameplate to determine which service part number you need to order.

EXAMPLE: The service part desired is Item G30

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 80 | G30 | 89-17 | | 8000243 | End cap gasket | 1 |
| | G30 | 87-02 | 89-16 | 8000151 | End cap gasket (SB-1995-006) | 1 |

All units using this order code with a date code of 87-02 and up to and including 89-16, must use part number "8000151". All units with a date code of 89-17 and newer must use part number "8000243.".

### Service bulletins

A Service Bulletin Number (SB-_ _ _ _ - _ _ _) may follow the "Part Name" of the part you desire. You must read that Service Bulletin prior to ordering that part. The information contained in these Service Bulletins, as of the print date of this bulletin, are included at the end of this manual. Service Bulletins contain more detailed information such as interchangeability, what additional parts are involved, etc. It is suggested that you add additional Service Bulletins to this manual as you recieve them.

### Procedure to identify a part

**General**

The modular design of Series 90 units results in a simplified service parts list and part number identification procedure.

The same item numbers are used for same part names on all units within a product type. (Example: The lip seal - Item L40 has the same item number on all pumps.)

A part number that has another number following it in parentheses is done to make this a world wide manual. The first number is sold in Germany. The number in parentheses is sold in the United States. (Example: 314583 (9008000-0118), customers would order 9008000-0118 if ordering the part in the United States.)

**Example of a Part Identification**

The nameplate on a Series 90 pump has an Order Code of 90R055 MA 1 NN 80 L 3 C6 D 03 GCA 42 42 24. Use the following procedures to determine the part number of the drive shaft used on this pump.

1) Referring to the input shaft module in the Order Code (see page 7), the input shaft option for this pump is identified by the code "C6". (90R055 MA 1 NN 80 L 3 **C6** D 03 GCA 42 42 24)

2) Referring to the Service Parts List, find the shaft group. Next find the order code that relates to this unit, which is "C6". The shaft is found to be item L100 and part number 8000079.

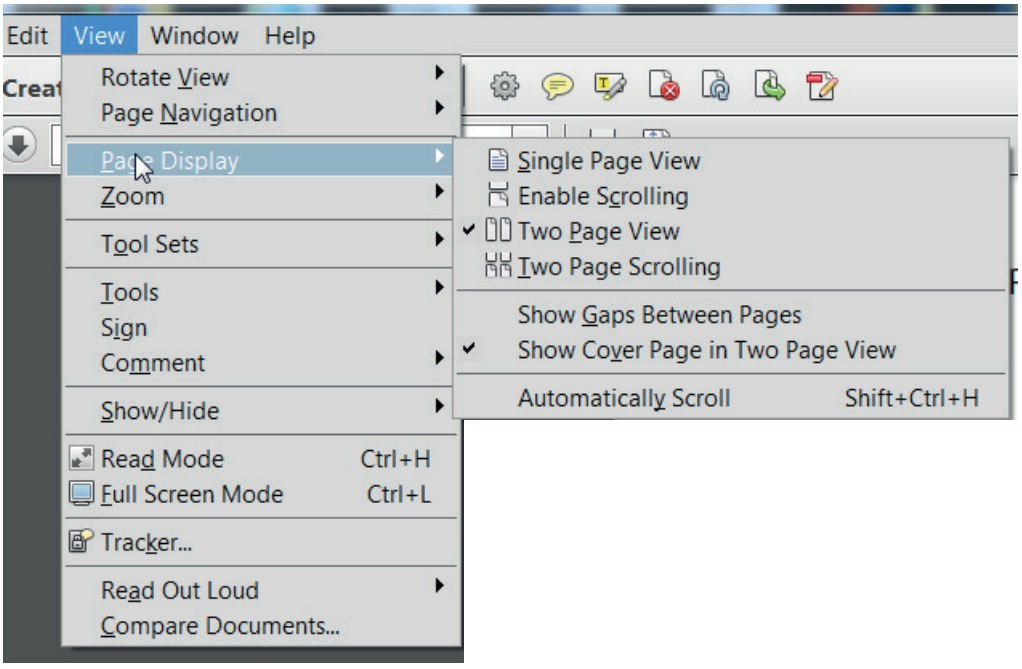
# Adobe Acrobat 2-page viewing

## Abobe Acrobat 2-page viewing

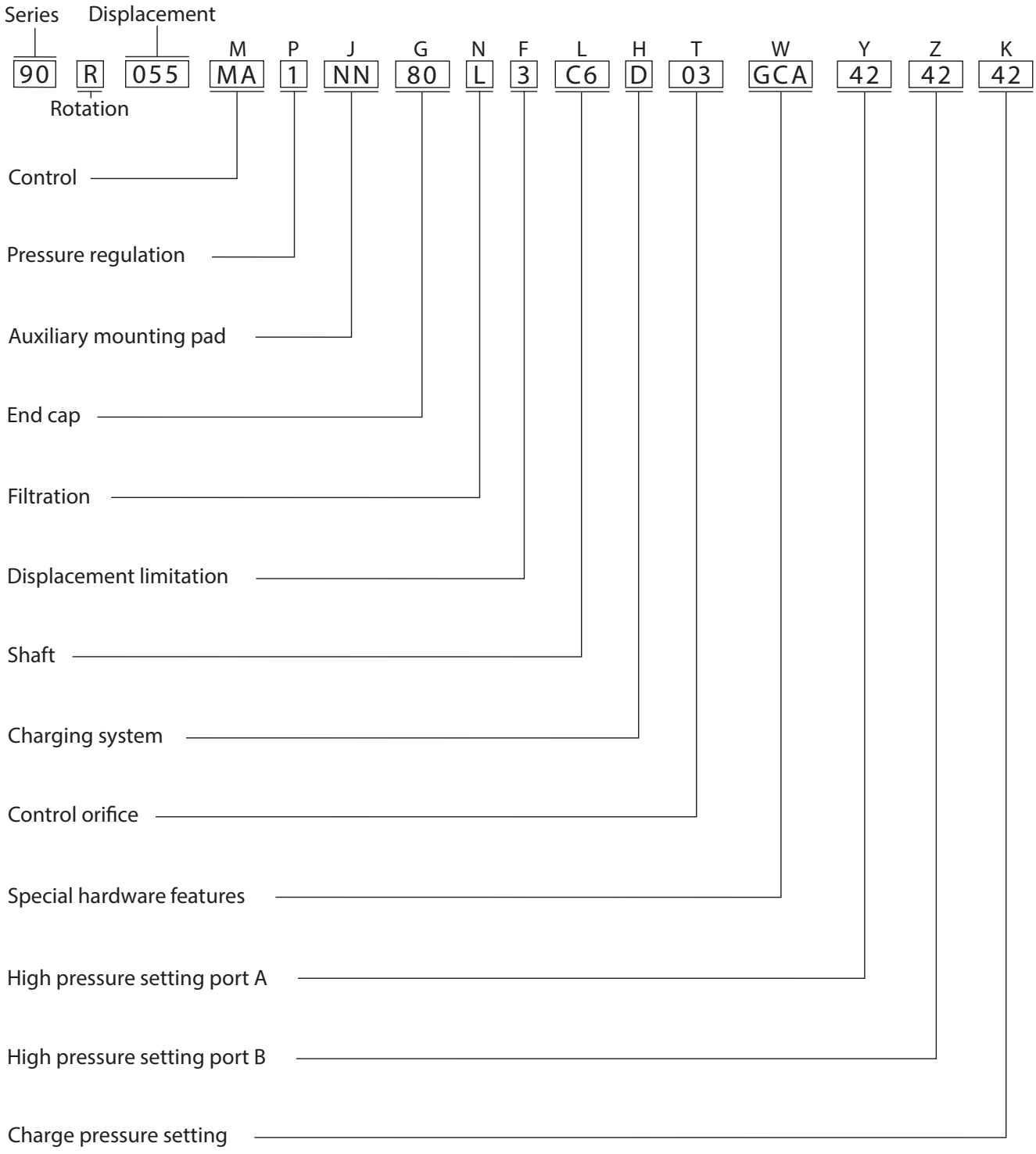
While viewing manual in Adobe Acrobat, the following settings need to be applied to ensure proper page display.

1. Select "View" --> "Page Display" --> "Two Page View"

2. Select "View" --> "Page Display" --> "Show Cover Page in Two Page View"

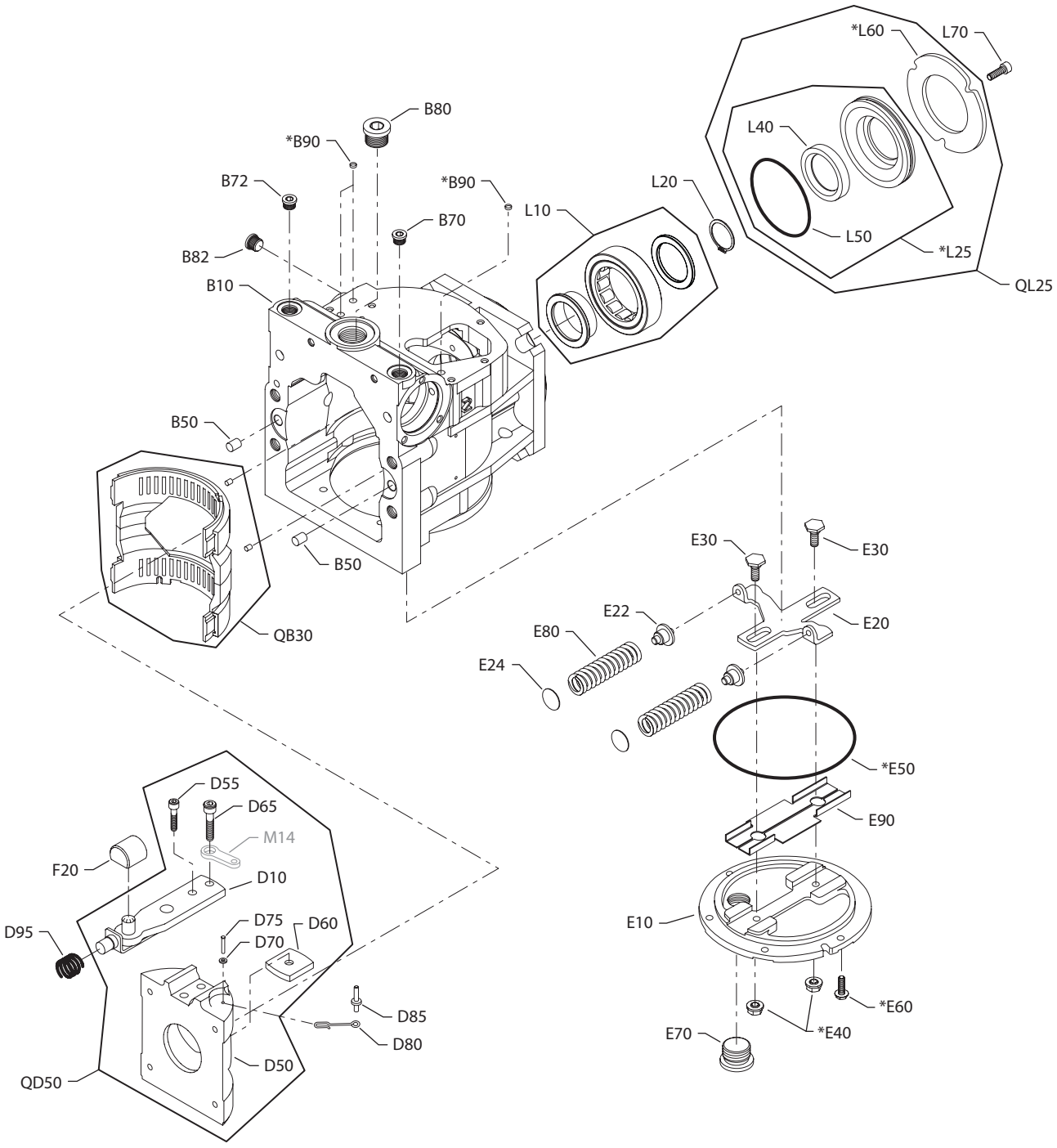


## Order Code




P100 686E

## Variable displacement pump




E100 703E

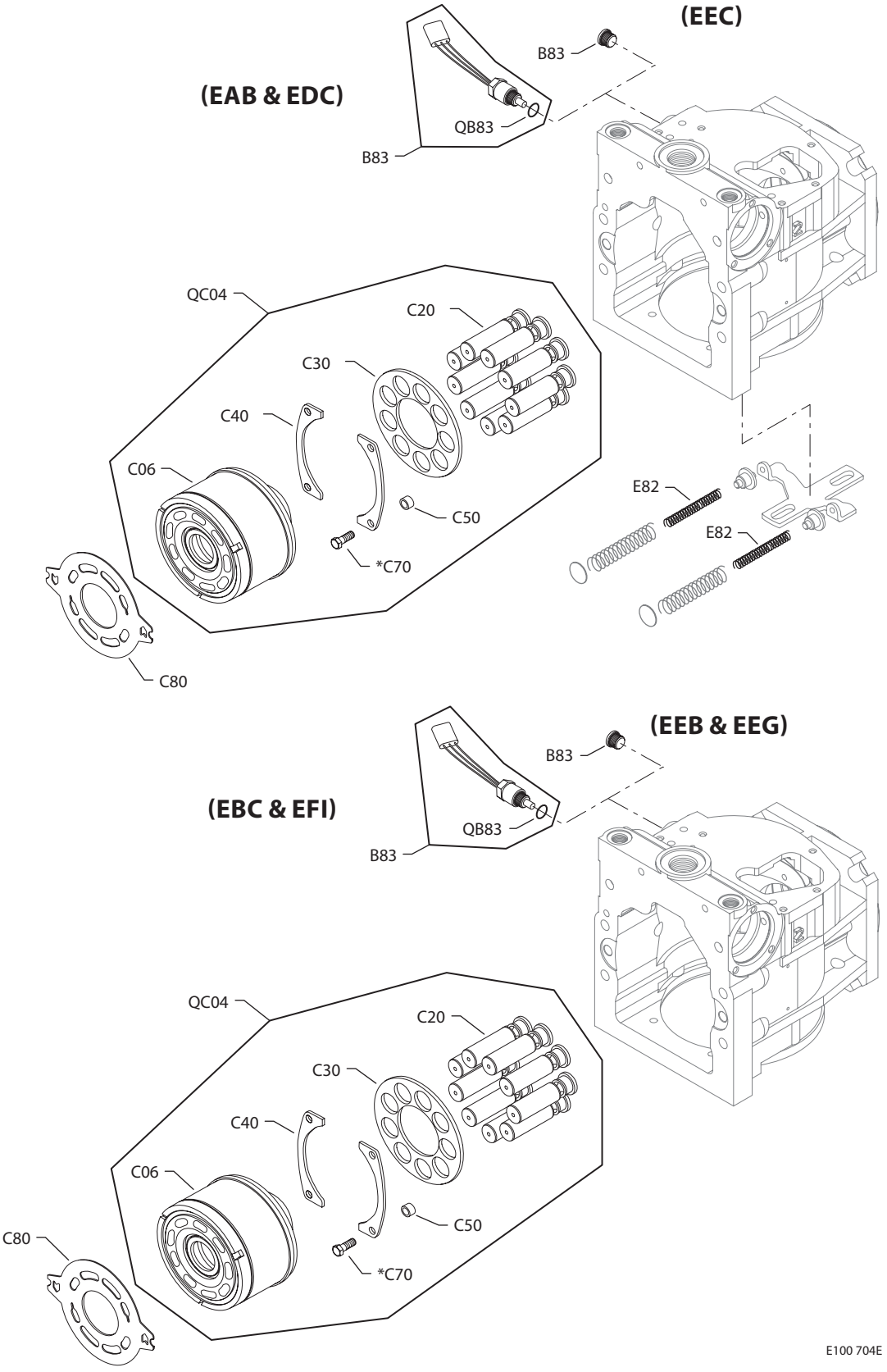
* = included in overhaul seal kit Q210

## Variable displacement pump

### Common parts

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| | B10 | 95-06 | | 8000387 | Housing (SB-1992-003) | 1 |
| | B50 | 87-02 | | 9004800-3708 | Pin | 2 |
| | B70 | 87-02 | | 327007 (9005110-4400) | Plug assembly | 1 |
| | B72 | 87-02 | | 327007 (9005110-4400) | Plug assembly | 1 |
| | B80 | 87-02 | | 664524 (9005110-9000) | Plug assembly | 1 |
| | B82 | 87-02 | | 9005110-5600 | Plug assembly (SB-1992-003) | 1 |
| | B90 | 87-02 | | 9803390 | Control filter screen | 3 |
| | D10 | 88-14 | | 8000318 | Servo arm assembly (SB-1993-015) | 1 |
| | D50 | 88-14 | | 8000188 | Swashplate (SB-1988-009) | 1 |
| | D55 | 87-02 | | 666032 (9007276-0107) | Screw | 1 |
| | D60 | 87-02 | | 8800669 | Swashplate guide | 1 |
| | D65 | 87-02 | | 9007375-0044 | Screw (SB-1992-011) | 1 |
| | D70 | 87-02 | | 9009625-0146 | Washer | 1 |
| | D75 | 87-02 | | 9004875-0098 | Spiral head pin | 1 |
| | D80 | 87-02 | | 8100506 | Cage locator link (SB-1994-017) | 1 |
| | D85 | 04-43 | | 8801235 | Pin (SB-2004-012) | 1 |
| | D85 | 87-02 | 04-42 | 8801135 | Pin (SB-1998-018) | 1 |
| | D95 | 87-02 | | 8100035 | Spring | 1 |
| | E10 | 95-50 | | 8000400 | Side cover (SB-1995-025) | 1 |
| | E20 | 87-02 | | 8000094 | Leveler (SB-1989-003) | 1 |
| | E22 | 87-02 | | 358838 | Spring seat (SB-1989-003) | 2 |
| | E24 | 92-06 | | 8801225 | Shim (SB-1989-003 & SB-2000-041) | 2 |
| | E30 | 95-50 | | 11056530 | Guide post | 2 |
| | E30 | 87-02 | 95-49 | 8100353 | Guide post (SB-1995-025) | 2 |
| | E40 | 87-02 | | 505412 (9003509-0008) | Seal nut | 2 |
| | E50 | 87-02 | | 056739 (9004104-1580) | O-ring | 1 |
| | E60 | 87-02 | | 5000206 | Screw (SB-1994-018) | 6 |
| | E70 | 87-02 | | 664524 (9005110-9000) | Plug assembly | 1 |
| | E80 | 87-02 | | 8000186 | Spring | 2 |
| | E90 | 95-50 | | 513886 | Insert assembly (SB-1995-025 & SB-1999-041) | 1 |
| | F20 | 88-14 | | 11116313 | Slider block (SB-1988-009 & SB-2015-005) | 1 |
| | L10 | 87-02 | | 5000504 | Roller bearing | 1 |
| | L20 | 87-02 | | 9006300-0137 | Retaining ring | 1 |
| | L25 | 10-40 | | 11083637 | Seal carrier assembly | 1 |
| | L40 | 10-40 | | 11013519 | Lip seal (SB-2010-025) | 1 |
| | L50 | 87-02 | | 071845 (9004104-1510) | O-ring | 1 |
| | L60 | 87-02 | | 11083638 | Retainer plate (SB-2010-025) | 1 |
| | L70 | 87-02 | | 041160 (9007314-0605) | Screw | 3 |
| | QB30 | 87-02 | | 8000131 | Bearing/pin assembly | 1 |
| | QD50 | 88-14 | | 8000200 | Swashplate kit (SB-1988-009) | 1 |
| | QD50 | 87-02 | 88-14 | 8000201 | Swashplate kit | 1 |
| | QL25 | 87-02 | 10-39 | 11084372 | Seal carrier replacement kit (SB-2010-025) | 1 |

## Variable displacement pump




* = included in base pump seal kit Q210

## Variable displacement pump

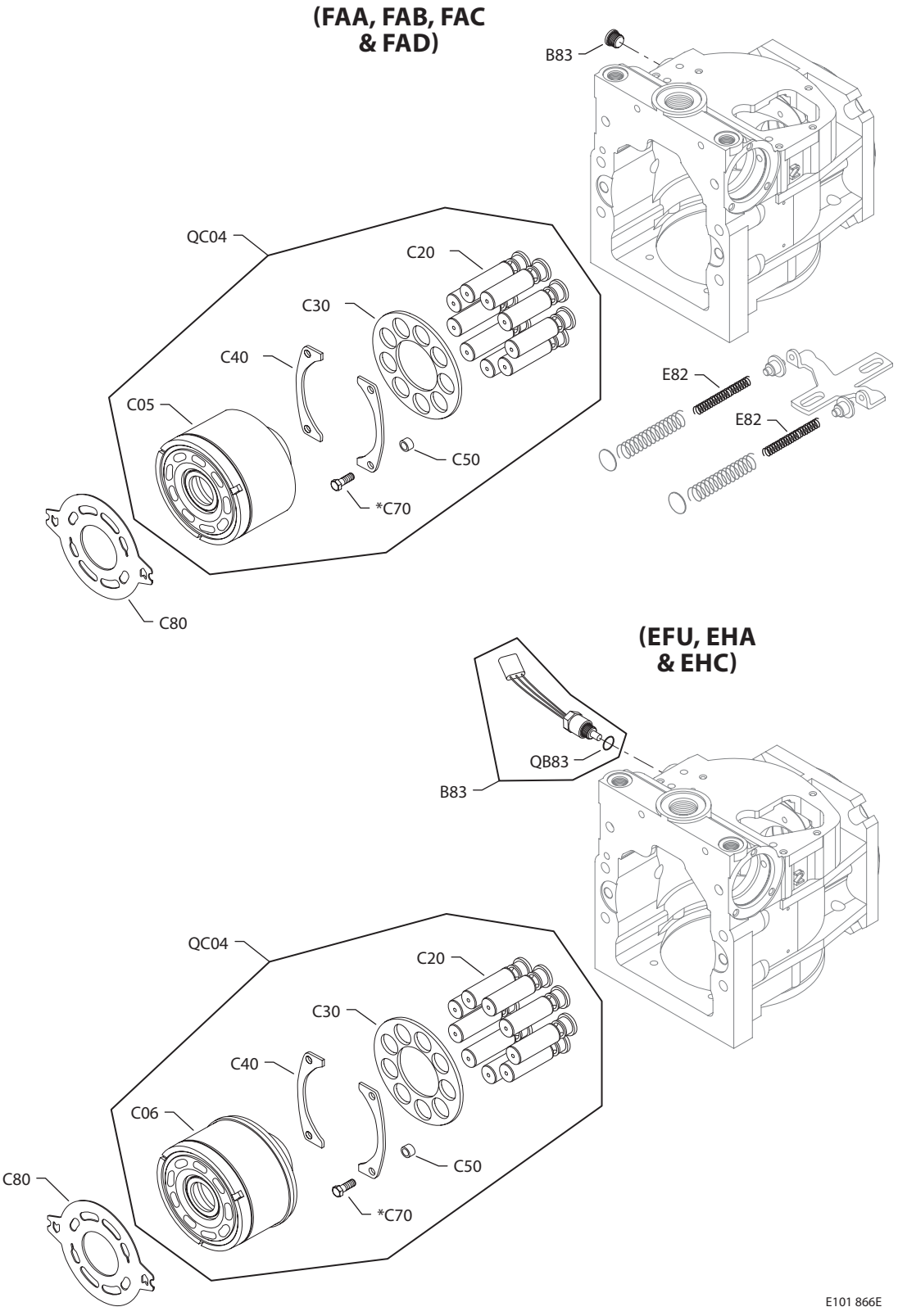
### Common parts

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| | C20 | 87-02 | | 367672 | Piston assembly (SB-1988-023) | 9 |
| | C30 | 87-02 | | 11067348 | Slipper guide | 1 |
| | C40 | 88-43 | | 8000137 | Slipper guide bearing (SB-1988-016) | 2 |
| | C50 | 88-43 | | 11065864 | Spacer (SB-1988-016, SB-1998-041 & SB-2009-038) | 4 |
| | C70 | 88-43 | | 648477 | Screw (SB-1988-016 & SB-1998-041) | 4 |

### Special hardware

| | | | | | | |
|---|---|---|---|---|---|---|
| EAB & NMS | B83 | 92-06 | | KPPG12508 | Speed sensor | 1 |
| & NWN | C06 | 92-06 | | 8000336 | Cylinder block assembly, with speed ring | 1 |
| | C80 | 92-06 | | 11015185 | Valve plate | 1 |
| | E82 | 92-06 | | 8000203 | Spring | 2 |
| | QB83 | 92-06 | | 085043 (9004201-3700) | O-ring | 1 |
| | QC04 | 92-06 | | 8510362 | Cylinder block kit, with speed ring | 1 |
| EBC | B83 | 96-06 | | KPPG13408 | Speed sensor | 1 |
| | C06 | 96-06 | | 8000336 | Cylinder block assembly, with speed ring | 1 |
| | C80 | 96-06 | | 11015186 | Valve plate | 1 |
| | QB83 | 96-06 | | 085043 (9004201-3700) | O-ring | 1 |
| | QC04 | 96-06 | | 8510362 | Cylinder block kit, with speed ring | 1 |
| EDC | B83 | 96-39 | 12-35 | KPPG13403 | Speed sensor | 1 |
| | C06 | 96-39 | 12-35 | 8000336 | Cylinder block assembly, with speed ring | 1 |
| | C80 | 96-39 | 12-35 | 11018343 | Valve plate, CW | 1 |
| | E82 | 96-39 | 12-35 | 8000203 | Spring | 2 |
| | QB83 | 96-39 | 12-35 | 085043 (9004201-3700) | O-ring | 1 |
| | QC04 | 96-39 | 12-35 | 8510362 | Cylinder block kit, with speed ring | 1 |
| EEB | B83 | 96-06 | | 9005110-5600 | Plug assembly | 1 |
| | C06 | 96-06 | | 8000336 | Cylinder block assembly, with speed ring | 1 |
| | C80 | 96-06 | | 11015186 | Valve plate | 1 |
| | QC04 | 96-06 | | 8510362 | Cylinder block kit, with speed ring | 1 |
| EEC | B83 | 94-51 | | 9005110-5600 | Plug assembly | 1 |
| | C06 | 94-51 | | 8000336 | Cylinder block assembly, with speed ring | 1 |
| | C80 | 94-51 | | 11018330 | Valve plate, CCW | 1 |
| | C80 | 94-51 | | 11018343 | Valve plate, CW | 1 |
| | E82 | 94-51 | | 8000203 | Spring | 2 |
| | QC04 | 94-51 | | 8510362 | Cylinder block kit, with speed ring | 1 |
| EEG | B83 | 00-06 | | 9005110-5600 | Plug assembly | 1 |
| | C06 | 00-06 | | 8000336 | Cylinder block assembly, with speed ring | 1 |
| | C80 | 00-06 | | 11018330 | Valve plate, CCW | 1 |
| | C80 | 00-06 | | 11018343 | Valve plate, CW | 1 |
| | QC04 | 00-06 | | 8510362 | Cylinder block kit, with speed ring | 1 |
| EFI | B83 | 07-38 | | KPPG156 | Speed sensor | 1 |
| | C06 | 07-38 | | 8000336 | Cylinder block assembly, with speed ring | 1 |
| | C80 | 07-38 | | 11018343 | Valve plate, CW | 1 |
| | QB83 | 07-38 | | 085043 (9004201-3700) | O-ring | 1 |
| | QC04 | 07-38 | | 8510362 | Cylinder block kit, with speed ring | 1 |

## Variable displacement pump




* = included in overhaul seal kit Q210

## Variable displacement pump

### Common parts

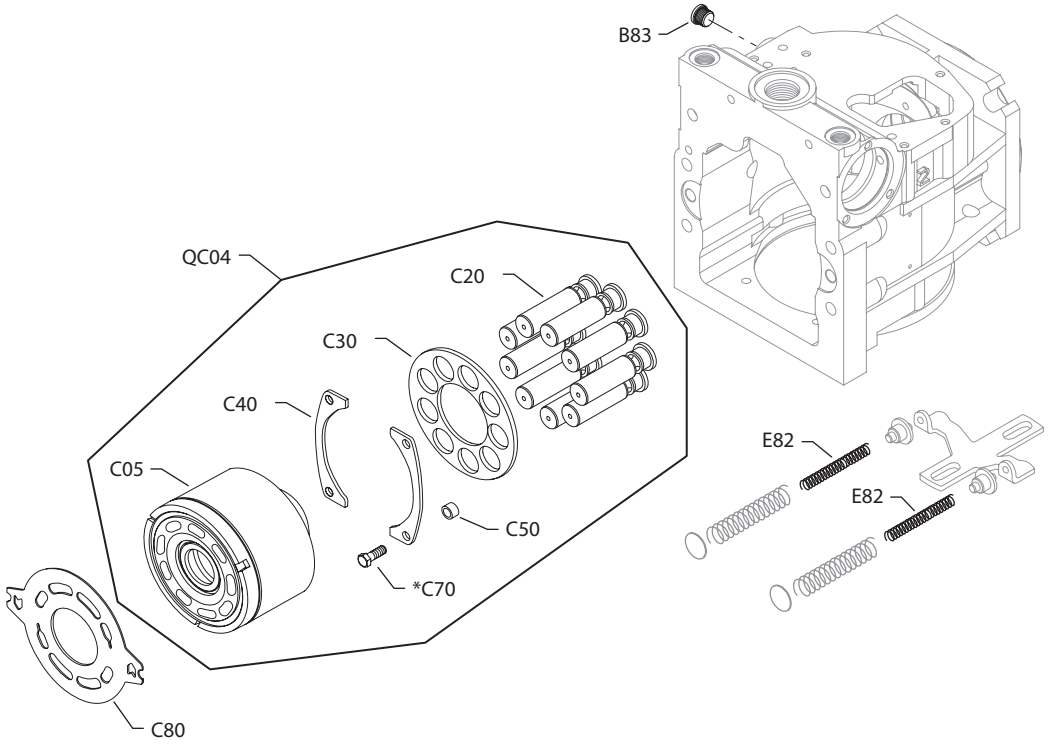
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| | C20 | 87-02 | | 367672 | Piston assembly (SB-1988-023) | 9 |
| | C30 | 87-02 | | 11067348 | Slipper guide | 1 |
| | C40 | 88-43 | | 8000137 | Slipper guide bearing (SB-1988-016) | 2 |
| | C50 | 88-43 | | 11065864 | Spacer (SB-1988-016, SB-1998-041 & SB-2009-038) | 4 |
| | C70 | 88-43 | | 648477 | Screw (SB-1988-016 & SB-1998-041) | 4 |

### Special hardware

| | | | | | | |
|---|---|---|---|---|---|---|
| EFU | B83 | 14-04 | | KPPG156 | Speed sensor | 1 |
| | C06 | 14-04 | | 8000336 | Cylinder block assembly, with speed ring | 1 |
| | C80 | 14-04 | | 11018343 | Valve plate, CW | 1 |
| | QB83 | 14-04 | | 085043 (9004201-3700) | O-ring | 1 |
| | QC04 | 14-04 | | 8510362 | Cylinder block kit, with speed ring | 1 |
| EHA | B83 | 99-14 | | KPPG16408 | Speed sensor | 1 |
| | C06 | 99-14 | | 8000336 | Cylinder block assembly, with speed ring | 1 |
| | C80 | 99-14 | | 11015186 | Valve plate | 1 |
| | QB83 | 99-14 | | 085043 (9004201-3700) | O-ring | 1 |
| | QC04 | 99-14 | | 8510362 | Cylinder block kit, with speed ring | 1 |
| EHC | B83 | 99-14 | | KPPG12408 | Speed sensor | 1 |
| | C06 | 99-14 | | 8000336 | Cylinder block assembly, with speed ring | 1 |
| | C80 | 99-14 | | 11015186 | Valve plate | 1 |
| | QB83 | 99-14 | | 085043 (9004201-3700) | O-ring | 1 |
| | QC04 | 99-14 | | 8510362 | Cylinder block kit, with speed ring | 1 |
| FAA & NDN | B83 | 91-04 | | 9005110-5600 | Plug assembly | 1 |
| | C05 | 91-04 | | 8000128 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 91-04 | | 11017478 | Valve plate | 1 |
| | E82 | 91-04 | | 8000203 | Spring | 2 |
| | QC04 | 91-04 | | 8510363 | Cylinder block kit, without speed ring | 1 |
| FAB & NBN | B83 | 91-46 | | 9005110-5600 | Plug assembly | 1 |
| | C05 | 91-46 | | 8000128 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 91-46 | | 363713 | Valve plate | 1 |
| | E82 | 91-46 | | 8000203 | Spring | 2 |
| | QC04 | 91-46 | | 8510363 | Cylinder block kit, without speed ring | 1 |
| FAC | B83 | 94-23 | | 9005110-5600 | Plug assembly | 1 |
| | C05 | 94-23 | | 8000128 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 94-23 | | 11015185 | Valve plate | 1 |
| | E82 | 94-23 | | 8000203 | Spring | 2 |
| | QC04 | 94-23 | | 8510363 | Cylinder block kit, without speed ring | 1 |
| FAD & NSN | B83 | 94-23 | | 9005110-5600 | Plug assembly | 1 |
| | C05 | 94-23 | | 8000128 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 94-23 | | 11015186 | Valve plate (SB-1997-003) | 1 |
| | E82 | 94-23 | | 8000203 | Spring | 2 |
| | QC04 | 94-23 | | 8510363 | Cylinder block kit, without speed ring | 1 |

## Variable displacement pump

**(FAK, FAP, FAR, FAU,FBD, FBE & FBG)**




E101 867E

* = included in overhaul seal kit Q210

## Variable displacement pump

### Common parts

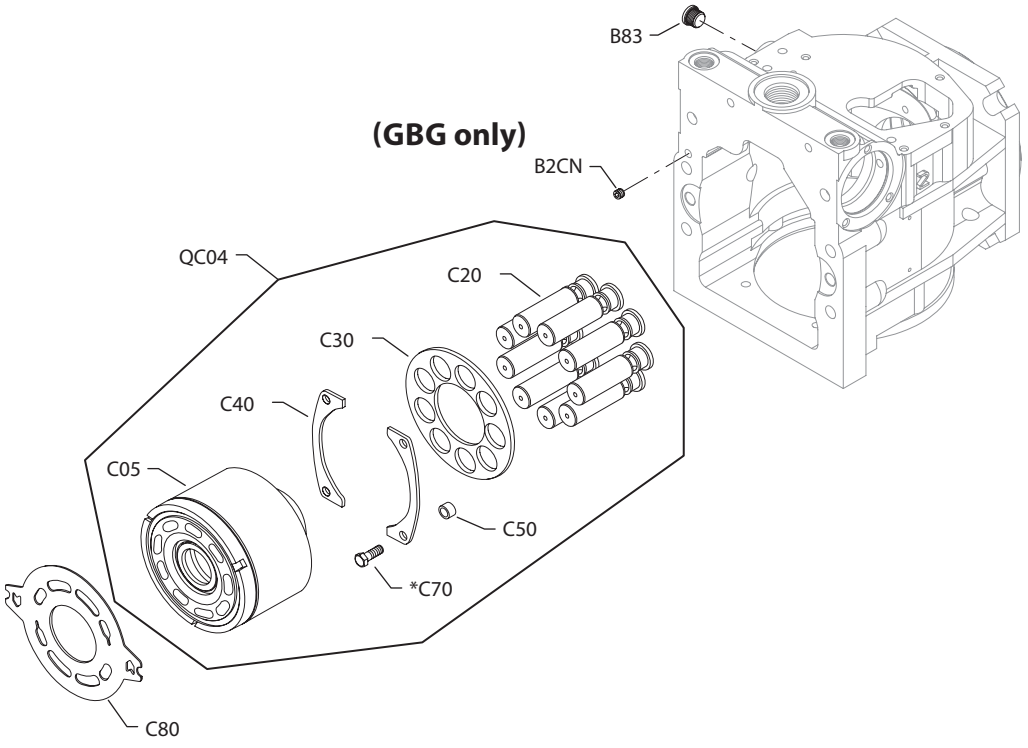
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| | C20 | 87-02 | | 367672 | Piston assembly (SB-1988-023) | 9 |
| | C30 | 87-02 | | 11067348 | Slipper guide | 1 |
| | C40 | 88-43 | | 8000137 | Slipper guide bearing (SB-1988-016) | 2 |
| | C50 | 88-43 | | 11065864 | Spacer (SB-1988-016 & SB-1998-041) | 4 |
| | C70 | 88-43 | | 648477 | Screw (SB-1988-016 & SB-1998-041) | 4 |

### Special hardware

| | | | | | | |
|---|---|---|---|---|---|---|
| FAK | B83 | 99-45 | 13-15 | 9005110-5600 | Plug assembly | 1 |
| | C05 | 99-45 | 13-15 | 8000128 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 99-45 | 13-15 | 11015186 | Valve plate | 1 |
| | E82 | 99-45 | 13-15 | 8000203 | Spring | 2 |
| | QC04 | 99-45 | 13-15 | 8510363 | Cylinder block kit, without speed ring | 1 |
| FAP | B83 | 96-08 | | 9005110-5600 | Plug assembly | 1 |
| | C05 | 96-08 | | 8000128 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 96-08 | | 11018330 | Valve plate, CCW | 1 |
| | C80 | 96-08 | | 11018343 | Valve plate, CW | 1 |
| | E82 | 96-08 | | 8000203 | Spring | 2 |
| | QC04 | 96-08 | | 8510363 | Cylinder block kit, without speed ring | 1 |
| FAR | B83 | 99-11 | 06-34 | 9005110-5600 | Plug assembly | 1 |
| | C05 | 99-11 | 06-34 | 8000128 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 99-11 | 06-34 | 510714 | Valve plate | 1 |
| | E82 | 99-11 | 06-34 | 8000203 | Spring | 2 |
| | QC04 | 99-11 | 06-34 | 8510363 | Cylinder block kit, without speed ring | 1 |
| FAU | B83 | 99-11 | 06-34 | 9005110-5600 | Plug assembly | 1 |
| | C05 | 99-11 | 06-34 | 8000128 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 99-11 | 06-34 | 11015186 | Valve plate | 1 |
| | E82 | 99-11 | 06-34 | 8000203 | Spring | 2 |
| | QC04 | 99-11 | 06-34 | 8510363 | Cylinder block kit, without speed ring | 1 |
| FBD | B83 | 06-12 | | 9005110-5600 | Plug assembly | 1 |
| | C05 | 06-12 | | 8000128 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 06-12 | | 510714 | Valve plate | 1 |
| | E82 | 06-12 | | 8000203 | Spring | 2 |
| | QC04 | 06-12 | | 8510363 | Cylinder block kit, without speed ring | 1 |
| FBE | B83 | 06-12 | | 9005110-5600 | Plug assembly | 1 |
| | C05 | 06-12 | | 8000128 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 06-12 | | 11015186 | Valve plate | 1 |
| | E82 | 06-12 | | 8000203 | Spring | 2 |
| | QC04 | 06-12 | | 8510363 | Cylinder block kit, without speed ring | 1 |
| FBG | B83 | 06-17 | | 9005110-5600 | Plug assembly | 1 |
| | C05 | 06-17 | | 8000128 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 06-17 | | 11015186 | Valve plate | 1 |
| | E82 | 06-17 | | 8000203 | Spring | 2 |
| | QC04 | 06-17 | | 8510363 | Cylinder block kit, without speed ring | 1 |

## Variable displacement pump

### (GAA, GBA, GBG ,GCA, GCR, GDE, GEA & GFD)




E100 708E

* = included in overhaul seal kit Q210

## Variable displacement pump

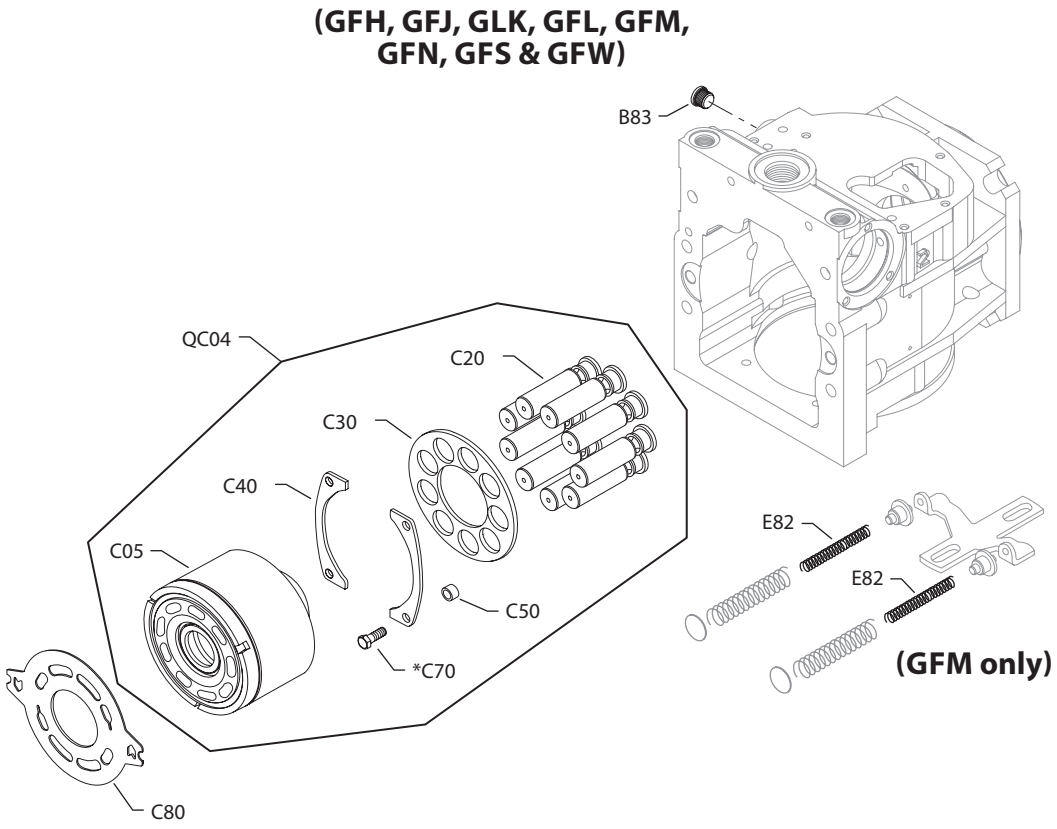
### Common parts

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| | C20 | 87-02 | | 367672 | Piston assembly (SB-1988-023) | 9 |
| | C30 | 87-02 | | 11067348 | Slipper guide | 1 |
| | C40 | 88-43 | | 8000137 | Slipper guide bearing (SB-1988-016) | 2 |
| | C50 | 88-43 | | 11065864 | Spacer (SB-1988-016 & SB-1998-041) | 4 |
| | C70 | 88-43 | | 648477 | Screw (SB-1988-016 & SB-1998-041) | 4 |

### Special hardware

| | | | | | | |
|---|---|---|---|---|---|---|
| GAA & NCN | B83 | 91-07 | 09-49 | 9005110-5600 | Plug assembly | 1 |
| | C05 | 91-07 | 09-49 | 8000128 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 91-07 | 09-49 | 11017479 | Valve plate | 1 |
| | QC04 | 91-07 | 09-49 | 8510363 | Cylinder block kit, without speed ring | 1 |
| GBA, NNN & NWN | B83 | 92-06 | | 9005110-5600 | Plug assembly | 1 |
| | C05 | 87-02 | | 8000128 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 87-02 | | 11015186 | Valve plate (SB-1995-026, SB-1997-003) | 1 |
| | QC04 | 87-02 | | 8510363 | Cylinder block kit, without speed ring | 1 |
| GBG | B83 | 99-45 | | 9005110-5600 | Plug assembly | 1 |
| | B2CN | 99-45 | | 042457 | Set screw | 1 |
| | C05 | 99-45 | | 8000128 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 99-45 | | 11015186 | Valve plate | 1 |
| | QC04 | 99-45 | | 8510363 | Cylinder block kit, without speed ring | 1 |
| GCA | B83 | 94-27 | | 9005110-5600 | Plug assembly | 1 |
| | C05 | 94-27 | | 8000128 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 94-27 | | 11015185 | Valve plate | 1 |
| | QC04 | 94-27 | | 8510363 | Cylinder block kit, without speed ring | 1 |
| GCR | B83 | 11-23 | | 9005110-5600 | Plug assembly | 1 |
| | C05 | 11-23 | | 8000128 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 11-23 | | 11015186 | Valve plate | 1 |
| | QC04 | 11-23 | | 8510363 | Cylinder block kit, without speed ring | 1 |
| GDE | B83 | 15-20 | | 9005110-5600 | Plug assembly | 1 |
| | C05 | 15-20 | | 8000128 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 15-20 | | 11015186 | Valve plate | 1 |
| | QC04 | 15-20 | | 8510363 | Cylinder block kit, without speed ring | 1 |
| GEA & SLN | B83 | 92-06 | | 9005110-5600 | Plug assembly | 1 |
| | C05 | 90-07 | | 8000128 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 90-07 | | 11087562 | Valve plate | 1 |
| | QC04 | 90-07 | | 8510363 | Cylinder block kit, without speed ring | 1 |
| GFD | B83 | 98-14 | | 9005110-5600 | Plug assembly | 1 |
| | C05 | 98-14 | | 8000128 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 98-14 | | 11015186 | Valve plate | 1 |
| | QC04 | 98-14 | | 8510363 | Cylinder block kit, without speed ring | 1 |

## Variable displacement pump




E101 867E

* = included in overhaul seal kit Q210

## Variable displacement pump

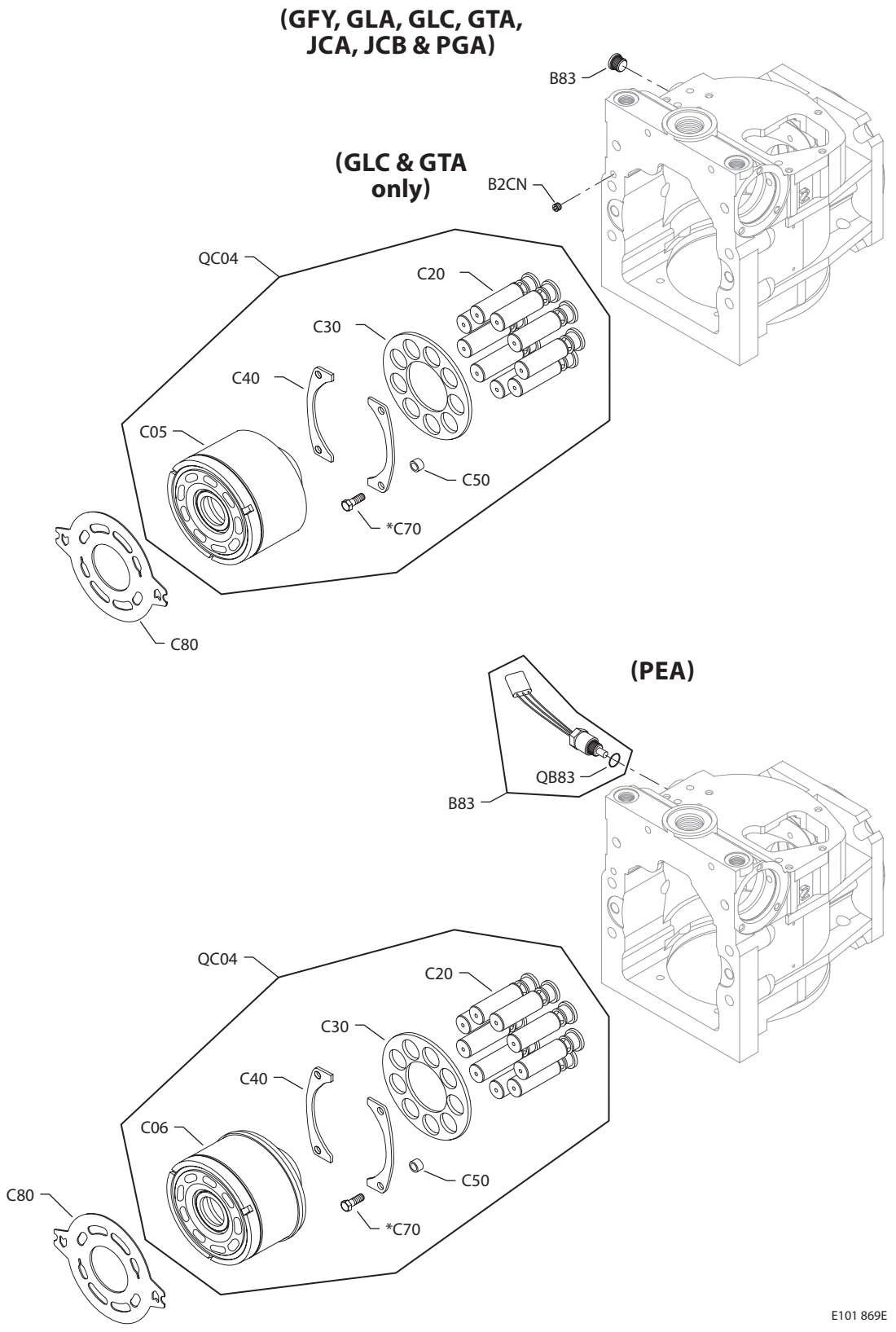
### Common parts

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| | C20 | 87-02 | | 367672 | Piston assembly (SB-1988-023) | 9 |
| | C30 | 87-02 | | 8000007 | Slipper guide | 1 |
| | C40 | 88-43 | | 8000137 | Slipper guide bearing (SB-1988-016) | 2 |
| | C50 | 88-43 | | 11065864 | Spacer (SB-1988-016 & SB-1998-041) | 4 |
| | C70 | 88-43 | | 648477 | Screw (SB-1988-016 & SB-1998-041) | 4 |

### Special hardware

| | | | | | | |
|---|---|---|---|---|---|---|
| GFH | B83 | 98-14 | | 9005110-5600 | Plug assembly | 1 |
| | C05 | 98-14 | | 8000128 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 98-14 | | 11015186 | Valve plate | 1 |
| | QC04 | 98-14 | | 8510363 | Cylinder block kit, without speed ring | 1 |
| GFJ | B83 | 06-12 | | 9005110-5600 | Plug assembly | 1 |
| | C05 | 06-12 | | 8000128 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 06-12 | | 11015186 | Valve plate | 1 |
| | QC04 | 06-12 | | 8510363 | Cylinder block kit, without speed ring | 1 |
| GFK | B83 | 06-12 | | 9005110-5600 | Plug assembly | 1 |
| | C05 | 06-12 | | 8000128 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 06-12 | | 11015186 | Valve plate | 1 |
| | QC04 | 06-12 | | 8510363 | Cylinder block kit, without speed ring | 1 |
| GFL | B83 | 13-51 | | 9005110-5600 | Plug assembly | 1 |
| | C05 | 13-51 | | 8000128 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 13-51 | | 11015186 | Valve plate | 1 |
| | QC04 | 13-51 | | 8510363 | Cylinder block kit, without speed ring | 1 |
| GFM | B83 | 13-51 | | 9005110-5600 | Plug assembly | 1 |
| | C05 | 13-51 | | 8000128 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 13-51 | | 11015186 | Valve plate | 1 |
| | E82 | 13-51 | | 8000203 | Spring | 2 |
| | QC04 | 13-51 | | 8510363 | Cylinder block kit, without speed ring | 1 |
| GFN | B83 | 06-12 | | 9005110-5600 | Plug assembly | 1 |
| | C05 | 06-12 | | 8000128 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 06-12 | | 11015186 | Valve plate | 1 |
| | QC04 | 06-12 | | 8510363 | Cylinder block kit, without speed ring | 1 |
| GFS | B83 | 06-12 | | 9005110-5600 | Plug assembly | 1 |
| | C05 | 06-12 | | 8000128 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 06-12 | | 11015186 | Valve plate | 1 |
| | QC04 | 06-12 | | 8510363 | Cylinder block kit, without speed ring | 1 |
| GFW | B83 | 06-12 | | 9005110-5600 | Plug assembly | 1 |
| | C05 | 06-12 | | 8000128 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 06-12 | | 11015185 | Valve plate | 1 |
| | QC04 | 06-12 | | 8510363 | Cylinder block kit, without speed ring | 1 |

## Variable displacement pump




* = included in overhaul seal kit Q210

## Variable displacement pump

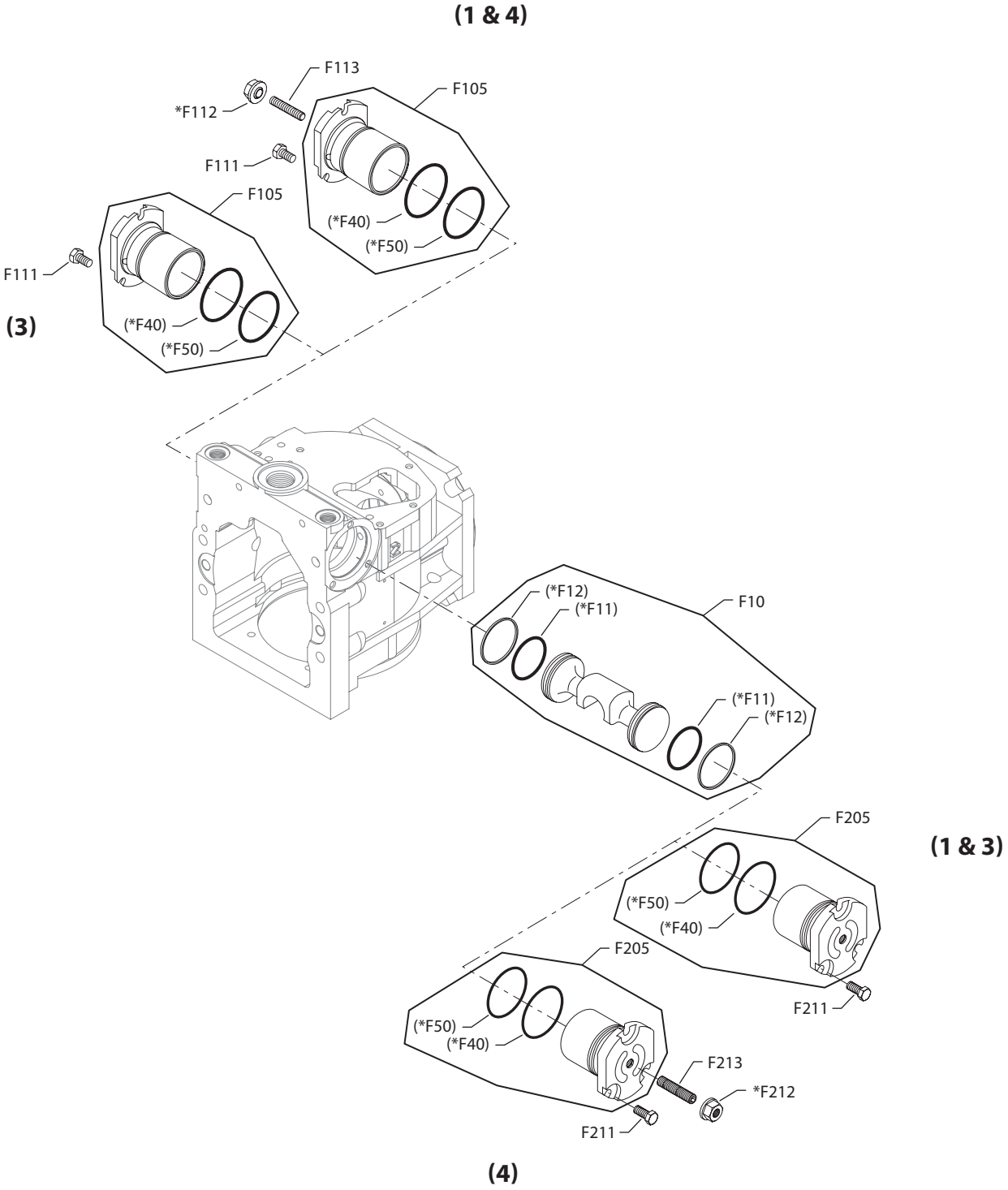
### Common parts

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| | C20 | 87-02 | | 367672 | Piston assembly (SB-1988-023) | 9 |
| | C30 | 87-02 | | 8000007 | Slipper guide | 1 |
| | C40 | 88-43 | | 8000137 | Slipper guide bearing (SB-1988-016) | 2 |
| | C50 | 88-43 | | 11065864 | Spacer (SB-1988-016 & SB-1998-041) | 4 |
| | C70 | 88-43 | | 648477 | Screw (SB-1988-016 & SB-1998-041) | 4 |

### Special hardware

| | | | | | | |
|---|---|---|---|---|---|---|
| GFY | B83 | 06-12 | | 9005110-5600 | Plug assembly | 1 |
| | C05 | 06-12 | | 8000128 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 06-12 | | 11087562 | Valve plate | 1 |
| | QC04 | 06-12 | | 8510363 | Cylinder block kit, without speed ring | 1 |
| GLA | B83 | 98-14 | | 9005110-5600 | Plug assembly | 1 |
| | C05 | 98-14 | | 8000128 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 98-14 | | 11018330 | Valve plate, CCW | 1 |
| | C80 | 98-14 | | 11018343 | Valve plate, CW | 1 |
| | QC04 | 98-14 | | 8510363 | Cylinder block kit, without speed ring | 1 |
| GLC | B83 | 04-38 | | 9005110-5600 | Plug assembly | 1 |
| | B2CN | 04-38 | | 042457 | Set screw | 1 |
| | C05 | 04-38 | | 8000128 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 04-38 | | 11018343 | Valve plate, CW | 1 |
| | QC04 | 04-38 | | 8510363 | Cylinder block kit, without speed ring | 1 |
| GTA | B83 | 14-21 | | 9005110-5600 | Plug assembly | 1 |
| | B2CN | 14-21 | | 042457 | Set screw | 1 |
| | C05 | 14-21 | | 8000128 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 14-21 | | 11015186 | Valve plate | 1 |
| | QC04 | 14-21 | | 8510363 | Cylinder block kit, without speed ring | 1 |
| JCA | B83 | 10-18 | | 9005110-5600 | Plug assembly | 1 |
| | C05 | 10-18 | | 8000128 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 10-18 | | 11015186 | Valve plate | 1 |
| | QC04 | 10-18 | | 8510363 | Cylinder block kit, without speed ring | 1 |
| JCB | B83 | 09-10 | 12-35 | 9005110-5600 | Plug assembly | 1 |
| | C05 | 09-10 | 12-35 | 8000128 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 09-10 | 12-35 | 11015186 | Valve plate | 1 |
| | QC04 | 09-10 | 12-35 | 8510363 | Cylinder block kit, without speed ring | 1 |
| PEA | B83 | 07-03 | | KPPG156 | Speed sensor | 1 |
| | C06 | 07-03 | | 8000336 | Cylinder block assembly, with speed ring | 1 |
| | C80 | 07-03 | | 11015186 | Valve plate | 1 |
| | QB83 | 92-06 | | 085043 (9004201-3700) | O-ring | 1 |
| | QC04 | 07-03 | | 8510362 | Cylinder block kit, with speed ring | 1 |
| PGA | B83 | 08-01 | | 9005110-5600 | Plug assembly | 1 |
| | C05 | 08-01 | | 8000128 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 08-01 | | 11015186 | Valve plate | 1 |
| | QC04 | 08-01 | | 8510363 | Cylinder block kit, without speed ring | 1 |

## Variable displacement pump




E100 688E

* = included in overhaul seal kit Q210
( ) = not available individually

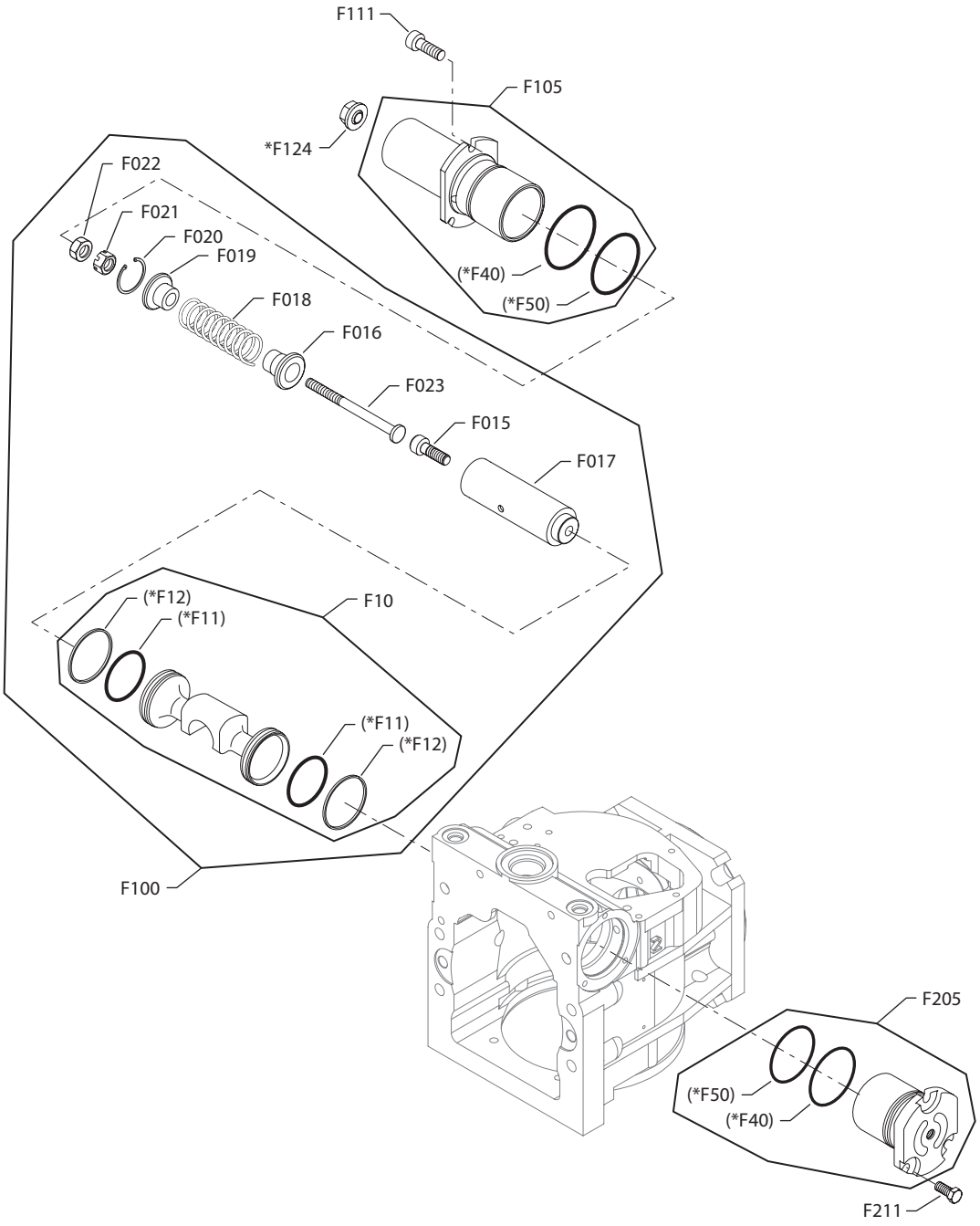
## Variable displacement pump

### Displacement limitation

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 1 | F10 | 91-07 | | 11046668 | Servo piston assembly | 1 |
| | F105 | 91-07 | | 11054834 | Servo cylinder assembly | 1 |
| | F111 | 91-07 | | 9007210-0604 | Screw | 3 |
| | F112 | 91-07 | | 505412 (9003509-0008) | Seal nut | 1 |
| | F113 | 91-07 | | 5000747 | Set screw | 1 |
| | F205 | 91-07 | | 11054864 | Servo cylinder assembly | 1 |
| | F211 | 91-07 | | 9007210-0604 | Screw | 3 |
| 3 | F10 | 87-02 | | 11046668 | Servo piston assembly | 1 |
| | F105 | 91-07 | | 11054864 | Servo cylinder assembly | 1 |
| | F111 | 87-02 | | 9007210-0604 | Screw | 3 |
| | F205 | 91-07 | | 11054864 | Servo cylinder assembly | 1 |
| | F211 | 87-02 | | 9007210-0604 | Screw | 3 |
| 4 | F10 | 91-07 | | 11046668 | Servo piston assembly | 1 |
| | F105 | 91-07 | | 11054834 | Servo cylinder assembly | 1 |
| | F111 | 91-07 | | 9007210-0604 | Screw | 3 |
| | F112 | 91-07 | | 505412 (9003509-0008) | Seal nut | 1 |
| | F113 | 91-07 | | 5000747 | Set screw | 1 |
| | F205 | 91-07 | | 11054834 | Servo cylinder assembly | 1 |
| | F211 | 91-07 | | 9007210-0604 | Screw | 3 |
| | F212 | 91-07 | | 505412 (9003509-0008) | Seal nut | 1 |
| | F213 | 91-07 | | 5000747 | Set screw | 1 |

## Variable displacement pump

**(7)**




E100 705E

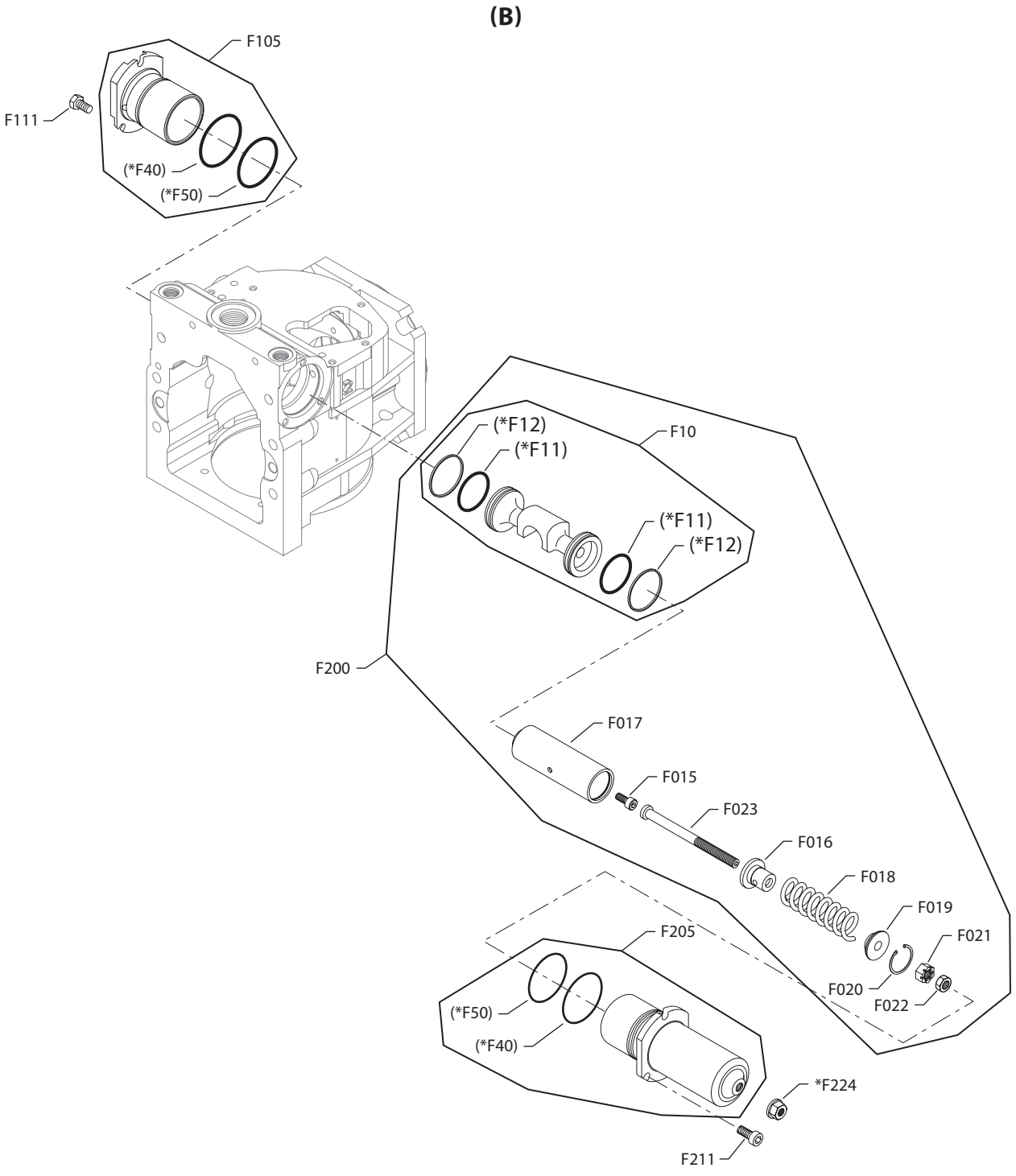
* = included in overhaul seal kit Q210
( ) = not available individually

## Variable displacement pump

### Displacement limitation

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 7 | F10 | 95-31 | | 11046669 | Servo piston assembly | 1 |
| | F015 | 95-31 | | 346395 | Screw | 1 |
| | F016 | 95-31 | | 507092 | Spring guide | 1 |
| | F017 | 95-31 | | 346320 | Servo spring housing | 1 |
| | F018 | 95-31 | | 346254 | Spring | 1 |
| | F019 | 95-31 | | 507093 | Spring guide | 1 |
| | F020 | 95-31 | | 346379 | Retaining ring | 1 |
| | F021 | 95-31 | | 787887 | Castle nut | 1 |
| | F022 | 95-31 | | 336800 | Nut | 1 |
| | F023 | 95-31 | | 11140220 | Adjusting screw | 1 |
| | F100 | 95-31 | | 8000760 | Servo assembly | 1 |
| | F105 | 95-31 | | 11054838 | Servo cylinder assembly, automotive control | 1 |
| | F111 | 95-31 | | 704395 (9007314-0604) | Screw | 3 |
| | F124 | 95-31 | | 336826 | Seal nut | 1 |
| | F205 | 95-31 | | 11054864 | Servo cylinder assembly, non-adjustable | 1 |
| | F211 | 95-31 | | 9007210-0604 | Screw | 3 |

## Variable displacement pump



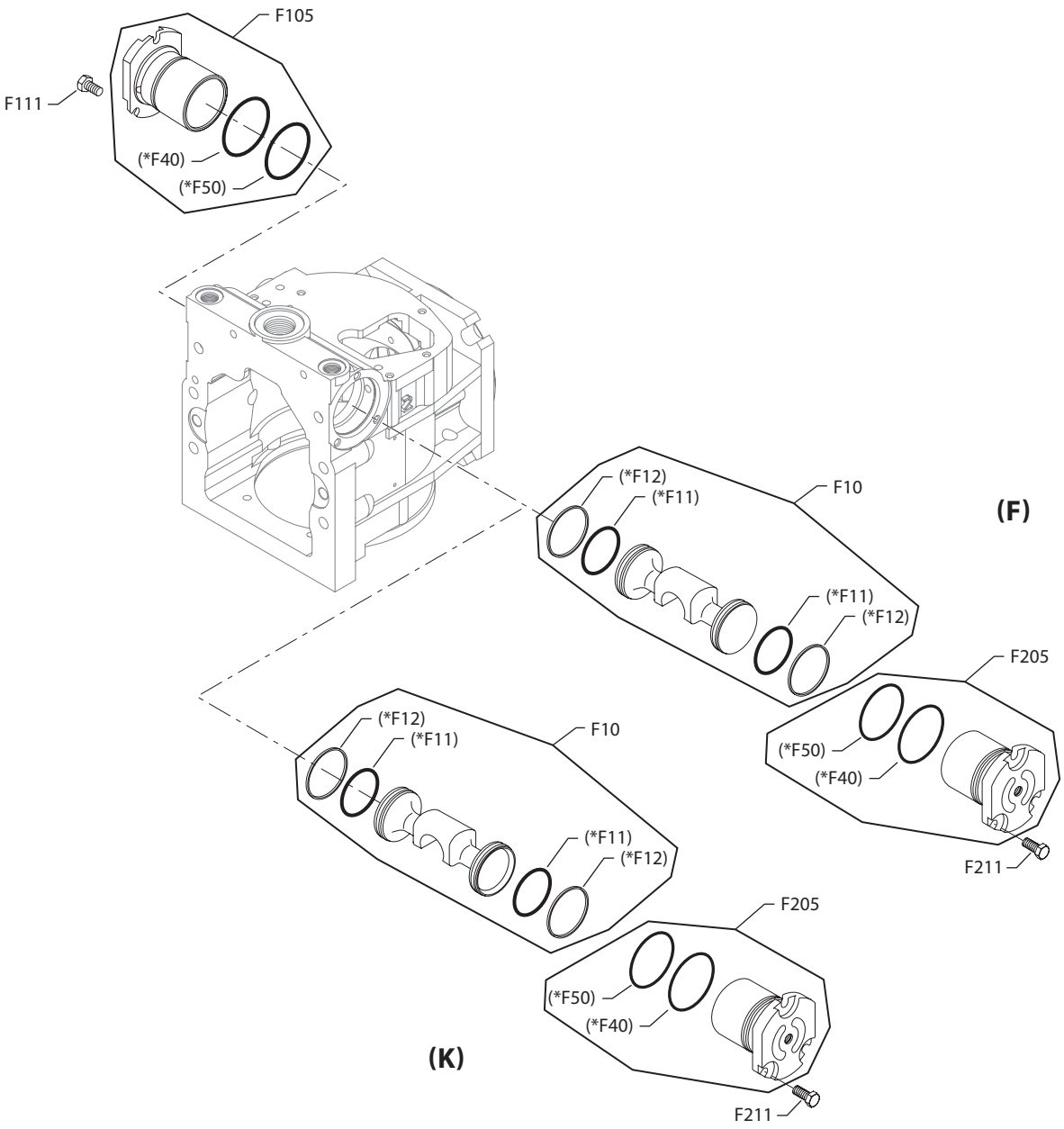

* = included in overhaul seal kit Q210
( ) = not available individually

## Variable displacement pump

### Displacement limitation

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| B | F10 | 98-40 | | 11046669 | Servo piston assembly | 1 |
| | F015 | 98-40 | | 346395 | Screw | 1 |
| | F016 | 98-40 | | 507092 | Spring guide | 1 |
| | F017 | 98-40 | | 346320 | Servo spring housing | 1 |
| | F018 | 98-40 | | 346254 | Spring | 1 |
| | F019 | 98-40 | | 507093 | Spring guide | 1 |
| | F020 | 98-40 | | 346379 | Retaining ring | 1 |
| | F021 | 98-40 | | 787887 | Castle nut | 1 |
| | F022 | 98-40 | | 336800 | Nut | 1 |
| | F023 | 98-40 | | 11140220 | Adjusting screw | 1 |
| | F105 | 98-40 | | 11054864 | Servo cylinder assembly | 1 |
| | F111 | 98-40 | | 9007210-0604 | Screw | 3 |
| | F200 | 98-40 | | 8000760 | Servo assembly | 1 |
| | F205 | 98-40 | | 11054838 | Servo cylinder assembly | 1 |
| | F211 | 98-40 | | 704395 (9007314-0604) | Screw | 3 |
| | F224 | 98-40 | | 336826 | Seal nut | 1 |

## Variable displacement pump




E101 871E

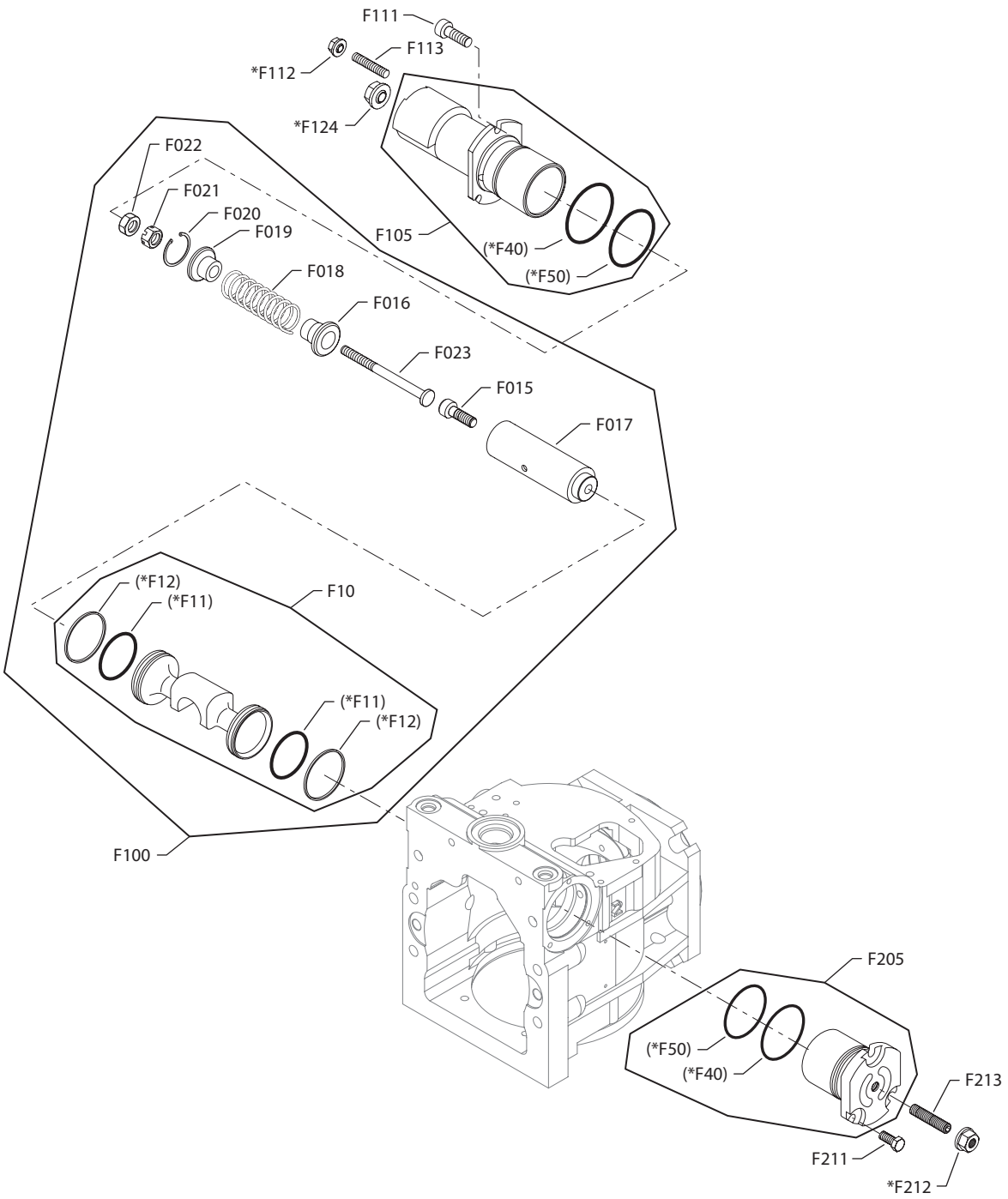
* = included in overhaul seal kit Q210
( ) = not available individually

## Variable displacement pump

### Displacement limitation

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| F | F10 | 91-30 | | 11046668 | Servo piston assembly | 1 |
| | F105 | 91-30 | | 11054836 | Servo cylinder assembly | 1 |
| | F111 | 91-30 | | 9007210-0604 | Screw | 3 |
| | F205 | 91-30 | | 11054836 | Servo cylinder assembly | 1 |
| | F211 | 91-30 | | 9007210-0604 | Screw | 3 |
| K | F10 | 95-02 | | 11046669 | Servo piston assembly | 1 |
| | F105 | 95-02 | | 11054864 | Servo cylinder assembly | 1 |
| | F111 | 95-02 | | 9007210-0604 | Screw | 3 |
| | F205 | 95-02 | | 11054864 | Servo cylinder assembly | 1 |
| | F211 | 95-02 | | 9007210-0604 | Screw | 3 |

## Variable displacement pump




E100 706E

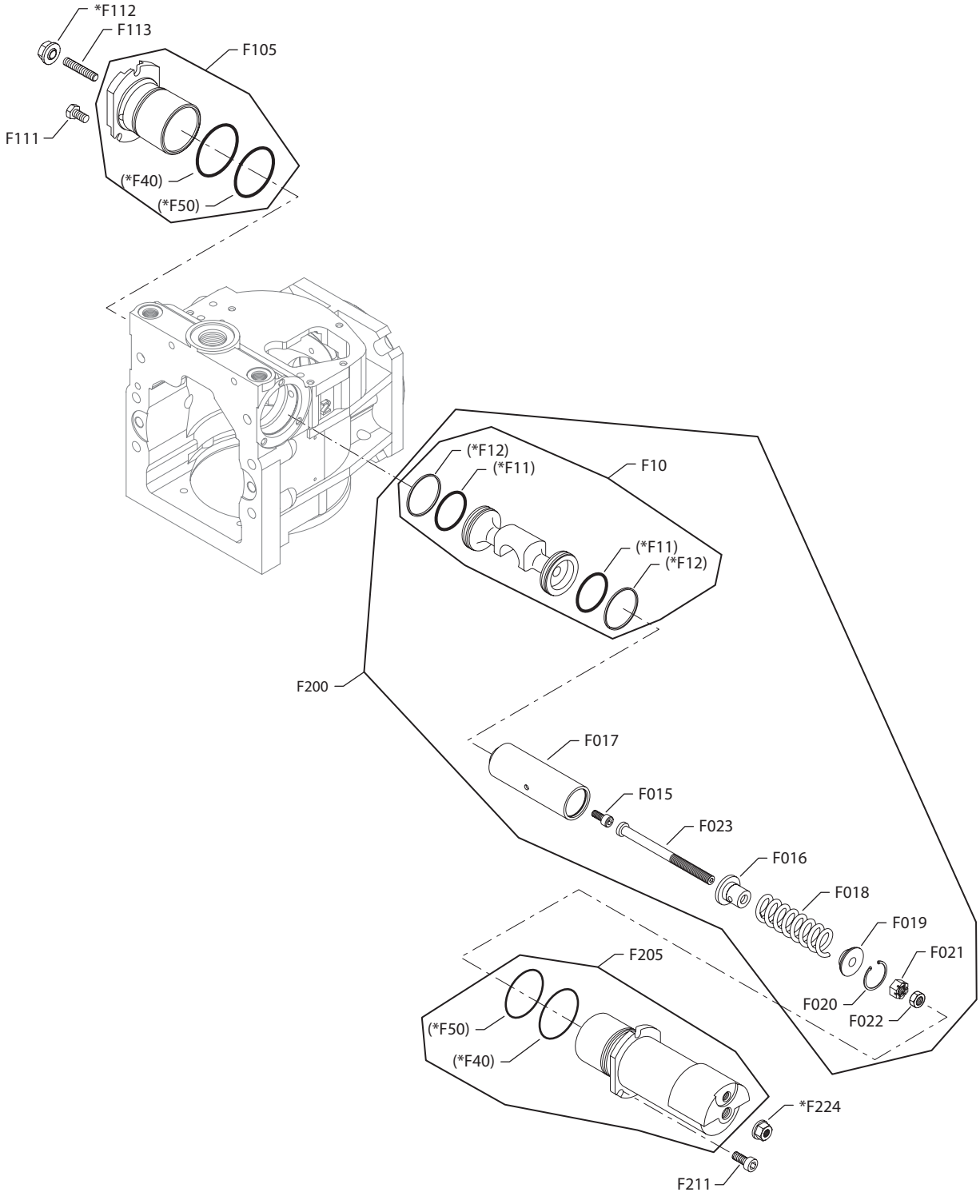
* = included in overhaul seal kit Q210
( ) = not available individually

## Variable displacement pump

### Displacement limitation

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| L | F10 | 98-14 | | 11046669 | Servo piston assembly | 1 |
| | F015 | 98-14 | | 346395 | Screw | 1 |
| | F016 | 98-14 | | 507092 | Spring guide | 1 |
| | F017 | 98-14 | | 346320 | Servo spring housing | 1 |
| | F018 | 98-14 | | 346254 | Spring | 1 |
| | F019 | 98-14 | | 507093 | Spring guide | 1 |
| | F020 | 98-14 | | 346379 | Retaining ring | 1 |
| | F021 | 98-14 | | 787887 | Castle nut | 1 |
| | F022 | 98-14 | | 336800 | Nut | 1 |
| | F023 | 98-14 | | 11140220 | Adjusting screw | 1 |
| | F100 | 98-14 | | 8000760 | Servo assembly | 1 |
| | F105 | 98-14 | | 11054840 | Servo cylinder assembly | 1 |
| | F111 | 98-14 | | 704395 (9007314-0604) | Screw | 3 |
| | F112 | 98-40 | | 505412 (9003509-0008) | Seal nut | 1 |
| | F113 | 98-40 | | 5000747 | Set screw | 1 |
| | F124 | 98-14 | | 336826 | Seal nut | 1 |
| | F205 | 98-14 | | 11054834 | Servo cylinder assembly | 1 |
| | F211 | 98-14 | | 9007210-0604 | Screw | 3 |
| | F212 | 98-14 | | 505412 (9003509-0008) | Seal nut | 1 |
| | F213 | 98-14 | | 5000747 | Set screw | 1 |

## Variable displacement pump




E100 707E

* = included in overhaul seal kit Q210
( ) = not available individually

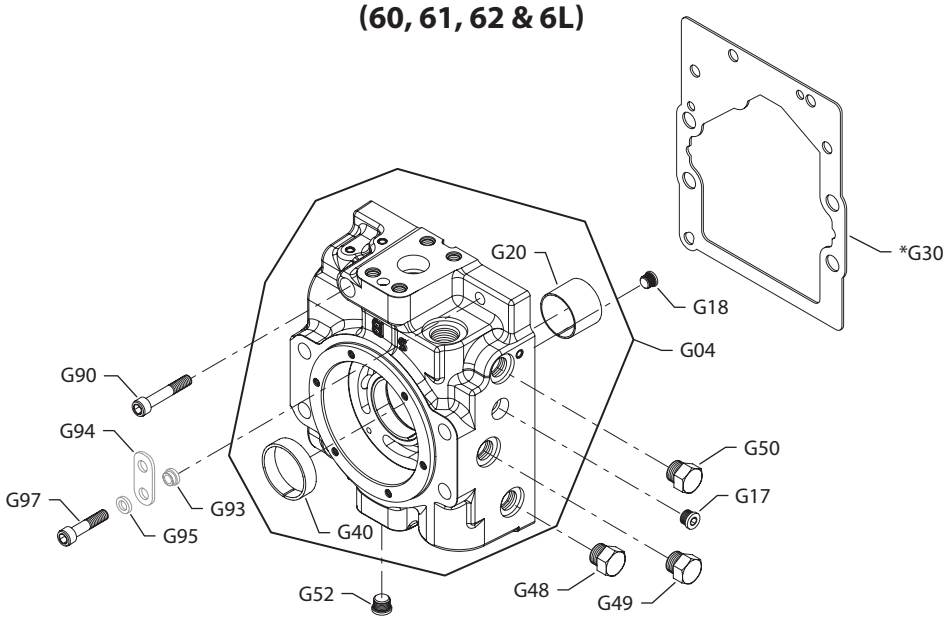
## Variable displacement pump

### Displacement limitation

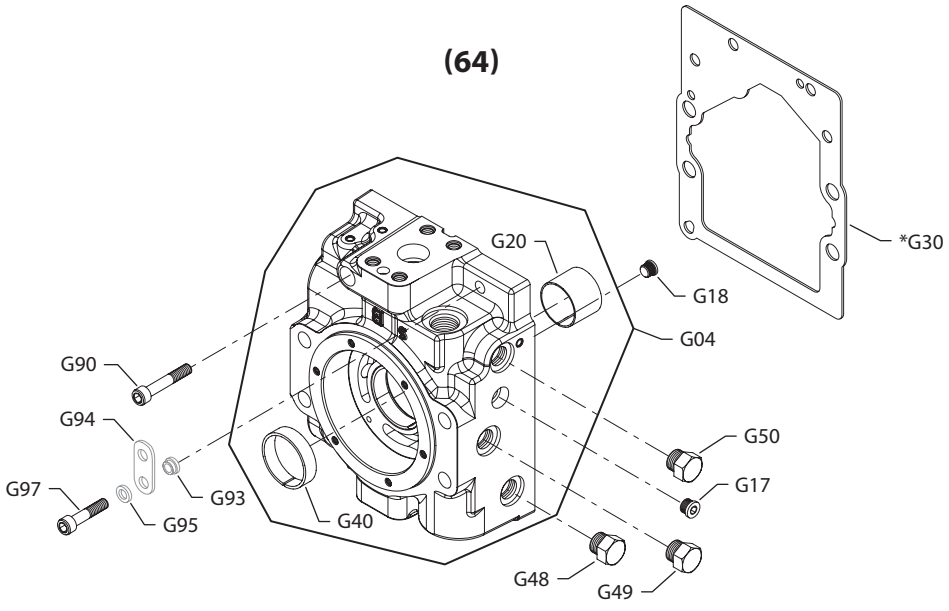
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| N | F10 | 98-40 | | 11046669 | Servo piston assembly | 1 |
| | F015 | 98-40 | | 346395 | Screw | 1 |
| | F016 | 98-40 | | 507092 | Spring guide | 1 |
| | F017 | 98-40 | | 346320 | Servo spring housing | 1 |
| | F018 | 98-40 | | 346254 | Spring | 1 |
| | F019 | 98-40 | | 507093 | Spring guide | 1 |
| | F020 | 98-40 | | 346379 | Retaining ring | 1 |
| | F021 | 98-40 | | 787887 | Castle nut | 1 |
| | F022 | 98-40 | | 336800 | Nut | 1 |
| | F023 | 98-40 | | 11140220 | Adjusting screw | 1 |
| | F105 | 98-40 | | 11054834 | Servo cylinder assembly | 1 |
| | F111 | 98-40 | | 9007210-0604 | Screw | 3 |
| | F112 | 98-40 | | 505412 (9003509-0008) | Seal nut | 1 |
| | F113 | 98-40 | | 5000747 | Set screw | 1 |
| | F200 | 98-40 | | 8000760 | Servo assembly | 1 |
| | F205 | 98-40 | | 11054840 | Servo cylinder assembly | 1 |
| | F211 | 98-40 | | 704395 (9007314-0604) | Screw | 3 |
| | F212 | 98-14 | | 505412 (9003509-0008) | Seal nut | 1 |
| | F213 | 98-14 | | 5000747 | Set screw | 1 |
| | F224 | 98-40 | | 336826 | Seal nut | 1 |

## Variable displacement pump

**(60, 61, 62 & 6L)**




**(64)**




* = included in overhaul seal kit Q210

E100 709E

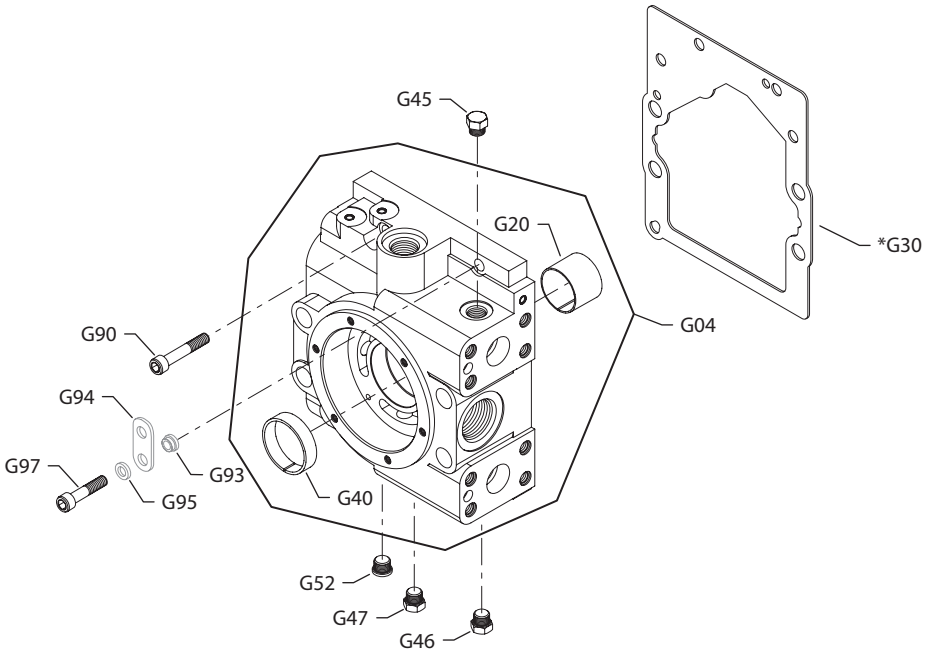
## Variable displacement pump

### End cap

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| | G17 | 92-06 | | 327007 (9005110-4400) | Plug (SB-1992-0003) | 1 |
| | G18 | 92-06 | | 327007 (9005110-4400) | Plug (SB-1992-0003) | 1 |
| | G20 | 87-02 | | 8700018 | Jounal bearing | 1 |
| | G30 | 89-17 | | 8000243 | End cap gasket (SB-1989-037 & SB-1992-003) | 1 |
| | G30 | 87-02 | 89-16 | 8000107 | End cap gasket (SB-1989-009) | 1 |
| | G40 | 87-02 | | 8700008 | Bushing | 1 |
| | G48 | 87-02 | | 046151 (9005100-5600) | Plug assembly | 1 |
| | G49 | 87-02 | | 046151 (9005100-5600) | Plug assembly | 1 |
| | G50 | 87-02 | | 046151 (9005100-5600) | Plug assembly | 1 |
| | G90 | 89-47 | | 713768 (9007314-0812) | Screw (SB-1989-037) | 1 |
| | G93 | 89-47 | | 713800 (8800564) | Spacer | 1 |
| | G93 | 87-02 | 89-46 | 8800404 | Spacer | 1 |
| | G94 | 89-47 | | 8800565 | Lifting bracket | 1 |
| | G94 | 87-02 | 89-46 | 8800522 | Lifting bracket | 1 |
| | G95 | 89-47 | | 002311 (9009610-3459) | Washer | 1 |
| | G95 | 87-02 | 89-46 | 002295 (9009610-2850) | Washer | 1 |
| | G97 | 89-47 | | 746644 (9007314-0810) | Screw (SB-1989-037) | 1 |
| | G97 | 87-02 | 89-46 | 694356 (9007314-0608) | Screw | 1 |
| 6 & 60 | G04 | 92-06 | | 8000259 | End cap assembly, side ports (SB-1992-003) | 1 |
| | G52 | 92-06 | | 9005110-5600 | Plug assembly | 1 |
| 2 & 61 | G04 | 92-06 | | 8000259 | End cap assembly, side ports (SB-1992-003) | 1 |
| | G52 | 92-06 | | 9005110-5600 | Plug assembly | 1 |
| H & 62 | G04 | 94-33 | | 8000353 | End cap assembly, metric side ports | 1 |
| | G52 | 94-33 | | 9005110-5600 | Plug assembly | 1 |
| 4 & 64 | G04 | 95-03 | 10-39 | 771410 | End cap assembly, side ports, FBA | 1 |
| 6L | G04 | 97-24 | | 8000543 | End cap assembly, metric side ports, lapped | 1 |
| | G52 | 97-24 | | 9005110-5600 | Plug assembly | 1 |

## Variable displacement pump

### (80, 81, 82 & 8L)




* = included in overhaul seal kit Q210

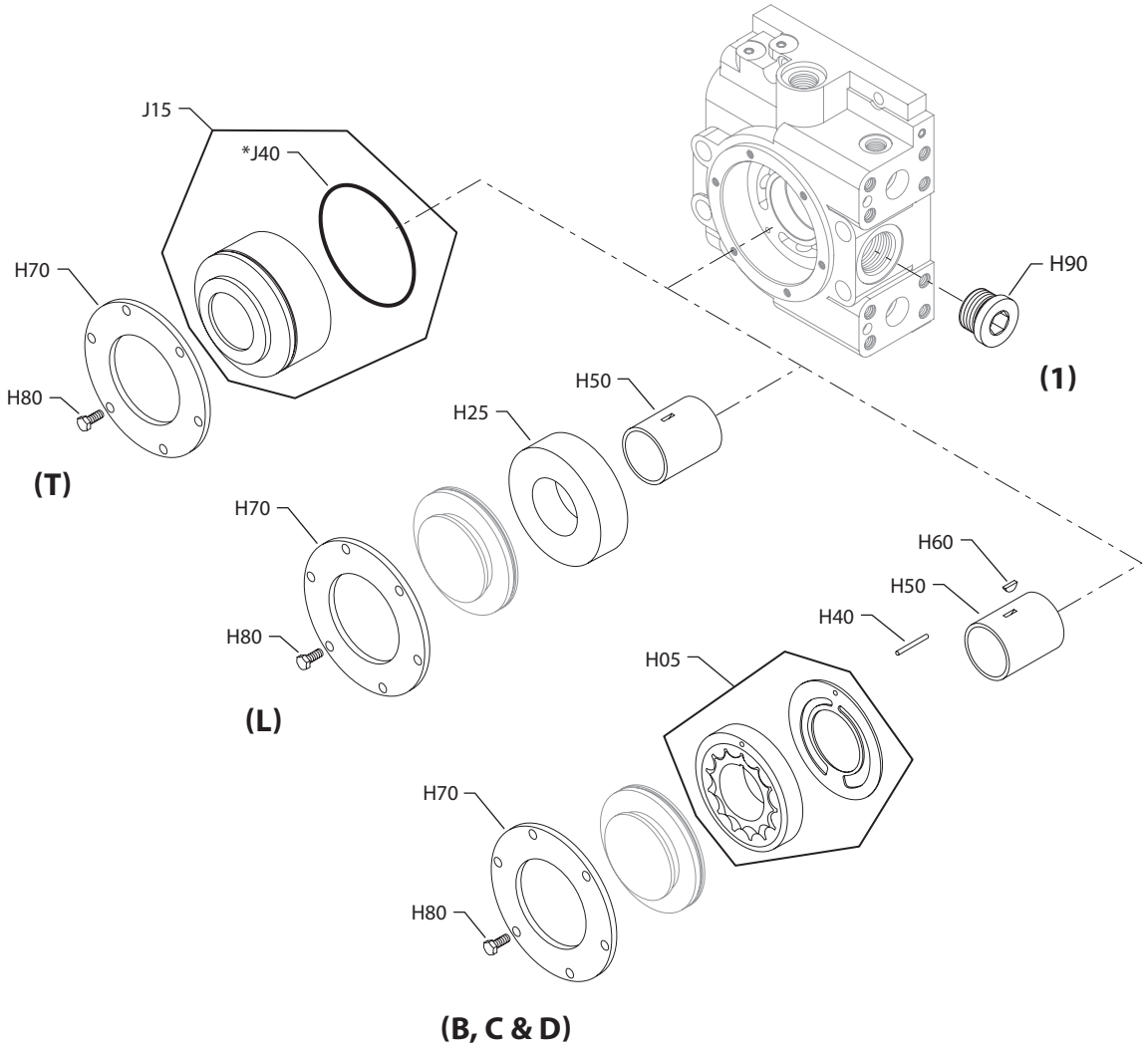
E100 710E

## Variable displacement pump

### End cap

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| | G20 | 87-02 | | 8700018 | Jounal bearing | 1 |
| | G30 | 89-17 | | 8000243 | End cap gasket (SB-1989-037 & SB-1992-003) | 1 |
| | G30 | 87-02 | 89-16 | 8000107 | End cap gasket (SB-1989-009) | 1 |
| | G40 | 87-02 | | 8700008 | Bushing | 1 |
| | G45 | 87-02 | | 046151 (9005100-5600) | Plug assembly | 1 |
| | G46 | 87-02 | | 046151 (9005100-5600) | Plug assembly | 1 |
| | G47 | 87-02 | | 046151 (9005100-5600) | Plug assembly | 1 |
| | G52 | 87-02 | | 9005110-5600 | Plug assembly | 1 |
| | G90 | 89-47 | | 713768 (9007314-0812) | Screw (SB-1989-037) | 1 |
| | G93 | 89-47 | | 713800 (8800564) | Spacer | 1 |
| | G93 | 87-02 | 89-46 | 8800404 | Spacer | 1 |
| | G94 | 89-47 | | 8800565 | Lifting bracket | 1 |
| | G94 | 87-02 | 89-46 | 351643 (8800522) | Lifting bracket | 1 |
| | G95 | 89-47 | | 002311 (9009610-3459) | Washer | 1 |
| | G95 | 87-02 | 89-46 | 002295 (9009610-2850) | Washer | 1 |
| | G97 | 89-47 | | 746644 (9007314-0810) | Screw (SB-1989-037) | 1 |
| | G97 | 87-02 | 89-46 | 694356 (9007314-0608) | Screw | 1 |
| 8 & 80 | G04 | 92-06 | | 8000260 | End cap assembly, twin ports (SB-1992-003) | 1 |
| 1 & 81 | G04 | 92-06 | | 8000260 | End cap assembly, twin ports (SB-1992-003) | 1 |
| 82 | G04 | 97-01 | | 8000414 | End cap assembly, metric twin ports | 1 |
| 8L | G04 | 97-24 | | 8000540 | End cap assembly, metric twin ports, lapped | 1 |

## Variable displacement pump




E100 712E

* = included in overhaul seal kit

## Variable displacement pump

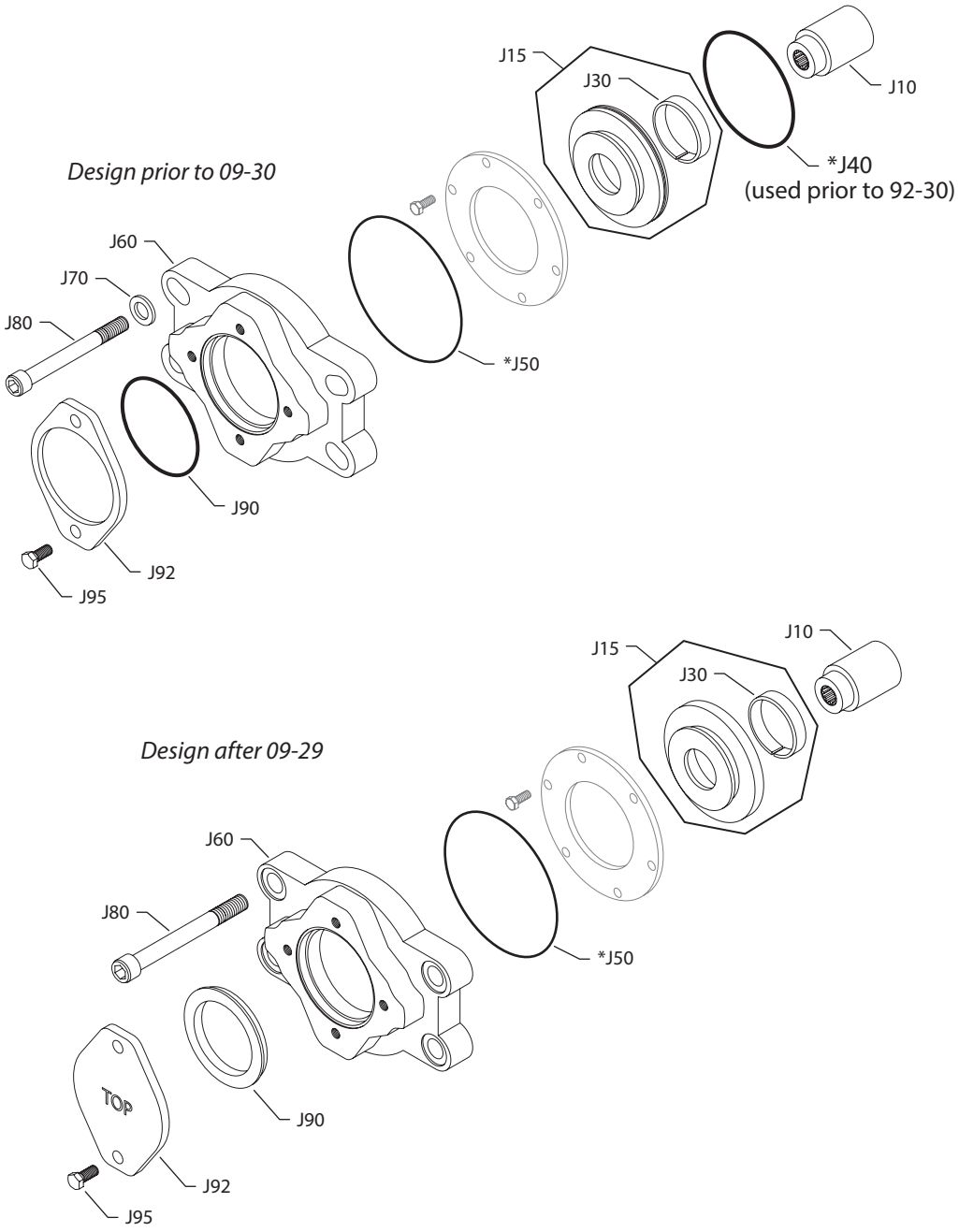
### Charging system

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 1 | H90 | 92-22 | | 320002 (9005110-9200) | Plug assembly | 1 |
| 2 | H90 | 95-02 | | None | | |
| B | H05 | 93-10 | | 8000268 | Charge pump set, 11 cc (SB-1993-001*) | 1 |
| | H40 | 87-02 | | 9004800-1221 | Pin | 1 |
| | H50 | 93-10 | | 8801177 | Charge pump shaft (SB-1993-001* & SB-1998-066) | 1 |
| | H50 | 87-02 | 89-16 | 8000078 | Charge pump shaft (SB-1989-006) | 1 |
| | H60 | 87-02 | | 9003310-1206 | Key | 1 |
| | H70 | 87-02 | | 516761 | Retaining plate | 1 |
| | H80 | 87-02 | | 9007210-0604 | Screw | 6 |
| C | H05 | 93-10 | | 8000269 | Charge pump set, 14 cc (SB-1993-001*) | 1 |
| | H40 | 87-02 | | 9004800-1221 | Pin | 1 |
| | H50 | 93-10 | | 8801177 | Charge pump shaft (SB-1993-001* & SB-1998-066) | 1 |
| | H50 | 87-02 | 89-16 | 8000078 | Charge pump shaft (SB-1989-006) | 1 |
| | H60 | 87-02 | | 9003310-1206 | Key | 1 |
| | H70 | 87-02 | | 516761 | Retaining plate | 1 |
| | H80 | 87-02 | | 9007210-0604 | Screw | 6 |
| D | H05 | 93-10 | | 8000270 | Charge pump set, 17 cc (SB-1993-001*) | 1 |
| | H40 | 87-02 | | 9004800-1221 | Pin | 1 |
| | H50 | 93-10 | | 8801177 | Charge pump shaft (SB-1993-001* & SB-1998-066) | 1 |
| | H50 | 87-02 | 89-16 | 8000078 | Charge pump shaft (SB-1989-006) | 1 |
| | H60 | 87-02 | | 9003310-1206 | Key | 1 |
| | H70 | 87-02 | | 516761 | Retaining plate | 1 |
| | H80 | 87-02 | | 9007210-0604 | Screw | 6 |
| L | H25 | 87-02 | | 342543 (8800466-0055) | Charge pump spacer | 1 |
| | H50 | 93-10 | | 8801177 | Charge pump shaft (SB-1993-001* & SB-1998-066) | 1 |
| | H50 | 87-02 | 89-16 | 8000078 | Charge pump shaft (SB-1989-006) | 1 |
| | H70 | 87-02 | | 516761 | Retaining plate | 1 |
| | H80 | 87-02 | | 9007210-0604 | Screw | 6 |
| | H90 | 87-02 | | 320002 (9005110-9200) | Plug assembly | 1 |
| T | H70 | 99-11 | | 516761 | Retaining plate | 1 |
| | H80 | 99-11 | | 9007210-0604 | Screw | 6 |
| | J15 | 99-11 | | 8000704 | Spacer assembly | 1 |
| | J40 | 99-11 | | 680892 (9004104-0440) | O-ring | 1 |

* For information regarding replacement parts for units built from 89-17 to 93-09, refer to BLN-10107 in the appendix.

## Variable displacement pump

### (AB, AC, AD & AF)




E100 713E

∗ = included in overhaul seal kit Q210

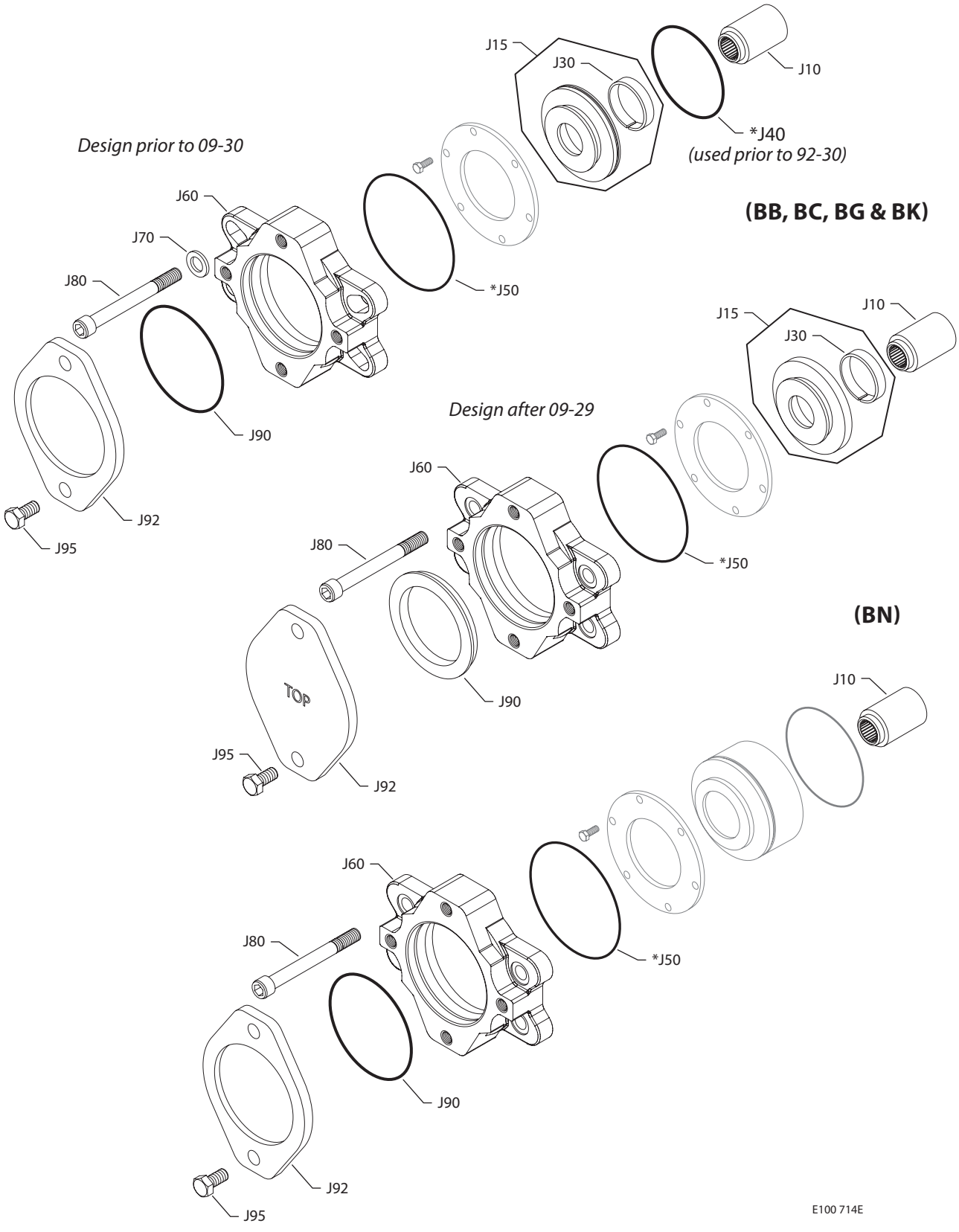
## Variable displacement pump

### Auxiliary mounting

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| AB & AD | J10 | 87-02 | | 8000075 | Coupling, 9 tooth | 1 |
| | J15 | 87-02 | | 8800832 | Cover assembly, CW (SB-1993-001* & SB-2005-011) | 1 |
| | J15 | 87-02 | | 8800833 | Cover assembly, CCW (SB-1993-001* & SB-2005-011) | 1 |
| | J30 | 87-02 | | 8700008 | Bushing | 1 |
| | J40 | 87-02 | 92-29 | 680892 (9004104-0440) | O-ring | 1 |
| | J50 | 87-02 | | 056739 (9004104-1580) | O-ring | 1 |
| | J60 | 87-02 | | 8000641 | Flange adaptor (SB-2007-027B) | 1 |
| | J70 | 87-02 | 07-43 | 5000601 | Washer (SB-2007-027B) | 4 |
| | J80 | 87-02 | | 324152 (9007314-1221) | Screw, M12 x 120 | 4 |
| | J90 | 07-44 | | 4800482 | A pad seal | 1 |
| | J90 | 87-02 | 07-43 | 726950 (9004104-0420) | O-ring (SB-2007-027B) | 1 |
| | J92 | 07-44 | | 4460586 | Cover plate | 1 |
| | J92 | 87-02 | 07-43 | 9802336 | Cover plate (SB-2007-027B) | 1 |
| | J95 | 87-02 | | 9007200-3714 | Screw | 2 |
| AC & AF | J10 | 87-02 | | 11053344 | Coupling, 11 tooth | 1 |
| | J15 | 87-02 | | 8800832 | Cover assembly, CW (SB-1993-001* & SB-2005-011) | 1 |
| | J15 | 87-02 | | 8800833 | Cover assembly, CCW (SB-1993-001* & SB-2005-011) | 1 |
| | J30 | 87-02 | | 8700008 | Bushing | 1 |
| | J40 | 87-02 | 92-29 | 680892 (9004104-0440) | O-ring | 1 |
| | J50 | 87-02 | | 056739 (9004104-1580) | O-ring | 1 |
| | J60 | 87-02 | | 8000641 | Flange adaptor (SB-2007-027B) | 1 |
| | J70 | 87-02 | 07-43 | 5000601 | Washer (SB-2007-027B) | 4 |
| | J80 | 87-02 | | 324152 (9007314-1221) | Screw, M12 x 120 | 4 |
| | J90 | 07-44 | | 4800482 | A pad seal | 1 |
| | J90 | 87-02 | 07-43 | 726950 (9004104-0420) | O-ring | 1 |
| | J92 | 07-44 | | 4460586 | Cover plate | 1 |
| | J92 | 87-02 | 07-43 | 9802336 | Cover plate | 1 |
| | J95 | 87-02 | | 9007200-3714 | Screw | 2 |

* For information regarding replacement parts for units built from 89-17 to 93-09, refer to BLN-10107 in the appendix.

## Variable displacement pump




* = included in overhaul seal kit Q210

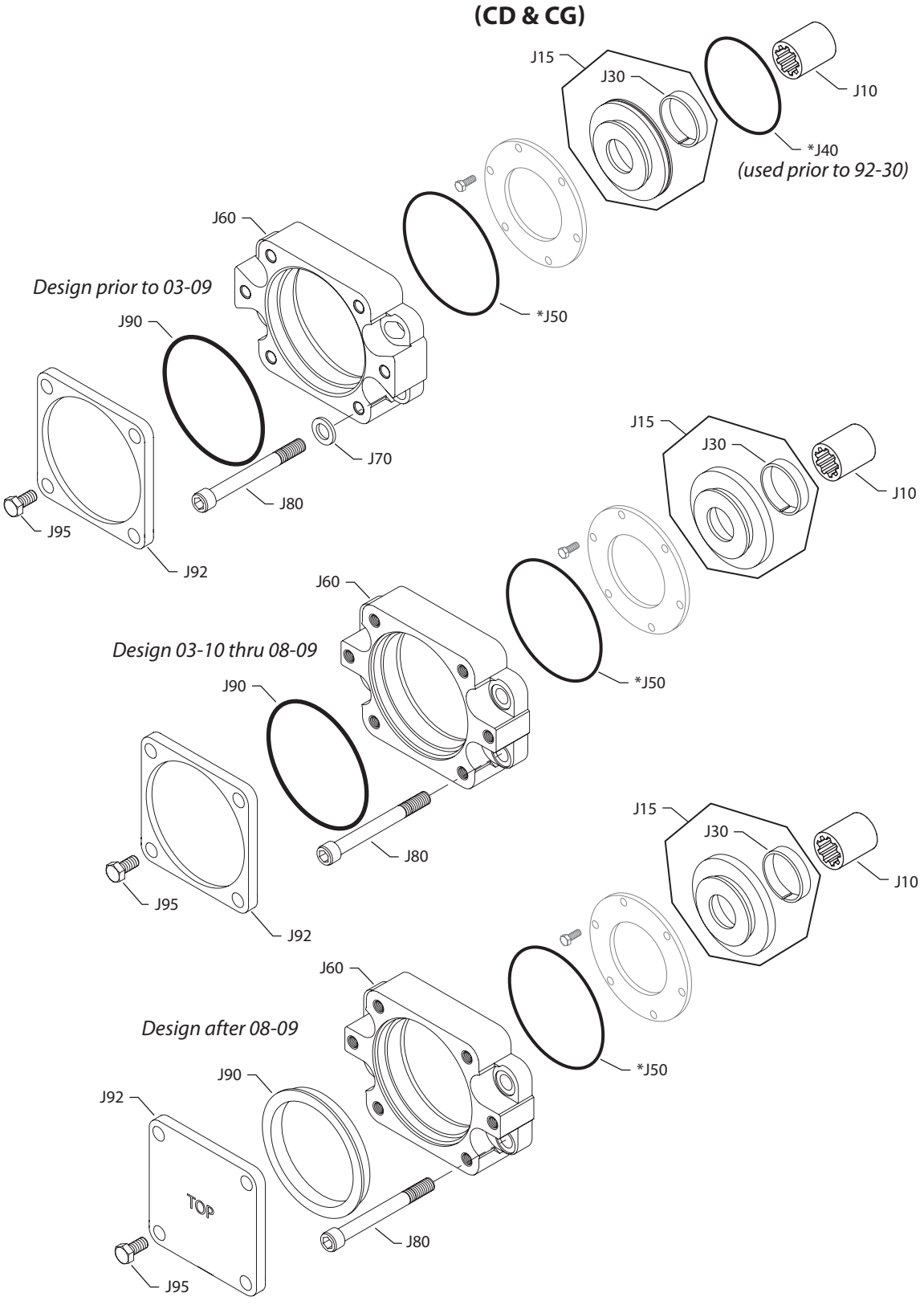
## Variable displacement pump

### Auxiliary mounting

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| BB & BK | J10 | 87-02 | | 11053343 | Coupling, 15 tooth | 1 |
| | J15 | 87-02 | | 8800832 | Cover assembly, CW (SB-1993-001* & SB-2005-011) | 1 |
| | J15 | 87-02 | | 8800833 | Cover assembly, CCW (SB-1993-001* & SB-2005-011) | 1 |
| | J30 | 87-02 | | 8700008 | Bushing | 1 |
| | J40 | 87-02 | 92-15 | 680892 (9004104-0440) | O-ring | 1 |
| | J50 | 87-02 | | 056739 (9004104-1580) | O-ring | 1 |
| | J60 | 87-02 | | 8000642 | Flange adaptor (SB-2007-055A) | 1 |
| | J70 | 87-02 | 08-10 | 5000601 | Washer (SB-2007-027B) | 4 |
| | J80 | 87-02 | | 324152 (9007314-1221) | Screw, M12 x 120 | 4 |
| | J90 | 08-11 | | 8801061 | B pad seal | 1 |
| | J90 | 87-02 | 08-10 | 726935 (9004104-0450) | O-ring (SB-2007-055A) | 1 |
| | J92 | 08-11 | | 8801059 | Cover plate | 1 |
| | J92 | 87-02 | 08-10 | 4460370 | Cover plate (SB-2007-055A) | 1 |
| | J95 | 87-02 | | 9007200-5021 | Screw | 2 |
| BC & BG | J10 | 87-02 | | 8000076 | Coupling, 13 tooth | 1 |
| | J15 | 87-02 | | 8800832 | Cover assembly, CW (SB-1993-001* & SB-2005-011) | 1 |
| | J15 | 87-02 | | 8800833 | Cover assembly, CCW (SB-1993-001* & SB-2005-011) | 1 |
| | J30 | 87-02 | | 8700008 | Bushing | 1 |
| | J40 | 87-02 | 92-15 | 680892 (9004104-0440) | O-ring | 1 |
| | J50 | 87-02 | | 056739 (9004104-1580) | O-ring | 1 |
| | J60 | 87-02 | | 8000642 | Flange adaptor (SB-2007-055A) | 1 |
| | J70 | 87-02 | 08-10 | 5000601 | Washer (SB-2007-055A) | 4 |
| | J80 | 87-02 | | 324152 (9007314-1221) | Screw, M12 x 120 | 4 |
| | J90 | 07-44 | | 8801061 | B pad seal | 1 |
| | J90 | 87-02 | 08-10 | 726935 (9004104-0450) | O-ring (SB-2007-055A) | 1 |
| | J92 | 08-11 | | 8801059 | Cover plate (SB-2007-055A) | 1 |
| | J92 | 87-02 | 08-10 | 4460370 | Cover plate (SB-2007-055A) | 1 |
| | J95 | 87-02 | | 9007200-5021 | Screw | 2 |
| BN | J10 | 98-24 | | 8000076 | Coupling, 13 tooth | 1 |
| | J50 | 98-24 | | 056739 (9004104-1580) | O-ring | 1 |
| | J60 | 98-24 | | 8000771 | Flange adaptor, metric (SB-2010-005) | 1 |
| | J70 | 98-24 | 10-49 | 506753 | Washer (SB-2010-005) | 4 |
| | J80 | 98-24 | | 507585 | Screw, M12 x 110 | 4 |
| | J90 | 10-50 | | 9004104-1540 | O-ring | 1 |
| | J90 | 98-24 | 10-49 | 726935 (9004104-0450) | O-ring (SB-2010-005) | 1 |
| | J92 | 98-24 | | 4460370 | Cover plate | 1 |
| | J95 | 98-24 | | 370320 | Screw | 2 |

* For information regarding replacement parts for units built from 89-17 to 93-09, refer to BLN-10107 in the appendix.

## Variable displacement pump




* = included in overhaul seal kit Q210

## Variable displacement pump

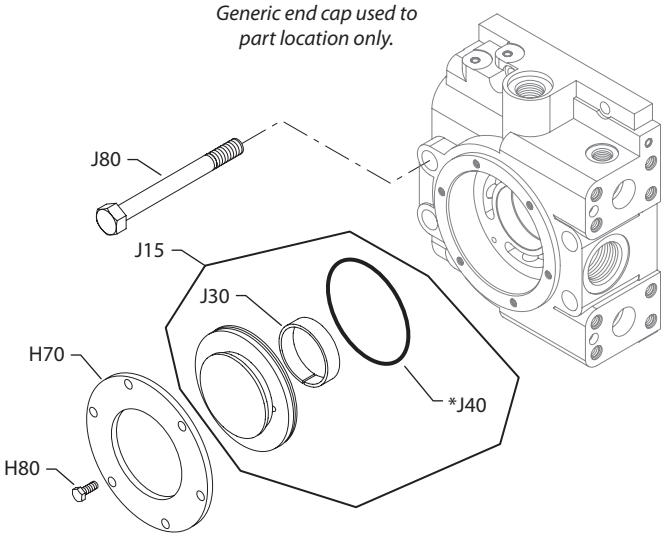
### Auxiliary mounting

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| CD | J10 | 87-02 | | 11053340 | Coupling, 14 tooth | 1 |
| | J15 | 87-02 | | 8800832 | Cover assembly, CW (SB-1993-001* & SB-2005-011) | 1 |
| | J15 | 87-02 | | 8800833 | Cover assembly, CCW (SB-1993-001* & SB-2005-011) | 1 |
| | J30 | 87-02 | | 8700008 | Bushing | 1 |
| | J40 | 87-02 | 92-15 | 680892 (9004104-0440) | O-ring | 1 |
| | J50 | 87-02 | | 056739 (9004104-1580) | O-ring | 1 |
| | J60 | 87-02 | | 8000740 | Flange adaptor (SB-2002-050 & SB-2007-051) | 1 |
| | J70 | 87-02 | 03-10 | 5000602 | Washer (SB-2002-050) | 4 |
| | J80 | 87-02 | | 324152 (9007314-1221) | Screw, M12 x 120 | 4 |
| | J90 | 08-10 | | 11081805 | C pad seal | 1 |
| | J90 | 87-02 | 08-09 | 719179 (9004100-0480) | O-ring (SB-2007-051) | 1 |
| | J92 | 08-10 | | 8801060 | Cover plate | 1 |
| | J92 | 87-02 | 08-09 | 8800406 | Cover plate (SB-2007-051) | 1 |
| | J95 | 87-02 | | 9007200-5021 | Screw | 4 |
| CG | J10 | 04-44 | | 11053343 | Coupling, 15 tooth | 1 |
| | J15 | 04-44 | | 8800832 | Cover assembly, CW (SB-2005-011) | 1 |
| | J15 | 04-44 | | 8800833 | Cover assembly, CCW (SB-2005-011) | 1 |
| | J30 | 04-44 | | 8700008 | Bushing | 1 |
| | J50 | 04-44 | | 056739 (9004104-1580) | O-ring | 1 |
| | J60 | 04-44 | | 8000740 | Flange adaptor (SB-2007-051) | 1 |
| | J80 | 04-44 | | 324152 (9007314-1221) | Screw, M12 x 120 | 4 |
| | J90 | 08-10 | | 11081805 | C pad seal | 1 |
| | J90 | 04-44 | 08-10 | 719179 (9004100-0480) | O-ring (SB-2007-051) | 1 |
| | J92 | 08-10 | | 8801060 | Cover plate | 1 |
| | J92 | 04-44 | 08-09 | 8800406 | Cover plate (SB-2007-051) | 1 |
| | J95 | 04-44 | | 9007200-5021 | Screw | 4 |

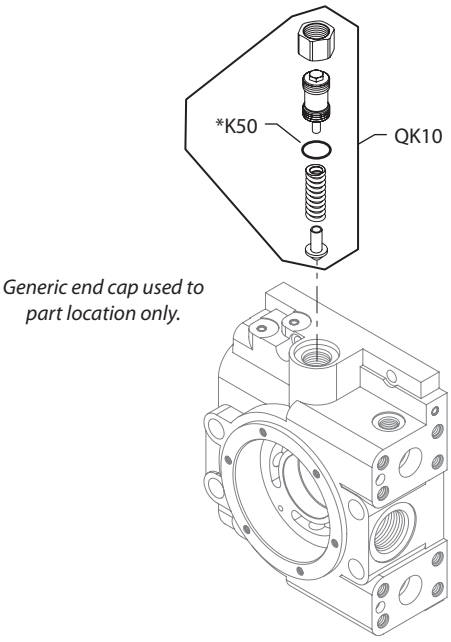
* For information regarding replacement parts for units built from 89-17 to 93-09, refer to BLN-10107 in the appendix.

## Variable displacement pump

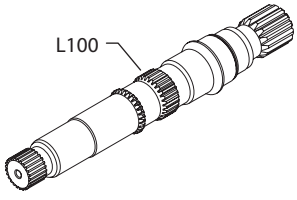
### (NN)



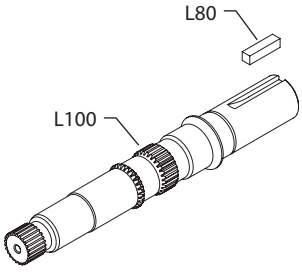

### (00-42 & XX)



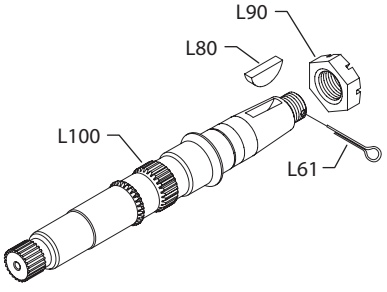

### (C6, C9, D9 & S1)




### (K1)




### (T1)




E100 715E

* = included in control seal kit Q210

## Variable displacement pump

### Auxiliary mounting

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| NN | J15 | 87-02 | | 8800834 | Cover assembly, (SB-1993-001) | 1 |
| | J30 | 87-02 | | 8700008 | Bushing | 1 |
| | J40 | 87-02 | | 680892 (9004104-0440) | O-ring | 1 |
| | J80 | 87-02 | | 324202 (9007210-1219) | Screw, M12 x 100 | 4 |

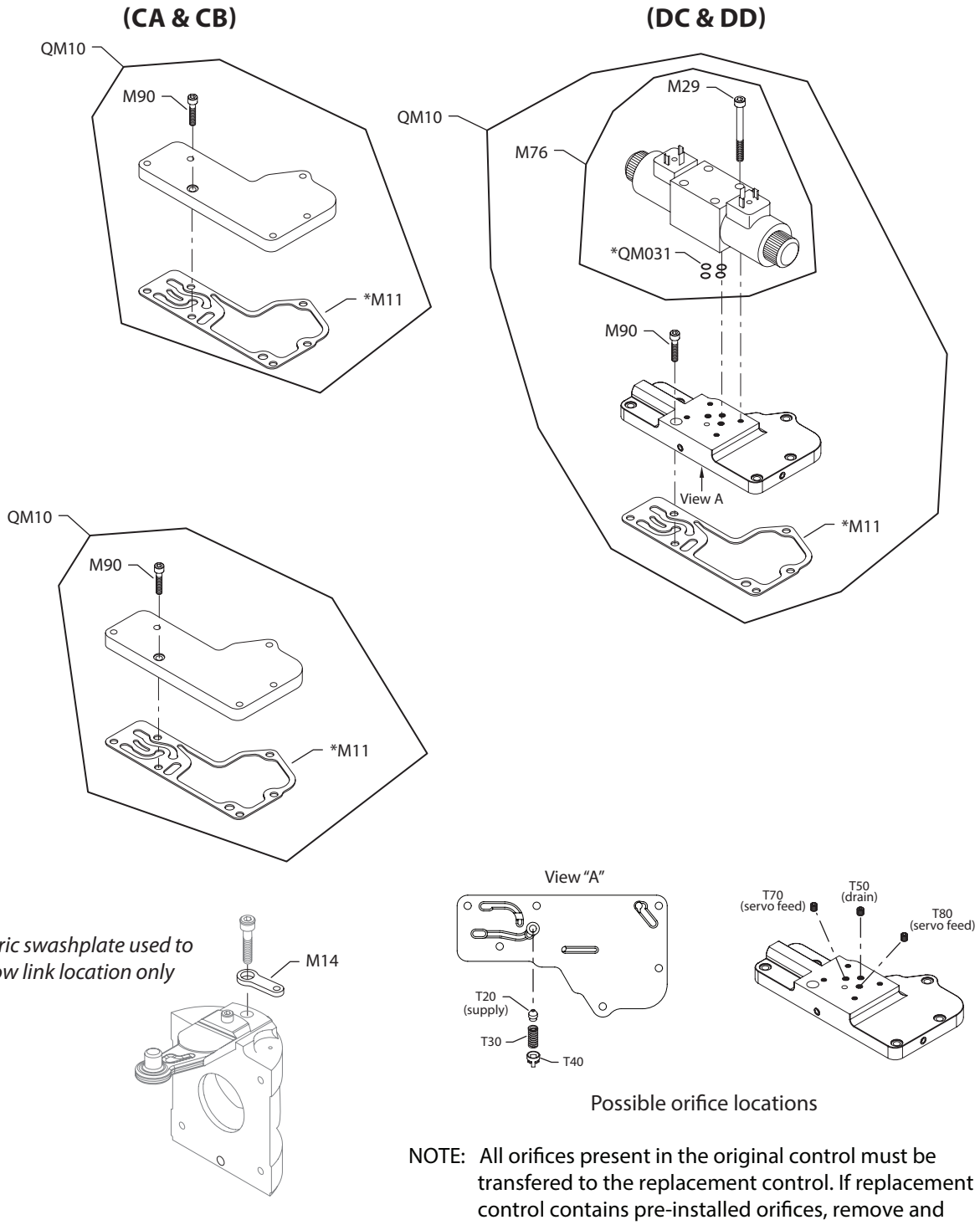
### Charge pressure setting

| | | | | | | |
|---|---|---|---|---|---|---|
| 00-30 | QK10 | 87-42 | | 8002K000-A | Charge relief valve kit, 10-30 bar (SB-1989-002) | 1 |
| | K50 | 87-42 | | 001149 (9004201-6200) | O-ring (SB-1989-002) | 1 |
| 32-42 | QK10 | 94-13 | | 8510269 | Charge relief valve kit, 30-42 bar | 1 |
| | K50 | 94-13 | | 001149 (9004201-6200) | O-ring | 1 |
| XX | QK10 | 96-23 | | 11086335 | Charge relief valve kit, viton | 1 |
| | K50 | 96-23 | | 012559 (9004202-6200) | O-ring, viton | 1 |

### Shaft

| | | | | | | |
|---|---|---|---|---|---|---|
| C6 | L100 | 87-02 | | 8000079 | Shaft, 21 tooth spline | 1 |
| C9 | L100 | 96-10 | | 503396 | Shaft, 21 tooth spline | 1 |
| D9 | L100 | 96-40 | | 500069 | Shaft, 21 tooth spline, M10 threaded tapped hole | 1 |
| K1 | L80 | 87-36 | | 9003261-3124 | Key | 1 |
| | L100 | 87-36 | | 8000175 | Shaft, straight key, 1.375" diameter | 1 |
| S1 | L100 | 87-02 | | 8000112 | Shaft, 14 tooth spline | 1 |
| T1 | L61 | 87-34 | | 716779 (9004600-1230) | Cotter pin | 1 |
| | L80 | 87-34 | | 9003310-3724 | Key | 1 |
| | L90 | 87-34 | | 5000606 | Slotted nut | 1 |
| | L100 | 87-34 | | 8000166 | Shaft, tapered | 1 |

## Variable displacement pump




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E100 716E

* = included in control seal kit QM210

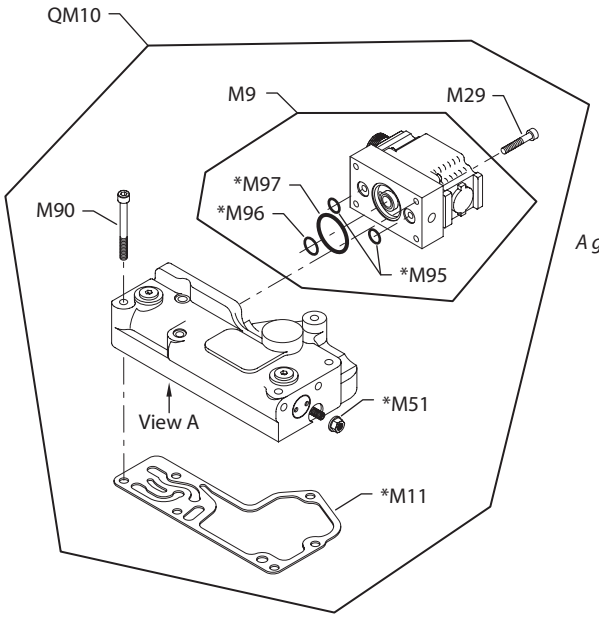
## Variable displacement pump

### Control

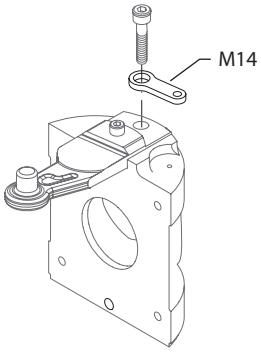
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| CA | M11 | 87-02 | | 8800520 | Control gasket | 1 |
| | M90 | 87-02 | | 693341 (9007314-0606) | Screw | 6 |
| | QM10 | 87-02 | | 8002M0CA-A | Control cover plate kit | 1 |
| CB | M11 | 87-02 | | 8800520 | Control gasket | 1 |
| | M14 | 96-40 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M14 | 87-02 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M90 | 87-02 | | 693341 (9007314-0606) | Screw | 6 |
| | QM10 | 87-02 | | 8002M0CA-A | Control cover plate kit | 1 |
| DC | M11 | 87-02 | | 8800520 | Control gasket | 1 |
| | M29 | 87-02 | | 035592 | Screw | 4 |
| | M76 | 87-02 | | 687103 | Solenoid valve, 12 volt | 1 |
| | M90 | 87-02 | | 693341 (9007314-0606) | Screw | 6 |
| | QM10 | 87-02 | | 8002M0DC-A | 3-position control kit, 12 volt | 1 |
| | QM031 | 87-02 | | 11099647 | Valve seal kit | 1 |
| | QM210 | 87-02 | | 11096161 | Control seal kit | 1 |
| DD | M11 | 87-02 | | 8800520 | Control gasket | 1 |
| | M29 | 87-02 | | 035592 | Screw | 4 |
| | M76 | 87-02 | | 549907/P | Solenoid valve, 24 volt | 1 |
| | M90 | 87-02 | | 693341 (9007314-0606) | Screw | 6 |
| | QM10 | 87-02 | | 8510314 | 3-position control kit, 24 volt | 1 |
| | QM031 | 87-02 | | 11099647 | Valve seal kit | 1 |
| | QM210 | 87-02 | | 11096161 | Control seal kit | 1 |

## Variable displacement pump

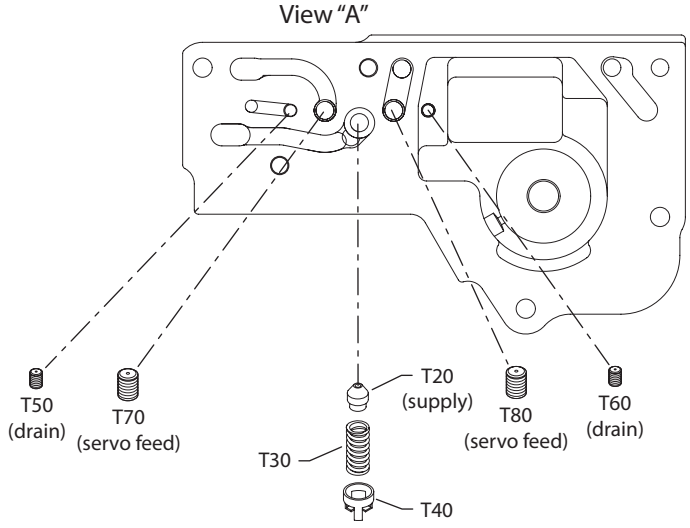
### (EA, EF, EG & EK)




*A generic PCP is shown.*




*Generic swashplate used to show link location only*




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E100 717E

* = included in control seal kit QM210

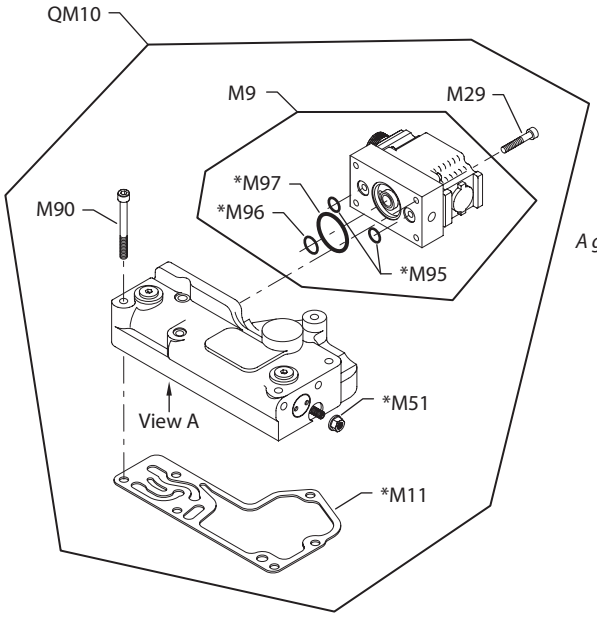
## Variable displacement pump

### Control

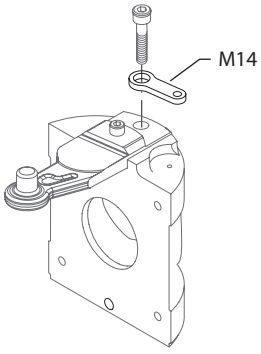
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| EA | M9 | 91-16 | | MCV110A1017 | PCP, MS connector | 1 |
| | M11 | 91-16 | | 8800520 | Control gasket | 1 |
| | M14 | 96-40 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M14 | 91-16 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M29 | 91-16 | | K07067 | Screw | 4 |
| | M51 | 91-16 | | 505412 (9003509-0008) | Seal nut | 1 |
| | M90 | 91-16 | | 692889 (9007314-0611) | Screw | 6 |
| | M95 | 91-16 | | 318337 (9004104-0120) | O-ring | 2 |
| | M96 | 91-16 | | 011304 (9004104-0140) | O-ring | 1 |
| | M97 | 91-16 | | 318345 (9004104-0240) | O-ring | 1 |
| | QM10 | 91-16 | | 8002M0EA-B | EDC kit, MS connector | 1 |
| | QM210 | 91-16 | | 11096173 | Control kit | 1 |
| EF | M9 | 92-18 | | MCV110A1058 | PCP, Weatherpack connector | 1 |
| | M11 | 92-18 | | 8800520 | Control gasket | 1 |
| | M14 | 96-40 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M14 | 92-18 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M29 | 92-18 | | K07067 | Screw | 4 |
| | M51 | 92-18 | | 505412 (9003509-0008) | Seal nut | 1 |
| | M90 | 92-18 | | 692889 (9007314-0611) | Screw | 6 |
| | M95 | 92-18 | | 318337 (9004104-0120) | O-ring | 2 |
| | M96 | 92-18 | | 011304 (9004104-0140) | O-ring | 1 |
| | M97 | 92-18 | | 318345 (9004104-0240) | O-ring | 1 |
| | QM10 | 92-18 | | 8510125 | EDC kit, Weatherpack connector | 1 |
| | QM210 | 92-18 | | 11096173 | Control seal kit | 1 |
| EG | M9 | 98-44 | | MCV110A1018 | PCP, MS connector | 1 |
| | M11 | 98-44 | | 8800520 | Control gasket | 1 |
| | M14 | 98-44 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M29 | 98-44 | | K07067 | Screw | 4 |
| | M51 | 98-44 | | 505412 (9003509-0008) | Seal nut | 1 |
| | M90 | 98-44 | | 692889 (9007314-0611) | Screw | 6 |
| | M95 | 98-44 | | 318337 (9004104-0120) | O-ring | 2 |
| | M96 | 98-44 | | 011304 (9004104-0140) | O-ring | 1 |
| | M97 | 98-44 | | 318345 (9004104-0240) | O-ring | 1 |
| | QM10 | 98-44 | | 11097000 | EDC kit, MS connector | 1 |
| | QM210 | 98-44 | | 11096173 | Control seal kit | 1 |
| EK | M9 | 99-16 | | MCV110A1014 | PCP, Deutsch connector | 1 |
| | M11 | 99-16 | | 8800520 | Control gasket | 1 |
| | M14 | 99-16 | | 11070305 | Feedback link | 1 |
| | M29 | 99-16 | | K07067 | Screw | 4 |
| | M51 | 99-16 | | 505412 (9003509-0008) | Seal nut | 1 |
| | M90 | 99-16 | | 692889 (9007314-0611) | Screw | 6 |
| | M95 | 99-16 | | 318337 (9004104-0120) | O-ring | 2 |
| | M96 | 99-16 | | 011304 (9004104-0140) | O-ring | 1 |
| | M97 | 99-16 | | 318345 (9004104-0240) | O-ring | 1 |
| | QM10 | 99-16 | | 8510379 | EDC kit, Deutsch connector | 1 |
| | QM210 | 99-16 | | 11096173 | Control seal kit | 1 |

## Variable displacement pump

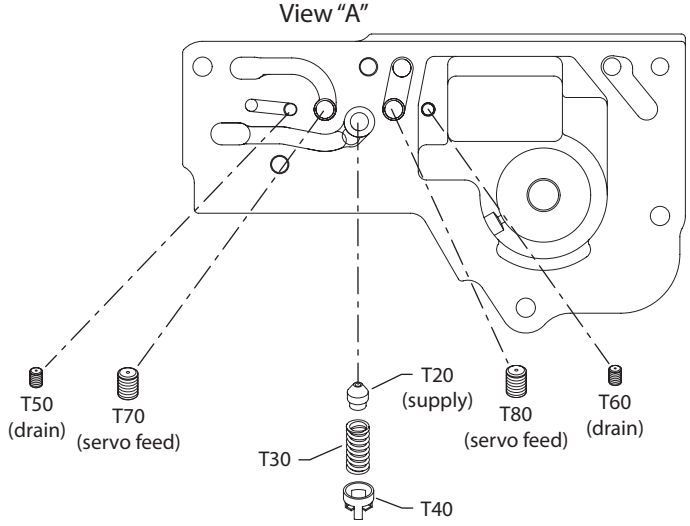
### (EP & EX)




*A generic PCP is shown.*




*Generic swashplate used to show link location only*




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E100 717E

* = included in control seal kit QM210

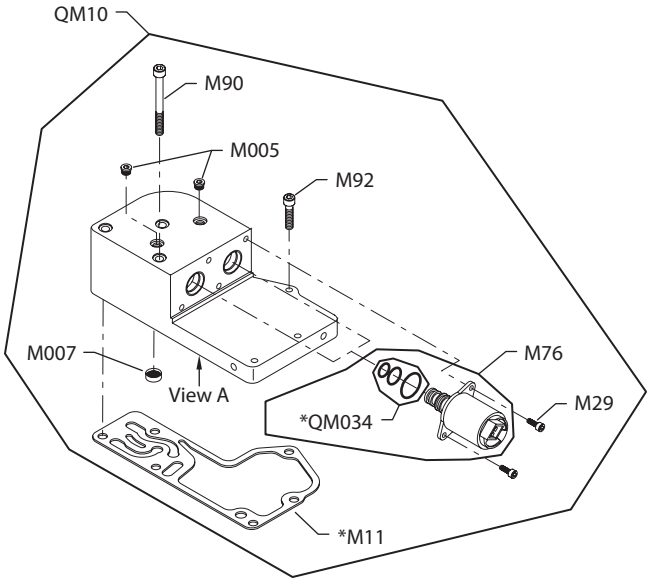
## Variable displacement pump

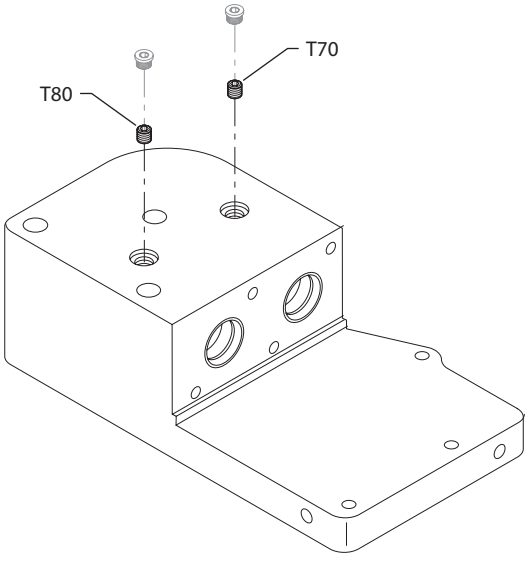
### Control

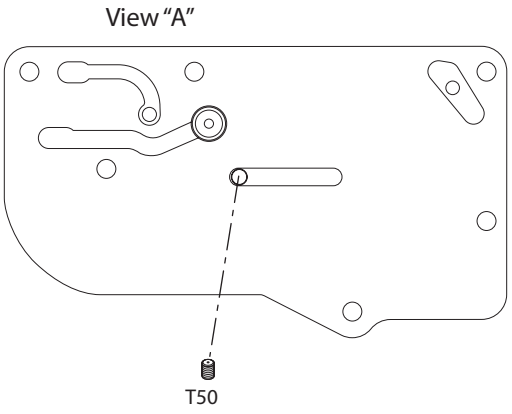
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| EP | M9 | 91-07 | | MCV110A1058 | PCP, Packard connector | 1 |
| | M11 | 91-07 | | 8800520 | Control gasket | 1 |
| | M14 | 96-40 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M14 | 91-07 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M29 | 91-07 | | K07067 | Screw | 4 |
| | M51 | 91-07 | | 505412 (9003509-0008) | Seal nut | 1 |
| | M90 | 91-07 | | 692889 (9007314-0611) | Screw | 6 |
| | M95 | 91-07 | | 318337 (9004104-0120) | O-ring | 2 |
| | M96 | 91-16 | | 011304 (9004104-0140) | O-ring | 1 |
| | M97 | 91-16 | | 318345 (9004104-0240) | O-ring | 1 |
| | QM10 | 91-16 | | 8002M0EP-B | EDC kit, Packard connector | 1 |
| | QM210 | 91-16 | | 11096173 | Control seal kit | 1 |
| EX | M9 | 93-16 | | MCV110A1090 | PCP, Metri-pack connector | 1 |
| | M11 | 93-16 | | 8800520 | Control gasket | 1 |
| | M14 | 96-40 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M14 | 93-16 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M29 | 93-16 | | K07067 | Screw | 4 |
| | M51 | 93-16 | | 505412 (9003509-0008) | Seal nut | 1 |
| | M90 | 93-16 | | 692889 (9007314-0611) | Screw | 6 |
| | M95 | 93-16 | | 318337 (9004104-0120) | O-ring | 2 |
| | M96 | 93-16 | | 011304 (9004104-0140) | O-ring | 1 |
| | M97 | 93-16 | | 318345 (9004104-0240) | O-ring | 1 |
| | QM10 | 93-16 | | 8002M0EX-B | EDC kit, Metri-pack connector | 1 |
| | QM210 | 93-16 | | 11096173 | Control seal kit | 1 |

## Variable displacement pump

### (FA, FB, FC & FD)




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E101 873E

* = included in control seal kit QM210

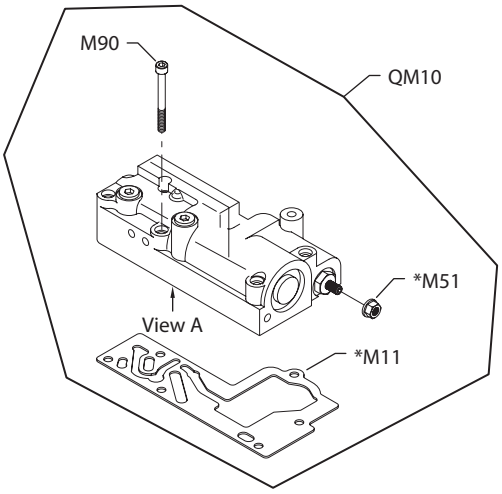
## Variable displacement pump

### Control

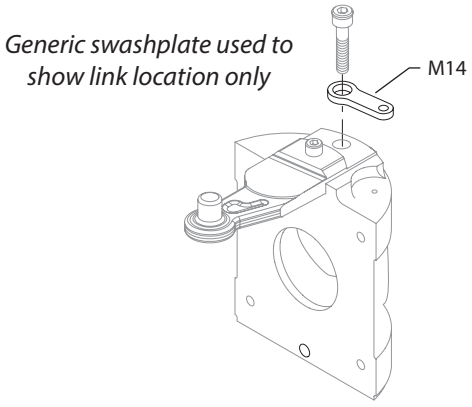
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| FA | M11 | 98-14 | | 8800520 | Control gasket | 1 |
| | M29 | 98-14 | | 067694 | Screw | 4 |
| | M76 | 98-14 | | 518080 | Solenoid valve, 12 volt, 25 bar | 2 |
| | M90 | 98-14 | | 9007314-0614 | Screw | 3 |
| | M92 | 98-14 | | 041160 (9007314-0605) | Screw | 3 |
| | M005 | 98-14 | | 11040532 | Plug assembly | 2 |
| | M007 | 98-14 | | K00775 | Filter screen | 1 |
| | QM10 | 98-14 | | 11067537 | NFPE control, 12 volt, 25 bar | 1 |
| | QM034 | 98-14 | | 11099849 | Valve seal kit | 2 |
| | QM210 | 98-14 | | 11100027 | Control seal kit | 1 |
| FB | M11 | 98-14 | | 8800520 | Control gasket | 1 |
| | M29 | 98-14 | | 067694 | Screw | 4 |
| | M76 | 98-14 | | 518081 | Solenoid valve, 24 volt, 25 bar | 2 |
| | M90 | 98-14 | | 9007314-0614 | Screw | 3 |
| | M92 | 98-14 | | 041160 (9007314-0605) | Screw | 3 |
| | M005 | 98-14 | | 11040532 | Plug assembly | 2 |
| | M007 | 98-14 | | K00775 | Filter screen | 1 |
| | QM10 | 98-14 | | 11067538 | NFPE control, 24 volt, 25 bar | 1 |
| | QM034 | 98-14 | | 11099849 | Valve seal kit | 2 |
| | QM210 | 98-14 | | 11100027 | Control seal kit | 1 |
| FC | M11 | 98-14 | | 8800520 | Control gasket | 1 |
| | M29 | 98-14 | | 067694 | Screw | 4 |
| | M76 | 98-14 | | 521709 | Solenoid valve, 12 volt, 32 bar | 2 |
| | M90 | 98-14 | | 9007314-0614 | Screw | 3 |
| | M92 | 98-14 | | 041160 (9007314-0605) | Screw | 3 |
| | M005 | 98-14 | | 11040532 | Plug assembly | 2 |
| | M007 | 98-14 | | K00775 | Filter screen | 1 |
| | QM10 | 98-14 | | 8510220 | NFPE control, 12 volt, 32 bar | 1 |
| | QM034 | 98-14 | | 11099849 | Valve seal kit | 2 |
| | QM210 | 98-14 | | 11100027 | Control seal kit | 1 |
| FD | M11 | 98-14 | | 8800520 | Control gasket | 1 |
| | M29 | 98-14 | | 067694 | Screw | 4 |
| | M76 | 98-14 | | 517214 | Solenoid valve, 24 volt, 32 bar | 2 |
| | M90 | 98-14 | | 9007314-0614 | Screw | 3 |
| | M92 | 98-14 | | 041160 (9007314-0605) | Screw | 3 |
| | M005 | 98-14 | | 11040532 | Plug assembly | 2 |
| | M007 | 98-14 | | K00775 | Filter screen | 1 |
| | QM10 | 98-14 | | 8510380 | NFPE control, 24 volt, 32 bar | 1 |
| | QM034 | 98-14 | | 11099849 | Valve seal kit | 2 |
| | QM210 | 98-14 | | 11100027 | Control seal kit | 1 |

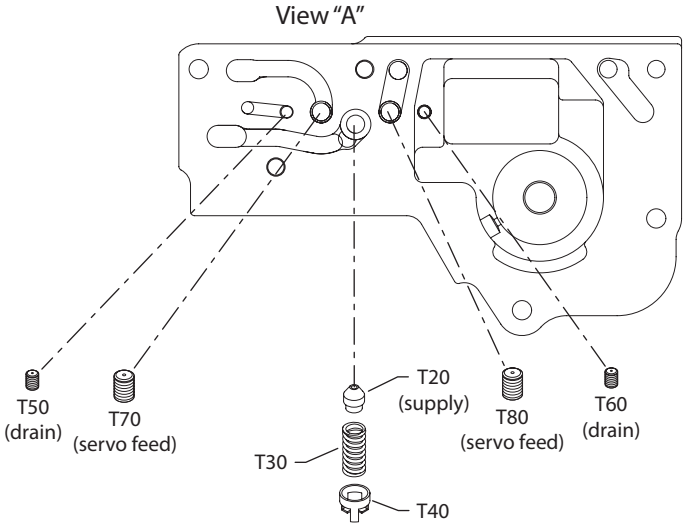
## Variable displacement pump

### (HF, HK, HM, HP, HS & JB)




* = included in control seal kit QM210




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E101 874E

* = included in control seal kit QM210

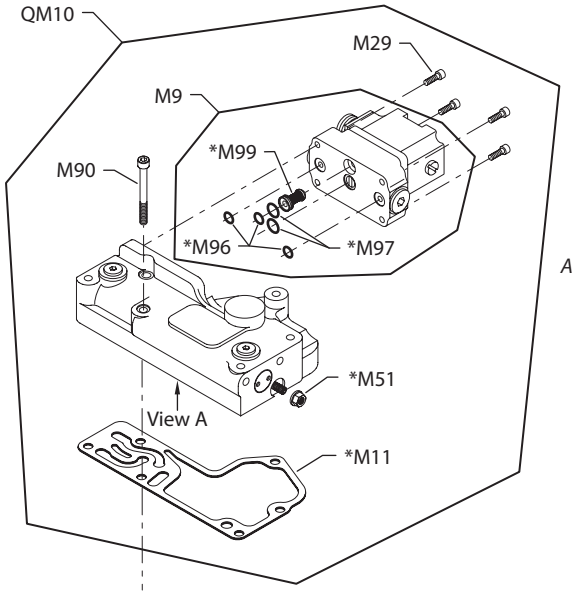
## Variable displacement pump

### Control

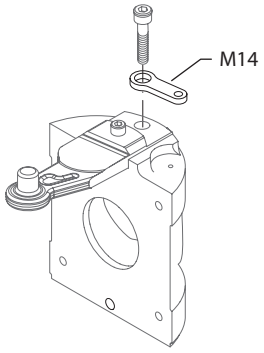
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| HF | M11 | 92-15 | | K11419 | Control gasket (SB-1993-002) | 1 |
| | M14 | 96-40 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M14 | 92-15 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M51 | 92-15 | | 505412 (9003509-0008) | Seal nut | 1 |
| | M90 | 92-15 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 92-15 | | 8002M0HF-A | HDC kit, 3-11 bar | 1 |
| | QM210 | 92-15 | | 11096267 | Control seal kit | 1 |
| HK | M11 | 92-15 | | K11419 | Control gasket (SB-1993-002) | 1 |
| | M14 | 96-40 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M14 | 92-15 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M51 | 92-15 | | 505412 (9003509-0008) | Seal nut | 1 |
| | M90 | 92-15 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 92-15 | | 8002M0HK-A | HDC kit, 1-11 bar | 1 |
| | QM210 | 92-15 | | 11096267 | Control seal kit | 1 |
| HM | M11 | 92-15 | | K11419 | Control gasket (SB-1993-002) | 1 |
| | M14 | 96-40 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M14 | 92-15 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M51 | 92-15 | | 505412 (9003509-0008) | Seal nut | 1 |
| | M90 | 92-15 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 92-15 | | 8002M0HM-A | HDC kit, 1.1 -6.7 bar | 1 |
| | QM210 | 92-15 | | 11096267 | Control seal kit | 1 |
| HP | M11 | 94-05 | | K11419 | Control gasket (SB-1993-002) | 1 |
| | M14 | 96-40 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M14 | 94-05 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M51 | 94-05 | | 505412 (9003509-0008) | Seal nut | 1 |
| | M90 | 94-05 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 94-05 | | 8002M0HP-A | HDC kit, 4-19 bar | 1 |
| | QM210 | 94-05 | | 11096267 | Control seal kit | 1 |
| HS | M11 | 94-19 | | K11419 | Control gasket (SB-1993-002) | 1 |
| | M14 | 96-40 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M14 | 94-19 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M51 | 94-19 | | 505412 (9003509-0008) | Seal nut | 1 |
| | M90 | 94-19 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 94-19 | | 8002M0HS-A | HDC kit, 6-18 bar | 1 |
| | QM210 | 94-19 | | 11096267 | Control seal kit | 1 |
| JB | M11 | 02-22 | | K11419 | Control gasket (SB-1993-002) | 1 |
| | M14 | 96-40 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M51 | 02-22 | | 505412 (9003509-0008) | Seal nut | 1 |
| | M90 | 02-22 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 02-22 | | 8510305 | HDC kit, 5-15 bar | 1 |
| | QM210 | 02-22 | | 11096267 | Control seal kit | 1 |

## Variable displacement pump

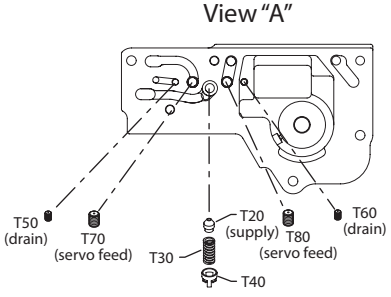
### (K7, K8, K9 & KA)




*A generic PCP is shown.*




*Generic swashplate used to show link location only*




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E100 718E

* = included in control seal kit QM210

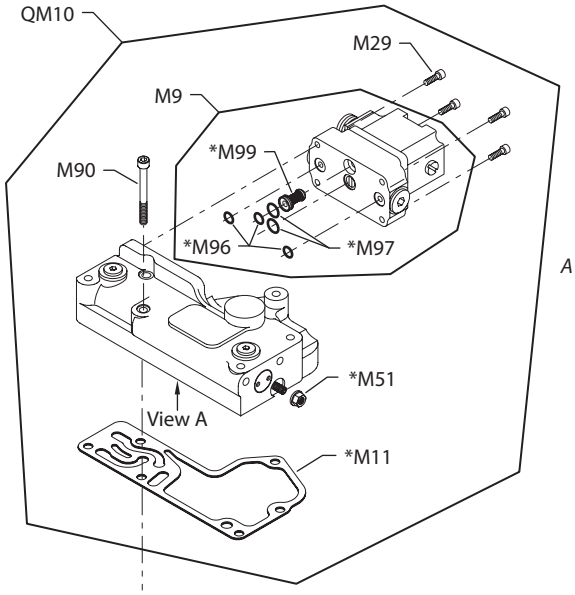
## Variable displacement pump

### Control

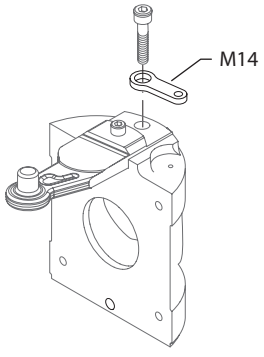
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| K7 | M9 | 14-12 | | 11101116 | PCP, MS connector, 4-20MA, single coil | 1 |
| | M11 | 14-12 | | 8800520 | Control gasket | 1 |
| | M14 | 14-12 | | 11070305 | Feedback link | 1 |
| | M29 | 14-12 | | K07067 | Screw | 4 |
| | M51 | 14-12 | | 505412 (9003509-0008) | Seal nut | 1 |
| | M90 | 14-12 | | 692889 (9007314-0611) | Screw | 6 |
| | M96 | 14-12 | | 011296 (9004105-0120) | O-ring | 3 |
| | M97 | 14-12 | | 9004105-0130 | O-ring | 1 |
| | M99 | 14-12 | | K08572 | Filter assembly | 1 |
| | QM10 | 14-12 | | 11139992 | EDC3 kit, MS connector | 1 |
| | QM210 | 14-12 | | 11096131 | Control seal kit | 1 |
| K8 | M9 | 14-12 | | 11101106 | PCP, MS connector, 24-160MA | 1 |
| | M11 | 14-12 | | 8800520 | Control gasket | 1 |
| | M14 | 14-12 | | 11070305 | Feedback link | 1 |
| | M29 | 14-12 | | K07067 | Screw | 4 |
| | M51 | 14-12 | | 505412 (9003509-0008) | Seal nut | 1 |
| | M90 | 14-12 | | 692889 (9007314-0611) | Screw | 6 |
| | M96 | 14-12 | | 011296 (9004105-0120) | O-ring | 3 |
| | M97 | 14-12 | | 9004105-0130 | O-ring | 1 |
| | M99 | 14-12 | | K08572 | Filter assembly | 1 |
| | QM10 | 14-12 | | 11140003 | EDC3 kit, MS connector | 1 |
| | QM210 | 14-12 | | 11096131 | Control seal kit | 1 |
| K9 | M9 | 14-37 | | 11101118 | PCP, MS connector, 14-85MA | 1 |
| | M11 | 14-37 | | 8800520 | Control gasket | 1 |
| | M14 | 14-37 | | 11070305 | Feedback link | 1 |
| | M29 | 14-37 | | K07067 | Screw | 4 |
| | M51 | 14-37 | | 505412 (9003509-0008) | Seal nut | 1 |
| | M90 | 14-37 | | 692889 (9007314-0611) | Screw | 6 |
| | M96 | 14-37 | | 011296 (9004105-0120) | O-ring | 3 |
| | M97 | 14-37 | | 9004105-0130 | O-ring | 1 |
| | M99 | 14-37 | | K08572 | Filter assembly | 1 |
| | QM10 | 14-37 | | 11139998 | EDC3 kit, MS connector | 1 |
| | QM210 | 14-37 | | 11096131 | Control seal kit | 1 |
| KA | M9 | 95-26 | | MCV116G4201 | PCP, MS connector | 1 |
| | M11 | 95-26 | | 8800520 | Control gasket | 1 |
| | M14 | 96-40 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M14 | 95-26 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M29 | 95-26 | | K07067 | Screw | 4 |
| | M51 | 95-26 | | 505412 (9003509-0008) | Seal nut | 1 |
| | M90 | 95-26 | | 692889 (9007314-0611) | Screw | 6 |
| | M96 | 95-26 | | 011296 (9004105-0120) | O-ring | 3 |
| | M97 | 95-26 | | 9004105-0130 | O-ring | 1 |
| | M99 | 95-26 | | K08572 | Filter assembly | 1 |
| | QM10 | 95-26 | | 8510113 | EDC3 kit, MS connector, dual coil | 1 |
| | QM210 | 95-26 | | 11096131 | Control seal kit | 1 |

## Variable displacement pump

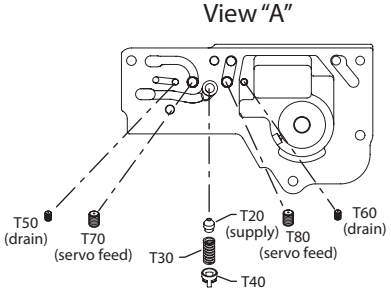
### (KN, KP, KS & KT)




*A generic PCP is shown.*




*Generic swashplate used to show link location only*




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E100 718E

* = included in control seal kit QM210

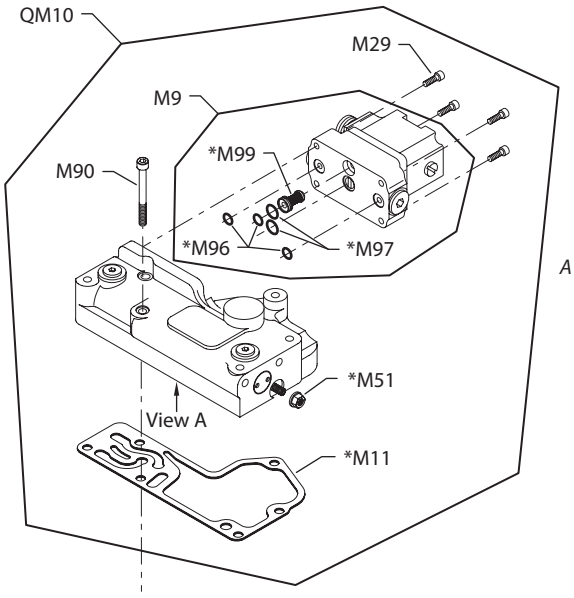
## Variable displacement pump

### Control

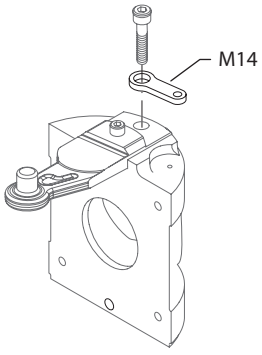
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| KN | M9 | 95-51 | | MCV116A3501 | PCP, MS connector | 1 |
| | M11 | 95-51 | | 8800520 | Control gasket | 1 |
| | M14 | 96-40 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M14 | 95-51 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M29 | 95-51 | | K07067 | Screw | 4 |
| | M51 | 95-51 | | 505412 (9003509-0008) | Seal nut | 1 |
| | M90 | 95-51 | | 692889 (9007314-0611) | Screw | 6 |
| | M96 | 95-51 | | 011296 (9004105-0120) | O-ring | 3 |
| | M97 | 95-51 | | 9004105-0130 | O-ring | 1 |
| | M99 | 95-51 | | K08572 | Filter assembly | 1 |
| | QM10 | 95-51 | | 8510381 | EDC3 kit, MS connector | 1 |
| | QM210 | 95-51 | | 11096131 | Control seal kit | 1 |
| KP | M9 | 95-26 | | MCV116G4204 | PCP, Weather-pack connector | 1 |
| | M11 | 95-26 | | 8800520 | Control gasket | 1 |
| | M14 | 96-40 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M14 | 95-26 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M29 | 95-26 | | K07067 | Screw | 4 |
| | M51 | 95-26 | | 505412 (9003509-0008) | Seal nut | 1 |
| | M90 | 95-26 | | 692889 (9007314-0611) | Screw | 6 |
| | M96 | 95-26 | | 011296 (9004105-0120) | O-ring | 3 |
| | M97 | 95-26 | | 9004105-0130 | O-ring | 1 |
| | M99 | 95-26 | | K08572 | Filter assembly | 1 |
| | QM10 | 95-26 | | 8510114 | EDC3 kit, Weather-pack connector, dual coil | 1 |
| | QM210 | 95-26 | | 11096131 | Control seal kit | 1 |
| KS | M9 | 97-30 | | MCV116G4201 | PCP, MS connector, dual coil | 1 |
| | M11 | 97-30 | | 8800520 | Control gasket | 1 |
| | M14 | 97-30 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M29 | 97-30 | | K07067 | Screw | 4 |
| | M51 | 97-30 | | 505412 (9003509-0008) | Seal nut | 1 |
| | M90 | 97-30 | | 692889 (9007314-0611) | Screw | 6 |
| | M96 | 97-30 | | 011296 (9004105-0120) | O-ring | 3 |
| | M97 | 97-30 | | 9004105-0130 | O-ring | 1 |
| | M99 | 97-30 | | K08572 | Filter assembly | 1 |
| | QM10 | 97-30 | | 8510177 | EDC3 kit, MS connector, dual coil | 1 |
| | QM210 | 97-30 | | 11096131 | Control seal kit | 1 |
| KT | M9 | 03-10 | | MCV116G4214 | PCP, Deutsch connector, dual coil | 1 |
| | M11 | 03-10 | | 8800520 | Control gasket | 1 |
| | M14 | 03-10 | | 11070305 | Feedback link | 1 |
| | M29 | 03-10 | | K07067 | Screw | 4 |
| | M51 | 03-10 | | 505412 (9003509-0008) | Seal nut | 1 |
| | M90 | 03-10 | | 692889 (9007314-0611) | Screw | 6 |
| | M96 | 03-10 | | 011296 (9004105-0120) | O-ring | 3 |
| | M97 | 03-10 | | 9004105-0130 | O-ring | 1 |
| | M99 | 03-10 | | K08572 | Filter assembly | 1 |
| | QM10 | 03-10 | | 8510317 | EDC3 kit, Deutsch connector, dual coil | 1 |
| | QM210 | 03-10 | | 11096131 | Control seal kit | 1 |

## Variable displacement pump

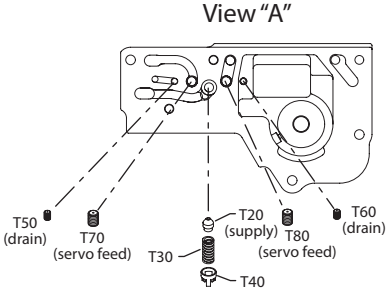
### (KZ)




*A generic PCP is shown.*




*Generic swashplate used to show link location only*




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E100 718E

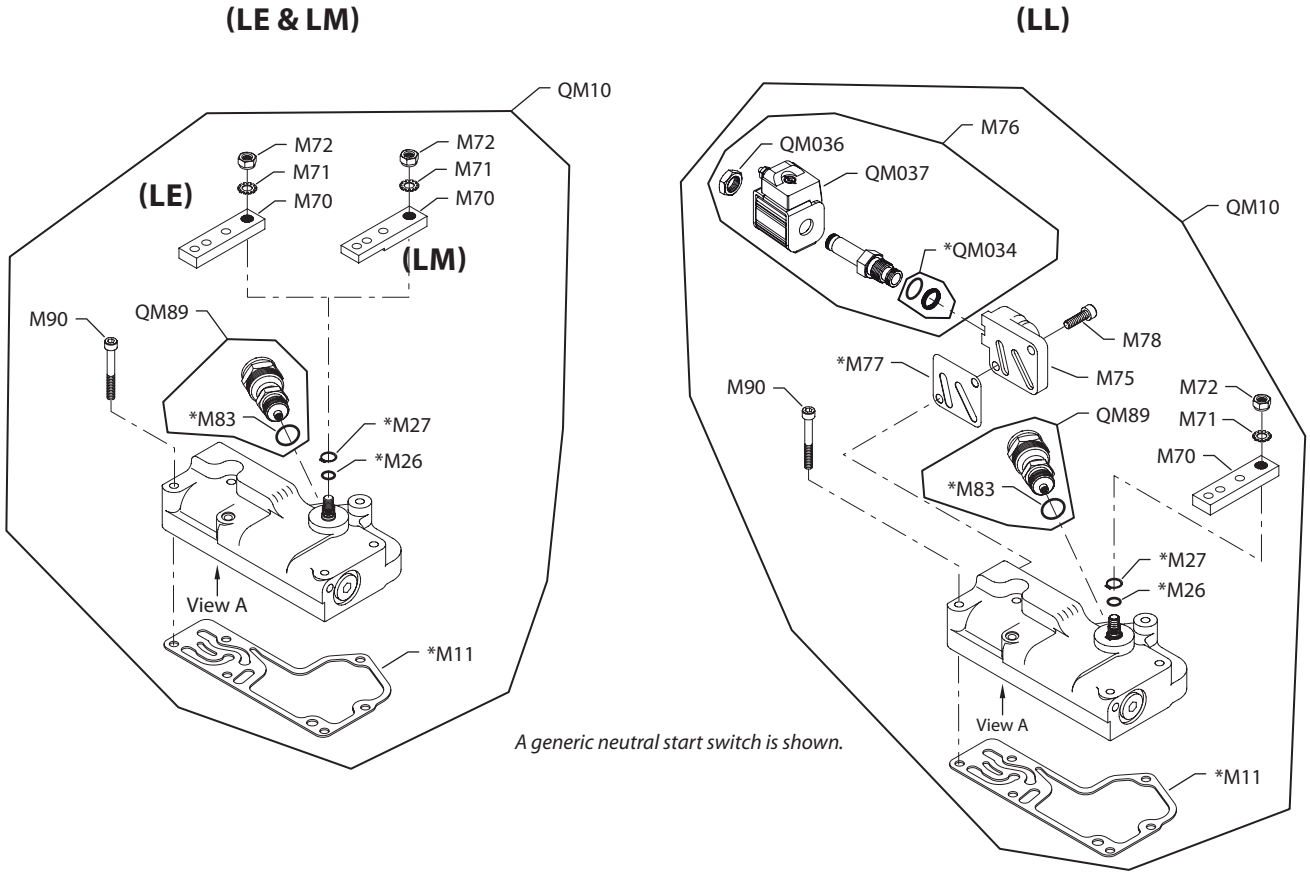
* = included in control seal kit QM210

## Variable displacement pump

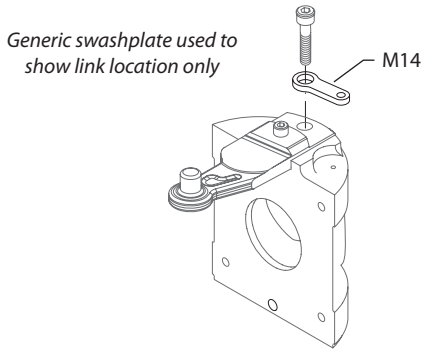
### Control

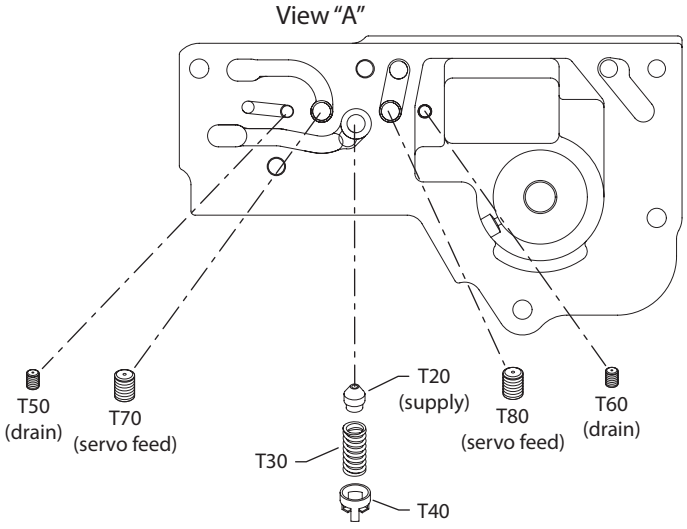
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| KZ | M9 | 98-10 | | MCV116G4204 | PCP, Weather-pack connector | 1 |
| | M11 | 98-10 | | 8800520 | Control gasket | 1 |
| | M14 | 98-10 | | 11070305 | Feedback link | 1 |
| | M29 | 98-10 | | K07067 | Screw | 4 |
| | M51 | 98-10 | | 505412 (9003509-0008) | Seal nut | 1 |
| | M90 | 98-10 | | 692889 (9007314-0611) | Screw | 6 |
| | M96 | 98-10 | | 011296 (9004105-0120) | O-ring | 3 |
| | M97 | 98-10 | | 9004105-0130 | O-ring | 1 |
| | M99 | 98-10 | | K08572 | Filter assembly | 1 |
| | QM10 | 98-10 | | 8510355 | EDC3 kit, Weather-pack connector, dual coil | 1 |
| | QM210 | 98-10 | | 11096131 | Control seal kit | 1 |

## Variable displacement pump




*A generic neutral start switch is shown.*




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E100 719E

* = included in control seal kit QM210

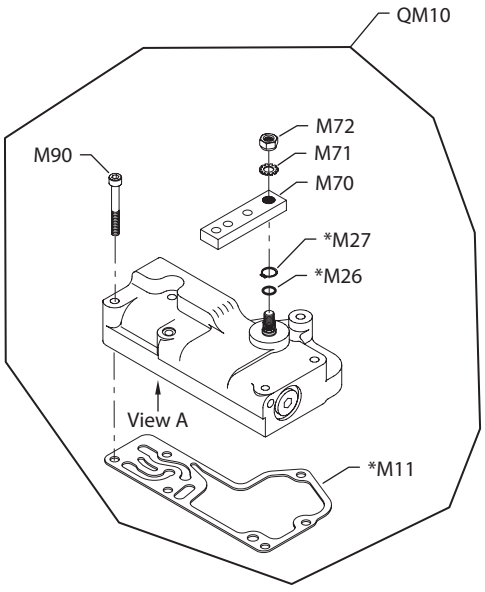
## Variable displacement pump

### Control

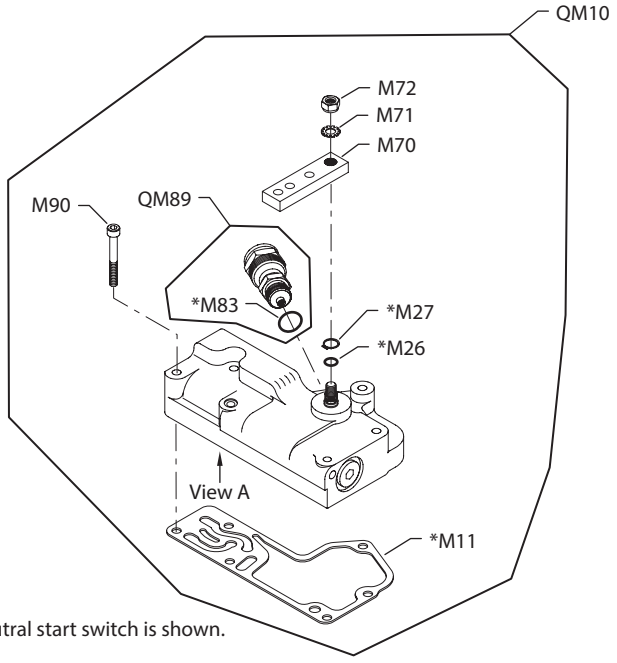
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| LE | M11 | 01-27 | | 8800520 | Control gasket | 1 |
| | M14 | 01-27 | | 11070305 | Feedback link | 1 |
| | M26 | 01-27 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 01-27 | | 9006300-0044 | Retaining ring | 1 |
| | M70 | 01-27 | | 9800916 | Control handle | 1 |
| | M71 | 01-27 | | 9009660-3100 | Toothlock washer | 1 |
| | M72 | 01-27 | | 040642 (9003513-0800) | Nut | 1 |
| | M83 | 01-27 | | 001123 (9004201-5000) | O-ring | 1 |
| | M90 | 01-27 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 01-27 | | 8510301 | MDC kit, high force neutral start switch | 1 |
| | QM89 | 01-27 | | 8510316 | Neutral start switch kit, high force, Weather-pack | 1 |
| | QM210 | 01-27 | | 11096275 | Control seal kit | 1 |
| LL | M11 | 00-07 | | 8800520 | Control gasket | 1 |
| | M14 | 00-07 | | 11070305 | Feedback link | 1 |
| | M26 | 00-07 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 00-07 | | 9006300-0044 | Retaining ring | 1 |
| | M70 | 00-07 | | 9800916 | Control handle | 1 |
| | M71 | 00-07 | | 9009660-3100 | Toothlock washer | 1 |
| | M72 | 00-07 | | 040642 (9003513-0800) | Nut | 1 |
| | M75 | 00-07 | | 505022 | Control manifold | 1 |
| | M76 | 14-06 | | 11127988 | Solenoid valve, 12 volt, single pole (SB-2014-020) | 1 |
| | M77 | 00-07 | | 8800882 | Manifold gasket | 1 |
| | M78 | 00-07 | | 693341 (9007314-0606) | Screw | 2 |
| | M83 | 00-07 | | 001123 (9004201-5000) | O-ring | 1 |
| | M90 | 00-07 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 00-07 | | 8510373 | MDC kit w/12 volt solenoid, high force nss | 1 |
| | QM034 | 00-07 | | 11099649 | Solenoid valve seal kit | 1 |
| | QM036 | 14-06 | | 11100383 | Coil nut | 1 |
| | QM037 | 14-06 | | 11100388 | Coil kit, 12 volt, single pole | 1 |
| | QM89 | 00-07 | | 8510316 | Neutral start switch kit, high force | 1 |
| | QM210 | 14-06 | | 11100049 | Control seal kit | 1 |
| LM | M11 | 01-27 | | 8800520 | Control gasket | 1 |
| | M14 | 01-27 | | 11070305 | Feedback link | 1 |
| | M26 | 01-27 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 01-27 | | 9006300-0044 | Retaining ring | 1 |
| | M70 | 01-27 | | 8801260 | Control handle, special | 1 |
| | M71 | 01-27 | | 9009660-3100 | Toothlock washer | 1 |
| | M72 | 01-27 | | 040642 (9003513-0800) | Nut | 1 |
| | M83 | 01-27 | | 001123 (9004201-5000) | O-ring | 1 |
| | M90 | 01-27 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 01-27 | | 8510382 | MDC kit, high force neutral start switch | 1 |
| | QM89 | 01-27 | | 8510027 | Neutral start switch kit, high force | 1 |
| | QM210 | 01-27 | | 11096275 | Control seal kit | 1 |

## Variable displacement pump

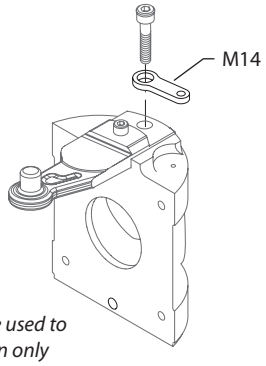
**(M1 & M4)**




**(M2)**

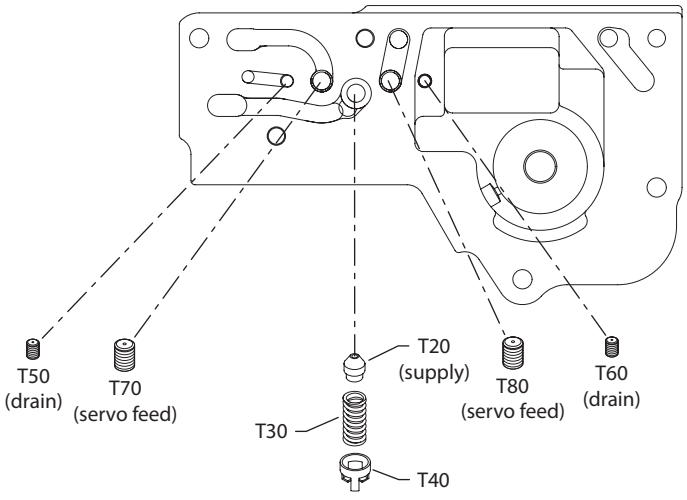



A generic neutral start switch is shown.




*Generic swashplate used to show link location only*

View "A"




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E100 720E

* = included in control seal kit QM210

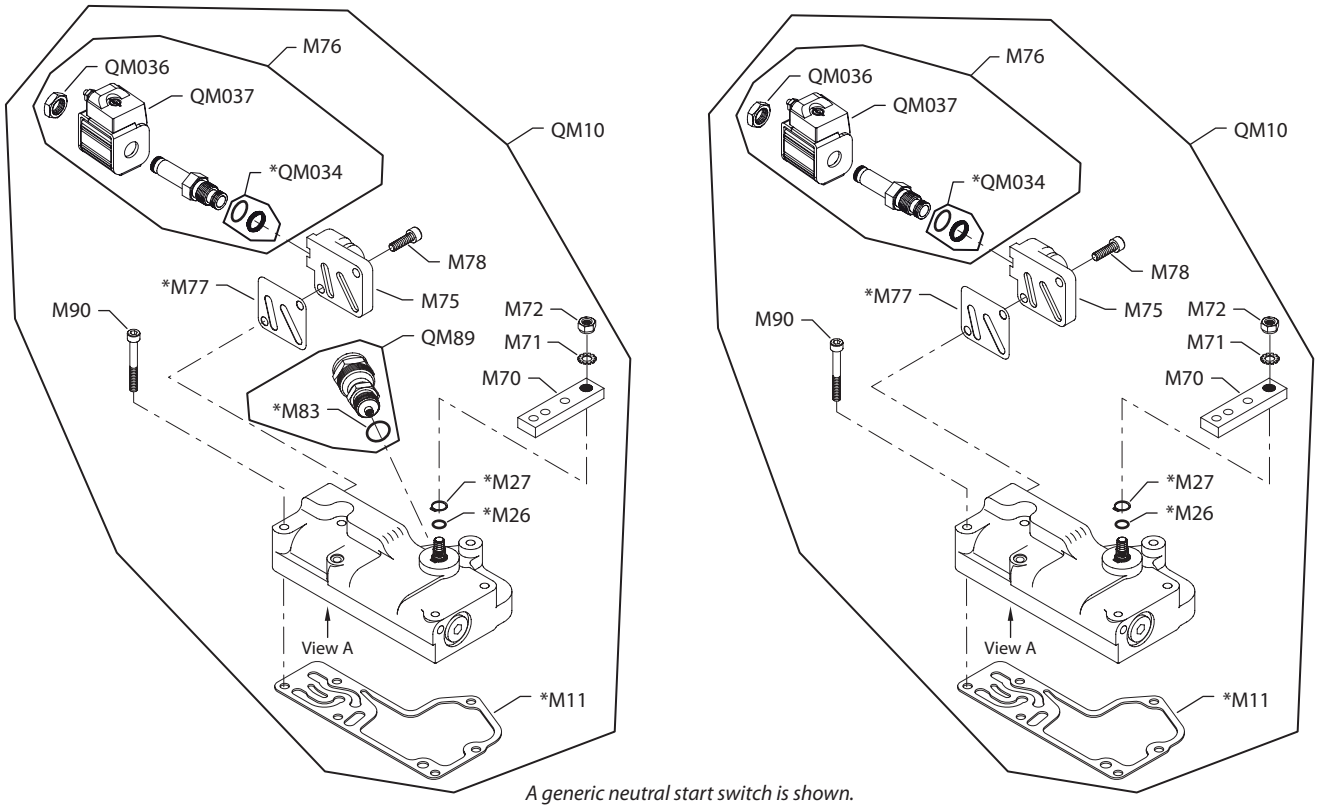
## Variable displacement pump

### Control

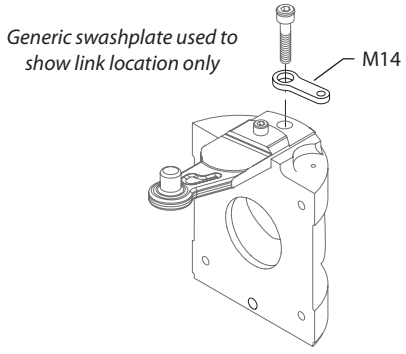
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| M1 | M11 | 95-37 | | 8800520 | Control gasket | 1 |
| | M14 | 96-40 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M14 | 95-37 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M26 | 95-37 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 95-37 | | 9006300-0044 | Retaining ring | 1 |
| | M70 | 95-37 | | 9800916 | Control handle | 1 |
| | M71 | 95-37 | | 9009660-3100 | Toothlock washer | 1 |
| | M72 | 95-37 | | 040642 (9003513-0800) | Nut | 1 |
| | M90 | 95-37 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 95-37 | | 8510109 | MDC kit, brass sleeve | 1 |
| | QM210 | 95-37 | | 11096275 | Control seal kit | 1 |
| | | | | | | |
| M2 | M11 | 95-37 | | 8800520 | Control gasket | 1 |
| | M14 | 96-40 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M14 | 95-37 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M26 | 95-37 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 95-37 | | 9006300-0044 | Retaining ring | 1 |
| | M70 | 95-37 | | 9800916 | Control handle | 1 |
| | M71 | 95-37 | | 9009660-3100 | Toothlock washer | 1 |
| | M72 | 95-37 | | 040642 (9003513-0800) | Nut | 1 |
| | M83 | 95-37 | | 001123 (9004201-5000) | O-ring | 1 |
| | M90 | 95-37 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 95-37 | | 8510110 | MDC kit, with neutral start switch, brass sleeve | 1 |
| | QM89 | 95-37 | | 80020S40 | Neutral start switch kit | 1 |
| | QM210 | 95-37 | | 11096275 | Control seal kit | 1 |
| | | | | | | |
| M4 | M11 | 96-22 | | 8800520 | Control gasket | 1 |
| | M14 | 96-40 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M14 | 96-22 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M26 | 96-22 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 96-22 | | 9006300-0044 | Retaining ring | 1 |
| | M70 | 96-22 | | 9800916 | Control handle | 1 |
| | M71 | 96-22 | | 9009660-3100 | Toothlock washer | 1 |
| | M72 | 96-22 | | 040642 (9003513-0800) | Nut | 1 |
| | M90 | 96-22 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 96-22 | | 8510264 | MDC kit | 1 |
| | QM210 | 96-22 | | 11096275 | Control seal kit | 1 |

## Variable displacement pump

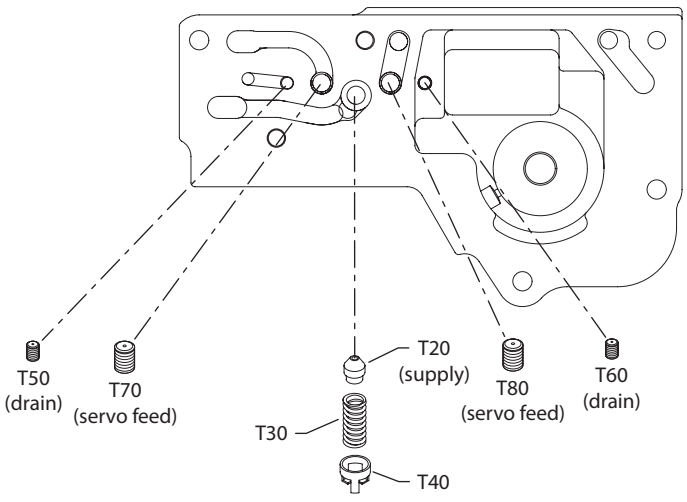
**(M5)** **(M6)**




*A generic neutral start switch is shown.*




View "A"




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E101 875E

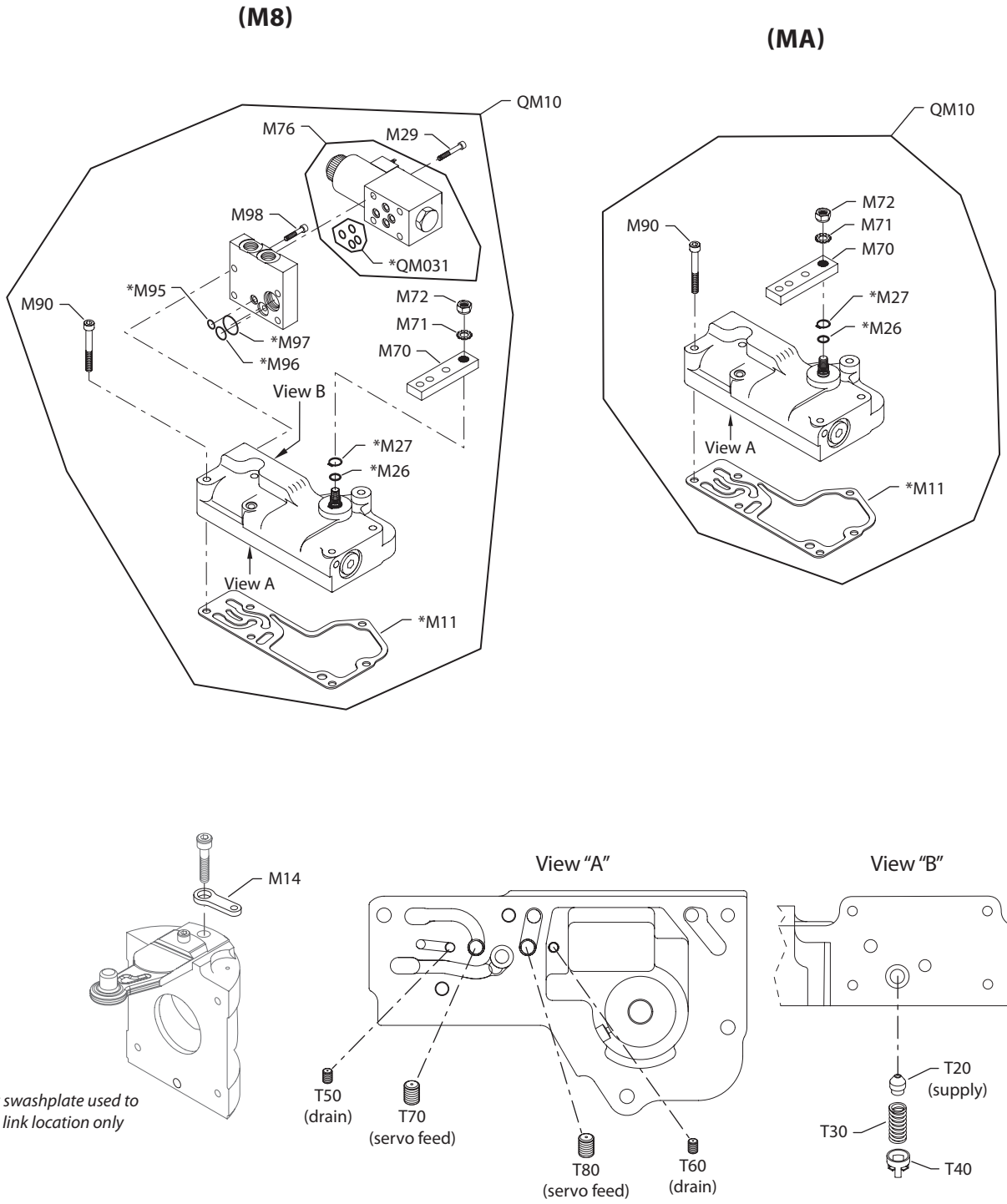
* = included in control seal kit QM210

## Variable displacement pump

### Control

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| M5 | M11 | 00-07 | | 8800520 | Control gasket | 1 |
| | M14 | 00-07 | | 11070305 | Feedback link | 1 |
| | M26 | 00-07 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 00-07 | | 9006300-0044 | Retaining ring | 1 |
| | M70 | 00-07 | | 9800916 | Control handle | 1 |
| | M71 | 00-07 | | 9009660-3100 | Toothlock washer | 1 |
| | M72 | 00-07 | | 040642 (9003513-0800) | Nut | 1 |
| | M75 | 00-07 | | 505022 | Control manifold | 1 |
| | M76 | 14-06 | | 11127988 | Solenoid valve, 12 volt, single pole (SB-2014-020) | 1 |
| | M77 | 00-07 | | 8800882 | Manifold gasket | 1 |
| | M78 | 00-07 | | 693341 (9007314-0606) | Screw | 2 |
| | M83 | 00-07 | | 001123 (9004201-5000) | O-ring | 1 |
| | M90 | 00-07 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 00-07 | | 8510168 | MDC kit w/12 volt solenoid, neutral start switch | 1 |
| | QM034 | 00-07 | | 11099649 | Solenoid valve seal kit | 1 |
| | QM036 | 14-06 | | 11100383 | Coil nut | 1 |
| | QM037 | 14-06 | | 11100388 | Coil kit, 12 volt, single pole | 1 |
| | QM89 | 00-07 | | 8510170 | Neutral start switch kit | 1 |
| | QM210 | 14-06 | | 11100049 | Control seal kit | 1 |
| | | | | | | |
| M6 | M11 | 00-07 | | 8800520 | Control gasket | 1 |
| | M14 | 00-07 | | 11070305 | Feedback link | 1 |
| | M26 | 00-07 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 00-07 | | 9006300-0044 | Retaining ring | 1 |
| | M70 | 00-07 | | 9800916 | Control handle | 1 |
| | M71 | 00-07 | | 9009660-3100 | Toothlock washer | 1 |
| | M72 | 00-07 | | 040642 (9003513-0800) | Nut | 1 |
| | M75 | 00-07 | | 505022 | Control manifold | 1 |
| | M76 | 14-06 | | 11127988 | Solenoid valve, 12 volt, single pole (SB-2014-020) | 1 |
| | M77 | 00-07 | | 8800882 | Manifold gasket | 1 |
| | M78 | 00-07 | | 693341 (9007314-0606) | Screw | 2 |
| | M90 | 00-07 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 00-07 | | 8510183 | MDC kit w/12 volt solenoid | 1 |
| | QM034 | 00-07 | | 11099649 | Solenoid valve seal kit | 1 |
| | QM036 | 14-06 | | 11100383 | Coil nut | 1 |
| | QM037 | 14-06 | | 11100388 | Coil kit, 12 volt, single pole | 1 |
| | QM210 | 14-06 | | 11100049 | Control seal kit | 1 |

## Variable displacement pump




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E100 721E

* = included in control seal kit QM210

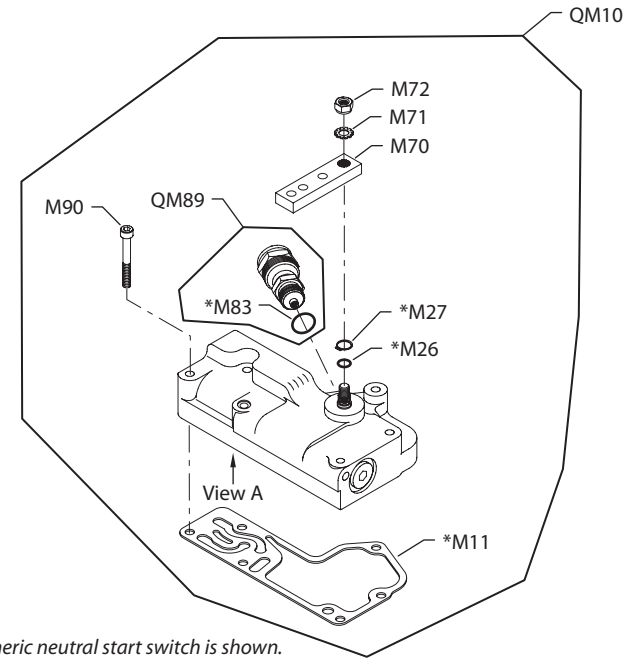
## Variable displacement pump

### Control

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| M8 | M11 | 04-31 | | 8800520 | Control gasket | 1 |
| | M14 | 04-31 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M26 | 04-31 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 04-31 | | 9006300-0044 | Retaining ring | 1 |
| | M29 | 04-31 | | 9007315-0507 | Screw | 4 |
| | M70 | 04-31 | | 9800916 | Control handle | 1 |
| | M71 | 04-31 | | 9009660-3100 | Toothlock washer | 1 |
| | M72 | 04-31 | | 040642 (9003513-0800) | Nut | 1 |
| | M76 | 04-31 | | 508009 | Solenoid valve | 1 |
| | M90 | 04-31 | | 692889 (9007314-0611) | Screw | 6 |
| | M95 | 04-31 | | 144725 (9004105-0110) | O-ring | 1 |
| | M96 | 04-31 | | 056713 (9004105-0140) | O-ring | 1 |
| | M97 | 04-31 | | 544742 (9004105-0190) | O-ring | 1 |
| | M98 | 04-31 | | 9007315-0505 | Screw | 4 |
| | QM10 | 04-31 | | 11099889 | MDC kit w/2-position solenoid valve, 12 volt | 1 |
| | QM031 | 04-31 | | 11099647 | Valve seal kit | 1 |
| | QM210 | 04-31 | | 11099977 | Control seal kit | 1 |
| MA | M11 | 87-02 | | 8800520 | Control gasket | 1 |
| | M14 | 96-40 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M14 | 87-02 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M26 | 87-02 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 87-02 | | 9006300-0044 | Retaining ring | 1 |
| | M70 | 87-02 | | 9800916 | Control handle | 1 |
| | M71 | 87-02 | | 9009660-3100 | Toothlock washer | 1 |
| | M72 | 87-02 | | 040642 (9003513-0800) | Nut | 1 |
| | M90 | 87-02 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 87-02 | | 8002M0MA-A | MDC kit | 1 |
| | QM210 | 87-02 | | 11096275 | Control seal kit | 1 |

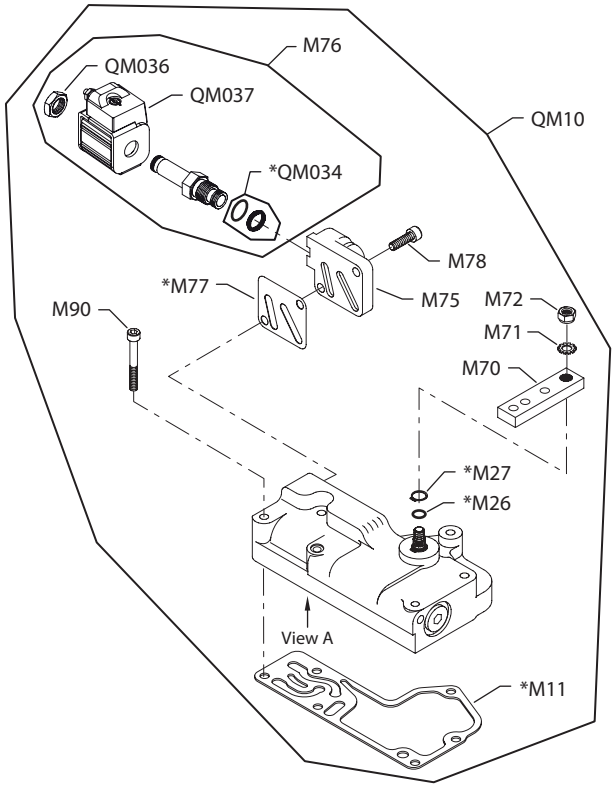
## Variable displacement pump

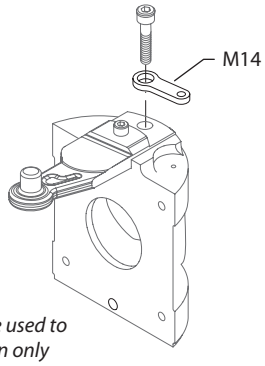
**(MB)**




*A generic neutral start switch is shown.*

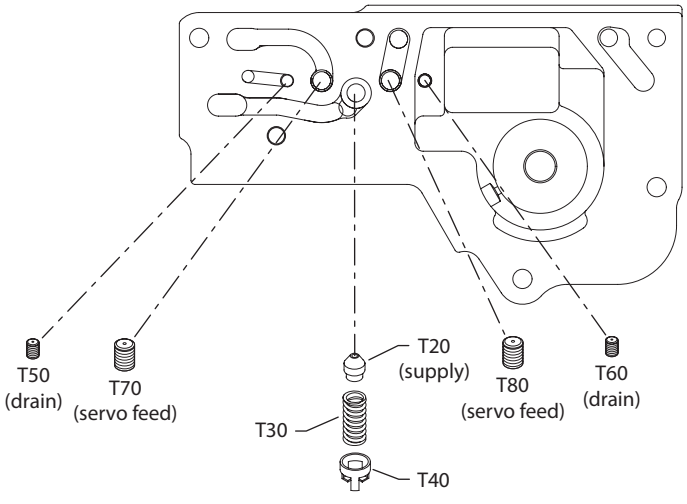
**(MC)**




*Generic swashplate used to show link location only*

View "A"




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E101 876E

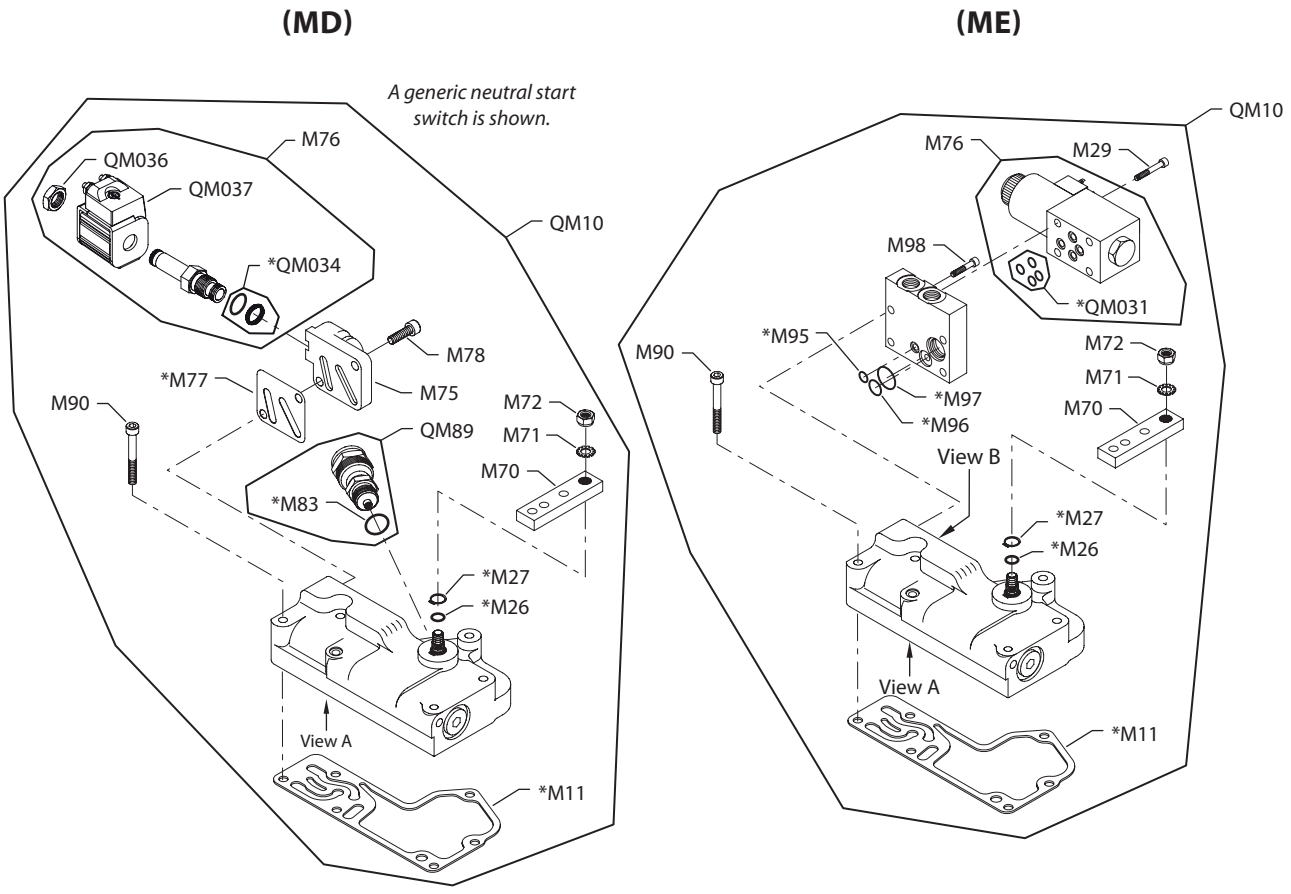
* = included in control seal kit QM210

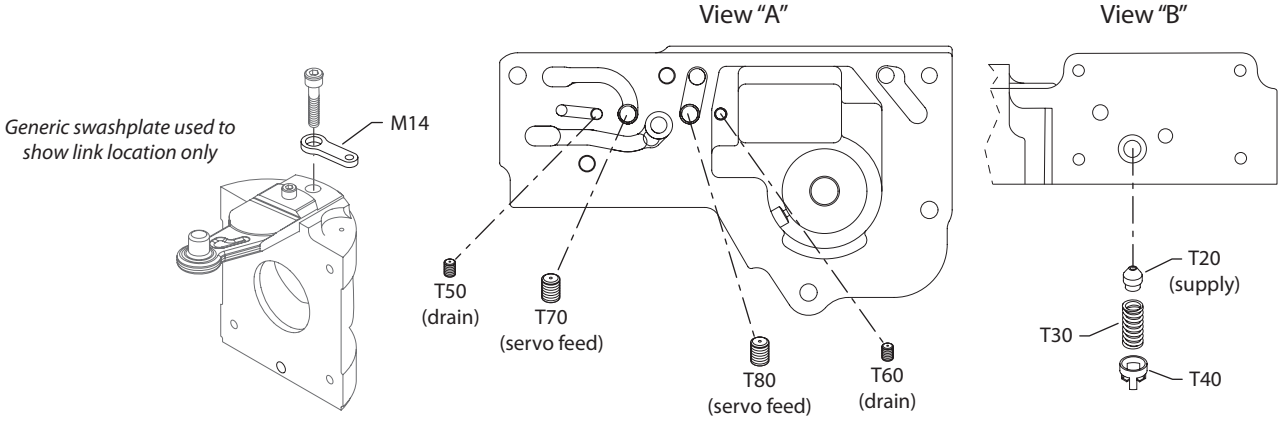
## Variable displacement pump

### Control

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| MB | M11 | 87-02 | | 8800520 | Control gasket | 1 |
| | M14 | 96-40 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M14 | 87-02 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M26 | 87-02 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 87-02 | | 9006300-0044 | Retaining ring | 1 |
| | M70 | 87-02 | | 9800916 | Control handle | 1 |
| | M71 | 87-02 | | 9009660-3100 | Toothlock washer | 1 |
| | M72 | 87-02 | | 040642 (9003513-0800) | Nut | 1 |
| | M83 | 87-02 | | 001123 (9004201-5000) | O-ring | 1 |
| | M90 | 87-02 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 87-02 | | 8002M0MB-A | MDC kit, with neutral start switch | 1 |
| | QM89 | 87-02 | | 80020S40 | Neutral start switch kit | 1 |
| | QM210 | 87-02 | | 11096275 | Control seal kit | 1 |
| MC | M11 | 87-02 | | 8800520 | Control gasket | 1 |
| | M14 | 96-40 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M14 | 87-02 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M26 | 87-02 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 87-02 | | 9006300-0044 | Retaining ring | 1 |
| | M70 | 87-02 | | 9800916 | Control handle | 1 |
| | M71 | 87-02 | | 9009660-3100 | Toothlock washer | 1 |
| | M72 | 87-02 | | 040642 (9003513-0800) | Nut | 1 |
| | M75 | 87-02 | | 505022 | Control manifold (SB-1995-003) | 1 |
| | M76 | 14-06 | | 11127987 | Solenoid valve, 12 volt, single pole (SB-2014-020) | 1 |
| | M77 | 87-02 | | 8800882 | Manifold gasket | 1 |
| | M78 | 95-10 | | 693341 (9007314-0606) | Screw (SB-1995-003) | 2 |
| | M78 | 87-02 | 95-09 | 041160 (9007314-0605) | Screw | 2 |
| | M90 | 87-02 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 87-02 | | 8002M0MC-A | MDC kit w/12 volt solenoid, single pole | 1 |
| | QM034 | 00-07 | | 11099649 | Solenoid valve seal kit | 1 |
| | QM036 | 14-06 | | 11100383 | Coil nut | 1 |
| | QM037 | 14-06 | | 11100388 | Coil kit, 12 volt, single pole | 1 |
| | QM210 | 14-06 | | 11100049 | Control seal kit | 1 |

## Variable displacement pump




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E101 877E

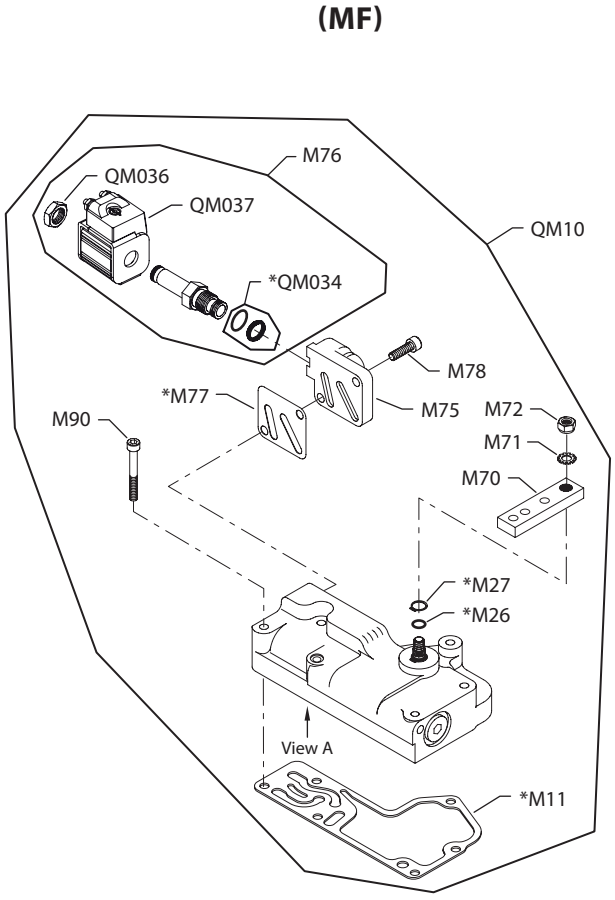
* = included in control seal kit QM210

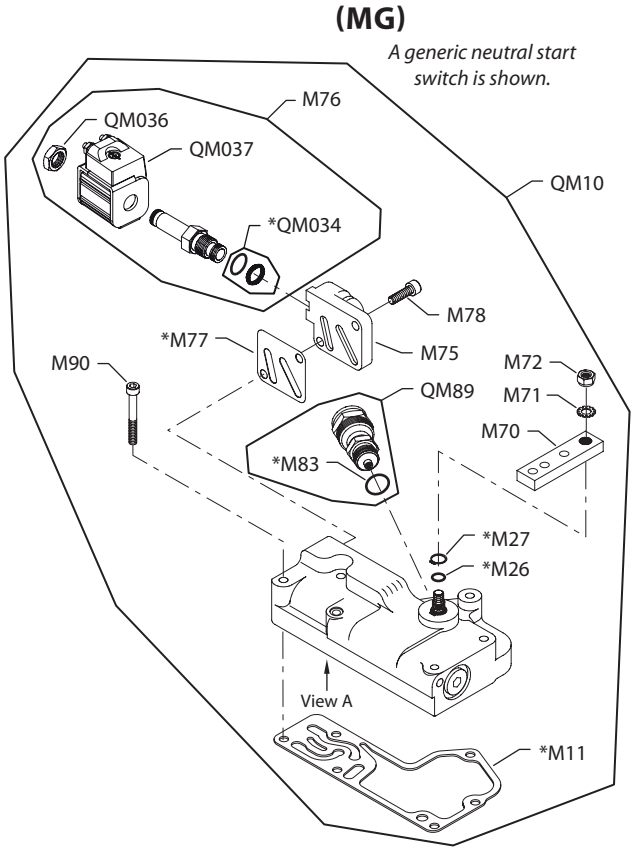
## Variable displacement pump

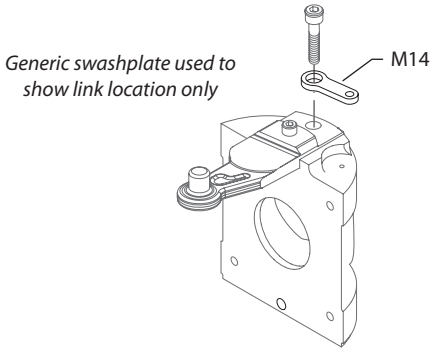
### Control

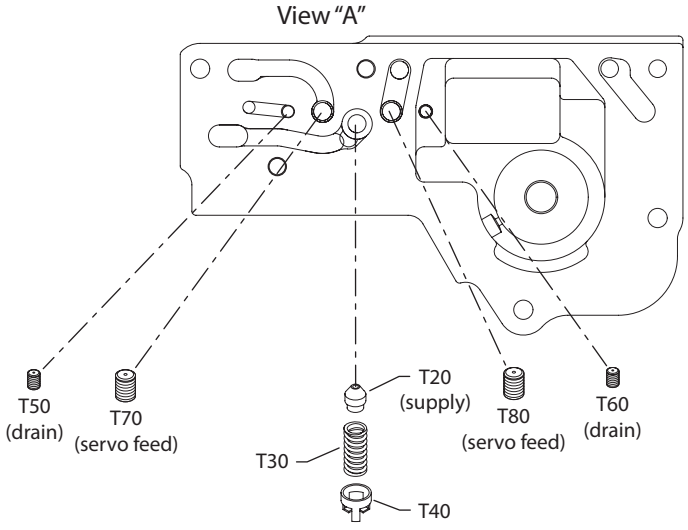
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| MD | M11 | 87-02 | | 8800520 | Control gasket | 1 |
| | M14 | 96-40 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M14 | 87-02 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M26 | 87-02 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 87-02 | | 9006300-0044 | Retaining ring | 1 |
| | M70 | 87-02 | | 9800916 | Control handle | 1 |
| | M71 | 87-02 | | 9009660-3100 | Toothlock washer | 1 |
| | M72 | 87-02 | | 040642 (9003513-0800) | Nut | 1 |
| | M75 | 87-02 | | 505022 | Control manifold (SB-1995-003) | 1 |
| | M76 | 14-06 | | 11127986 | Solenoid valve, 12 volt, double pole (SB-2014-020) | 1 |
| | M77 | 87-02 | | 8800882 | Manifold gasket | 1 |
| | M78 | 95-10 | | 693341 (9007314-0606) | Screw (SB-1995-003) | 2 |
| | M78 | 87-02 | 95-09 | 041160 (9007314-0605) | Screw | 2 |
| | M83 | 87-02 | | 001123 (9004201-5000) | O-ring | 1 |
| | M90 | 87-02 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 87-02 | | 8002M0MD-A | MDC kit w/12 volt double pole solenoid, high force nss | 1 |
| | QM034 | 00-07 | | 11099649 | Solenoid valve seal kit | 1 |
| | QM036 | 14-06 | | 11100383 | Coil nut | 1 |
| | QM037 | 14-06 | | 11100385 | Coil kit, 12 volt, double pole | 1 |
| | QM89 | 87-02 | | 8510027 | Neutral start switch kit, high force | 1 |
| | QM210 | 14-06 | | 11100049 | Control seal kit | 1 |
| ME | M11 | 87-02 | | 8800520 | Control gasket | 1 |
| | M14 | 96-40 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M14 | 87-02 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M26 | 87-02 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 87-02 | | 9006300-0044 | Retaining ring | 1 |
| | M29 | 87-02 | | 9007315-0510 | Screw | 4 |
| | M70 | 87-02 | | 9800916 | Control handle | 1 |
| | M71 | 87-02 | | 9009660-3100 | Toothlock washer | 1 |
| | M72 | 87-02 | | 040642 (9003513-0800) | Nut | 1 |
| | M76 | 87-02 | | 519357 | Solenoid valve, 12 volt | 1 |
| | M90 | 87-02 | | 692889 (9007314-0611) | Screw | 6 |
| | M95 | 87-02 | | 144725 (9004105-0110) | O-ring | 1 |
| | M96 | 87-02 | | 056770 (9004105-0140) | O-ring | 1 |
| | M97 | 87-02 | | 544742 (9004105-0190) | O-ring | 1 |
| | M98 | 87-02 | | 9007315-0505 | Screw | 4 |
| | QM10 | 87-02 | | 8002M0ME-A | MDC kit w/2-position solenoid valve, 12 volt | 1 |
| | QM031 | 87-02 | | 11099647 | Valve seal kit | 1 |
| | QM210 | 87-02 | | 11099977 | Control seal kit | 1 |

## Variable displacement pump




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E101 878E

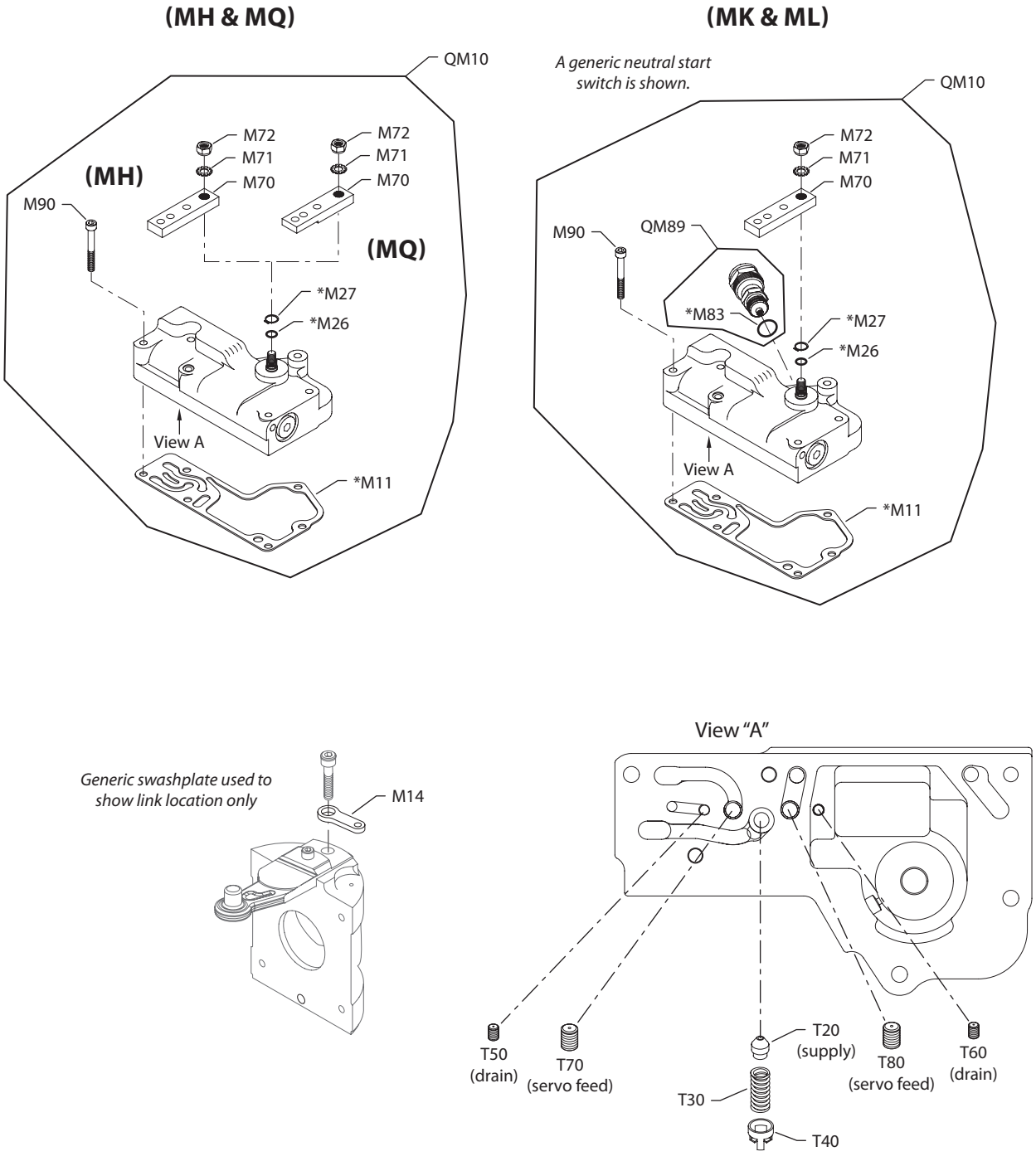
* = included in control seal kit QM210

## Variable displacement pump

### Control

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| MF | M11 | 87-02 | | 8800520 | Control gasket | 1 |
| | M14 | 96-40 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M14 | 87-02 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M26 | 87-02 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 87-02 | | 9006300-0044 | Retaining ring | 1 |
| | M70 | 87-02 | | 9800916 | Control handle | 1 |
| | M71 | 87-02 | | 9009660-3100 | Toothlock washer | 1 |
| | M72 | 87-02 | | 040642 (9003513-0800) | Nut | 1 |
| | M75 | 87-02 | | 505022 | Control manifold (SB-1995-003) | 1 |
| | M76 | 87-02 | | 11127985 | Solenoid valve, 24 volt, double pole (SB-2014-020) | 1 |
| | M77 | 87-02 | | 8800882 | Manifold gasket | 1 |
| | M78 | 95-10 | | 693341 (9007314-0606) | Screw (SB-1995-003) | 2 |
| | M78 | 87-02 | 95-09 | 041160 (9007314-0605) | Screw | 2 |
| | M90 | 87-02 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 87-02 | | 8002M0MF-A | MDC kit w/24 volt solenoid, double pole | 1 |
| | QM034 | 87-02 | | 11099649 | Solenoid valve seal kit | 1 |
| | QM036 | 14-06 | | 11100383 | Coil nut | 1 |
| | QM037 | 14-06 | | 11100386 | Coil kit, 24 volt, double pole | 1 |
| | QM210 | 14-06 | | 11100049 | Control seal kit | 1 |
| MG | M11 | 87-02 | | 8800520 | Control gasket | 1 |
| | M14 | 96-40 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M14 | 87-02 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M26 | 87-02 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 87-02 | | 9006300-0044 | Retaining ring | 1 |
| | M70 | 87-02 | | 9800916 | Control handle | 1 |
| | M71 | 87-02 | | 9009660-3100 | Toothlock washer | 1 |
| | M72 | 87-02 | | 040642 (9003513-0800) | Nut | 1 |
| | M75 | 87-02 | | 505022 | Control manifold (SB-1995-003) | 1 |
| | M76 | 87-02 | | 11127985 | Solenoid valve, 24 volt, double pole (SB-2014-020) | 1 |
| | M77 | 87-02 | | 8800882 | Manifold gasket | 1 |
| | M78 | 95-10 | | 693341 (9007314-0606) | Screw (SB-1995-003) | 2 |
| | M78 | 87-02 | 95-09 | 041160 (9007314-0605) | Screw | 2 |
| | M83 | 87-02 | | 001123 (9004201-5000) | O-ring | 1 |
| | M90 | 87-02 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 87-02 | | 8002M0MG-A | MDC kit w/24 volt solenoid, double pole, nss | 1 |
| | QM034 | 00-07 | | 11099649 | Solenoid valve seal kit | 1 |
| | QM036 | 14-06 | | 11100383 | Coil nut | 1 |
| | QM037 | 14-06 | | 11100386 | Coil kit, 24 volt, double pole | 1 |
| | QM89 | 87-02 | | 8510027 | Neutral start switch kit, high force | 1 |
| | QM210 | 14-06 | | 11100049 | Control seal kit | 1 |

## Variable displacement pump




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E100 722E

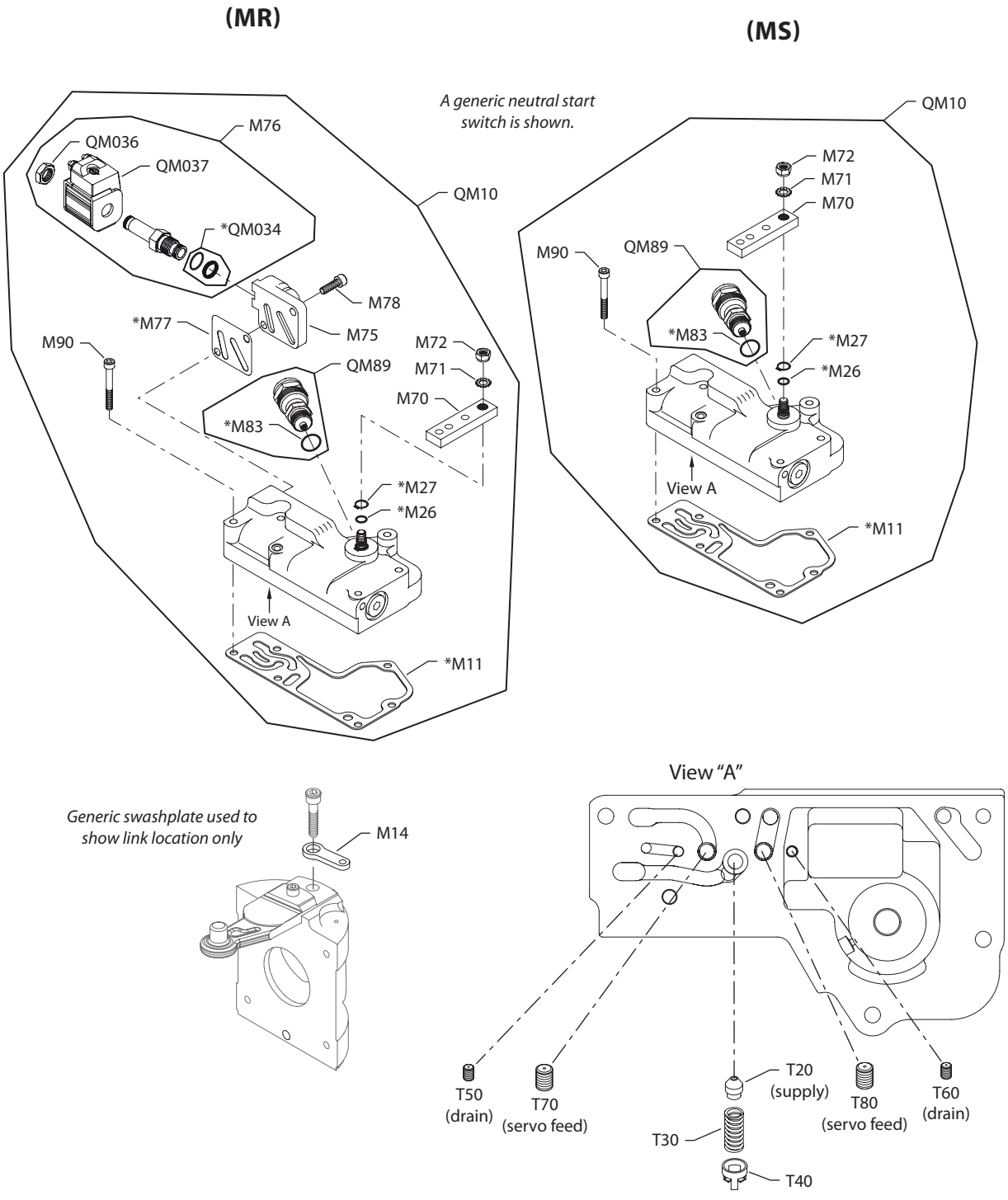
* = included in control seal kit QM210

## Variable displacement pump

### Control

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| MH | M11 | 99-12 | | 8800520 | Control gasket | 1 |
| | M14 | 99-12 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M26 | 99-12 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 99-12 | | 9006300-0044 | Retaining ring | 1 |
| | M70 | 99-12 | | 9800916 | Control handle | 1 |
| | M71 | 99-12 | | 9009660-3100 | Toothlock washer | 1 |
| | M72 | 99-12 | | 040642 (9003513-0800) | Nut | 1 |
| | M90 | 99-12 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 99-12 | | 8510383 | MDC kit w/reduced deadband | 1 |
| | QM210 | 99-12 | | 11096275 | Control seal kit | 1 |
| MK | M11 | 87-02 | | 8800520 | Control gasket | 1 |
| | M14 | 96-40 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M14 | 87-02 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M26 | 87-02 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 87-02 | | 9006300-0044 | Retaining ring | 1 |
| | M70 | 87-02 | | 9800916 | Control handle | 1 |
| | M71 | 87-02 | | 9009660-3100 | Toothlock washer | 1 |
| | M72 | 87-02 | | 040642 (9003513-0800) | Nut | 1 |
| | M83 | 87-02 | | 001123 (9004201-5000) | O-ring | 1 |
| | M90 | 87-02 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 99-12 | | 8002M0MK-A | MDC kit w/wide deadband, nss | 1 |
| | QM89 | 87-02 | | 80020S40 | Neutral start switch kit | 1 |
| | QM210 | 99-12 | | 11096275 | Control seal kit | 1 |
| ML | M11 | 87-02 | | 8800520 | Control gasket | 1 |
| | M14 | 96-40 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M14 | 87-02 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M26 | 87-02 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 87-02 | | 9006300-0044 | Retaining ring | 1 |
| | M70 | 87-02 | | 9800916 | Control handle | 1 |
| | M71 | 87-02 | | 9009660-3100 | Toothlock washer | 1 |
| | M72 | 87-02 | | 040642 (9003513-0800) | Nut | 1 |
| | M83 | 87-02 | | 001123 (9004201-5000) | O-ring | 1 |
| | M90 | 87-02 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 87-02 | | 8510356 | MDC kit w/wide deadband, high force nss | 1 |
| | QM89 | 87-02 | | 8510027 | Neutral start switch kit, high force | 1 |
| | QM210 | 87-02 | | 11096275 | Control seal kit | 1 |
| MQ | M11 | 10-27 | | 8800520 | Control gasket | 1 |
| | M14 | 10-27 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M26 | 10-27 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 10-27 | | 9006300-0044 | Retaining ring | 1 |
| | M70 | 10-27 | | 8801260 | Control handle, special | 1 |
| | M71 | 10-27 | | 9009660-3100 | Toothlock washer | 1 |
| | M72 | 10-27 | | 040642 (9003513-0800) | Nut | 1 |
| | M90 | 10-27 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 10-27 | | 11099891 | MDC kit w/special handle | 1 |
| | QM210 | 10-27 | | 11096275 | Control seal kit | 1 |

## Variable displacement pump




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E101 879E

* = included in control seal kit QM210

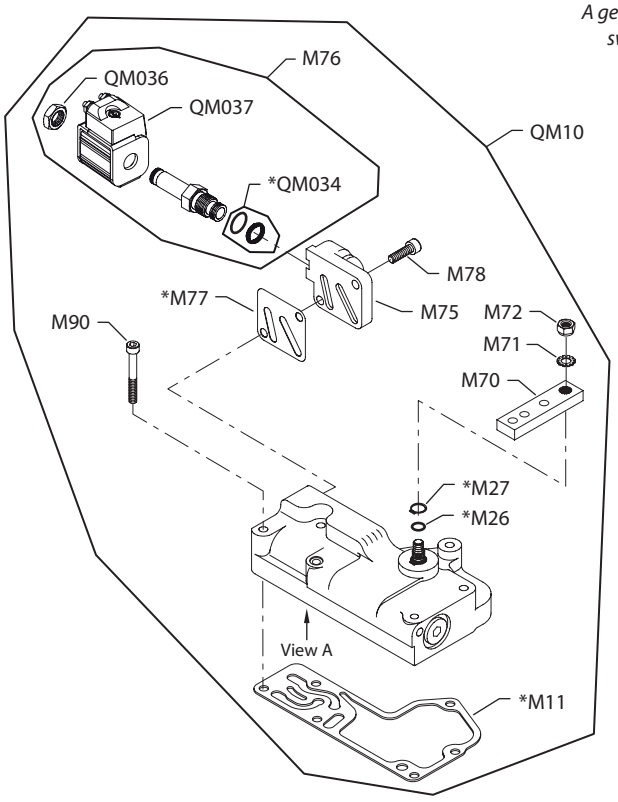
## Variable displacement pump

### Control

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| MR | M11 | 93-31 | | 8800520 | Control gasket | 1 |
| | M14 | 96-40 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M14 | 93-31 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M26 | 93-31 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 93-31 | | 9006300-0044 | Retaining ring | 1 |
| | M70 | 93-31 | | 9800916 | Control handle | 1 |
| | M71 | 93-31 | | 9009660-3100 | Toothlock washer | 1 |
| | M72 | 93-31 | | 040642 (9003513-0800) | Nut | 1 |
| | M75 | 93-31 | | 505022 | Control manifold (SB-1995-003) | 1 |
| | M76 | 93-31 | | 11127985 | Solenoid valve, 24 volt, double pole (SB-2014-020) | 1 |
| | M77 | 93-31 | | 8800882 | Manifold gasket | 1 |
| | M78 | 95-10 | | 693341 (9007314-0606) | Screw (SB-1995-003) | 2 |
| | M78 | 93-31 | 95-09 | 041160 (9007314-0605) | Screw | 2 |
| | M83 | 93-31 | | 001123 (9004201-5000) | O-ring | 1 |
| | M90 | 93-31 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 93-31 | | 8002M0MR-A | MDC kit w/24 volt solenoid, double pole, high force nss | 1 |
| | QM034 | 00-07 | | 11099649 | Solenoid valve seal kit | 1 |
| | QM036 | 14-06 | | 11100383 | Coil nut | 1 |
| | QM037 | 14-06 | | 11100386 | Coil kit, 24 volt, double pole | 1 |
| | QM89 | 93-31 | | 8510027 | Neutral start switch kit, high force | 1 |
| | QM210 | 14-06 | | 11100049 | Control seal kit | 1 |
| MS | M11 | 94-41 | | 8800520 | Control gasket | 1 |
| | M14 | 96-40 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M14 | 94-41 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M26 | 94-41 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 94-41 | | 9006300-0044 | Retaining ring | 1 |
| | M70 | 94-41 | | 9800916 | Control handle | 1 |
| | M71 | 94-41 | | 9009660-3100 | Toothlock washer | 1 |
| | M72 | 94-41 | | 040642 (9003513-0800) | Nut | 1 |
| | M83 | 94-41 | | 001123 (9004201-5000) | O-ring | 1 |
| | M90 | 94-41 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 94-41 | | 8510127 | MDC kit, high force nss | 1 |
| | QM89 | 94-41 | | 8510027 | Neutral start switch kit, high force | 1 |
| | QM210 | 94-41 | | 11096275 | Control seal kit | 1 |

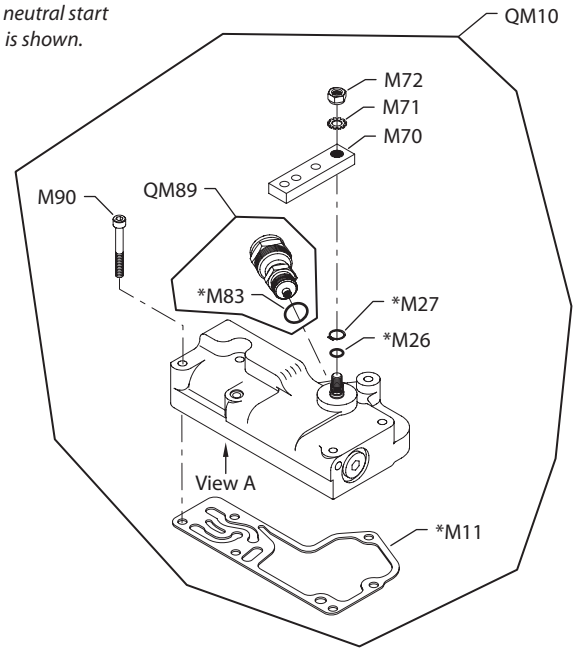
## Variable displacement pump

**(MT)**

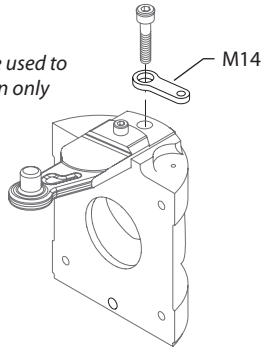



**(MV & MW)**

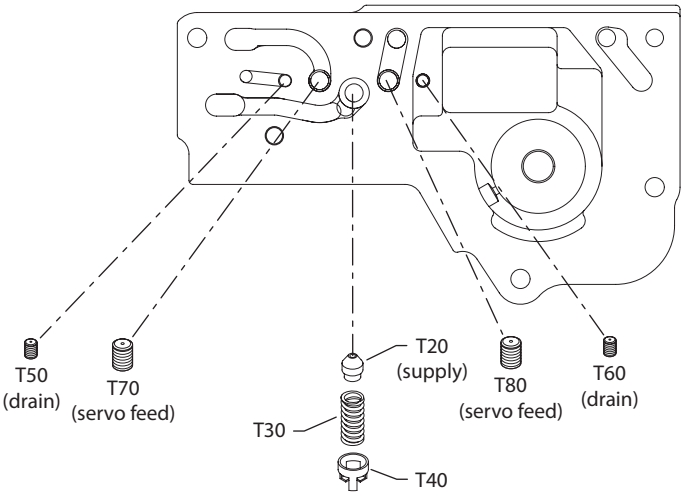
*A generic neutral start switch is shown.*




*Generic swashplate used to show link location only*




View "A"




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E100 723E

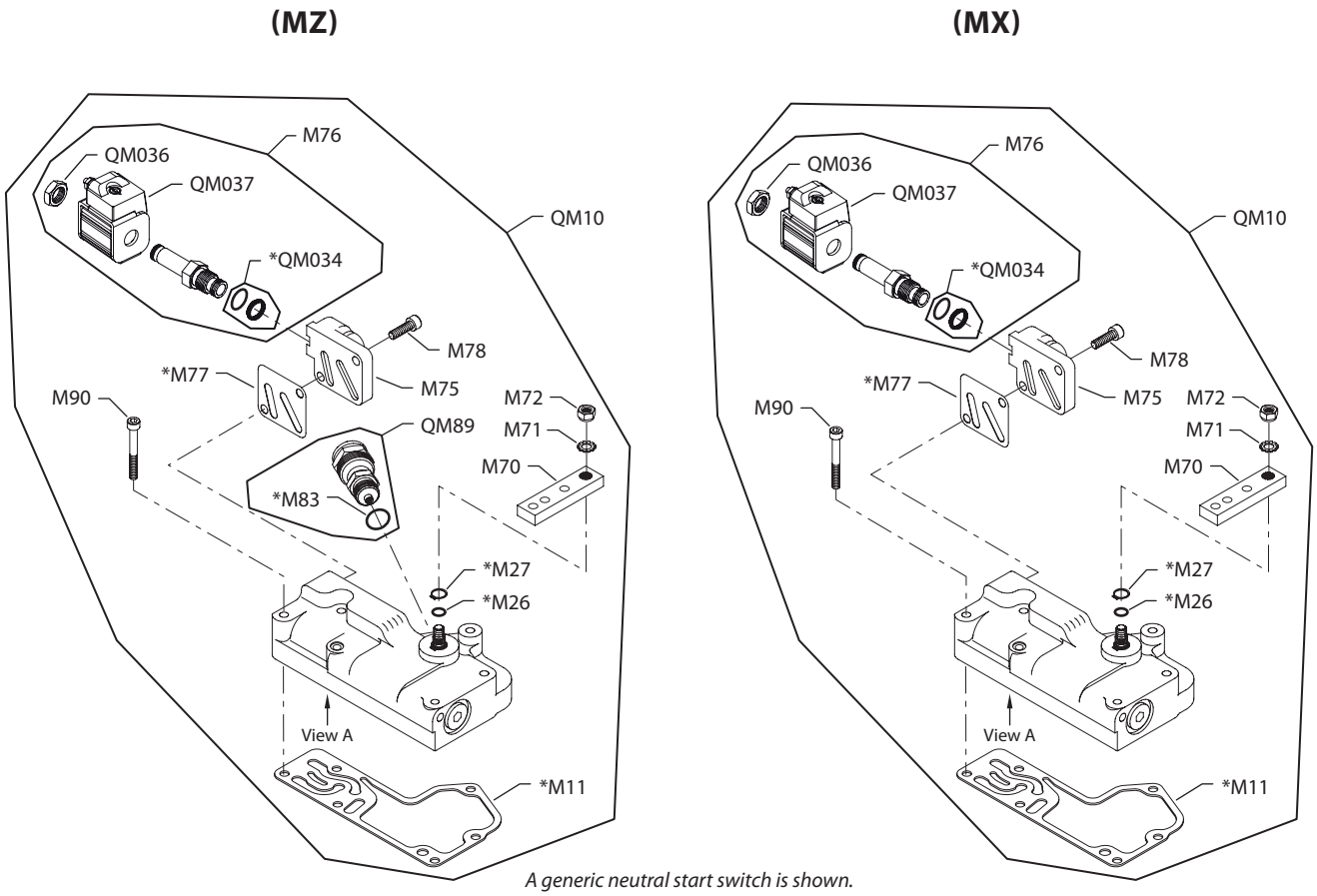
* = included in control seal kit QM210

## Variable displacement pump

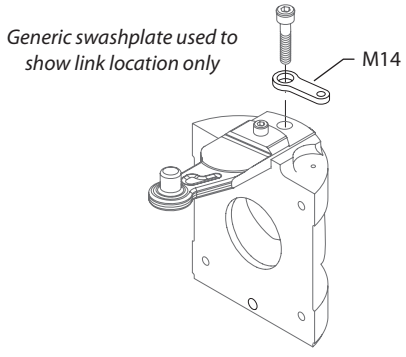
### Control

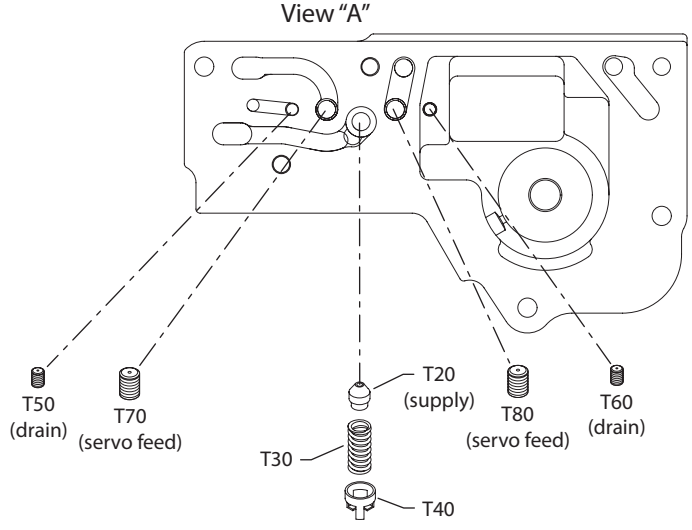
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| MT | M11 | 01-50 | | 8800520 | Control gasket | 1 |
| | M14 | 01-50 | | 11070305 | Feedback link | 1 |
| | M26 | 01-50 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 01-50 | | 9006300-0044 | Retaining ring | 1 |
| | M70 | 01-50 | | 9800916 | Control handle | 1 |
| | M71 | 01-50 | | 9009660-3100 | Toothlock washer | 1 |
| | M72 | 01-50 | | 040642 (9003513-0800) | Nut | 1 |
| | M75 | 01-50 | | 505022 | Control manifold | 1 |
| | M76 | 93-31 | | 11127986 | Solenoid valve, 12 volt, double pole (SB-2014-020) | 1 |
| | M77 | 01-50 | | 8800882 | Manifold gasket | 1 |
| | M78 | 01-50 | | 693341 (9007314-0606) | Screw | 2 |
| | M90 | 01-50 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 01-50 | | 8510319 | MDC kit w/12 volt solenoid, double pole | 1 |
| | QM034 | 00-07 | | 11099649 | Solenoid valve seal kit | 1 |
| | QM036 | 14-06 | | 11100383 | Coil nut | 1 |
| | QM037 | 14-06 | | 11100385 | Coil kit, 12 volt, double pole | 1 |
| | QM210 | 14-06 | | 11100049 | Control seal kit | 1 |
| MV | M11 | 94-30 | | 8800520 | Control gasket | 1 |
| | M14 | 96-40 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M14 | 94-30 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M26 | 94-30 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 94-30 | | 9006300-0044 | Retaining ring | 1 |
| | M70 | 94-30 | | 9800916 | Control handle | 1 |
| | M71 | 94-30 | | 9009660-3100 | Toothlock washer | 1 |
| | M72 | 94-30 | | 040642 (9003513-0800) | Nut | 1 |
| | M83 | 94-30 | | 001123 (9004201-5000) | O-ring | 1 |
| | M90 | 94-30 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 94-30 | | 8510129 | MDC kit, high force nss | 1 |
| | QM89 | 94-30 | | 8510170 | Neutral start switch kit | 1 |
| | QM210 | 94-30 | | 11096275 | Control seal kit | 1 |
| MW | M11 | 94-30 | | 8800520 | Control gasket | 1 |
| | M14 | 96-40 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M14 | 94-30 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M26 | 94-30 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 94-30 | | 9006300-0044 | Retaining ring | 1 |
| | M70 | 94-30 | | 9800916 | Control handle | 1 |
| | M71 | 94-30 | | 9009660-3100 | Toothlock washer | 1 |
| | M72 | 94-30 | | 040642 (9003513-0800) | Nut | 1 |
| | M83 | 94-30 | | 001123 (9004201-5000) | O-ring | 1 |
| | M90 | 94-30 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 94-30 | | 11099892 | MDC kit, high force nss | 1 |
| | QM89 | 94-30 | | 80020S40 | Neutral start switch kit | 1 |
| | QM210 | 94-30 | | 11096275 | Control seal kit | 1 |

## Variable displacement pump




*A generic neutral start switch is shown.*




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E101 875E

* = included in control seal kit QM210

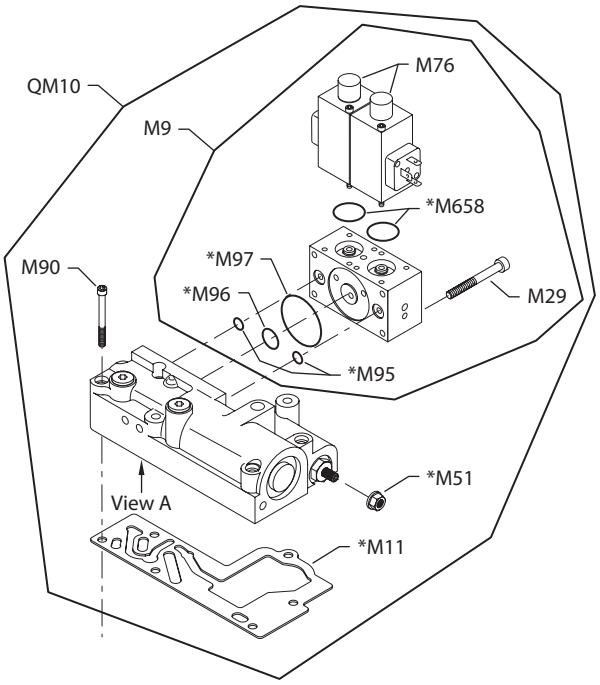
## Variable displacement pump

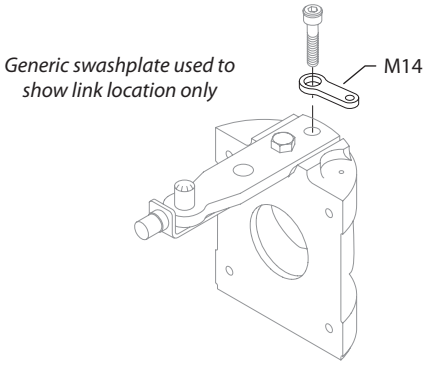
### Control

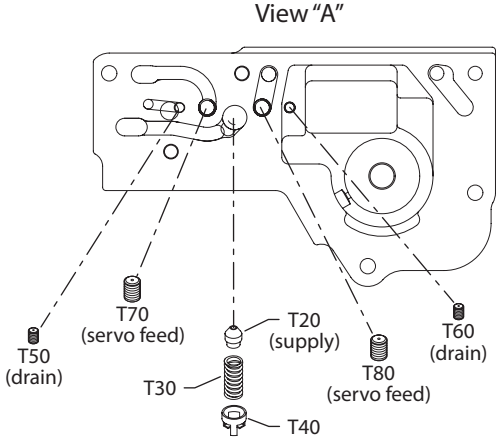
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| MX | M11 | 94-24 | | 8800520 | Control gasket | 1 |
| | M14 | 96-40 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M14 | 94-24 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M26 | 94-24 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 94-24 | | 9006300-0044 | Retaining ring | 1 |
| | M70 | 94-24 | | 9800916 | Control handle | 1 |
| | M71 | 94-24 | | 9009660-3100 | Toothlock washer | 1 |
| | M72 | 94-24 | | 040642 (9003513-0800) | Nut | 1 |
| | M75 | 94-24 | | 505022 | Control manifold (SB-1995-003) | 1 |
| | M76 | 94-24 | | 11127988 | Solenoid valve, 12 volt, single pole (SB-2014-020) | 1 |
| | M77 | 94-24 | | 8800882 | Manifold gasket | 1 |
| | M78 | 95-10 | | 693341 (9007314-0606) | Screw (SB-1995-003) | 2 |
| | M78 | 94-24 | 95-09 | 041160 (9007314-0605) | Screw | 2 |
| | M90 | 94-24 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 94-24 | | 8510063 | MDC kit w/12 volt solenoid, single pole | 1 |
| | QM034 | 94-24 | | 11099649 | Solenoid valve seal kit | 1 |
| | QM036 | 14-06 | | 11100383 | Coil nut | 1 |
| | QM037 | 14-06 | | 11100388 | Coil kit, 12 volt, single pole | 1 |
| | QM210 | 14-06 | | 11100049 | Control seal kit | 1 |
| MZ | M11 | 87-02 | | 8800520 | Control gasket | 1 |
| | M14 | 96-40 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M14 | 87-02 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M26 | 87-02 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 87-02 | | 9006300-0044 | Retaining ring | 1 |
| | M70 | 87-02 | | 9800916 | Control handle | 1 |
| | M71 | 87-02 | | 9009660-3100 | Toothlock washer | 1 |
| | M72 | 87-02 | | 040642 (9003513-0800) | Nut | 1 |
| | M75 | 87-02 | | 505022 | Control manifold (SB-1995-003) | 1 |
| | M76 | 14-06 | | 11127988 | Solenoid valve, 12 volt, single pole (SB-2014-020) | 1 |
| | M77 | 87-02 | | 8800882 | Manifold gasket | 1 |
| | M78 | 95-10 | | 693341 (9007314-0606) | Screw (SB-1995-003) | 2 |
| | M78 | 87-02 | 95-09 | 041160 (9007314-0605) | Screw | 2 |
| | M83 | 87-02 | | 001123 (9004201-5000) | O-ring | 1 |
| | M90 | 87-02 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 87-02 | | 8510108 | MDC kit w/12 volt solenoid, single pole, high force nss | 1 |
| | QM034 | 87-02 | | 11099649 | Solenoid valve seal kit | 1 |
| | QM036 | 14-06 | | 11100383 | Coil nut | 1 |
| | QM037 | 14-06 | | 11100388 | Coil kit, 12 volt, single pole | 1 |
| | QM89 | 87-02 | | 8510170 | Neutral start switch kit | 1 |
| | QM210 | 14-06 | | 11100049 | Control seal kit | 1 |

## Variable displacement pump

### (PA & PB)




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E100 724E

* = included in control seal kit QM210

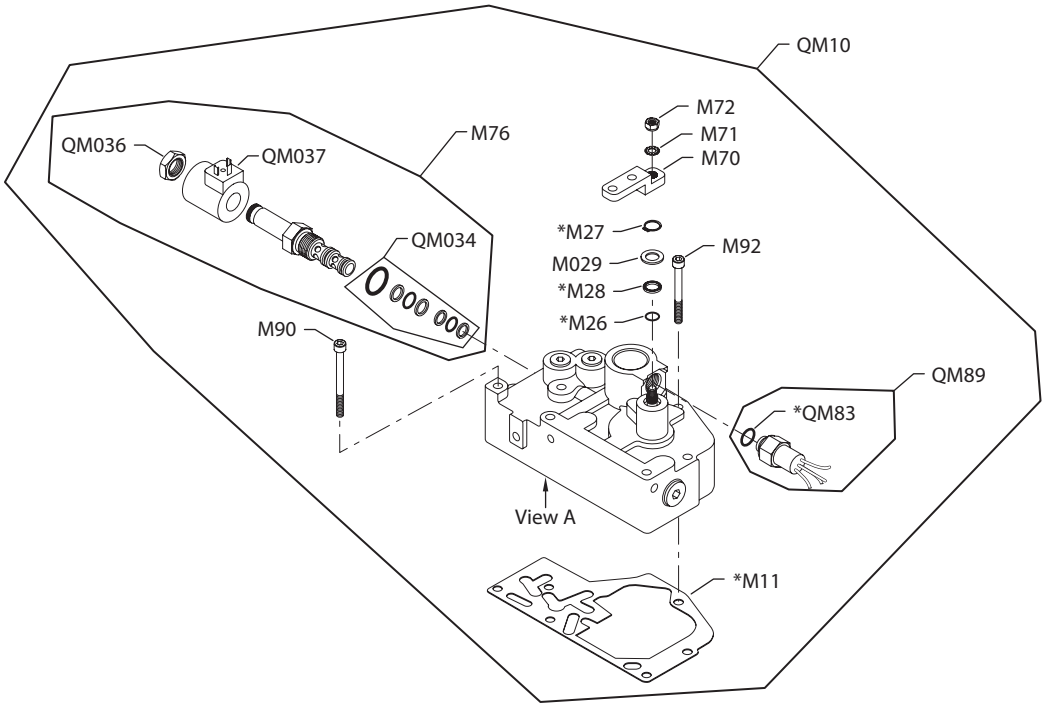
## Variable displacement pump

### Control

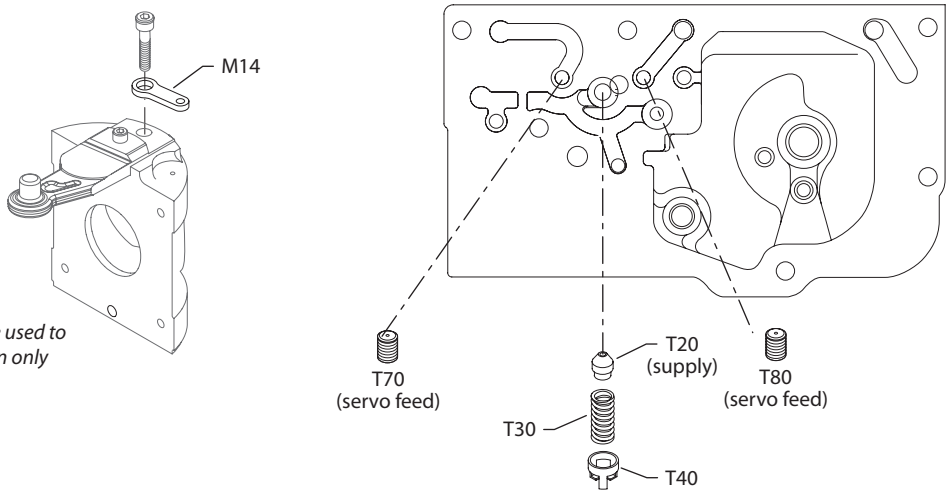
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| PA | M9 | 96-33 | | 782037 | PDC, 12 volt | 1 |
| | M11 | 96-33 | | K11419 | Control gasket | 1 |
| | M14 | 96-40 | | 11070305 | Feedback link (SB-1999-019, SB-2013-011) | 1 |
| | M14 | 96-33 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M29 | 96-33 | | 035592 | Screw | 4 |
| | M51 | 96-33 | | 505412 (9003509-0008) | Seal nut | 1 |
| | M76 | 96-33 | | 11001795 | Solenoid valve, 12 volt | 2 |
| | M90 | 96-33 | | 692889 (9007314-0611) | Screw | 6 |
| | M95 | 96-33 | | 011296 (9004105-0120) | O-ring | 2 |
| | M96 | 96-33 | ` | 688721 | O-ring | 1 |
| | M97 | 96-33 | | 314534 (9004104-0310) | O-ring | 1 |
| | M658 | 96-33 | | 635938 (9004100-0210) | O-ring | 2 |
| | QM10 | 96-33 | | 8510165 | HDC kit w/PDC, 12 volt | 1 |
| | QM210 | 96-33 | | 11096250 | Control seal kit | 1 |
| PB | M9 | 08-29 | | 782045 | PDC, 24 volt | 1 |
| | M11 | 08-29 | | K11419 | Control gasket | 1 |
| | M14 | 08-29 | | 11070305 | Feedback link | 1 |
| | M29 | 08-29 | | 035592 | Screw | 4 |
| | M76 | 08-29 | | 11001794 | Solenoid valve, 24 volt | 2 |
| | M90 | 08-29 | | 692889 (9007314-0611) | Screw | 6 |
| | M95 | 08-29 | | 011296 (9004105-0120) | O-ring | 2 |
| | M96 | 08-29 | ` | 688721 | O-ring | 1 |
| | M97 | 08-29 | | 314534 (9004104-0310) | O-ring | 1 |
| | M658 | 08-29 | | 635938 (9004100-0210) | O-ring | 2 |
| | QM10 | 08-29 | | 11034081 | HDC kit w/PDC, 24 volt | 1 |
| | QM210 | 08-29 | | 11096250 | Control seal kit | 1 |

## Variable displacement pump

### (RU)




View "A"




*Generic swashplate used to show link location only*

Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E100 725E

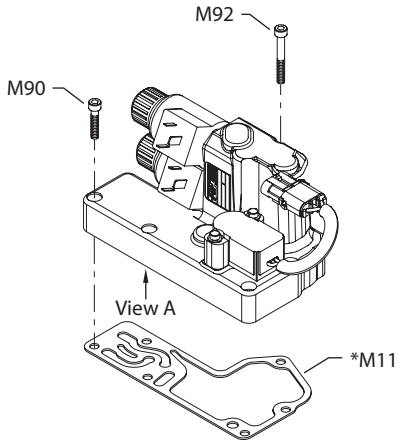
## Variable displacement pump

### Control

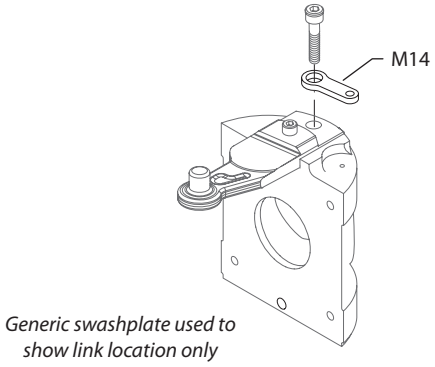
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| RU | M11 | 99-45 | | 510379 | Control gasket | 1 |
| | M14 | 99-45 | | 11070305 | Feedback link | 1 |
| | M26 | 99-45 | | 144725 | O-ring | 1 |
| | M27 | 99-45 | | 042507 | Retaining ring | 1 |
| | M28 | 99-45 | | 510690 | Lib seal | 1 |
| | M029 | 99-45 | | 512047 | Washer | 1 |
| | M70 | 99-45 | | 769075 | Control handle | 1 |
| | M71 | 99-45 | | 9009660-3100 | Toothlock washer | 1 |
| | M72 | 99-45 | | 040642 (9003513-0800) | Nut | 1 |
| | M90 | 99-45 | | 354407 | Screw | 5 |
| | M92 | 99-45 | | 510382 | Screw | 1 |
| | M76 | 99-45 | | 513017 | Solenoid valve, 12 volt | 1 |
| | QM10 | 99-45 | | 8510384 | MDC kit, roller | 1 |
| | QM034 | 99-45 | | 11099850 | Solenoid valve seal kit | 1 |
| | QM036 | 14-06 | | 11100383 | Coil nut | 1 |
| | QM037 | 14-06 | | 11100386 | Coil kit, 12 volt, single pole | 1 |
| | QM83 | 99-45 | | 001123 (9004201-3700) | O-ring | 1 |
| | QM89 | 99-45 | | 11099847 | Neutral start switch | 1 |
| | QM210 | 14-06 | | 11100029 | Control seal kit | 1 |

## Variable displacement pump

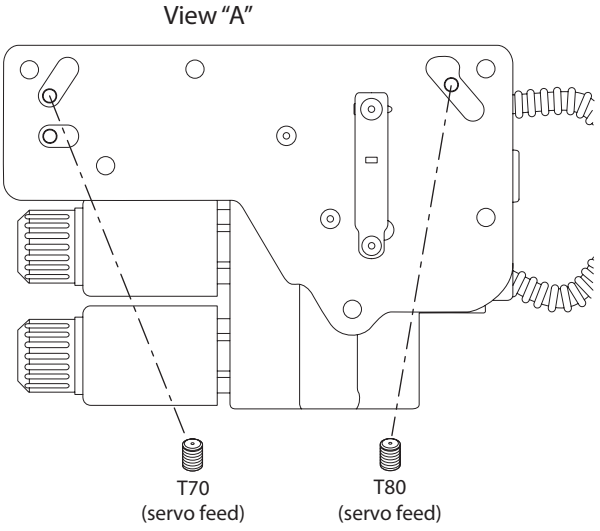
### (SA & SB)




NOTE: THIS CONTROL IS NOT AVAILABLE AS A SERVICE PART.




*Generic swashplate used to show link location only*




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E101 880E

* = included in control seal kit QM210

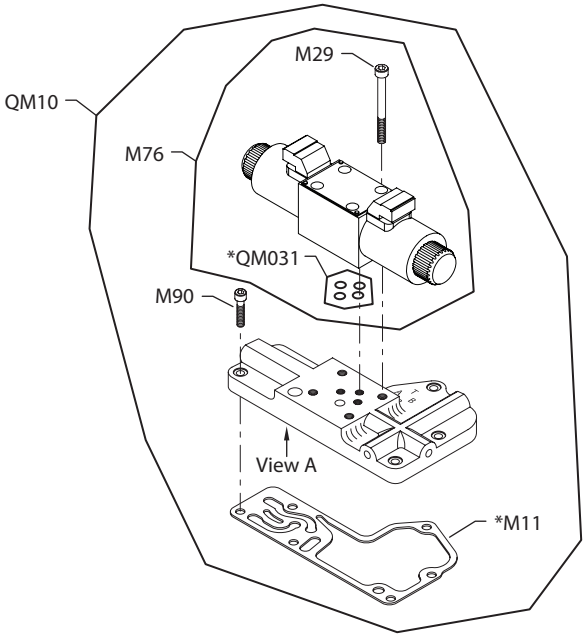
## Variable displacement pump

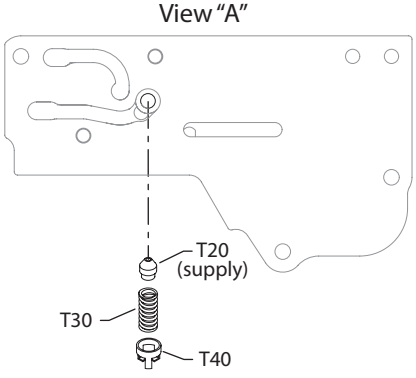
### Control

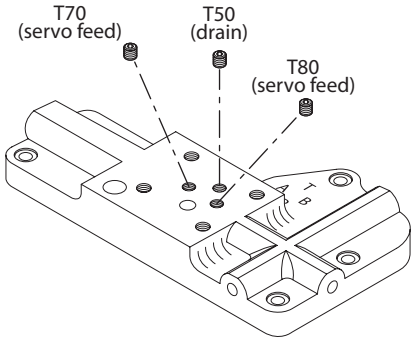
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| SA | M11 | 07-03 | | 8800520 | Gasket | 1 |
| | M14 | 07-03 | | 11070305 | Feedback link | 1 |
| | M90 | 07-03 | | 9007314-0608 | Screw | 5 |
| | M92 | 07-03 | | 9007314-0612 | Screw | 1 |
| | | | | | | |
| SB | M11 | 08-01 | | 8800520 | Gasket | 1 |
| | M14 | 08-01 | | 11070305 | Feedback link | 1 |
| | M90 | 08-01 | | 9007314-0608 | Screw | 5 |
| | M92 | 08-01 | | 9007314-0612 | Screw | 1 |

## Variable displacement pump

**(SC)**




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E101 881E

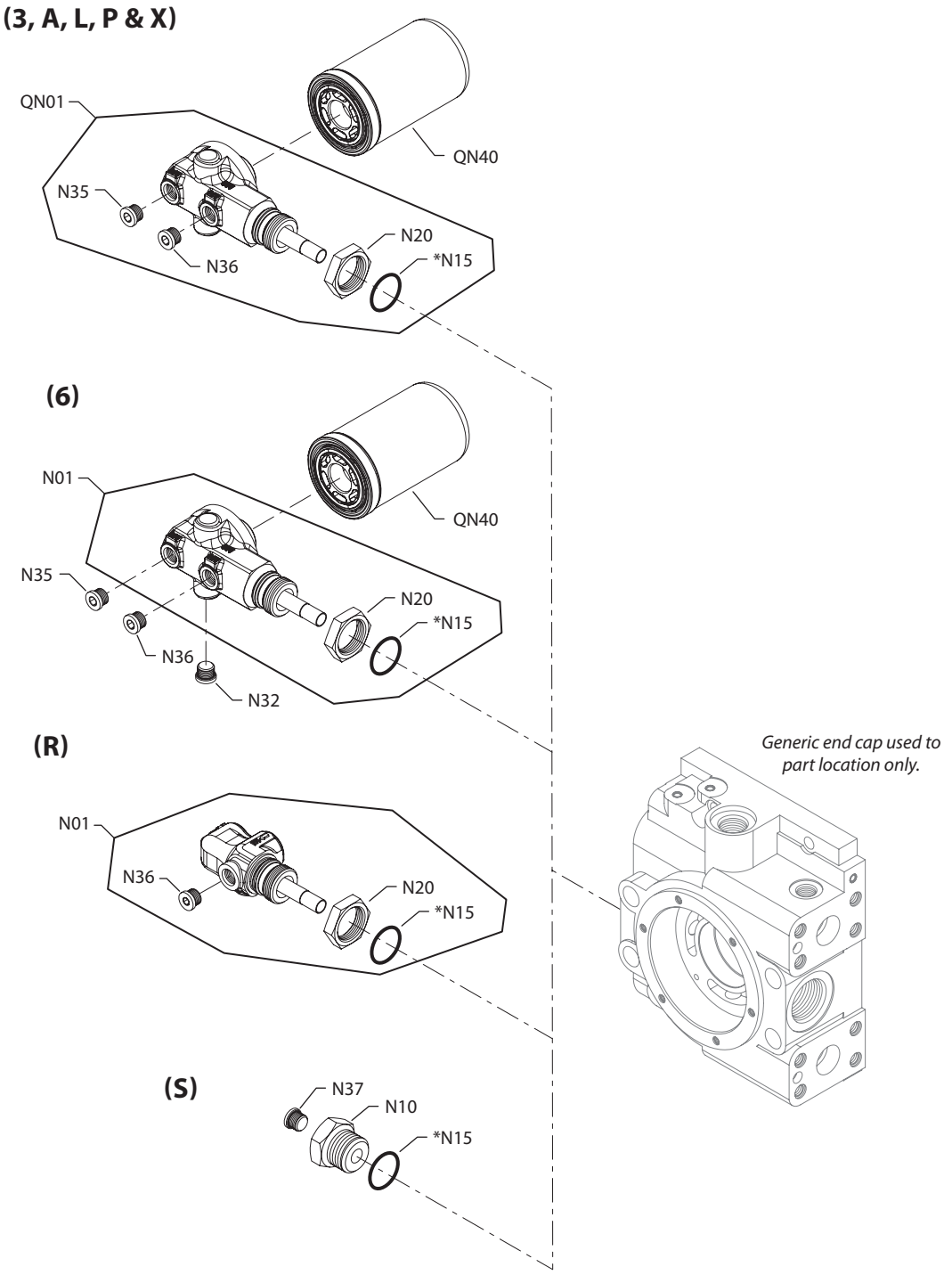
* = included in control seal kit QM210

## Variable displacement pump

### Control

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| SC | M11 | 99-11 | | 8800520 | Gasket | 1 |
| | M29 | 99-11 | | 035592 | Screw | 4 |
| | M76 | 99-11 | | 509848/P | Solenoid valve | 1 |
| | M90 | 99-11 | | 693341 (9007314-0606) | Screw | 6 |
| | QM10 | 99-11 | | 8510385 | Control kit, 3-position, 12 volt | 1 |
| | QM031 | 99-11 | | 11099647 | Valve seal kit | 1 |
| | QM210 | 99-11 | | 11096161 | Control seal kit | 1 |

## Variable displacement pump




E100 726E

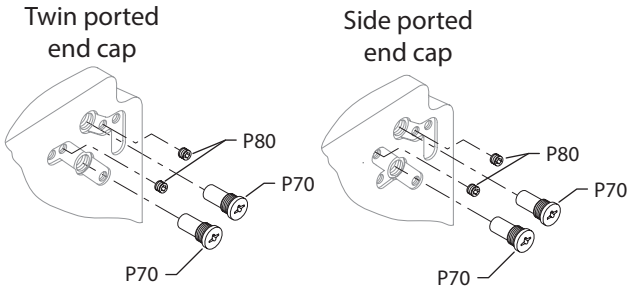
* = included in overhaul seal kit Q210

## Variable displacement pump

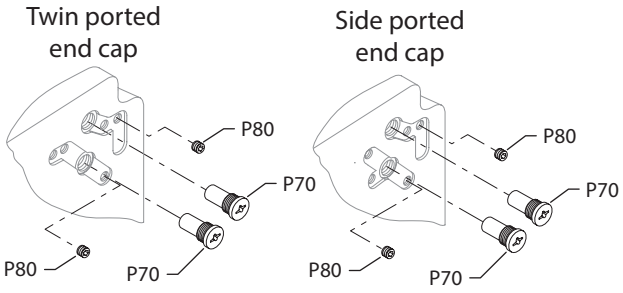
### Filtration

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 3 & X | N15 | 98-14 | | 001172 (9004201-9000) | O-ring | 1 |
| | N20 | 98-14 | | 11049997 | Nut | 1 |
| | N35 | 98-14 | | 140644 | Plug assembly | 1 |
| | N36 | 98-14 | | 140644 | Plug assembly | 1 |
| | QN01 | 98-14 | | 11145249 | Filter manifold kit | 1 |
| | QN40 | 98-14 | | 11004919 | Filter, long | 1 |
| 6 | N01 | 00-01 | | 11060345 | Filter manifold assembly | 1 |
| | N15 | 00-01 | | 001172 (9004201-9000) | O-ring | 1 |
| | N20 | 00-01 | | 11049997 | Nut | 1 |
| | N32 | 00-01 | | 140644 | Plug assembly | 1 |
| | N35 | 00-01 | | 140644 | Plug assembly | 1 |
| | N36 | 00-01 | | 140644 | Plug assembly | 1 |
| | QN40 | 00-01 | | 11004917 | Filter, short | 1 |
| A | N15 | 98-14 | | 001172 (9004201-9000) | O-ring | 1 |
| | N20 | 98-14 | | 11049997 | Nut | 1 |
| | N35 | 98-14 | | 140644 | Plug assembly | 1 |
| | N36 | 98-14 | | 140644 | Plug assembly | 1 |
| | QN01 | 98-14 | | 11145249 | Filter manifold kit | 1 |
| | QN40 | 98-14 | | 11004917 | Filter, short | 1 |
| D | | | | None | | |
| L | N15 | 87-02 | | 001172 (9004201-9000) | O-ring | 1 |
| | N20 | 95-18 | | 11049997 | Nut | 1 |
| | N20 | 87-02 | 95-17 | 700492 (9002863-1600) | Nut (SB-1994-036) | 1 |
| | N35 | 87-02 | | 140644 | Plug assembly | 1 |
| | N36 | 87-02 | | 140644 | Plug assembly | 1 |
| | QN01 | 98-14 | | 11145249 | Filter manifold kit | 1 |
| | QN40 | 87-02 | | 11004919 | Filter, long | 1 |
| P | N15 | 87-02 | | 001172 (9004201-9000) | O-ring | 1 |
| | N20 | 95-18 | | 11049997 | Nut | 1 |
| | N20 | 87-02 | 95-17 | 700492 (9002863-1600) | Nut (SB-1994-036) | 1 |
| | N35 | 87-02 | | 140644 | Plug assembly | 1 |
| | N36 | 87-02 | | 140644 | Plug assembly | 1 |
| | QN01 | 98-14 | | 11145249 | Filter manifold kit | 1 |
| | QN40 | 87-02 | | 11004917 | Filter, short | 1 |
| R | N01 | 87-42 | | 11060427 | Filter manifold assembly | 1 |
| | N15 | 87-42 | | 001172 (9004201-9000) | O-ring | 1 |
| | N20 | 87-42 | | 11049997 | Nut | 1 |
| | N36 | 87-42 | | 140644 | Plug assembly | 1 |
| S | N10 | 87-42 | | 5000230 | Reducer assembly | 1 |
| | N15 | 87-42 | | 001172 (9004201-9000) | O-ring | 1 |
| | N37 | 87-42 | | 140644 | Plug assembly | 1 |

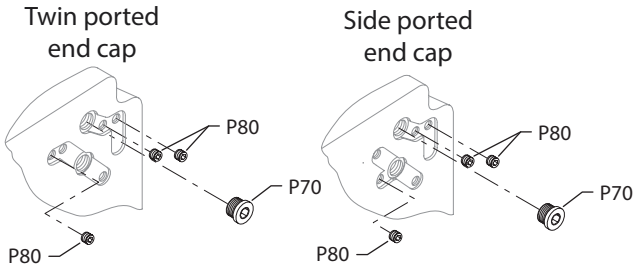
## Variable displacement pump



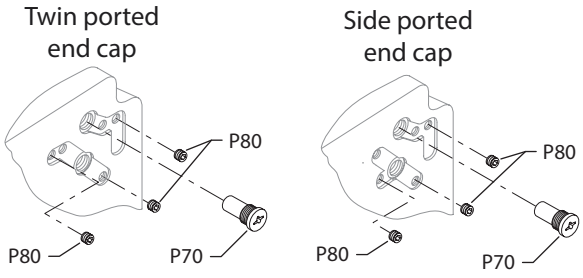

View "A" with pressure limiters, left hand rotation,
**(1, 5 & 6)**



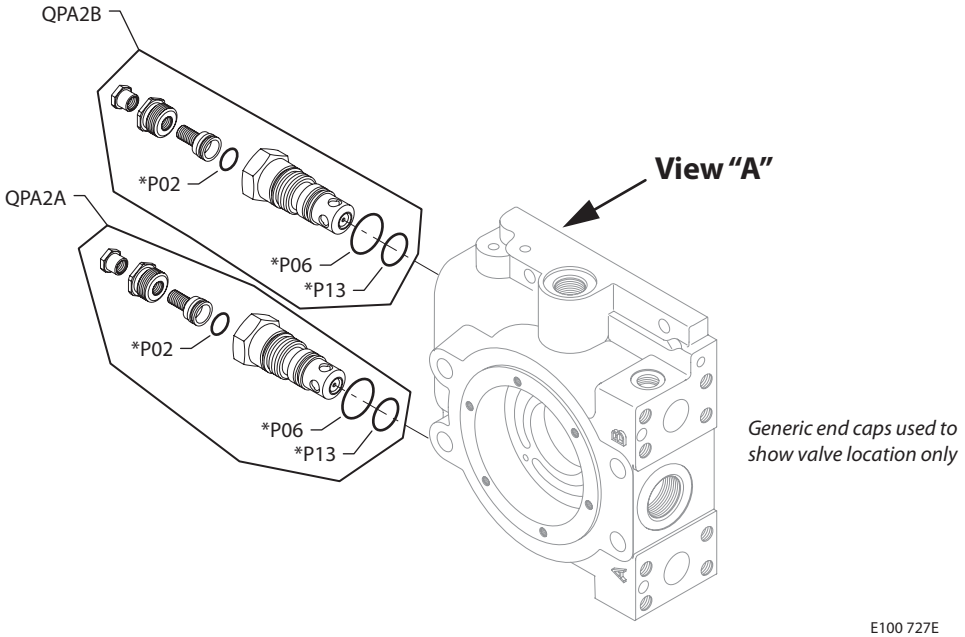

View "A" with pressure limiters, right hand rotation,
**(1, 5 & 6)**




View "A" without pressure limiters, left/right hand rotation
**(2 & 7)**




View "A" with pressure limiter port A, HPRV port B, right hand rotation
**(B)**



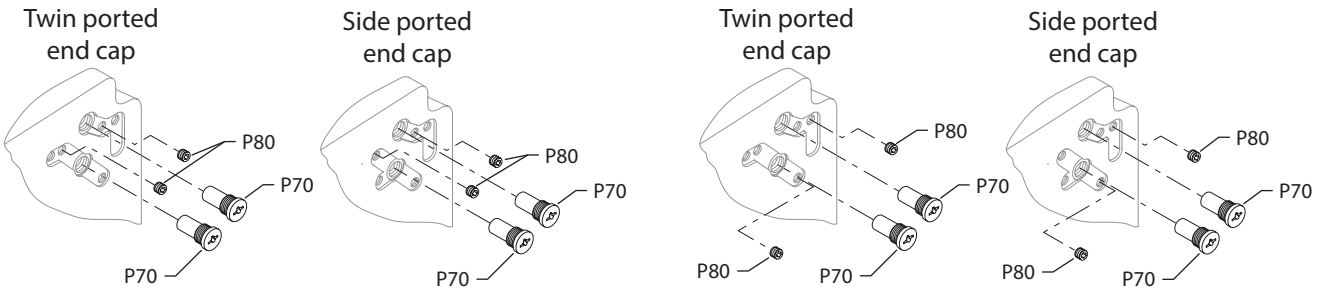

* = included in overhaul seal kit Q210

## Variable displacement pump

### High pressure regulation

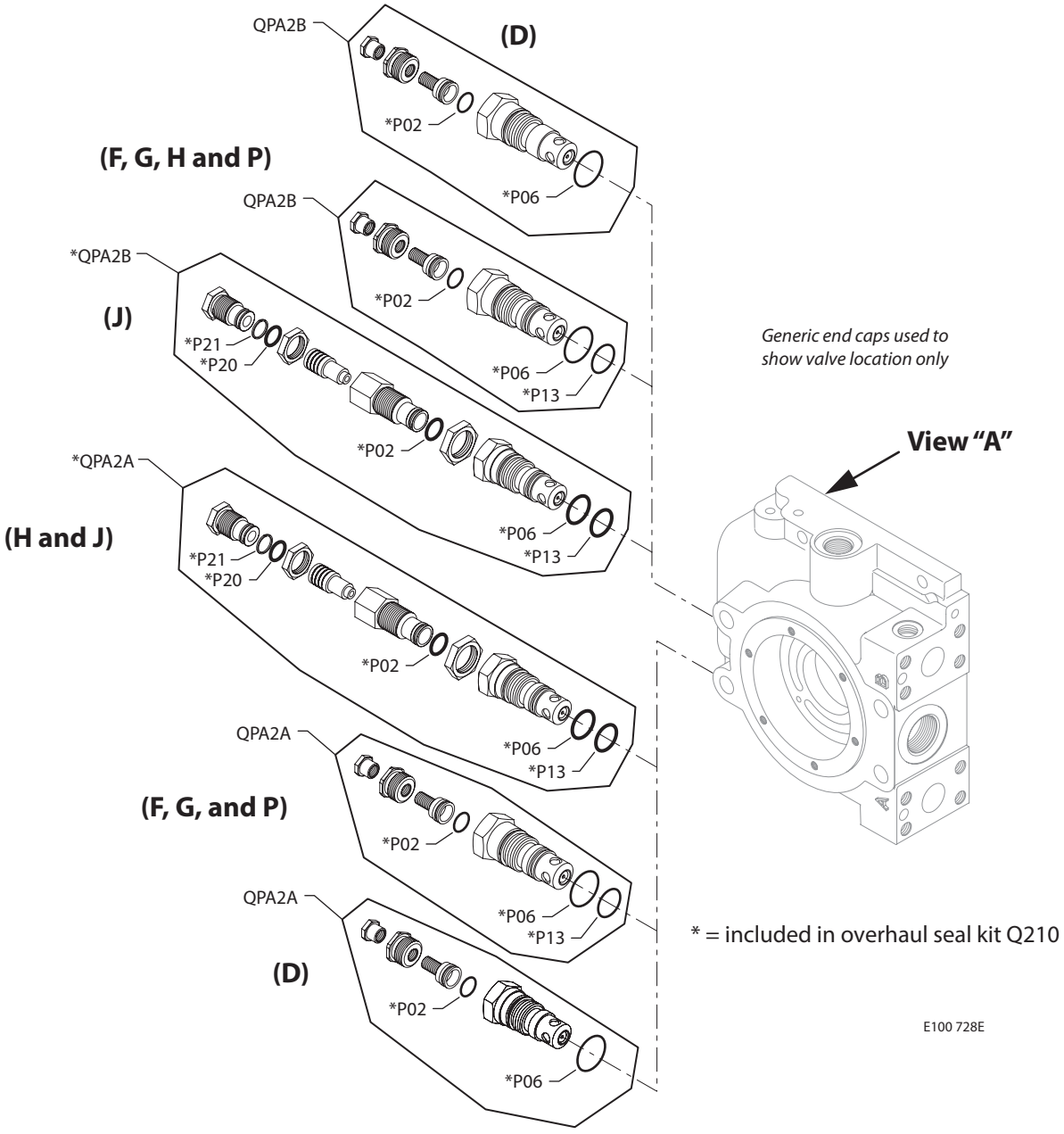
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 1 | P02 | 87-02 | | 688721 | O-ring | 2 |
| | P06 | 87-02 | | 071811 | O-ring | 2 |
| | P13 | 87-02 | | 544742 (9004105-0190) | O-ring | 2 |
| | P70 | 87-02 | | 8800188 | Check valve assembly | 2 |
| | P80 | 87-02 | | 9005475-0004 | Special pipe plug | 2 |
| | QPA2A | 87-02 | | 8510022-1 | Multi-function valve kit | 1 |
| | QPA2B | 87-02 | | 8510022-1 | Multi-function valve kit | 1 |
| 2 | P02 | 87-02 | | 688721 | O-ring | 2 |
| | P06 | 87-02 | | 071811 | O-ring | 2 |
| | P13 | 87-02 | | 544742 (9004105-0190) | O-ring | 2 |
| | P70 | 87-02 | | 327007 (9005110-4400) | Plug assembly | 1 |
| | P80 | 87-02 | | 9005475-0004 | Special pipe plug | 3 |
| | QPA2A | 87-02 | | 8510022-2 | Multi-function valve kit | 1 |
| | QPA2B | 87-02 | | 8510022-2 | Multi-function valve kit | 1 |
| 5 | P02 | 87-02 | | 688721 | O-ring | 2 |
| | P06 | 87-02 | | 071811 | O-ring | 2 |
| | P13 | 87-02 | | 544742 (9004105-0190) | O-ring | 2 |
| | P70 | 87-02 | | 8800188 | Check valve assembly | 2 |
| | P80 | 87-02 | | 9005475-0004 | Special pipe plug | 2 |
| | QPA2A | 87-02 | | 8510240 | Multi-function valve kit | 1 |
| | QPA2B | 87-02 | | 8510240 | Multi-function valve kit | 1 |
| 6 | P02 | 87-02 | | 688721 | O-ring | 2 |
| | P06 | 87-02 | | 071811 | O-ring | 2 |
| | P13 | 87-02 | | 544742 (9004105-0190) | O-ring | 2 |
| | P70 | 87-02 | | 8800188 | Check valve assembly | 2 |
| | P80 | 87-02 | | 9005475-0004 | Special pipe plug | 2 |
| | QPA2A | 87-02 | | 8510022-6 | Multi-function valve kit | 1 |
| | QPA2B | 87-02 | | 8510022-6 | Multi-function valve kit | 1 |
| 7 | P02 | 87-02 | | 688721 | O-ring | 2 |
| | P16 | 87-02 | | 071811 | O-ring | 2 |
| | P13 | 87-02 | | 544742 (9004105-0190) | O-ring | 2 |
| | P70 | 87-02 | | 327007 (9005110-4400) | Plug assembly | 1 |
| | P80 | 87-02 | | 9005475-0004 | Special pipe plug | 3 |
| | QPA2A | 87-02 | | 8510022-7 | Multi-function valve kit | 1 |
| | QPA2B | 87-02 | | 8510022-7 | Multi-function valve kit | 1 |
| B | P02 | 87-02 | | 688721 | O-ring | 2 |
| | P06 | 87-02 | | 071811 | O-ring | 2 |
| | P13 | 87-02 | | 544742 (9004105-0190) | O-ring | 2 |
| | P70 | 87-02 | | 8800188 | Check valve assembly | 1 |
| | P80 | 87-02 | | 9005475-0004 | Special pipe plug | 3 |
| | QPA2A | 87-02 | | 8510022-1 | Multi-function valve kit | 1 |
| | QPA2B | 87-02 | | 8510022-7 | Multi-function valve kit | 1 |

## Variable displacement pump




View "A" with pressure limiters, left hand rotation, **(F, G, H and P)**

View "A" with pressure limiters, right hand rotation, **(F, G, H and P)**

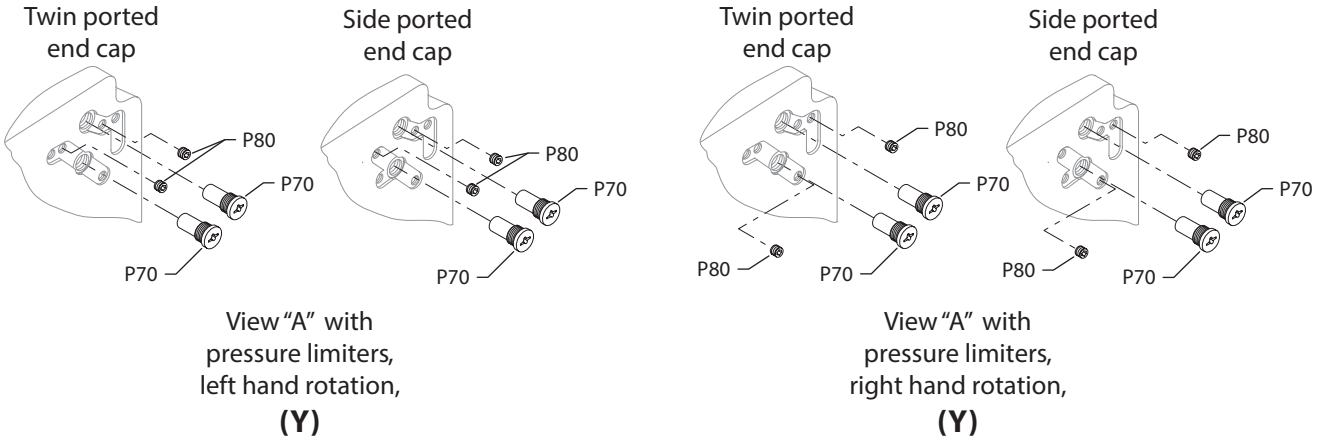


## Variable displacement pump

### High pressure regulation

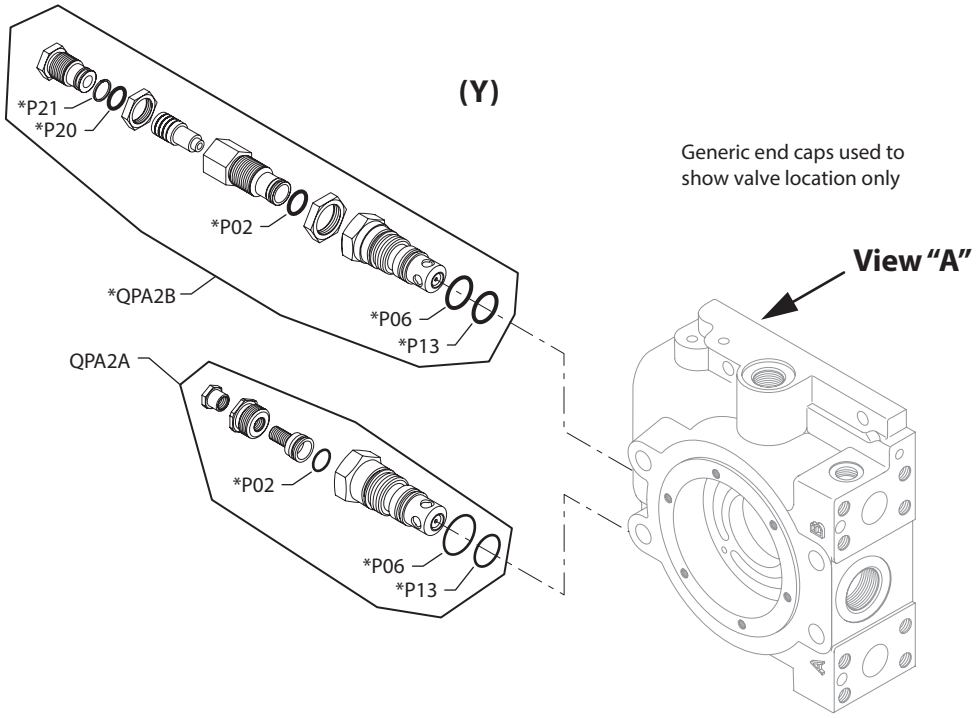
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| D | P02 | 92-22 | | 688721 | O-ring | 2 |
| | P06 | 92-22 | | 071811 | O-ring | 2 |
| | QPA2A | 92-22 | | 8510388 | Multi-function valve kit | 1 |
| | QPA2B | 92-22 | | 8510388 | Multi-function valve kit | 1 |
| F | P02 | 98-29 | | 688721 | O-ring | 2 |
| | P06 | 98-29 | | 071811 | O-ring | 2 |
| | P13 | 98-29 | | 544742 (9004105-0190) | O-ring | 2 |
| | P70 | 98-29 | | 8800188 | Check valve | 2 |
| | P80 | 98-29 | | 9005475-0004 | Special plug | 2 |
| | QPA2A | 98-29 | | 8510022-2 | Multi-function valve kit | 1 |
| | QPA2B | 98-29 | | 8510022-2 | Multi-function valve kit | 1 |
| G | P02 | 97-06 | | 688721 | O-ring | 2 |
| | P06 | 97-06 | | 071811 | O-ring | 2 |
| | P13 | 97-06 | | 544742 (9004105-0190) | O-ring | 2 |
| | P70 | 97-06 | | 8800188 | Check valve | 2 |
| | P80 | 97-06 | | 9005475-0004 | Special plug | 2 |
| | QPA2A | 97-06 | | 8510196 | Multi-function valve kit | 1 |
| | QPA2B | 97-06 | | 8510196 | Multi-function valve kit | 1 |
| H | P02 | 97-40 | | 688721 | O-ring | 2 |
| | P06 | 97-40 | | 071811 | O-ring | 2 |
| | P13 | 97-40 | | 544742 (9004105-0190) | O-ring | 2 |
| | P20 | 97-40 | | 9004105-0160 | O-ring | 1 |
| | P21 | 97-40 | | 9006110-0160 | Back up ring | 1 |
| | P70 | 97-40 | | 8800188 | Check valve | 2 |
| | P80 | 97-40 | | 9005475-0004 | Special plug | 2 |
| | QPA2A | 97-40 | | 8510275 | Multi-function valve kit, dual setting | 1 |
| | QPA2B | 97-40 | | 8510022-1 | Multi-function valve kit | 1 |
| J | P02 | 97-40 | | 688721 | O-ring | 2 |
| | P06 | 97-40 | | 071811 | O-ring | 2 |
| | P13 | 97-40 | | 544742 (9004105-0190) | O-ring | 2 |
| | P20 | 97-40 | | 9004105-0160 | O-ring | 2 |
| | P21 | 97-40 | | 9006110-0160 | Back up ring | 2 |
| | QPA2A | 97-40 | | 8510275 | Multi-function valve kit, dual setting | 1 |
| | QPA2B | 97-40 | | 8510275 | Multi-function valve kit, dual setting | 1 |
| P | P02 | 99-26 | | 688721 | O-ring | 2 |
| | P06 | 99-26 | | 071811 | O-ring | 2 |
| | P13 | 99-26 | | 544742 (9004105-0190) | O-ring | 2 |
| | P70 | 99-26 | | 8800188 | Check valve assembly | 2 |
| | P80 | 99-26 | | 9005475-0004 | Special pipe plug | 2 |
| | QPA2A | 99-26 | | 8510389 | Multi-function valve kit | 1 |
| | QPA2B | 99-26 | | 8510389 | Multi-function valve kit | 1 |

## Variable displacement pump




View "A" with pressure limiters, left hand rotation, **(Y)**

View "A" with pressure limiters, right hand rotation, **(Y)**




E101 882E

* = included in overhaul seal kit Q210

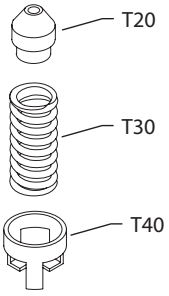
## Variable displacement pump

### High pressure regulation

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| Y | P02 | 12-01 | | 688721 | O-ring | 2 |
| | P06 | 12-01 | | 071811 | O-ring | 2 |
| | P13 | 12-01 | | 544742 (9004105-0190) | O-ring | 2 |
| | P20 | 12-01 | | 9004105-0160 | O-ring | 1 |
| | P21 | 12-01 | | 9006110-0160 | Back up ring | 1 |
| | P70 | 12-01 | | 8800188 | Check valve | 2 |
| | P80 | 12-01 | | 9005475-0004 | Special plug | 2 |
| | QPA2A | 12-01 | | 8510022-1 | Multi-function valve kit | 1 |
| | QPA2B | 12-01 | | 8510275 | Multi-function valve kit, dual setting | 1 |

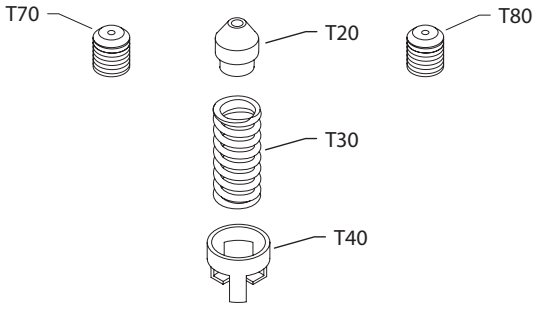
## Variable displacement pump

### (01, 02, 03, 04, 05, 06 & 09)



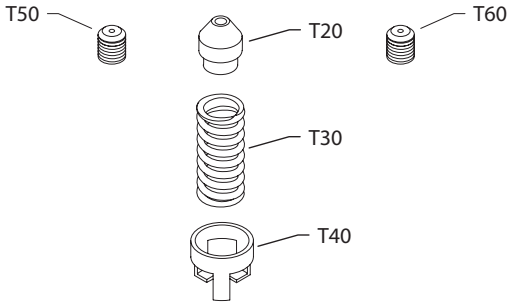

See control drawing for orifice location

### (07 & 21)




See control drawing for orifice location

### (20)




See control drawing for orifice location

E100 103E

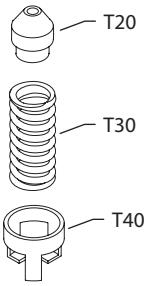
## Variable displacement pump

### Orifice

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 00 | | | | None | | |
| 01 | T20 | 87-42 | | 8801136 | Orificed check valve, .018" | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| 02 | T20 | 87-42 | | 8801139 | Orificed check valve, .026" | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| 03 | T20 | 87-42 | | 11061958 | Orificed check valve, .81mm | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| 04 | T20 | 87-42 | | 11061970 | Orificed check valve, 1.02mm | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| 05 | T20 | 87-42 | | 11061981 | Orificed check valve, 1.37mm | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| 06 | T20 | 87-42 | | 11061993 | Orificed check valve, 1.57mm | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| 07 | T20 | 87-42 | | 8801139 | Orificed check valve, 1.02mm | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T70 | 87-42 | | 310771 | Orifice plug, 1.2mm, M6 x 6 | 1 |
| | T80 | 87-42 | | 310771 | Orifice plug, 1.2mm, M6 x 6 | 1 |
| 09 | T20 | 87-42 | | 11062006 | Orificed check valve, 2.34mm | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| 20 | T20 | 87-42 | | 8801136 | Orificed check valve, .18mm | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T50 | 87-42 | | 639161 | Orifice plug, 1.4mm, M5 x 6 | 1 |
| | T60 | 87-42 | | 639161 | Orifice plug, 1.4mm, M5 x 6 | 1 |
| 21 | T20 | 87-42 | | 11061970 | Orificed check valve, 1.02mm | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T70 | 87-42 | | 714477 | Orifice plug, 0.8mm, M8 x 8 | 1 |
| | T80 | 87-42 | | 714477 | Orifice plug, 0.8mm, M8 x 8 | 1 |

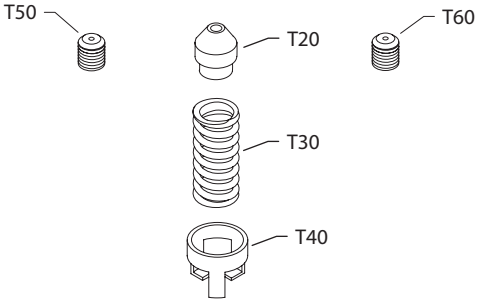
## Variable displacement pump

**(22)**



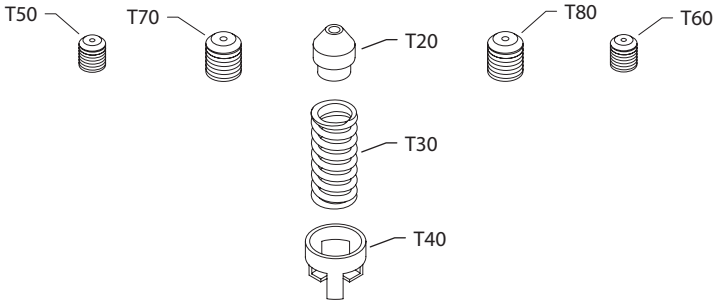

See control drawing for orifice location

**(26 & 29)**




See control drawing for orifice location

**(28, 30 & 35)**




See control drawing for orifice location

**(34)**

See control drawing for orifice location

E100 729E

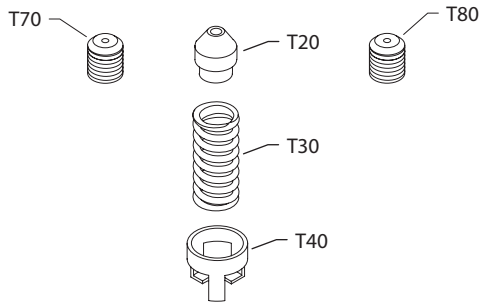
## Variable displacement pump

### Orifice

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 22 | T20 | 87-42 | | 8801137 | Orificed check valve, .022" | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| 26 | T20 | 87-42 | | 11061958 | Orificed check valve, .81mm | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T50 | 87-42 | | 11062004 | Orifice plug, 0.8mm, M5 x 6 | 1 |
| | T60 | 87-42 | | 11062004 | Orifice plug, 0.8mm, M5 x 6 | 1 |
| 28 | T20 | 87-42 | | 8801139 | Orificed check valve, .026" | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T50 | 87-42 | | 11062012 | Orifice plug, 0.7mm, M5 x 6 | 1 |
| | T60 | 87-42 | | 11062012 | Orifice plug, 0.7mm, M5 x 6 | 1 |
| | T70 | 87-42 | | 11062018 | Orifice plug, 0.7mm, M8 x 8 | 1 |
| | T80 | 87-42 | | 11062018 | Orifice plug, 0.7mm, M8 x 8 | 1 |
| 29 | T20 | 87-42 | | 11061958 | Orificed check valve, .81mm | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T50 | 87-42 | | 11062012 | Orifice plug, 0.7mm, M5 x 6 | 1 |
| | T60 | 87-42 | | 11062012 | Orifice plug, 0.7mm, M5 x 6 | 1 |
| 30 | T20 | 87-42 | | 8801139 | Orificed check valve, .026" | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T50 | 87-42 | | 639153 | Orifice plug, 1.3mm, M5 x 6 | 1 |
| | T60 | 87-42 | | 639153 | Orifice plug, 1.3mm, M5 x 6 | 1 |
| | T70 | 87-42 | | 11062018 | Orifice plug, 0.7mm, M8 x 8 | 1 |
| | T80 | 87-42 | | 11062018 | Orifice plug, 0.7mm, M8 x 8 | 1 |
| 33 | | | | None | | |
| 34 | T70 | 87-42 | | 755793 | Orifice plug, 1.0mm, M8 x 8 | 1 |
| | T80 | 87-42 | | 755793 | Orifice plug, 1.0mm, M8 x 8 | 1 |
| 35 | T20 | 87-42 | | 11061958 | Orificed check valve, 0.81mm | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T50 | 87-42 | | 11062004 | Orifice plug, 0.8mm, M5 x 6 | 1 |
| | T60 | 87-42 | | 11062004 | Orifice plug, 0.8mm, M5 x 6 | 1 |
| | T70 | 87-42 | | 714477 | Orifice plug, 0.8mm, M8 x 8 | 1 |
| | T80 | 87-42 | | 714477 | Orifice plug, 0.8mm, M8 x 8 | 1 |

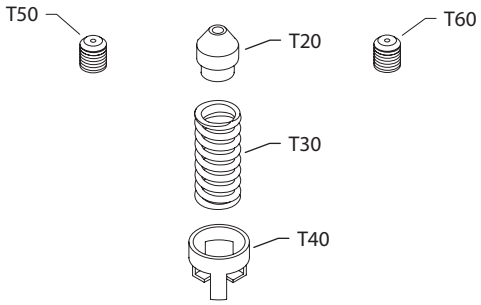
## Variable displacement pump

**(36 & 42)**



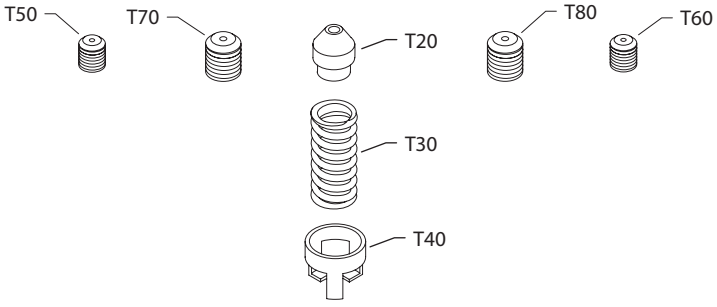

See control drawing for orifice location

**(39, 40 & 47)**



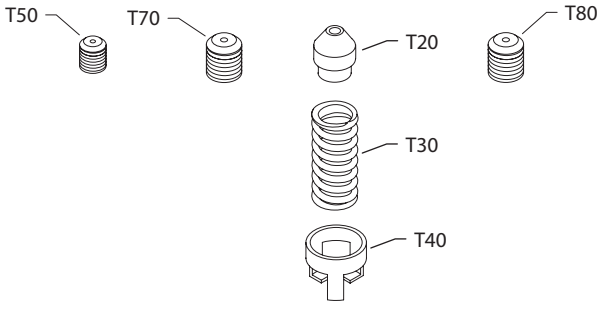

See control drawing for orifice location

**(48)**




See control drawing for orifice location

**(50)**




See control drawing for orifice location

E100 730E

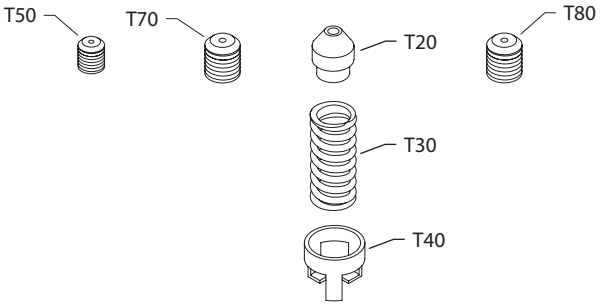
## Variable displacement pump

### Orifice

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 36 | T20 | 87-42 | | 11061958 | Orificed check valve, 0.81mm | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T70 | 87-42 | | 11062018 | Orifice plug, 0.7mm, M8 x 8 | 1 |
| | T80 | 87-42 | | 11062018 | Orifice plug, 0.7mm, M8 x 8 | 1 |
| 39 | T20 | 87-42 | | 8801139 | Orificed check valve, 1.37mm | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T50 | 87-42 | | 11066593 | Orifice plug, 1.0mm, M5 x 6 | 1 |
| | T60 | 87-42 | | 11066593 | Orifice plug, 1.0mm, M5 x 6 | 1 |
| 40 | T20 | 87-42 | | 11061970 | Orificed check valve, 1.02mm | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T50 | 87-42 | | 755793 | Orifice plug, 1.0mm, M8 x 8 | 1 |
| | T60 | 87-42 | | 755793 | Orifice plug, 1.0mm, M8 x 8 | 1 |
| 42 | T20 | 87-42 | | 11061958 | Orificed check valve, 0.81mm | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T70 | 87-42 | | 714477 | Orifice plug, 0.8mm, M8 x 8 | 1 |
| | T80 | 87-42 | | 714477 | Orifice plug, 0.8mm, M8 x 8 | 1 |
| 47 | T20 | 87-42 | | 8801139 | Orificed check valve, .026" | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T50 | 87-42 | | 617159 | Orifice plug, 1.8mm, M5 x 6 | 1 |
| | T60 | 87-42 | | 617159 | Orifice plug, 1.8mm, M5 x 6 | 1 |
| 48 | T20 | 87-42 | | 11061958 | Orificed check valve, 0.81mm | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T50 | 87-42 | | 11062004 | Orifice plug, 0.8mm, M5 x 6 | 1 |
| | T60 | 87-42 | | 11062004 | Orifice plug, 0.8mm, M5 x 6 | 1 |
| | T70 | 87-42 | | 714477 | Orifice plug, 0.8mm, M8 x 8 | 1 |
| | T80 | 87-42 | | 714477 | Orifice plug, 0.8mm, M8 x 8 | 1 |
| 50 | T20 | 87-42 | | 8801139 | Orificed check valve, .026" | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T50 | 87-42 | | 310771 | Orifice plug, 1.2mm, M6 x 6 | 1 |
| | T70 | 87-42 | | 517571 | Orifice plug, 0.9mm, M6 x 6 | 1 |
| | T80 | 87-42 | | 517571 | Orifice plug, 0.9mm, M6 x 6 | 1 |

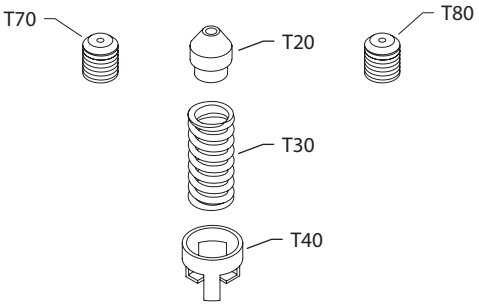
## Variable displacement pump

### (52)



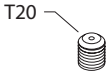

See control drawing for orifice location

### (61, 99 & A6)




See control drawing for orifice location

### (70 & 71)

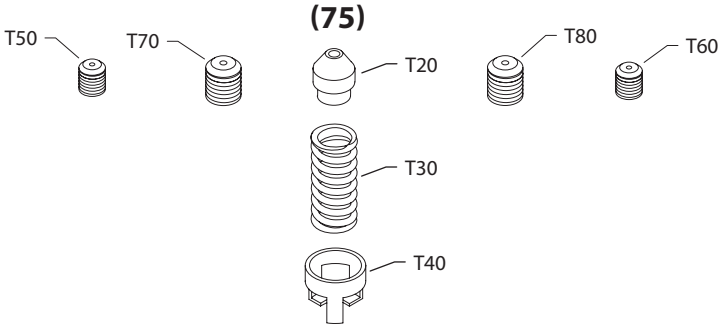



See control drawing for orifice location

### (72)

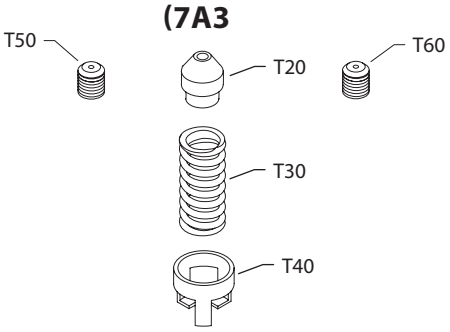
See control drawing for orifice location

### (75)



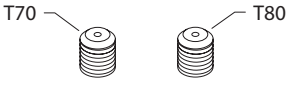

See control drawing for orifice location

### (7A3




See control drawing for orifice location

### (A4)




See control drawing for orifice location

E101 883E

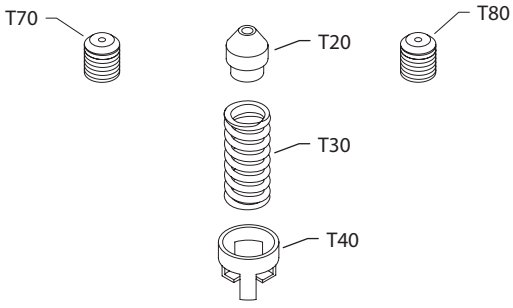
## Variable displacement pump

### Orifice

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 52 | T20 | 87-42 | | 11061970 | Orificed check valve, 1.02mm | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T50 | 87-42 | | 310771 | Orifice plug, 1.2mm, M6 x 6 | 1 |
| | T70 | 87-42 | | 739144 | Orifice plug, 0.8mm, M6 x 6 | 1 |
| | T80 | 87-42 | | 739144 | Orifice plug, 0.8mm, M6 x 6 | 1 |
| 61 | T20 | 87-42 | | 8801136 | Orificed check valve, .018" | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T70 | 87-42 | | 755793 | Orifice plug, 1.0mm, M8 x 8 | 1 |
| | T80 | 87-42 | | 755793 | Orifice plug, 1.0mm, M8 x 8 | 1 |
| 70 | T20 | 87-42 | | 11062005 | Orificed check valve, 0.635mm | 1 |
| 71 | T20 | 87-42 | | 11061957 | Orificed check valve, 0.79mm | 1 |
| 72 | T50 | 87-42 | | 617159 | Orifice plug, 1.8mm, M5 x 6 | 1 |
| | T60 | 87-42 | | 617159 | Orifice plug, 1.8mm, M5 x 6 | 1 |
| 75 | T20 | 87-42 | | 11061958 | Orificed check valve, 0.81mm | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T50 | 87-42 | | 11066593 | Orifice plug, 1.0mm, M5 x 6 | 1 |
| | T60 | 87-42 | | 11066593 | Orifice plug, 1.0mm, M5 x 6 | 1 |
| | T70 | 87-42 | | 714477 | Orifice plug, 0.8mm, M8 x 8 | 1 |
| | T80 | 87-42 | | 714477 | Orifice plug, 0.8mm, M8 x 8 | 1 |
| 99 | T20 | 87-42 | | 8801301 | Orificed check valve, .047" | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T70 | 87-42 | | 517572 | Orifice plug, 1.5mm, M6 x 6 | 1 |
| | T80 | 87-42 | | 517572 | Orifice plug, 1.5mm, M6 x 6 | 1 |
| A3 | T20 | 87-42 | | 11061958 | Orificed check valve, .81mm | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T50 | 87-42 | | 739136 | Orifice plug, 0.7mm, M6 x 6 | 1 |
| | T60 | 87-42 | | 739136 | Orifice plug, 0.7mm, M6 x 6 | 1 |
| A4 | T70 | 87-42 | | 11061979 | Orifice plug, 0.8mm, M6 x 8 | 1 |
| | T80 | 87-42 | | 11061979 | Orifice plug, 0.8mm, M6 x 8 | 1 |
| A6 | T20 | 87-42 | | 8801139 | Orificed check valve, .026" | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T70 | 87-42 | | 763680 | Orifice plug, 0.6mm, M6 x 6 | 1 |
| | T80 | 87-42 | | 763680 | Orifice plug, 0.6mm, M6 x 6 | 1 |

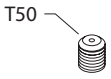
## Variable displacement pump

### (A7 & D3)



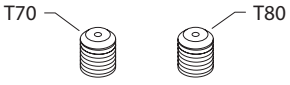

See control drawing for orifice location

### (B1 & G1)



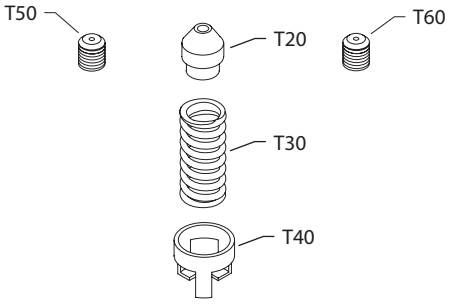

See control drawing for orifice location

### (B2)



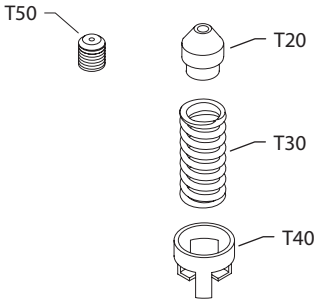

See control drawing for orifice location

### (C3, C5 & C6)




See control drawing for orifice location

### (G4 & G8)




See control drawing for orifice location

E101 884E

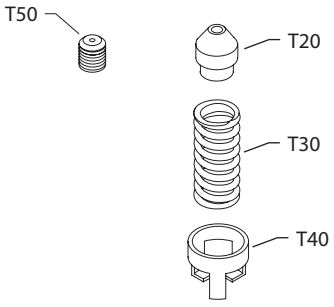
## Variable displacement pump

### Orifice

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| A7 | T20 | 87-42 | | 11061958 | Orificed check valve, 0.81mm | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T70 | 87-42 | | 11061979 | Orifice plug, 0.8mm, M6 x 8 | 1 |
| | T80 | 87-42 | | 11061979 | Orifice plug, 0.8mm, M6 x 8 | 1 |
| B1 | T50 | 87-42 | | 507042 | Orificed check valve, 1.5mm, M6 x 8 | 1 |
| B2 | T70 | 87-42 | | 310771 | Orifice plug, 1.2mm, M6 x 6 | 1 |
| | T80 | 87-42 | | 310771 | Orifice plug, 1.2mm, M6 x 6 | 1 |
| C3 | T20 | 87-42 | | 8801139 | Orificed check valve, .026" | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T50 | 87-42 | | 11061989 | Orifice plug, 1.3mm, M5 x 6 | 1 |
| | T60 | 87-42 | | 11061989 | Orifice plug, 1.3mm, M5 x 6 | 1 |
| C5 | T20 | 87-42 | | 11061958 | Orificed check valve, .81mm | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T50 | 87-42 | | 639161 | Orifice plug, 1.4mm, M5 x 6 | 1 |
| | T60 | 87-42 | | 639161 | Orifice plug, 1.4mm, M5 x 6 | 1 |
| C6 | T20 | 87-42 | | 11061970 | Orificed check valve, 1.02mm | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T50 | 87-42 | | 639161 | Orifice plug, 1.4mm, M5 x 6 | 1 |
| | T60 | 87-42 | | 639161 | Orifice plug, 1.4mm, M5 x 6 | 1 |
| D3 | T20 | 87-42 | | 11061981 | Orificed check valve, 1.37mm | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T70 | 87-42 | | 11062018 | Orifice plug, 0.7mm, M8 x 8 | 1 |
| | T80 | 87-42 | | 11062018 | Orifice plug, 0.7mm, M8 x 8 | 1 |
| G1 | T50 | 87-42 | | 310771 | Orificed check valve, 1.2mm, M6 x 6 | 1 |
| G4 | T20 | 87-42 | | 8801136 | Orificed check valve, .018" | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T50 | 87-42 | | 310771 | Orificed check valve, 1.2mm, M6 x 6 | 1 |
| G8 | T20 | 87-42 | | 8801139 | Orificed check valve, .026" | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T50 | 87-42 | | 310771 | Orificed check valve, 1.2mm, M6 x 6 | 1 |

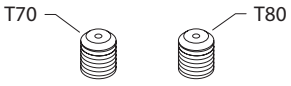
## Variable displacement pump

### (GB, GF & GJ)



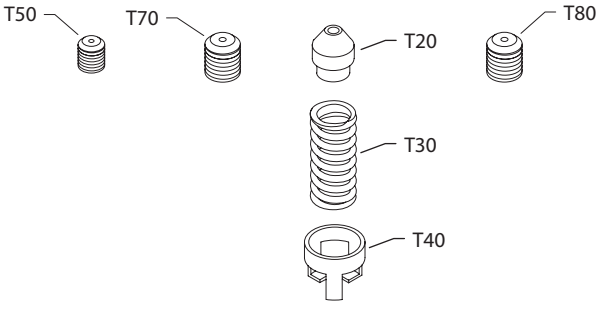

See control drawing for orifice location

### (P1)




See control drawing for orifice location

### (Z1)




See control drawing for orifice location

E100 731E

## Variable displacement pump

### Orifice

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| GB | T20 | 87-42 | | 11061958 | Orificed check valve, .026" | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T50 | 87-42 | | 310771 | Orifice plug, 1.2mm, M6 x 6 | 1 |
| GF | T20 | 87-42 | | 11061970 | Orificed check valve, 1.02mm | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T50 | 87-42 | | 310771 | Orifice plug, 1.2mm, M6 x 6 | 1 |
| GJ | T20 | 87-42 | | 11061981 | Orificed check valve, 1.37mm | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T50 | 87-42 | | 310771 | Orifice plug, 1.2mm, M6 x 6 | 1 |
| P1 | T70 | 87-42 | | 508014 | Orifice plug, 1.0mm, M6 x 8 | 1 |
| | T80 | 87-42 | | 508014 | Orifice plug, 1.0mm, M6 x 8 | 1 |
| Z1 | T20 | 87-42 | | 11061958 | Orificed check valve, .81mm | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T50 | 87-42 | | 519659 | Orifice plug, 1.0mm, M6 x 6 | 1 |
| | T70 | 87-42 | | 519659 | Orifice plug, 1.0mm, M6 x 6 | 1 |
| | T80 | 87-42 | | 519659 | Orifice plug, 1.0mm, M6 x 6 | 1 |

## Variable displacement pump

### Overhaul seal kit

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| | Q210 | 87-42 | | 11095647 | Overhaul seal kit | 1 |
| | B90 | 87-42 | | 9803390 | Filter screen | 3 |
| | C70 | 87-42 | | 648477 | Screw | 4 |
| | E40 | 87-42 | | 505412 (9003509-0008) | Seal nut | 2 |
| | E50 | 87-42 | | 056739 (9004104-1580) | O-ring | 1 |
| | E60 | 87-02 | | 5000206 | Screw (SB-1994-018) | 6 |
| | F11 | 87-02 | | 314500 (9004100-1250) | O-ring | 2 |
| | F12 | 87-02 | | 8700065 | Piston ring | 2 |
| | F40 | 88-43 | | 353953 (9004104-1330) | O-ring | 2 |
| | F50 | 87-02 | | 314534 (9004104-0310) | O-ring | 2 |
| | F112 | 87-02 | | 505412 (9003509-0008) | Seal nut, M8 | 1 |
| | F124 | 87-02 | | 336826 | Seal nut, M10 | 1 |
| | F212 | 87-02 | | 505412 (9003509-0008) | Seal nut, M8 | 1 |
| | F224 | 87-02 | | 336826 | Seal nut, M10 | 1 |
| | G30 | 89-17 | | 8000243 | End cap gasket (SB-1989-037 & SB-1992-003) | 1 |
| | J40 | 87-02 | | 680892 (9004104-0440) | O-ring | 1 |
| | J50 | 87-02 | | 056739 (9004104-1580) | O-ring | 1 |
| | K50 | 87-02 | | 001149 (9004201-6200) | O-ring | 1 |
| | L25 | 87-02 | | 11083637 | Lip seal (SB-2010-025) | 1 |
| | L60 | 87-02 | | 11083638 | Retainer plate (SB-2010-025) | 1 |
| | N15 | 87-42 | | 001172 (9004201-9000) | O-ring | 1 |
| | P02 | 87-02 | | 688721 | O-ring | 2 |
| | P06 | 87-42 | | 071811 | O-ring | 2 |
| | P13 | 87-42 | | 544742 (9004105-0190) | O-ring | 2 |
| | P20 | 87-42 | | 9004105-0160 | O-ring | 2 |
| | P21 | 87-42 | | 9006110-0160 | Back up ring | 2 |

## BLN-10107

To improve efficiency and reliability, the number of parts in series 90 pumps is being reduced. The charge pump design on 55 cc - 130 cc frame sizes is being changed so that the outer port plate is an integral part of the charge pump cover and distance plates are eliminated. The change is taking effect at the following manufacturing dates:

55 cc: 93-10 75 cc: 93-10 100 cc: 93-15 130 cc: 93-34

For auxiliary pad options, the new charge pump cover is rotation dependent. The cover will be marked as either left hand (L) or right hand (R). The non-auxiliary pad cover is not rotation dependent.

The charge pump shaft also changes and must be replaced when using the new style hardware. The complete charge pump assembly can be interchanged with corresponding hardware from 89-17 and beyond. However, piece parts are not interchangeable. For units prior to 89-17, consult Sauer-Danfoss.

The old design charge pump hardware is obsolete and is no longer available. Refer to the chart on the next page to determine the replacement kit.

## BLN-10107

The following information must be known to determine the correct charge pump replacement kit:

1. Unit size (055, 075, 100, or 130 cc)
2. Charge pump displacement (11, 14, 17, 20, 26, or 34 cc)
3. Auxiliary pad (Yes or No)
4. Rotation (LH or RH)

| Obsoleted Charge Pump Parts | | | Unit Size | Chg. pump displace-ment | Auxilary pad | Rotation | Replacement Kit |
|---|---|---|---|---|---|---|---|
| Gear Set | Shaft | Cover | | | | | |
| 8000169 | 8000174 | 8800513 | 055 | 11 cc | No | LH or RH | 8510028 |
| | | 8800514 | | | Yes | LH | 8510029 |
| | | 8800514 | | | Yes | RH | 8510030 |
| 8000170 | 8000174 | 8800513 | 055 | 14 cc | No | LH or RH | 8510031 |
| | | 8800514 | | | Yes | LH | 8510032 |
| | | 8800514 | | | Yes | RH | 8510033 |
| 8000171 | 8000174 | 8800513 | 055 | 17 cc | No | LH or RH | 8510034 |
| | | 8800514 | | | Yes | LH | 8510035 |
| | | 8800514 | | | Yes | RH | 8510036 |
| | | | | | | | |
| 8100313 | 337956 | 8800513 | 075 | 14 cc | No | LH or RH | 8510037 |
| | | 8800514 | | | Yes | LH | 8510038 |
| | | 8800514 | | | Yes | RH | 8510039 |
| 8100314 | 337956 | 8800513 | 075 | 17 cc | No | LH or RH | 8510040 |
| | | 8800514 | | | Yes | LH | 8510041 |
| | | 8800514 | | | Yes | RH | 8510042 |
| 8100315 | 337956 | 8800513 | 075 | 20 cc | No | LH or RH | 8510043 |
| | | 8800514 | | | Yes | LH | 8510044 |
| | | 8800514 | | | Yes | RH | 8510045 |
| | | | | | | | |
| 8200158 | 337956 | 8800513 | 100 | 17 cc | No | LH or RH | 8510046 |
| | | 8800514 | | | Yes | LH | 8510047 |
| | | 8800514 | | | Yes | RH | 8510048 |
| 8200159 | 337956 | 8800513 | 100 | 20 cc | No | LH or RH | 8510049 |
| | | 8800514 | | | Yes | LH | 8510050 |
| | | 8800514 | | | Yes | RH | 8510051 |
| 8200160 | 337956 | 8800513 | 100 | 26 cc | No | LH or RH | 8510052 |
| | | 8800514 | | | Yes | LH | 8510053 |
| | | 8800514 | | | Yes | RH | 8510054 |
| | | | | | | | |
| 714444 | 303636 | 347518 | 130 | 20 cc | No | LH or RH | 8510064 |
| | | 347526 | | | Yes | LH | 8510065 |
| | | 347526 | | | Yes | RH | 8510066 |
| 714451 | 303636 | 347518 | 130 | 26 cc | No | LH or RH | 8510067 |
| | | 347526 | | | Yes | LH | 8510068 |
| | | 347526 | | | Yes | RH | 8510069 |
| 714469 | 303636 | 347518 | 130 | 34 cc | No | LH or RH | 8510070 |
| | | 347526 | | | Yes | LH | 8510071 |
| | | 347526 | | | Yes | RH | 8510072 |

## Service Bulletin: SB-1988-009

**Products affected**

Series 90 pumps

**Subject**

Servo arm change

**Description**

As a product improvement, Sauer-Danfoss has changed the series 90 pump servo arm and swashplate (item D10 and D50). The old style servo arm and swashplate will become obsolete. Because this change creates non-interchangeability between new and old swashplates, servo arms, and possibly servo piston (item S10) and slider block (item F20), separate servo arms and swashplates will no longer be sold as service parts.

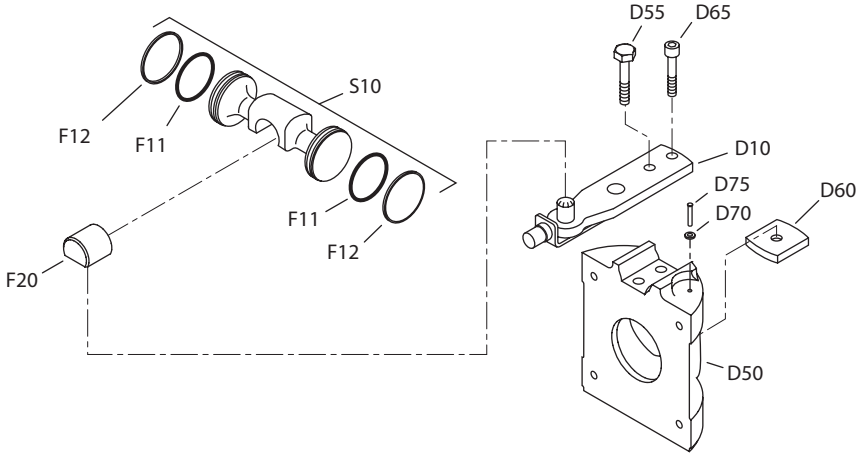
Also, the new servo arm is actually a press fit into a groove in the new swashplate. This situation requires special tooling for assembly, therefore, pre-assembled kits will be created for 55, 75, and 100 cc pumps. The kits will work in any vintage pump.

The kit for 55 cc pumps will include all the items in the figure, except item S10

The kit for 75 cc pumps will include all item in the figure.

The kit for 100 cc pumps will include all items in the figure, except items S10 and F20.

Note: The slider block (item F20) in 55 cc pumps and the slider block and the servo piston (item S10) in 75 cc pumps had to be changed slightly to allow clearance for the new servo arm. The new servo piston and slider block will work in any vintage pump.




**Models affected**

All 94-2xxx (55 cc), 95-2xxx (75 cc), and 96-2xxx (100 cc) pumps

**Serial numbers**

Change goes into effect with s/n 88-14-xxxxx on 55 cc pumps and with s/n 88-16-xxxxx for 75 cc and 100 cc pumps.

**Part numbers affected**

New 55 cc slider block is p/n 8000189
New 75 cc slider block is p/n 8100368
New 100 cc slider block is p/n 8100369
New 55 cc servo arm/swashplate kit is p/n 8000201
New 75 cc servo arm/swashplate kit is p/n 8100377
New 100 cc servo arm/swashplate kit is p/n 8200192

**Parts disposition**

■ Non-interchangeable

## Service Bulletin: SB-1988-016

**Products affected**

Series 90 pumps

**Subject**

Change to fixed clearance slipper hold down

**Description**

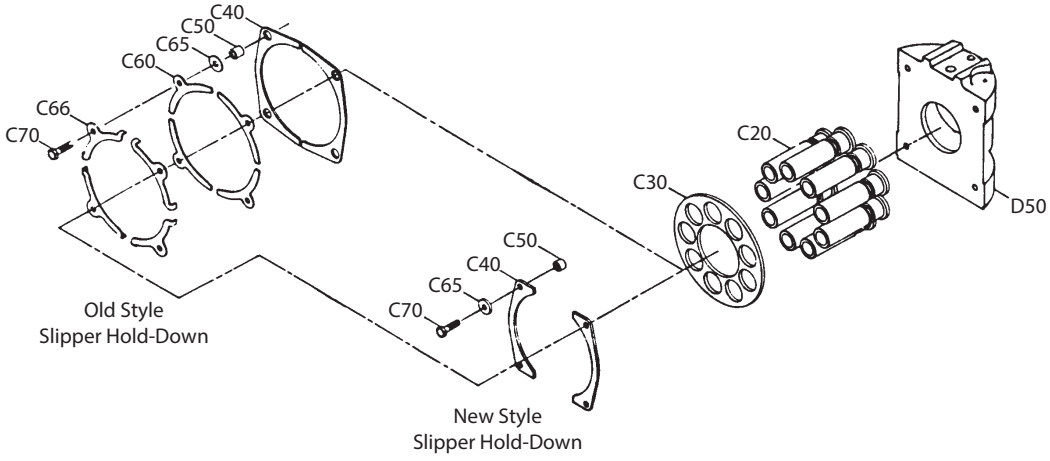
As a product improvement, Sauer-Danfoss has simplified the design of the series 90 pump slipper hold down mechanism. The hold down changes from spring loaded with a fixed maximum clearance design.

The leaf spring (item C60) and spring aligner (item C66) will be eliminated and will not be available as service parts.

The spacer (item C50), bearing (item C40), and washer (item C65) will change and the old part numbers will not be available as service parts.

The swashplate (item D50), pistons (item C20), slipper retainer (item C30), and screws (item C70) will remain the same.

If any of the affected parts (item C66, C60, C65, C50, or C40) require replacement during repair of older style pumps, discard these parts and rebuild using new style parts (items C40, C50, and C65). As before, the screws (item C70) which are coated with locking compound MUST always be replaced after removal.




**Models affected**

All 94-2xxx (55 cc), 95-2xxx (75 cc), and 96-2xxx (100 cc) pumps

**Serial numbers**

55 cc pumps, 94-2xxx, changed at s/n 88-43-xxxxx
75 cc pumps, 95-2xxx, changed at s/n 88-22-xxxxx
100 cc pumps, 96-2xxx, changed at s/n 88-20-xxxxx

**Part numbers affected**

| Item | Qty/pump | 55 cc | 75 cc | 100 cc |
|---|---|---|---|---|
| C40 | 2 | 8000137 | 8100294 | 8200144 |
| C50 | 4 | 8000138 | 8100295 | 8200145 |
| C65 | 4 | 9009625-0159 | 9009625-0159 | 9009625-0159 |
| C70 | 4 | 9007276-0114 | 9007276-0099 | 9007276-0099 |

**Parts disposition**

■ Non-interchangeable as individual parts, but new style C40, C50, and C65 can be used in any vintage pump, if all three are changed.

## Service Bulletin: SB-1988-023

**Products affected**

Series 90 pumps and motors

**Subject**

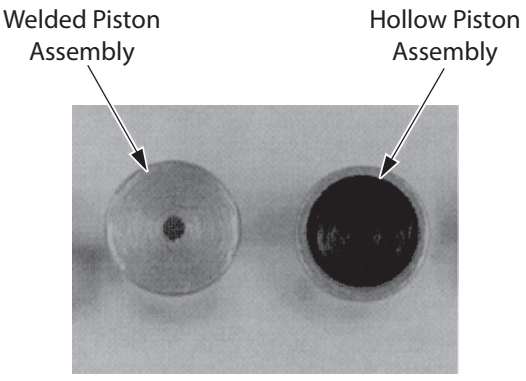
Piston improvement

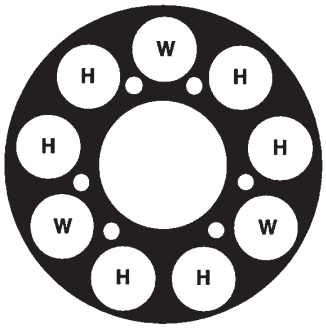
**Description**

Product Information Bulletin PIB-8801 (March, 1988) announced the incorporation of fabricated (welded) piston assemblies, replacing non-fabricated (hollow) piston assemblies, in the cylinder blocks of all Series 90 pumps and motors. This change increases the overall efficiency of the Series 90 product line.

To simplify service parts inventory for all Series 90 units, only individual welded piston assemblies will be available as spare parts. The hollow pistons will be obsoleted. Part numbers for individual welded piston assemblies are listed in this bulletin.

Since all Series 90 pumps and motors have nine (9) pistons, welded pistons being used to replace hollow pistons during repair MUST be install in the cylinder block symmetrically, in multiples of three (3).




When replacing hollow pistons with welded pistons, it is mandatory that the welded pistons be incorporated symmetrically in multiples of three.

**Models affected**

All series 90 pumps and motors: 93-xxxx, 94-xxxx, 95-xxxx, and 96-xxxx pumps

**Serial numbers**

Welded pistons will be incorporated into all series 90 pumps and motors by the end of the first quarter of 1998.

**Part numbers affected**

| Part number | Description |
|---|---|
| 706101 | Piston assembly, welded - 42 cc |
| 367672 | Piston assembly, welded - 55 cc |
| 708230 | Piston assembly, welded - 75 cc |
| 364000 | Piston assembly, welded - 100 cc |

**Parts disposition**

■ Interchangeable

## Service Bulletin: SB-1988-024

**Products affected**

Series 90 pumps

**Subject**

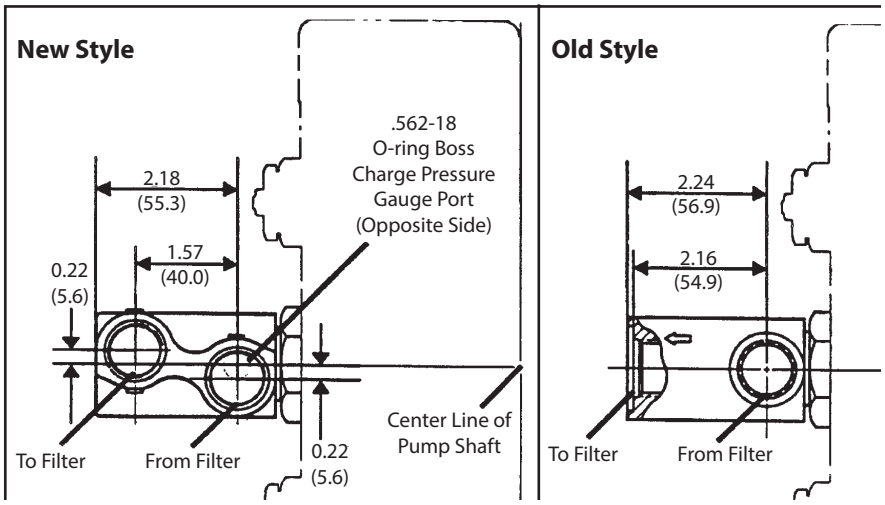
Remote pressure filtration adapter change

**Description**

The configuration of the remote pressure filtration adapter, available as an option on Sauer-Danfoss series 90 variable pumps (55, 75, and 100 cc) is changing. This improved design adapter incorporates a charge pressure test port. In addition, the remote filter connections have been relocated to improve the customer interface and the routing for filter plumbing on most applications. Port sizes did not change. (A version of the improved design adapter is already being used on Series 90 42 cc variable pumps.)

This change does not affect the pump end cap, and either design filtration adapter can be used on any vintage pump. Only the new style adapter will be available as service parts or on new production pumps.

The outline dimensional differences between the new and old adapters are shown below.




**Models affected**

All series 90 pumps (93-2xxx, 94-2xxx, 95-2xxx, and 96-2xxx) with remote pressure filration. (option R)

**Serial numbers**

Remote pressure filtration equipped pumps shipped after April 24, 1989, or with serial number x-89-17-xxxxx and up will include the new adapter.

**Part numbers affected**

| Part number | Description |
|---|---|
| 8002N00R-A | Remote filtration kit (new style) |

**Parts disposition**

■ Interchangeable

## Service Bulletin: SB-1989-002

**Products affected**

Series 90 pumps

**Subject**

Incorporation of adjustable charge relief valve

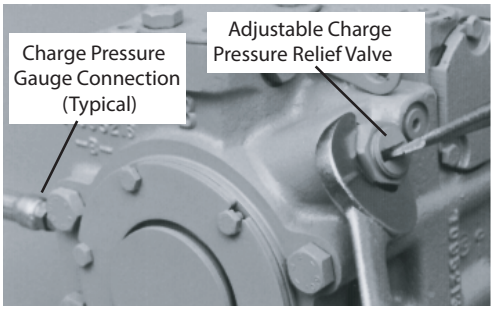
**Description**

As a product improvement Sauer-Danfoss is incorporating an adjustable charge relief valve on all series 90 variable displacement pumps. This design replaces the previous shim adjustable charge relief valve. The new design valve provides a range of pressure adjustment which covers the available charge pressure options of 290, 348, and 406 psi [20, 24, and 28 bar].

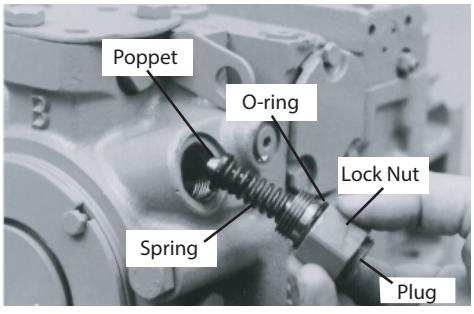
Note: This improvement changes the design of the charge relief valve poppet and plug. The new style charge relief may protrude from the pump end cap approximately 0.27 in [6.9 mm] farther than the shim adjustable r .

To adjust the new design valve, first install a gauge to measure charge pressure as described in the series 90 service manual. Loosen the adjustment lock nut with a 1-1/16 in hex wrench. Operate the pump at an input speed of 1700 to 2000 rpm and turn the adjustment plug with a large screwdriver while observing the charge pressure. Clockwise rotation of the plug increases the setting, while counterclockwise rotation decreases the setting at a rate of approximately 50 psi [3.4 bar] per turn. Once the desired setting is achieved, torque the lock nut to 34-41 lbf·ft [46-55 Nm], and remove the charge pressure gauge.

Sauer-Danfoss will offer an adjustable charge relief valve kit for sale as a service part. This kit can be used to service any vintage series 90 variable pump. Since the new and old style charge relief valves are interchangeable as an assembly, the old style parts will no longer be available as service parts.




**Adjusting Charge Relief Valve**




**Charge Relief Valve Assembly**

**Models affected**

All 93-2xxx, 94-2xxx, 95-2xxx, and 96-2xxx pumps

**Serial numbers**

Due to the interchangeability of the charge relief valve assemblies, this is a running change. It will be incorporated into all series 90 variable pumps by March of 1989.

**Part numbers affected**

| Part number | Description |
|---|---|
| 8002K000-A | Adjustable charge relief valve kit - new style (includes poppet, spring, plug, O-ring, and nut) |

**Parts disposition**

■ Interchangeable (as an assembly)

## Service Bulletin: SB-1989-003

**Products affected**

Series 90 pumps

**Subject**

Swashplate leveler spring seat change and servo pressure relief valve deletion

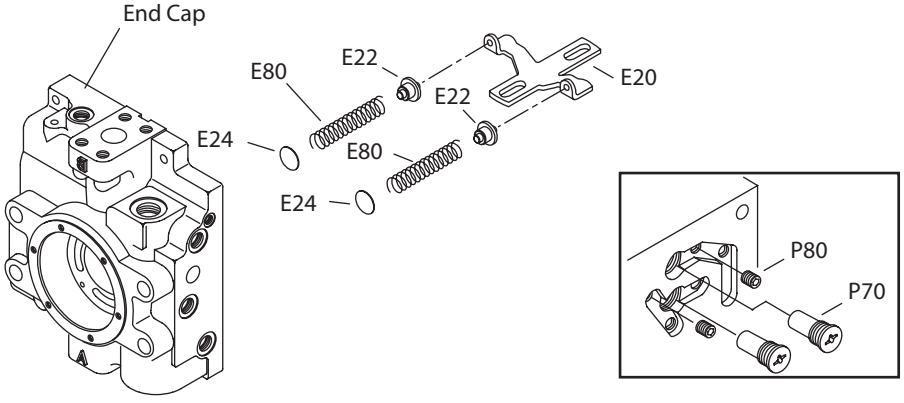
**Description**

As a product improvement, Sauer-Danfoss is adding hardened shims between the swashplate leveler springs and the end cap in series 90 variable pumps. In addition, the leveler spring seats have been hardened, and are now separate pieces from the leveler. Previously, the seats were peened to the leveler.

These improvements require some minor changes in the repair procedures for the series 90 pumps. When installing the lever springs (E80), take care that the spring seats (E22) are in position on the swashplate leveler (E20). Before installing the end cap, assemble the hardened shims (E24) into their pockets in the end cap and retain with petroleum jelly.

In an unrelated change, the servo pressure check relief valves installed in the pump end cap (or rotation valve housing) are no longer required. These valves (P70) will be replaced by standard socket head, straight thread O-ring plugs.

The swashplate leveler, plus the separate spring seats, are directly interchangeable with the old design part. When performing major repairs on any series 90 pump, the hardened shims should be installed between the leveler springs and the end cap. The plugs are also interchangeable with the servo pressure check relief valves.




**Models affected**

All 93-2xxx (42 cc), 94-2xxx (55 cc), 95-2xxx (75 cc), and 96-2xxx (100 cc) pumps

**Serial numbers**

The hardened swashplate leveler spring seats and hardened shims incorporated at serial number 89-09-xxxxx. Due to the interchangeability of the straight thread plugs with the servo pressure check relief valves, this change will be incorporated during the 1st quarter of 1989.

**Part numbers affected**

| Item | Description | Qty | 42 cc | 55 cc | 75 cc | 100 cc |
|---|---|---|---|---|---|---|
| E20 | Leveler | 1 | 673897 | 8000094 | 8100130 | 8200007 |
| E22 | Spring seat | 2 | 358820 | 358838 | 358523 | 358846 |
| E24 | Shim | 2 | 359034 | 359042 | 359042 | 359059 |
| P70 | Plug | 2 | 9005110-4400 | 9005110-4400 | 9005110-4400 | 9005110-4400 |

**Parts disposition**

■ Non-interchangeable

## Service Bulletin: SB-1989-006

**Products affected** Series 90 pumps

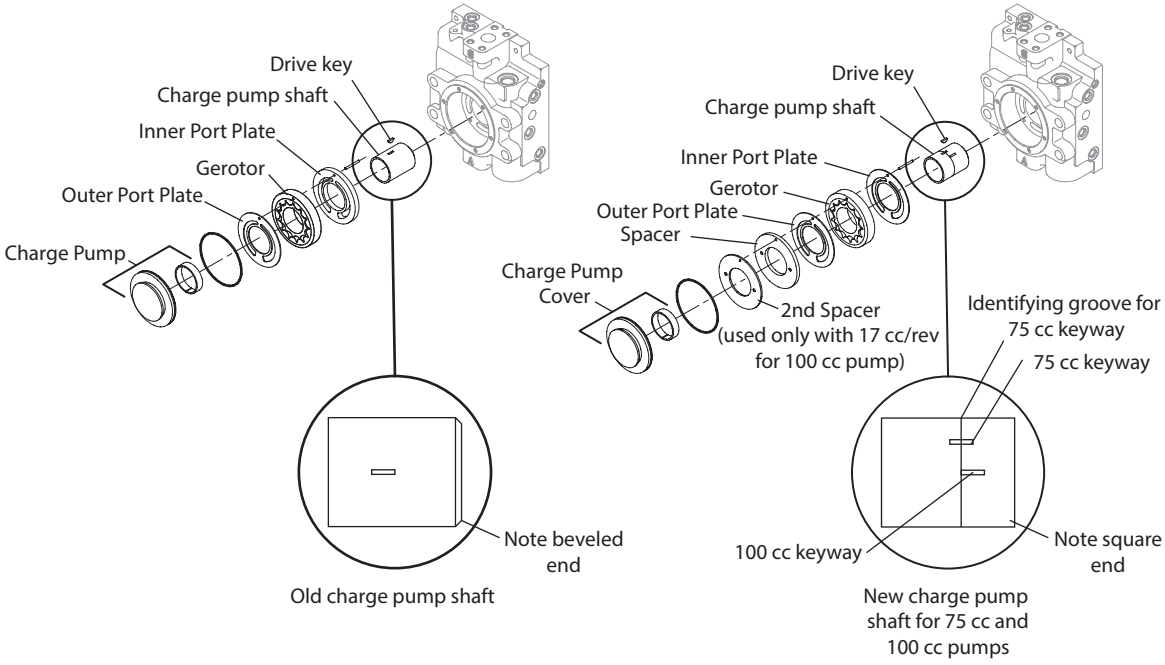
**Subject** Charge pump design change

**Description**

The original series 90 charge pump design included two (2) port plates, one (1) on each side of the gerotor. If the charge pump displacement was less than the maximum available for the pump's frame size, the inside port plate was thicker than the 0.050 in. (1.27 mm) outside port plate.

The new design charge pump will always have two (2) 0.050 in (1.27 mm) thickness port plates, one (1) on each side of the gerotor. Additionally, if the chargew pump displacement is less than the maximum available for the pump's frame size, one (1) or two (2) spacers were install between the outside port plate and the charge pump cover.

In addition, the location of the keyway in the change pump shaft has been changed to ensure full engagement of the drive key in the gerotor. The new charge pump shaft used in 75 and 100 cc pumps has two (2) keyways. The rear keyway (farthest from the end cap and splined end of the shaft) is used for 75 cc pumps, while the front keyway is used for 100 cc pumps. The new style charge pump shafts for 55, 75, and 100 cc pumps also changed from having a beveled end to a square end on the end clostest to the pump end cap.



## Service Bulletin: SB-1989-006

**Models affected**

All 94-2xxx (55 cc), 95-2xxx (75 cc), and 96-2xxx (100 cc) pumps

**Serial numbers**

A-89-17-xxxxx for all pumps manufactured in Ames, Iowa.

N-89-07-xxxxx for al 95-2xxx (75 cc) pumps manufacture in Neumunster, West Germany.
N-88-48-xxxxx for all 96-2xxx (100 cc) pumps manufacture in Neumunster, West Germany.

**Part numbers affected**

Proper part number versus pump serial number information can be found in the series 90 Parts Manuals.

The thicker inside port plates (thicker than 0.050 in (1.27 mm) will be obsoleted and no longer available as service parts. If these parts require replacement, use the 0.050 in. 1.27 mm) port plate and appropriate spacer(s) as service parts. On 100 cc pumps only, the new charge pump shaft must be used if the new style spacer is used,

On 55 and 75 cc pumps, the change pump shaft clearance pocket in the end cap changed from a beveled to a straight corner to correspond with the change in the charge pump shaft. Old style charge pump shafts will remain available as service parts and must be used in the 55 and 75 cc beveled pocket end caps.

Old style (beveled pocket) end caps will be obsoleted and no longer available as service parts. If an old style end cap needs replacement, new style end caps can be used with any vintage charge pump hardware and charge pump shaft.

**Parts disposition**

■ Non-interchangeable - must use correct charge pump shaft per serial number of pump

## Service Bulletin: SB-1989-009

**Products affected**

Series 90 55 cc pumps

**Subject**

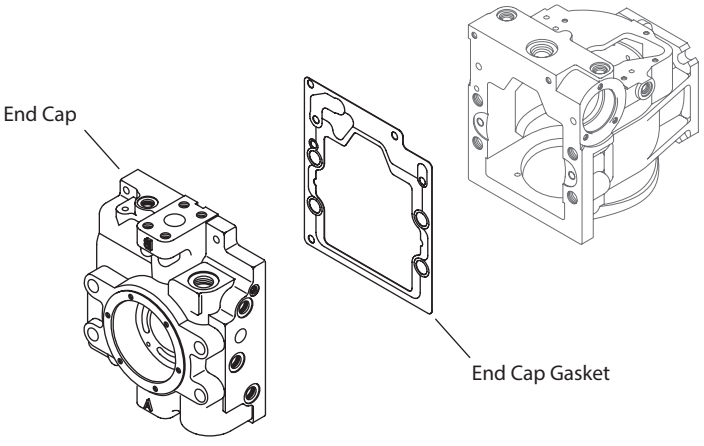
End cap gasket consolidation

**Description**

Sauer-Danfoss is changing the design of 55 cc pump end caps to allow a single part number gasket to be used for both the twin port and axial port end cap options.

Both old style end caps will be obsoleted and will not be available as service parts. The new end caps can be used on any vintage pump. The new end cap gasket MUST be used with new end caps.

The old style end cap gaskets will be available as service parts to repair earlier vintage pumps.




**Models affected**

All 94-2xxx (55 cc) pumps

**Serial numbers**

Change takes place at serial number A-89-17-xxxxx.

**Part numbers affected**

| End cap type | Gasket p/n prior to 89-17 | Gasket p/n 98-17 and beyond | End cap p/n prior to 89-17 | End cap p/n 98-17 and beyond |
|---|---|---|---|---|
| Axial port | 8000107 | 8000180 | 8000117* | 8000183 |
| Twin port | 8000151 | 8000180 | 8000149* | 8000184 |

**Parts disposition**

■ Non-interchangeable

## Service Bulletin: SB-1989-037

**Products affected**

Series 90 55 cc pumps

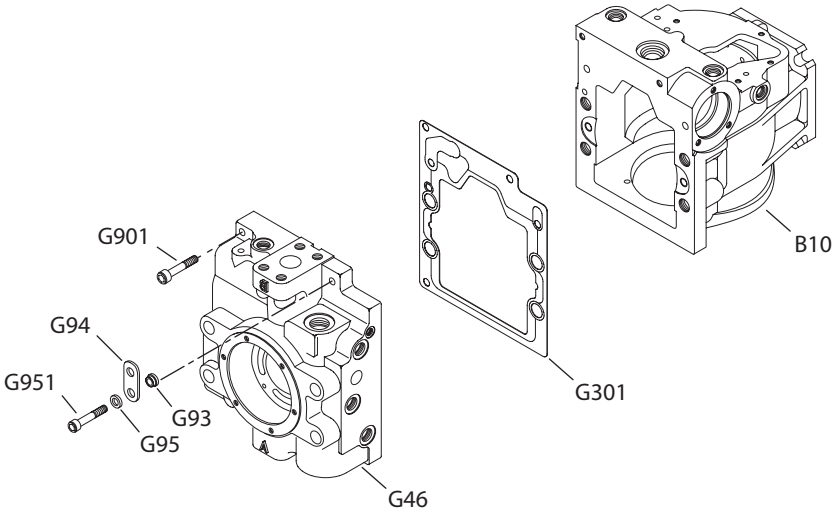
**Subject**

End cap and housing change

**Description**

A product improvement has taken place on series 90 55 cc pumps, adding one end cap screw and increasing the size of another. Part number of the housing, end caps, screws, bracket, washer, and gasket changed, as indicated on the following page.

The new end cap gasket is interchangeable with the previous design used since A-89-17-xxxxx (see SB-1989-009). The new and previous design housings and end caps are not interchangeable, however, both of these parts are rarely sold as service parts.




**Models affected**

All 94-2xxx (55 cc) pumps

**Serial numbers**

Change takes place at serial number A-89-47-xxxxx.

**Part numbers affected**

| Item | Description | Part number for old design | Part number for new design |
|---|---|---|---|
| B10 | Housing | 8000105 | 8000217 |
| G93 | Spacer | 8800404 | 8800564 |
| G94 | Lifting bracket | 8800522 | 8800565 |
| G95 | Washer | 9009610-2850 | 9009610-3459 |
| G46 | Twin port end cap | 8000184 | 8000220 |
| G46 | Axial port end cap | 8000183 | 8000219 |
| G951 | Screw | 9007314-0608 | 9007314-0810 |
| G901 | Screw | N/A | 9007314-0812 |
| G301 | Gasket - twin & axial port | 8000214 | 8000218 |

**Parts disposition**

- Interchangeable - gasket
- Non-interchangeable - housing and end cap

## Service Bulletin: SB-1992-003A

**Products affected**

Series 90: 55, 75,100.130 cc pumps

**Subject**

Block point change: components redesign

**Description**

As part of our overall series 90 product improvement program, numerous components are being redesigned. This redesign is referred to as a "block point" change. The objective of the block point change is to minimize the number of times we change the units while we convert to high volume tooling at various plant sites. These design improvements will provide increased reliability and more application flexibility. The nature of these changes makes customer requalification unnecessary. Old style (pre-block point) variable housings and end caps will no longer be available as spare parts.

**Frame size 55 cc**

| Item | Description | Pre-block point part number | New part number 92-06 & later |
|---|---|---|---|
| **Common parts group, 55 cc** | | | |
| B10 | Variable housing | 8000217 (O) | 729848 |
| B82 | Plug | n/a | 9005110-5600 |
| **End cap, 55 cc** | | | |
| G048 | End cap - twin ports | 8000220 (O) | 8000260 |
| G308 | End cap gasket | 8000218 (I) (O) | 8000243 (I) |
| G968 | Screw | 9007314-0606 | n/a |
| G046 | End cap - side ports | 8000219 (O) | 8000259 |
| G306 | End cap gasket | 8000218 (I) (O) | 8000243 (I) |
| G968 | Screw | 9007314-0606 | n/a |
| G172 | Plug | n/a | 9005110-4400 |
| G182 | Plug | n/a | 9005110-4400 |
| **Common parts group, 55 cc** | | | |
| B83 | Plug | n/a | 9005110-5600 |

**Models affected**

All series 90 94-2xxx variable pumps

**Serial numbers**

Changes will take place at the serial number 92-06-xxxxx

**Part numbers affected**

Refer to text of this bulletin for specific part numbers

Housing: Thickness adjacent to the side cover has been increased

End cap: Match housing change; small end cap screws will be larger, orientation of charge relief valve on side port end caps has benn changed from oblique to vertical.

**Note: Reference PIB-9102 for design changes and outline dimensions.**

**Parts disposition**

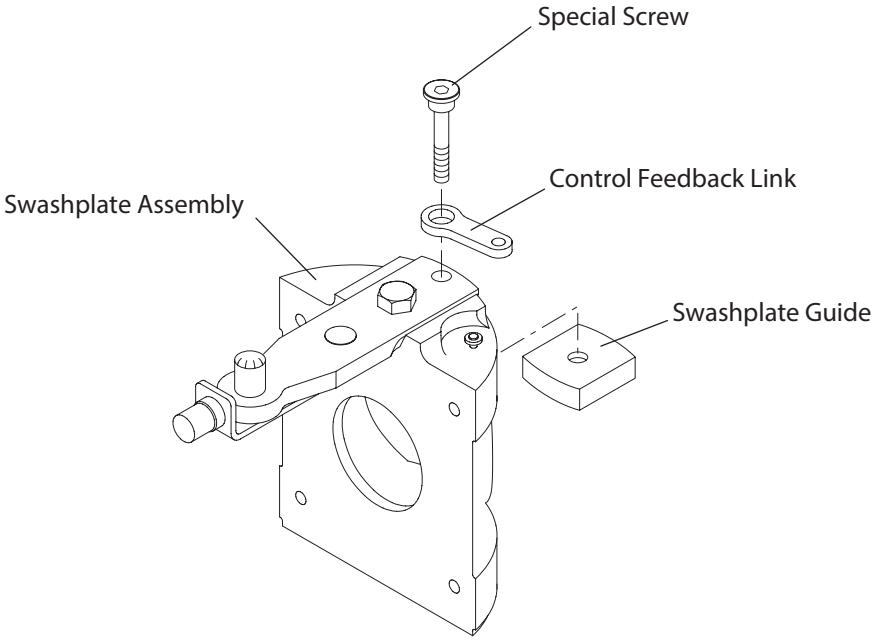
■ Non-interchangeable

## Service Bulletin: SB-1992-011

**Products affected** Series 90 - 055, 075, and 100 frame size pumps

**Subject** Feedback link retention

**Description** Effective in September of 1992, the feedback link in series 90 pumps will be mechanically retained to the swashplate. In the past, the link slipped over a specially ground socket head screw and could fall off the screw during assembly. The screw has changed to include a head to retain the link. The feedback link does not change.




**Models affected** All 94-2xxx (55 cc), 95-2xxx (75 cc), and 96-2xxx (100 cc) pumps

**Serial numbers** Pumps with serial number A-92-38-xxxx and beyond include the new feature.

**Part numbers affected**

| Frame size | Old screw | New "headed screw |
|---|---|---|
| 55 & 75 cc | 9007276-0109 | 9007375-0044 |
| 100 cc | 9007375-0030 | 9007375-0032 |

**Parts disposition** ■ Interchangeable

## Service Bulletin: SB-1993-001A

**Products affected**

Series 90 - 55, 75, and 100 cc pumps

**Subject**

Charge pump design change

**Description**

**The serial numbers mentioned apply only to Ames production units. Neumunster will incorporate the change in July or August of this year.**

To improve efficiency and reliability, the number of parts in series 90 charge pumps is being reduced. The charge pump design on 55 cc thru 100 cc frame sizes is being changed such that the outer port plate (H30) is an integral part of the charge pump cover (J15) and distance plates are eliminated.

For auxiliary pad options, the new charge pump cover is rotation dependent. The cover will be marked either left hand (L) or right hand (R). The non-auxiliary pad cover is not rotation dependent.

The charge pump shaft also changes and must be replaced when using the new style hardware. The complete charge pump assembly can be interchanged with corresponding hardware from 89-17 and beyond. **However, piece parts are not interchangeable**. For units prior to 89-17, consult Sauer-Danfoss.

**Models affected**

All 94-2xxx, 95-2xxx, and 96-2xxx pumps

**Serial numbers**

55 cc: A-93-10 & beyond
75 cc: A-93-10 & beyond
100 cc: A93-15 & beyond

**Part numbers affected**

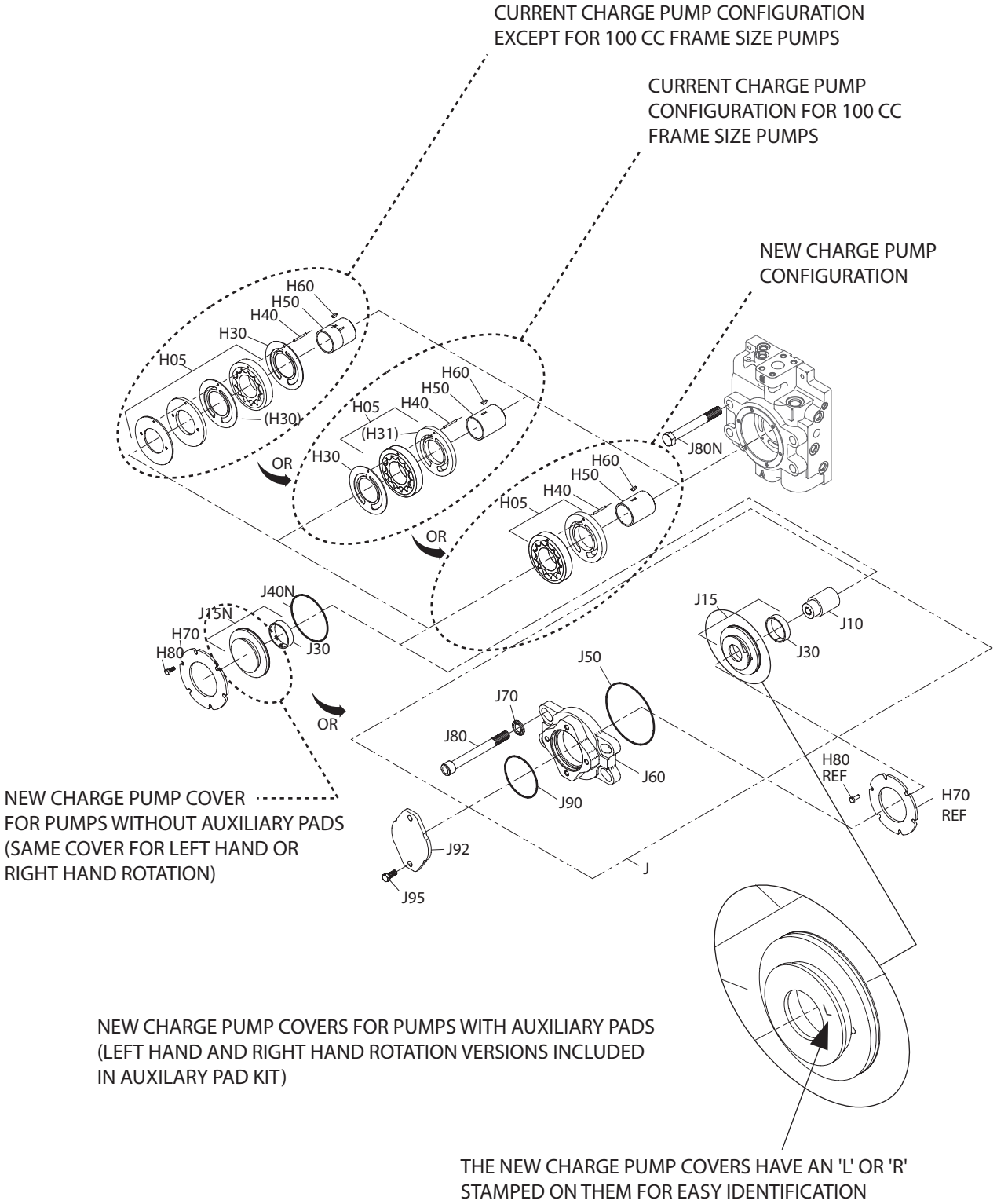
| 55 cc | | 75 cc | | 100 cc | | | |
|---|---|---|---|---|---|---|---|
| Before 93-10 | After 93-10 | Before 93-10 | After 93-10 | Before 93-15 | After 93-15 | Item number | Description |
| 8000169 | 8000268 | N/A | N/A | N/A | N/A | H05 | 11 cc charge pump set |
| 8000170 | 8000269 | 8100313 | 8100479 | N/A | N/A | H05 | 14 cc charge pump set |
| 8000171 | 8000270 | 8100314 | 8100480 | 8200158 | 8200238 | H05 | 17 cc charge pump set |
| N/A | N/A | 8100315 | 8100481 | 8200159 | 8200239 | H05 | 20 cc charge pump set |
| N/A | N/A | N/A | N/A | 8200160 | 8200240 | H05 | 26 cc charge pump set |
| 8800314 | N/A | 8800314 | N/A | 8800314 | N/A | H30 | Port plate |
| N/A | Incl. in H05 | N/A | Incl. in H05 | 8800315 | Incl. in H05 | H31 | Port plate |
| 8000174 | 8000267 | 337956 | 8100476 | 337956 | 8100476 | H50 | Charge pump shaft |
| 8800513 | 8800834 | 8800513 | 8800834 | 8800513 | 8800834 | J15N | Charge pump cover assy. |
| 8800514 | See J15L/R | 8800514 | See J15L/R | 8800514 | See J15L/R | J15 | Aux. charge pump cover |
| N/A | 8800833 | N/A | 8800833 | N/A | 8800833 | J15L | Aux. L.H. cover assy. |
| N/A | 8800832 | N/A | 8800832 | N/A | 8800832 | J15R | Aux. R.H. cover assy. |

Note: Piece parts are not interchangeable

**Parts disposition**

■ Interchangeable for s/n 89-17-xxxxx and beyond. Piece parts are not interchangeable.

## Service Bulletin: SB-1993-001A



## Service Bulletin: SB-1993-002

**Products affected**

Series 90 pump: All frame sizes

**Subject**

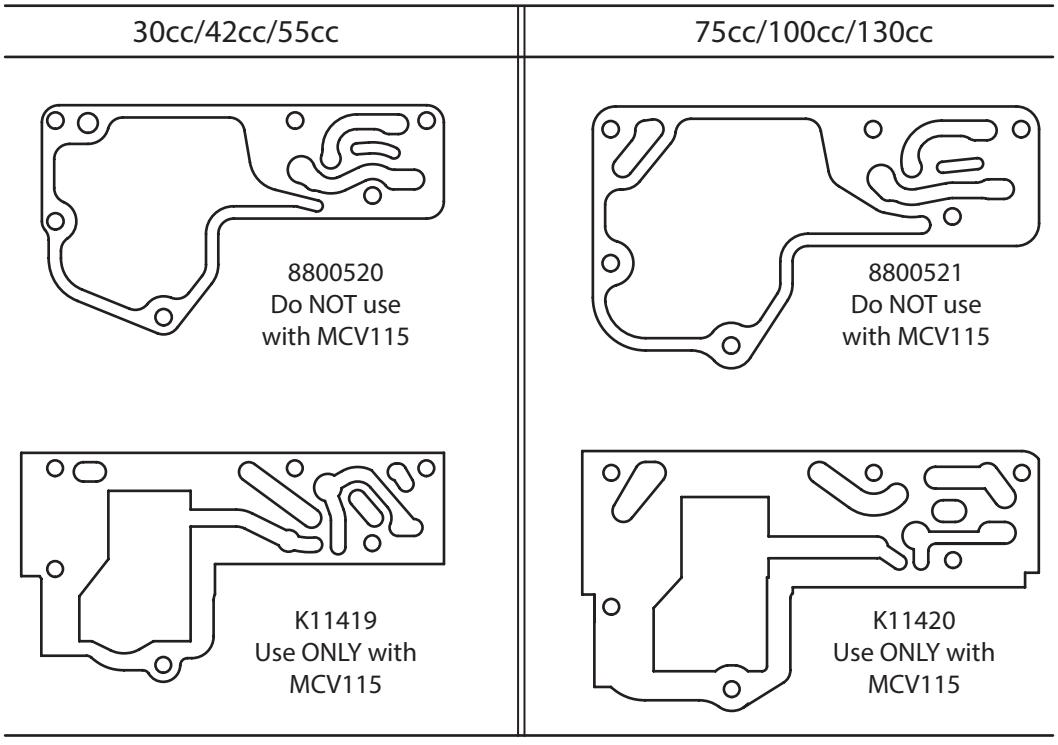
Control gasket changes for MCV115 hydraulic displacement control

**Description**

In October of 1992, Sauer-Danfoss began offering a new style hydraulic displacement control (MCV115) that is a direct replacement for the MCV112,

The control gasket also changed, and the new style gasket must be used with the MCV115 control. The old style gasket is to be used with the MCV112 control, all manual displacement controls, and MCV111 electric displacement controls.

**WARNING**
**Failure to use the appropriate gasket may result in uncontrolled pump displacement**




**Models affected**

All 93-2xxx, 94-2xxx, 95-2xxx, 96-2xxx, and 97-2xxx pumps

**Serial numbers**

October 1992 and beyond

**Part numbers affected**

| Frame size | Control gasket for EDC (MCV111) | Control gasket for HDC (MCV112) | (MCV115) | Control gasket for MDC (8x02M0Mx) |
|---|---|---|---|---|
| 30/42/55 cc | 8800520 | 8800520 | K11419 | 8800520 |
| 75/100/130 cc | 8800521 | 8800521 | K11420 | 8800521 |

**Parts disposition**

■ Non-interchangeable

## Service Bulletin: SB-1993-015A

**Products affected**

Series 90 pump: All frame sizes

**Subject**

Servo arm interference with speed sensor ring

**Description**

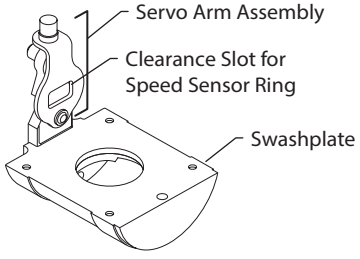
**Note: This service bulletin revision adds the 42 cc frame size and the incorporation date of 55 thru 1000 cc.**

A potential interference problem has been identified in series 90 42, 55, 75, and 100 cc frame size pumps built since early 1992. Interference may occur between the swashplate hold down bracket on the servo arm and the speed sensor ring, which may be installed on the cylinder block as an option.

A new hold down bracket has been designed to provide clearance for the speed sensor ring.

If a cylinder block with speed ring must be installed in one of the subject pumps, a servo arm assembly with the new hold down will also be required.

Sometime during the first quarter of 1994, all 55, 75, and 100 cc pumps will be equipped with the new design hold down bracket. The 42 cc pumps will implement the new design hold down bracket in the second quarter of 1994.




**Models affected**

All 93-2xxx, 94-2xxx, 95-2xxx, and 96-2xxx variable pumps

**Serial numbers**

42 cc at serial number 92-16-xxxxx
55 cc at serial number 92-06-xxxxx
75 cc at serial number 92-17-xxxxx
1000 cc at serial number 92-12-xxxxx

All 55, 75 and 100 cc pumps built in Ames beginning with s/n A-94-11-xxxxx will have the new servo arm assembly installed. 100 cc pumps built in Neumunster will also incorporate on this date. The75 cc pumps built in Neummunster will incorporate on N-94-14-xxxxx 42 cc pumps will incorporate on N-94-36-xxxxx.

**Part numbers affected**

| Frame size | Old servo arm (no slot in bracket) | New servo arm (with slot in bracket) |
|---|---|---|
| 42 cc | 354282 | 502976 |
| 55 cc | 8000191 | 8000318 |
| 75 cc | 8100366 | 8100499 |
| 100 cc | 8200182 | 8200268 |

**Parts disposition**

■ Non-interchangeable - Pumps with speed sensor ring must use the new servo arm.

## Service Bulletin: SB-1994-017

**Products affected**

Series 90 55-100 cc variable pumps

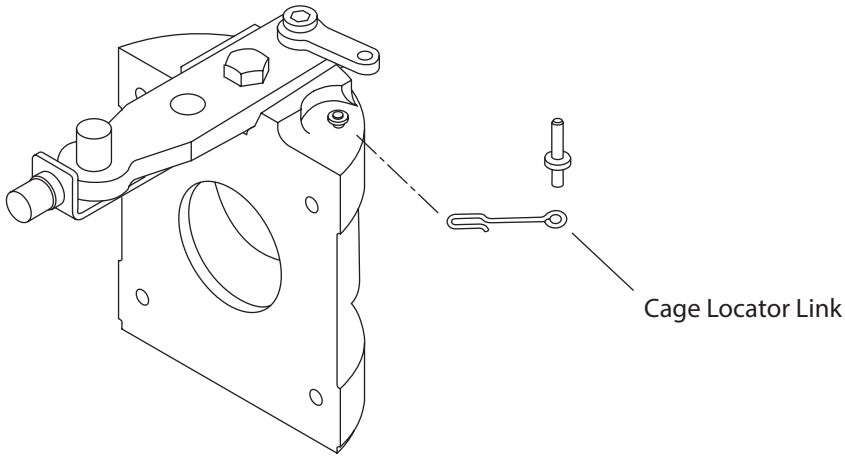
**Subject**

Swashplate cage locator

**Description**

As a product improvement, Sauer-Danfoss has made a design change to the cage locator link used on the 55 thru 100 cc variable pumps.

The new link is made from square wire. In the past, the link was made from round wire, This is an interchangeable change.




**Models affected**

All , 94-2xxx + 942xxx, 95-2xxx, + 952xxx and 96-2xxx + 962xxx variable pumps

**Serial numbers**

55 and 75 cc pumps serial number 94-18-xxxxx
100 cc pumps will begin 4th quarter 1994

**Part numbers affected**

| | Old link | New link |
|---|---|---|
| 55 cc | 8100241 | 8100506 |
| 75 cc | 8100241 | 8100506 |
| 100 cc | 8200108 | 8200273 |

**Parts disposition**

■ Interchangeable

## Service Bulletin: SB-1994-018

**Products affected**

Series 90 variable pumps

**Subject**

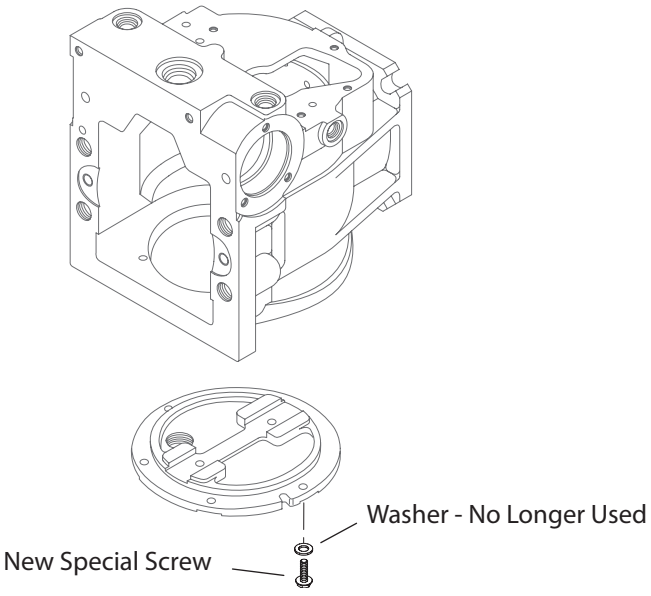
Side cover washer elimination

**Description**

The washers located under the side cover screws have been removed on all series 90 42 thru 130 cc variable pumps.

As before, the side cover screws must be replaced if they are removed for any reason. The special coating, which seals and retains the screws, wears off when the screws are removed.

The screw length changed on 55 thru 100 cc pumps, so it is important that the washers are discarded during repair. The proper screw is included in the overhaul seal kits.




**Models affected**

All 93-2xxx, 94-2xxx, 95-2xxx, 96-2xxx, and 97-2xxx variable pumps

**Serial numbers**

Change took place during the 2nd and 3rd quarter of 1994

**Part numbers affected**

| Pump size | Old screw | New screw |
|---|---|---|
| 42 cc | 648477 | Same part number |
| 55-100 cc | 9007276-0115 | 5000206 |
| 130 cc | 308700 | Same part number |

**Parts disposition**

■ Interchangeable

## Service Bulletin: SB-1994-036

**Products affected**

Series 90 55 thru 130 cc variable pumps

**Subject**

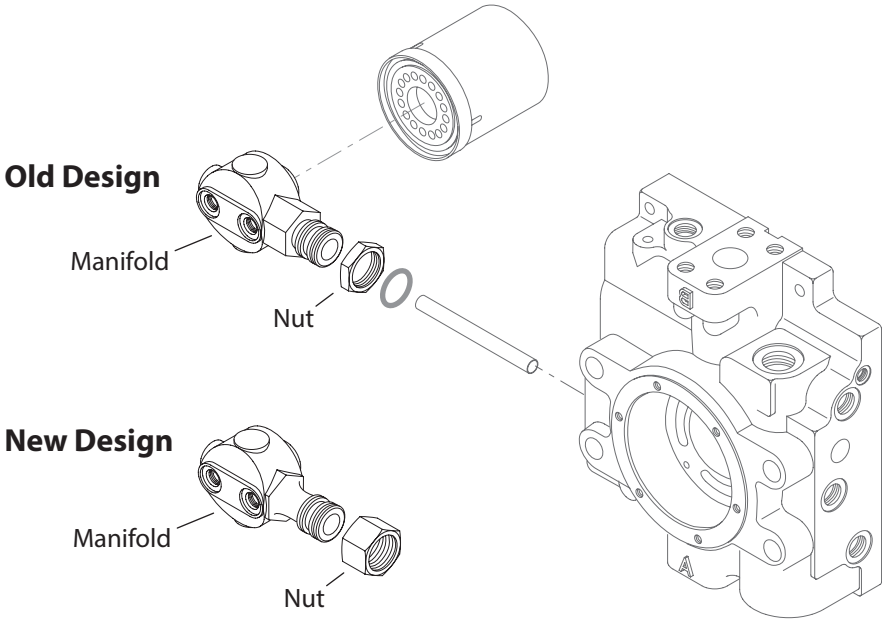
Integral filtration manifold

**Description**

As a product improvement, Sauer-Danfoss is changing the integral filter manifold and bulkhead nut to make it more easily indexed.

The old bulkhead nut may be used with either the old or new filter manifold. The new bulkhead nut can only be used with the new filter manifold.

The old bulkhead nut will remain available as a service part. The old filter manifold will be obsoleted and no longer available as a service part.




**Models affected**

All series 90 55 thru 130 cc variable pumps with "L", "M", or "P" filtration option code

**Serial numbers**

Change occurred at serial number 95-18-xxxxx

**Part numbers affected**

| Description | Part number (prior to 95-18) | Part number (95-18 & beyond) |
|---|---|---|
| Filter manifold | 8800200 | 8800896 |
| Bulkhead nut | 9002863-1600 | 5000222 |

**Parts disposition**

■ Interchangeable - new bulkhead nut can only be used with new filter manifold

## Service Bulletin: SB-1995-003

**Products affected**

Series 90 variable pumps - all frame sizes

**Subject**

Manual displacement control (MDC) with DC electric solenoid override

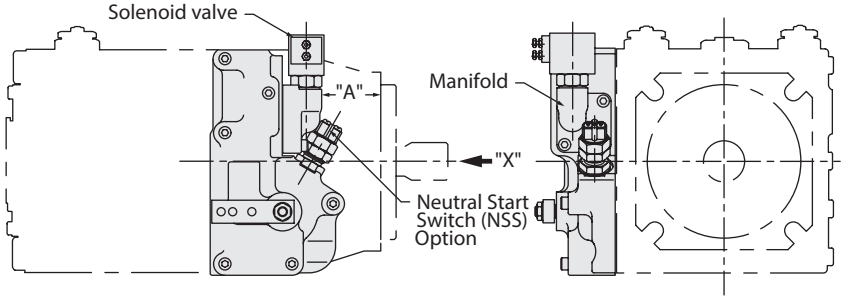
**Description**

In order to accommodate our European customers, the manifold which attaches to the front of the manual displacement control (MDC) housing is being changed.

The European solenoid valve requires a thicker manifold to provide clearance between the solenoid and the front of the MDC housing. The revised manifold will protrude closer to the mounting flange of the pump, reducing dimension "A" shown in the accompanying drawing by approximately 5 mm [0.2 in]. Please see chart below for specific clearances.

The thicker manifold requires longer screws and may be used with either the U.S. or European sourced solenoid.

This change will become effective during March of 1995. The old manifold will be obsoleted and no longer available as a service part.




Series 90
Manual displacement control
with DC solenoid override

| Frame size | | 42 | 55 | 75 | 100 | 130 |
|---|---|---|---|---|---|---|
| Dimension "A" mm [in] | Current | 39.9 [1.57] | 55.9 [2.20] | 54.1 [2.13] | 60.2 [2.37] | 74.4 [2.93] |
| | Future | 34.9 [1.37] | 50.9 [2.0] | 49.1 [1.93] | 55.2 [2.17] | 69.4 [2.73] |

**Models affected**

All series 90 variable pumps using MDC with DC electric solenoid override.

**Serial numbers**

Change will take place in March 1995.

**Part numbers affected**

| Description | Current part number | New part number | Quantity |
|---|---|---|---|
| Manifold | 8800365 | 505022 | 1 |
| Screw | 9007314-0605 | 9007314-0606 | 2 |

**P arts disposition**

■ Interchangeable (new manifold requires longer screws)

## Service Bulletin: SB-1995-025

**Products affected**

Series 90 55, 75, and 100 cc variable pumps

**Subject**

Side cover design change

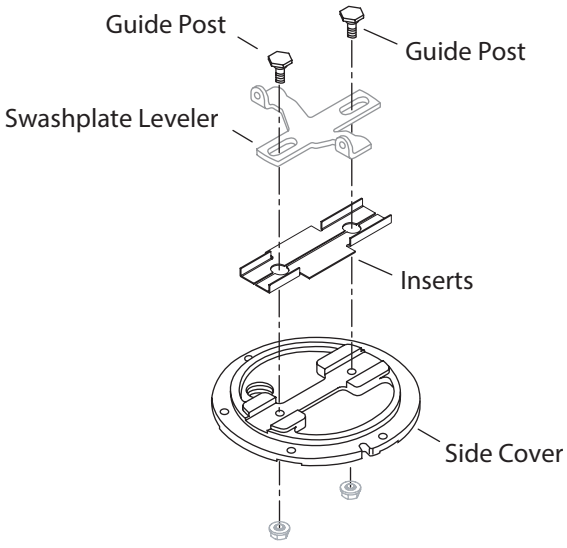
**Description**

As a product improvement, Sauer-Danfoss is changing the side cover and swashplate leveler ("T-bar") guide post design.

The new design side cover will have two hardened inserts in the machined slot, which serves as a guide for the swashplate leveler, and modified guide posts. The swashplate leveler does not change.

Old guide posts will remain available for service requirements of pumps with the old design side cover.

The old style side cover will be obsoleted and no longer available as a service part. A service kit has been created for replacing the old design side cover. The kit includes the new side cover, guide posts, and inserts. **Piece parts are not interchangeable.**




**Models affected**

All 55,75, & 100 cc variable pumps

**Serial numbers**

This change became effective at serial number A-95-50-xxxxx.

**Part numbers affected**

| | Old part numbers | | New part numbers | | |
|---|---|---|---|---|---|
| Description | Guide post | Side cover | Insert assy. | Guide post | Side cover kit |
| 55 cc | 8100353 | 8000157 | 8000406 | 8000379 | 8510097 |
| 75 cc | 8100353 | 8100226 | 8100562 | 8000379 | 8510098 |
| 100 cc | 8100353 | 746560 | 8200321 | 8000379 | 8510099* |

**Parts disposition**

■ Interchangeable as a kit. Piece parts are not interchangeable.

## Service Bulletin: SB-1995-026

**Products affected**

Series 90 42 cc - 130 cc variable pumps

**Subject**

Standard valve plate part number change

**Description**

As a product improvement, Sauer-Danfoss is changing the standard valve plate used in series 90 42 thru 130 cc variable pumps. (refer to PIB-9507)

The purpose of this bulletin is notification of part number changes for the order codes affected. During unit repair, do not replace the new style valve plate with an old style valve plate. However, the old style may be replace with a new style valve plate.

The old style valve plates will be obsoleted and no longer available as a service part.

**Models affected**

All 932xxx, 942xxx, 952xxx, 962xxx, and 972xxx variable pumps

**Serial numbers**

This change became effective at serial number N-95-48-xxxxx

**Part numbers affected**

| Unit | Old order code | Old valve plate part number | New order code | New valve plate part number |
|---|---|---|---|---|
| 42 cc | NNN | 500337 | GBA | 758383 |
| 55 cc | NNN | 8000071 | GBA | 8000431 |
| 75 cc | NNN | 8100145 | GBA | 501332 |
| 100 cc | NNN | 8200041 | GBA | 501327 |
| 130 cc | NNN | 700203 | GBA | 758425 |

**Parts disposition**

■ Interchangeable - do NOT substitute the old valve plate for the new valve plate

## Service Bulletin: SB-1996-009

**Products affected**

Series 90 55, 75, and 100 cc variable pumps

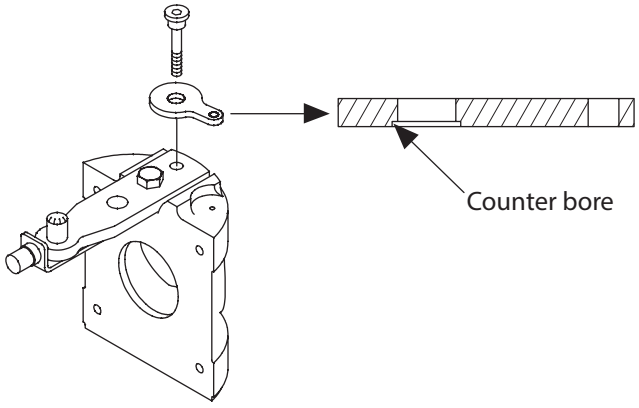
**Subject**

Change swashplate feedback link

**Description**

As a product improvement, Sauer-Danfoss is changing the design of the swashplate feedback link used on the 55, 75, and 100 cc variable pumps.

The new swashplate link has a counter bore that allows for clearance between the feedback link and the servo arm screw. The counter bore side of the link must be installed such that the counter bore is facing the surface of the servo arm.




**Models affected**

All 942xxx, 952xxxx, and 962xxx variable pumps

**Serial numbers**

For 55 and 75 cc pumps, the change became effective at serial number A-96-22-xxxxx.
For 100 cc pumps, the change became effecive at serial number A-96-12-xxxxx

**Part numbers affected**

| Frame size | Old part number | New part number |
|---|---|---|
| 55 cc | 8000096 | 8000481 |
| 75 cc | 8000096 | 8000481 |
| 100 cc | 8200106 | 8200344 |

**Parts disposition**

■ Interchangeable

## Service Bulletin: SB-1998-018

**Products affected**

Series 90 55, 75, and 100 cc variable pumps

**Subject**

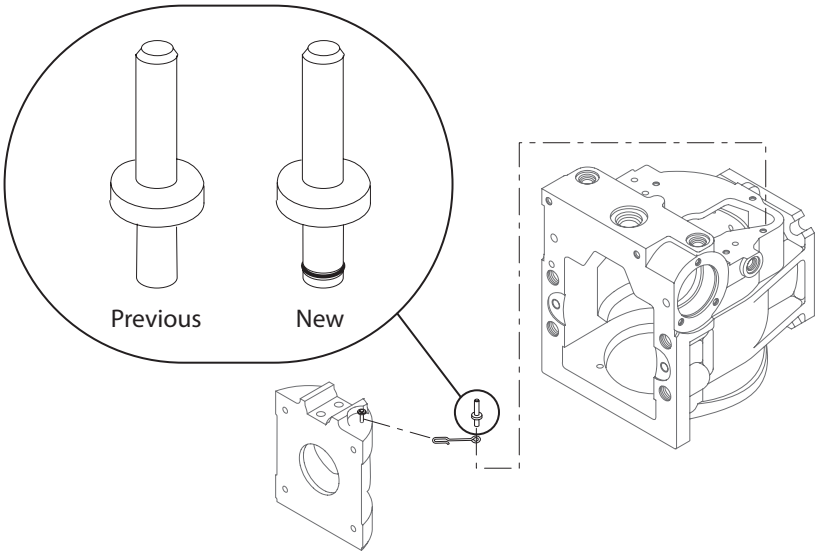
Swashplate bearing cage locator pin

**Description**

Sauer-Danfoss has modified the design of the swashplate bearing cage locator pin used in the series 90 55, 75, and 100 cc variable displacement pumps.

The improved design includes a rubber gripping element on the portion of the pin that is in the main pump housing. The rubber element aids in retaining the pin in the housing during normal pump assembly and servicing procedures, by increasing the interference fit between the pin and the pilot hole in the pump housing.

To aid in identifying this change, Sauer-Danfoss has released a new part number for the updated pin design. The new pin is completely interchangeable with the previous pin part number. The previous pin has been obsoleted.




**Models affected**

All 94-2xxx, 942xxx, 95-2xxx, 952xxx, 96-2xxx and 962xxx variable pumps

**Serial numbers**

This change became effective at serial number 98-24-xxxxx

**Part numbers affected**

| | Prior ot 98-24 | 98-24 and beyond |
|---|---|---|
| Pin part number | 8100235 | 8801135 |

**Parts disposition**

■ Interchangeable

## Service Bulletin: SB-1998-041

**Products affected**

Series 90 55, 75, and 100 cc variable pumps
Series 90 55 and 75 cc variable motors

**Subject**

Piston hold down mechanism design change

**Description**

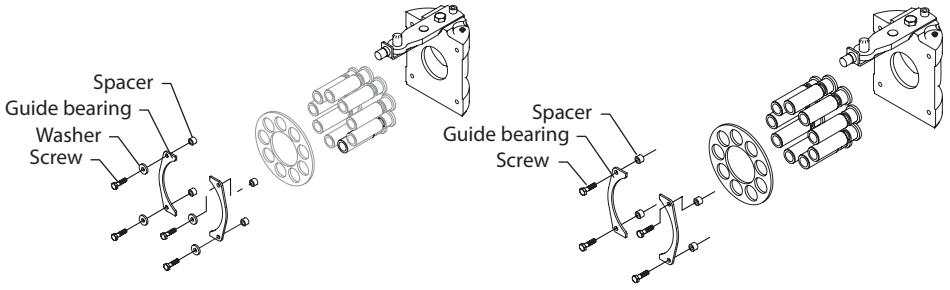
Sauer-Danfoss has initiated a change to the piston hold down mechanism used on series 90 55, 75, and 100 cc variable displacement pump and the series 90 55 and 75 cc variable displacement motors.

Previously, the hold down assembly consisted of a spacer, slipper guide bearing, washer, and screw. The spacer provides a fixed amount of operational clearance for the slipper and slipper retainer. The guide bearing provides a wear surface for the slipper retainer, while the hold down screws and washers retain the assembly.

The change involved with the current design update is the removal of the washer from the assembly. This design was initially introduced on the series 90 42 and 130 cc pumps in 1994, and with this change a uniform product family is achieved.

With the removal of the washer, the required length of the assembly screw is reduced. The change in the assembly screw also affects the dimensions of the spacer. Therefore, with this change, the part numbers associated with the assembly screw and spacer have been changed. Some of the assembly screws are parts already maintained in the parts system.

Although the new spacer and assembly screw are directly interchangeable with the previous swashplate assembly components, we recommend that the components be serviced in combination. Since the new spacer may be serviced as a stand alone item, the previous spacer has been obsoleted and will no longer be available as a service part.



## Service Bulletin: SB-1998-041

**Models affected**

94-2xxx, 942xxxx, 95-2xxx, 952xxxx, 96-2xxx, and 962xxxx variable pumps
94-2xxx, 942xxxx, 95-2xxx, and 952xxxx variable motors

**Serial numbers**

Sauer-Danfoss Ames production - effective at serial number A-98-48-xxxxx

**Part numbers affected**

| Component | Displacement | Prior to 98-48 | Current |
|---|---|---|---|
| Hold down screw | 55 cc | 9007276-0114 | 648477 |
| Spacer | 55 cc | 8000266 | 8000619 |
| Washer - pumps | 55 cc | 9009625-0159 | N/A |
| Washer - motors | 55 cc | 9009625-0129 | N/A |
| Hold down screw | 75 cc | 9007276-0099 | 9007276-0114 |
| Spacer | 75 cc | 8100450 | 8100777 |
| Washer - pumps | 75 cc | 9009625-0159 | N/A |
| Washer - motors | 75 cc | 9009625-0129 | N/A |
| Hold down screw | 100 cc | 9007276-0099 | 9007276-0114 |
| Spacer | 100 cc | 8200216 | 8200422 |
| Washer - pumps | 100 cc | 9009625-0159 | N/A |

**Parts disposition**

■ Interchangeable

## Service Bulletin: SB-1998-066

**Products affected**

Series 90 55, 75, and 100 cc variable pumps

**Subject**

Charge pump shaft part number change

**Description**

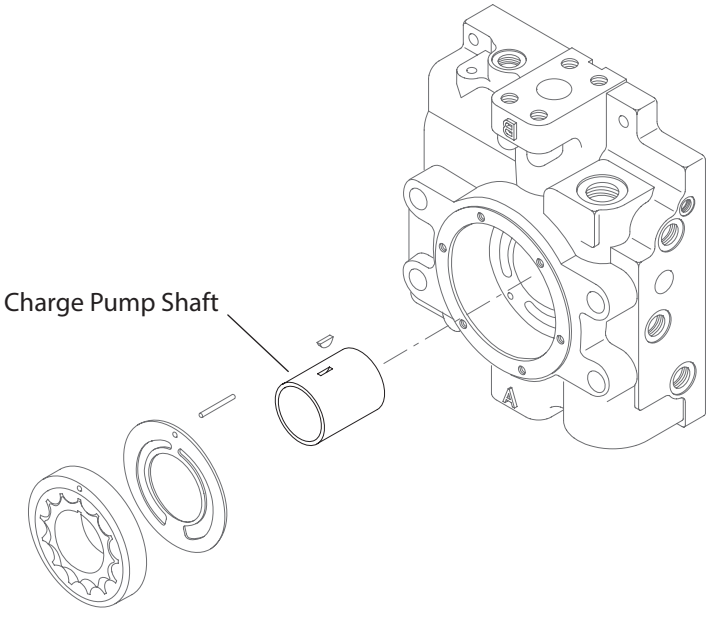
As a product improvement, Sauer-Danfoss has modified the design of the charge pump shaft used in series 90 55, 75 and 100 cc pumps. This change affects all charge pump sizes (11, 14, 17, 20, 26, and 31 cc) available in the series 90 displacement range.

The series 90 55 cc variable displacement pump uses the same charge pump shaft, regardless of charge pump size (11, 14, or 17 cc). The series 90 75 and 100 cc variable displacement pumps, utilize a common charge pump shaft for the standard size charge pumps (75 cc standard equals 14, 17, and 20 cc and 100 cc standard equals 17, 20, and 26 cc).

A unique charge pump shaft is utilized by series 90 75 cc variable displacement pumps equipped with the 26 cc size charge pump., while the same unique shaft is used by series 90 100 cc variable displacement pumps equipped with 31 cc size charge pumps.

The design modification includes a surface finish change to the charge pump shaft which improves the wear characteristics between the charge pump shaft and the journal bearings in the charge pump cover and end cap.

To assist in identifying this change, Sauer-Danfoss has released new charge pump shaft part numbers. The new shafts are completely interchangeable with the previous shafts. The new shaft has replaced the previous shaft in new pump assemblies and charge pump service kits. The previous shafts have been obsoleted and are no longer available as a service part. The chart on the next page will assist you in determining the part number changes.



## Service Bulletin: SB-1998-066

**Models affected**

94-2xxx, 942xxxx, 95-2xxx, 952xxxx, 96-2xxx, and 962xxxx variable pumps

NOTE: Pump models 9621723 and 9622117 were released with a special charge pump option (code W - 26 cc charge pump with special shaft). With this product modification, the charge pump option code for these two models has been changed from W to the standard option (code F - 266 cc charge pump). The special shaft part number 8801176 has been obsoleted and replaced with shaft part number 8801178.

**Serial numbers**

Sauer-Danfoss Ames production - effective at serial number A-99-40-xxxxx
Sauer-Danfoss Neumunster production - effective at serial number N-99-39-xxxxx

**Part numbers affected**

| Series 90 Size | Charge pump | Previous shaft | New shaft | Charge kit | | |
|---|---|---|---|---|---|---|
| | | | | No aux. pad | LH w/aux. | RH w/aux. |
| 55 | 11 | 8000267 | 8801177 | 8510028 | 8510029 | 8510030 |
| 55 | 14 | 8000267 | 8801177 | 8510031 | 8510032 | 8510033 |
| 55 | 17 | 8000267 | 8801177 | 8510034 | 8510035 | 8510036 |
| 75 | 14 | 8100476 | 8801178 | 8510037 | 8510038 | 8510039 |
| 75 | 17 | 8100476 | 8801178 | 8510040 | 8510041 | 8510042 |
| 75 | 20 | 8100476 | 8801178 | 8510043 | 8510044 | 8510045 |
| 75 | 26* | 8100478 | 8801179 | N/A | N/A | N/A |
| 100 | 17 | 8100476 | 8801178 | 8510046 | 8510047 | 8510048 |
| 100 | 20 | 8100476 | 8801178 | 8510049 | 8510050 | 8510051 |
| 100 | 26 | 8100476 | 8801178 | 8510052 | 8510053 | 8510054 |
| 100 | 31* | 8100478 | 8801179 | N/A | N/A | N/A |

* Special charge pump shaft option using unique charge pump shaft

**Parts disposition**

■ Interchangeable

## Service Bulletin: SB-1999-019

**Products affected**

Series 90 55, 75, and 100 cc variable pumps

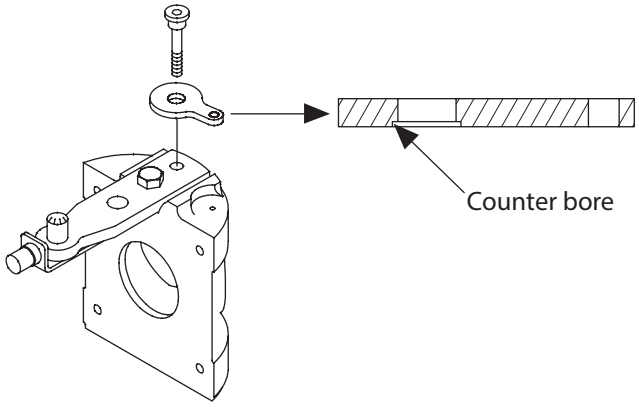
**Subject**

Feedback link change

**Description**

As a product improvement, Sauer-Danfoss is changing the design of the swashplate feedback link used on the 55, 75, and 100 cc variable pumps.

In 1996, a counter bore was added to the design of our swashplate link to allow for a higher clamping load when assembled to the servo arm. This change was described in SB-1996-009. The counter bore is no longer required on most units due to a design change to the servo arm. Sauer-Danfoss recommends the old feedback link be used when servicing pumps with dates codes prior to 96-40-xxxxx. The old feedback link will remain available as a service part.




**Models affected**

All series 90 55, 75, and 100 cc variable pumps

**Serial numbers**

This change became effective at serial number A-96-40-xxxxx.

**Part numbers affected**

| | 100 cc | 55 & 75 cc |
|---|---|---|
| Old part number | 8200344 | 8000481 |
| New part number | 8200413 | 8000602 |

**Parts disposition**

■ Non-interchangeable

## Service Bulletin: SB-1999-041A

**Products affected**

Series 90 variable pumps

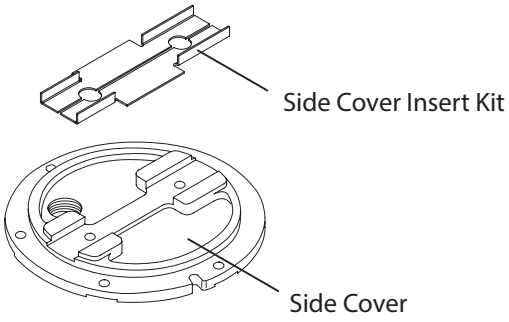
**Subject**

Change to side cover insert material

**Description**

As a continuous product improvement, Sauer-Danfoss has changed the side cover insert material to improve wear characteristics. The new material is more wear resistant than the previous material.

In order to track this change, new part numbers have been created and the old part numbers will be obsolete.




**Models affected**

93-2xxx, 94-2xxxx, 95-2xxx, 96-2xxxx, 97-2xxx, 98-2xxx, and 99-2xxx

**Serial numbers**

| Frame size | NMS effectivity date | Ames effectivity date |
|---|---|---|
| 42 cc | N-99-36-xxxxx | N/A |
| 55 cc | N-00-18-xxxxx | A-00-18-xxxxx |
| 75 cc | N-99-26-xxxxx | A-00-38-xxxxx |
| 100 cc | N-99-31-xxxxx | A-00-38-xxxxx |
| 130 cc | N-99-33-xxxxx | N/A |
| 180 cc | N-99-36-xxxxx | N/A |
| 250 cc | N-99-36-xxxxx | N/A |

**Part numbers affected**

| Frame size | Old part number | New part number |
|---|---|---|
| 42 cc | 506916 | 513885 |
| 55 cc | 8000406 | 513886 |
| 75 cc | 8000562 | 513888 |
| 100 cc | 8200321 | 513889 |
| 130 cc | 8300004 | 513890 |
| 180 cc | 506914 | 513891 |
| 250 cc | 506914 | 513891 |

**Parts disposition**

■ Interchangeable

## Service Bulletin: SB-2000-041A

**Products affected**

Series 90 55, 75, 1nd 100 cc variable displacement pumps

**Subject**

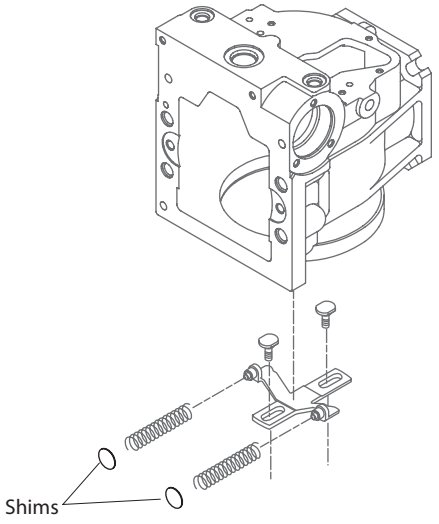
Common leveler spring shim.

**Description**

The date code for the series 90 55 cc should have been for a date code of A-92-06-xxxxx not A-02-06-xxxxx.

Sauer-Danfoss has standardized the leveler spring shim used on all 55, 75, and 100 cc variable displacement pumps. Two different shims were used in the past. One size was for 55 and 75 cc pumps, and the other for the 100 cc pumps. The new shim can be used in all three frame sizes.

Sauer-Danfoss has issued a new part number for the new shim. The new shim is interchangeable for 55 cc pumps buikt after A-92-06-xxxxx, 75 cc pumps built after A-96-19-xxxxx, and 100 cc pumps. For pumps manufactured prior to these dates, you will need to reuse the old shims, as the new shim outer diameter is larger, and this will cause the new shim to not seat correctly in the bottom of the pocket in the end cap. The old shim part numbers are obsolete.




**Models affected**

All 94-2xxx, 942xxxx, 95-2xxx, 952xxxx, 96-2xxx, and 962xxxx variable pumps.

**Serial numbers**

Sauer-Danfoss Ames, Iowa production change was effective at serial number A-00-40-xxxxx

Sauer-Danfoss Neumunster, Germany production change was effective at serial number N-01-27-xxxxx

**Part numbers affected**

| Frame size | Old part number | New part number |
|---|---|---|
| 55 cc | 359042 | 8801225* |
| 75 cc | 359042 | 8801225** |
| 100 cc | 359059 | 8801225 |

* can only be used in pumps manufacture after A-92-06-xxxxx
** can only be used in pumps manufactured after A-96-19-xxxxx

**Parts disposition**

■ Interchangeable

## Service Bulletin: SB-2002-050

**Products affected**

Series 90 55, 75, and 100 cc pumps

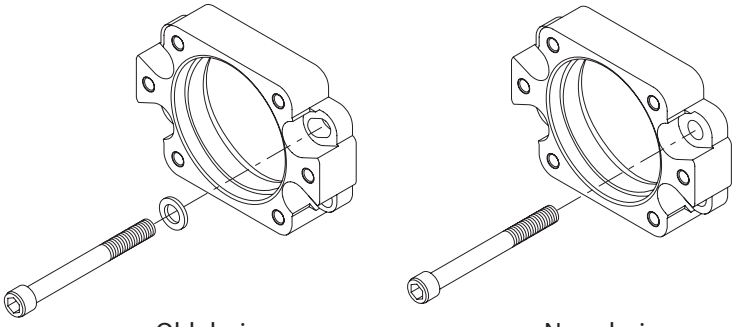
**Subject**

Auxiliary mounting pad

**Description**

As a product improvement, Sauer-Danfoss has changed the design of the SAE C auxiliary mounting pad to increase strength and reduce corrosion. The old auxiliary mounting pad and new auxiliary mounting pad are interchangeable. The new auxiliary mounting pads are frame size dependent, because they do not have slotted mounting holes. The auxiliary mounting pad screws remain the same, but they do not require washers.

The old auxiliary mounting pad is obsolete and no longer available as a service part. The washers will remain available.



Old design New design

**Models affected**

Series 90 55, 75, and 100 cc pumps with SAE C auxiliary mounting.

**Serial numbers**

This change became effective at serial number A-03-10-xxxxx

**Part numbers affected**

| Frame size | Old auxiliary pad part number | New auxiliary pad part number | Old washer part number |
|---|---|---|---|
| 55 cc | 723205 | 8000643 | 5000602 |
| 75 cc | 723205 | 8100848 | 9009625-0132 |
| 100 cc | 723205 | 8200469 | 9009625-0132 |

The new auxiliary mounting pads are frame size dependent and do not use washers.

**Parts disposition**

■ Interchangeable

## Service Bulletin: SB-2004-012

**Products affected**

Series 90 55 and 75 cc pumps

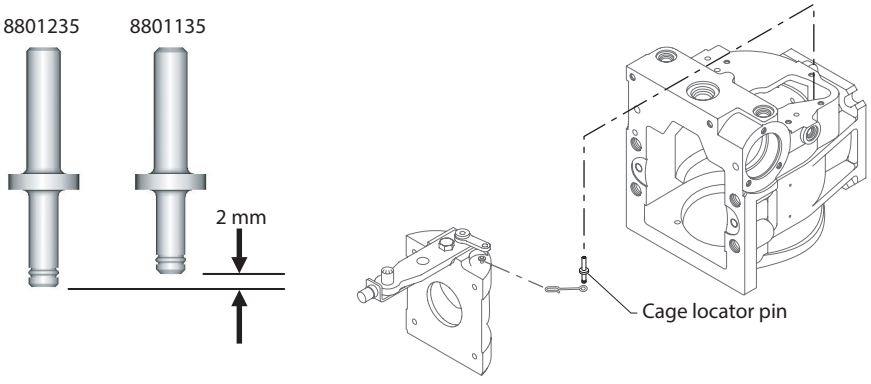
**Subject**

Cage locator pin

**Description**

As a product improvement, Sauer-Danfoss is standardizing the cage locator pin for all series 90 55, 75, and 100 cc pumps. All 55 and 75 cc pumps will now use the same locator pin used in 100 cc pumps. The new locator pin extends 2 mm further into the housing than the old pin. The housings have been machined to accept the longer pin.

The old cage locator pin must be used in pumps that have not had the housings modified. The old pin can be used in any vintage pump and will remain available as a service part.




**Models affected**

Series 90 55 and 75 cc pumps.

**Serial numbers and part numbers affected**

| Frame size | Old pin part number | New pin part number | Housing modification date* |
|---|---|---|---|
| | | | A-04-43-xxxxx |
| 55 cc | 8801135 | 8801235 | N-04-43-xxxxx |
| | | | S- not determined |
| | | | A-01-26-xxxxx |
| 75 cc | 723205 | 8100848 | N-00-01-xxxxx |
| | | | S- not determined |
| 100 cc | 8801235 | 8801235 | No change |

* A = Ames, Iowa N = Neumunster, Germany
S = Shanghai, China (a revision will be made when modification date has been determined.

**Parts disposition**

■ Non-interchangeable

## Service Bulletin: SB-2005-011

**Products affected**

Series 90 42 thru 100 cc pumps

**Subject**

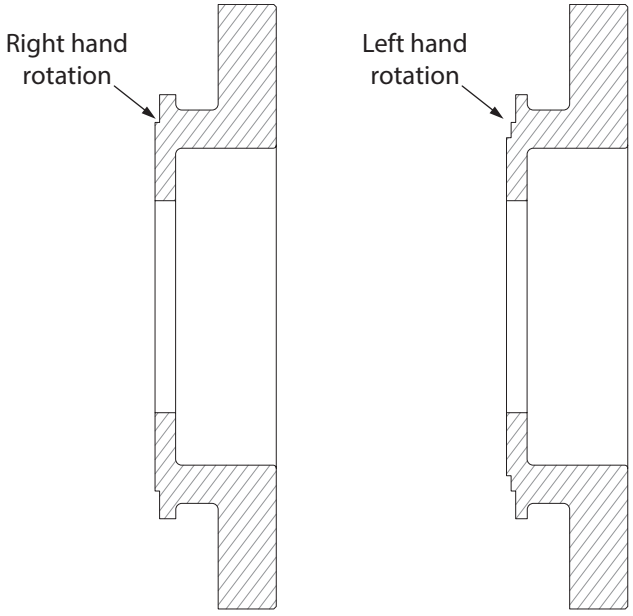
Auxiliary flange charge pump cover

**Description**

Sauer-Danfoss will no longer mark auxiliary flange charge pump cover with an "R" for right hand rotation or an "L" for left hand rotation.

The pilot surface has changed on the covers. The right hand rotation charge pump cover will have 1 step and the left hand rotation charge pump cover will have 2 steps. Refer to the drawings below for example.

The part numbers of the charge pump covers will not change.




**Models affected**

Series 90 42 thru 100 cc pumps withauxiliary pad options.

**Serial numbers**

This change became effective at serial number A-05-17-xxxxx

**Part numbers affected**

None

**Parts disposition**

■ Interchangeable

## Service Bulletin: SB-2007-027

**Products affected**

Series 90; 55, 75 , and 100 cc pumps

**Subject**

SAE A auxiliary mounting flange

**Description**

Sauer-Danfoss is pleased to announce a design improvement on the SAE A auxiliary mounting flange adapter on all its series 90 pumps. All manufacturing locations producing these pumps will be changed to this configuration.

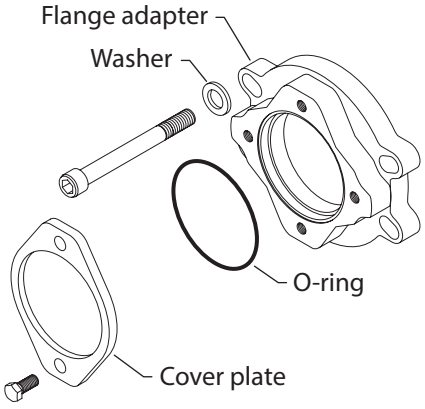
The improvement comes in the form of a more robust sealing geometry with a larger cross-section O-ring. The O-ring groove in the flange will now be sized to mate with a 2.62mm [0.103] cross section O-ring rather than the old 1.78mm [0.070] cross-section O-ring. The Sauer-Danfoss part number for the new O-ring is 9004104-1520 (2.62mm [0.103]. x 82.22mm [3.237]). The larger cross-section sealing geometry allows for the use of a donut style A pad seal and a new flat cover for improved assembly. This new configuration is qualified as a running cover. When installing an auxiliary pump, the donut style A pad seal must be discarded and the part number 9004104-1520 O-ring used.

Also, the flanges will no longer have a slotted interface with a washer for the end cap screws. The flanges will now have round through holes for the end cap screws and will use no washers. The end cap screws do not change. This eliminates the area where water or high pressure wash chemicals can be trapped around the end cap screws. There now are specific part numbers for the flanges used on each of the three displacement size pumps; 55, 75 and 100 cc.

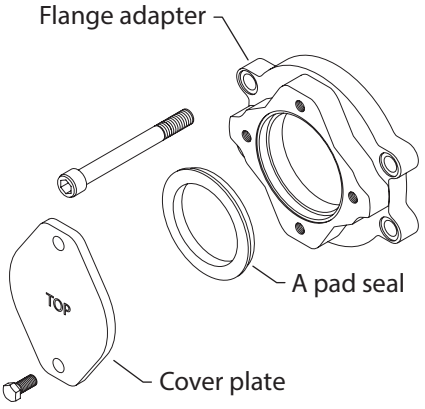
The pumps will now be supplied with the donut style A pad seal and new flat cover, instead of the small O-ring and cover plate (shown in the drawing below).

The overhaul seal kit will include the old O-ring, the new O-ring and the A pad seal.

**Old Design**




**New Design**



## Service Bulletin: SB-2007-027

**Models affected**

All series 90; 55, 75, and 100 cc pumps with SAE "A" auxiliary mounting flanges.

**Serial numbers**

This change became affective at serial number; A 07-05-xxxxx.

**Part numbers affected**

| Description | Old p/n | Used on | New p/n | Used on |
|---|---|---|---|---|
| Flange adapter | 8000262 | 55 cc | 8000641 | 55 cc |
| Flange adapter | 8800172 | 55, 75 & 100 cc | 8000641 | 55 cc |
| Flange adapter | 8800172 | 55, 75 & 100 cc | 8100846 | 75 cc |
| Flange adapter | 8800172 | 55, 75 & 100 cc | 8200467 | 100 cc |
| Washer | 9009625-0132 | 55, 75 & 100 cc | NA | NA |
| O-ring | 9004104-0420 | All sizes | 9004104-1520 | All sizes |
| A Pad seal | NA | All sizes | 4800482 | All sizes |
| Flange cover | 9802336 | All sizes | 4460586 | All sizes |

Note: If the new auxiliary flange adapter is used, the new O-ring or A pad seal and cover must also be used.

**Parts disposition**

- Interchangeable - if new O-ring or A pad seal and cover are replaced
- Use parts in stock
- Order replacement parts
- Revise existing part orders

## Service Bulletin: SB-2007-051

**Products affected**

Series 90; 55, 75 , and 100 cc pumps

**Subject**

SAE C auxiliary mounting flange

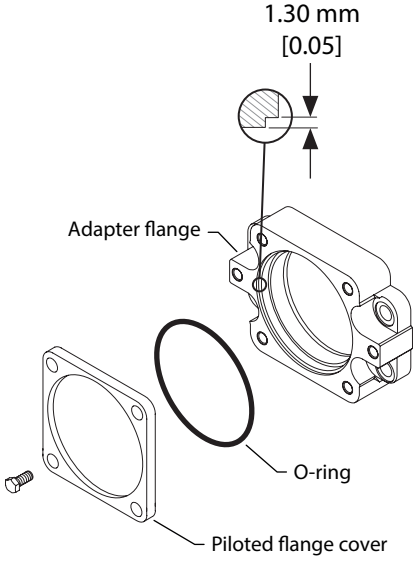
**Part numbers affected**

Sauer-Danfoss is pleased to announce a design improvement on the SAE C auxiliary mounting flange adapter on its series 90 pumps. The frame sizes affected by this change are 55, 75, and 100cc. All manufacturing locations producing these pumps will be changed to this configuration.

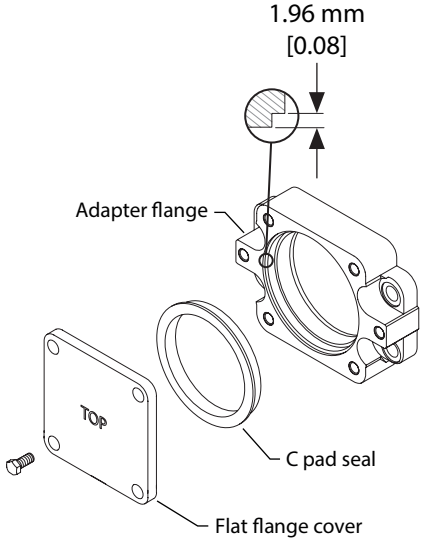
The improvement comes in the form of a more robust sealing geometry with a larger cross-section O-ring. The O-ring groove in the flange will now be sized to mate with a 2.62mm [0.103] cross section O-ring rather than the old 1.78mm [0.070] cross-section O-ring. The Sauer-Danfoss part number for the new O-ring is 9004104-1580 (2.62mm [0.103] x 120.32mm [4.737]). The larger cross-section sealing geometry allows for the use of a donut style C pad seal and a new flat cover for improved assembly. This new configuration is qualified as a running cover. When installing an auxiliary pump, the donut style C pad seal must be discarded and part number 9004104-1580 O-ring used.

The pumps will now be supplied with the donut style seal and new flat cover, instead of the small O-ring and cover plate (shown in the drawing below).

The overhaul seal kit will include the old O-ring, the new O-ring and the new C pad seal




Old design




New design

## Service Bulletin: SB-2007-051

**Models affected**

All series 90; 55, 75, and 100 cc pumps with SAE "C" auxiliary mounting flanges.

**Serial numbers**

This change became affective at serial number; A 08-19-xxxxx and N 09-30-xxxxx.

**Part numbers affected**

| Description | Old p/n | Used on | New p/n |
|---|---|---|---|
| SAE C flange | 8200469 | 100 cc | 8200515 |
| SAE C flange | 8100848 | 75 cc | 8100897 |
| SAE C flange | 8000643 | 55 cc | 8000740 |
| O-ring | 9004100-0480 | 55, 75 & 100 cc | 9004104-1580 |
| C Pad seal | N/A | 55, 75 & 100 cc | 8801062 |
| Flange cover | 8800406 | 55, 75 & 100 cc | 8801060 |

Note: If the new auxiliary flange adapter is used, the new O-ring or C pad seal and cover must also be used.

**Parts disposition**

- Interchangeable - if new O-ring or C pad seal and cover are replaced
- Use parts in stock
- Order replacement parts
- Revise existing part orders

## Service Bulletin: SB-2007-055

**Products affected**

Series 90; 55, 75 , and 100 cc pumps

**Subject**

SAE B auxiliary mounting flange

**Part numbers affected**

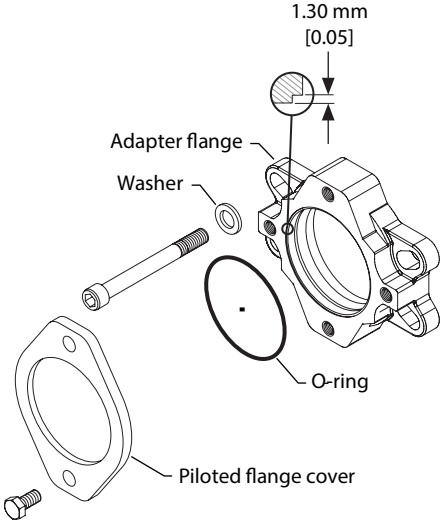
Sauer-Danfoss is pleased to announce a design improvement on the SAE B auxiliary mounting flange adapter on its series 90 pumps. The frame sizes affected by this change are 55, 75, and 100cc. All manufacturing locations producing these pumps will be changed to this configuration.

The improvement comes in the form of a more robust sealing geometry with a larger cross-section O-ring. The O-ring groove in the flange will now be sized to mate with a 2.62mm [0.103] cross section O-ring rather than the old 1.78mm [0.070] cross-section O-ring. The Sauer-Danfoss part number for the new O-ring is 9004104-1540 (2.62mm [0.103] x 94.92mm [3.737]). The larger cross-section sealing geometry allows for the use of a donut style B pad seal and a new flat cover for improved assembly. This new configuration is qualified as a running cover. When installing an auxiliary pump, the donut style B pad seal must be discarded and part number 9004104-1540 O-ring used.

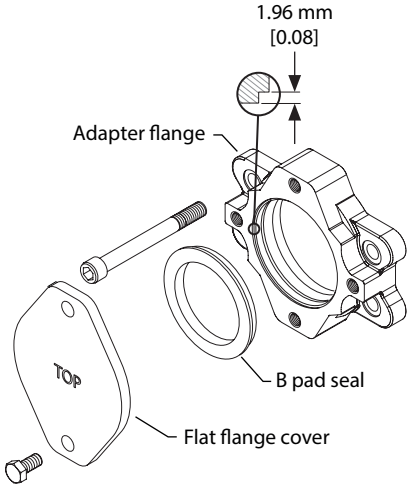
Also, the flanges will no longer have a slotted interface with a washer for the end cap screws. The flanges will now have round through holes for the end cap screws and will use no washers. The end cap screws do not change. This eliminates the area where water or high pressure wash chemicals can be trapped around the end cap screws. There now are specific part numbers for the flanges used on each of the three displacement size pumps; 55, 75 and 100 cc.

The pumps will now be supplied with the donut style seal and new flat cover, instead of the small O-ring and cover plate (shown in the drawing below).

The overhaul seal kit will include the old O-ring, the new O-ring and the new B pad seal.




Old design




New design

## Service Bulletin: SB-2007-055

**Models affected**

All series 90; 55, 75, and 100 cc pumps with SAE "B" auxiliary mounting flanges.

**Serial numbers**

This change became affective at serial number; A 08-19-xxxxx.

**Part numbers affected**

| Description | Old p/n | Used on | New p/n | Used on |
|---|---|---|---|---|
| Metric B flange | 8800983 | 55, 75 & 100 cc | 8200540 | 100 cc |
| SAE B flange | 8800173 | 55, 75 & 100 cc | 8200468 | 100 cc |
| SAE B flange | 8800173 | 55, 75 & 100 cc | 8100847 | 75 cc |
| Metric B flange | 8800983 | 55, 75 & 100 cc | 8100938 | 75 cc |
| SAE B flange | 8800173 | 55, 75 & 100 cc | 8000642 | 55 cc |
| SAE B flange | 8000263 | 55, 75 & 100 cc | 8000642 | 55 cc |
| Washer | 9009625-0132 | 55, 75 & 100 cc | N/A | N/A |
| O-ring | 9004104-0450 | 55, 75 & 100 cc | 9004104-1540 | 55, 75 & 100 cc |
| B Pad seal | N/A | 55, 75 & 100 cc | 8801061 | 55, 75 & 100 cc |
| Flange cover | 4460370 | 55, 75 & 100 cc | 8801059 | 55, 75 & 100 cc |

Note: If the new auxiliary flange adapter is used, the new O-ring or B pad seal and cover must also be used.

**Parts disposition**

- Interchangeable - if new O-ring or C pad seal and cover are replaced
- Use parts in stock
- Order replacement parts
- Revise existing part orders

## Service Bulletin: SB-2009-038

**Products affected**

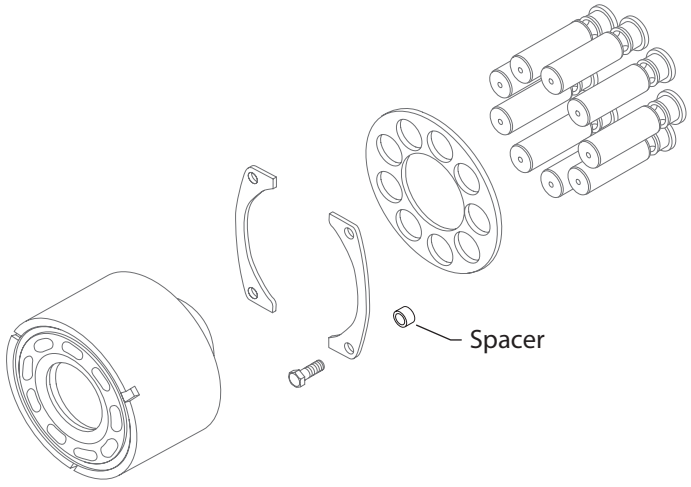
Series 90 55, 75 and 100 cc pumps

**Subject**

Slipper hold down spacer

**Description**

The supplier for the spacers, used for slipper hold down spacing in series 90 pumps, has changed. The new part is physically and functionally interchangeable in all applications. The part numbers have changed to better track this change. The old part numbers will become obsolete and not available for service.




**Models affected**

Series 90 55, 75 and 100 cc pumps.

**Serial numbers**

This change became effective at serial number: A09-38-XXXXX for 55cc (14-Sep-2009)
A10-04-XXXXX for 75cc (22-Jan-2010)
A09-38-XXXXX for 100cc (12-Aug-2009)

**Part numbers affected**

| Spacer | Old part number | New part number |
|---|---|---|
| 55cc | 8000619 | 11065864 |
| 75cc | 8100777 | 11065865 |
| 100cc | 8200422 | 11065866 |

**Parts disposition**

■ Non-interchangeable

## Service Bulletin: SB-2010-005

**Products affected**

Series 90; 55cc pump

**Subject**

SAE B auxiliary mounting flange

**Part numbers affected**

Sauer-Danfoss is pleased to announce a design improvement on the SAE B auxiliary mounting flange adapter used on its series 90, 55cc pumps with auxiliary mounting flange order code of "BN".

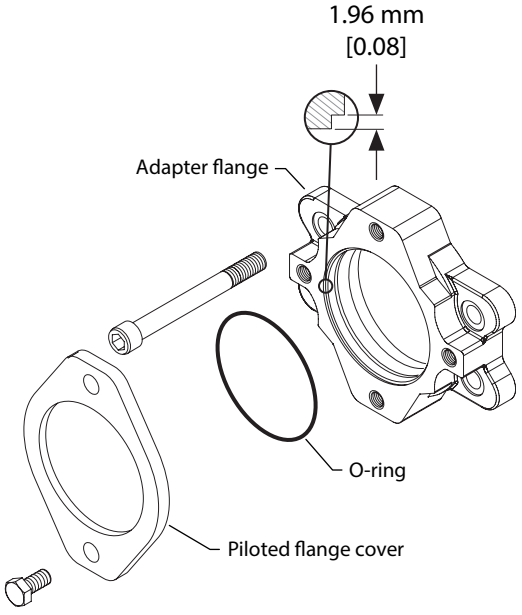
The improvement comes in the form of a more robust sealing geometry with a larger cross-section O-ring. The O-ring groove in the flange will now be sized to mate with a 2.62mm [0.103] cross section O-ring rather than the old 1.78mm [0.070] cross-section O-ring. The Sauer-Danfoss part number for the new O-ring is 9004104-1540 (2.62mm [0.103] x 94.92mm [3.737]). When installing an auxiliary pump, a new O-ring should be used.

Also, the flange will no longer have a slotted interface with a washer for the end cap screws. The flange will now have round through holes for the end cap screws and will use no washers. The end cap screws do not change. This eliminates the area where water or high pressure wash chemicals can be trapped around the end cap screws.

The overhaul seal kit will include the old O-ring, and the new O-ring.

The old auxiliary mounting flange will be obsolete and no longer available as a service part. It is interchangeable with the new auxiliary mounting flange only if the new O-ring is used.

The old O-ring and washers will remain available for service.



## Service Bulletin: SB-2010-005

**Models affected**

Series 90, 55cc pumps using "BN" order code for SAE B auxiliary mounting flange.

**Serial numbers**

This change became affective at serial number; A 10-49-XXXXX. (08-Dec-2010)

**Part numbers affected**

| Description | Old part number | New part number |
|---|---|---|
| SAE B flange | 509258 | 8000771 |
| Washer | 506753 | N/A |
| O-ring | 9004104-0450 | 9004104-1540 |

**Parts disposition**

- Interchangeable - if new O-ring or C pad seal and cover are replaced
- Use parts in stock
- Order replacement parts
- Revise existing part orders

## Service Bulletin: SB-2010-025

**Products affected**

Series 90 55 cc pumps and motors

**Subject**

Shaft seal change

**Description**

As a product improvement, Sauer-Danfoss is changing the shaft seal used in the Series 90, 55cc pumps and motors. The new shaft seal carrier assembly is interchangeable, but piece parts are not. The new lip seal has a smaller O.D. and the I.D. of the seal carrier changed accordingly.

Because of the smaller O.D. of the new shaft seal, the old seal retainer plate must not be used with the new shaft seal carrier assembly. The new seal retainer plate can be used with the old shaft seal carrier assembly. The old shaft lip seal will not fit into the new shaft seal carrier and the new shaft lip seal will not fit into the old shaft seal carrier.

The overhaul seal kits will include the new shaft seal carrier assembly and the new retainer plate. Since the outer O-ring is part of the seal carrier assembly the separate O-ring has been removed from the overhaul seal kits.

The old seal carrier assembly and retainer plate are obsolete and no longer available for service.

The old shaft lip seal will be obsolete once the current service parts inventory is depleted.

**Models affected**

All Series 90 55 cc pumps and motors.

**Serial numbers**

This change became effective at serial number: A-10-40-XXXXX (01-Oct-2010)

**Part numbers affected**

| Description | Old part number | Old part number |
|---|---|---|
| Seal carrier assembly | 8000390 | 11083637 |
| Shaft lip seal | 9008000-0118 | 11013519 |
| O-ring | 9004104-1510 | 9004104-1510 |
| Retainer plate | 516766 | 11083638 |
| Seal carrier replacement kit * | N/A | 11084372* |

* includes new seal carrier assembly and retainer plate

**Parts disposition**

■ Interchangeable - only when using the new seal carrier assembly and new retainer plate, or seal carrier replacement kit

## Service Bulletin: SB-2013-011

**Products affected**

Series 90 42-250cc pumps

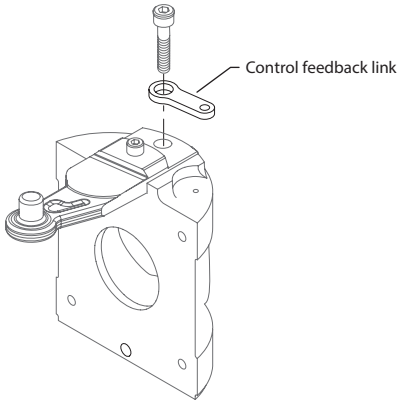
**Subject**

Feedback link - Control

**Description**

Sauer-Danfoss has changed to a global supplier for the control feedback links used in Series 90 42-250cc pumps.

Old parts and new parts are completely interchangeable. Part numbers will be changing for tracking purposes. Old parts will become obsolete and no longer available as a service part.




**Models affected**

Series 90 42-250cc pumps

**Part numbers affected**

| Control feedback link | Old part number | New part number |
|---|---|---|
| 42cc pumps | 648600 | 11070304 |
| 55 & 75cc pumps | 8000602 | 11070305 |
| 100cc pumps | 8200413 | 11070306 |
| 130cc pumps | 340091 | 11070307 |
| 180 & 250cc pupms | 747451 | 11070308 |

**Parts disposition**

- Interchangeable
- Use parts in stock

## Service Bulletin: SB-2014-020

**Products affected** Series 90 30cc to 100cc pumps

**Subject** MDC Neutral Override Solenoid Valves

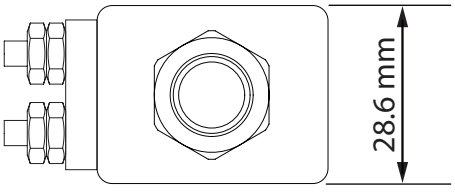
**Description**

The supplier has discontinued manufacturing the current neutral override solenoid valves used on Series 90 manual displacement controls (MDC). New valves from the supplier will be used as the replacement.

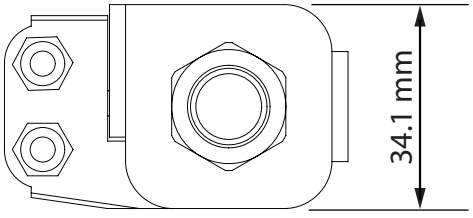
The new valve fits into the same cavity, but the assemblies are slightly larger and the terminals have moved slightly compared to the old valves. Dimensions of the old and new valves are attached below.

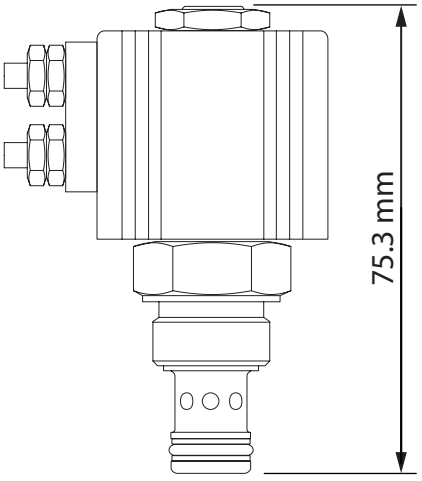
New part numbers have been assigned for tracking purposes. The old valves are obsolete and no longer available as a service part.

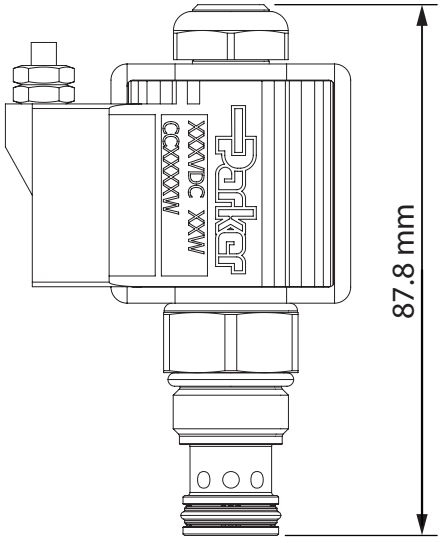
Old valve




New valve



## Service Bulletin: SB-2014-020

**Models affected**

Series 90 30cc to100cc pumps

**Part numbers affected**

| Description | Old Part Number | New Part Number |
|---|---|---|
| Valve, Solenoid, N/O, 24V, 2-pole | 8700087 | 11127985 |
| Valve, Solenoid, N/C, 12V, 1-pole | 8700119 | 11127988 |
| Valve, Solenoid, N/O, 12V, 2-pole | 9700886 | 11127986 |
| Valve, Solenoid, N/O, 12V, 1-pole | 9700803 | 11127987 |

**Parts disposition**

- Non-interchangeable
- Use parts in stock
- Revise existing part orders

## Service Bulletin: SB-2015-005

**Products affected**

Series 90 42-250cc pumps

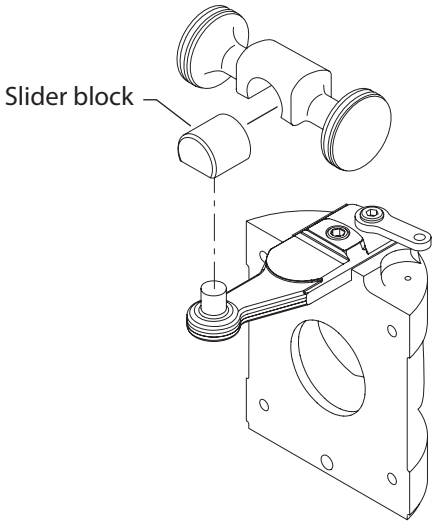
**Subject**

Slider block supplier change

**Description**

SThe supplier has changed for Series 90 pump slider blocks. Parts are completely interchangeable.

Part numbers have been changed for tracking purposes. As a result old part numbers will become obsolete and no longer available as service parts.




**Models affected**

Series 90 42-250cc pumps

**Part numbers affected**

| Description | Old Part Number | New Part Number | Effective Date |
|---|---|---|---|
| Slider block 42 NMS | 648303 | 11116314 | N/A |
| Slider block 55-75 NMS | 8800750 | 11116313 | 6-Aug-2014 |
| Slider block 55-75 AMS | 11061964 | 11116313 | 6-Sept-2014 |
| Slider block100 AMS | 11061908 | 11116312 | 10-Mar-2014 |
| Slider block 100 NMS | 756197 | 11116312 | 20-Feb-2015 |
| Slider block 130 NMS | 11000317 | 11116309 | 9-Dec-2014 |
| Slider block 180-250 NMS | 746479 | 11116308 | 24-Oct-2014 |

**Parts disposition**

- Interchangeable
- Use parts in stock

## Notes

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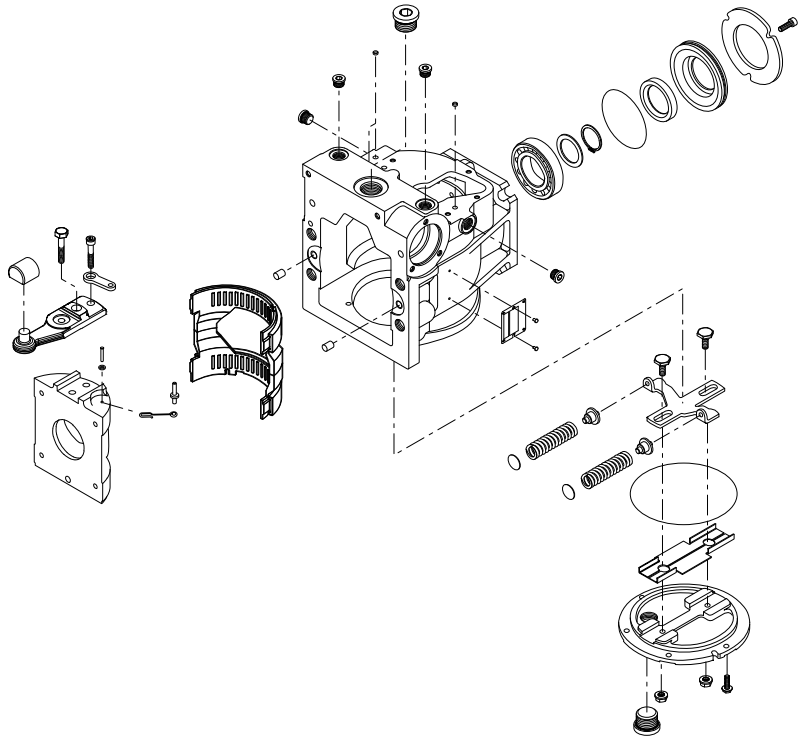
**AX00000089en-US | 520L0889** • Rev 0500 • February 2019

ENGINEERING
TOMORROW

Parts Manual

# Series 90 Axial Piston Pumps
## Size 75cc



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## Revision history

*Table of revisions*

| Date | Changed | Rev |
|---|---|---|
| August 2025 | Removed obsolete part number | 0706 |
| March 2025 | Updated Aux mounting J60 part number | 0705 |
| July 2024 | Change QM10 part number on HF-HS control | 0704 |
| June 2024 | Removed reference to 6W, 8V, 67 endcap options, image formatting changes | 0703 |
| April 2024 | Removed reference to 046151 plug | 0702 |
| October 2023 | Updated QD50 part number | 0701 |
| February 2022 | Updated various part numbers, added missing part numbers from seal kit | 0601 |
| July 2020 | Changed document number from 'AX00000091' to 'AX152886482206' and updated part numbers | 0501 |

## Contents

**General information**

Service parts identification ... 7
Nameplate ... 7
Date code ... 8
About service bulletins ... 8
Procedure to identify a part ... 8
Regional part numbers ... 8
Example of a part identification (S90 75cc) ... 8
Adobe Acrobat 2-page viewing ... 9
Order code ... 10

**Common parts and special hardware**

S90P 75cc common parts ... 11
Special hardware EAB-EBA ... 15
Special hardware EBC, EBE ... 17
Special hardware EDC-EDI ... 19
Special hardware EEB, EEG ... 21
Special hardware EEH ... 23
Special hardware EFC-EFL ... 27
Special hardware EFP ... 29
Special hardware EFR ... 33
Special hardware EHA-EKB ... 37
Special hardware ELA ... 39
Special hardware ELB ... 43
Special hardware ELC ... 47
Special hardware FAA-FAK ... 51
Special hardware FAL, FAN ... 53
Special hardware FAP-FAU ... 55
Special hardware FAX, FAY ... 57
Special hardware FAZ-FBG ... 59
Special hardware FCF, FHP ... 61
Special hardware GAA-GBT ... 63
Special hardware GBU ... 65
Special hardware GBX-GCP ... 69
Special hardware GCR-GCU ... 71
Special hardware GDE-GFP ... 73
Special hardware GFS-GFZ ... 75
Special hardware GHT-GMA ... 77
Special hardware GMC ... 79
Special hardware GMD ... 83
Special hardware GME ... 87
Special hardware GTA-PEA ... 91
Special hardware PEB-PGB ... 93

**Displacement**

Displacement limitation 1-4 ... 95
Displacement limitation 7 ... 97
Displacement limitation 8, B ... 99
Displacement limitation D ... 101
Displacement limitation F ... 103
Displacement limitation H ... 105
Displacement limitation L ... 107
Displacement limitation ... 109

**End cap**

End cap H-6R ... 111
End cap 60-62 ... 113
End cap 6U ... 115
End cap 1-81 ... 117
End cap 82, 8W ... 119
End cap 80-8D (built in Germany) ... 121

## Contents

**Charging system**

Charging system C-F ... 123
Charging system L, N ... 125
Charging system S, Y ... 127

**Auxiliary mounting**

Auxiliary mounting AB and AC ... 129
Aux mounting AH-BA ... 131
Aux mounting BB-V ... 133
Aux mounting BD ... 135
Aux mounting BE, BF ... 137
Aux mounting BH-BP ... 139
Aux mounting BR ... 141
Aux mounting BT-CK ... 143
Aux mounting CK ... 145
Auxiliary mounting CP, CR ... 147
Aux mounting CT-CV ... 149
Aux mounting CW ... 151
Aux mounting CX-NN ... 153

**Charge pressure setting**

Charge pressure setting ... 155

**Shaft**

Shaft C6-SA ... 157
Shaft G2, J8, K2 ... 159
Shaft T1-TJ ... 161

**Control**

Control CA-DD ... 163
Control EA, EG ... 165
Control EP, EX ... 167
Control FA-FD ... 169
Control FG, FH ... 171
Control FK-FN ... 173
Control HF-HS ... 175
Control HU-JC ... 177
Control K0-K7 ... 179
Control KA-KC ... 181
Control KD-KH ... 183
Control KK-KP ... 185
Control KT ... 187
Control KY, LB ... 189
Control LC, LE ... 191
Control LG, LK ... 193
Control LL, LN ... 195
Control LS, LT ... 197
Control M1, M2 ... 199
Control M3 ... 201
Control M7, M8 ... 203
Control MA, MB ... 205
Control MC, MD ... 207
Control ME, MG ... 209
Control MH, MJ ... 211
Control MK, ML ... 213
Control MN ... 215
Control MR, MS ... 217
Control MT, MV ... 219
Control MW ... 221
Control MX, MY ... 223
Control NA, NC ... 225

## Contents

Control NE ..... 227
Control NU ..... 229
Control PA, PB ..... 231
Control PE ..... 233
Control PF, PG ..... 235
Control PH, PJ ..... 237
Control RR, RS ..... 239
Control RU ..... 241
Control SA, SB, SD, SE ..... 243
Control SC ..... 245

**Filtration**

Filtration 3-J ..... 247
Filtration L, P ..... 249
Filtration R-X ..... 251

**High pressure protection**

High pressure regulation 1-7 ..... 253
High pressure regulation A-F ..... 255
High pressure regulation G-M ..... 257
High pressure regulation N, P ..... 259
High pressure regulation R, S ..... 261
High pressure regulation U, W ..... 263
High pressure regulation X, Y ..... 265

**Orifice**

Orifice 01-24 ..... 267
Orifice 25-34 ..... 271
Orifice 48-49 ..... 275
Orifice 50-76 ..... 277
Orifice 78-A7 ..... 281
Orifice A8-C4 ..... 285
Orifice C5-G8 ..... 289
Orifice G8-P1 ..... 293
Orifice Z1, Z3 ..... 297

**overhaul seal kit**

Seal kit ..... 299

**Service bulletin**

SB-1988-009 ..... 300
SB-1988-016 ..... 302
SB-1988-023 ..... 304
SB-1989-002 ..... 306
SB-1989-003 ..... 306
SB-1989-006 ..... 308
SB-1989-023 ..... 310
SB-1992-003 ..... 312
SB-1992-011 ..... 314
SB-1993-001 ..... 315
SB-1993-015 ..... 318
SB-1994-017 ..... 320
SB-1994-018 ..... 321
SB-1994-36 ..... 323
SB-1995-003 ..... 324
SB-1995-012 ..... 325
SB-1995-025 ..... 327
SB-1996-009 ..... 329
SB-1998-066 ..... 330
SB-1998-041 ..... 332
SB-1998-073 ..... 334

## Contents

SB-1999-009....336
SB-1999-019....338
SB-1999-041....339
SB-1999-065....341
SB-2000-022....343
SB-2000-041....345
SB-2002-050....346
SB-2004-012....347
SB-2005-007....348
SB-2005-011....350
SB-2007-027....351
SB-2007-051....353
SB-2007-055....355
SB-2009-073....357
SB-2013-011....359
SB-2015-005....360
SB-2017-033....361

## General information

### Service parts identification

The following information and procedure is used to identify the module group, item number, manufacture date, part number, and part name of the parts included in the .

The parts listed include all parts which may be used when performing either “Minor Repairs”, “Major Repairs” or “Conversions” on the .

### Nameplate

Each unit will have a nameplate affixed to the housing. The nameplate of the will include the following information:

#### Model code

The Danfoss model code completely defines the specific unit and must be used when ordering parts to service this product.

#### Model/material number

The Danfoss model number (also known as material number) is used by the factory in manufacturing. On repeat orders, a complete unit can be ordered by the model number.

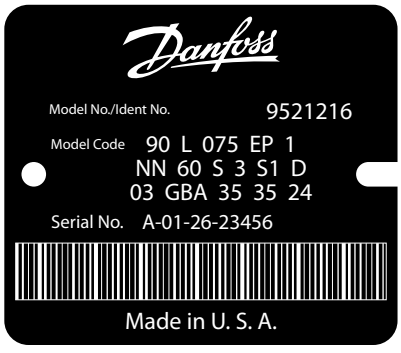
#### Serial number

The Danfoss serial number is used to identify the manufacture date and the unit sequence in the build. The serial number is also used to identify the units warranty time period.

The letter code indicates the location of original manufacture (assembly).

The first number (2 digits) indicates the year of manufacture. The second number (2 digits) indicates the calendar week of manufacture.

The third number (5 digits) is a sequential number used to identify a specific unit.



## General information

### Date code

The date code is defined as the year and week of manufacture. The same item number may list more than one part number. This indicates that there is more than one configuration for that item number. You will see that there are different date codes for the different part numbers. Find the date code of your unit from the nameplate to determine which service part number you need to order.

*Example: The service part desired is item G30*

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 80 | G30 | 89-17 | | 8000243 | End cap gasket | 1 |
| | G30 | | 89-16 | 8000151 | End cap gasket (SB-1995-006) | 1 |

All units using this order code with a date code prior to 89-17 must use part number "8000151." All units with a date code of 89-17 and newer must use part number "8000243."

### About service bulletins

A Service Bulletin Number (SB-_ _ _ _ - _ _ _) may follow the "Part Name" of the part you desire. You must read that Service Bulletin prior to ordering that part. The information contained in these Service Bulletins, as of the print date of this bulletin, are included at the end of this manual. Service Bulletins contain more detailed information such as interchangeability, what additional parts are involved, etc. It is suggested that you add additional Service Bulletins to this manual as you receive them.

### Procedure to identify a part

The modular design of this product results in a simplified service parts list and part number identification procedure.

The same item numbers are used for same part names on all units within a product type. A part number that has another number following it in parentheses is done to make this a world wide manual.

#### Regional part numbers

Some part numbers are region specific and should be ordered accordingly.

As an example, the part number (example: 314583 (9008000-0118) will be used. The first number is sold in Germany. The number in parentheses is sold in the United States. Customers would order 9008000-0118 if ordering the part in the United States.

#### Example of a part identification (S90 75cc)

The nameplate on a Series 90 pump has an Order Code of 90L075 EP 1 NN 60 S 3 S1 D 03 GBA 35 35 24. Use the following procedures to determine the part number of the drive shaft used on this pump.

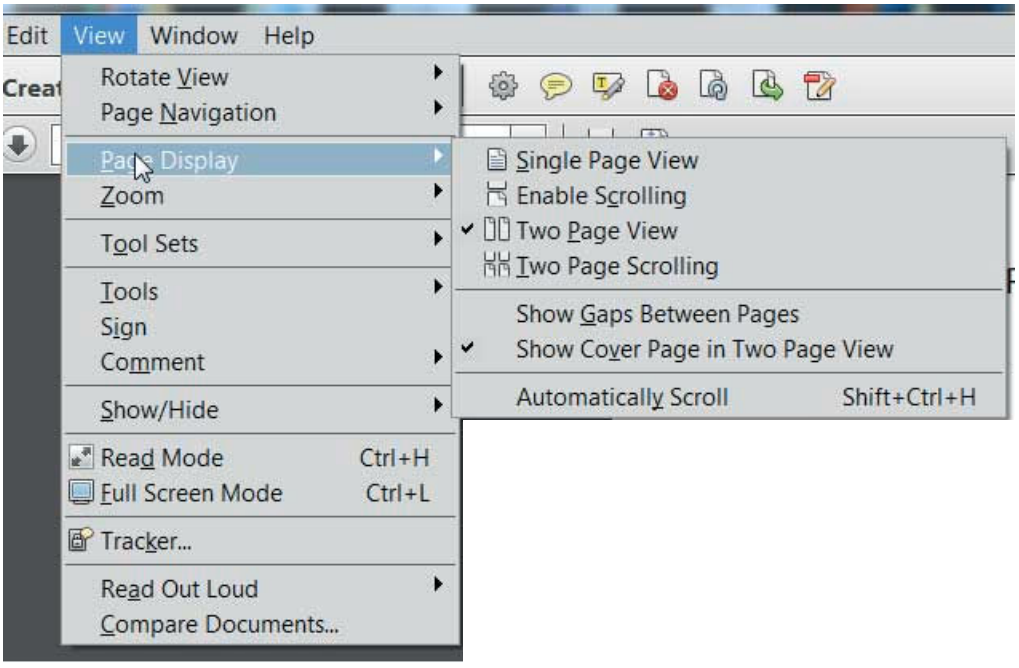
1. Referring to the input shaft module in the *Order Code*, the input shaft option for this pump is identified by the code "S1. (90L075 EP 1 NN 60 S 3 **S1** D 03 GBA 35 35 24).
2. Referring to the Service Parts List, find the shaft group. Next find the order code that relates to this unit, which is "S1". The shaft is found to be item L100 and part number 8100264.

## General information

### Adobe Acrobat 2-page viewing

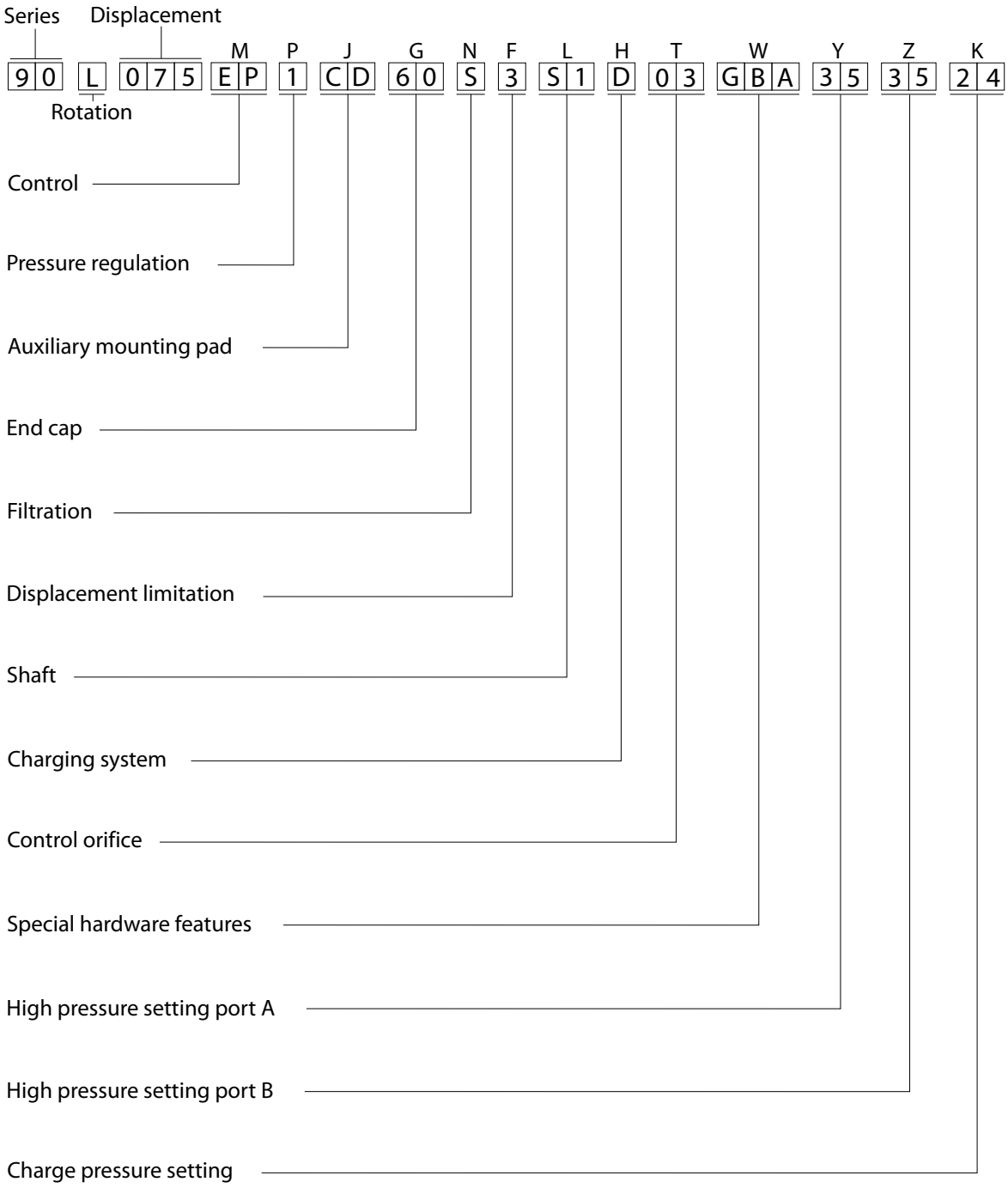
While viewing manual in Adobe Acrobat, the following settings need to be applied to ensure proper page display.

1. Select “View” → “Page Display” → “Two Page View”
2. Select “View” → “Page Display” → “Show Cover Page in Two Page View”



## General information

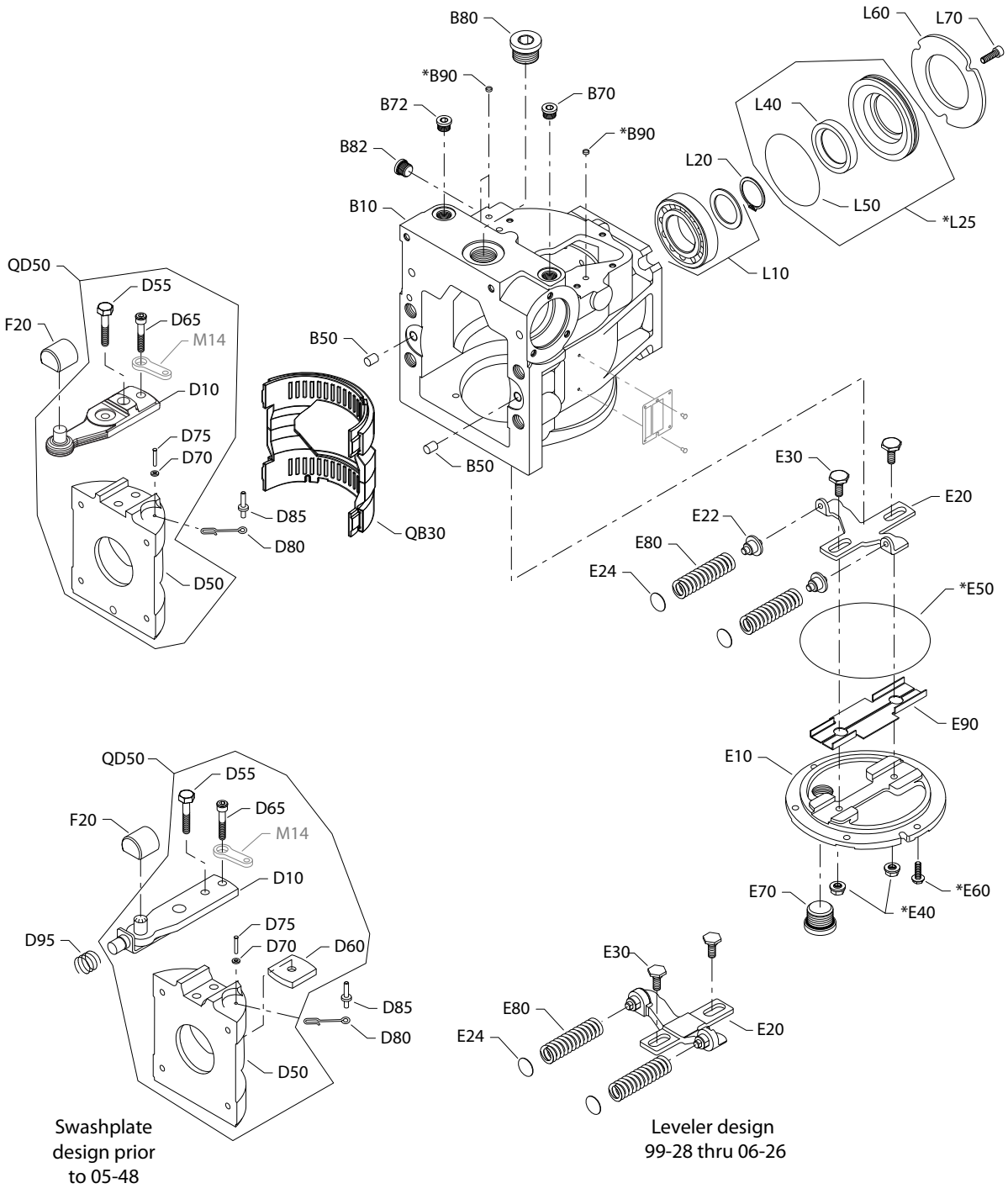
### Order code



## Common parts and special hardware

### S90P 75cc common parts

*Parts configuration*




* Included in base pump seal kit Q210

## Common parts and special hardware

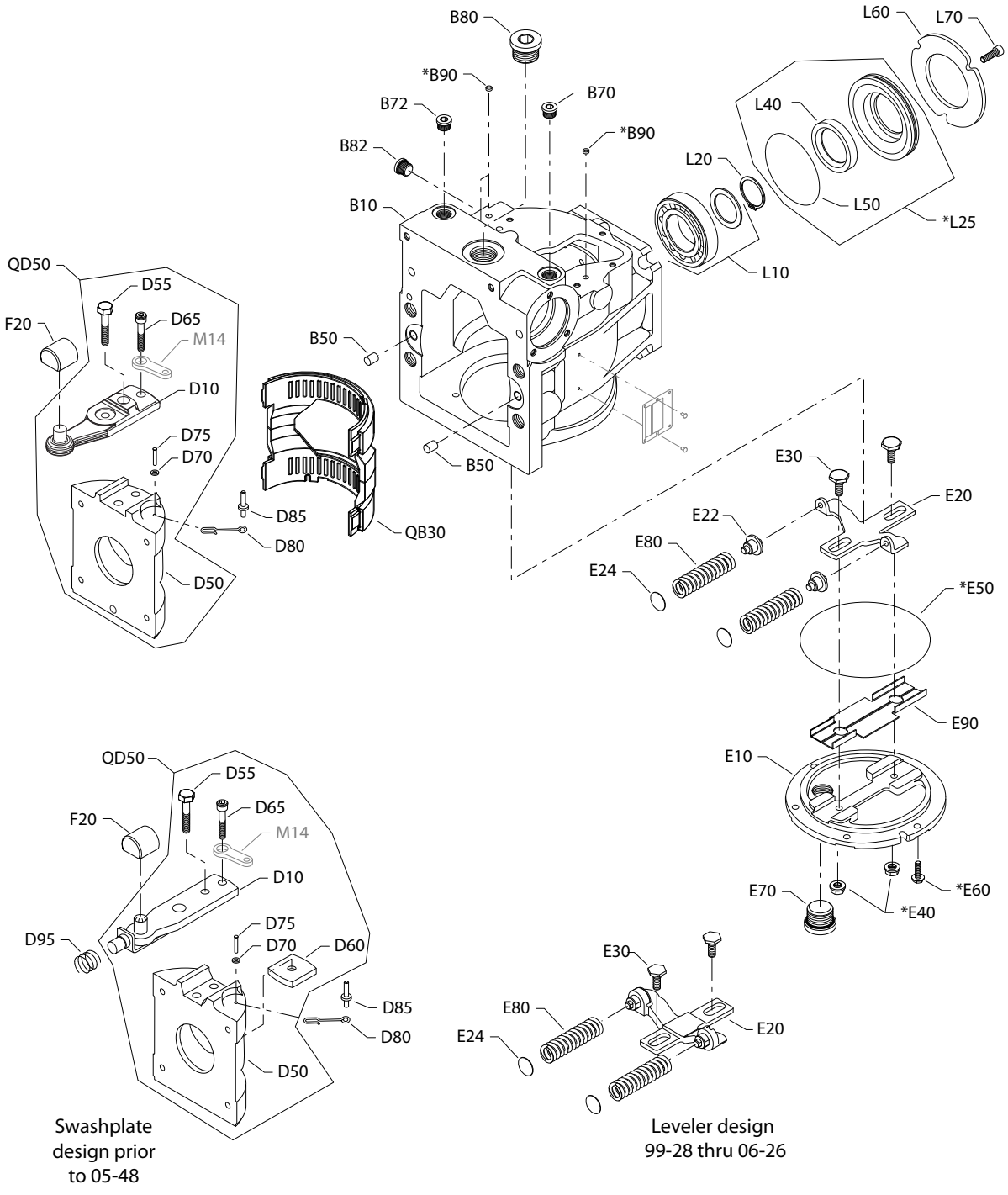
*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| B10 | 05-49 | | 11001300 | Housing (*SB-2005-007* on page 348) | 1 |
| B50 | 87-02 | | 9004800-3708 | Pin | 2 |
| B70 | 87-02 | | 140644 (9005110-5600) | Plug assembly | 1 |
| B72 | 87-02 | | 140644 (9005110-5600) | Plug assembly | 1 |
| B80 | 87-02 | | 664524 (9005110-9000) | Plug assembly | 1 |
| B82 | 92-19 | | 140644 (9005110-5600) | Plug assembly (*SB-1992-003* on page 312) | 1 |
| B90 | 87-02 | | 9803390 | Control filter screen | 3 |
| D10 | 05-49 | | 519046 | Servo arm (*SB-2005-007* on page 348) | 1 |
| D10 | 88-16 | 05-48 | 8100499 | Servo arm assembly (*SB-1993-015* on page 318) | 1 |
| D50 | 05-49 | | 11000688 | Swashplate (*SB-2005-007* on page 348) | 1 |
| D50 | 88-16 | 05-48 | 8100367 | Swashplate | 1 |
| D55 | 05-49 | | 519150 | Screw (*SB-2005-007* on page 348) | 1 |
| D55 | 87-02 | 05-48 | 666032 (9007276-0107) | Screw | 1 |
| D60 | 87-02 | 05-48 | 8800669 | Swashplate guide | 1 |
| D65 | 87-02 | | 9007375-0044 | Screw (*SB-1992-011* on page 314) | 1 |
| D70 | 87-02 | | 9009625-0146 | Washer | 1 |
| D75 | 87-02 | | 9004875-0098 | Spiral head pin | 1 |
| D80 | 87-02 | | 693929 (8100506) | Cage locator link (*SB-1994-017* on page 320) | 1 |
| D85 | 01-26 | | 8801235 | Pin (*SB-2004-012* on page 347) | 1 |
| D85 | 87-02 | 01-25 | 8801135 | Pin (SB-1998-018) | 1 |
| D95 | 87-02 | 05-48 | 8100035 | Spring (*SB-2005-007* on page 348) | 1 |
| E10 | 05-49 | | 11001286 | Side cover (*SB-2005-007* on page 348) | 1 |
| E10 | 95-50 | 05-48 | 501572 | Side cover (*SB-1995-025* on page 327) | 1 |
| E20 | 98-14 | | 11042018 | Leveler (*SB-1999-009* on page 336) | 1 |
| E22 | 06-27 | | 517935 | Spring seat | 2 |
| E22 | 99-28 | 06-26 | none | | |
| E22 | 98-14 | 99-27 | 517935 | Spring seat (*SB-1999-009* on page 336) | 2 |
| E24 | 92-06 | | 8801225 | Shim (*SB-2000-041* on page 345) | 2 |
| E30 | 99-28 | | 11056531 | Guide post (*SB-2009-073* on page 357) | 2 |
| E30 | 95-50 | 99-27 | 8000510 | Guide post (*SB-1999-009* on page 336) | 2 |
| E30 | 87-02 | 95-49 | 8510098 | Side cover kit (*SB-1995-025* on page 327) | 1 |
| E40 | 87-02 | | 505412 (9003509-0008) | Seal nut | 2 |
| E50 | 87-02 | | 517377 | O-ring | 1 |
| E60 | 87-02 | | 517228 (5000206) | Screw (*SB-1994-018* on page 321) | 6 |
| E70 | 87-02 | | 664524 (9005110-9000) | Plug assembly | 1 |
| E80 | 87-02 | | 334987 (11062691) | Spring | 2 |
| E90 | 95-50 | | 513888 | Insert assembly (*SB-1995-025* on page 327 & *SB-1999-041* on page 339) | 1 |
| F20 | 88-16 | | 11116313 | Slider block (*SB-1988-009* on page 300 & *SB-2015-005* on page 360) | 1 |

Part numbers continue to the next 2 pages.

## Common parts and special hardware

*Parts configuration*




* Included in base pump seal kit Q210

## Common parts and special hardware

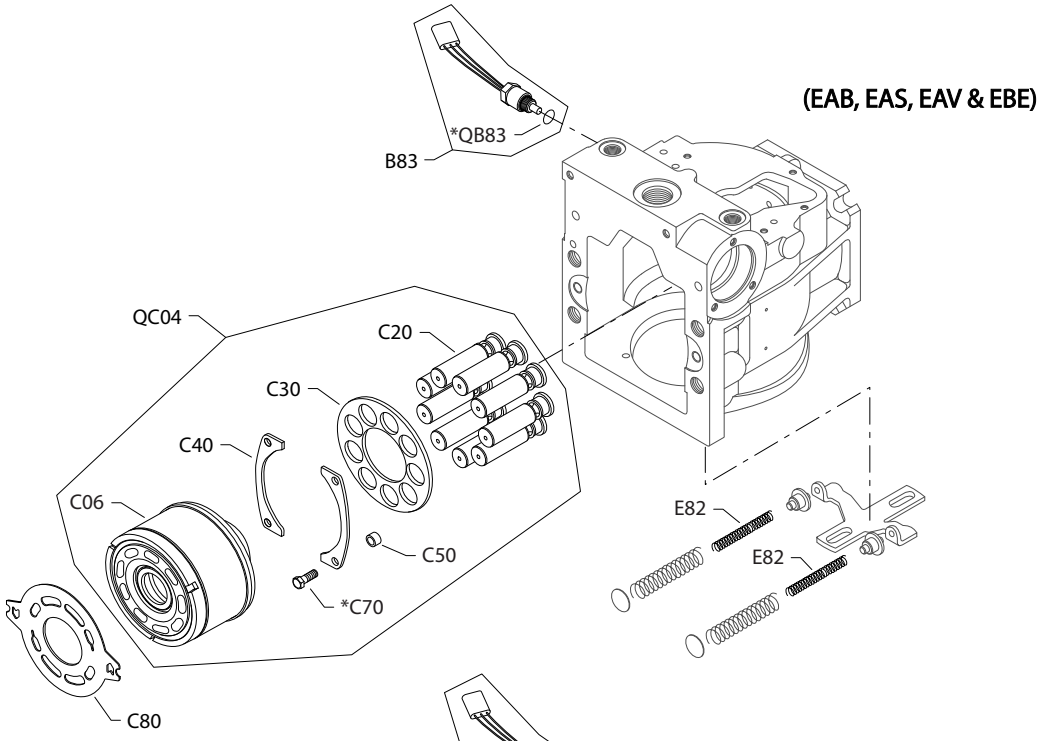
*Common parts*

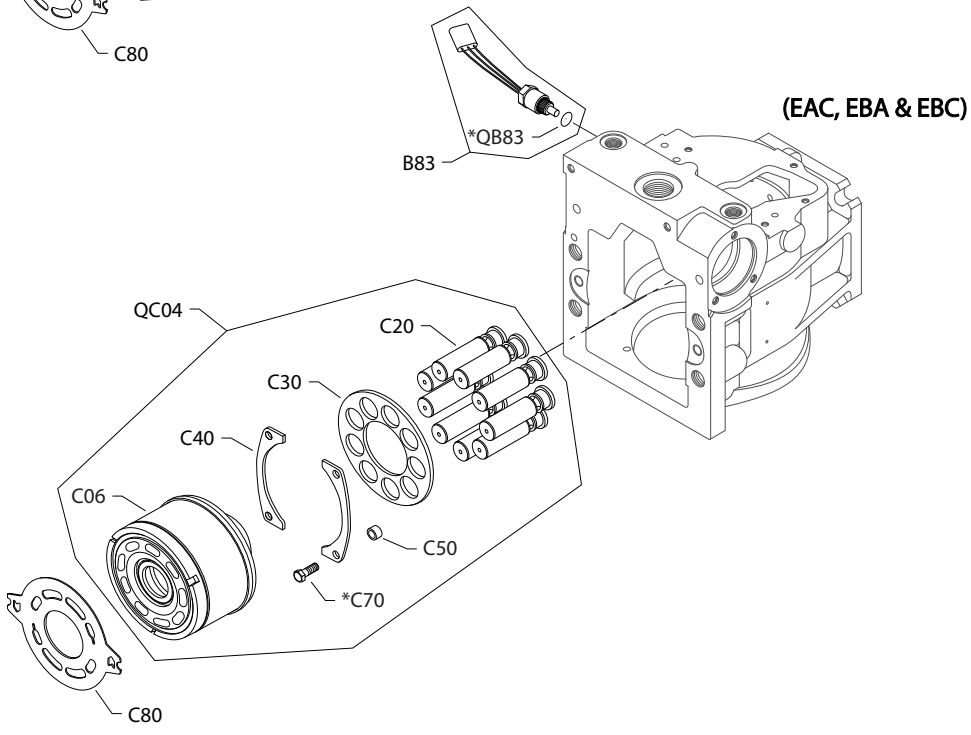
| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| L10 | 87-02 | | 5000505 | Roller bearing | 1 |
| L20 | 87-02 | | 9006300-0156 | Retaining ring | 1 |
| L25 | 87-02 | | 519671 | Seal carrier assembly (*SB-2005-007* on page 348) | 1 |
| L40 | 87-02 | | 519666 | Lip seal (*SB-2005-007* on page 348) | 1 |
| L50 | 87-02 | | 684621 (9004104-1530) | O-ring | 1 |
| L60 | 87-02 | | 516767 | Retainer plate | 1 |
| L70 | 87-02 | | 041160 (9007314-0605) | Screw | 3 |
| QB30 | 87-02 | 05-48 | 676841 (8700048) | Cradle bearing assembly (*SB-2005-007* on page 348) | 1 |
| QB30 | 05-49 | | 11131108 | Cradle bearing assembly (*SB-2005-007* on page 348) | 1 |
| QD50 | 05-49 | | 11192313 | Swashplate assembly (*SB-2005-007* on page 348) | 1 |
| QD50 | 88-16 | 05-48 | 8100376 | Swashplate assembly (*SB-1988-009* on page 300) | 1 |

## Common parts and special hardware

### S90P 75cc special hardware EAB-EBA

*Parts configuration*




Generic speed sensors shown.

* Included in base pump seal kit Q210

## Common parts and special hardware

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| C20 | 87-02 | | 708230 | Piston assembly (*SB-1988-023* on page 304) | 9 |
| C30 | 87-02 | | 11067350 | Slipper guide | 1 |
| C40 | 88-22 | | 334391 (8100294) | Slipper guide bearing (*SB-1988-016* on page 302) | 2 |
| C50 | 88-22 | | 11065865 | Spacer (*SB-1988-016* on page 302 & *SB-1998-041* on page 332) | 4 |
| C65 | 88-22 | 98-47 | Obsolete | Washer (*SB-1988-016* on page 302 & *SB-1998-041* on page 332) | 4 |
| C70 | 88-22 | | 314419 (9007276-0114) | Screw (*SB-1988-016* on page 302 & *SB-1998-041* on page 332) | 4 |
| QB83 | 98-14 | | 085043 (9004201-3700) | O-ring | 1 |

*Order code: EAB*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 98-14 | | KPPG12508 | Speed sensor | 1 |
| C06 | 98-14 | | 11094260 (11011714) | Cylinder block assembly, with speed ring | 1 |
| C80 | 98-14 | | 518008 | Valve plate | 1 |
| E82 | 98-14 | | 11062703 | Spring | 2 |
| QC04 | 98-14 | | 8510366 | Cylinder block kit, with speed ring | 1 |

*Order code: EAC*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 98-14 | | KPPG12508 | Speed sensor | 1 |
| C06 | 98-14 | | 11094260 (11011714) | Cylinder block assembly, with speed ring | 1 |
| C80 | 98-14 | | 518805 | Valve plate | 1 |
| QC04 | 98-14 | | 8510366 | Cylinder block kit, with speed ring | 1 |

*Order code: EAS*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 98-14 | | KPPG12508 | Speed sensor | 1 |
| C06 | 98-14 | | 11094260 (11011714) | Cylinder block assembly, with speed ring | 1 |
| C80 | 98-14 | | 518008 | Valve plate | 1 |
| E82 | 98-14 | | 360842 | Spring | 2 |
| QC04 | 98-14 | | 8510366 | Cylinder block kit, with speed ring | 1 |

*Order code: EAV*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 06-12 | 12-35 | 11046858 | Speed sensor | 1 |
| C06 | 06-12 | 12-35 | 11094260 (11011714) | Cylinder block assembly, with speed ring | 1 |
| C80 | 06-12 | 12-35 | 518008 | Valve plate | 1 |
| E82 | 06-12 | 12-35 | 11062703 | Spring | 2 |
| QC04 | 06-12 | 12-35 | 8510366 | Cylinder block kit, with speed ring | 1 |

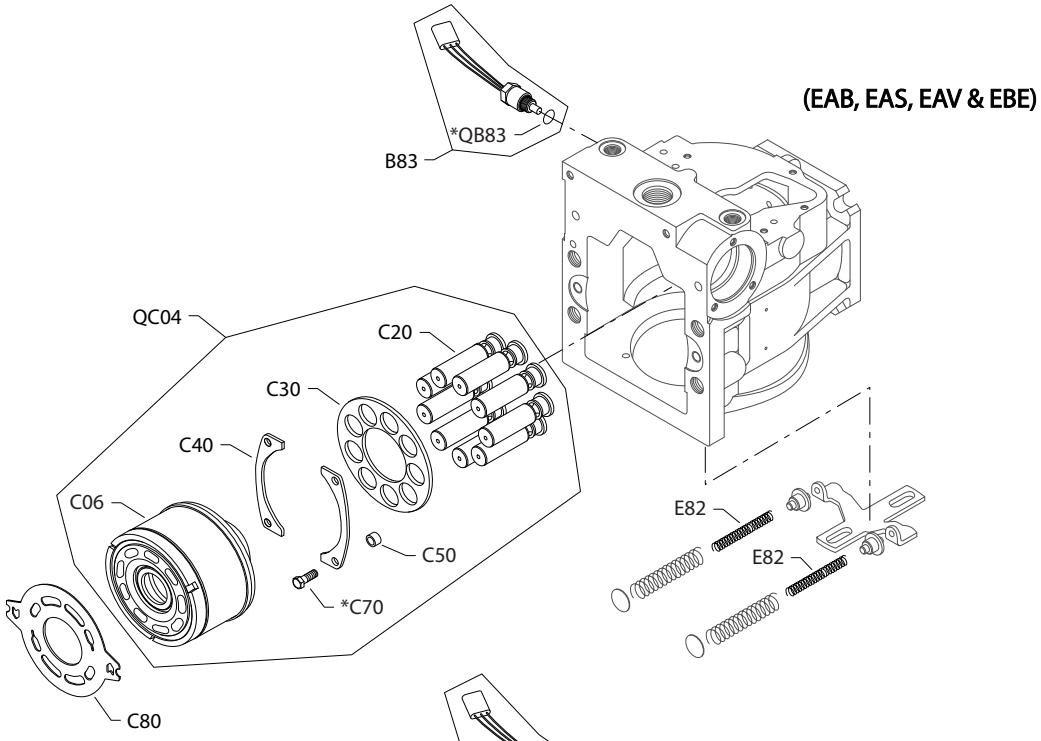
*Order code: EBA*

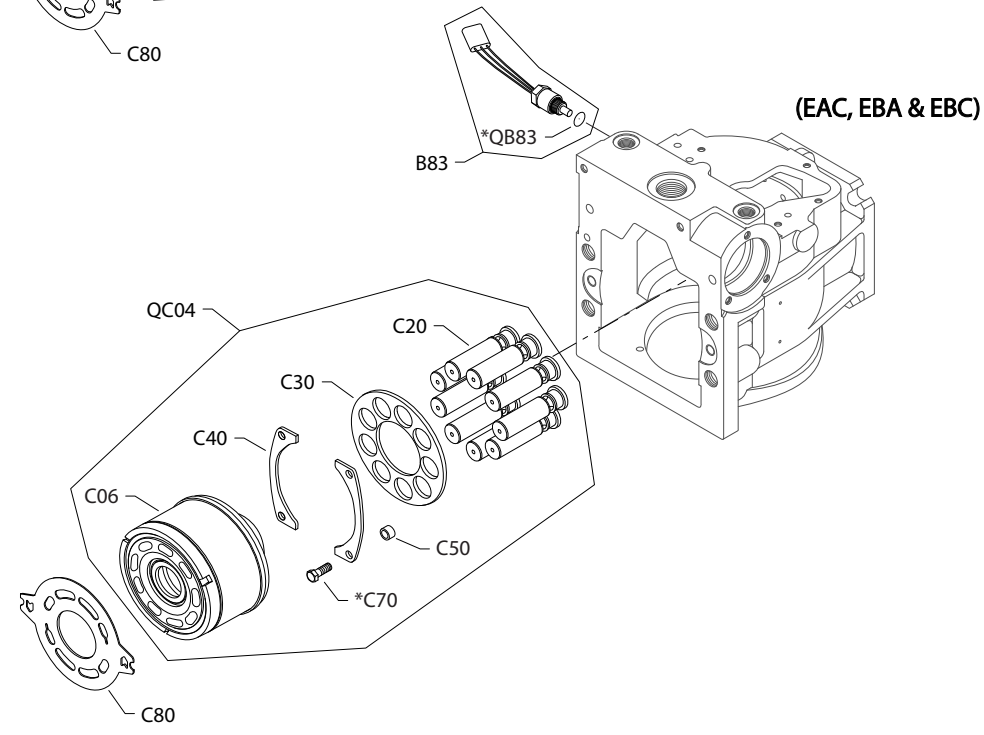
| | | | | | |
|---|---|---|---|---|---|
| B83 | 04-26 | | KPPG13408 | Speed sensor | 1 |
| C06 | 04-26 | | 11094260 (11011714) | Cylinder block assembly, with speed ring | 1 |
| C80 | 04-26 | | 518924 | Valve plate | 1 |
| QC04 | 04-26 | | 8510366 | Cylinder block kit, with speed ring | 1 |

## Common parts and special hardware

### S90P 75cc special hardware EBC, EBE

*Parts configuration*




Generic speed sensors shown.

* Included in base pump seal kit Q210

## Common parts and special hardware

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| C20 | 87-02 | | 708230 | Piston assembly (*SB-1988-023* on page 304) | 9 |
| C30 | 87-02 | | 11067350 | Slipper guide | 1 |
| C40 | 88-22 | | 334391 (8100294) | Slipper guide bearing (*SB-1988-016* on page 302) | 2 |
| C50 | 88-22 | | 11065865 | Spacer (*SB-1988-016* on page 302 & *SB-1998-041* on page 332) | 4 |
| C65 | 88-22 | 98-47 | Obsolete | Washer (*SB-1988-016* on page 302 & *SB-1998-041* on page 332) | 4 |
| C70 | 88-22 | | 314419 (9007276-0114) | Screw (*SB-1988-016* on page 302 & *SB-1998-041* on page 332) | 4 |
| QB83 | 98-14 | | 085043 (9004201-3700) | O-ring | 1 |

*Order code: EBC*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 04-26 | | KPPG13408 | Speed sensor | 1 |
| C06 | 04-26 | | 11094260 (11011714) | Cylinder block assembly, with speed ring | 1 |
| C80 | 04-26 | | 518805 | Valve plate | 1 |
| QC04 | 04-26 | | 8510366 | Cylinder block kit, with speed ring | 1 |

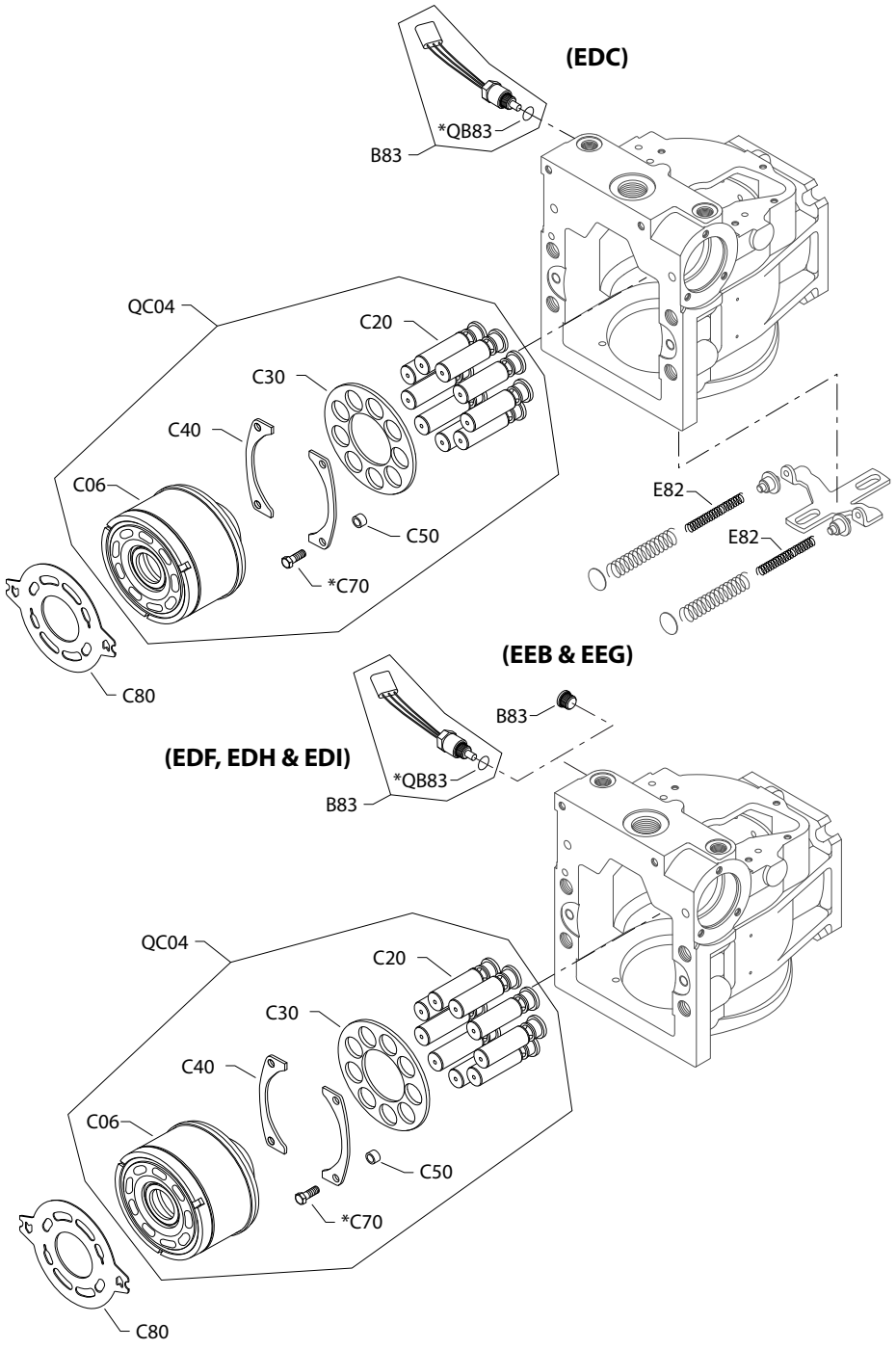
*Order code: EBE*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 94-30 | | KPPG15408 | Speed sensor | 1 |
| C06 | 04-26 | | 11094260 (11011714) | Cylinder block assembly, with speed ring | 1 |
| C80 | 94-30 | | 518805 | Valve plate | 1 |
| E82 | 98-14 | | 11062703 | Spring | 2 |
| QC04 | 04-26 | | 8510366 | Cylinder block kit, with speed ring | 1 |

## Common parts and special hardware

### S90P 75cc special hardware EDC-EDI

*Parts configuration*




Generic speed sensors shown.

* Included in base pump seal kit Q210

## Common parts and special hardware

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| C20 | 87-02 | | 708230 | Piston assembly (*SB-1988-023* on page 304) | 9 |
| C30 | 87-02 | | 11067350 | Slipper guide | 1 |
| C40 | 88-22 | | 334391 (8100294) | Slipper guide bearing (*SB-1988-016* on page 302) | 2 |
| C50 | 88-22 | | 11065865 | Spacer (*SB-1988-016* on page 302 & *SB-1998-041* on page 332) | 4 |
| C65 | 88-22 | 98-47 | Obsolete | Washer (*SB-1988-016* on page 302 & *SB-1998-041* on page 332) | 4 |
| C70 | 88-22 | | 314419 (9007276-0114) | Screw (*SB-1988-016* on page 302 & *SB-1998-041* on page 332) | 4 |
| QB83 | 98-14 | | 085043 (9004201-3700) | O-ring | 1 |

*Order code: EDC*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 94-34 | | KPPG13408 | Speed sensor | 1 |
| C06 | 94-34 | | 11094260 (11011714) | Cylinder block assembly, with speed ring | 1 |
| C80 | 94-34 | | 518925 | Valve plate, CW | 1 |
| C80 | 94-34 | | 518926 | Valve plate, CCW | 1 |
| E82 | 94-34 | | 11062703 | Spring | 2 |
| QC04 | 94-34 | | 8510366 | Cylinder block kit, with speed ring | 1 |

*Order code: EDF*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 94-34 | 12-35 | 11046858 | Speed sensor | 1 |
| C06 | 94-34 | 12-35 | 11094260 (11011714) | Cylinder block assembly, with speed ring | 1 |
| C80 | 97-14 | 12-35 | 518008 | Valve plate | 1 |
| QC04 | 94-34 | 12-35 | 8510366 | Cylinder block kit, with speed ring | 1 |

*Order code: EDH*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 99-17 | 12-36 | KPPG15408 | Speed sensor | 1 |
| C06 | 99-17 | 12-36 | 11094260 (11011714) | Cylinder block assembly, with speed ring | 1 |
| C80 | 99-17 | 12-36 | 518007 | Valve plate | 1 |
| QC04 | 99-17 | 12-36 | 8510366 | Cylinder block kit, with speed ring | 1 |

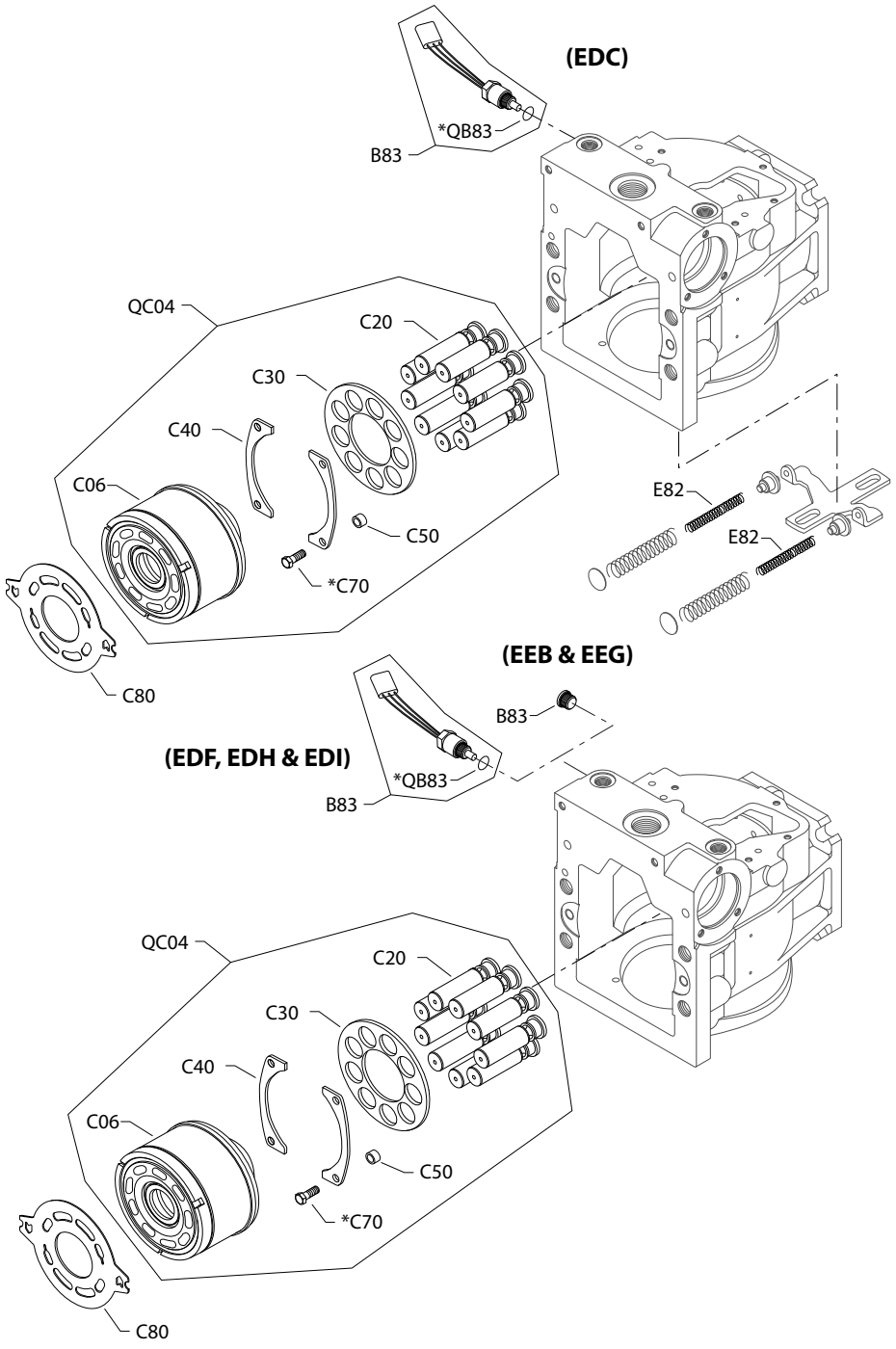
*Order code: EDI*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 00-17 | 12-36 | KPPG15408 | Speed sensor | 1 |
| C06 | 00-17 | 12-36 | 11094260 (11011714) | Cylinder block assembly, with speed ring | 1 |
| C80 | 00-17 | 12-36 | 518925 | Valve plate, CW | 1 |
| C80 | 00-17 | 12-36 | 518926 | Valve plate, CCW | 1 |
| QC04 | 00-17 | 12-36 | 8510366 | Cylinder block kit, with speed ring | 1 |

## Common parts and special hardware

### S90P 75cc special hardware EEB, EEG

*Parts configuration*




Generic speed sensors shown.

* Included in base pump seal kit Q210

## Common parts and special hardware

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| C20 | 87-02 | | 708230 | Piston assembly (*SB-1988-023* on page 304) | 9 |
| C30 | 87-02 | | 11067350 | Slipper guide | 1 |
| C40 | 88-22 | | 334391 (8100294) | Slipper guide bearing (*SB-1988-016* on page 302) | 2 |
| C50 | 88-22 | | 11065865 | Spacer (*SB-1988-016* on page 302 & *SB-1998-041* on page 332) | 4 |
| C65 | 88-22 | 98-47 | Obsolete | Washer (*SB-1988-016* on page 302 & *SB-1998-041* on page 332) | 4 |
| C70 | 88-22 | | 314419 (9007276-0114) | Screw (*SB-1988-016* on page 302 & *SB-1998-041* on page 332) | 4 |
| QB83 | 98-14 | | 085043 (9004201-3700) | O-ring | 1 |

*Order code: EEB*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 99-17 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C06 | 99-17 | | 11094260 (11011714) | Cylinder block assembly, with speed ring | 1 |
| C80 | 99-17 | | 518008 | Valve plate | 1 |
| QC04 | 99-17 | | 8510366 | Cylinder block kit, with speed ring | 1 |

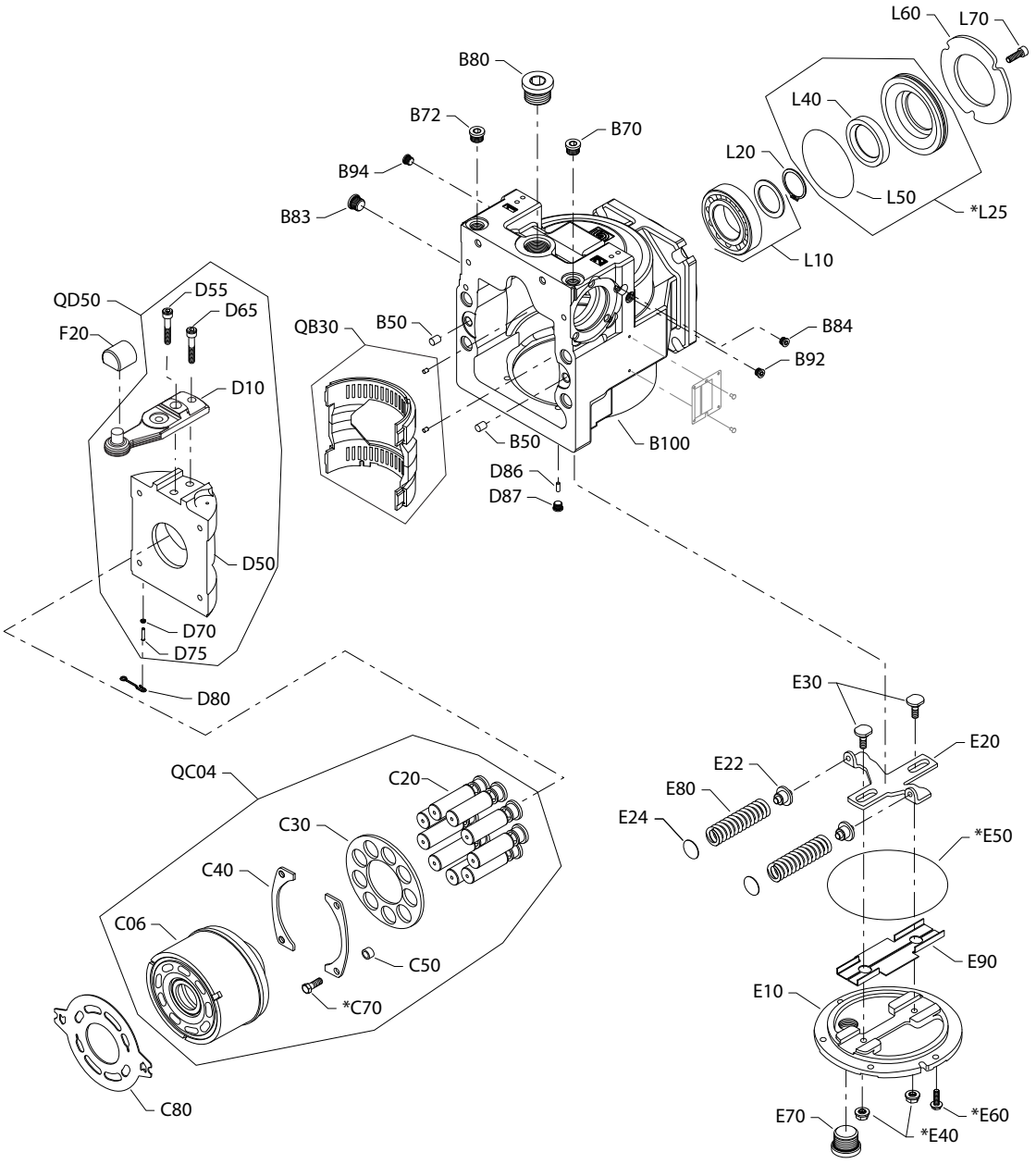
*Order code: EEG*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 00-17 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C06 | 00-17 | | 11094260 (11011714) | Cylinder block assembly, with speed ring | 1 |
| C80 | 00-17 | | 518925 | Valve plate, CW | 1 |
| C80 | 00-17 | | 518926 | Valve plate, CCW | 1 |
| QC04 | 00-17 | | 8510366 | Cylinder block kit, with speed ring | 1 |

## Common parts and special hardware

### S90P 75cc special hardware EEH

*Parts configuration*




* Included in base pump seal kit Q210

## Common parts and special hardware

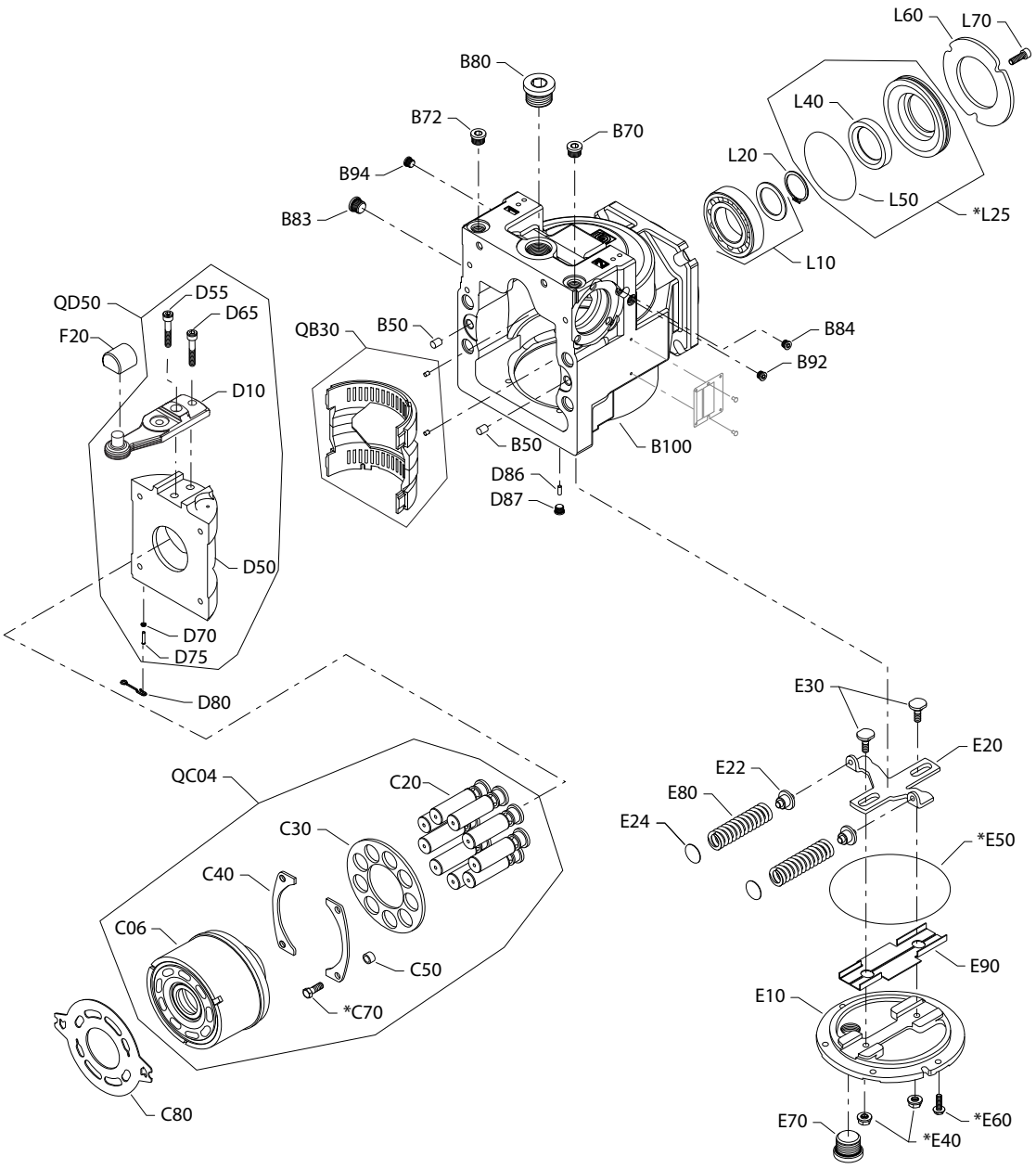
*Order code: EEH*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| B50 | 05-20 | 12-36 | 9004800-3708 | Pin | 2 |
| B70 | 05-20 | 12-36 | 140644 | Plug assembly | 1 |
| B72 | 05-20 | 12-36 | 140644 | Plug assembly | 1 |
| B80 | 05-20 | 12-36 | 664524 (9005110-9000) | Plug assembly | 1 |
| B83 | 05-20 | 12-36 | 140644 | Plug assembly | 1 |
| B84 | 05-20 | 12-36 | 11040532 | Plug assembly | 1 |
| B92 | 05-20 | 12-36 | 11040532 | Plug assembly | 1 |
| B94 | 05-20 | 12-36 | 11040532 | Plug assembly | 1 |
| B100 | 05-20 | 12-36 | 11117294 | Housing assembly | 1 |
| C06 | 05-20 | 12-36 | 11094260 (11011714) | Cylinder block assembly, with speed ring | 1 |
| C20 | 05-20 | 12-36 | 708230 | Piston assembly | 9 |
| C30 | 05-20 | 12-36 | 11067350 | Slipper guide | 1 |
| C40 | 05-20 | 12-36 | 334391 (8100294) | Slipper guide bearing | 2 |
| C50 | 05-20 | 12-36 | 11065865 | Spacer | 4 |
| C70 | 05-20 | 12-36 | 314419 (9007276-0114) | Screw | 4 |
| C80 | 05-20 | 12-36 | 518008 | Valve plate | 1 |
| D10 | 05-20 | 12-36 | 519046 | Servo arm | 1 |
| D50 | 05-20 | 12-36 | 11104315 | Swashplate | 1 |
| D55 | 05-20 | 12-36 | 519150 | Screw | 1 |
| D70 | 05-20 | 12-36 | 9009625-0146 | Washer | 1 |
| D75 | 05-20 | 12-36 | 9004875-0098 | Spiral head pin | 1 |
| D80 | 05-20 | 12-36 | 693929 (8100506) | Cage locator link | 1 |
| D86 | 05-20 | 12-36 | 9004800-1908 | Pin | 1 |
| D87 | 05-20 | 12-36 | 11040532 | Plug assembly | 1 |
| E10 | 05-20 | 12-36 | 11001286 | Side cover | 1 |
| E20 | 05-20 | 12-36 | 11042018 | Leveler | 1 |
| E22 | 05-20 | 12-36 | 517935 | Spring seat | 2 |
| E24 | 05-20 | 12-36 | 8801225 | Shim | 2 |
| E30 | 05-20 | 12-36 | 11056531 | Guide post | 2 |
| E40 | 05-20 | 12-36 | 505412 (9003509-0008) | Seal nut | 2 |
| E50 | 05-20 | 12-36 | 517377 | O-ring | 1 |
| E60 | 05-20 | 12-36 | 517228 (5000206) | Screw | 6 |
| E70 | 05-20 | 12-36 | 664524 (9005110-9000) | Plug assembly | 1 |
| E80 | 05-20 | 12-36 | 334987 | Spring | 2 |
| E90 | 05-20 | 12-36 | 513888 | Insert assembly | 1 |
| F20 | 05-20 | 12-36 | 11116313 | Slider block (*SB-1988-009* on page 300 & *SB-2015-005* on page 360) | 1 |

Part numbers continue to the next 2 pages.

## Common parts and special hardware

*Parts configuration*




* Included in base pump seal kit Q210

## Common parts and special hardware

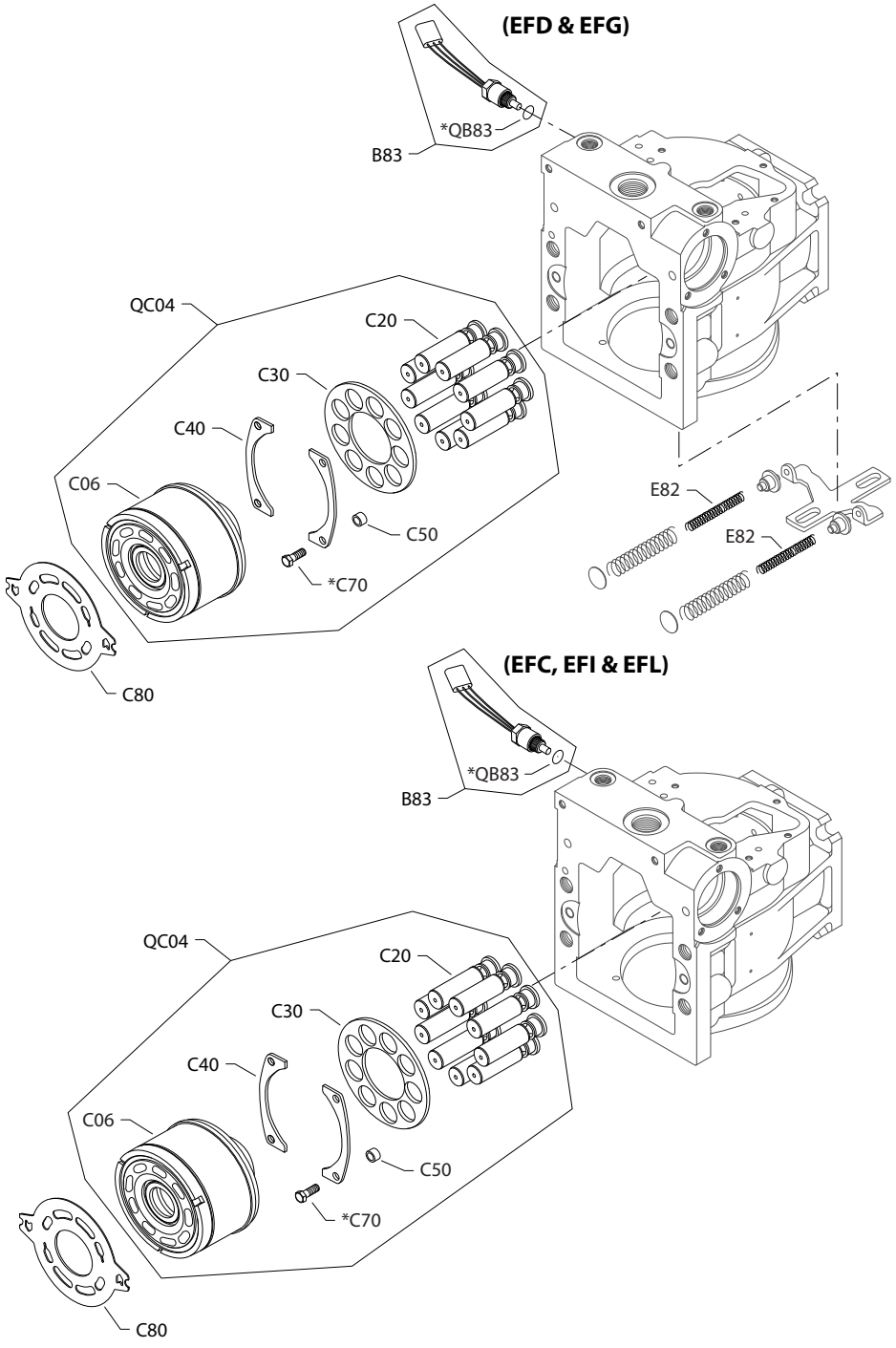
*Order code: EEH*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| L10 | 05-20 | 12-36 | 5000505 | Roller bearing | 1 |
| L20 | 05-20 | 12-36 | 9006300-0156 | Retaining ring | 1 |
| L25 | 05-20 | 12-36 | 519671 | Seal carrier assembly | 1 |
| L40 | 05-20 | 12-36 | 519666 | Lip seal (*SB-2005-007* on page 348) | 1 |
| L50 | 05-20 | 12-36 | 684621 (9004104-1530) | O-ring | 1 |
| L60 | 05-20 | 12-36 | 516767 | Retainer plate | 1 |
| L70 | 05-20 | 12-36 | 041160 (9007314-0605) | Screw | 3 |
| QB30 | 05-20 | 12-36 | 11131108 | Cradle bearing assembly | 1 |
| QC04 | 05-20 | 12-36 | 8510366 | Cylinder block kit, with speed ring | 1 |
| QD50 | 05-20 | 12-36 | 11192313 | Swashplate assembly (*SB-2017-033* on page 361) | 1 |

## Common parts and special hardware

### S90P 75cc special hardware EFC-EFL

*Parts configuration*




Generic speed sensors shown.

* Included in base pump seal kit Q210

## Common parts and special hardware

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| C20 | 87-02 | | 708230 | Piston assembly (*SB-1988-023* on page 304) | 9 |
| C30 | 87-02 | | 11067350 | Slipper guide | 1 |
| C40 | 88-22 | | 334391 (8100294) | Slipper guide bearing (*SB-1988-016* on page 302) | 2 |
| C50 | 88-22 | | 11065865 | Spacer (*SB-1988-016* on page 302 & *SB-1998-041* on page 332) | 4 |
| C65 | 88-22 | 98-47 | Obsolete | Washer (*SB-1988-016* on page 302 & *SB-1998-041* on page 332) | 4 |
| C70 | 88-22 | | 314419 (9007276-0114) | Screw (*SB-1988-016* on page 302 & *SB-1998-041* on page 332) | 4 |
| QB83 | 98-14 | | 085043 (9004201-3700) | O-ring | 1 |

*Order code: EFC*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 94-34 | | KPPG156 | Speed sensor | 1 |
| C06 | 94-34 | | 11094260 (11011714) | Cylinder block assembly, with speed ring | 1 |
| C80 | 94-34 | | 518805 | Valve plate | 1 |
| QC04 | 94-34 | | 8510366 | Cylinder block kit, with speed ring | |

*Order code: EFD*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 04-49 | 12-36 | KPPG156 | Speed sensor | 1 |
| C06 | 94-34 | 12-36 | 11094260 (11011714) | Cylinder block assembly, with speed ring | 1 |
| C80 | 04-49 | 12-36 | 518008 | Valve plate | 1 |
| E82 | 04-49 | 12-36 | 360842 | Spring | 2 |
| QC04 | 94-34 | 12-36 | 8510366 | Cylinder block kit, with speed ring | |

*Order code: EFG*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 04-49 | 12-36 | KPPG156 | Speed sensor | 1 |
| C06 | 94-34 | 12-36 | 11094260 (11011714) | Cylinder block assembly, with speed ring | 1 |
| C80 | 04-49 | 12-36 | 518925 | Valve plate, CW | 1 |
| E82 | 04-49 | 12-36 | 360842 | Spring | 2 |
| QC04 | 94-34 | 12-36 | 8510366 | Cylinder block kit, with speed ring | 1 |

*Order code: EFI*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 04-49 | | KPPG156 | Speed sensor | 1 |
| C06 | 94-34 | | 11094260 (11011714) | Cylinder block assembly, with speed ring | 1 |
| C80 | 04-49 | | 518925 | Valve plate, CW | 1 |
| C80 | 04-49 | | 518926 | Valve plate, CCW | 1 |
| QC04 | 94-34 | | 8510366 | Cylinder block kit, with speed ring | |

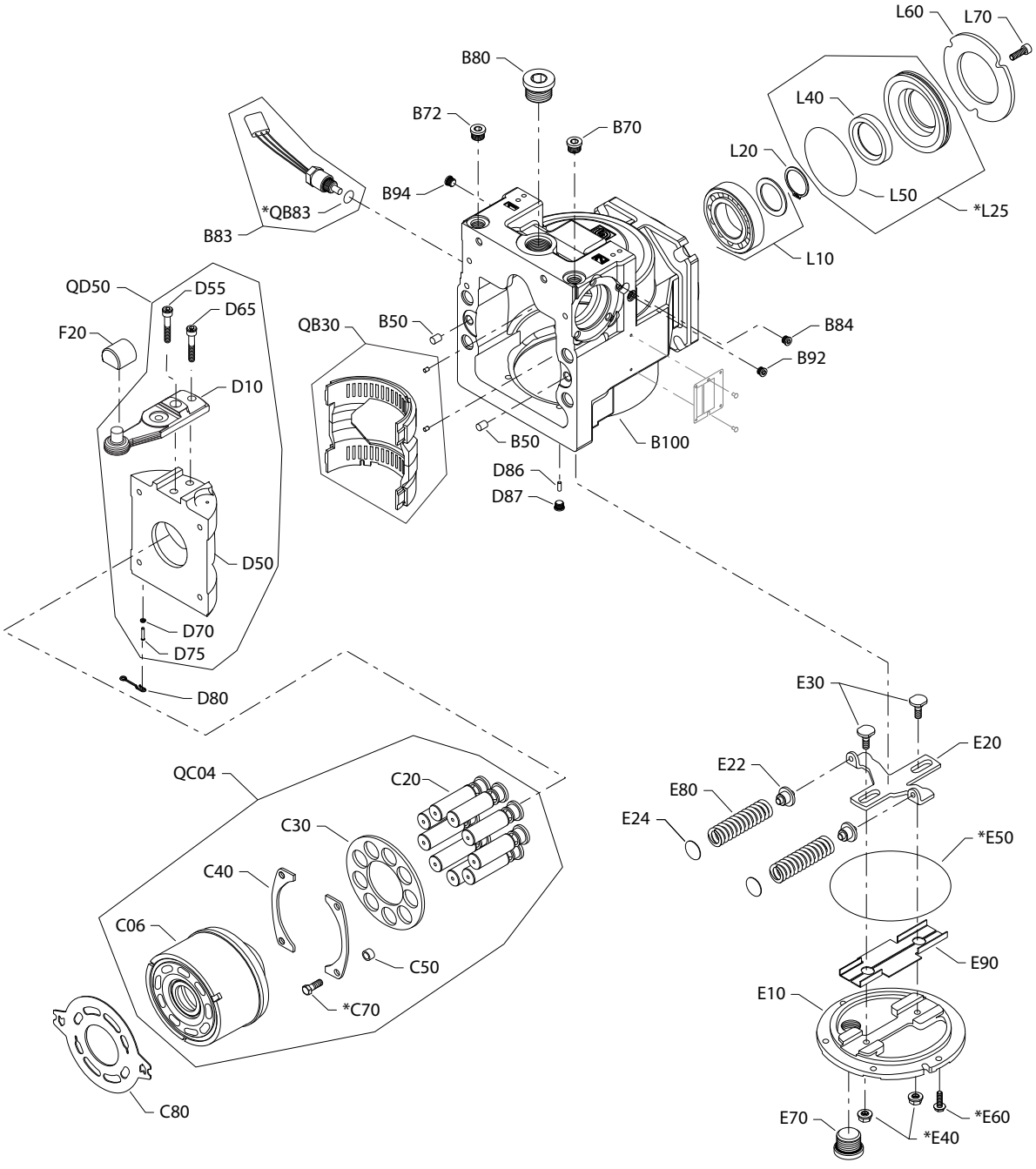
*Order code: EFL*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 04-49 | 12-36 | KPPG156 | Speed sensor | 1 |
| C06 | 94-34 | 12-36 | 11094260 (11011714) | Cylinder block assembly, with speed ring | 1 |
| C80 | 04-49 | 12-36 | 518007 | Valve plate | 1 |
| QC04 | 94-34 | 12-36 | 8510366 | Cylinder block kit, with speed ring | 1 |

## Common parts and special hardware

### S90P 75cc special hardware EFP

*Parts configuration*




Generic speed sensor shown.

* Included in base pump seal kit Q210

## Common parts and special hardware

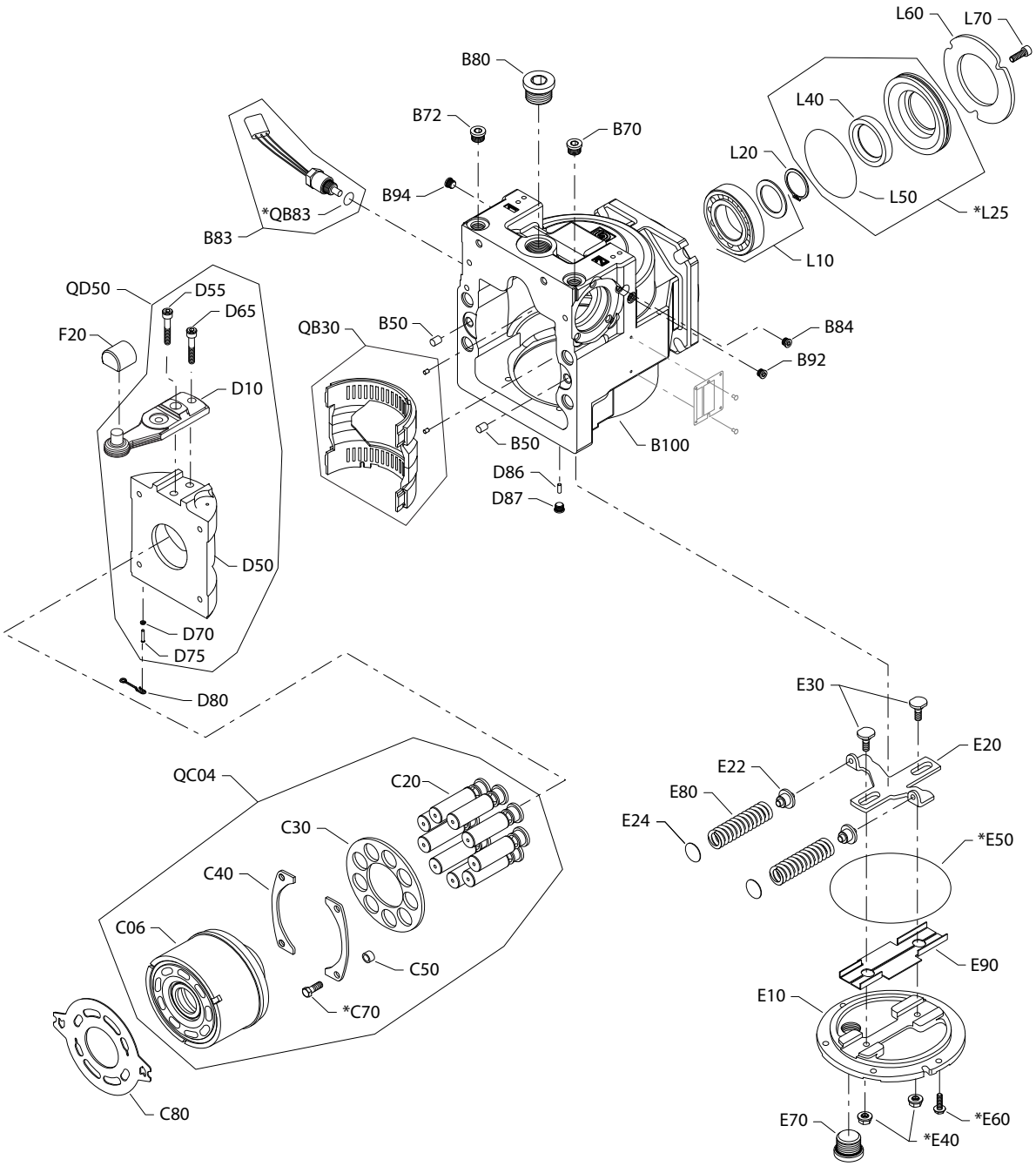
*Order code: EFP*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| B50 | 05-34 | | 9004800-3708 | Pin | 2 |
| B70 | 05-34 | | 140644 | Plug assembly | 1 |
| B72 | 05-34 | | 140644 | Plug assembly | 1 |
| B80 | 05-34 | | 664524 (9005110-9000) | Plug assembly | 1 |
| B83 | 05-34 | | KPPG156 | Speed sensor assembly | 1 |
| B84 | 05-34 | | 11040532 | Plug assembly | 1 |
| B92 | 05-34 | | 11040532 | Plug assembly | 1 |
| B94 | 05-34 | | 11040532 | Plug assembly | 1 |
| B100 | 05-34 | | 11117294 | Housing assembly | 1 |
| C06 | 05-34 | | 11094260 (11011714) | Cylinder block assembly, with speed ring | 1 |
| C20 | 05-34 | | 708230 | Piston assembly | 9 |
| C30 | 05-34 | | 11067350 | Slipper guide | 1 |
| C40 | 05-34 | | 334391 (8100294) | Slipper guide bearing | 2 |
| C50 | 05-34 | | 11065865 | Spacer | 4 |
| C70 | 05-34 | | 314419 (9007276-0114) | Screw | 4 |
| C80 | 05-34 | | 518925 | Valve plate, CW | 1 |
| C80 | 05-34 | | 518926 | Valve plate, CCW | 1 |
| D10 | 05-34 | | 519046 | Servo arm | 1 |
| D50 | 05-34 | | 11104315 | Swashplate | 1 |
| D55 | 05-34 | | 519150 | Screw | 1 |
| D70 | 05-34 | | 9009625-0146 | Washer | 1 |
| D75 | 05-34 | | 9004875-0098 | Spiral head pin | 1 |
| D80 | 05-34 | | 693929 (8100506) | Cage locator link | 1 |
| D86 | 05-34 | | 9004800-1908 | Pin | 1 |
| D87 | 05-34 | | 11040532 | Plug assembly | 1 |
| E10 | 05-34 | | 11001286 | Side cover | 1 |
| E20 | 05-34 | | 11042018 | Leveler | 1 |
| E22 | 05-34 | | 517935 | Spring seat | 2 |
| E24 | 05-34 | | 8801225 | Shim | 2 |
| E30 | 05-34 | | 11056531 | Guide post | 2 |
| E40 | 05-34 | | 505412 (9003509-0008) | Seal nut | 2 |
| E50 | 05-34 | | 517377 | O-ring | 1 |
| E60 | 05-34 | | 517228 (5000206) | Screw | 6 |
| E70 | 05-34 | | 664524 (9005110-9000) | Plug assembly | 1 |
| E80 | 05-34 | | 334987 | Spring | 2 |
| E90 | 05-34 | | 513888 | Insert assembly | 1 |
| F20 | 05-34 | | 11116313 | Slider block (*SB-2015-005* on page 360) | 1 |

Part numbers continue to the next 2 pages.

## Common parts and special hardware

*Parts configuration*




Generic speed sensor shown.

* Included in base pump seal kit Q210

## Common parts and special hardware

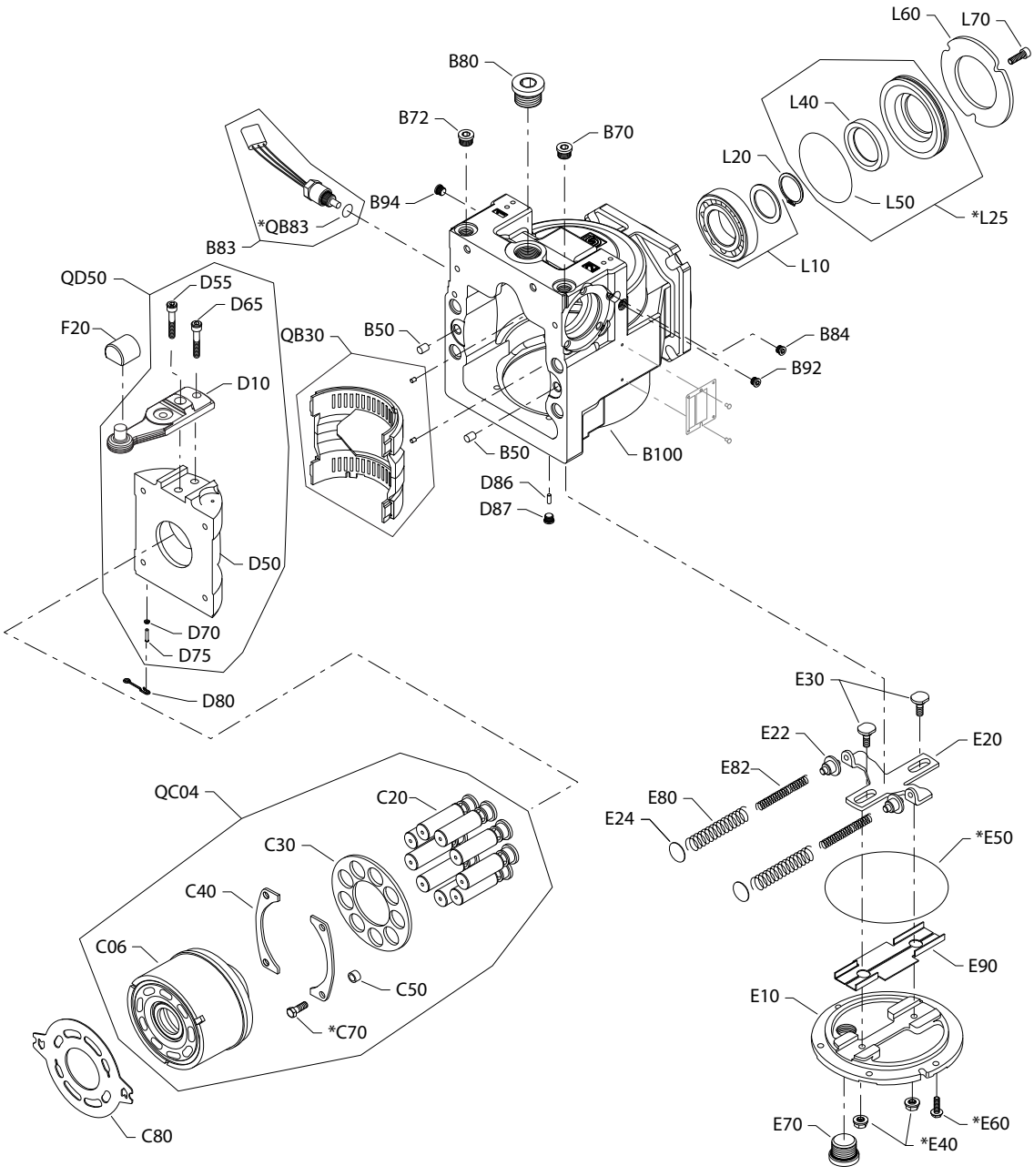
*Order code: EFP*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| L10 | 05-34 | | 5000505 | Roller bearing | 1 |
| L20 | 05-34 | | 9006300-0156 | Retaining ring | 1 |
| L25 | 05-34 | | 519671 | Seal carrier assembly | 1 |
| L40 | 05-34 | | 519666 | Lip seal (*SB-2005-007* on page 348) | 1 |
| L50 | 05-34 | | 684621 (9004104-1530) | O-ring | 1 |
| L60 | 05-34 | | 516767 | Retainer plate | 1 |
| L70 | 05-34 | | 041160 (9007314-0605) | Screw | 3 |
| QB30 | 05-34 | | 11131108 | Cradle bearing assembly | 1 |
| QB83 | 05-34 | | 085043 (9004201-3700) | O-ring | 1 |
| QC04 | 05-34 | | 8510366 | Cylinder block kit, with speed ring | 1 |
| QD50 | 05-34 | | 11192313 | Swashplate assembly (*SB-2017-033* on page 361) | 1 |

## Common parts and special hardware

### S90P 75cc special hardware EFR

*Parts configuration*




Generic speed sensor shown.

* Included in base pump seal kit Q210

## Common parts and special hardware

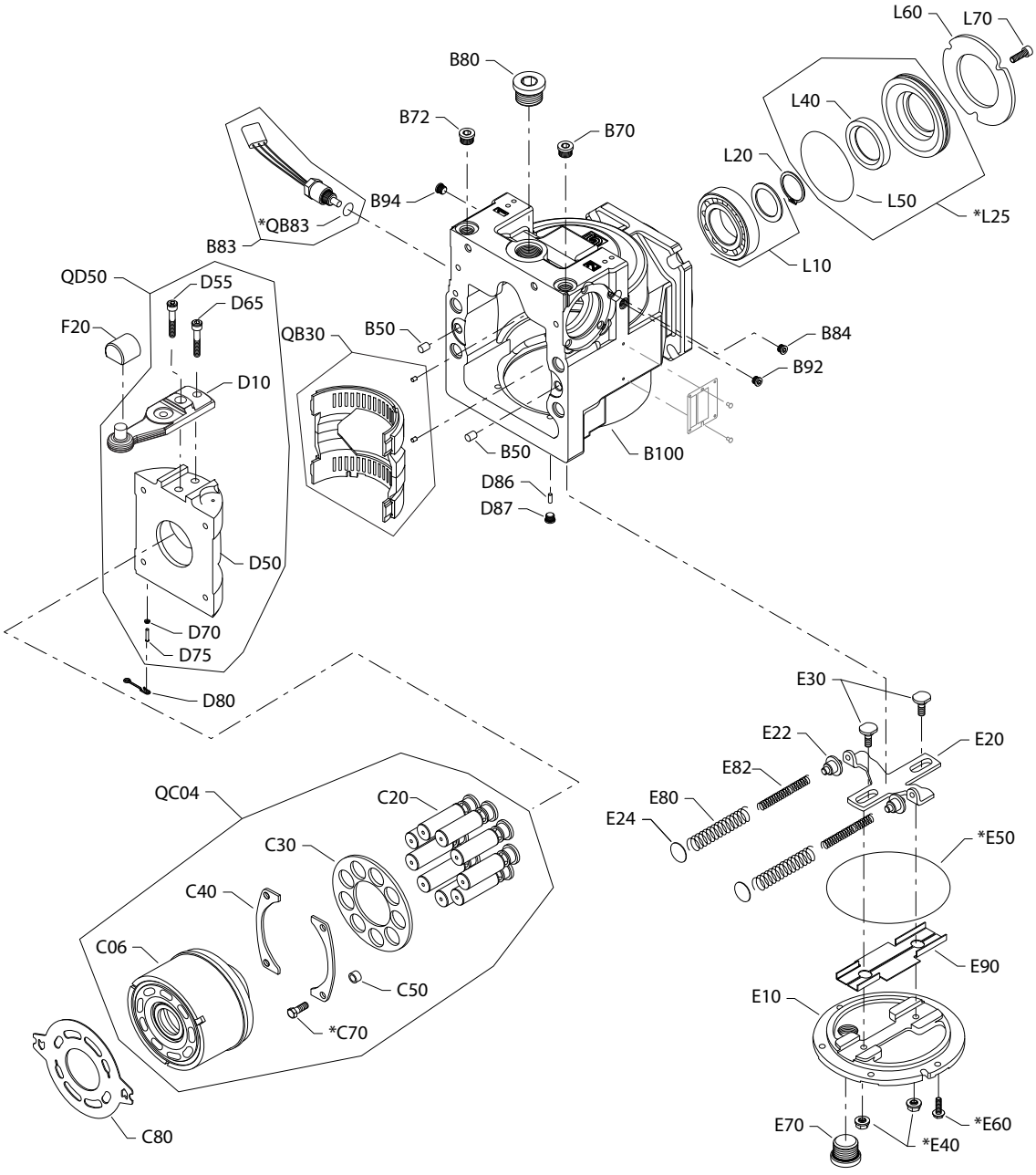
*Order code: EFR*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| B50 | 06-18 | | 9004800-3708 | Pin | 2 |
| B70 | 06-18 | | 140644 | Plug assembly | 1 |
| B72 | 06-18 | | 140644 | Plug assembly | 1 |
| B80 | 06-18 | | 664524 (9005110-9000) | Plug assembly | 1 |
| B83 | 06-18 | | KPPG156 | Speed sensor assembly | 1 |
| B84 | 06-18 | | 11040532 | Plug assembly | 1 |
| B92 | 06-18 | | 11040532 | Plug assembly | 1 |
| B94 | 06-18 | | 11040532 | Plug assembly | 1 |
| B100 | 06-18 | | 11117294 | Housing assembly | 1 |
| C06 | 06-18 | | 11094260 (11011714) | Cylinder block assembly, with speed ring | 1 |
| C20 | 06-18 | | 708230 | Piston assembly | 9 |
| C30 | 06-18 | | 11067350 | Slipper guide | 1 |
| C40 | 06-18 | | 334391 (8100294) | Slipper guide bearing | 2 |
| C50 | 06-18 | | 11065865 | Spacer | 4 |
| C70 | 06-18 | | 314419 (9007276-0114) | Screw | 4 |
| C80 | 06-18 | | 518008 | Valve plate | 1 |
| D10 | 06-18 | | 519046 | Servo arm | 1 |
| D50 | 06-18 | | 11104315 | Swashplate | 1 |
| D55 | 06-18 | | 519150 | Screw | 1 |
| D70 | 06-18 | | 9009625-0146 | Washer | 1 |
| D75 | 06-18 | | 9004875-0098 | Spiral head pin | 1 |
| D80 | 06-18 | | 693929 (8100506) | Cage locator link | 1 |
| D86 | 06-18 | | 9004800-1908 | Pin | 1 |
| D87 | 06-18 | | 11040532 | Plug assembly | 1 |
| E10 | 06-18 | | 11001286 | Side cover | 1 |
| E20 | 06-18 | | 11042018 | Leveler | 1 |
| E22 | 06-18 | | 517935 | Spring seat | 2 |
| E24 | 06-18 | | 8801225 | Shim | 2 |
| E30 | 06-18 | | 11056531 | Guide post | 2 |
| E40 | 06-18 | | 505412 (9003509-0008) | Seal nut | 2 |
| E50 | 06-18 | | 517377 | O-ring | 1 |
| E60 | 06-18 | | 517228 (5000206) | Screw | 6 |
| E70 | 06-18 | | 664524 (9005110-9000) | Plug assembly | 1 |
| E80 | 06-18 | | 334987 | Spring | 2 |
| E82 | 06-18 | | 360842 | Spring | 2 |
| E90 | 06-18 | | 513888 | Insert assembly | 1 |
| F20 | 06-18 | | 11116313 | Slider block (*SB-2015-005* on page 360) | 1 |

Part numbers continue to the next 2 pages.

## Common parts and special hardware

*Parts configuration*




Generic speed sensor shown.

* Included in base pump seal kit Q210

## Common parts and special hardware

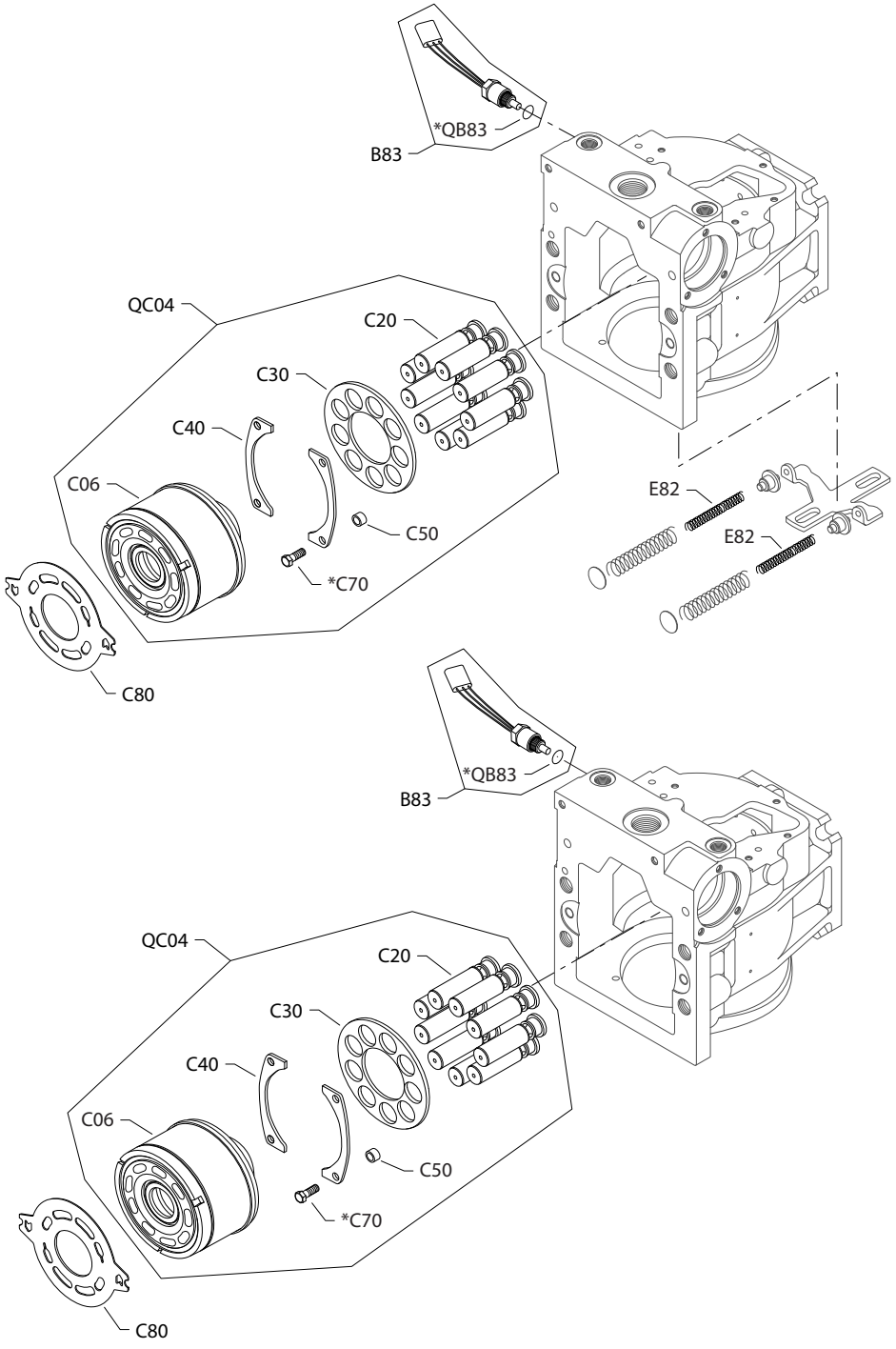
*Order code: EFR*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| L10 | 06-18 | | 5000505 | Roller bearing | 1 |
| L20 | 06-18 | | 9006300-0156 | Retaining ring | 1 |
| L25 | 06-18 | | 519671 | Seal carrier assembly | 1 |
| L40 | 06-18 | | 519666 | Lip seal (*SB-2005-007* on page 348) | 1 |
| L50 | 06-18 | | 684621 (9004104-1530) | O-ring | 1 |
| L60 | 06-18 | | 516767 | Retainer plate | 1 |
| L70 | 06-18 | | 041160 (9007314-0605) | Screw | 3 |
| QB30 | 06-18 | | 11131108 | Cradle bearing assembly | 1 |
| QB83 | 06-18 | | 085043 (9004201-3700) | O-ring | 1 |
| QC04 | 06-18 | | 8510366 | Cylinder block kit, with speed ring | 1 |
| QD50 | 06-18 | | 11192313 | Swashplate assembly (*SB-2017-033* on page 361) | 1 |

## Common parts and special hardware

### S90P 75cc special hardware EAA-EKB

*Parts configuration*




Generic speed sensors shown.

* Included in base pump seal kit Q210

## Common parts and special hardware

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| C20 | 87-02 | | 708230 | Piston assembly | 9 |
| C30 | 87-02 | | 11067350 | Slipper guide | 1 |
| C40 | 88-22 | | 334391 (8100294) | Slipper guide bearing | 2 |
| C50 | 88-22 | | 11065865 | Spacer | 4 |
| C70 | 88-22 | | 314419 (9007276-0114) | Screw | 4 |
| QB83 | 98-14 | | 085043 (9004201-3700) | O-ring | 1 |

*Order code: EHA*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 00-42 | | KPPG16408 | Speed sensor | 1 |
| C06 | 00-42 | | 11094260 (11011714) | Cylinder block assembly, with speed ring | 1 |
| C80 | 00-42 | | 518805 | Valve plate | 1 |
| QC04 | 00-42 | | 8510366 | Cylinder block kit, with speed ring | 1 |

*Order code: EKA*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 99-31 | | KPPG16719 | Speed sensor | 1 |
| C06 | 99-31 | | 11094260 (11011714) | Cylinder block assembly, with speed ring | 1 |
| C80 | 99-31 | | 518805 | Valve plate | 1 |
| QC04 | 99-31 | | 8510366 | Cylinder block kit, with speed ring | 1 |

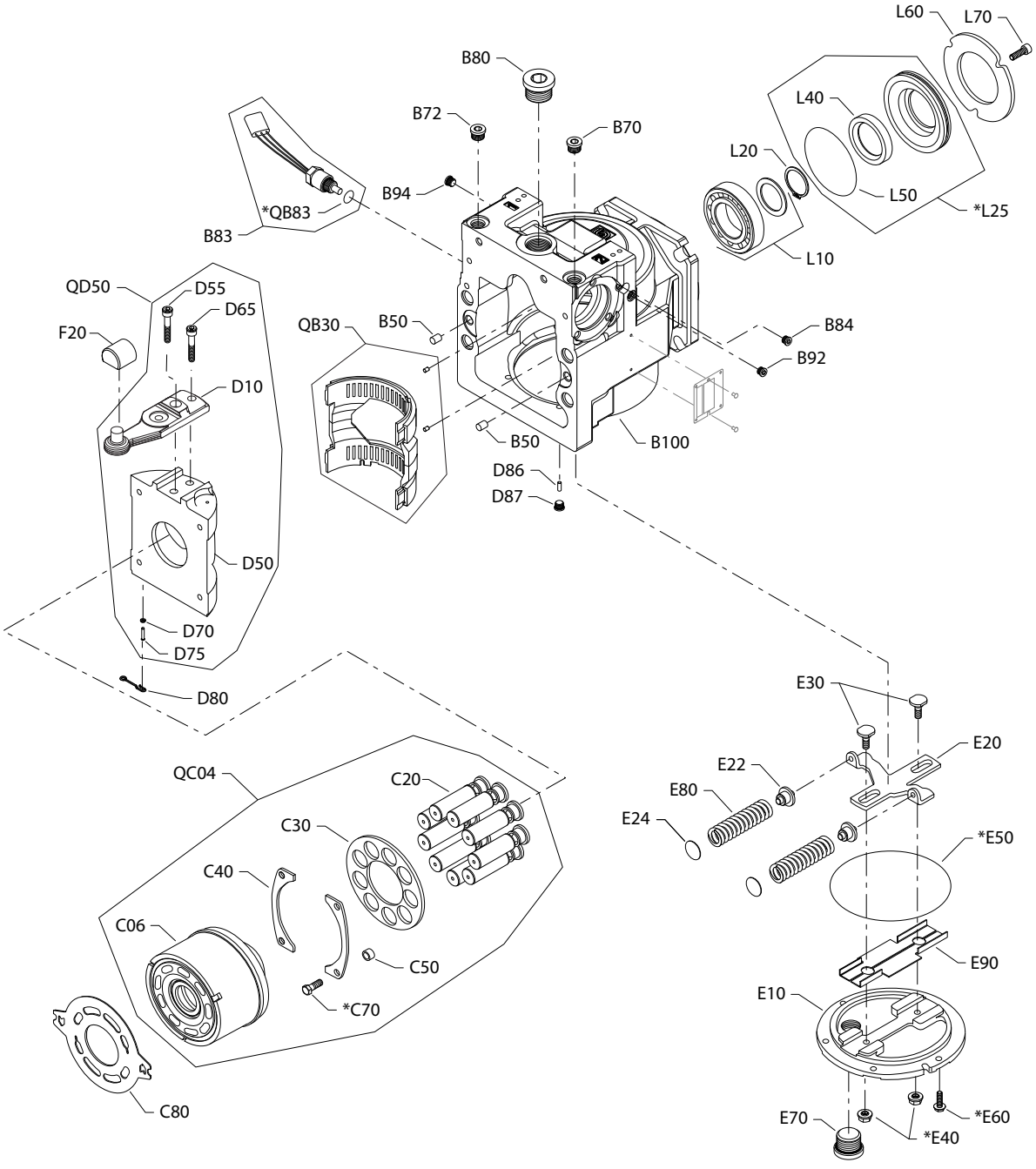
*Order code: EKB*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 01-13 | 12-36 | KPPG156 | Speed sensor | 1 |
| C06 | 01-13 | 12-36 | 11094260 (11011714) | Cylinder block assembly, with speed ring | 1 |
| C80 | 01-13 | 12-36 | 518925 | Valve plate, CW | 1 |
| E82 | 01-13 | 12-36 | 360842 | Spring | 2 |
| QC04 | 01-13 | 12-36 | 8510366 | Cylinder block kit, with speed ring | 1 |

## Common parts and special hardware

### S90P 75cc special hardware ELA

*Parts configuration*




Generic speed sensor shown.

* Included in base pump seal kit Q210

## Common parts and special hardware

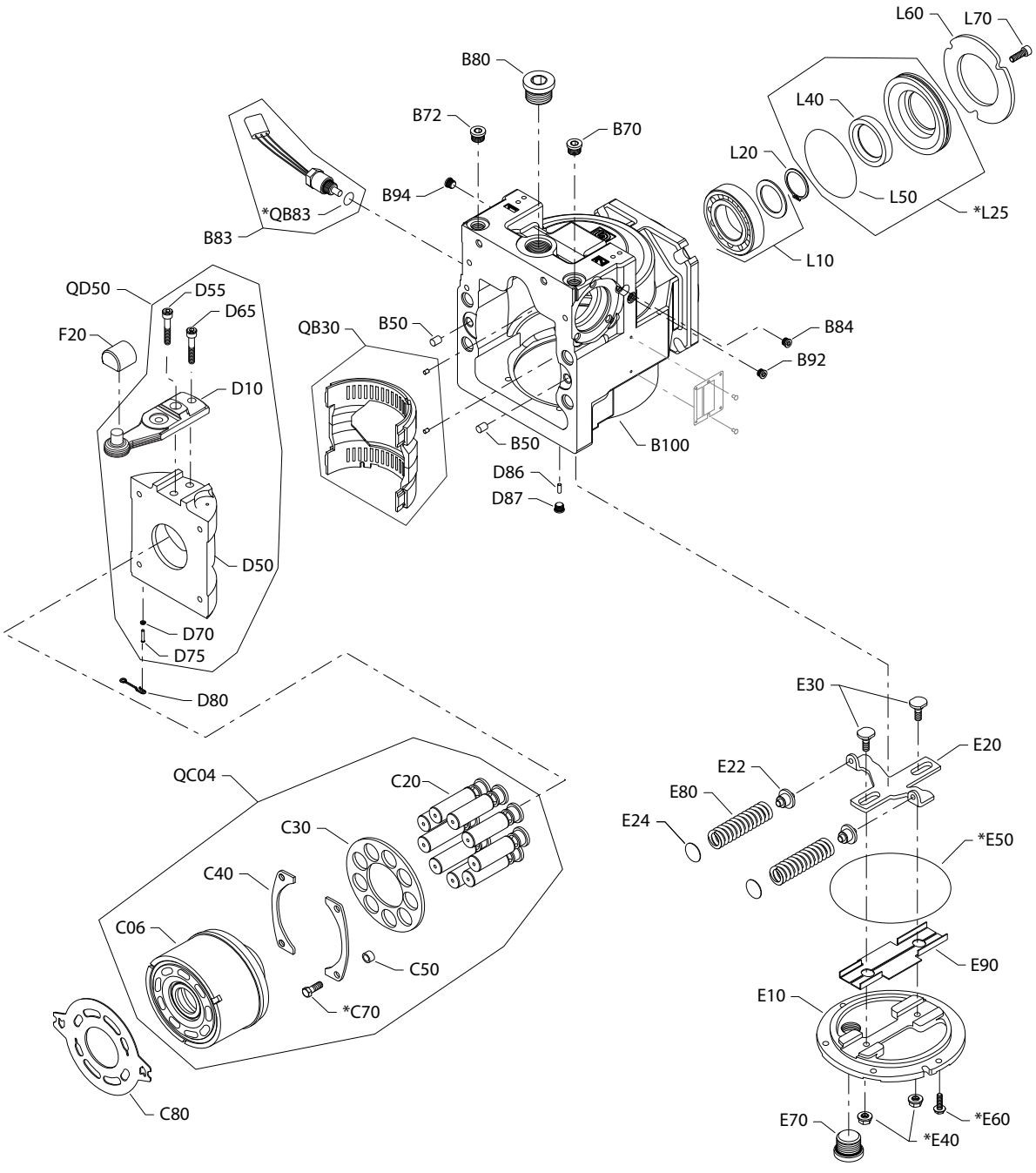
*Order code: ELA*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| B50 | 01-03 | | 9004800-3708 | Pin | 2 |
| B70 | 01-03 | | 140644 | Plug assembly | 1 |
| B72 | 01-03 | | 140644 | Plug assembly | 1 |
| B80 | 01-03 | | 664524 (9005110-9000) | Plug assembly | 1 |
| B83 | 01-03 | | KPPG13403 | Speed sensor assembly | 1 |
| B84 | 01-03 | | 11040532 | Plug assembly | 1 |
| B92 | 01-03 | | 11040532 | Plug assembly | 1 |
| B94 | 01-03 | | 11040532 | Plug assembly | 1 |
| B100 | 01-03 | | 11117294 | Housing assembly | 1 |
| C06 | 01-03 | | 11094260 (11011714) | Cylinder block assembly, with speed ring | 1 |
| C20 | 01-03 | | 708230 | Piston assembly | 9 |
| C30 | 01-03 | | 11067350 | Slipper guide | 1 |
| C40 | 01-03 | | 334391 (8100294) | Slipper guide bearing | 2 |
| C50 | 01-03 | | 11065865 | Spacer | 4 |
| C70 | 01-03 | | 314419 (9007276-0114) | Screw | 4 |
| C80 | 01-03 | | 518008 | Valve plate | 1 |
| D10 | 01-03 | | 519046 | Servo arm | 1 |
| D50 | 01-03 | | 11104315 | Swashplate | 1 |
| D55 | 01-03 | | 519150 | Screw | 1 |
| D70 | 01-03 | | 9009625-0146 | Washer | 1 |
| D75 | 01-03 | | 9004875-0098 | Spiral head pin | 1 |
| D80 | 01-03 | | 693929 (8100506) | Cage locator link | 1 |
| D86 | 01-03 | | 9004800-1908 | Pin | 1 |
| D87 | 01-03 | | 11040532 | Plug assembly | 1 |
| E10 | 01-03 | | 11001286 | Side cover | 1 |
| E20 | 01-03 | | 11042018 | Leveler | 1 |
| E22 | 01-03 | | 517935 | Spring seat | 2 |
| E24 | 01-03 | | 8801225 | Shim | 2 |
| E30 | 01-03 | | 11056531 | Guide post | 2 |
| E40 | 01-03 | | 505412 (9003509-0008) | Seal nut | 2 |
| E50 | 01-03 | | 517377 | O-ring | 1 |
| E60 | 01-03 | | 517228 (5000206) | Screw | 6 |
| E70 | 01-03 | | 664524 (9005110-9000) | Plug assembly | 1 |
| E80 | 01-03 | | 334987 | Spring | 2 |
| E90 | 01-03 | | 513888 | Insert assembly | 1 |
| F20 | 01-03 | | 11116313 | Slider block | 1 |

Part numbers continue to the next 2 pages.

## Common parts and special hardware

*Parts configuration*




Generic speed sensor shown.

* Included in base pump seal kit Q210

## Common parts and special hardware

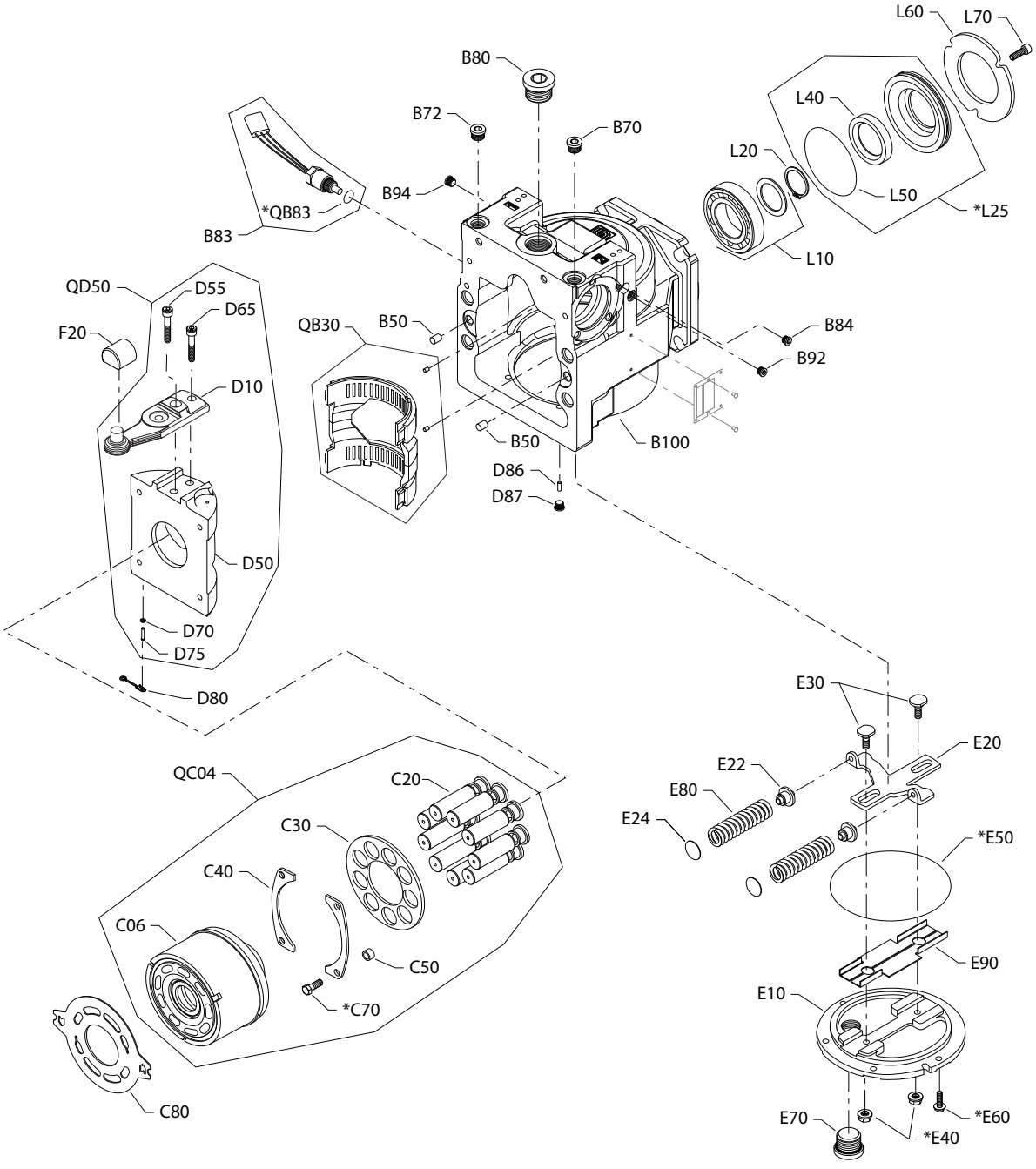
*Order code: ELA*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| L10 | 01-03 | | 5000505 | Roller bearing | 1 |
| L20 | 01-03 | | 9006300-0156 | Retaining ring | 1 |
| L25 | 01-03 | | 519671 | Seal carrier assembly | 1 |
| L40 | 01-03 | | 519666 | Lip seal (*SB-2005-007* on page 348) | 1 |
| L50 | 01-03 | | 684621 (9004104-1530) | O-ring | 1 |
| L60 | 01-03 | | 516767 | Retainer plate | 1 |
| L70 | 01-03 | | 041160 (9007314-0605) | Screw | 3 |
| QB30 | 01-03 | | 11131108 | Cradle bearing assembly | 1 |
| QB83 | 01-03 | | 085043 (9004201-3700) | O-ring | 1 |
| QC04 | 01-03 | | 8510366 | Cylinder block kit, with speed ring | 1 |
| QD50 | 01-03 | | 11192313 | Swashplate assembly (*SB-2017-033* on page 361) | 1 |

## Common parts and special hardware

### S90P 75cc special hardware ELB

*Parts configuration*




Generic speed sensor shown.

* Included in base pump seal kit Q210

## Common parts and special hardware

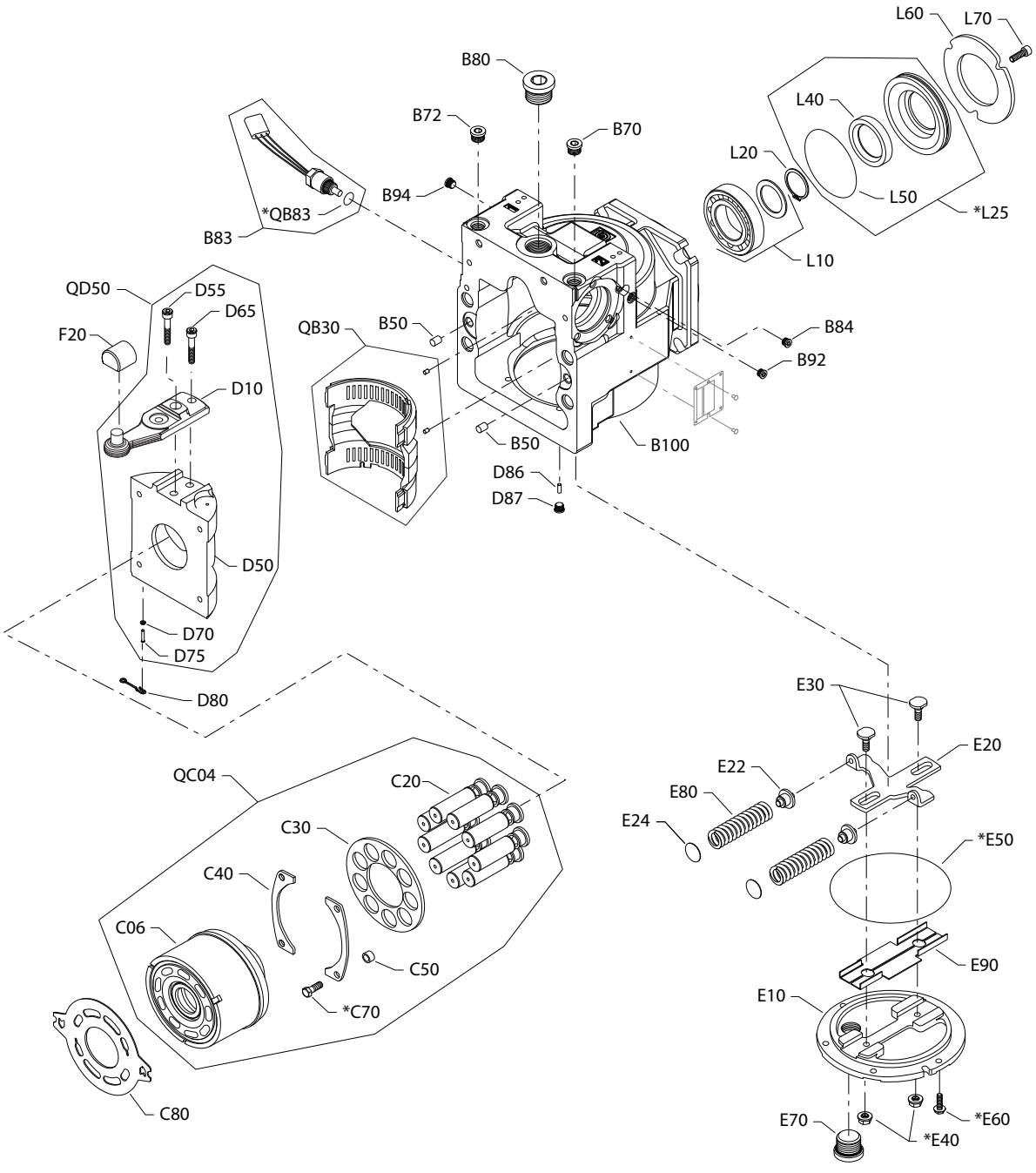
*Order code: ELB*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| B50 | 04-03 | | 9004800-3708 | Pin | 2 |
| B70 | 04-03 | | 140644 | Plug assembly | 1 |
| B72 | 04-03 | | 140644 | Plug assembly | 1 |
| B80 | 04-03 | | 664524 (9005110-9000) | Plug assembly | 1 |
| B83 | 04-03 | | KPPG13403 | Speed sensor assembly | 1 |
| B84 | 04-03 | | 11040532 | Plug assembly | 1 |
| B92 | 04-03 | | 11040532 | Plug assembly | 1 |
| B94 | 04-03 | | 11040532 | Plug assembly | 1 |
| B100 | 04-03 | | 11117294 | Housing assembly | 1 |
| C06 | 04-03 | | 11094260 (11011714) | Cylinder block assembly, with speed ring | 1 |
| C20 | 04-03 | | 708230 | Piston assembly | 9 |
| C30 | 04-03 | | 11067350 | Slipper guide | 1 |
| C40 | 04-03 | | 334391 (8100294) | Slipper guide bearing | 2 |
| C50 | 04-03 | | 11065865 | Spacer | 4 |
| C70 | 04-03 | | 314419 (9007276-0114) | Screw | 4 |
| C80 | 04-03 | | 518925 | Valve plate, CW | 1 |
| D10 | 04-03 | | 519046 | Servo arm | 1 |
| D50 | 04-03 | | 11104315 | Swashplate | 1 |
| D55 | 04-03 | | 519150 | Screw | 1 |
| D70 | 04-03 | | 9009625-0146 | Washer | 1 |
| D75 | 04-03 | | 9004875-0098 | Spiral head pin | 1 |
| D80 | 04-03 | | 693929 (8100506) | Cage locator link | 1 |
| D86 | 04-03 | | 9004800-1908 | Pin | 1 |
| D87 | 04-03 | | 11040532 | Plug assembly | 1 |
| E10 | 04-03 | | 11001286 | Side cover | 1 |
| E20 | 04-03 | | 11042018 | Leveler | 1 |
| E22 | 04-03 | | 517935 | Spring seat | 2 |
| E24 | 04-03 | | 8801225 | Shim | 2 |
| E30 | 04-03 | | 11056531 | Guide post | 2 |
| E40 | 04-03 | | 505412 (9003509-0008) | Seal nut | 2 |
| E50 | 04-03 | | 517377 | O-ring | 1 |
| E60 | 04-03 | | 517228 (5000206) | Screw | 6 |
| E70 | 04-03 | | 664524 (9005110-9000) | Plug assembly | 1 |
| E80 | 04-03 | | 334987 | Spring | 2 |
| E90 | 04-03 | | 513888 | Insert assembly | 1 |
| F20 | 04-03 | | 11116313 | Slider block | 1 |

Part numbers continue to the next 2 pages.

## Common parts and special hardware

*Parts configuration*




Generic speed sensor shown.

* Included in base pump seal kit Q210

## Common parts and special hardware

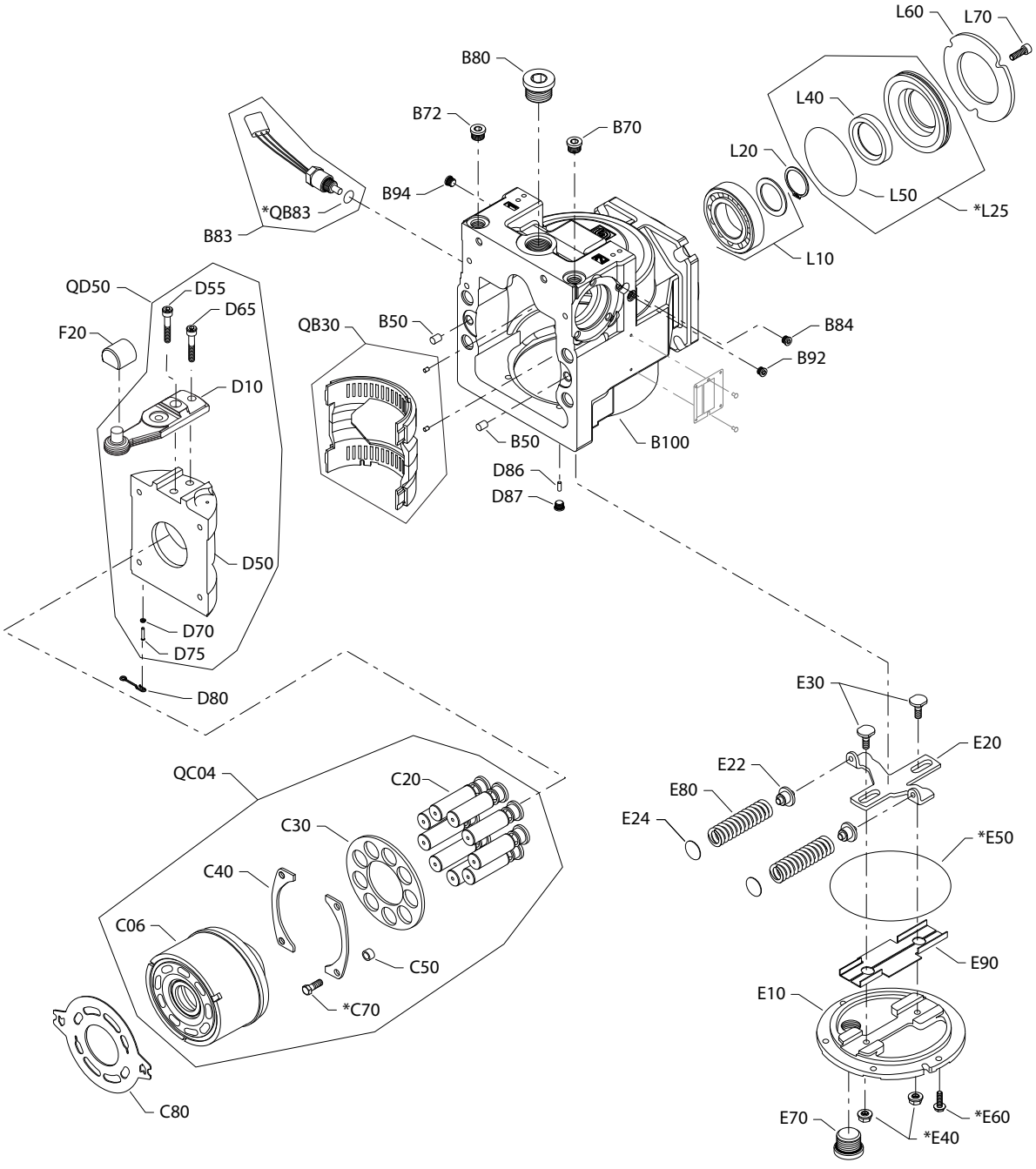
*Order code: ELB*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| L10 | 04-03 | | 5000505 | Roller bearing | 1 |
| L20 | 04-03 | | 9006300-0156 | Retaining ring | 1 |
| L25 | 04-03 | | 519671 | Seal carrier assembly | 1 |
| L40 | 04-03 | | 519666 | Lip seal (*SB-2005-007* on page 348) | 1 |
| L50 | 04-03 | | 684621 (9004104-1530) | O-ring | 1 |
| L60 | 04-03 | | 516767 | Retainer plate | 1 |
| L70 | 04-03 | | 041160 (9007314-0605) | Screw | 3 |
| QB30 | 04-03 | | 11131108 | Cradle bearing assembly | 1 |
| QB83 | 04-03 | | 085043 (9004201-3700) | O-ring | 1 |
| QC04 | 04-03 | | 8510366 | Cylinder block kit, with speed ring | 1 |
| QD50 | 04-03 | | 11192313 | Swashplate assembly (*SB-2017-033* on page 361) | 1 |

## Common parts and special hardware

### S90P 75cc special hardware ELC

*Parts configuration*




Generic speed sensor shown.

* Included in base pump seal kit Q210

## Common parts and special hardware

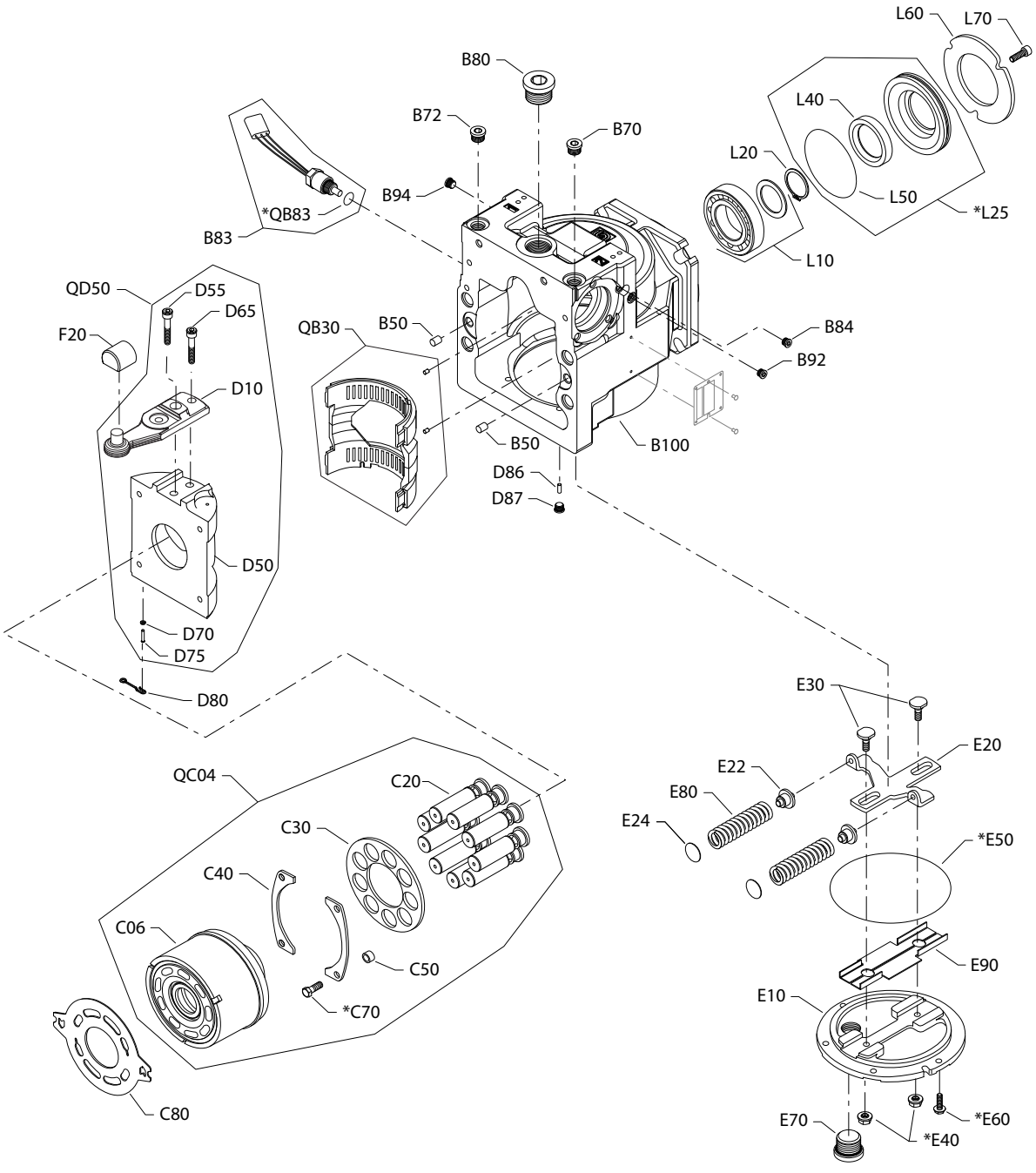
*Order code: ELC*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| B50 | 04-18 | | 9004800-3708 | Pin | 2 |
| B70 | 04-18 | | 140644 | Plug assembly | 1 |
| B72 | 04-18 | | 140644 | Plug assembly | 1 |
| B80 | 04-18 | | 664524 (9005110-9000) | Plug assembly | 1 |
| B83 | 04-18 | | KPPG15408 | Speed sensor assembly | 1 |
| B84 | 04-18 | | 11040532 | Plug assembly | 1 |
| B92 | 04-18 | | 11040532 | Plug assembly | 1 |
| B94 | 04-18 | | 11040532 | Plug assembly | 1 |
| B100 | 04-18 | | 11117294 | Housing assembly | 1 |
| C06 | 04-18 | | 11094260 (11011714) | Cylinder block assembly, with speed ring | 1 |
| C20 | 04-18 | | 708230 | Piston assembly | 9 |
| C30 | 04-18 | | 11067350 | Slipper guide | 1 |
| C40 | 04-18 | | 334391 (8100294) | Slipper guide bearing | 2 |
| C50 | 04-18 | | 11065865 | Spacer | 4 |
| C70 | 04-18 | | 314419 (9007276-0114) | Screw | 4 |
| C80 | 04-18 | | 518925 | Valve plate, CW | 1 |
| D10 | 04-18 | | 519046 | Servo arm | 1 |
| D50 | 04-18 | | 11104315 | Swashplate | 1 |
| D55 | 04-18 | | 519150 | Screw | 1 |
| D70 | 04-18 | | 9009625-0146 | Washer | 1 |
| D75 | 04-18 | | 9004875-0098 | Spiral head pin | 1 |
| D80 | 04-18 | | 693929 (8100506) | Cage locator link | 1 |
| D86 | 04-18 | | 9004800-1908 | Pin | 1 |
| D87 | 04-18 | | 11040532 | Plug assembly | 1 |
| E10 | 04-18 | | 11001286 | Side cover | 1 |
| E20 | 04-18 | | 11042018 | Leveler | 1 |
| E22 | 04-18 | | 517935 | Spring seat | 2 |
| E24 | 04-18 | | 8801225 | Shim | 2 |
| E30 | 04-18 | | 11056531 | Guide post | 2 |
| E40 | 04-18 | | 505412 (9003509-0008) | Seal nut | 2 |
| E50 | 04-18 | | 517377 | O-ring | 1 |
| E60 | 04-18 | | 517228 (5000206) | Screw | 6 |
| E70 | 04-18 | | 664524 (9005110-9000) | Plug assembly | 1 |
| E80 | 04-18 | | 334987 | Spring | 2 |
| E90 | 04-18 | | 513888 | Insert assembly | 1 |
| F20 | 04-18 | | 11116313 | Slider block | 1 |

Part numbers continue to the next 2 pages.

## Common parts and special hardware

*Parts configuration*




Generic speed sensor shown.

* Included in base pump seal kit Q210

## Common parts and special hardware

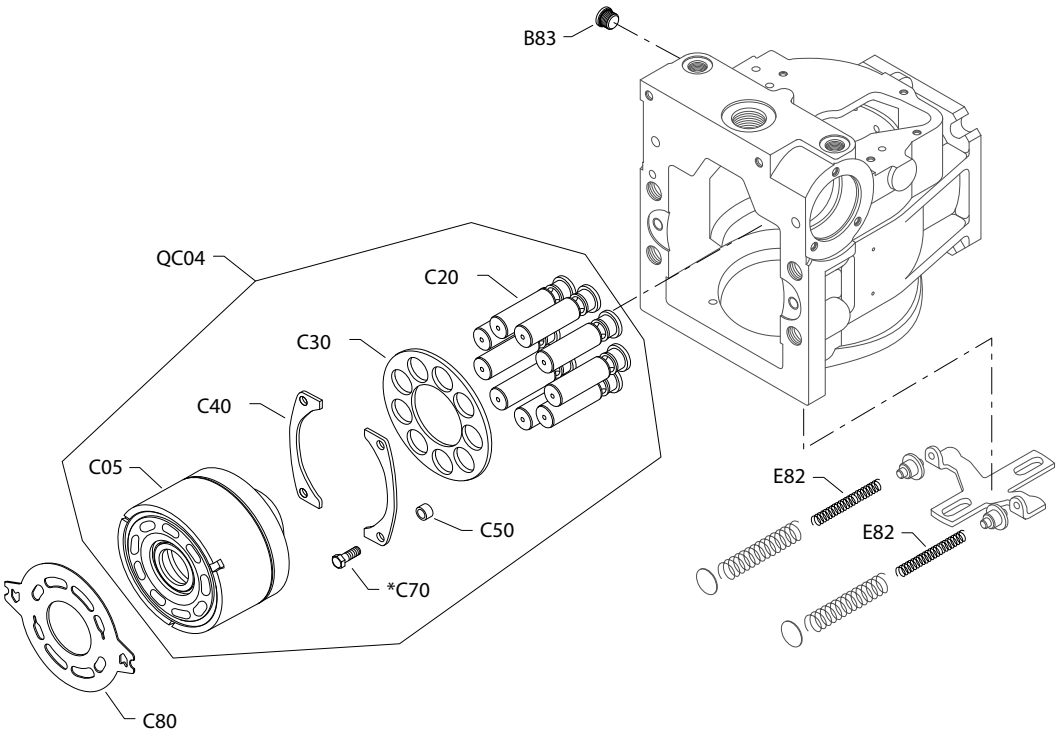
*Order code: ELC*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| L10 | 04-18 | | 5000505 | Roller bearing | 1 |
| L20 | 04-18 | | 9006300-0156 | Retaining ring | 1 |
| L25 | 04-18 | | 519671 | Seal carrier assembly | 1 |
| L40 | 04-18 | | 519666 | Lip seal (*SB-2005-007* on page 348) | 1 |
| L50 | 04-18 | | 684621 (9004104-1530) | O-ring | 1 |
| L60 | 04-18 | | 516767 | Retainer plate | 1 |
| L70 | 04-18 | | 041160 (9007314-0605) | Screw | 3 |
| QB30 | 04-18 | | 11131108 | Cradle bearing assembly | 1 |
| QB83 | 04-18 | | 085043 (9004201-3700) | O-ring | 1 |
| QC04 | 04-18 | | 8510366 | Cylinder block kit, with speed ring | 1 |
| QD50 | 04-18 | | 11192313 | Swashplate assembly (*SB-2017-033* on page 361) | 1 |

## Common parts and special hardware

### S90P 75cc special hardware FAA-FAK

*Parts configuration*




* Included in base pump seal kit Q210

## Common parts and special hardware

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| C20 | 87-02 | | 708230 | Piston assembly | 9 |
| C30 | 87-02 | | 11067350 | Slipper guide | 1 |
| C40 | 88-22 | | 334391 (8100294) | Slipper guide bearing | 2 |
| C50 | 88-22 | | 11065865 | Spacer | 4 |
| C70 | 88-22 | | 314419 (9007276-0114) | Screw | 4 |

*Order code: FAA*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 94-14 | | 140644 | Plug assembly | 1 |
| C05 | 94-14 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 94-14 | | 518924 | Valve plate | 1 |
| E82 | 94-14 | | 360842 (11062703) | Spring | 2 |
| QC04 | 94-14 | | 8510365 | Cylinder block kit | 1 |

*Order code: FAB*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 94-14 | | 140644 | Plug assembly | 1 |
| C05 | 94-14 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 94-14 | | 518923 | Valve plate | 1 |
| E82 | 94-14 | | 360842 (11062703) | Spring | 2 |
| QC04 | 94-14 | | 8510365 | Cylinder block kit | 1 |

*Order code: FAC*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 94-14 | | 140644 | Plug assembly | 1 |
| C05 | 94-14 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 94-14 | | 518008 | Valve plate | 1 |
| E82 | 94-14 | | 360842 (11062703) | Spring | 2 |
| QC04 | 94-14 | | 8510365 | Cylinder block kit | 1 |

*Order code: FAD*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 96-05 | | 140644 | Plug assembly | 1 |
| C05 | 96-05 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 96-05 | | 518805 | Valve plate | 1 |
| E82 | 96-05 | | 360842 (11062703) | Spring | 2 |
| QC04 | 96-05 | | 8510365 | Cylinder block kit | 1 |

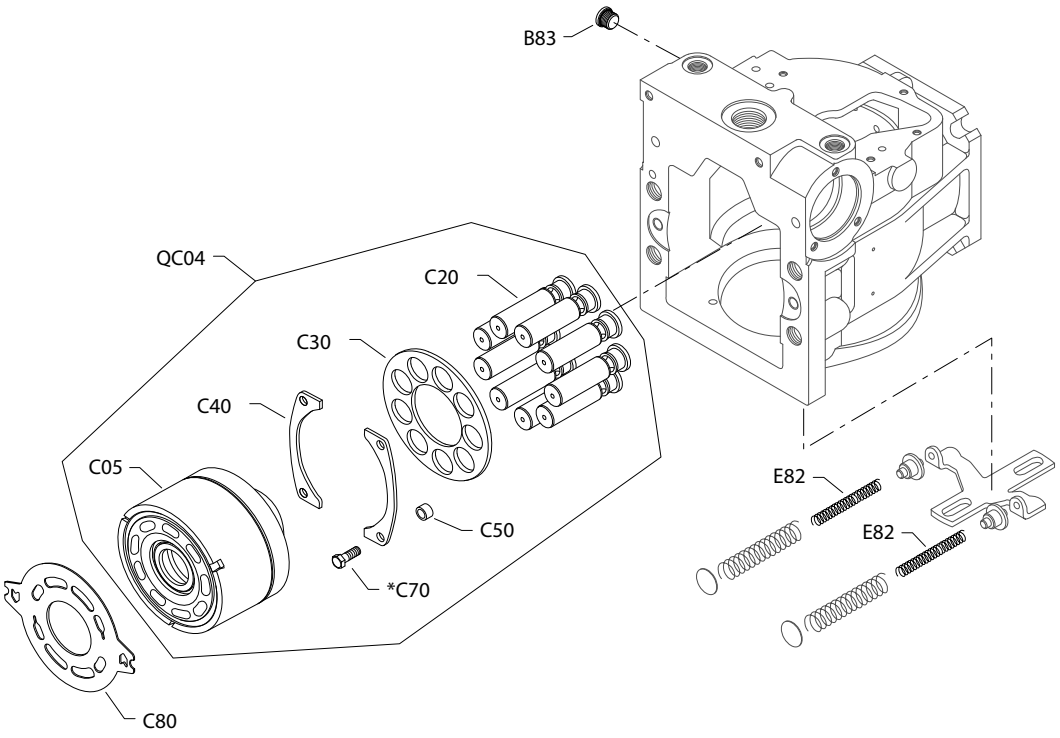
*Order code: FAK*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 98-51 | | 140644 | Plug assembly | 1 |
| C05 | 98-51 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 98-51 | | 518805 | Valve plate | 1 |
| E82 | 98-51 | | 360842 (11062703) | Spring | 2 |
| QC04 | 98-51 | | 8510365 | Cylinder block kit | 1 |

## Common parts and special hardware

### S90P 75cc special hardware FAL, FAN

*Parts configuration*




* Included in base pump seal kit Q210

## Common parts and special hardware

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| C20 | 87-02 | | 708230 | Piston assembly | 9 |
| C30 | 87-02 | | 11067350 | Slipper guide | 1 |
| C40 | 88-22 | | 334391 (8100294) | Slipper guide bearing | 2 |
| C50 | 88-22 | | 11065865 | Spacer | 4 |
| C70 | 88-22 | | 314419 (9007276-0114) | Screw | 4 |

*Order code: FAL*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 94-14 | | 140644 | Plug assembly | 1 |
| C05 | 94-14 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 94-14 | | 518923 | Valve plate | 1 |
| E82 | 94-14 | | 360842 (11062703) | Spring | 2 |
| QC04 | 94-14 | | 8510365 | Cylinder block kit | 1 |

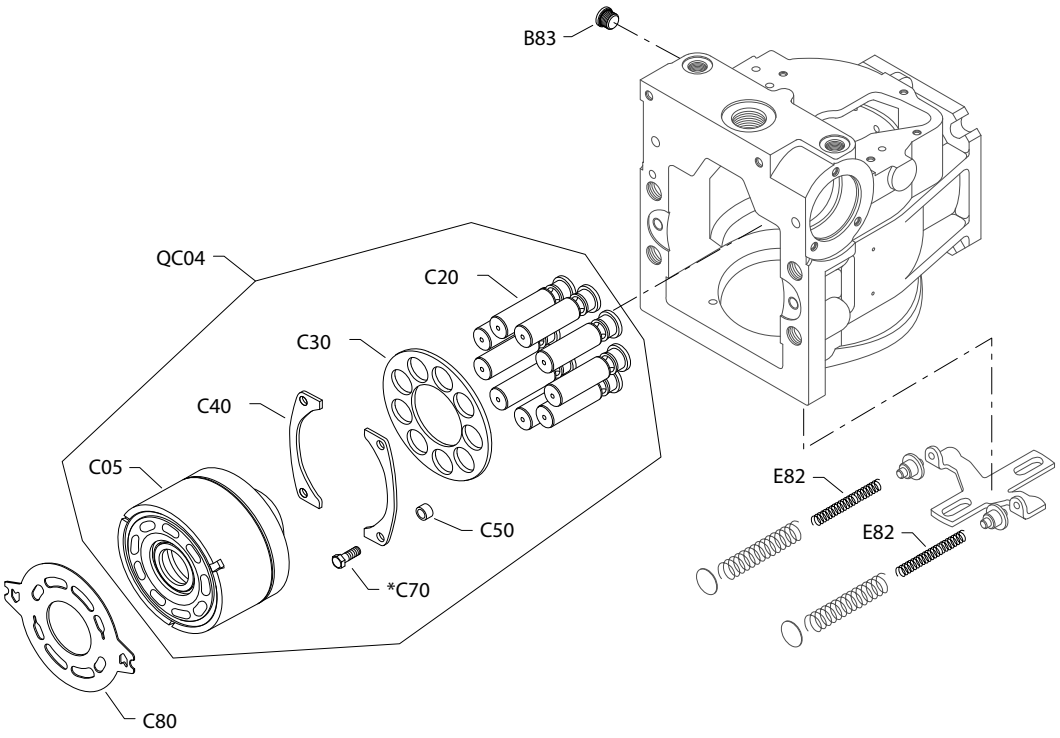
*Order code: FAN*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 13-41 | | 140644 | Plug assembly | 1 |
| C05 | 13-41 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 13-41 | | 518924 | Valve plate | 1 |
| E82 | 13-41 | | 360842 (11062703) | Spring | 2 |
| QC04 | 13-41 | | 8510365 | Cylinder block kit | 1 |

## Common parts and special hardware

### S90P 75cc special hardware FAP-FAU

*Parts configuration*




* Included in base pump seal kit Q210

## Common parts and special hardware

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| C20 | 87-02 | | 708230 | Piston assembly | 9 |
| C30 | 87-02 | | 11067350 | Slipper guide | 1 |
| C40 | 88-22 | | 334391 (8100294) | Slipper guide bearing | 2 |
| C50 | 88-22 | | 11065865 | Spacer | 4 |
| C70 | 88-22 | | 314419 (9007276-0114) | Screw | 4 |

*Order code: FAP*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 94-14 | | 140644 | Plug assembly | 1 |
| C05 | 94-14 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 94-14 | | 518925 | Valve plate, CW | 1 |
| C80 | 94-14 | | 518926 | Valve plate, CCW | 1 |
| E82 | 94-14 | | 360842 (11062703) | Spring | 2 |
| QC04 | 94-14 | | 8510365 | Cylinder block kit | 1 |

*Order code: FAQ*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 94-14 | | 140644 | Plug assembly | 1 |
| C05 | 94-14 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 94-14 | | 518925 | Valve plate, CW | 1 |
| E82 | 94-14 | | 360842 (11062703) | Spring | 2 |
| QC04 | 94-14 | | 8510365 | Cylinder block kit | 1 |

*Order code: FAR*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 94-14 | | 140644 | Plug assembly | 1 |
| C05 | 94-14 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 94-14 | | 510723 | Valve plate | 1 |
| E82 | 94-14 | | 360842 (11062703) | Spring | 2 |
| QC04 | 94-14 | | 8510365 | Cylinder block kit | 1 |

*Order code: FAS*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 97-03 | | 140644 | Plug assembly | 1 |
| C05 | 97-03 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 97-03 | | 518008 | Valve plate | 1 |
| E82 | 97-03 | | 360842 (11062703) | Spring | 2 |
| QC04 | 97-03 | | 8510365 | Cylinder block kit | 1 |

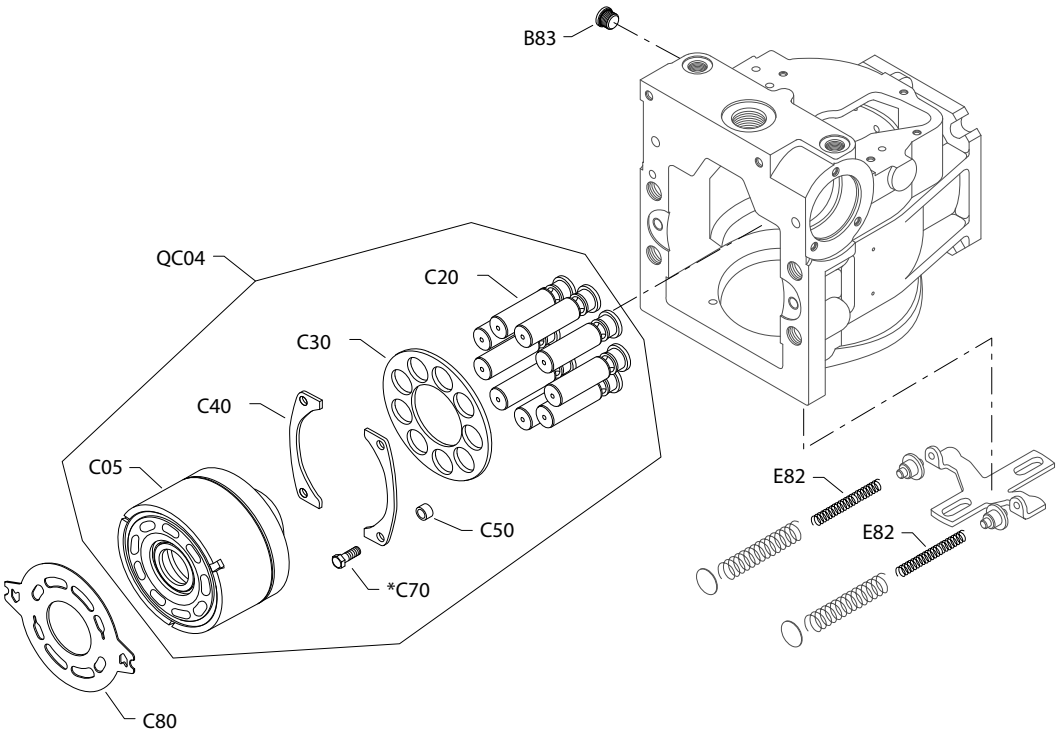
*Order code: FAU*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 98-37 | | 140644 | Plug assembly | 1 |
| C05 | 98-37 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 98-37 | | 518805 | Valve plate | 1 |
| E82 | 98-37 | | 360842 (11062703) | Spring | 2 |
| QC04 | 98-37 | | 8510365 | Cylinder block kit | 1 |

## Common parts and special hardware

### S90P 75cc special hardware FAX, FAY

*Parts configuration*




* Included in base pump seal kit Q210

## Common parts and special hardware

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| C20 | 87-02 | | 708230 | Piston assembly | 9 |
| C30 | 87-02 | | 11067350 | Slipper guide | 1 |
| C40 | 88-22 | | 334391 (8100294) | Slipper guide bearing | 2 |
| C50 | 88-22 | | 11065865 | Spacer | 4 |
| C70 | 88-22 | | 314419 (9007276-0114) | Screw | 4 |

*Order code: FAX*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 01-07 | | 140644 | Plug assembly | 1 |
| C05 | 01-07 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 01-07 | | 510723 | Valve plate | 1 |
| E82 | 01-07 | | 360842 (11062703) | Spring | 2 |
| QC04 | 01-07 | | 8510365 | Cylinder block kit | 1 |

*Order code: FAY*

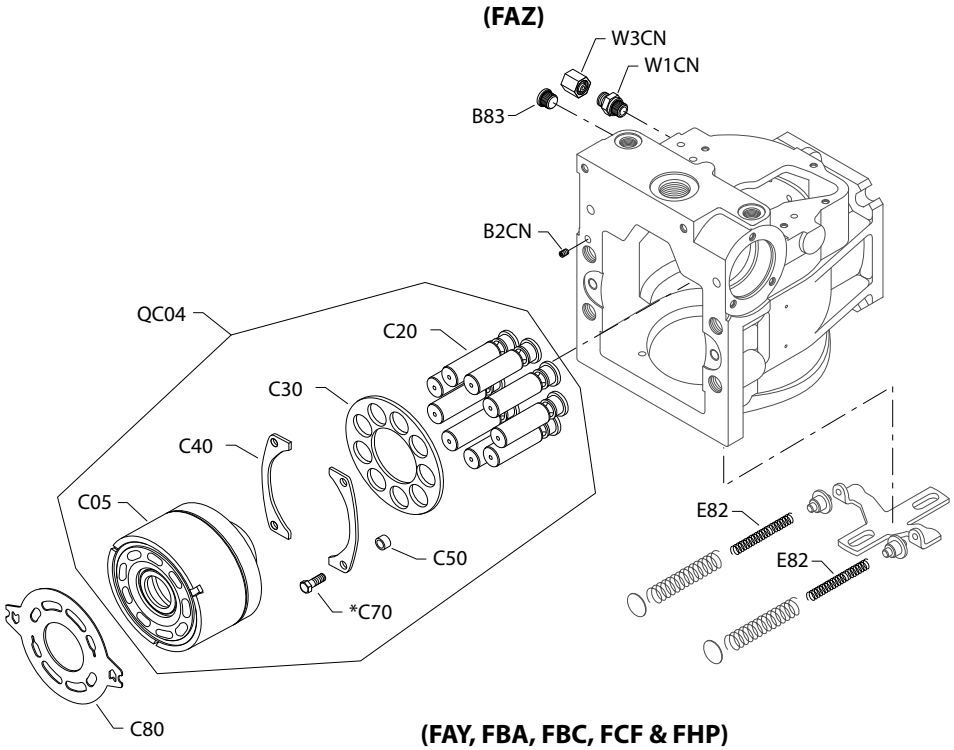
| | | | | | |
|---|---|---|---|---|---|
| B83 | 06-03 | | 140644 | Plug assembly | 1 |
| C05 | 06-03 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 06-03 | | 518805 | Valve plate | 1 |
| E82 | 06-03 | | 360842 (11062703) | Spring | 2 |
| QC04 | 06-03 | | 8510365 | Cylinder block kit | 1 |

## Common parts and special hardware

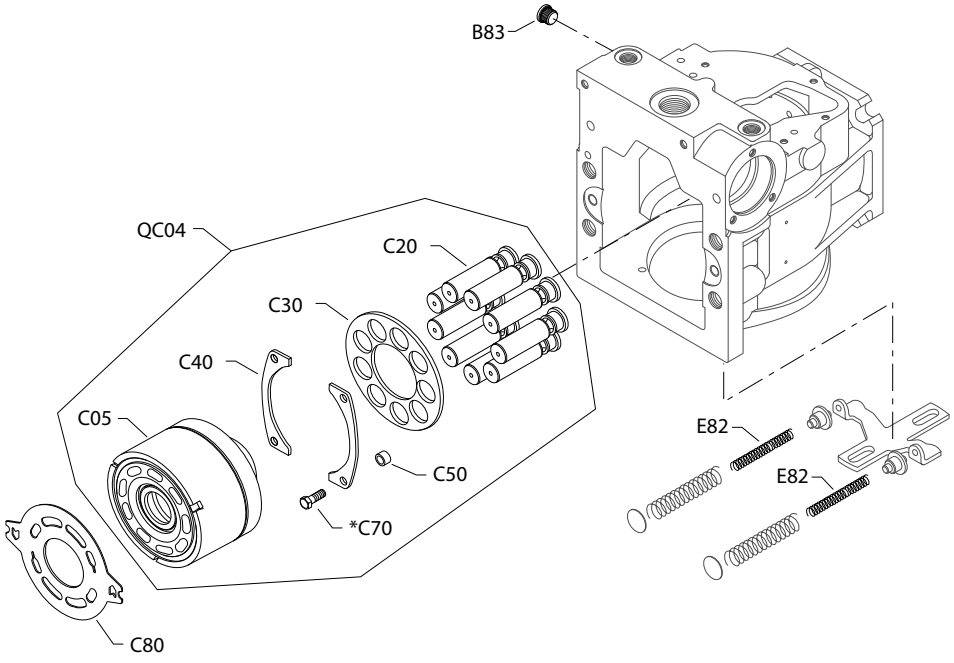
### S90P 75cc special hardware FAZ-FBG

*Parts configuration*

**(FAZ)**




**(FAY, FBA, FBC, FCF & FHP)**




* Included in base pump seal kit Q210

## Common parts and special hardware

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| C20 | 87-02 | | 708230 | Piston assembly | 9 |
| C30 | 87-02 | | 11067350 | Slipper guide | 1 |
| C40 | 88-22 | | 334391 (8100294) | Slipper guide bearing | 2 |
| C50 | 88-22 | | 11065865 | Spacer | 4 |
| C70 | 88-22 | | 314419 (9007276-0114) | Screw | 4 |

*Order code: FAZ*

| | | | | | |
|---|---|---|---|---|---|
| B2CN | 05-06 | | 775312 | Set screw | 1 |
| B83 | 05-06 | | 140644 | Plug assembly | 1 |
| C05 | 05-06 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 05-06 | | 518008 | Valve plate | 1 |
| E82 | 05-06 | | 360842 (11062703) | Spring | 2 |
| QC04 | 05-06 | | 8510365 | Cylinder block kit | 1 |
| W1CN | 05-06 | | 723726 | Connector | 1 |
| W3CN | 05-06 | | 574095 | Cap | 1 |

*Order code: FBA*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 06-12 | | 140644 | Plug assembly | 1 |
| C05 | 06-12 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 06-12 | | 518008 | Valve plate | 1 |
| E82 | 06-12 | | 360842 (11062703) | Spring | 2 |
| QC04 | 06-12 | | 8510365 | Cylinder block kit | 1 |

*Order code: FBC*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 06-12 | | 140644 | Plug assembly | 1 |
| C05 | 06-12 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 06-12 | | 518805 | Valve plate | 1 |
| E82 | 06-12 | | 360842 (11062703) | Spring | 2 |
| QC04 | 06-12 | | 8510365 | Cylinder block kit | 1 |

*Order code: FBG*

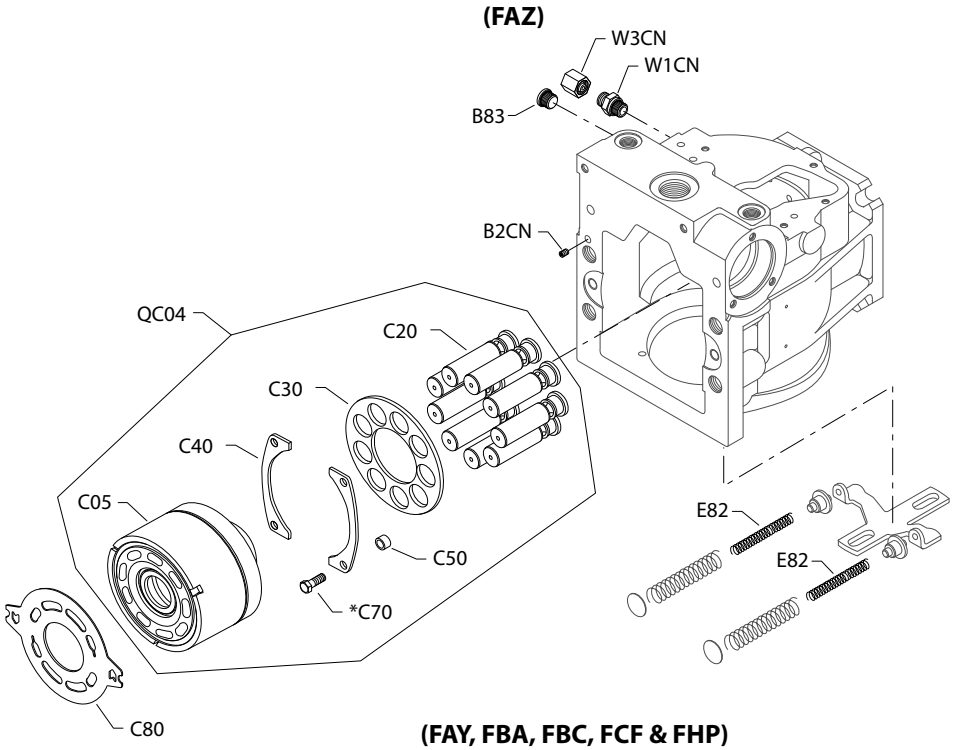
| | | | | | |
|---|---|---|---|---|---|
| B83 | 06-16 | | 140644 | Plug assembly | 1 |
| C05 | 06-16 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 06-16 | | 518805 | Valve plate | 1 |
| E82 | 06-16 | | 360842 (11062703) | Spring | 2 |
| QC04 | 06-16 | | 8510365 | Cylinder block kit | 1 |

## Common parts and special hardware

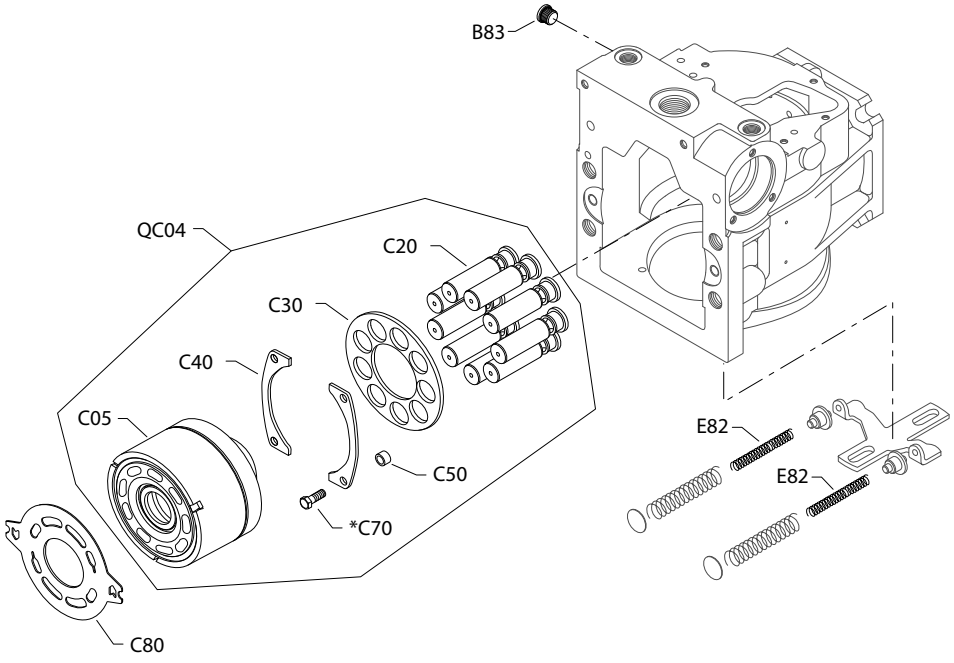
### S90P 75cc special hardware FCF, FHP

*Parts configuration*

**(FAZ)**




**(FAY, FBA, FBC, FCF & FHP)**




* Included in base pump seal kit Q210

## Common parts and special hardware

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| C20 | 87-02 | | 708230 | Piston assembly | 9 |
| C30 | 87-02 | | 11067350 | Slipper guide | 1 |
| C40 | 88-22 | | 334391 (8100294) | Slipper guide bearing | 2 |
| C50 | 88-22 | | 11065865 | Spacer | 4 |
| C70 | 88-22 | | 314419 (9007276-0114) | Screw | 4 |

*Order code: FCF*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 11-19 | | 140644 | Plug assembly | 1 |
| C05 | 11-19 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 11-19 | | 518805 | Valve plate | 1 |
| E82 | 11-19 | | 360842 (11062703) | Spring | 2 |
| QC04 | 11-19 | | 8510365 | Cylinder block kit | 1 |

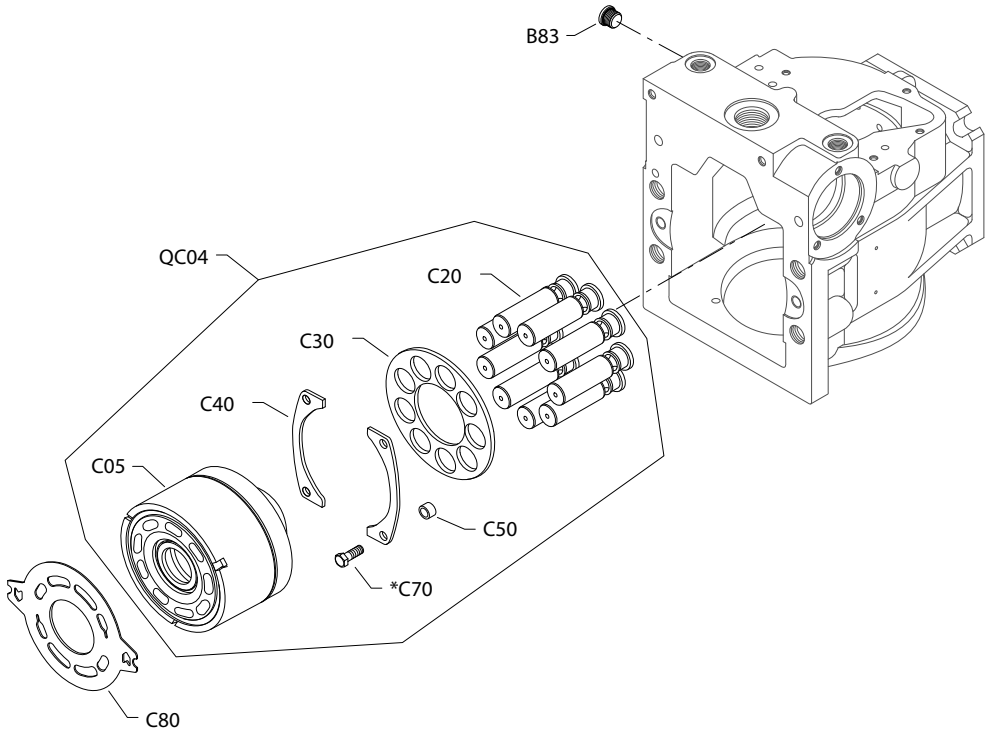
*Order code: FHP*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 12-40 | | 140644 | Plug assembly | 1 |
| C05 | 12-40 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 12-40 | | 518805 | Valve plate | 1 |
| E82 | 12-40 | | 360842 (11062703) | Spring | 2 |
| QC04 | 12-40 | | 8510365 | Cylinder block kit | 1 |

## Common parts and special hardware

### S90P 75cc special hardware GAA-GBT

*Parts configuration*




* Included in base pump seal kit Q210

## Common parts and special hardware

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| C20 | 87-02 | | 708230 | Piston assembly | 9 |
| C30 | 87-02 | | 11067350 | Slipper guide | 1 |
| C40 | 88-22 | | 334391 (8100294) | Slipper guide bearing | 2 |
| C50 | 88-22 | | 11065865 | Spacer | 4 |
| C70 | 88-22 | | 314419 (9007276-0114) | Screw | 4 |

*Order code: GAA*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 94-14 | | 140644 | Plug assembly | 1 |
| C05 | 94-14 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 94-14 | | 344911 | Valve plate | 1 |
| QC04 | 94-14 | | 8510365 | Cylinder block kit | 1 |

*Order code: GBA*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 87-02 | | 140644 | Plug assembly | 1 |
| C05 | 87-02 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 87-02 | | 518805 | Valve plate | 1 |
| QC04 | 87-02 | | 8510365 | Cylinder block kit | 1 |

*Order code: GBE*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 98-06 | | 140644 | Plug assembly | 1 |
| C05 | 98-06 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 98-06 | | 518805 | Valve plate | 1 |
| QC04 | 98-06 | | 8510365 | Cylinder block kit | 1 |

*Order code: GBJ*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 98-06 | | 140644 | Plug assembly | 1 |
| C05 | 98-06 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 98-06 | | 518805 | Valve plate | 1 |
| QC04 | 98-06 | | 8510365 | Cylinder block kit | 1 |

*Order code: GBS*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 98-06 | | 140644 | Plug assembly | 1 |
| C05 | 98-06 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 98-06 | | 518805 | Valve plate | 1 |
| QC04 | 98-06 | | 8510365 | Cylinder block kit | 1 |

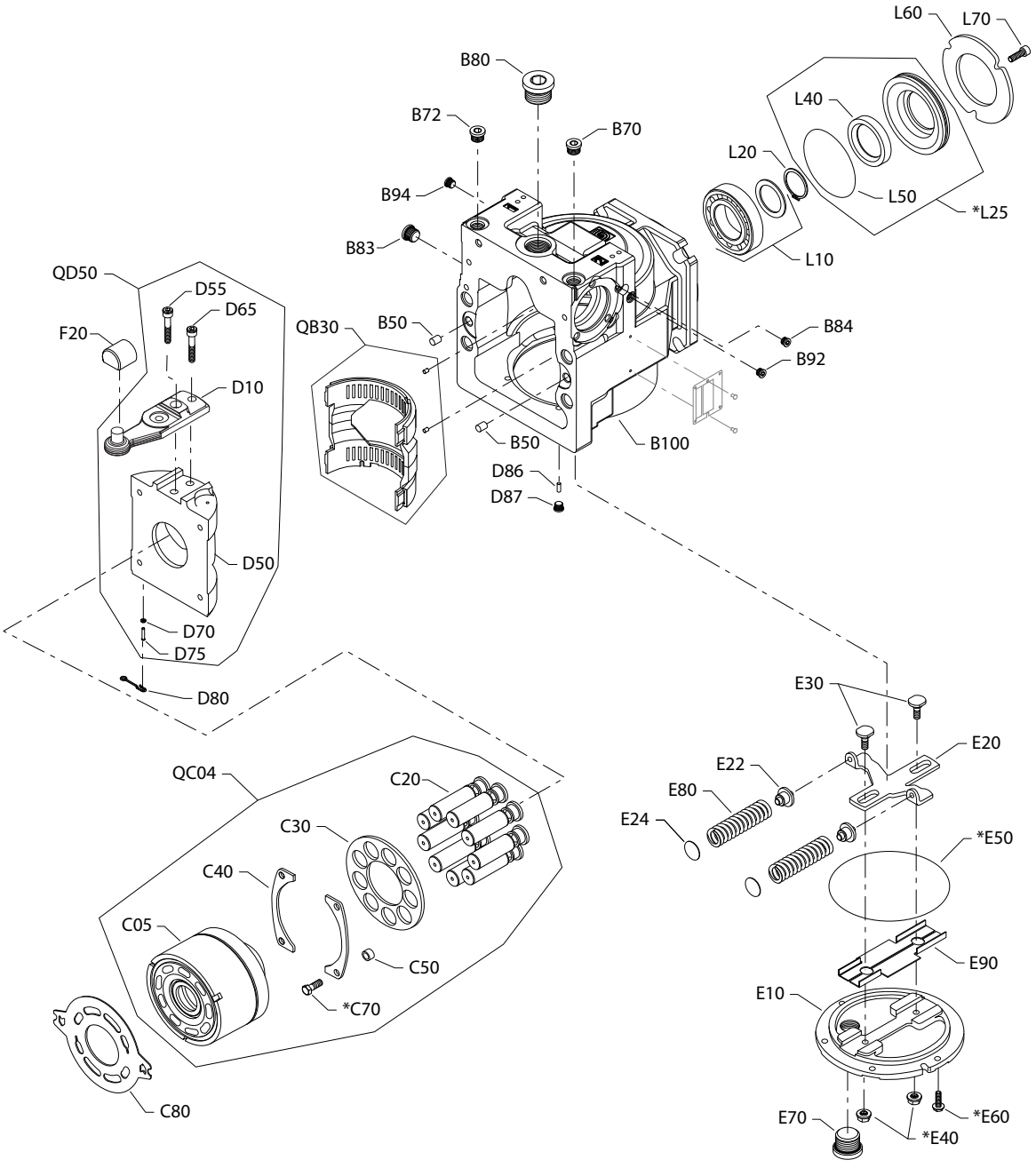
*Order code: GBT*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 98-02 | | 140644 | Plug assembly | 1 |
| C05 | 98-02 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 98-02 | | 518805 | Valve plate | 1 |
| QC04 | 98-02 | | 8510365 | Cylinder block kit | 1 |

## Common parts and special hardware

### S90P 75cc special hardware GBU

*Parts configuration*




* Included in base pump seal kit Q210

## Common parts and special hardware

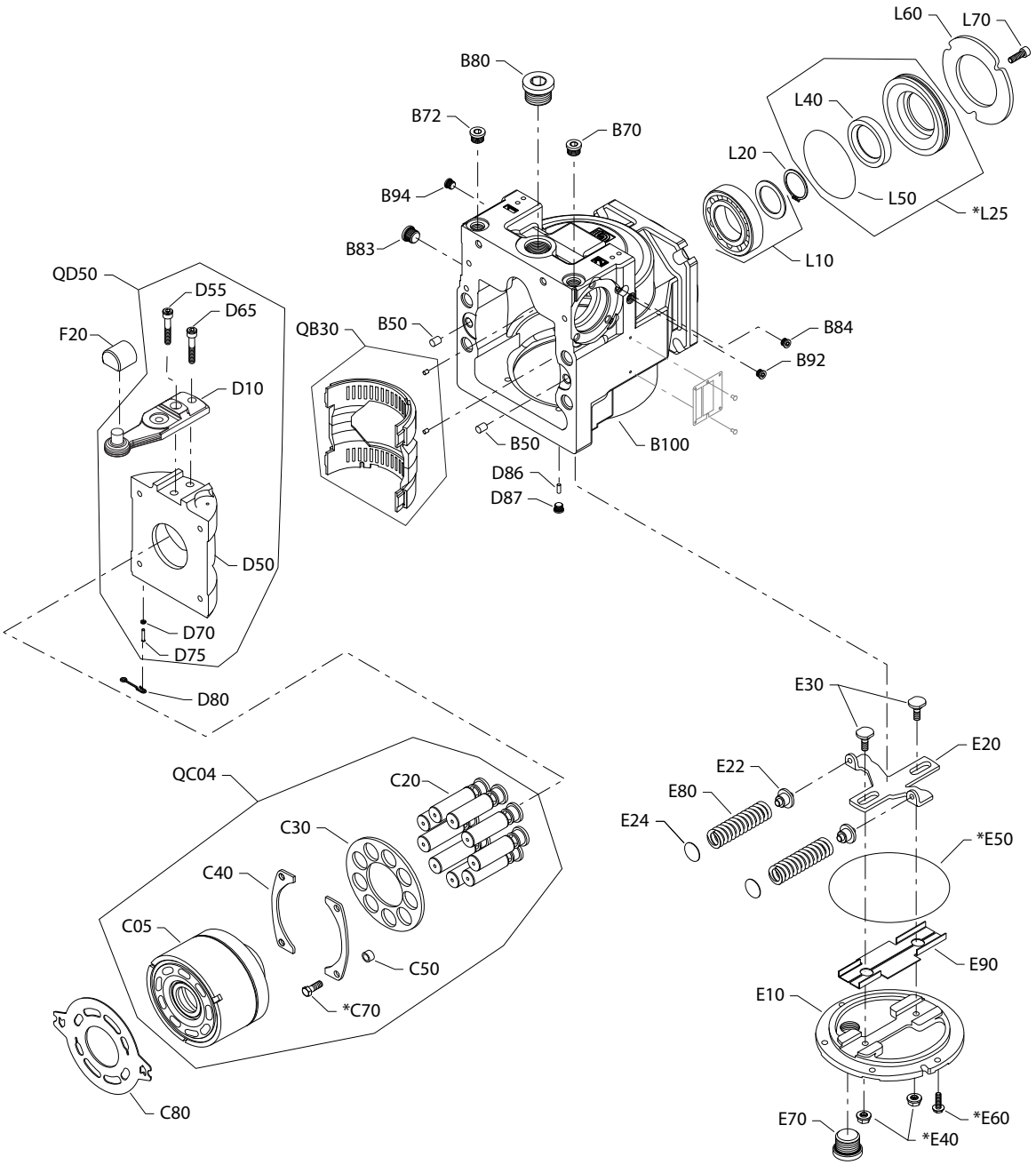
*Order code: GBU*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| B50 | 06-18 | | 9004800-3708 | Pin | 2 |
| B70 | 06-18 | | 140644 | Plug assembly | 1 |
| B72 | 06-18 | | 140644 | Plug assembly | 1 |
| B80 | 06-18 | | 664524 (9005110-9000) | Plug assembly | 1 |
| B83 | 06-18 | | 140644 | Plug assembly | 1 |
| B84 | 06-18 | | 11040532 | Plug assembly | 1 |
| B92 | 06-18 | | 11040532 | Plug assembly | 1 |
| B94 | 06-18 | | 11040532 | Plug assembly | 1 |
| B100 | 06-18 | | 11117294 | Housing assembly | 1 |
| C05 | 06-18 | | 11025822 | Cylinder block assembly | 1 |
| C20 | 06-18 | | 708230 | Piston assembly | 9 |
| C30 | 06-18 | | 11067350 | Slipper guide | 1 |
| C40 | 06-18 | | 334391 (8100294) | Slipper guide bearing | 2 |
| C50 | 06-18 | | 11065865 | Spacer | 4 |
| C70 | 06-18 | | 314419 (9007276-0114) | Screw | 4 |
| C80 | 06-18 | | 518805 | Valve plate | 1 |
| D10 | 06-18 | | 519046 | Servo arm | 1 |
| D50 | 06-18 | | 11104315 | Swashplate | 1 |
| D55 | 06-18 | | 519150 | Screw | 1 |
| D70 | 06-18 | | 9009625-0146 | Washer | 1 |
| D75 | 06-18 | | 9004875-0098 | Spiral head pin | 1 |
| D80 | 06-18 | | 693929 (8100506) | Cage locator link | 1 |
| D86 | 06-18 | | 9004800-1908 | Pin | 1 |
| D87 | 06-18 | | 11040532 | Plug assembly | 1 |
| E10 | 06-18 | | 11001286 | Side cover | 1 |
| E20 | 06-18 | | 11042018 | Leveler | 1 |
| E22 | 06-18 | | 517935 | Spring seat | 2 |
| E24 | 06-18 | | 8801225 | Shim | 2 |
| E30 | 06-18 | | 11056531 | Guide post | 2 |
| E40 | 06-18 | | 505412 (9003509-0008) | Seal nut | 2 |
| E50 | 06-18 | | 517377 | O-ring | 1 |
| E60 | 06-18 | | 517228 (5000206) | Screw | 6 |
| E70 | 06-18 | | 664524 (9005110-9000) | Plug assembly | 1 |
| E80 | 06-18 | | 334987 | Spring | 2 |
| E90 | 06-18 | | 513888 | Insert assembly | 1 |
| F20 | 06-18 | | 11116313 | Slider block | 1 |

Part numbers continue to the next 2 pages.

## Common parts and special hardware

*Parts configuration*




* Included in base pump seal kit Q210

## Common parts and special hardware

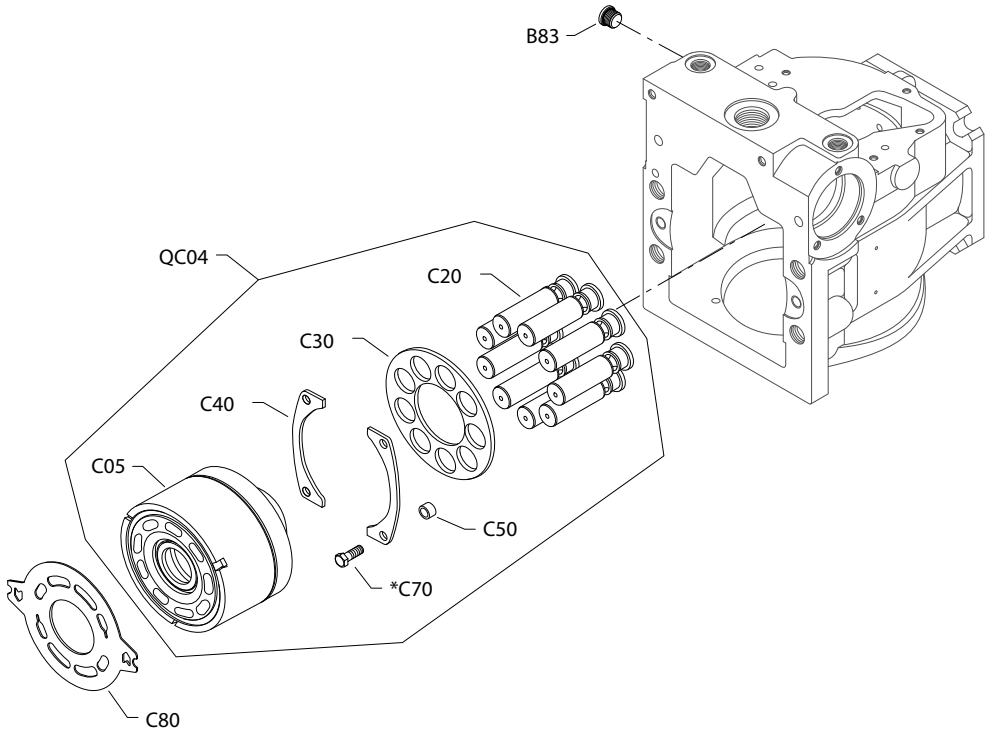
*Order code: GBU*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| L10 | 06-18 | | 5000505 | Roller bearing | 1 |
| L20 | 06-18 | | 9006300-0156 | Retaining ring | 1 |
| L25 | 06-18 | | 519671 | Seal carrier assembly | 1 |
| L40 | 06-18 | | 519666 | Lip seal (*SB-2005-007* on page 348) | 1 |
| L50 | 06-18 | | 684621 (9004104-1530) | O-ring | 1 |
| L60 | 06-18 | | 516767 | Retainer plate | 1 |
| L70 | 06-18 | | 041160 (9007314-0605) | Screw | 3 |
| QB30 | 06-18 | | 11131108 | Cradle bearing assembly | 1 |
| QC04 | 06-18 | | 8510365 | Cylinder block kit | 1 |
| QD50 | 06-18 | | 11192313 | Swashplate assembly (*SB-2017-033* on page 361) | 1 |

## Common parts and special hardware

### S90P 75cc special hardware GBX-GCP

*Parts configuration*




* Included in base pump seal kit Q210

## Common parts and special hardware

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| C20 | 87-02 | | 708230 | Piston assembly | 9 |
| C30 | 87-02 | | 11067350 | Slipper guide | 1 |
| C40 | 88-22 | | 334391 (8100294) | Slipper guide bearing | 2 |
| C50 | 88-22 | | 11065865 | Spacer | 4 |
| C70 | 88-22 | | 314419 (9007276-0114) | Screw | 4 |

*Order code: GBX*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 08-42 | | 140644 | Plug assembly | 1 |
| C05 | 08-42 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 08-42 | | 518805 | Valve plate | 1 |
| QC04 | 08-42 | | 8510365 | Cylinder block kit | 1 |

*Order code: GCA*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 98-14 | | 140644 | Plug assembly | 1 |
| C05 | 98-14 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 98-14 | | 518008 | Valve plate | 1 |
| QC04 | 98-14 | | 8510365 | Cylinder block kit | 1 |

*Order code: GCB*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 98-14 | | 140644 | Plug assembly | 1 |
| C05 | 98-14 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 98-14 | | 518008 | Valve plate | 1 |
| QC04 | 98-14 | | 8510365 | Cylinder block kit | 1 |

*Order code: GCC*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 98-06 | | 140644 | Plug assembly | 1 |
| C05 | 98-06 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 98-06 | | 518008 | Valve plate | 1 |
| QC04 | 98-06 | | 8510365 | Cylinder block kit | 1 |

*Order code: GCJ*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 14-20 | | 140644 | Plug assembly | 1 |
| C05 | 14-20 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 14-20 | | 518805 | Valve plate | 1 |
| QC04 | 14-20 | | 8510365 | Cylinder block kit | 1 |

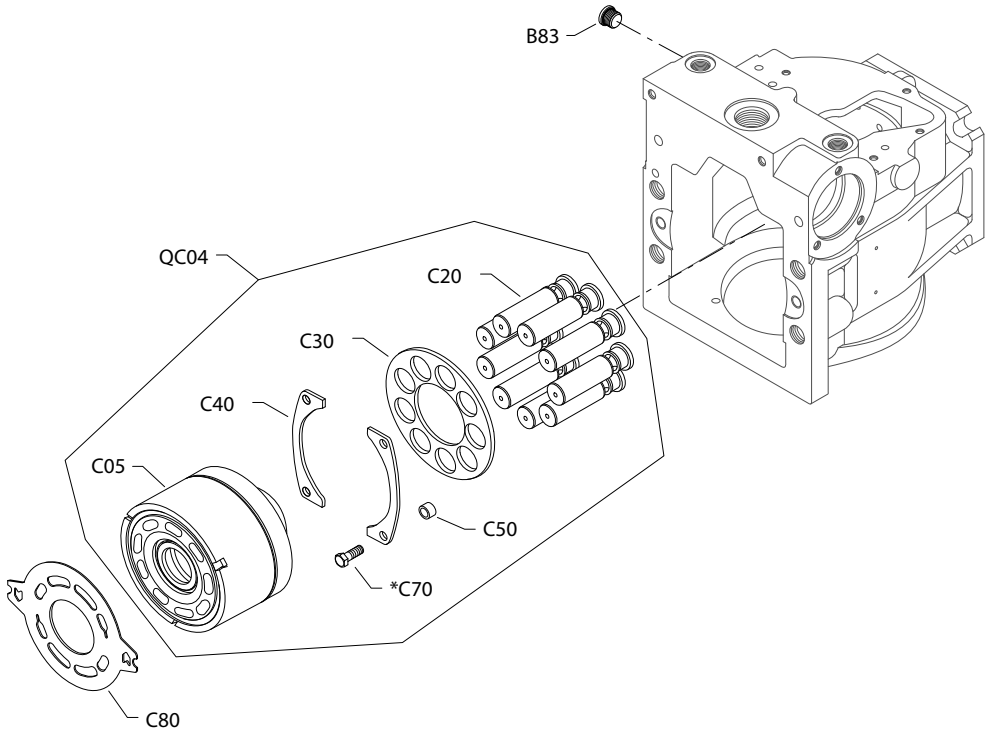
*Order code: GCP*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 98-06 | | 140644 | Plug assembly | 1 |
| C05 | 98-06 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 98-06 | | 518008 | Valve plate | 1 |
| QC04 | 98-06 | | 8510365 | Cylinder block kit | 1 |

## Common parts and special hardware

### S90P 75cc special hardware GCR-GCU

*Parts configuration*




* Included in base pump seal kit Q210

## Common parts and special hardware

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| C20 | 87-02 | | 708230 | Piston assembly | 9 |
| C30 | 87-02 | | 11067350 | Slipper guide | 1 |
| C40 | 88-22 | | 334391 (8100294) | Slipper guide bearing | 2 |
| C50 | 88-22 | | 11065865 | Spacer | 4 |
| C70 | 88-22 | | 314419 (9007276-0114) | Screw | 4 |

*Order code: GCR*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 98-06 | | 140644 | Plug assembly | 1 |
| C05 | 98-06 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 98-06 | | 518805 | Valve plate | 1 |
| QC04 | 98-06 | | 8510365 | Cylinder block kit | 1 |

*Order code: GCS*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 98-06 | | 140644 | Plug assembly | 1 |
| C05 | 98-06 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 98-06 | | 518008 | Valve plate | 1 |
| QC04 | 98-06 | | 8510365 | Cylinder block kit | 1 |

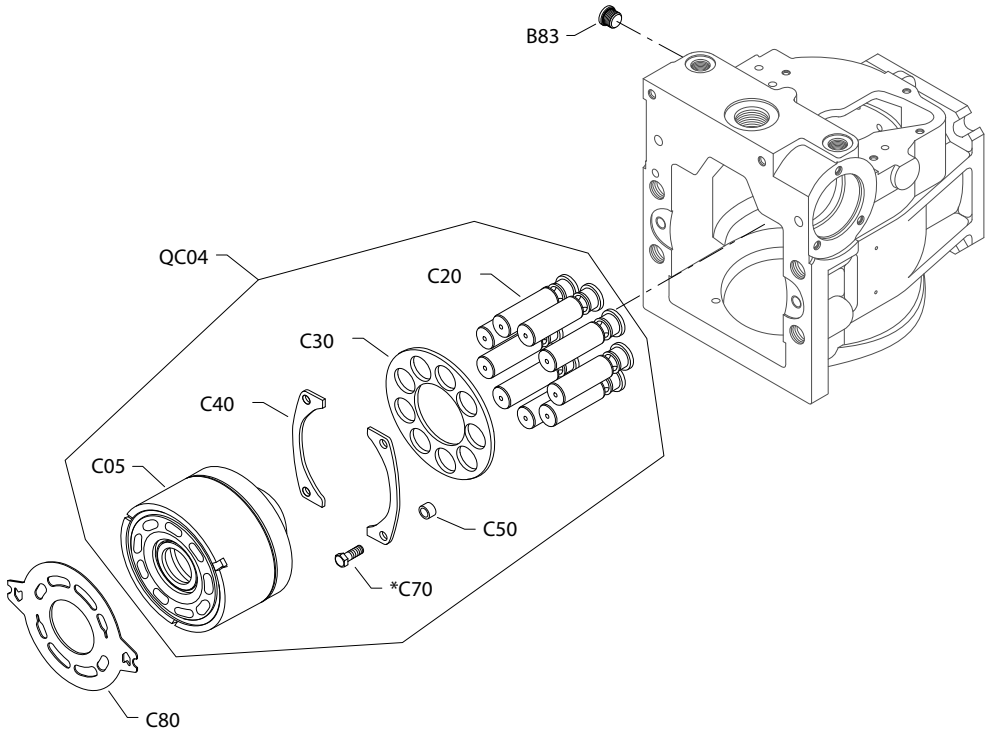
*Order code: GCU*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 98-06 | | 140644 | Plug assembly | 1 |
| C05 | 98-06 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 98-06 | | 518008 | Valve plate | 1 |
| QC04 | 98-06 | | 8510365 | Cylinder block kit | 1 |

## Common parts and special hardware

### S90P 75cc special hardware GDE-GFP

*Parts configuration*




* Included in base pump seal kit Q210

## Common parts and special hardware

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| C20 | 87-02 | | 708230 | Piston assembly | 9 |
| C30 | 87-02 | | 11067350 | Slipper guide | 1 |
| C40 | 88-22 | | 334391 (8100294) | Slipper guide bearing | 2 |
| C50 | 88-22 | | 11065865 | Spacer | 4 |
| C70 | 88-22 | | 314419 (9007276-0114) | Screw | 4 |

*Order code: GDE*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 06-12 | | 140644 | Plug assembly | 1 |
| C05 | 06-12 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 06-12 | | 518805 | Valve plate | 1 |
| QC04 | 06-12 | | 8510365 | Cylinder block kit | 1 |

*Order code: GFD*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 06-12 | | 140644 | Plug assembly | 1 |
| C05 | 06-12 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 06-12 | | 518805 | Valve plate | 1 |
| QC04 | 06-12 | | 8510365 | Cylinder block kit | 1 |

*Order code: GFH*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 06-12 | | 140644 | Plug assembly | 1 |
| C05 | 06-12 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 06-12 | | 518805 | Valve plate | 1 |
| QC04 | 06-12 | | 8510365 | Cylinder block kit | 1 |

*Order code: GFJ*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 06-12 | | 140644 | Plug assembly | 1 |
| C05 | 06-12 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 06-12 | | 518805 | Valve plate | 1 |
| QC04 | 06-12 | | 8510365 | Cylinder block kit | 1 |

*Order code: GFK*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 06-12 | | 140644 | Plug assembly | 1 |
| C05 | 06-12 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 06-12 | | 518805 | Valve plate | 1 |
| QC04 | 06-12 | | 8510365 | Cylinder block kit | 1 |

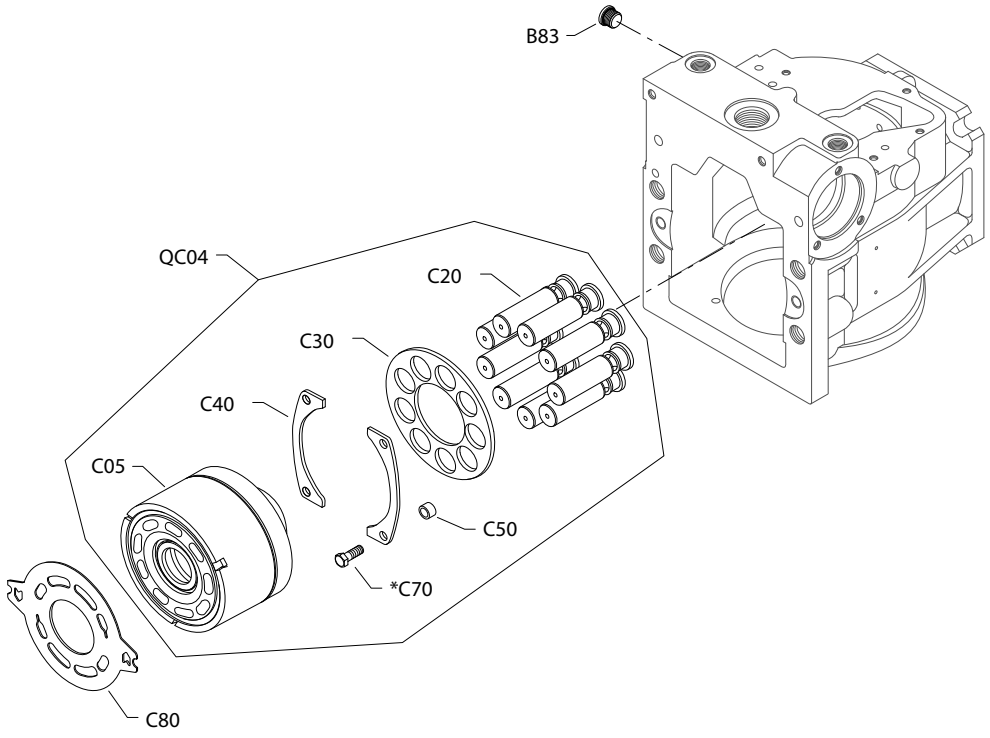
*Order code: GFP*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 06-12 | | 140644 | Plug assembly | 1 |
| C05 | 06-12 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 06-12 | | 518925 | Valve plate, CW | 1 |
| QC04 | 06-12 | | 8510365 | Cylinder block kit | 1 |

## Common parts and special hardware

### S90P 75cc special hardware GFS-GFZ

*Parts configuration*




* Included in base pump seal kit Q210

## Common parts and special hardware

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| C20 | 87-02 | | 708230 | Piston assembly | 9 |
| C30 | 87-02 | | 11067350 | Slipper guide | 1 |
| C40 | 88-22 | | 334391 (8100294) | Slipper guide bearing | 2 |
| C50 | 88-22 | | 11065865 | Spacer | 4 |
| C70 | 88-22 | | 314419 (9007276-0114) | Screw | 4 |

*Order code: GFS*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 06-12 | | 140644 | Plug assembly | 1 |
| C05 | 06-12 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 06-12 | | 518805 | Valve plate | 1 |
| QC04 | 06-12 | | 8510365 | Cylinder block kit | 1 |

*Order code: GFW*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 06-12 | | 140644 | Plug assembly | 1 |
| C05 | 06-12 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 06-12 | | 518008 | Valve plate | 1 |
| QC04 | 06-12 | | 8510365 | Cylinder block kit | 1 |

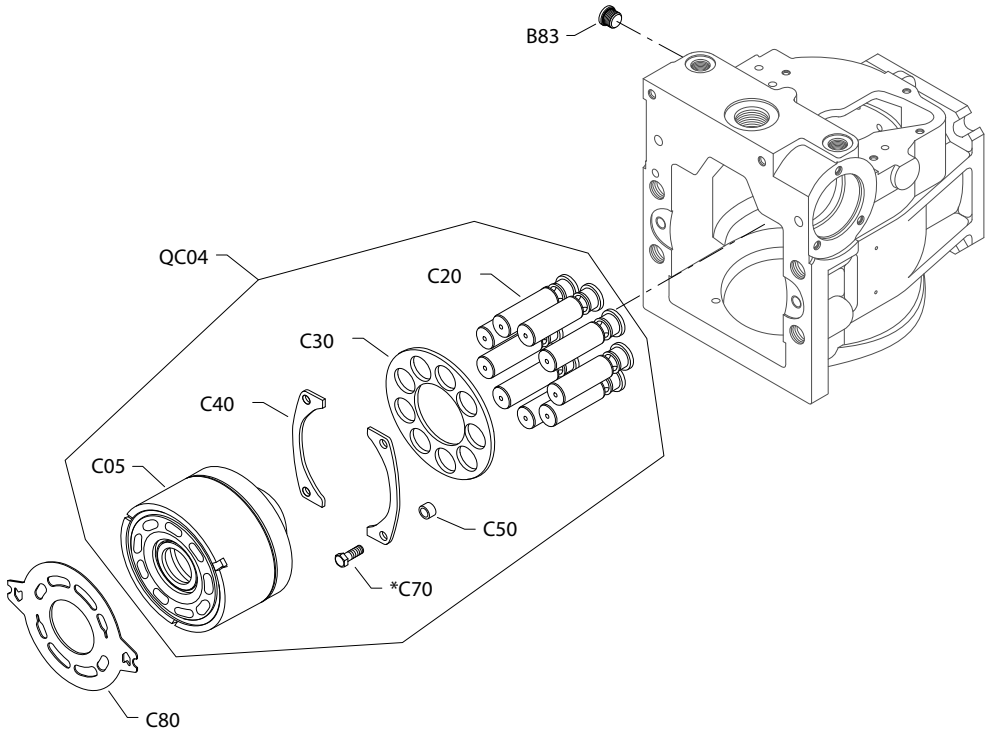
*Order code: GFZ*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 06-12 | | 140644 | Plug assembly | 1 |
| C05 | 06-12 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 06-12 | | 518805 | Valve plate | 1 |
| QC04 | 06-12 | | 8510365 | Cylinder block kit | 1 |

## Common parts and special hardware

### S90P 75cc special hardware GHT-GMA

*Parts configuration*




* Included in base pump seal kit Q210

## Common parts and special hardware

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| C20 | 87-02 | | 708230 | Piston assembly | 9 |
| C30 | 87-02 | | 11067350 | Slipper guide | 1 |
| C40 | 88-22 | | 334391 (8100294) | Slipper guide bearing | 2 |
| C50 | 88-22 | | 11065865 | Spacer | 4 |
| C70 | 88-22 | | 314419 (9007276-0114) | Screw | 4 |

*Order code: GHT*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 06-12 | | 140644 | Plug assembly | 1 |
| C05 | 06-12 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 06-12 | | 518008 | Valve plate | 1 |
| QC04 | 06-12 | | 8510365 | Cylinder block kit | 1 |

*Order code: GLA*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 98-18 | | 140644 | Plug assembly | 1 |
| C05 | 98-18 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 98-18 | | 518925 | Valve plate, CW | 1 |
| C80 | 98-18 | | 518926 | Valve plate, CCW | 1 |
| QC04 | 98-18 | | 8510365 | Cylinder block kit | 1 |

*Order code: GLS*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 98-18 | | 140644 | Plug assembly | 1 |
| C05 | 98-18 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 98-18 | | 518925 | Valve plate, CW | 1 |
| C80 | 98-18 | | 518926 | Valve plate, CCW | 1 |
| QC04 | 98-18 | | 8510365 | Cylinder block kit | 1 |

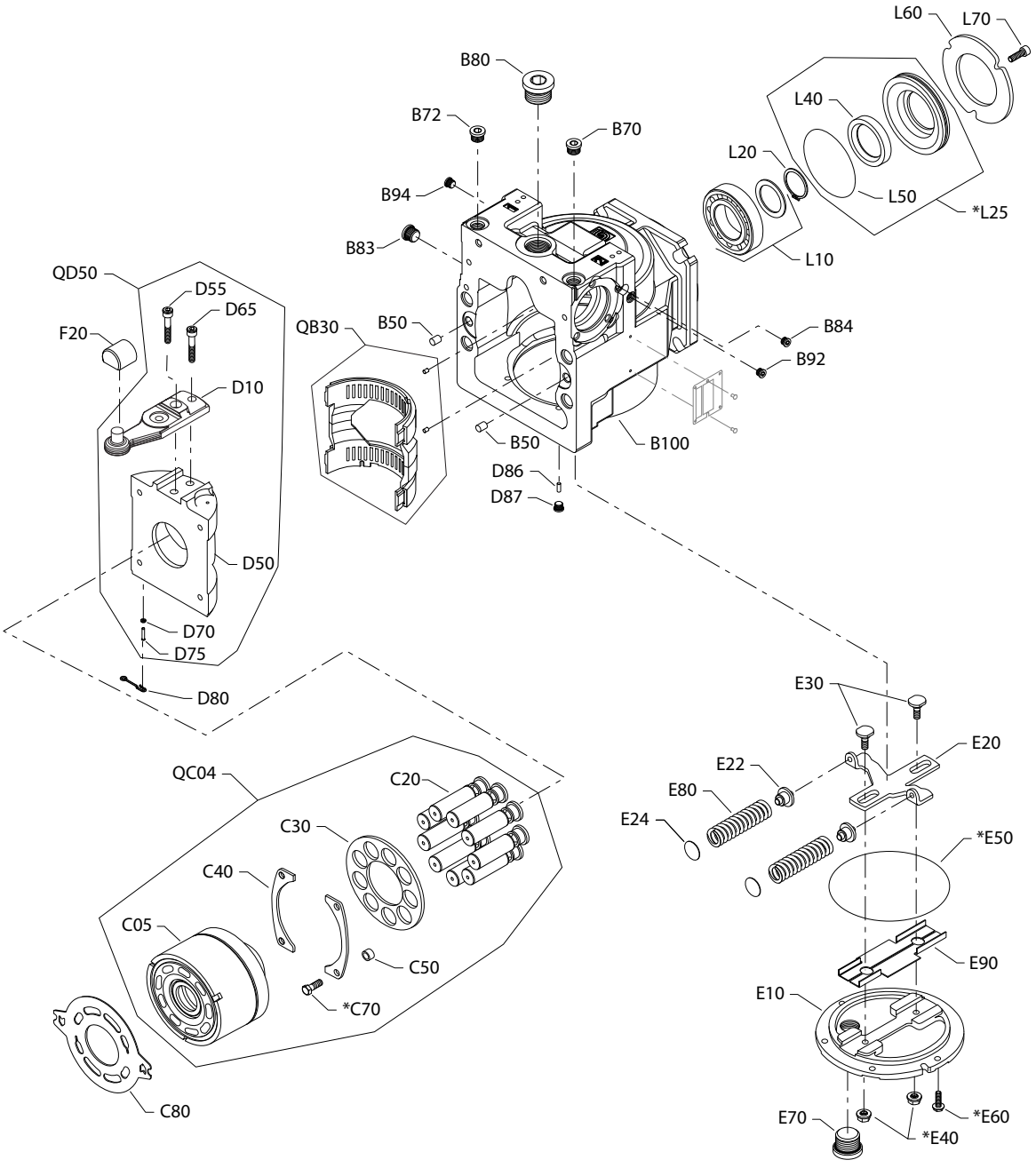
*Order code: GMA*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 97-41 | | 140644 | Plug assembly | 1 |
| C05 | 97-41 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 97-41 | | 518007 | Valve plate | 1 |
| QC04 | 97-41 | | 8510365 | Cylinder block kit | 1 |

## Common parts and special hardware

### S90P 75cc special hardware GMC

*Parts configuration*




* Included in base pump seal kit Q210

## Common parts and special hardware

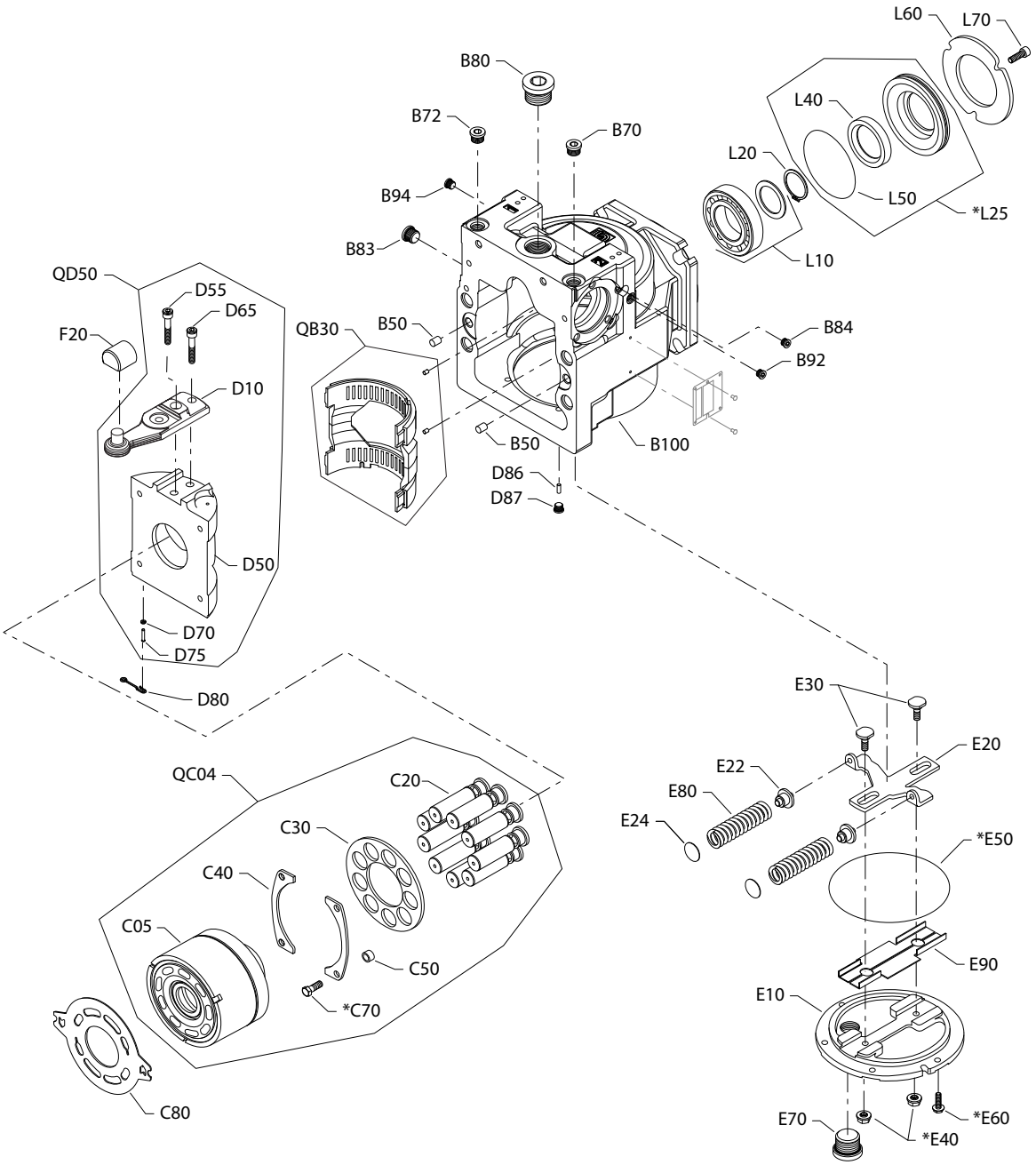
*Order code: GMC*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| B50 | 03-48 | | 9004800-3708 | Pin | 2 |
| B70 | 03-48 | | 140644 | Plug assembly | 1 |
| B72 | 03-48 | | 140644 | Plug assembly | 1 |
| B80 | 03-48 | | 664524 (9005110-9000) | Plug assembly | 1 |
| B83 | 03-48 | | 140644 | Plug assembly | 1 |
| B84 | 03-48 | | 11040532 | Plug assembly | 1 |
| B92 | 03-48 | | 11040532 | Plug assembly | 1 |
| B94 | 03-48 | | 11040532 | Plug assembly | 1 |
| B100 | 03-48 | | 11117294 | Housing assembly | 1 |
| C05 | 03-48 | | 11025822 | Cylinder block assembly | 1 |
| C20 | 03-48 | | 708230 | Piston assembly | 9 |
| C30 | 03-48 | | 11067350 | Slipper guide | 1 |
| C40 | 03-48 | | 334391 (8100294) | Slipper guide bearing | 2 |
| C50 | 03-48 | | 11065865 | Spacer | 4 |
| C70 | 03-48 | | 314419 (9007276-0114) | Screw | 4 |
| C80 | 03-48 | | 518007 | Valve plate | 1 |
| D10 | 03-48 | | 519046 | Servo arm | 1 |
| D50 | 03-48 | | 11104315 | Swashplate | 1 |
| D55 | 03-48 | | 519150 | Screw | 1 |
| D70 | 03-48 | | 9009625-0146 | Washer | 1 |
| D75 | 03-48 | | 9004875-0098 | Spiral head pin | 1 |
| D80 | 03-48 | | 693929 (8100506) | Cage locator link | 1 |
| D86 | 03-48 | | 9004800-1908 | Pin | 1 |
| D87 | 03-48 | | 11040532 | Plug assembly | 1 |
| E10 | 03-48 | | 11001286 | Side cover | 1 |
| E20 | 03-48 | | 11042018 | Leveler | 1 |
| E22 | 03-48 | | 517935 | Spring seat | 2 |
| E24 | 03-48 | | 8801225 | Shim | 2 |
| E30 | 03-48 | | 11056531 | Guide post | 2 |
| E40 | 03-48 | | 505412 (9003509-0008) | Seal nut | 2 |
| E50 | 03-48 | | 517377 | O-ring | 1 |
| E60 | 03-48 | | 517228 (5000206) | Screw | 6 |
| E70 | 03-48 | | 664524 (9005110-9000) | Plug assembly | 1 |
| E80 | 03-48 | | 334987 | Spring | 2 |
| E90 | 03-48 | | 513888 | Insert assembly | 1 |
| F20 | 03-48 | | 11116313 | Slider block | 1 |

Part numbers continue to the next 2 pages.

## Common parts and special hardware

*Parts configuration*




* Included in base pump seal kit Q210

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| L10 | 03-48 | | 5000505 | Roller bearing | 1 |
| L20 | 03-48 | | 9006300-0156 | Retaining ring | 1 |

## Common parts and special hardware

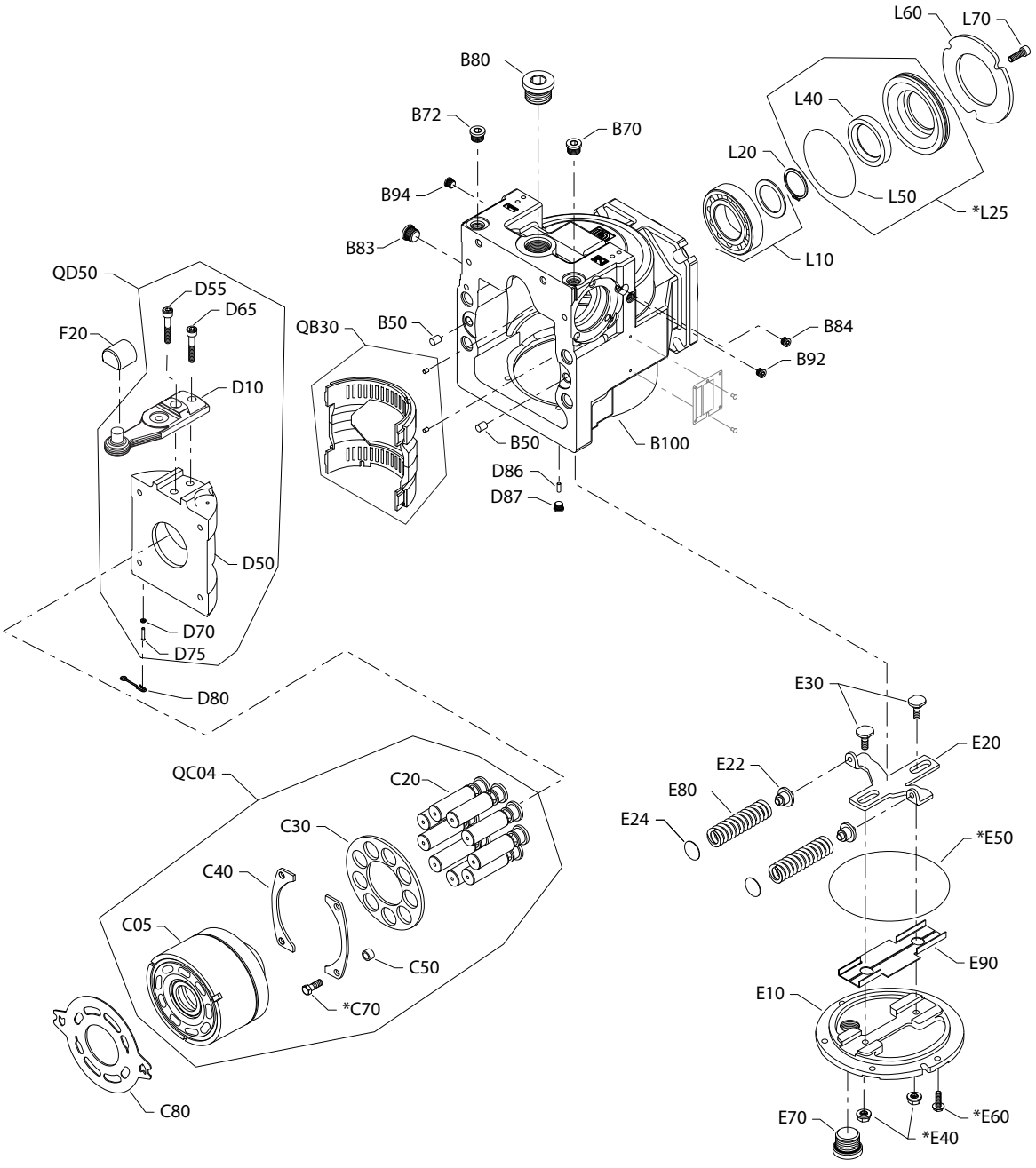
*(continued)*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| L25 | 03-48 | | 519671 | Seal carrier assembly | 1 |
| L40 | 03-48 | | 519666 | Lip seal (*SB-2005-007* on page 348) | 1 |
| L50 | 03-48 | | 684621 (9004104-1530) | O-ring | 1 |
| L60 | 03-48 | | 516767 | Retainer plate | 1 |
| L70 | 03-48 | | 041160 (9007314-0605) | Screw | 3 |
| QB30 | 03-48 | | 11131108 | Cradle bearing assembly | 1 |
| QC04 | 03-48 | | 8510365 | Cylinder block kit | 1 |
| QD50 | 03-48 | | 11192313 | Swashplate assembly (*SB-2017-033* on page 361) | 1 |

## Common parts and special hardware

### S90P 75cc special hardware GMD

*Parts configuration*




* Included in base pump seal kit Q210

## Common parts and special hardware

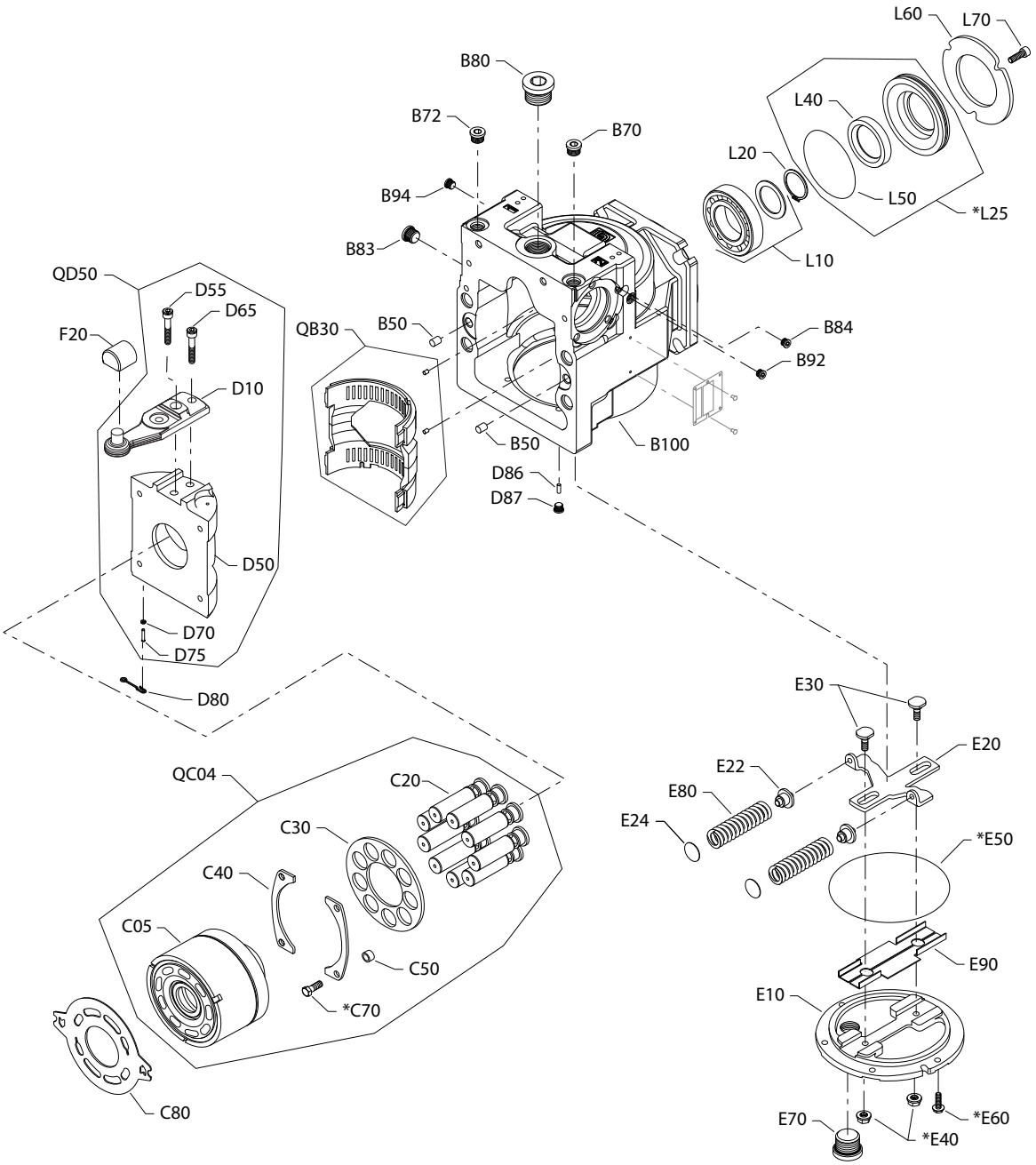
*Order code: GMD*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| B50 | 03-48 | | 9004800-3708 | Pin | 2 |
| B70 | 03-48 | | 140644 | Plug assembly | 1 |
| B72 | 03-48 | | 140644 | Plug assembly | 1 |
| B80 | 03-48 | | 664524 (9005110-9000) | Plug assembly | 1 |
| B83 | 03-48 | | 140644 | Plug assembly | 1 |
| B84 | 03-48 | | 11040532 | Plug assembly | 1 |
| B92 | 03-48 | | 11040532 | Plug assembly | 1 |
| B94 | 03-48 | | 11040532 | Plug assembly | 1 |
| B100 | 03-48 | | 11117294 | Housing assembly | 1 |
| C05 | 03-48 | | 11025822 | Cylinder block assembly | 1 |
| C20 | 03-48 | | 708230 | Piston assembly | 9 |
| C30 | 03-48 | | 11067350 | Slipper guide | 1 |
| C40 | 03-48 | | 334391 (8100294) | Slipper guide bearing | 2 |
| C50 | 03-48 | | 11065865 | Spacer | 4 |
| C70 | 03-48 | | 314419 (9007276-0114) | Screw | 4 |
| C80 | 03-48 | | 518925 | Valve plate, CW | 1 |
| D10 | 03-48 | | 519046 | Servo arm | 1 |
| D50 | 03-48 | | 11104315 | Swashplate | 1 |
| D55 | 03-48 | | 519150 | Screw | 1 |
| D70 | 03-48 | | 9009625-0146 | Washer | 1 |
| D75 | 03-48 | | 9004875-0098 | Spiral head pin | 1 |
| D80 | 03-48 | | 693929 (8100506) | Cage locator link | 1 |
| D86 | 03-48 | | 9004800-1908 | Pin | 1 |
| D87 | 03-48 | | 11040532 | Plug assembly | 1 |
| E10 | 03-48 | | 11001286 | Side cover | 1 |
| E20 | 03-48 | | 11042018 | Leveler | 1 |
| E22 | 03-48 | | 517935 | Spring seat | 2 |
| E24 | 03-48 | | 8801225 | Shim | 2 |
| E30 | 03-48 | | 11056531 | Guide post | 2 |
| E40 | 03-48 | | 505412 (9003509-0008) | Seal nut | 2 |
| E50 | 03-48 | | 517377 | O-ring | 1 |
| E60 | 03-48 | | 517228 (5000206) | Screw | 6 |
| E70 | 03-48 | | 664524 (9005110-9000) | Plug assembly | 1 |
| E80 | 03-48 | | 334987 | Spring | 2 |
| E90 | 03-48 | | 513888 | Insert assembly | 1 |
| F20 | 03-48 | | 11116313 | Slider block | 1 |

Part numbers continue to the next 2 pages.

## Common parts and special hardware

*Parts configuration*




* Included in base pump seal kit Q210

## Common parts and special hardware

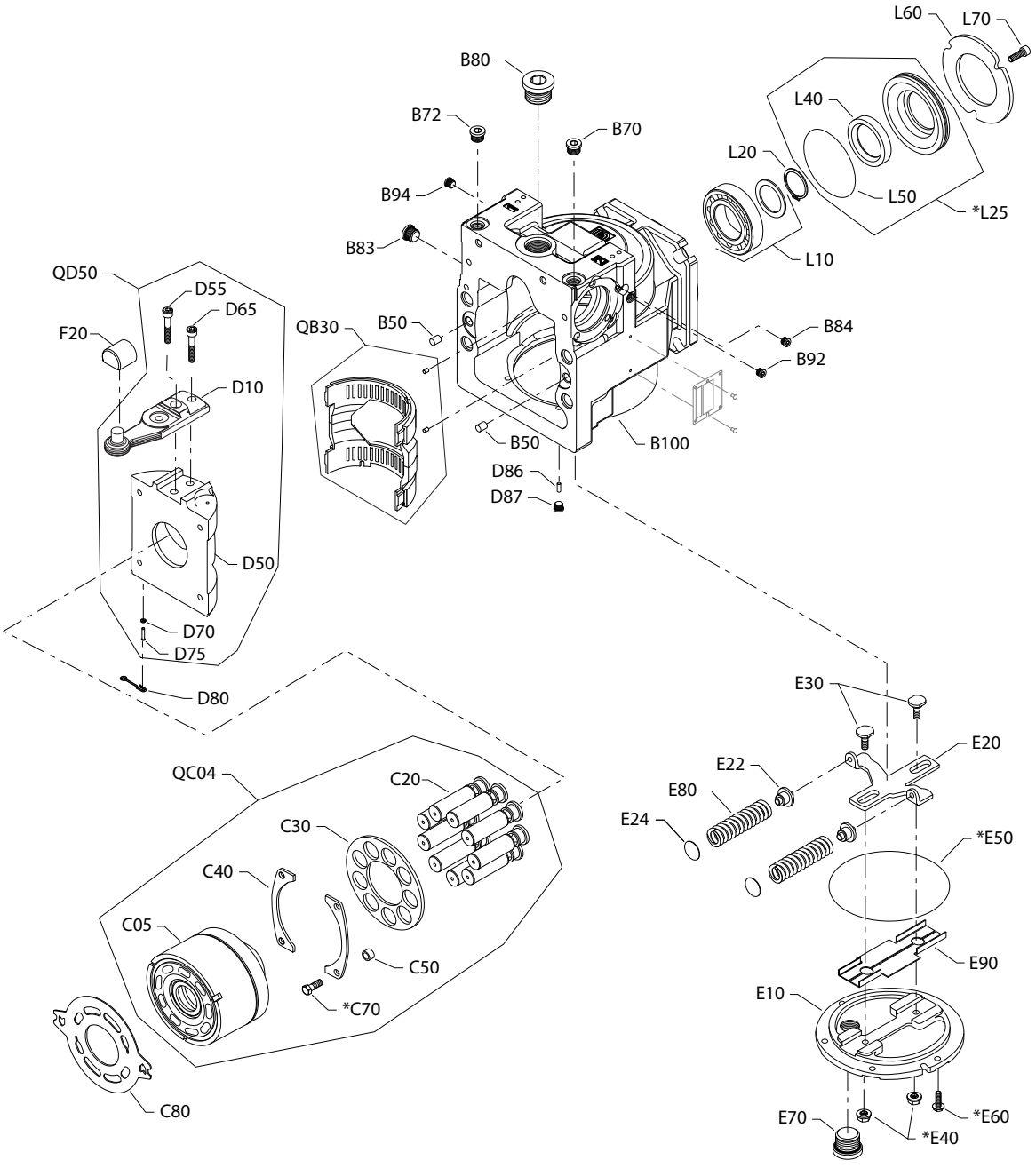
*Order code: GMD*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| L10 | 03-48 | | 5000505 | Roller bearing | 1 |
| L20 | 03-48 | | 9006300-0156 | Retaining ring | 1 |
| L25 | 03-48 | | 519671 | Seal carrier assembly | 1 |
| L40 | 03-48 | | 519666 | Lip seal (*SB-2005-007* on page 348) | 1 |
| L50 | 03-48 | | 684621 (9004104-1530) | O-ring | 1 |
| L60 | 03-48 | | 516767 | Retainer plate | 1 |
| L70 | 03-48 | | 041160 (9007314-0605) | Screw | 3 |
| QB30 | 03-48 | | 11131108 | Cradle bearing assembly | 1 |
| QC04 | 03-48 | | 8510365 | Cylinder block kit | 1 |
| QD50 | 03-48 | | 11192313 | Swashplate assembly (*SB-2017-033* on page 361) | 1 |

## Common parts and special hardware

### S90P 75cc special hardware GME

*Parts configuration*




* Included in base pump seal kit Q210

## Common parts and special hardware

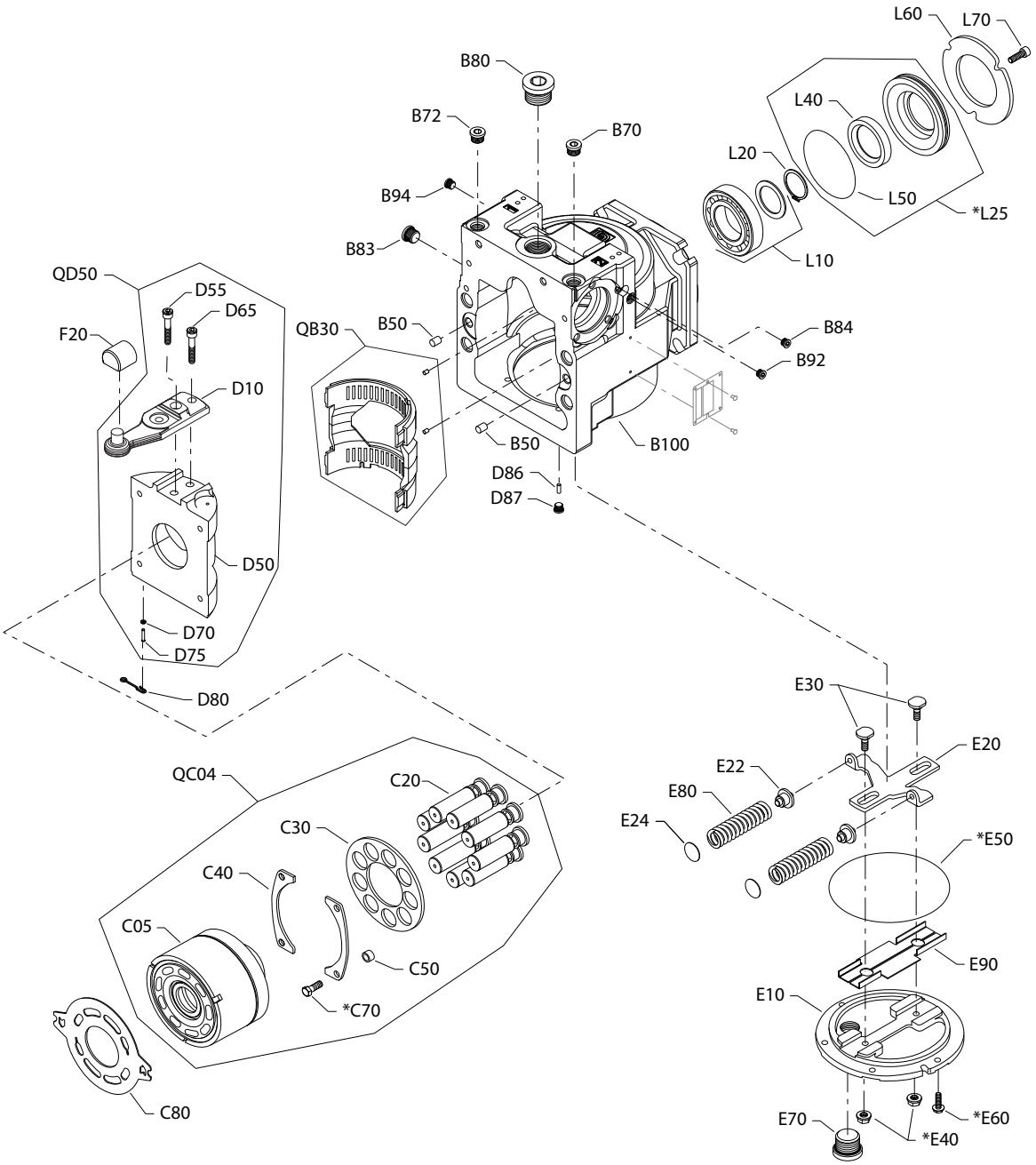
*Order code: GME*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| B50 | 03-48 | | 9004800-3708 | Pin | 2 |
| B70 | 03-48 | | 140644 | Plug assembly | 1 |
| B72 | 03-48 | | 140644 | Plug assembly | 1 |
| B80 | 03-48 | | 664524 (9005110-9000) | Plug assembly | 1 |
| B83 | 03-48 | | 140644 | Plug assembly | 1 |
| B84 | 03-48 | | 11040532 | Plug assembly | 1 |
| B92 | 03-48 | | 11040532 | Plug assembly | 1 |
| B94 | 03-48 | | 11040532 | Plug assembly | 1 |
| B100 | 03-48 | | 11117294 | Housing assembly | 1 |
| C05 | 03-48 | | 11025822 | Cylinder block assembly | 1 |
| C20 | 03-48 | | 708230 | Piston assembly | 9 |
| C30 | 03-48 | | 11067350 | Slipper guide | 1 |
| C40 | 03-48 | | 334391 (8100294) | Slipper guide bearing | 2 |
| C50 | 03-48 | | 11065865 | Spacer | 4 |
| C70 | 03-48 | | 314419 (9007276-0114) | Screw | 4 |
| C80 | 03-48 | | 518008 | Valve plate | 1 |
| D10 | 03-48 | | 519046 | Servo arm | 1 |
| D50 | 03-48 | | 11104315 | Swashplate | 1 |
| D55 | 03-48 | | 519150 | Screw | 1 |
| D70 | 03-48 | | 9009625-0146 | Washer | 1 |
| D75 | 03-48 | | 9004875-0098 | Spiral head pin | 1 |
| D80 | 03-48 | | 693929 (8100506) | Cage locator link | 1 |
| D86 | 03-48 | | 9004800-1908 | Pin | 1 |
| D87 | 03-48 | | 11040532 | Plug assembly | 1 |
| E10 | 03-48 | | 11001286 | Side cover | 1 |
| E20 | 03-48 | | 11042018 | Leveler | 1 |
| E22 | 03-48 | | 517935 | Spring seat | 2 |
| E24 | 03-48 | | 8801225 | Shim | 2 |
| E30 | 03-48 | | 11056531 | Guide post | 2 |
| E40 | 03-48 | | 505412 (9003509-0008) | Seal nut | 2 |
| E50 | 03-48 | | 517377 | O-ring | 1 |
| E60 | 03-48 | | 517228 (5000206) | Screw | 6 |
| E70 | 03-48 | | 664524 (9005110-9000) | Plug assembly | 1 |
| E80 | 03-48 | | 334987 | Spring | 2 |
| E90 | 03-48 | | 513888 | Insert assembly | 1 |
| F20 | 03-48 | | 11116313 | Slider block | 1 |

Part numbers continue to the next 2 pages.

## Common parts and special hardware

*Parts configuration*




* Included in base pump seal kit Q210

## Common parts and special hardware

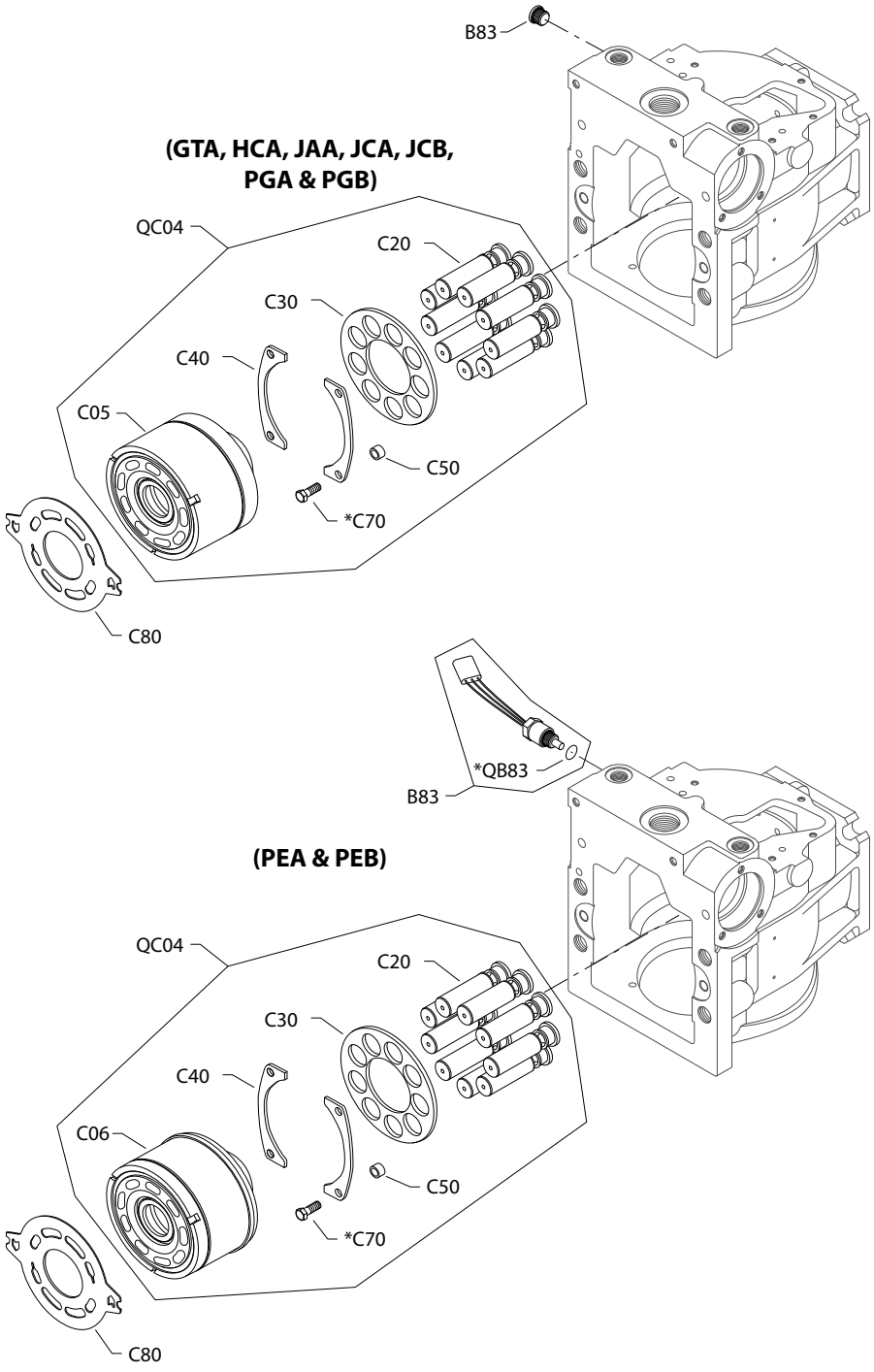
*Order code: GME*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| L10 | 03-48 | | 5000505 | Roller bearing | 1 |
| L20 | 03-48 | | 9006300-0156 | Retaining ring | 1 |
| L25 | 03-48 | | 519671 | Seal carrier assembly | 1 |
| L40 | 03-48 | | 519666 | Lip seal (*SB-2005-007* on page 348) | 1 |
| L50 | 03-48 | | 684621 (9004104-1530) | O-ring | 1 |
| L60 | 03-48 | | 516767 | Retainer plate | 1 |
| L70 | 03-48 | | 041160 (9007314-0605) | Screw | 3 |
| QB30 | 03-48 | | 11131108 | Cradle bearing assembly | 1 |
| QC04 | 03-48 | | 8510365 | Cylinder block kit | 1 |
| QD50 | 03-48 | | 11192313 | Swashplate assembly (*SB-2017-033* on page 361) | 1 |

## Common parts and special hardware

### S90P 75cc special hardware GTA-PEA

*Parts configuration*




* Included in base pump seal kit Q210

## Common parts and special hardware

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| C20 | 87-02 | | 708230 | Piston assembly | 9 |
| C30 | 87-02 | | 11067350 | Slipper guide | 1 |
| C40 | 88-22 | | 334391 (8100294) | Slipper guide bearing | 2 |
| C50 | 88-22 | | 11065865 | Spacer | 4 |
| C70 | 88-22 | | 314419 (9007276-0114) | Screw | 4 |

*Order code: GTA*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 98-18 | | 140644 | Plug assembly | 1 |
| C05 | 98-18 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 98-18 | | 518805 | Valve plate | 1 |
| QC04 | 98-18 | | 8510365 | Cylinder block kit | 1 |

*Order code: HCA*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 98-18 | | 140644 | Plug assembly | 1 |
| C05 | 98-18 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 98-18 | | 518924 | Valve plate | 1 |
| QC04 | 98-18 | | 8510365 | Cylinder block kit | 1 |

*Order code: JAA*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 97-41 | | 140644 | Plug assembly | 1 |
| C05 | 97-41 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 97-41 | | 518924 | Valve plate | 1 |
| QC04 | 97-41 | | 8510365 | Cylinder block kit | 1 |

*Order code: JCA*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 08-12 | | 140644 | Plug assembly | 1 |
| C05 | 08-12 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 08-12 | | 518805 | Valve plate | 1 |
| QC04 | 08-12 | | 8510365 | Cylinder block kit | 1 |

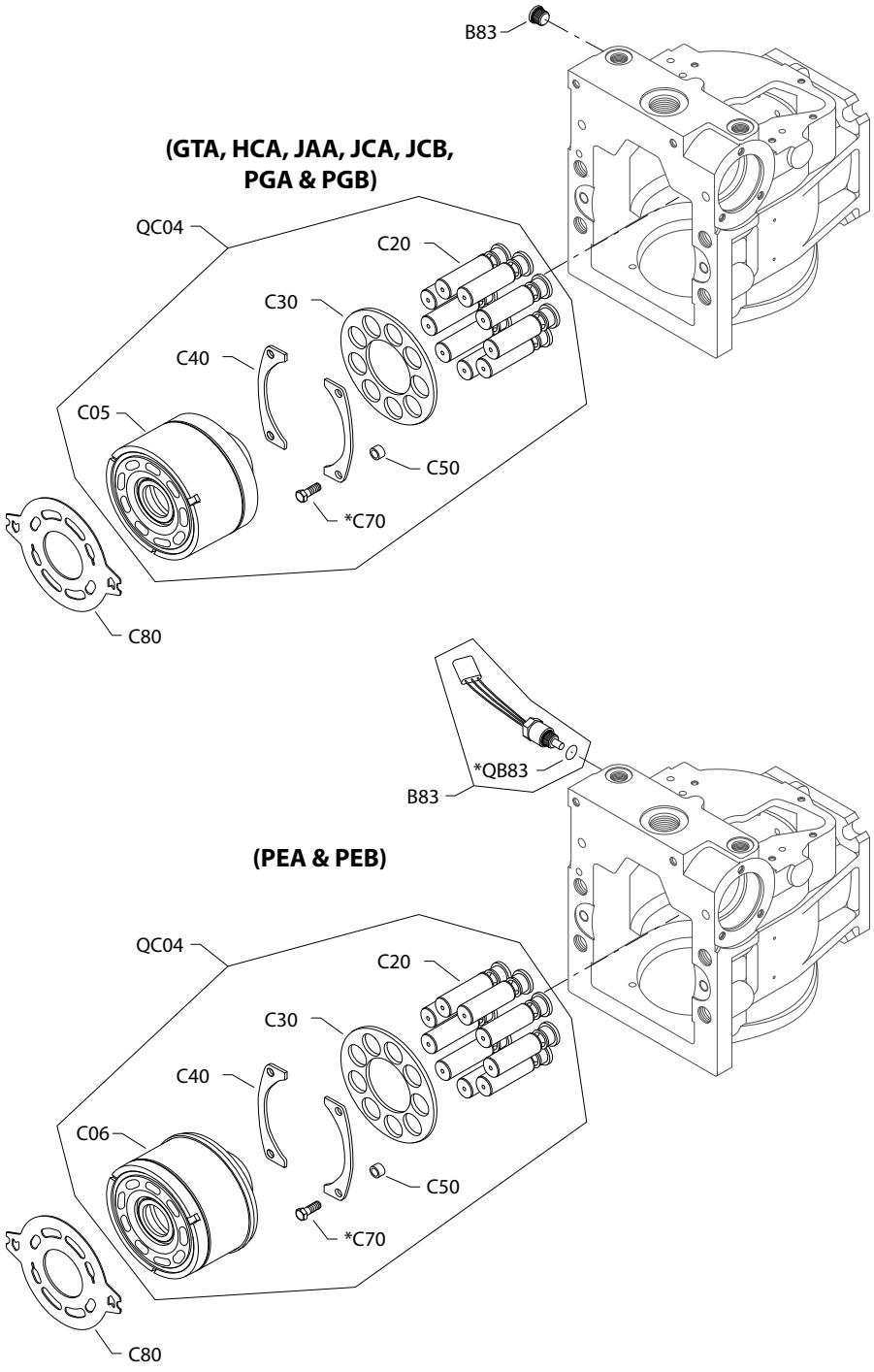
*Order code: PEA*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 07-04 | | KPPG156 | Speed sensor assembly | 1 |
| C06 | 07-04 | | 11094260 (11011714) | Cylinder block assembly with speed ring | 1 |
| C80 | 07-04 | | 518805 | Valve plate | 1 |
| QB83 | 07-04 | | 085043 (9004201-3700) | O-ring | 1 |
| QC04 | 07-04 | | 8510366 | Cylinder block kit with speed ring | 1 |

## Common parts and special hardware

### S90P 75cc special hardware PEB-PGB

*Parts configuration*




* Included in base pump seal kit Q210

## Common parts and special hardware

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| C20 | 87-02 | | 708230 | Piston assembly | 9 |
| C30 | 87-02 | | 11067350 | Slipper guide | 1 |
| C40 | 88-22 | | 334391 (8100294) | Slipper guide bearing | 2 |
| C50 | 88-22 | | 11065865 | Spacer | 4 |
| C70 | 88-22 | | 314419 (9007276-0114) | Screw | 4 |

*Order code: PEB*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 07-07 | | KPPG156 | Speed sensor assembly | 1 |
| C06 | 07-07 | | 11094260 (11011714) | Cylinder block assembly with speed ring | 1 |
| C80 | 07-07 | | 518925 | Valve plate, CW | 1 |
| C80 | 07-07 | | 518926 | Valve plate, CCW | 1 |
| QB83 | 07-07 | | 085043 (9004201-3700) | O-ring | 1 |
| QC04 | 07-07 | | 8510366 | Cylinder block kit with speed ring | 1 |

*Order code: PGA*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 07-04 | | 140644 | Plug assembly | 1 |
| C05 | 07-04 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 07-04 | | 518805 | Valve plate | 1 |
| QC04 | 07-04 | | 8510365 | Cylinder block kit | 1 |

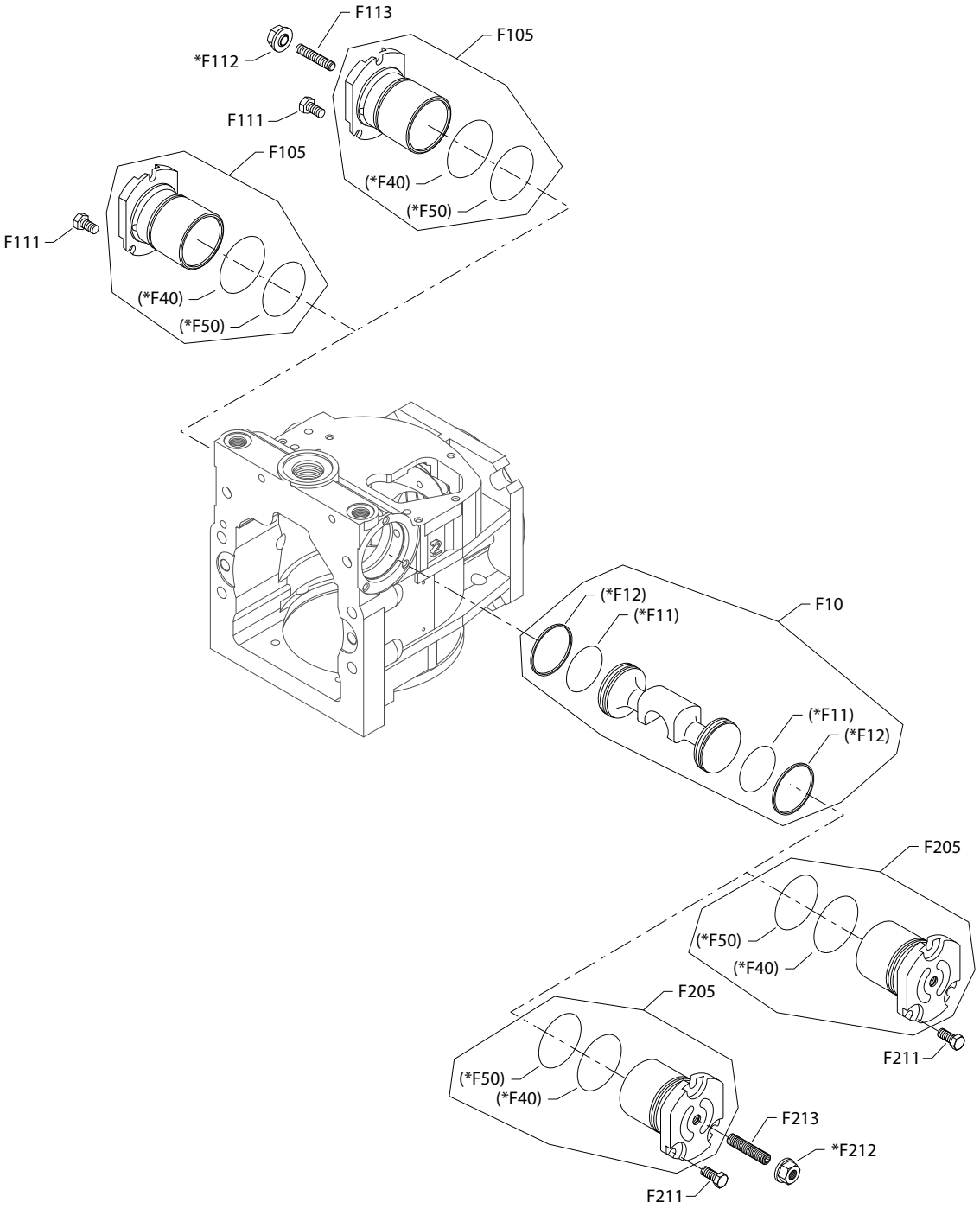
*Order code: PGB*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 07-07 | | 140644 | Plug assembly | 1 |
| C05 | 07-07 | | 11025822 | Cylinder block assembly | 1 |
| C80 | 07-07 | | 518925 | Valve plate, CW | 1 |
| C80 | 07-07 | | 518926 | Valve plate, CCW | 1 |
| QC04 | 07-07 | | 8510365 | Cylinder block kit | 1 |

## Displacement

### S90P 75cc displacement limitation 1-4

*Parts configuration*




| | |
|---|---|
| * | Included in overhaul seal kit Q210 |
| ( ) | Not available individually |

## Displacement

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| F10 | 88-16 | | 11041752 | Servo piston assembly (*SB-1988-009* on page 300 & *SB-2000-022* on page 343) | 1 |
| F111 | 87-02 | | 378083 (9007210-0804) | Screw | 3 |
| F211 | 87-02 | | 378083 (9007210-0804) | Screw | 3 |

*Order code: 1*

| | | | | | |
|---|---|---|---|---|---|
| F105 | 87-02 | | 11059759 (11055763) | Servo cylinder assembly | 1 |
| F112 | 87-02 | | 505412 (9003509-0008) | Seal nut | 1 |
| F113 | 87-02 | | 5000747 | Set screw, M8 x45mm (*SB-2000-022* on page 343) | 1 |
| F205 | 87-02 | | 11059760 (11055761) | Servo cylinder assembly | 1 |

*Order code: 2*

| | | | | | |
|---|---|---|---|---|---|
| F105 | 87-02 | | 11059760 (11055761) | Servo cylinder assembly | 1 |
| F205 | 87-02 | | 11059759 (11055763) | Servo cylinder assembly | 1 |
| F212 | 87-02 | | 505412 (9003509-0008) | Seal nut | 1 |
| F213 | 87-02 | | 5000747 | Set screw, M8 x45mm (*SB-2000-022* on page 343) | 1 |

*Order code: 3*

| | | | | | |
|---|---|---|---|---|---|
| F105 | 87-02 | | 11059760 (11055761) | Servo cylinder assembly | 1 |
| F205 | 87-02 | | 11059760 (11055761) | Servo cylinder assembly | 1 |

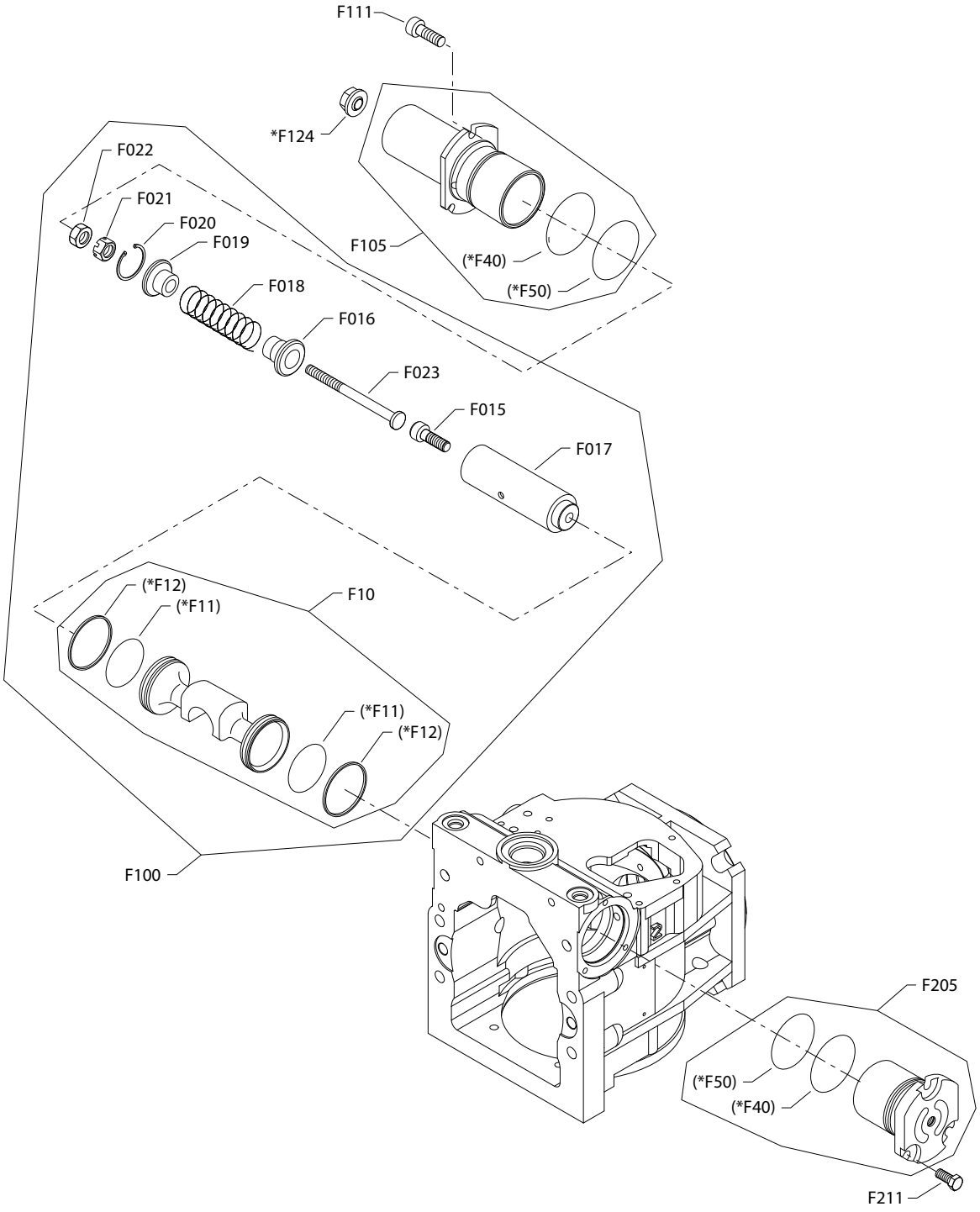
*Order code: 4*

| | | | | | |
|---|---|---|---|---|---|
| F105 | 87-02 | | 11059759 (11055763) | Servo cylinder assembly | 1 |
| F112 | 87-02 | | 505412 (9003509-0008) | Seal nut | 1 |
| F113 | 87-02 | | 5000747 | Set screw, M8 x45mm (*SB-2000-022* on page 343) | 1 |
| F205 | 87-02 | | 11059759 (11055763) | Servo cylinder assembly | 1 |
| F212 | 87-02 | | 505412 (9003509-0008) | Seal nut | 1 |
| F213 | 87-02 | | 5000747 | Set screw, M8 x45mm (*SB-2000-022* on page 343) | 1 |

## Displacement

### S90P 75cc displacement limitation 7

*Parts configuration*




* Included in base pump seal kit Q210

( ) Not available individually

## Displacement

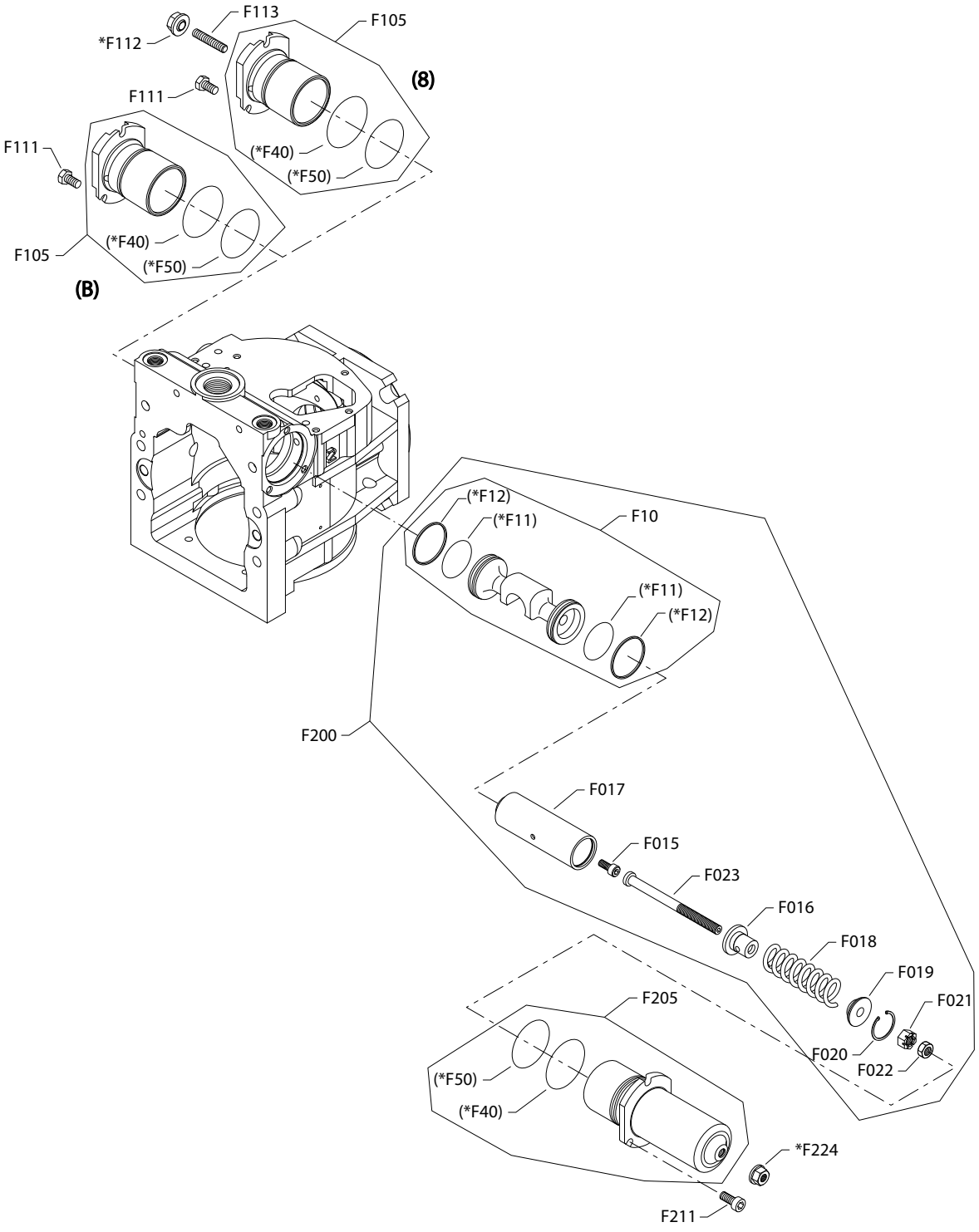
*Order code: 7*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| F10 | 98-14 | | 11041755 | Servo piston assembly | 1 |
| F015 | 98-14 | | 346395 | Screw | 1 |
| F016 | 98-14 | | 507092 | Spring guide | 1 |
| F017 | 98-14 | | 346320 | Servo spring housing | 1 |
| F018 | 98-14 | | 346254 | Spring | 1 |
| F019 | 98-14 | | 507093 | Spring guide | 1 |
| F020 | 98-14 | | 346379 | Retaining ring | 1 |
| F021 | 98-14 | | 787887 | Castle nut | 1 |
| F022 | 98-14 | | 336800 | Nut | 1 |
| F023 | 98-14 | | 11140220 | Adjusting screw | 1 |
| F100 | 98-14 | | 515310 (8100932) | Servo assembly | 1 |
| F105 | 98-14 | | 11060187 (11055767) | Servo cylinder assembly, automotive control | 1 |
| F111 | 98-14 | | 746651 (393595) | Screw | 3 |
| F124 | 98-14 | | 336826 | Seal nut | 1 |
| F205 | 98-14 | | 11059760 (11055761) | Servo cylinder assembly, non-adjustable | 1 |
| F211 | 98-14 | | 378083 (9007210-0804) | Screw | 3 |

## Displacement

### S90P 75cc displacement limitation 8, B

*Parts configuration*




* Included in overhaul seal kit Q210

( ) No available individually

## Displacement

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| F10 | 98-14 | | 11041755 | Servo piston assembly | 1 |
| F015 | 98-14 | | 346395 | Screw | 1 |
| F016 | 98-14 | | 507092 | Spring guide | 1 |
| F017 | 98-14 | | 346320 | Servo spring housing | 1 |
| F019 | 98-14 | | 507093 | Spring guide | 1 |
| F020 | 98-14 | | 346379 | Retaining ring | 1 |
| F021 | 98-14 | | 787887 | Castle nut | 1 |
| F022 | 98-14 | | 336800 | Nut | 1 |
| F023 | 98-14 | | 11140220 | Adjusting screw | 1 |
| F111 | 98-14 | | 378083 (9007210-0804) | Screw | 3 |
| F205 | 98-14 | | 11060187 (11055767) | Servo cylinder assembly | 1 |
| F211 | 98-14 | | 746651 (393595) | Screw | 3 |
| F224 | 98-14 | | 336826 | Seal nut | 1 |

*Order code: 8*

| | | | | | |
|---|---|---|---|---|---|
| F018 | 98-14 | | 346262 | Spring | 1 |
| F105 | 98-14 | | 11059759 (11055763) | Servo cylinder assembly | 1 |
| F112 | 98-14 | | 505412 (9003509-0008) | Seal nut | 1 |
| F113 | 98-14 | | 5000747 | Set screw, M8 x 45mm (*SB-2000-022* on page 343) | 1 |
| F200 | 98-14 | | 515324 (8100932) | Servo assembly | 1 |

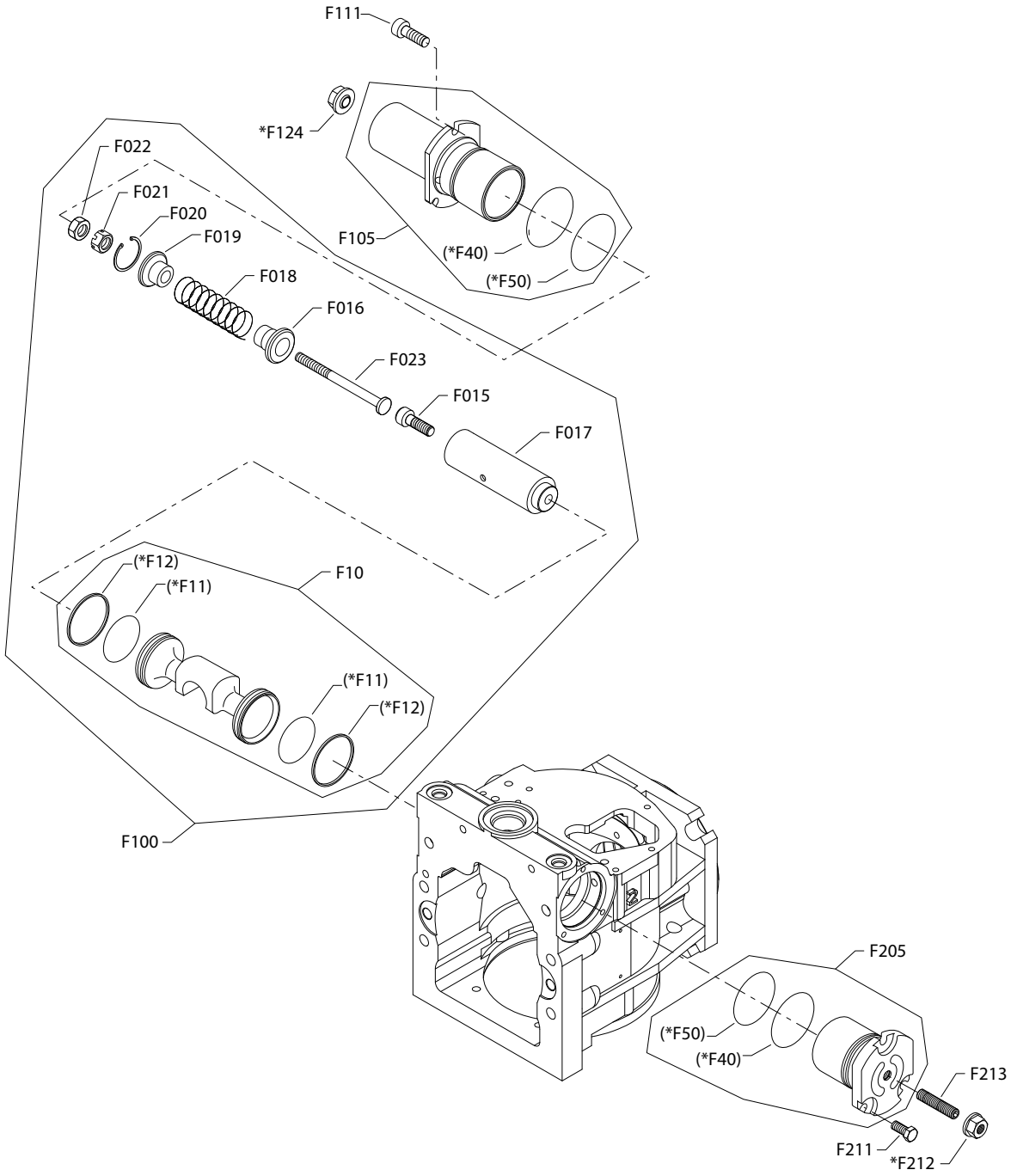
*Order code: B*

| | | | | | |
|---|---|---|---|---|---|
| F018 | 98-14 | | 346254 | Spring | 1 |
| F105 | 98-14 | | 11059760 (11055761) | Servo cylinder assembly | 1 |
| F200 | 98-14 | | 515310 (8100932) | Servo assembly | 1 |

## Displacement

### S90P 75cc displacement limitation D

*Parts configuration*




| | |
|---|---|
| * | Included in base pump seal kit Q210 |
| ( ) | Not available individually |

## Displacement

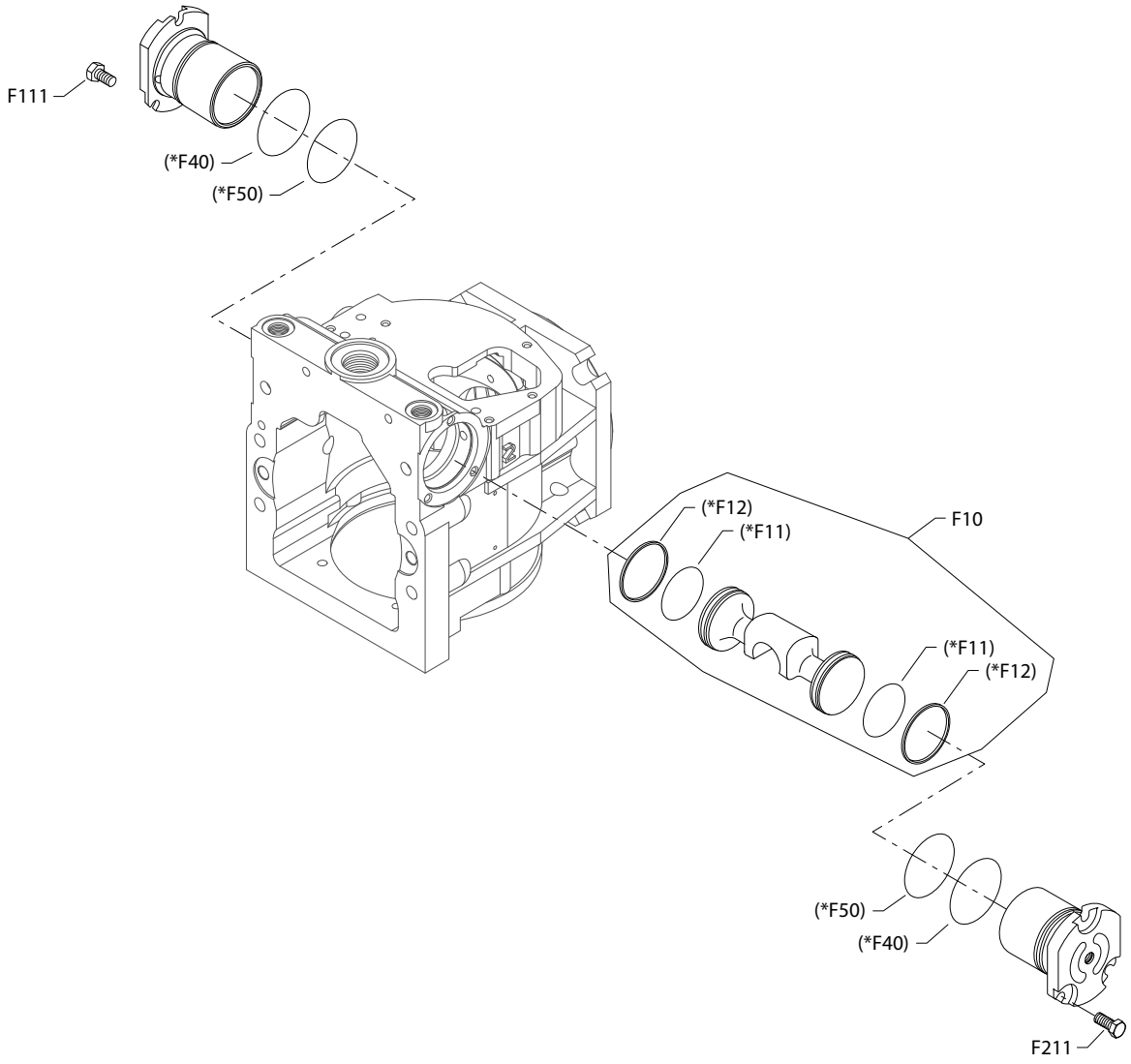
*Order code: D*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| F10 | 98-14 | | 11041755 | Servo piston assembly | 1 |
| F015 | 98-14 | | 346395 | Screw | 1 |
| F016 | 98-14 | | 507092 | Spring guide | 1 |
| F017 | 98-14 | | 346320 | Servo spring housing | 1 |
| F018 | 98-14 | | 346254 | Spring | 1 |
| F019 | 98-14 | | 507093 | Spring guide | 1 |
| F020 | 98-14 | | 346379 | Retaining ring | 1 |
| F021 | 98-14 | | 787887 | Castle nut | 1 |
| F022 | 98-14 | | 336800 | Nut | 1 |
| F023 | 98-14 | | 11140220 | Adjusting screw | 1 |
| F100 | 98-14 | | 515310 (8100932) | Servo assembly | 1 |
| F105 | 98-14 | | 11060187 (11055767) | Servo cylinder assembly, automotive control | 1 |
| F111 | 98-14 | | 746651 (393595) | Screw | 3 |
| F124 | 98-14 | | 336826 | Seal nut | 1 |
| F205 | 98-14 | | 11059759 (11055763) | Servo cylinder assembly | 1 |
| F211 | 98-14 | | 378083 (9007210-0804) | Screw | 3 |
| F212 | 98-14 | | 505412 (9003508-0008) | Seal nut | 1 |
| F213 | 98-14 | | 5000747 | Set screw (*SB-2000-022* on page 343) | 1 |

## Displacement

### S90P 75cc displacement limitation F

*Parts configuration*




| | |
|---|---|
| * | Included in overhaul seal kit Q210 |
| ( ) | Not available individually |

## Displacement

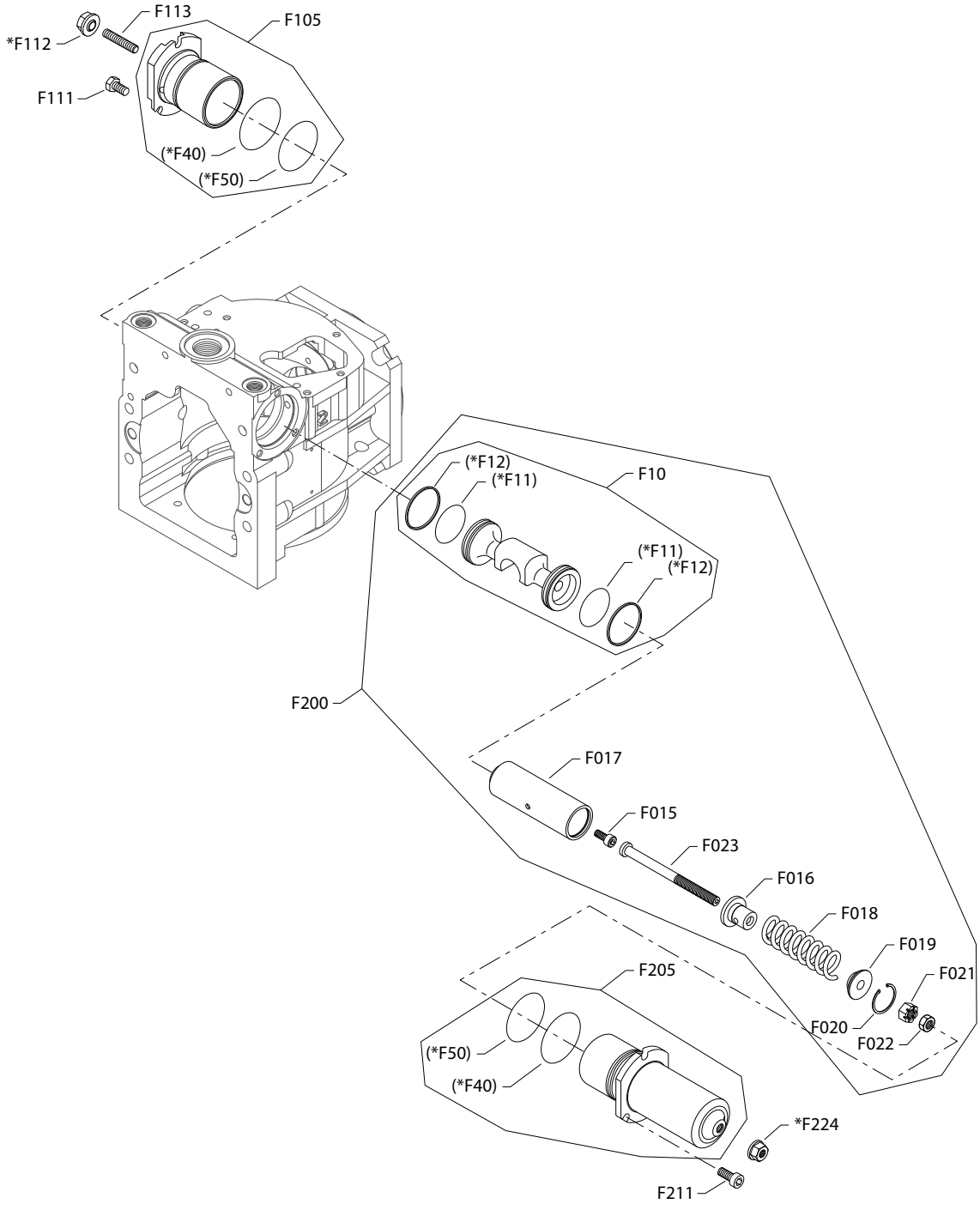
*Order code: F*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| F10 | 91-30 | | 11041752 | Servo piston assembly (*SB-2000-022* on page 343) | 1 |
| F111 | 91-30 | | 378083 (9007210-0804) | Screw | 3 |
| F211 | 91-30 | | 378083 (9007210-0804) | Screw | 3 |

## Displacement

### S90P 75cc displacement limitation H

*Parts configuration*




* Included in overhaul seal kit Q210

( ) Not available individually

## Displacement

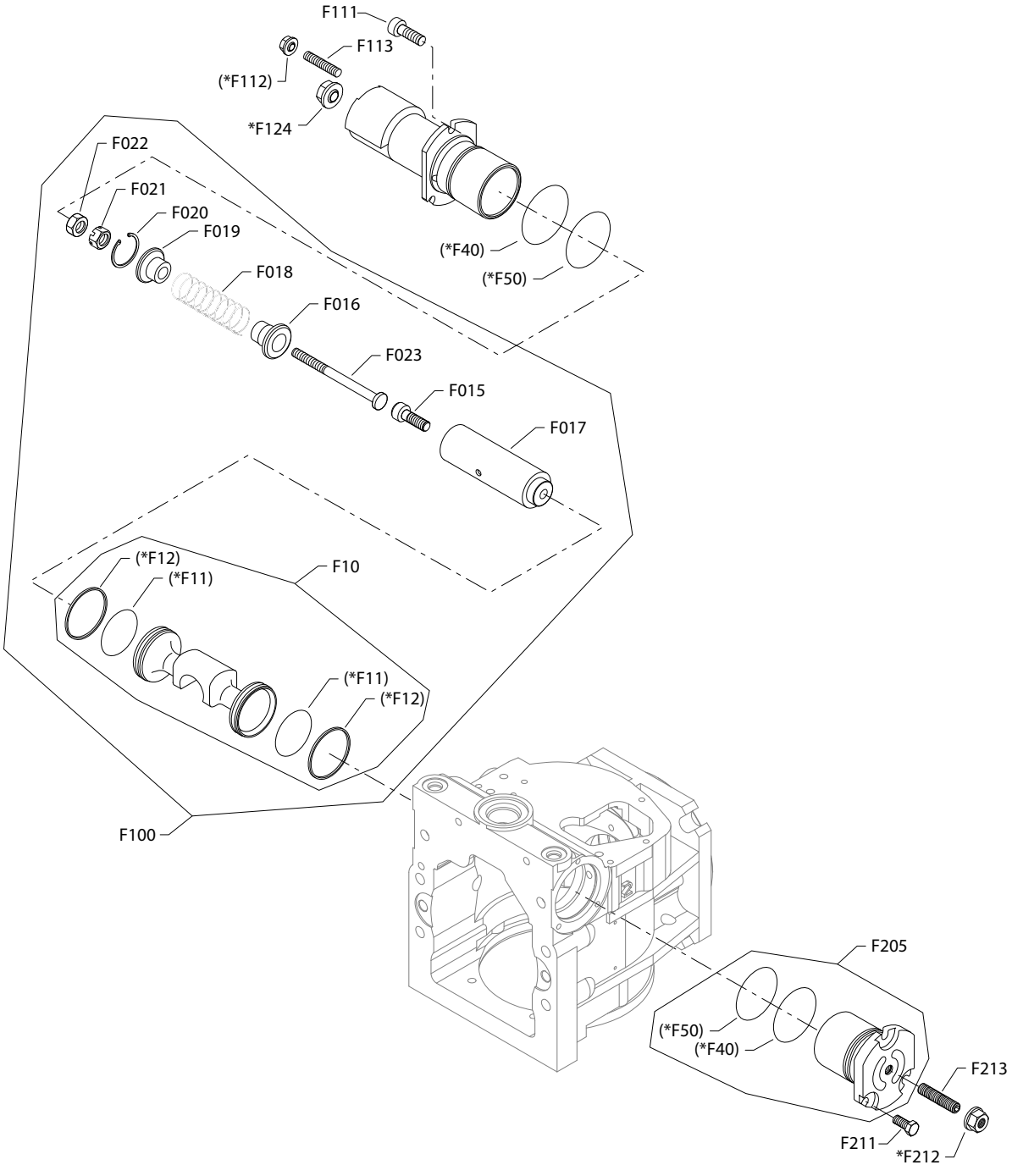
*Order code: H*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| F10 | 98-14 | | 11041755 | Servo piston assembly | 1 |
| F015 | 98-14 | | 346395 | Screw | 1 |
| F016 | 98-14 | | 507092 | Spring guide | 1 |
| F017 | 98-14 | | 346320 | Servo spring housing | 1 |
| F018 | 98-14 | | 346254 | Spring | 1 |
| F019 | 98-14 | | 507093 | Spring guide | 1 |
| F020 | 98-14 | | 346379 | Retaining ring | 1 |
| F021 | 98-14 | | 787887 | Castle nut | 1 |
| F022 | 98-14 | | 336800 | Nut | 1 |
| F023 | 98-14 | | 11140220 | Adjusting screw | 1 |
| F105 | 98-14 | | 11059759 (11055763) | Servo cylinder assembly | 1 |
| F111 | 98-14 | | 378083 (9007210-0804) | Screw | 3 |
| F112 | 98-14 | | 505412 (9003509-0008) | Seal nut | 1 |
| F113 | 98-14 | | 5000747 | Set screw, M8 x 45mm (*SB-2000-022* on page 343) | 1 |
| F200 | 98-14 | | 515310 (8100932) | Servo assembly | 1 |
| F205 | 98-14 | | 11060187 (11055767) | Servo cylinder assembly | 1 |
| F211 | 98-14 | | 746651 (393595) | Screw | 3 |
| F224 | 98-14 | | 336826 | Seal nut | 1 |

## Displacement

### S90P 75cc displacement limitation L

*Parts configuration*




| | |
|---|---|
| * | Included in overhaul seal kit Q210 |
| ( ) | Not available individually |

## Displacement

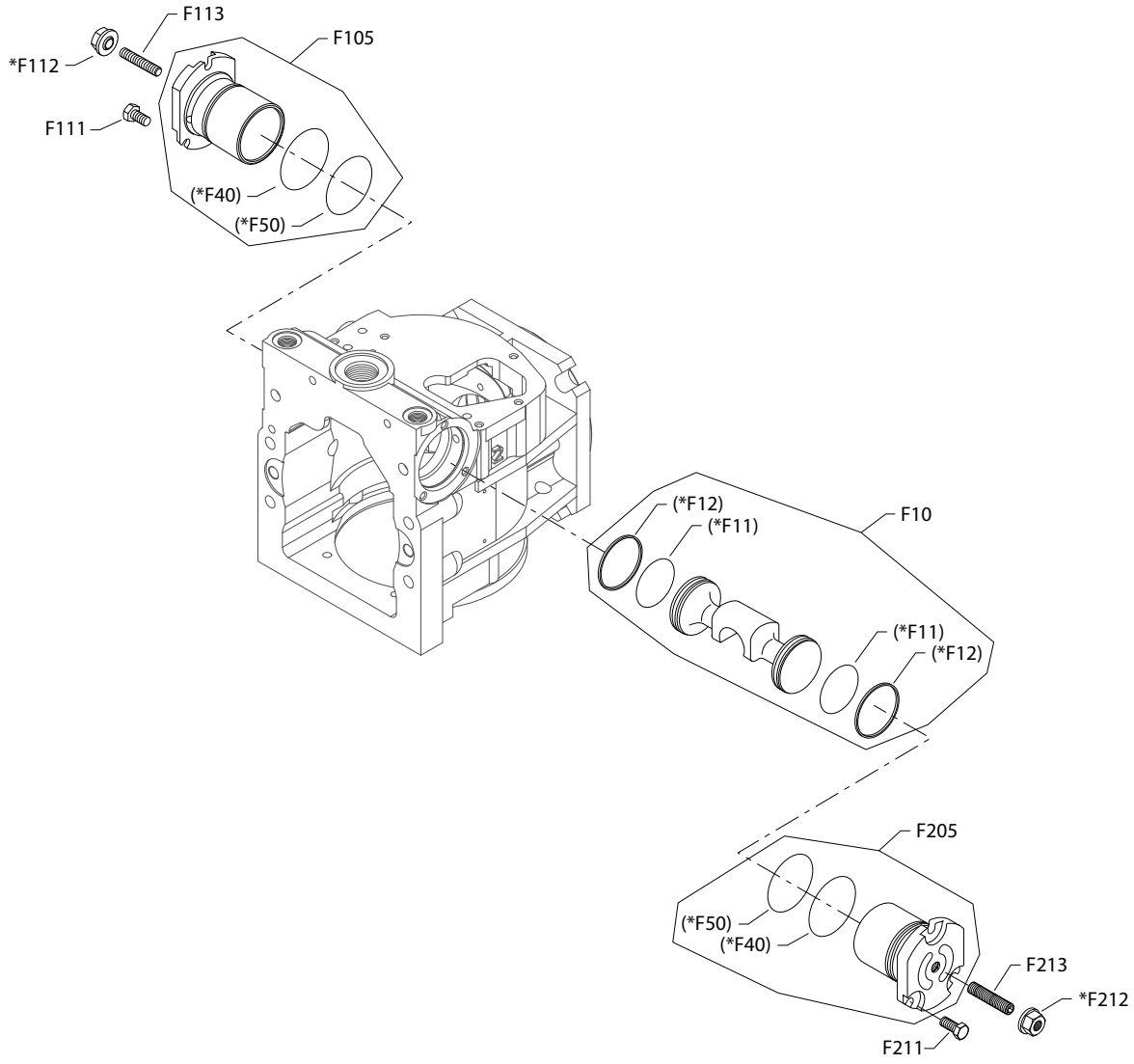
*Order code: L*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| F10 | 98-21 | | 11041755 | Servo piston assembly | 1 |
| F015 | 98-21 | | 346395 | Screw | 1 |
| F016 | 98-21 | | 507092 | Spring guide | 1 |
| F017 | 98-21 | | 346320 | Servo spring housing | 1 |
| F018 | 98-21 | | 346254 | Spring | 1 |
| F019 | 98-21 | | 507093 | Spring guide | 1 |
| F020 | 98-21 | | 346379 | Retaining ring | 1 |
| F021 | 98-21 | | 787887 | Castle nut | 1 |
| F022 | 98-21 | | 336800 | Nut | 1 |
| F023 | 98-21 | | 11140220 | Adjusting screw | 1 |
| F100 | 98-21 | | 515310 (8100932) | Servo assembly | 1 |
| F111 | 98-21 | | 746651 (393595) | Screw | 3 |
| F112 | 98-21 | | 505412 (9003509-0008) | Seal nut | 1 |
| F113 | 98-21 | | 5000747 | Set screw, M8 x 45mm (*SB-2000-022* on page 343) | 1 |
| F124 | 98-21 | | 336826 | Seal nut | 1 |
| F205 | 98-21 | | 11059759 (11055763) | Servo cylinder assembly | 1 |
| F211 | 98-21 | | 378083 (9007210-0804) | Screw | 3 |
| F212 | 98-21 | | 505412 (9003509-0008) | Seal nut | 1 |
| F213 | 98-21 | | 5000747 | Set screw, M8 x 45mm (*SB-2000-022* on page 343) | 1 |

## Displacement

### S90P 75cc displacement limitation P

*Parts configuration*




| | |
|---|---|
| * | Included in overhaul seal kit Q210 |
| ( ) | Not available individually |

## Displacement

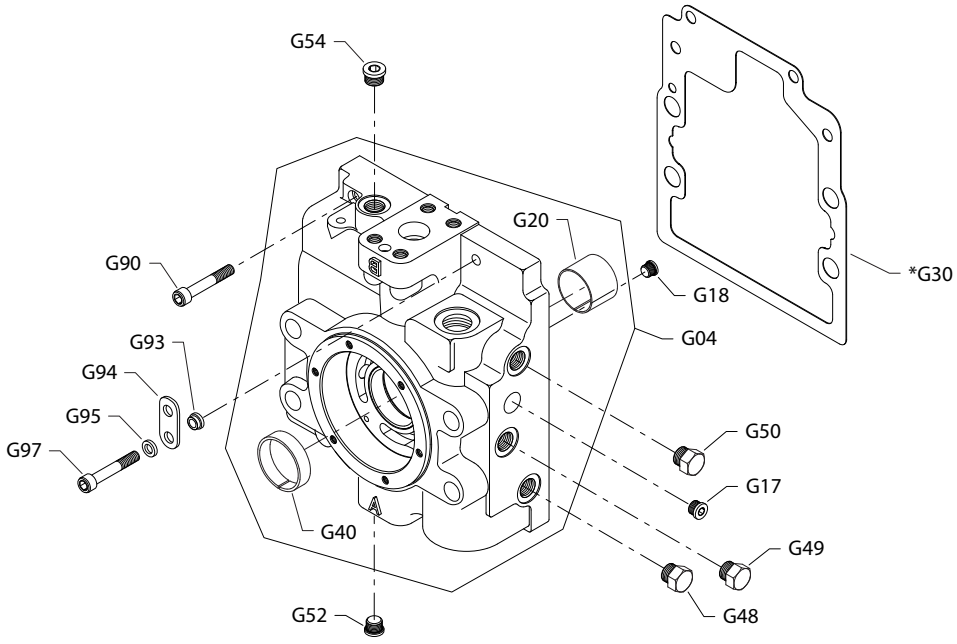
*Order code: P*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| F10 | 98-41 | | 11041752 | Servo piston assembly (*SB-2000-022* on page 343) | 1 |
| F105 | 98-41 | | 11059759 (11055763) | Servo cylinder assembly | 1 |
| F111 | 98-41 | | 378083 (9007210-0804) | Screw | 3 |
| F112 | 98-41 | | 505412 (9003509-0008) | Seal nut | 1 |
| F113 | 98-41 | | 719401 | Set screw, M8 x 50mm | 1 |
| F205 | 98-41 | | 11059759 (11055763) | Servo cylinder assembly | 1 |
| F211 | 98-41 | | 378083 (9007210-0804) | Screw | 3 |
| F212 | 98-41 | | 505412 (9003509-0008) | Seal nut | 1 |
| F213 | 98-41 | | 719401 | Set screw, M8 x 50mm | 1 |

## End cap

### S90P 75cc end cap H-6R

*Parts configuration*




* Included in base pump seal kit Q210

## End cap

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| G17 | 92-19 | | 9005110-4400 | Plug (*SB-1992-003* on page 312) | 1 |
| G18 | 92-19 | | 9005110-4400 | Plug (*SB-1992-003* on page 312) | 1 |
| G20 | 87-02 | | 664763 (8700013) | Journal bearing | 1 |
| G30 | 92-19 | | 8100565 | End cap gasket | 1 |
| G40 | 87-02 | | 664771 (8700008) | Bushing | 1 |
| G48 | 87-02 | | 9005100-5600 | Plug assembly | 1 |
| G49 | 87-02 | | 9005100-5600 | Plug assembly | 1 |
| G50 | 87-02 | | 9005100-5600 | Plug assembly | 1 |
| G52 | 87-02 | | 140644 (9005110-5600) | Plug assembly | 1 |
| G54 | 87-02 | | 140644 (9005110-5600) | Plug assembly | 1 |
| G90 | 92-19 | | 746644 (9007314-0810) | Screw | 1 |
| G90 | 87-02 | 92-18 | 9007210-0611 | Screw (*SB-1992-003* on page 312) | 1 |
| G93 | 92-19 | | 713800 (8800564) | Spacer | 1 |
| G93 | 87-02 | 92-18 | 8800404 | Spacer | 1 |
| G94 | 92-19 | | 8800565 | Lifting bracket | 1 |
| G94 | 87-02 | 92-18 | 8800522 | Lifting bracket | 1 |
| G95 | 92-19 | | 502195 | Washer | 1 |
| G95 | 87-02 | 92-18 | 9009610-2850 | Washer | 1 |
| G97 | 96-05 | | 746644 (9007314-0810) | Screw | 1 |
| G97 | 92-19 | 96-04 | 5000060 | Screw | 1 |
| G97 | 87-02 | 92-18 | 9007314-0604 | Screw (*SB-1992-003* on page 312) | 1 |

*Order code: 2, 6, 60, 61*

| | | | | | |
|---|---|---|---|---|---|
| G04 | 92-19 | | 8100686 | End cap assembly, side ports (*SB-1992-003* on page 312) | 1 |

*Order code: H, 62*

| | | | | | |
|---|---|---|---|---|---|
| G04 | 94-07 | | 8100687 | End cap assembly, metric side ports | 1 |

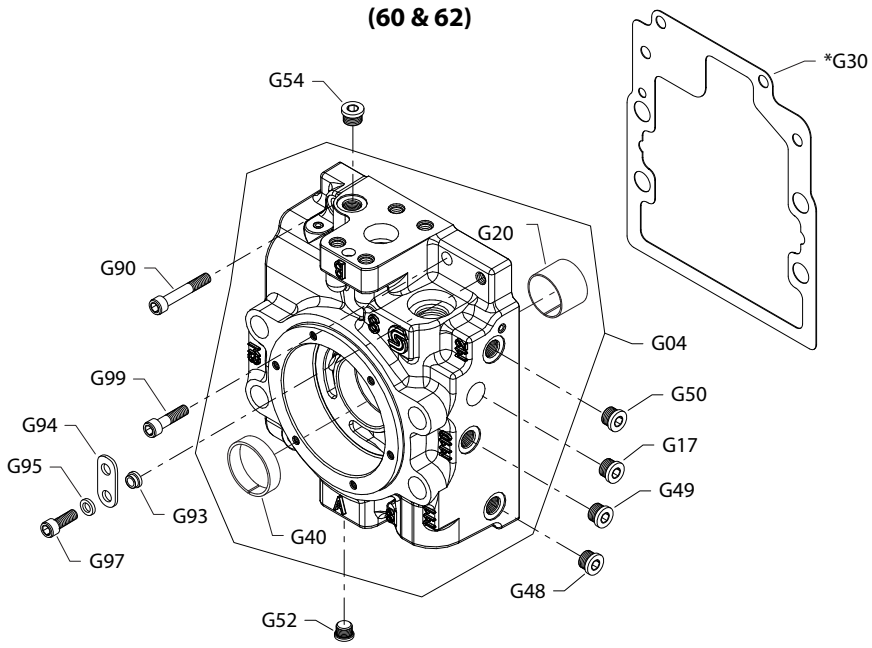
*Order code: 6R*

| | | | | | |
|---|---|---|---|---|---|
| G04 | 98-11 | | 8100845 | End cap assembly, metric side ports, CCW | 1 |

## End cap

### S90P 75cc end cap 60-62 (side ports built in Germany)

*Parts configuration*




* Included in base pump seal kit Q210

## End cap

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| G17 | 96-18 | | 140644 | Plug assembly | 1 |
| G20 | 96-18 | | 664763 (8700013) | Journal bearing | 1 |
| G30 | 96-18 | | 8100565 | End cap gasket | 1 |
| G40 | 96-18 | | 664771 (8700008) | Bushing | 1 |
| G49 | 96-18 | | 140644 | Plug assembly | 1 |
| G50 | 96-18 | | 140644 | Plug assembly | 1 |
| G52 | 96-18 | | 140644 | Plug assembly | 1 |
| G54 | 96-18 | | 140644 | Plug assembly | 1 |
| G90 | 96-18 | | 746644 (9007314-0810) | Screw | 1 |
| G93 | 96-18 | | 713800 (8800564) | Spacer | 1 |
| G94 | 96-18 | | 8800565 | Lifting bracket | 1 |
| G95 | 96-18 | | 502195 | Washer | 1 |
| G97 | 96-18 | | 395723 (9007315-0805) | Screw | 1 |
| G99 | 96-18 | | 746594 (9007314-0807) | Screw | 1 |

*Order code: 60*

| | | | | | |
|---|---|---|---|---|---|
| G04 | 96-18 | | 502277 | End cap assembly, side ports | 1 |
| G48 | 96-18 | | 140644 | Plug assembly | 1 |

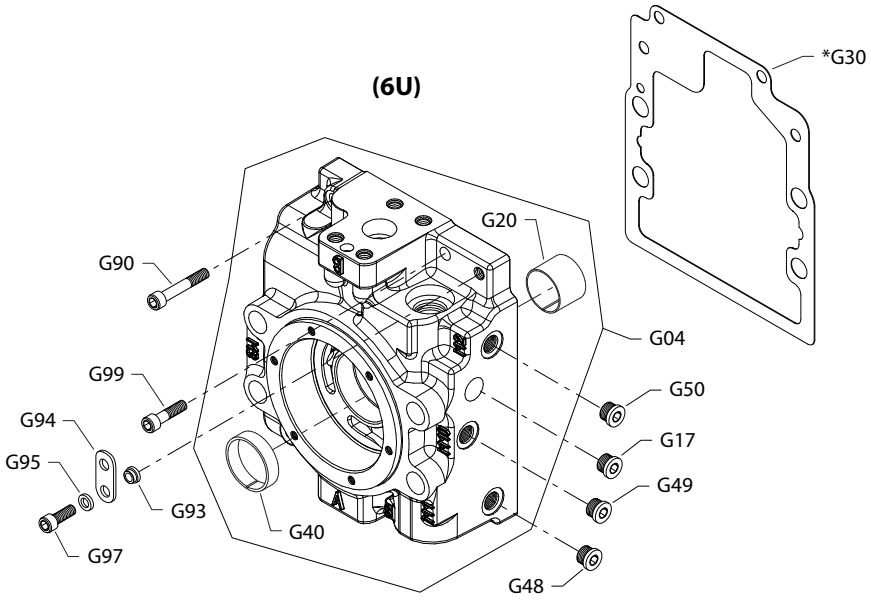
*Order code: 62*

| | | | | | |
|---|---|---|---|---|---|
| G04 | 96-18 | | 507891/P | End cap assembly, metric side ports | 1 |
| G48 | 96-18 | | 140644 | Plug assembly | 1 |

## End cap

### S90P 75cc end cap 6U

*Parts configuration*




* Included in base pump seal kit Q210

## End cap

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| G17 | 96-18 | | 140644 | Plug assembly | 1 |
| G20 | 96-18 | | 664763 (8700013) | Journal bearing | 1 |
| G30 | 96-18 | | 8100565 | End cap gasket | 1 |
| G40 | 96-18 | | 664771 (8700008) | Bushing | 1 |
| G48 | 96-18 | | 140644 | Plug assembly | 1 |
| G49 | 96-18 | | 140644 | Plug assembly | 1 |
| G50 | 96-18 | | 140644 | Plug assembly | 1 |
| G90 | 96-18 | | 746644 (9007314-0810) | Screw | 1 |
| G93 | 96-18 | | 713800 (8800564) | Spacer | 1 |
| G94 | 96-18 | | 8800565 | Lifting bracket | 1 |
| G95 | 96-18 | | 502195 | Washer | 1 |
| G99 | 96-18 | | 746594 (9007314-0807) | Screw | 1 |

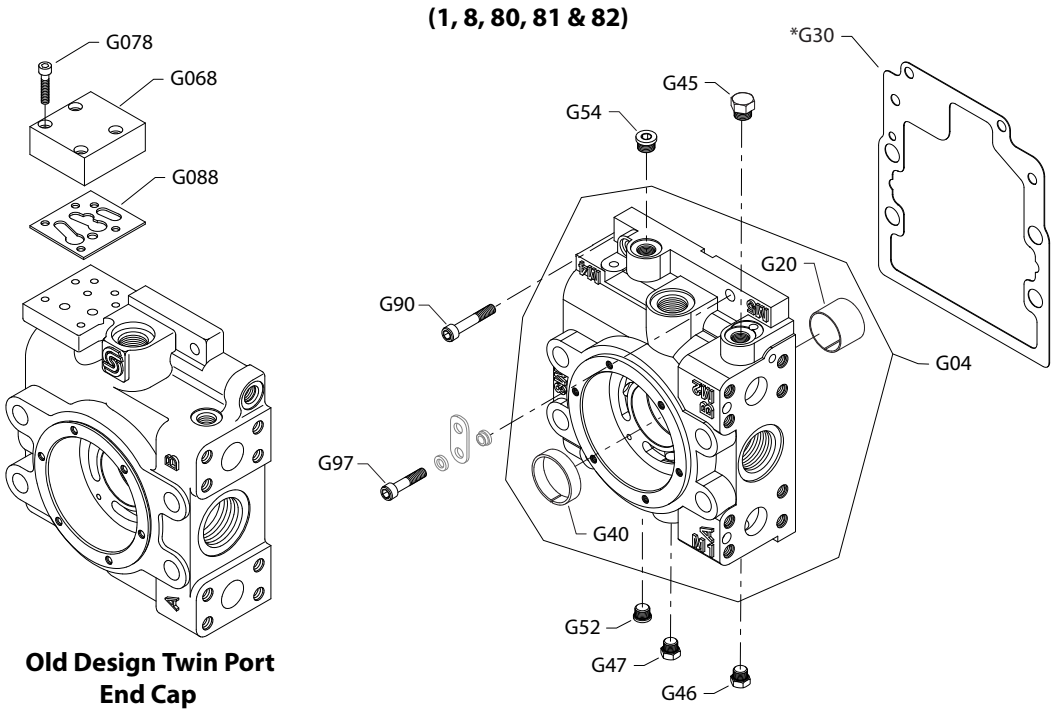
*Order code: 6U*

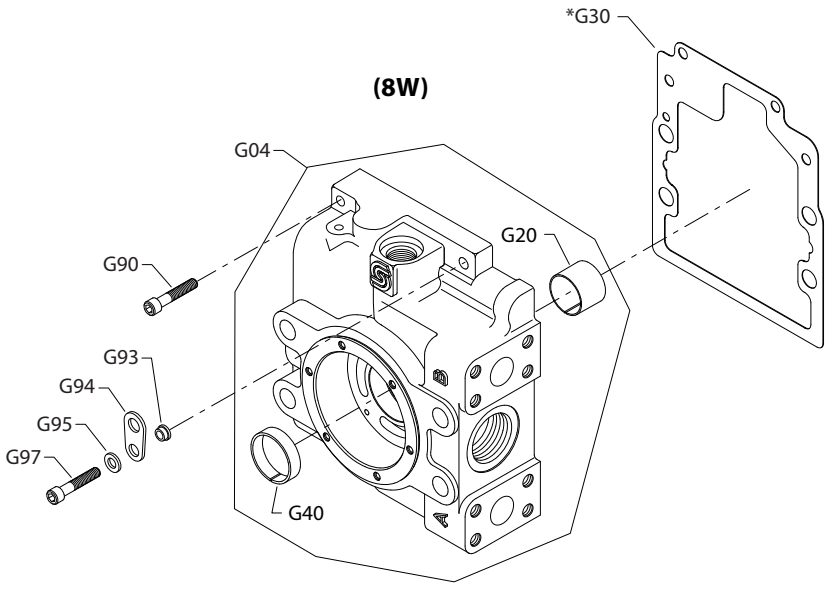
| | | | | | |
|---|---|---|---|---|---|
| G04 | 96-18 | | 518105 | End cap assembly, side ports | 1 |
| G97 | 96-18 | | 395723 (9007315-0805) | Screw | 1 |

## End cap

### S90P 75cc end cap 1-81 (twin ports built in U.S.A)

*Parts configuration*




* Included in base pump seal kit Q210

## End cap

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| G20 | 87-02 | | 664763 (8700013) | Journal bearing | 1 |
| G30 | 96-05 | | 8100565 | End cap gasket (*SB-1995-012* on page 325) | 1 |
| G30 | 87-02 | 96-04 | 8100466 | End cap gasket (*SB-1992-003* on page 312) | 1 |
| G40 | 87-02 | | 664771 (8700008) | Bushing | 1 |
| G90 | 96-05 | | 746644 (9007314-0810) | Screw | 1 |
| G93 | 92-19 | | 713800 (8800564) | Spacer | 1 |
| G93 | 87-02 | 92-18 | 307678 (8800404) | Spacer | 1 |
| G94 | 92-19 | | 8800565 | Lifting bracket | 1 |
| G94 | 87-02 | 92-18 | 8800522 | Lifting bracket | 1 |
| G95 | 92-19 | | 502195 | Washer | 1 |
| G95 | 87-02 | 92-18 | 002295 (9009610-2850) | Washer | 1 |
| G97 | 92-19 | | 746644 (9007314-0810) | Screw | 1 |
| G97 | 87-02 | 92-18 | 694356 (9007314-0608) | Screw (*SB-1992-003* on page 312) | 1 |
| G068 | 87-02 | 96-04 | 364281 | Valve housing assembly (SB-1995-012) | 1 |
| G078 | 87-02 | 96-04 | 694356 (9007314-0608) | Screw (*SB-1995-012* on page 325) | 4 |
| G088 | 87-02 | 96-04 | 689117 | Gasket (*SB-1995-012* on page 325) | 1 |

*Order code: 8 & 80*

| | | | | | |
|---|---|---|---|---|---|
| G04 | 96-05 | | 8100688 | End cap assembly, twin ports (*SB-1995-012* on page 325) | 1 |
| G45 | 87-02 | | 9005100-5600 | Plug assembly | 1 |
| G46 | 87-02 | | 9005100-5600 | Plug assembly | 1 |
| G47 | 87-02 | | 9005100-5600 | Plug assembly | 1 |
| G52 | 87-02 | | 140644 (9005110-5600) | Plug assembly | 1 |
| G54 | 87-02 | | 140644 (9005110-5600) | Plug assembly | 1 |

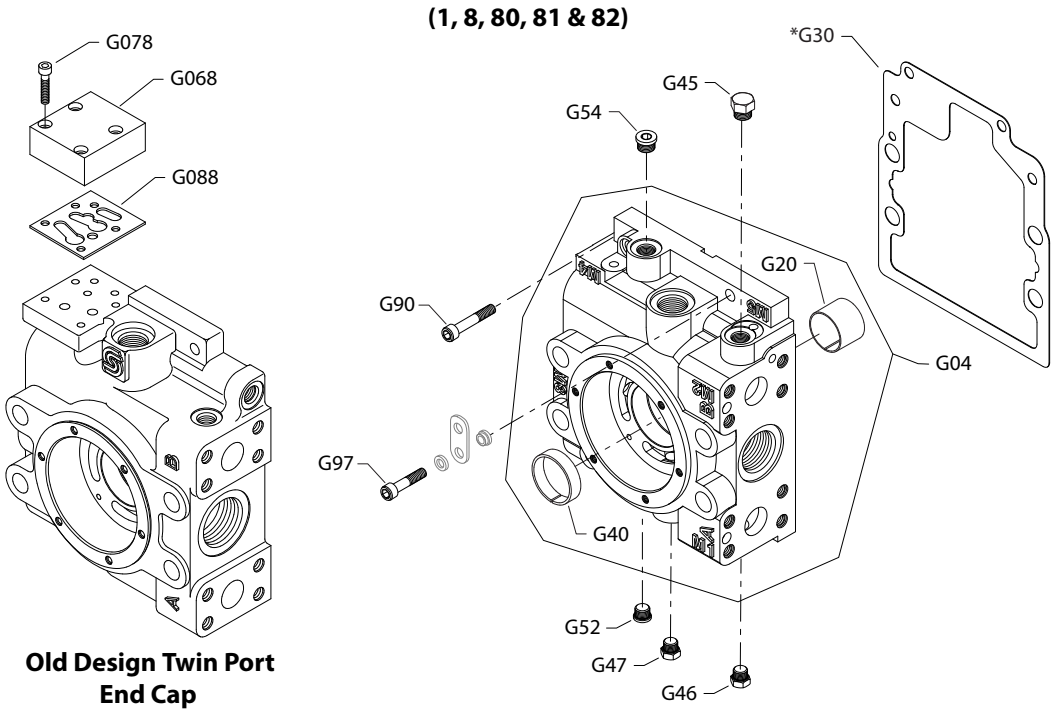
*Order code: 1 & 81*

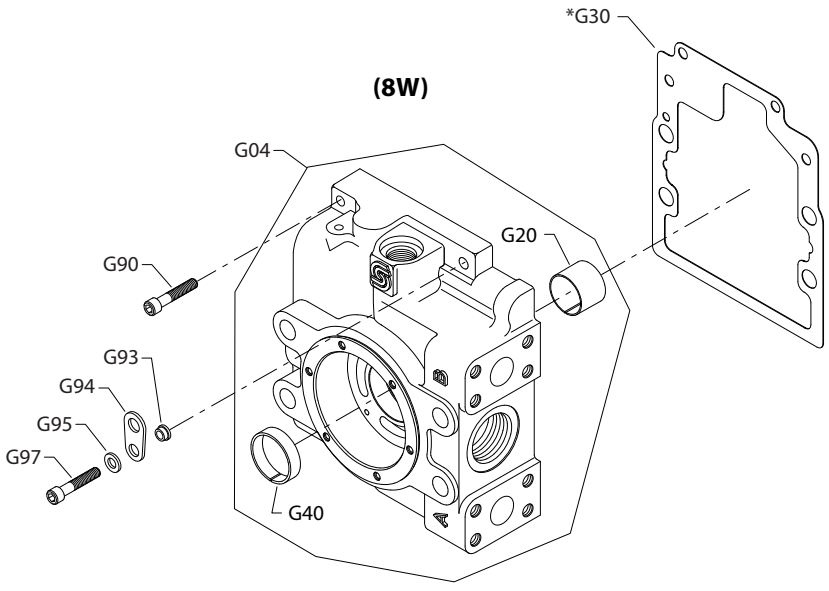
| | | | | | |
|---|---|---|---|---|---|
| G04 | 96-05 | | 8100688 | End cap assembly, twin ports (*SB-1995-012* on page 325) | 1 |
| G45 | 87-02 | | 9005100-5600 | Plug assembly | 1 |
| G46 | 87-02 | | 9005100-5600 | Plug assembly | 1 |
| G47 | 87-02 | | 9005100-5600 | Plug assembly | 1 |
| G52 | 87-02 | | 515965 (9005110-5600) | Plug assembly | 1 |
| G54 | 87-02 | | 515965 (9005110-5600) | Plug assembly | 1 |

## End cap

### S90P 75cc end cap 82, 8W (twin ports built in U.S.A)

*Parts configuration*




* Included in base pump seal kit Q210

## End cap

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| G20 | 87-02 | | 664763 (8700013) | Journal bearing | 1 |
| G30 | 96-05 | | 8100565 | End cap gasket (*SB-1995-012* on page 325) | 1 |
| G30 | 87-02 | 96-04 | 8100466 | End cap gasket (*SB-1992-003* on page 312) | 1 |
| G40 | 87-02 | | 664771 (8700008) | Bushing | 1 |
| G90 | 96-05 | | 746644 (9007314-0810) | Screw | 1 |
| G93 | 92-19 | | 713800 (8800564) | Spacer | 1 |
| G93 | 87-02 | 92-18 | 307678 (8800404) | Spacer | 1 |
| G94 | 92-19 | | 8800565 | Lifting bracket | 1 |
| G94 | 87-02 | 92-18 | 8800522 | Lifting bracket | 1 |
| G95 | 92-19 | | 502195 | Washer | 1 |
| G95 | 87-02 | 92-18 | 002295 (9009610-2850) | Washer | 1 |
| G97 | 92-19 | | 746644 (9007314-0810) | Screw | 1 |
| G97 | 87-02 | 92-18 | 694356 (9007314-0608) | Screw (*SB-1992-003* on page 312) | 1 |
| G068 | 87-02 | 96-04 | 364281 | Valve housing assembly (SB-1995-012) | 1 |
| G078 | 87-02 | 96-04 | 694356 (9007314-0608) | Screw (*SB-1995-012* on page 325) | 4 |
| G088 | 87-02 | 96-04 | 689117 | Gasket (*SB-1995-012* on page 325) | 1 |

*Order code: 82*

| | | | | | |
|---|---|---|---|---|---|
| G04 | 97-01 | | 8100689 | End cap assembly, metric twin ports | 1 |
| G45 | 87-02 | | 9005100-5600 | Plug assembly | 1 |
| G46 | 87-02 | | 9005100-5600 | Plug assembly | 1 |
| G47 | 87-02 | | 9005100-5600 | Plug assembly | 1 |
| G52 | 87-02 | | 515965 (9005110-5600) | Plug assembly | 1 |
| G54 | 87-02 | | 515965 (9005110-5600) | Plug assembly | 1 |

*Order code: 8W*

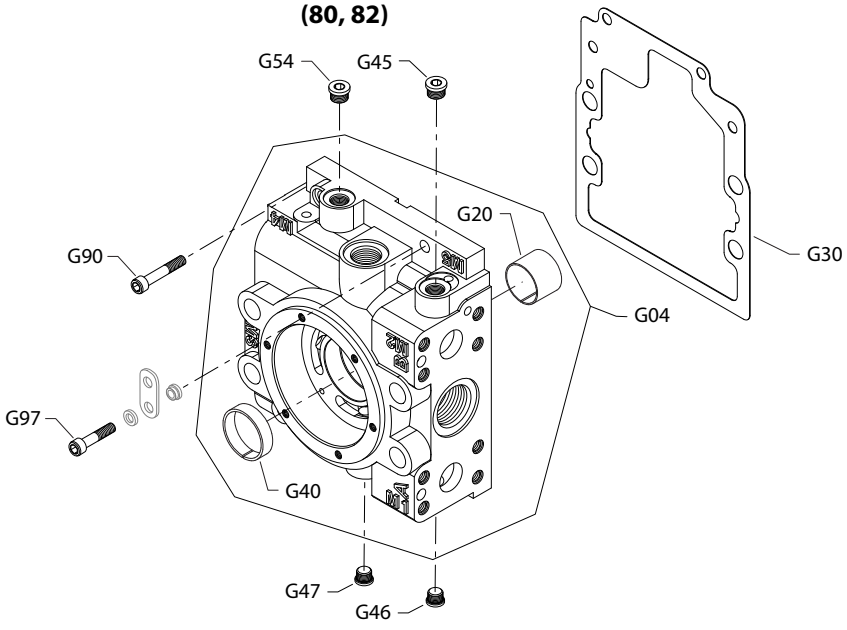
| | | | | | |
|---|---|---|---|---|---|
| G04 | 97-24 | | 8100916 | End cap assembly, twin ports, CW | 1 |
| G04 | 97-24 | | 8100929 | End cap assembly, twin ports, CCW | 1 |

## End cap

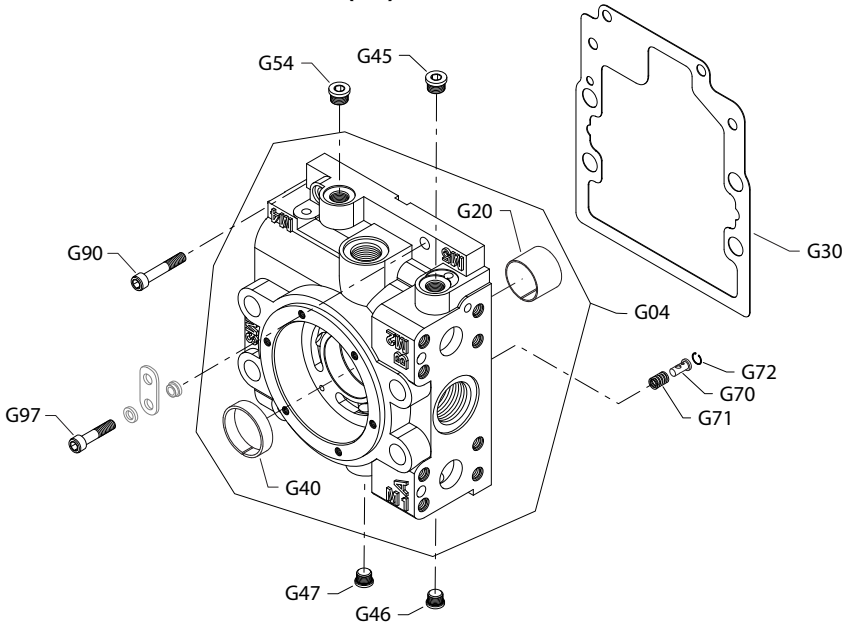
### S90P 75cc end cap 80-8D (twin ports build in Germany)

*Parts configuration*

**(80, 82)**




**(8D)**




* Included in base pump seal kit Q210

## End cap

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| G20 | 96-18 | | 664763 (8700013) | Journal bearing | 1 |
| G30 | 96-18 | | 8100565 | End cap gasket | 1 |
| G40 | 96-18 | | 664771 (8700008) | Bushing | 1 |
| G90 | 96-18 | | 746644 (9007314-0810) | Screw | 1 |
| G93 | 96-18 | | 713800 (8800564) | Spacer | 1 |
| G94 | 96-18 | | 8800565 | Lifting bracket | 1 |
| G95 | 96-18 | | 502195 | Washer | 1 |
| G97 | 96-18 | | 746644 (9007314-0810) | Screw | 1 |

*Order code: 80*

| | | | | | |
|---|---|---|---|---|---|
| G04 | 96-18 | | 8100566 | End cap assembly, twin ports | 1 |
| G45 | 96-18 | | 140644 | Plug assembly | 1 |
| G46 | 96-18 | | 140644 | Plug assembly | 1 |
| G47 | 96-18 | | 140644 | Plug assembly | 1 |
| G54 | 96-18 | | 140644 | Plug assembly | 1 |

*Order code: 82*

| | | | | | |
|---|---|---|---|---|---|
| G04 | 96-18 | | 8100573/P | End cap assembly, metric twin ports | 1 |
| G45 | 96-18 | | 140644 | Plug assembly | 1 |
| G46 | 96-18 | | 140644 | Plug assembly | 1 |
| G47 | 96-18 | | 140644 | Plug assembly | 1 |
| G54 | 96-18 | | 140644 | Plug assembly | 1 |

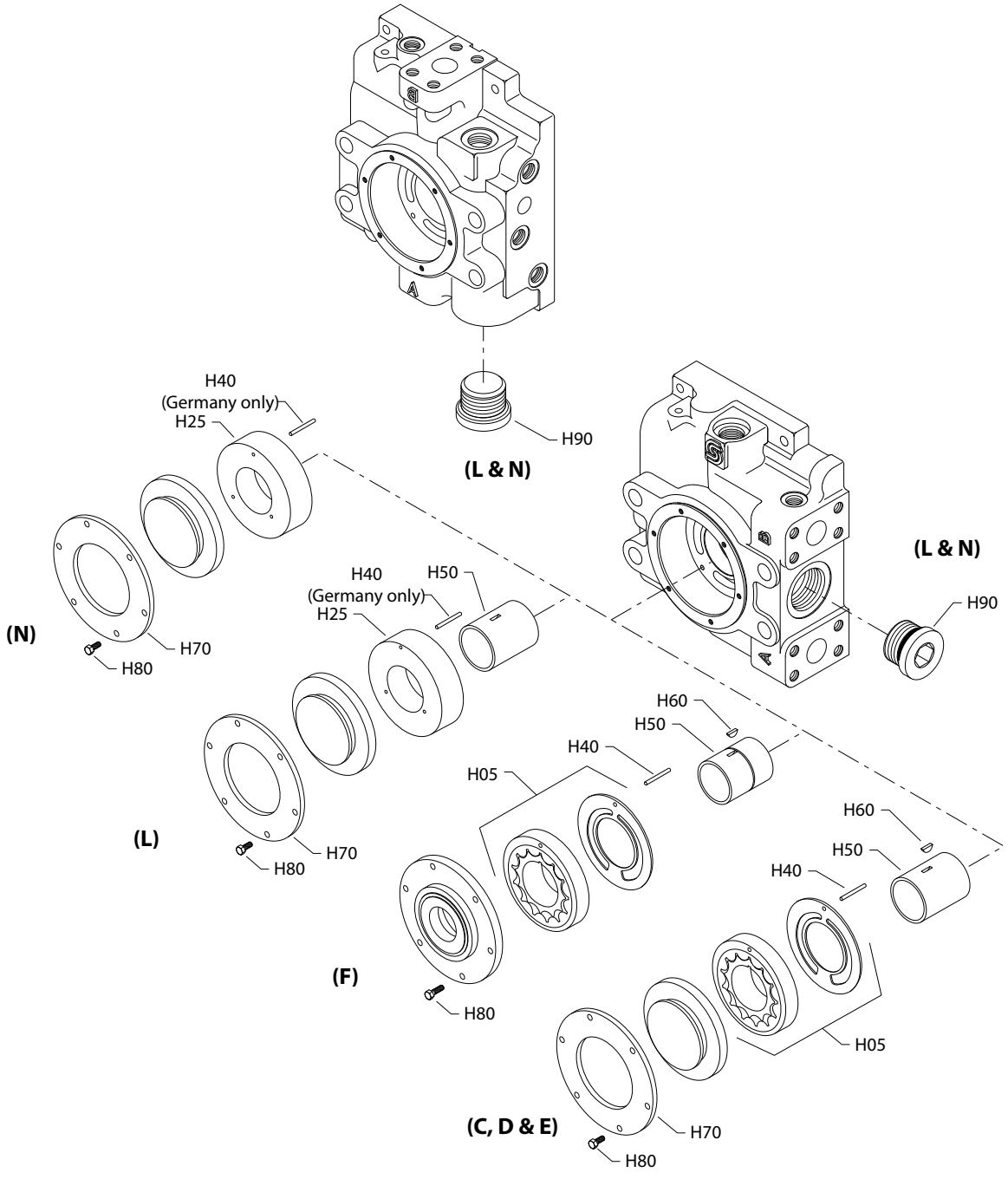
*Order code: 8D*

| | | | | | |
|---|---|---|---|---|---|
| G04 | 96-18 | | 508576 | End cap assembly, twin ports | 1 |
| G45 | 96-18 | | 140644 | Plug assembly | 1 |
| G46 | 96-18 | | 140644 | Plug assembly | 1 |
| G47 | 96-18 | | 140644 | Plug assembly | 1 |
| G54 | 96-18 | | 140644 | Plug assembly | 1 |
| G70 | 96-18 | | 508211 | Valve body | 1 |
| G71 | 96-18 | | 508209 | Spring | 1 |
| G72 | 96-18 | | 521472 | Retaining ring | 1 |

## Charging system

### S90P 75cc charging system C-F

*Parts configuration*



## Charging system

*Order code: C*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| H05 | 93-10 | | 8100479 | Charge pump set, 14 cc (*SB-1993-001* on page 315*) | 1 |
| H40 | 87-02 | | 9004800-1222 | Pin | 1 |
| H50 | 93-10 | | 8801178 | Charge pump shaft (*SB-1993-001* on page 315 & *SB-1998-066* on page 330) | 1 |
| H60 | 87-02 | | 9003310-1208 | Key | 1 |
| H70 | 87-02 | | 516761 | Retaining plate | 1 |
| H80 | 87-02 | | 648451 (9007210-0604) | Screw | 6 |

* For information regarding replacement parts for units built from 89-17 to 93-09, refer to AN152886483362 in the appendix.

*Order code: D*

| | | | | | |
|---|---|---|---|---|---|
| H05 | 93-10 | | 8100480 | Charge pump set, 17 cc (*SB-1993-001* on page 315*) | 1 |
| H40 | 87-02 | | 9004800-1222 | Pin | 1 |
| H50 | 93-10 | | 8801178 | Charge pump shaft (*SB-1993-001* on page 315 & *SB-1998-066* on page 330) | 1 |
| H60 | 87-02 | | 9003310-1208 | Key | 1 |
| H70 | 87-02 | | 516761 | Retaining plate | 1 |
| H80 | 87-02 | | 648451 (9007210-0604) | Screw | 6 |

*Order code: E*

| | | | | | |
|---|---|---|---|---|---|
| H05 | 93-10 | | 8100481 | Charge pump set, 20 cc (*SB-1993-001* on page 315*) | 1 |
| H40 | 87-02 | | 9004800-1222 | Pin | 1 |
| H50 | 93-10 | | 8801178 | Charge pump shaft (*SB-1993-001* on page 315 & *SB-1998-066* on page 330) | 1 |
| H60 | 87-02 | | 9003310-1208 | Key | 1 |
| H70 | 87-02 | | 516761 | Retaining plate | 1 |
| H80 | 87-02 | | 648451 (9007210-0604) | Screw | 6 |

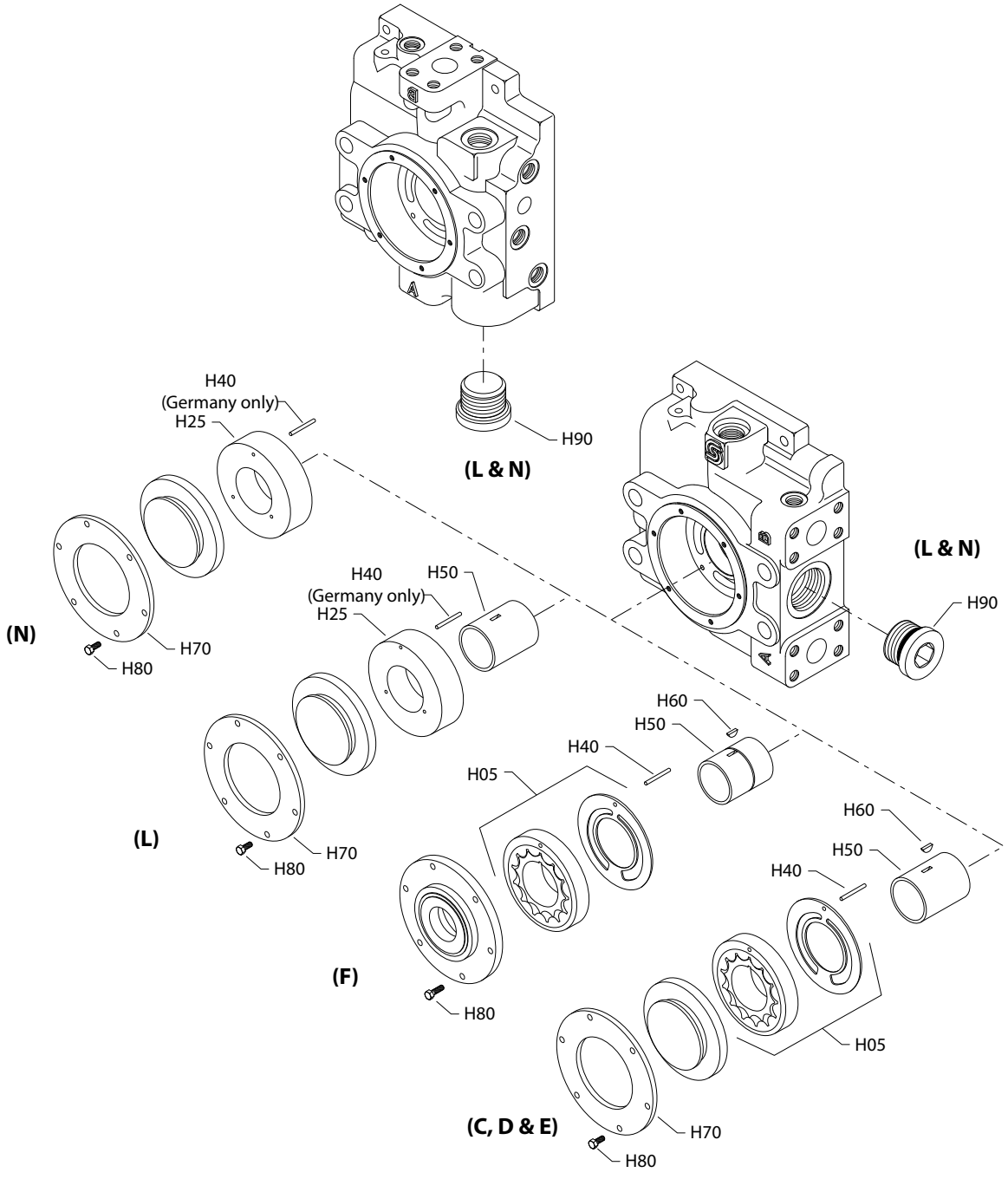
*Order code: F*

| | | | | | |
|---|---|---|---|---|---|
| H05 | 97-01 | | 8200240 | Charge pump set, 26 cc | 1 |
| H40 | 97-01 | | 9004800-1224 | Pin | 1 |
| H50 | 97-01 | | 8801179 | Charge pump shaft | 1 |
| H60 | 97-01 | | 9003310-1208 | Key | 1 |
| H80 | 97-01 | | 672493 (9007210-0604) | Screw | 6 |

## Charging system

### S90P 75cc charging system L, N

*Parts configuration*



## Charging system

*Order code: L*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| H25 | 87-02 | | 11077717 (8800466-0075) | Charge pump spacer | 1 |
| H40 | 87-02 | | 9004800-1222 | Pin | 1 |
| H50 | 93-10 | | 8801178 | Charge pump shaft (*SB-1993-001* on page 315 & *SB-1998-066* on page 330) | 1 |
| H50 | 87-02 | 89-16 | 8000078 | Charge pump shaft (*SB-1989-006* on page 308) | 1 |
| H70 | 87-02 | | 516761 | Retaining plate | 1 |
| H80 | 87-02 | | 648451 (9007210-0604) | Screw | 6 |
| H90 | 87-02 | | 320002 (9005110-9200) | Plug assembly | 1 |

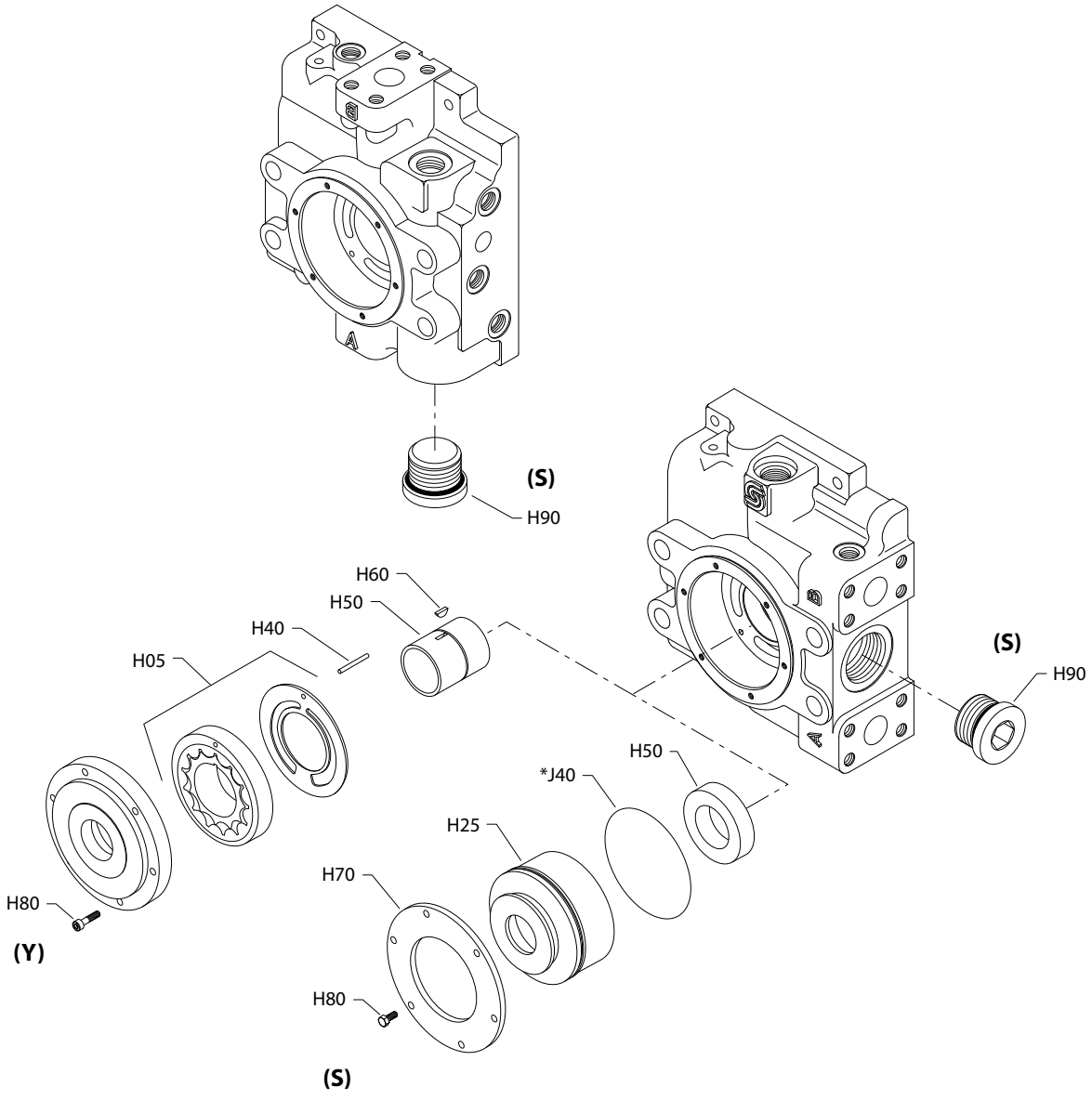
*Order code: N*

| | | | | | |
|---|---|---|---|---|---|
| H25 | 98-51 | | 11077717 (8800466-0075) | Charge pump spacer | 1 |
| H40 | 98-51 | | 9004800-1222 | Pin | 1 |
| H70 | 98-51 | | 516761 | Retaining plate | 1 |
| H80 | 98-51 | | 648451 | Screw | 6 |
| H90 | 98-51 | | 320002 (9005110-9200) | Plug assembly | 1 |

## Charging system

### S90P 75cc charging system S, Y

*Parts configuration*




* Included in base pump seal kit Q210

## Charging system

*Order code: S*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| H25 | 96-24 | | 509220 | Charge pump spacer | 1 |
| H50 | 96-24 | | 509221 | Spacer | 1 |
| H70 | 96-24 | | 516761 | Retaining plate | 1 |
| H80 | 96-24 | | 648451 | Screw | 6 |
| H90 | 96-24 | | 320002 (9005110-9200) | Plug assembly | 1 |
| J40 | 96-24 | | 680892 (9004104-0440) | O-ring | 1 |

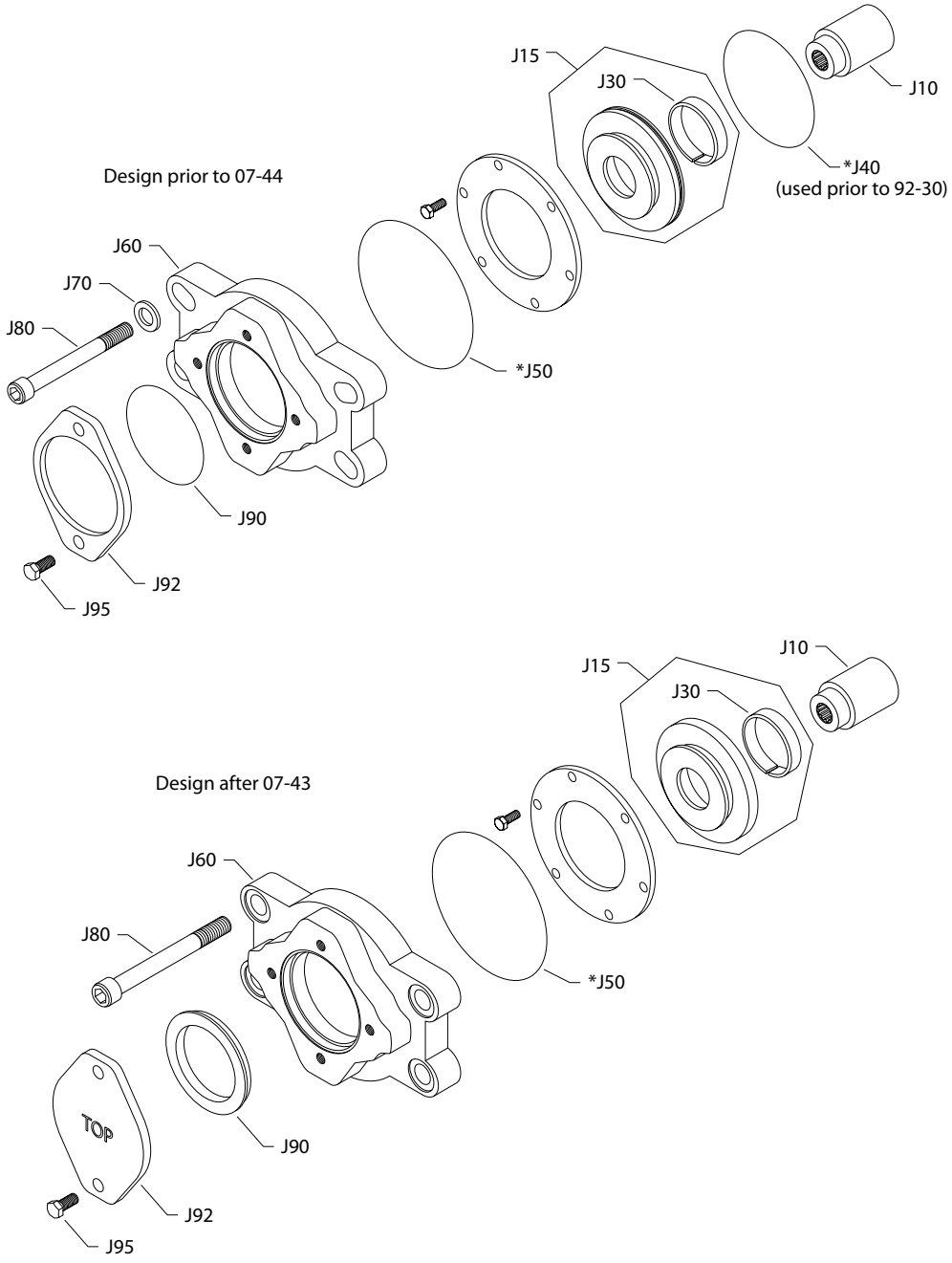
*Order code: Y*

| | | | | | |
|---|---|---|---|---|---|
| H05 | 99-18 | | 8200240 | Charge pump set, 26 cc | 1 |
| H40 | 99-18 | | 5000358 | Pin | 1 |
| H50 | 99-18 | | 8801210 | Charge pump shaft | 1 |
| H60 | 99-18 | | 9003310-1208 | Key | 1 |
| H80 | 99-18 | | 041160 (9007314-0605) | Screw | 6 |

## Auxiliary mounting

### S90 pump aux mounting AB and AC

*Parts configuration*




* Included in base pump seal kit Q210

## Auxiliary mounting

*Order code: AB & A*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| J10 | 87-02 | | 8100147 | Coupling, 9 tooth | 1 |
| J15 | 87-02 | | 8800832 | Cover assembly, CW (*SB-1993-001* on page 315* & *SB-2005-011* on page 350) | 1 |
| J15 | 87-02 | | 8800833 | Cover assembly, CCW (*SB-1993-001* on page 315* & *SB-2005-011* on page 350 | 1 |
| J30 | 87-02 | | 664771 (8700008) | Bushing | 1 |
| J40 | 87-02 | 92-29 | 680892 (9004104-0440) | O-ring | 1 |
| J50 | 87-02 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 87-02 | | 8100846 | Flange adapter, SAE A (*SB-2007-027* on page 351) | 1 |
| J70 | 87-02 | 07-43 | 664920 (9009625-0132) | Washer (*SB-2007-027* on page 351) | 4 |
| J80 | 98-44 | | 518721 | Screw, M16 x 140 | 4 |
| J80 | 87-02 | 98-43 | 9007314-1624 | Screw, M16 x130 (*SB-1989-023* on page 310) | 4 |
| J90 | 07-44 | | 4800482 | A pad seal (*SB-2007-027* on page 351) | 1 |
| J90 | 87-02 | 07-43 | 545434 (9004100-0420) | O-ring | 1 |
| J92 | 07-44 | | 4460586 | Cover plate (*SB-2007-027* on page 351) | 1 |
| J92 | 87-02 | 07-43 | 9802336 | Cover plate | 1 |
| J95 | 87-02 | | 9007200-3714 | Screw | 3 |

* For information regarding replacement parts for units built from 89-17 to 93-09, refer to AN152886483362 in the appendix. New style covers may be used with either charge pump design.

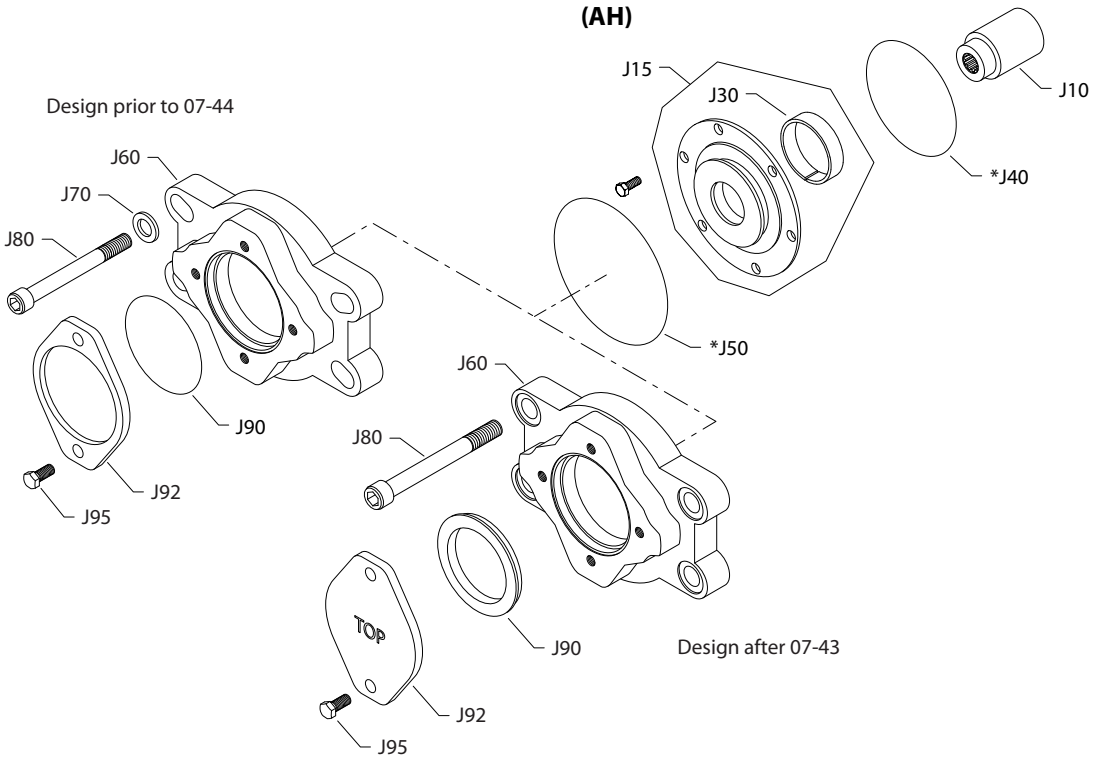
*Order code: AC & T*

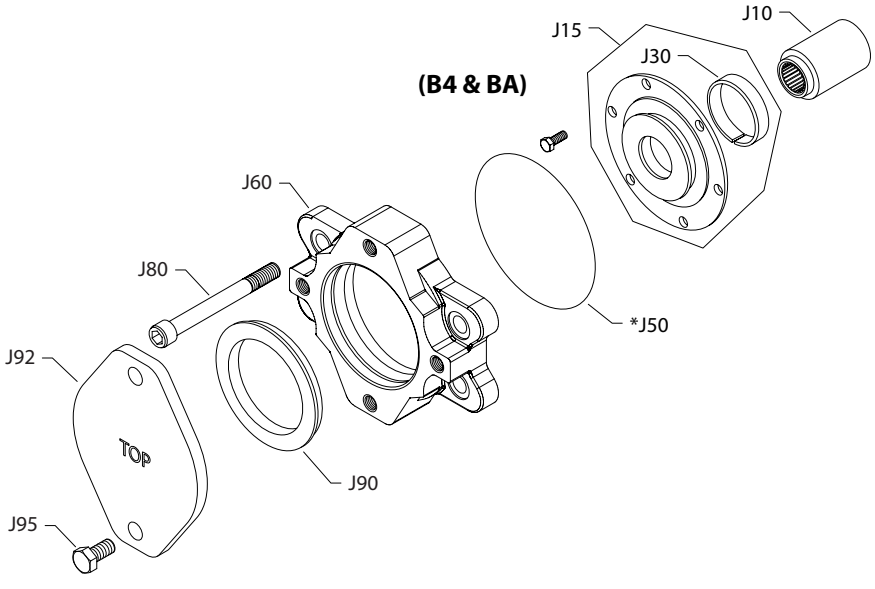
| | | | | | |
|---|---|---|---|---|---|
| J10 | 87-02 | | 8100297 | Coupling, 11 tooth | 1 |
| J15 | 87-02 | | 8800832 | Cover assembly, CW (*SB-1993-001* on page 315* & *SB-2005-011* on page 350) | 1 |
| J15 | 87-02 | | 8800833 | Cover assembly, CCW (*SB-1993-001* on page 315* & *SB-2005-011* on page 350) | 1 |
| J30 | 87-02 | | 664771 (8700008) | Bushing | 1 |
| J40 | 87-02 | 92-29 | 680892 (9004104-0440) | O-ring | 1 |
| J50 | 87-02 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 87-02 | | 8100846 | Flange adapter, SAE A (*SB-2007-027* on page 351) | 1 |
| J70 | 87-02 | 07-43 | 664920 (9009625-0132) | Washer (*SB-2007-027* on page 351) | 4 |
| J80 | 98-44 | | 518721 | Screw, M16 x 140 | 4 |
| J80 | 87-02 | 98-43 | 9007314-1624 | Screw M16 x 130 | 4 |
| J90 | 07-44 | | 4800482 | A pad seal (*SB-2007-027* on page 351) | 1 |
| J90 | 87-02 | 07-43 | 545434 (9004100-0420) | O-ring | 1 |
| J92 | 07-44 | | 4460586 | Cover plate (*SB-2007-027* on page 351) | 1 |
| J92 | 87-02 | 07-43 | 9802336 | Cover plate | 1 |
| J95 | 87-02 | | 9007200-3714 | Screw | 2 |

## Auxiliary mounting

### S90P 75cc aux mounting AH-BA

*Parts configuration*




* Included in base pump seal kit Q210

## Auxiliary mounting

*Order code: AH*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| J10 | 02-08 | | 8100147 | Coupling, 9 tooth | 1 |
| J15 | 02-08 | | 8100649 | Cover assembly, CW | 1 |
| J15 | 02-08 | | 8100647 | Cover assembly, CCW | 1 |
| J30 | 02-08 | | 664771 (8700008) | Bushing | 1 |
| J40 | 02-08 | | 680892 (9004104-0440) | O-ring | 1 |
| J50 | 02-08 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 02-08 | | 8100846 | Flange adapter, SAE A (*SB-2007-027* on page 351) | 1 |
| J70 | 02-08 | 07-43 | 664920 (9009625-0132) | Washer (*SB-2007-027* on page 351) | 4 |
| J80 | 02-08 | | 518721 | Screw, M16 x 140 | 4 |
| J90 | 07-44 | | 4800482 | A pad seal (*SB-2007-027* on page 351) | 1 |
| J90 | 02-08 | 07-43 | 545434 (9004100-0420) | O-ring | 1 |
| J92 | 07-44 | | 4460586 | Cover plate (*SB-2007-027* on page 351) | 1 |
| J92 | 02-08 | 07-43 | 9802336 | Cover plate | 1 |
| J95 | 02-08 | | 9007200-3714 | Screw | 2 |

*Order code: B4*

| | | | | | |
|---|---|---|---|---|---|
| J10 | 15-44 | | 8100148 | Coupling, 13 tooth | 1 |
| J15 | 15-44 | | 8801248 | Cover assembly, CW | 1 |
| J30 | 15-44 | | 664771 (8700008) | Bushing | 1 |
| J50 | 15-44 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 15-44 | | 8100847 | Flange adapter, SAE B | 1 |
| J80 | 15-44 | | 518721 | Screw, M16 x 140 | 4 |
| J90 | 15-44 | | 8801061 | B pad seal | 1 |
| J92 | 15-44 | | 8801059 | Cover plate | 1 |
| J95 | 15-44 | | 9007200-5021 | Screw | 2 |

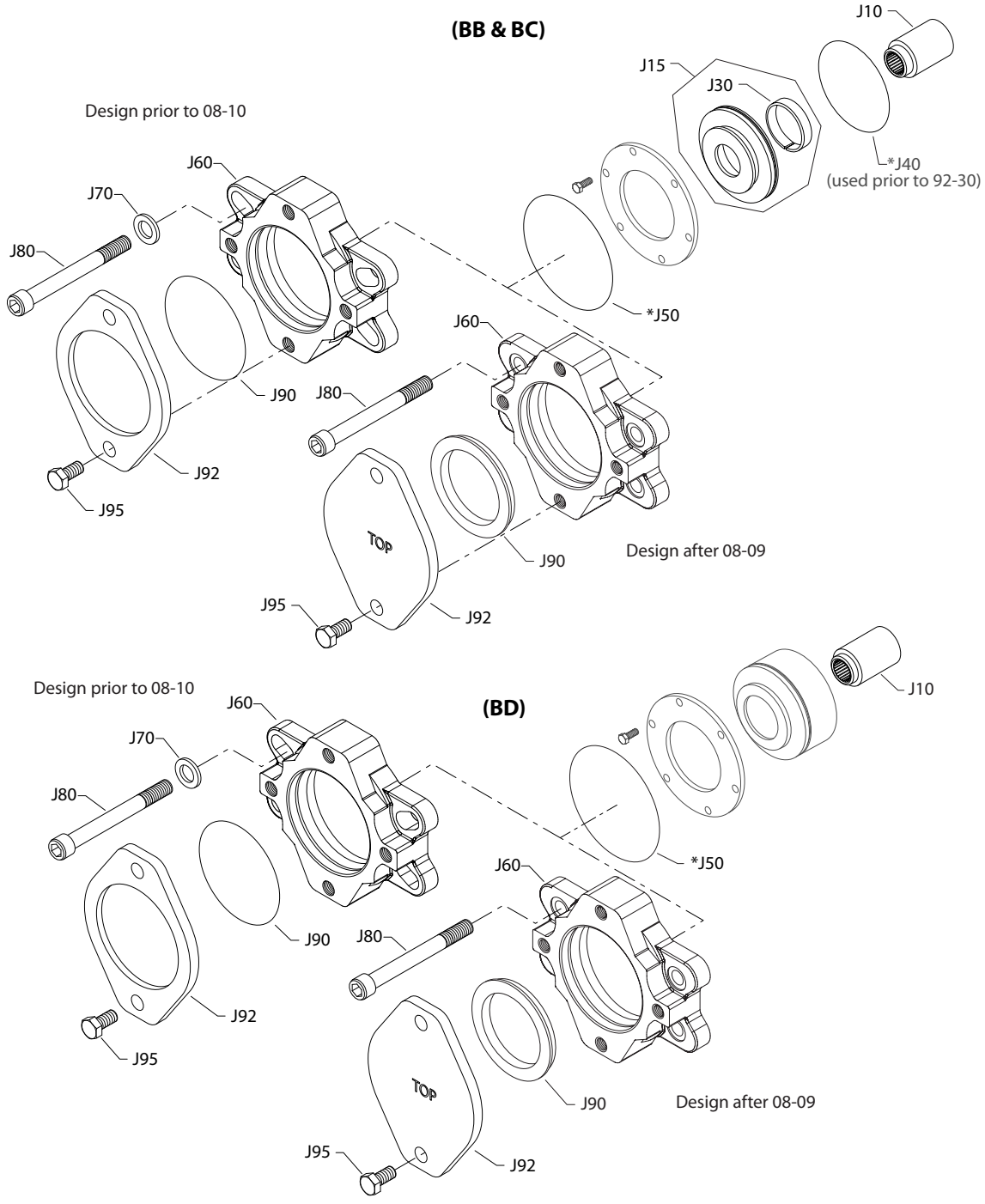
*Order code: BA*

| | | | | | |
|---|---|---|---|---|---|
| J10 | 06-15 | | 8100273 | Coupling, 15 tooth | 1 |
| J15 | 06-15 | | 8801248 | Cover assembly, CW | 1 |
| J15 | 06-15 | | 8801352 | Cover assembly, CCW | 1 |
| J30 | 06-15 | | 664771 (8700008) | Bushing | 1 |
| J50 | 06-15 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 06-15 | | 8100847 | Flange adapter, SAE B | 1 |
| J80 | 06-15 | | 518721 | Screw, M16 x 140 | 4 |
| J90 | 06-15 | | 8801061 | B pad seal | 1 |
| J92 | 06-15 | | 8801059 | Cover plate | 1 |
| J95 | 06-15 | | 9007200-5021 | Screw | 2 |

## Auxiliary mounting

### S90P 75cc aux mounting BB-V

*Parts configuration*




* Included in base pump seal kit Q210

## Auxiliary mounting

*Order code: BB & V*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| J10 | 87-02 | | 8100273 | Coupling,15 tooth | 1 |
| J15 | 87-02 | | 8800832 | Cover assembly, CW (*SB-1993-001* on page 315*& *SB-2005-011* on page 350) | 1 |
| J15 | 87-02 | | 8800833 | Cover assembly, CCW (*SB-1993-001* on page 315* & *SB-2005-011* on page 350) | 1 |
| J30 | 87-02 | | 664771 (8700008) | Bushing | 1 |
| J40 | 87-02 | 92-15 | 680892 (9004104-0440) | O-ring | 1 |
| J50 | 87-02 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 87-02 | | 8100847 | Flange adapter, SAEB (*SB-2007-055* on page 355) | 1 |
| J70 | 87-02 | 08-09 | 9009625-0132 | Washer (*SB-2007-055* on page 355) | 4 |
| J80 | 98-44 | | 518721 | Screw, M16x 140 | 4 |
| J80 | 87-02 | 98-43 | 9007314-1622 | Screw M16 x130 (*SB-1998-073* on page 334) | 4 |
| J90 | 08-10 | | 8801061 | B pad seal (*SB-2007-055* on page 355) | 1 |
| J90 | 87-02 | 08-09 | 726935 (9004104-0450) | O-ring | 1 |
| J92 | 08-10 | | 8801059 | Coverplate (*SB-2007-055* on page 355) | 1 |
| J92 | 87-02 | 08-09 | 4460370 | Coverplate | 1 |
| J95 | 87-02 | | 9007200-5021 | Screw | 2 |

* For information regarding replacement parts for units built from 89-17 to 93-09, refer to AN152886483362 in the appendix. New style covers may be used with either charge pump design.

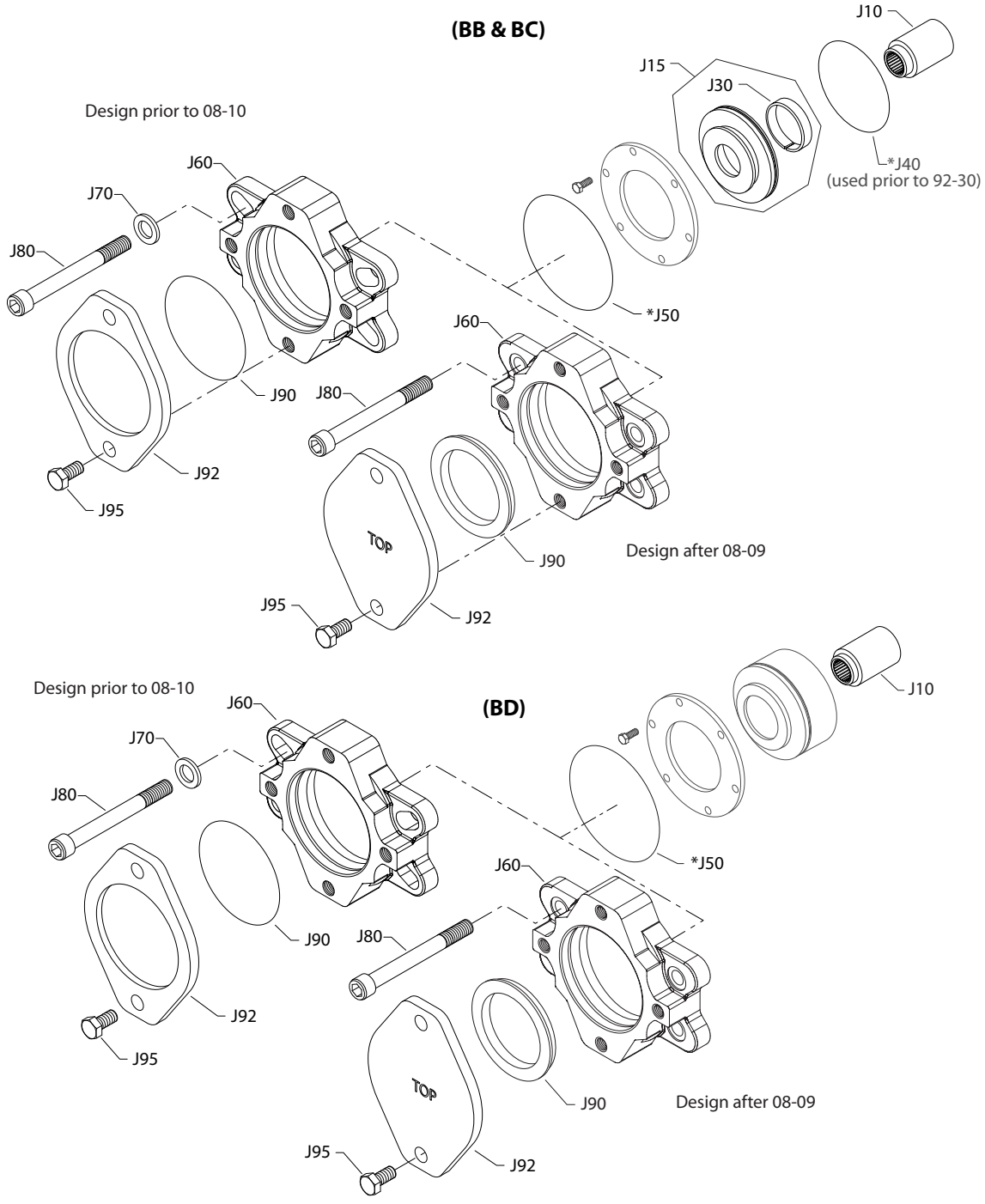
*Order code: BC & B*

| | | | | | |
|---|---|---|---|---|---|
| J10 | 87-02 | | 8100148 | Coupling, 13 tooth | 1 |
| J15 | 87-02 | | 8800832 | Cover assembly, CW (*SB-1993-001* on page 315* & *SB-2005-011* on page 350) | 1 |
| J15 | 87-02 | | 8800833 | Cover assembly, CCW (*SB-1993-001* on page 315* & *SB-2005-011* on page 350) | 1 |
| J30 | 87-02 | | 664771 (8700008) | Bushing | 1 |
| J40 | 87-02 | 92-15 | 680892 (9004104-0440) | O-ring | 1 |
| J50 | 87-02 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 87-02 | | 8100847 | Flange adapter, SAE B (*SB-2007-055* on page 355) | 1 |
| J70 | 87-02 | 08-09 | 9009625-0132 | Washer (*SB-2007-055* on page 355) | 4 |
| J80 | 98-44 | | 518721 | Screw, M16 x 140 | 4 |
| J80 | 87-02 | 98-43 | 9007314-1622 | Screw M16 x 130 (*SB-1998-073* on page 334) | 4 |
| J90 | 08-10 | | 8801061 | B pad seal (*SB-2007-055* on page 355) | 1 |
| J90 | 87-02 | 08-09 | 726935 (9004104-0450) | O-ring | 1 |
| J92 | 08-10 | | 8801059 | Cover plate (*SB-2007-055* on page 355) | 1 |
| J92 | 87-02 | 08-09 | 4460370 | Cover plate | 1 |
| J95 | 87-02 | | 9007200-5021 | Screw | 2 |

## Auxiliary mounting

### S90P 75cc aux mounting BD

*Parts configuration*




* Included in base pump seal kit Q210

## Auxiliary mounting

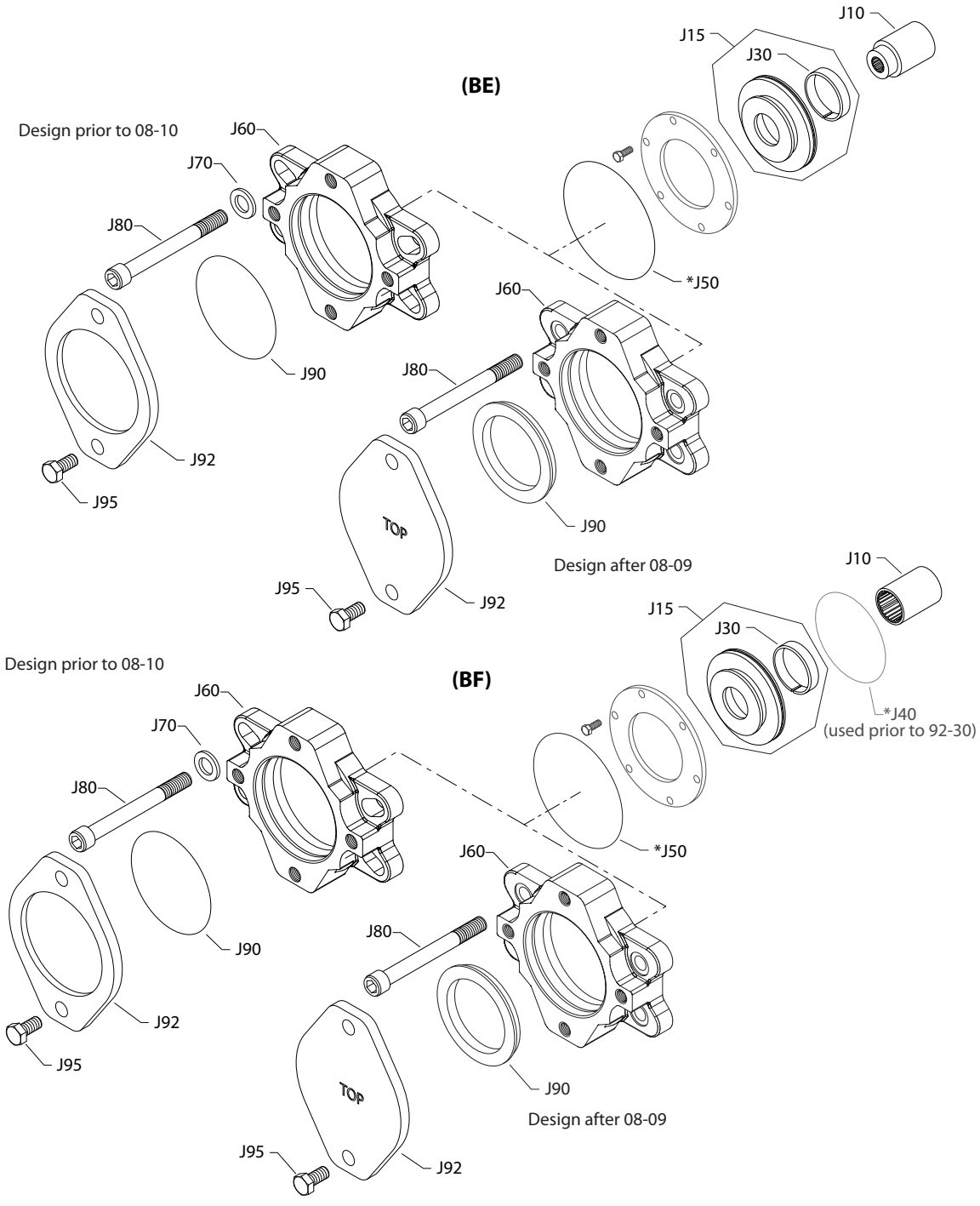
*Order code: BD*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| J10 | 06-10 | | 8100148 | Coupling, 13 tooth | 1 |
| J50 | 06-10 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 06-10 | | 8100938 | Flange adapter, SAE B (*SB-2007-055* on page 355) | 1 |
| J70 | 06-10 | 08-09 | 664920 (9009625-0132) | Washer (*SB-2007-055* on page 355) | 4 |
| J80 | 06-10 | | 518721 | Screw, M16 x 140 | 4 |
| J90 | 08-10 | | 8801061 | B pad seal (*SB-2007-055* on page 355) | 1 |
| J90 | 06-10 | 08-09 | 726935 (9004104-0450) | O-ring | 1 |
| J92 | 08-10 | | 8801059 | Cover plate (*SB-2007-055* on page 355) | 1 |
| J92 | 06-10 | 08-09 | 4460370 | Cover plate | 1 |
| J95 | 06-10 | | 370320 | Screw | 2 |

## Auxiliary mounting

### S90P 75cc aux mounting BE, BF

*Parts configuration*




* Included in base pump seal kit Q210

## Auxiliary mounting

*Order code: BE & P*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| J10 | 95-21 | | 8100148 | Coupling,13 tooth | 1 |
| J15 | 95-21 | | 8800832 | Cover assembly, CW (*SB-2005-011* on page 350) | 1 |
| J15 | 95-21 | | 8800833 | Cover assembly, CCW (*SB-2005-011* on page 350) | 1 |
| J30 | 95-21 | | 664771 (8700008) | Bushing | 1 |
| J50 | 95-21 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 95-21 | | 8100938 | Flange adapter, SAE B, metric threads (*SB-2007-055* on page 355) | 1 |
| J70 | 95-21 | 08-09 | 9009625-0132 | Washer (*SB-2007-055* on page 355) | 4 |
| J80 | 98-44 | | 518721 | Screw, M16x 140 | 4 |
| J80 | 95-21 | 98-43 | 9007314-1622 | Screw M16 x130 (*SB-1998-073* on page 334) | 4 |
| J90 | 08-10 | | 8801061 | B pad seal (*SB-2007-055* on page 355) | 1 |
| J90 | 95-21 | 08-09 | 726935 (9004104-0450) | O-ring | 1 |
| J92 | 08-10 | | 8801059 | Coverplate (*SB-2007-055* on page 355) | 1 |
| J92 | 95-21 | 08-09 | 4460370 | Coverplate | 1 |
| J95 | 95-21 | | 370320 (9007314-1207) | Screw | 2 |

*Order code: BF & U*

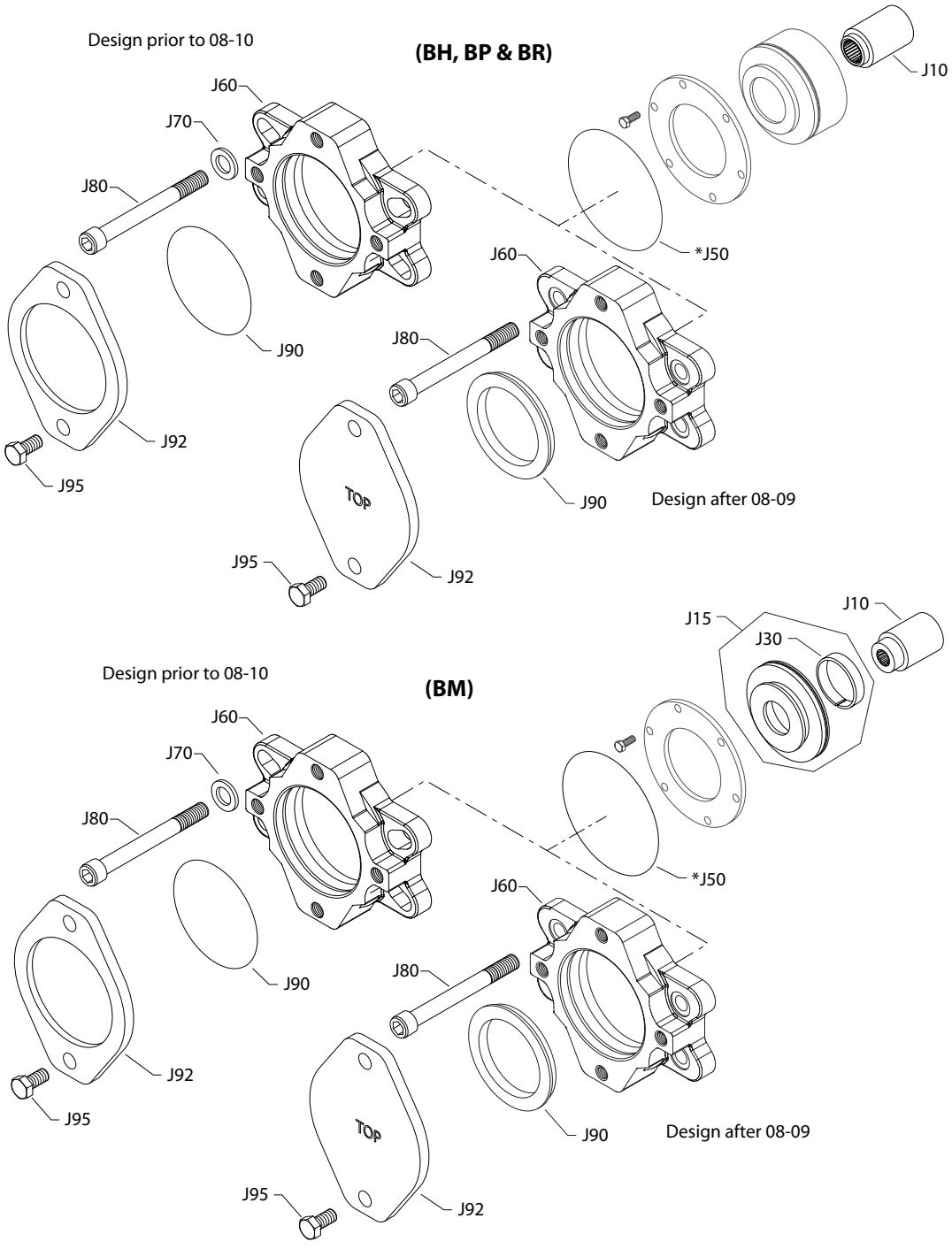
| | | | | | |
|---|---|---|---|---|---|
| J10 | 87-02 | | 11053342 | Coupling,19 tooth | 1 |
| J15 | 87-02 | | 8800832 | Cover assembly, CW (*SB-1993-001* on page 315* & *SB-2005-011* on page 350) | 1 |
| J15 | 87-02 | | 8800833 | Cover assembly, CCW (*SB-1993-001* on page 315* & *SB-2005-011* on page 350) | 1 |
| J30 | 87-02 | | 664771 (8700008) | Bushing | 1 |
| J40 | 87-02 | 92-15 | 680892 (9004104-0440) | O-ring | 1 |
| J50 | 87-02 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 87-02 | | 8100847 | Flange adapter, SAE B (*SB-2007-055* on page 355) | 1 |
| J70 | 87-02 | 08-09 | 9009625-0132 | Washer (*SB-2007-055* on page 355) | 4 |
| J80 | 98-44 | | 518721 | Screw, M16x 140 | 4 |
| J80 | 87-02 | 98-43 | 9007314-1622 | Screw M16 x130 (*SB-1998-073* on page 334) | 4 |
| J90 | 08-10 | | 8801061 | B pad seal (*SB-2007-055* on page 355) | 1 |
| J90 | 87-02 | 08-09 | 726935 (9004104-0450) | O-ring | 1 |
| J92 | 08-10 | | 8801059 | Coverplate (*SB-2007-055* on page 355) | 1 |
| J92 | 87-02 | 08-09 | 4460370 | Coverplate | 1 |
| J95 | 87-02 | | 9007200-5021 | Screw | 2 |

* For information regarding replacement parts for units built from 89-17 to 93-09, refer to AN152886483362 in the appendix. New style covers may be used with either charge pump design.

## Auxiliary mounting

### S90P 75cc aux mounting BH-BP

*Parts configuration*




* Included in base pump seal kit Q210

## Auxiliary mounting

*Order code: BH*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| J10 | 06-13 | | 8100148 | Coupling, 13 tooth | 1 |
| J50 | 06-13 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 06-13 | | 8100847 | Flange adapter, SAE B (*SB-2007-055* on page 355) | 1 |
| J70 | 06-13 | 09-30 | 664920 (9009625-0132) | Washer (*SB-2007-055* on page 355) | 4 |
| J80 | 06-13 | | 518721 | Screw, M16x 140 | 4 |
| J90 | 08-10 | | 8801061 | B pad seal (*SB-2007-055* on page 355) | 1 |
| J90 | 06-13 | 09-30 | 726935 (9004104-0450) | O-ring | 1 |
| J92 | 08-10 | | 8801059 | Coverplate (*SB-2007-055* on page 355) | 1 |
| J92 | 06-13 | 08-09 | 4460370 | Coverplate | 1 |
| J95 | 06-13 | | 9007200-5021 | Screw | 2 |

*Order code: BM & 7*

| | | | | | |
|---|---|---|---|---|---|
| J10 | 94-07 | | 8100273 | Coupling, 15 tooth | 1 |
| J15 | 94-07 | | 8800832 | Cover assembly, CW (*SB-2005-011* on page 350) | 1 |
| J15 | 94-07 | | 8800833 | Cover assembly, CCW (*SB-2005-011* on page 350) | 1 |
| J30 | 94-07 | | 664771 (8700008) | Bushing | 1 |
| J50 | 94-07 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 94-07 | | 8100938 | Flange adapter, SAE B, metric threads (*SB-2007-055* on page 355) | 1 |
| J70 | 94-07 | 08-09 | 9009625-0132 | Washer (*SB-2007-055* on page 355) | 4 |
| J80 | 98-44 | | 518721 | Screw M16x 140 | 4 |
| J80 | 94-07 | 98-43 | 9007314-1622 | Screw M16 x130 (*SB-1998-073* on page 334) | 4 |
| J90 | 08-10 | | 8801061 | B pad seal (*SB-2007-055* on page 355) | 1 |
| J90 | 06-13 | 08-09 | 726935 (9004104-0450) | O-ring | 1 |
| J92 | 08-10 | | 8801059 | Coverplate (*SB-2007-055* on page 355) | 1 |
| J92 | 94-07 | 08-09 | 4460370 | Coverplate | 1 |
| J95 | 94-07 | | 737866 (9007314-1207) | Screw | 2 |

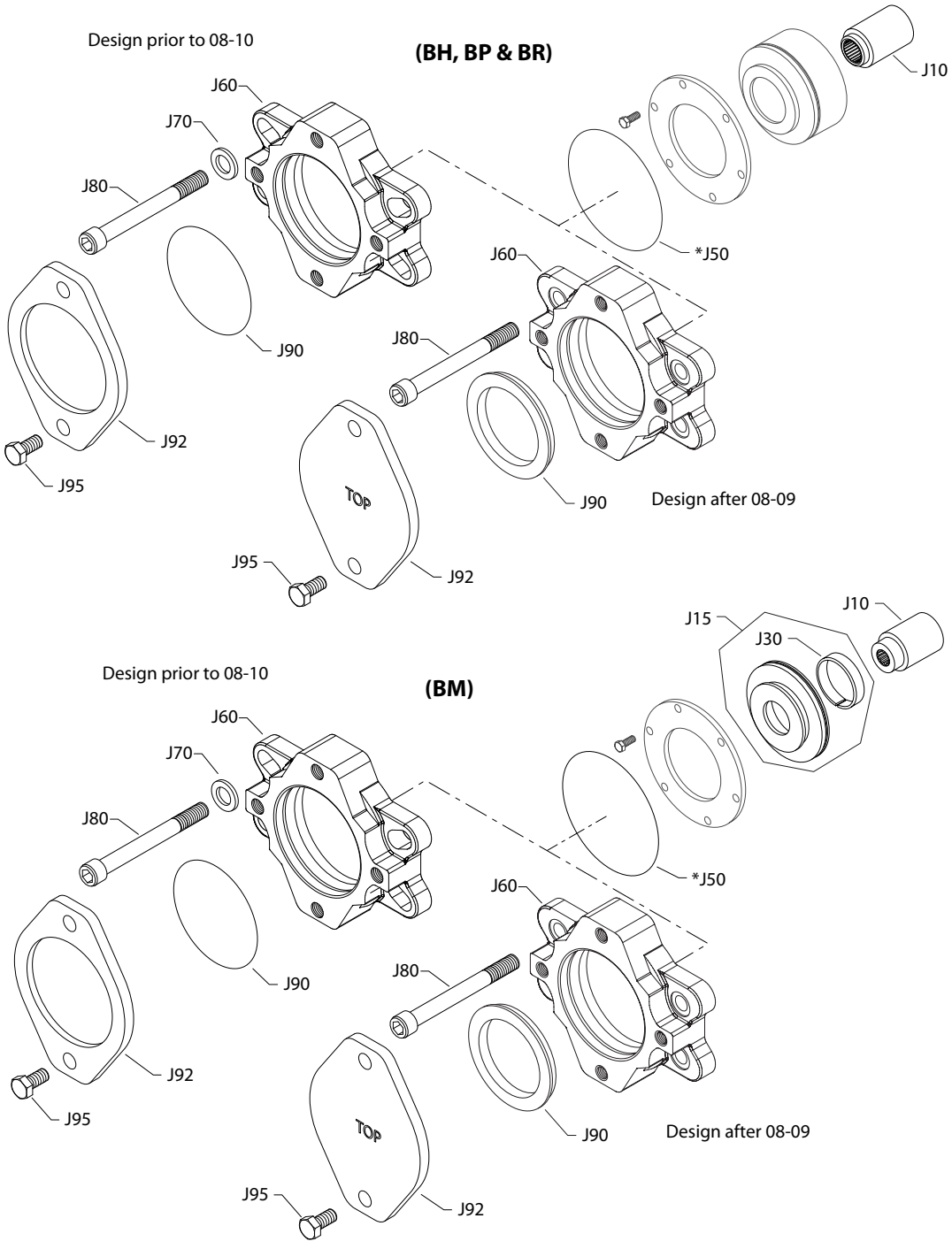
*Order code: BP*

| | | | | | |
|---|---|---|---|---|---|
| J10 | 04-50 | | 8100273 | Coupling, 15 tooth | 1 |
| J50 | 04-50 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 04-50 | | 8100847 | Flange adapter, SAE B (*SB-2007-055* on page 355) | 1 |
| J70 | 04-50 | 09-30 | 664920 (9009625-0132) | Washer (*SB-2007-055* on page 355) | 4 |
| J80 | 04-50 | | 518721 | Screw M16x 140 | 4 |
| J90 | 08-10 | | 8801061 | B pad seal (*SB-2007-055* on page 355) | 1 |
| J90 | 04-50 | 09-30 | 726935 (9004104-0450) | O-ring | 1 |
| J92 | 08-10 | | 8801059 | Coverplate (*SB-2007-055* on page 355) | 1 |
| J92 | 04-50 | 08-09 | 4460370 | Coverplate | 1 |
| J95 | 04-50 | | 9007200-5021 | Screw | 2 |

## Auxiliary mounting

### S90P 75cc aux mounting BR

*Parts configuration*




* Included in base pump seal kit Q210

## Auxiliary mounting

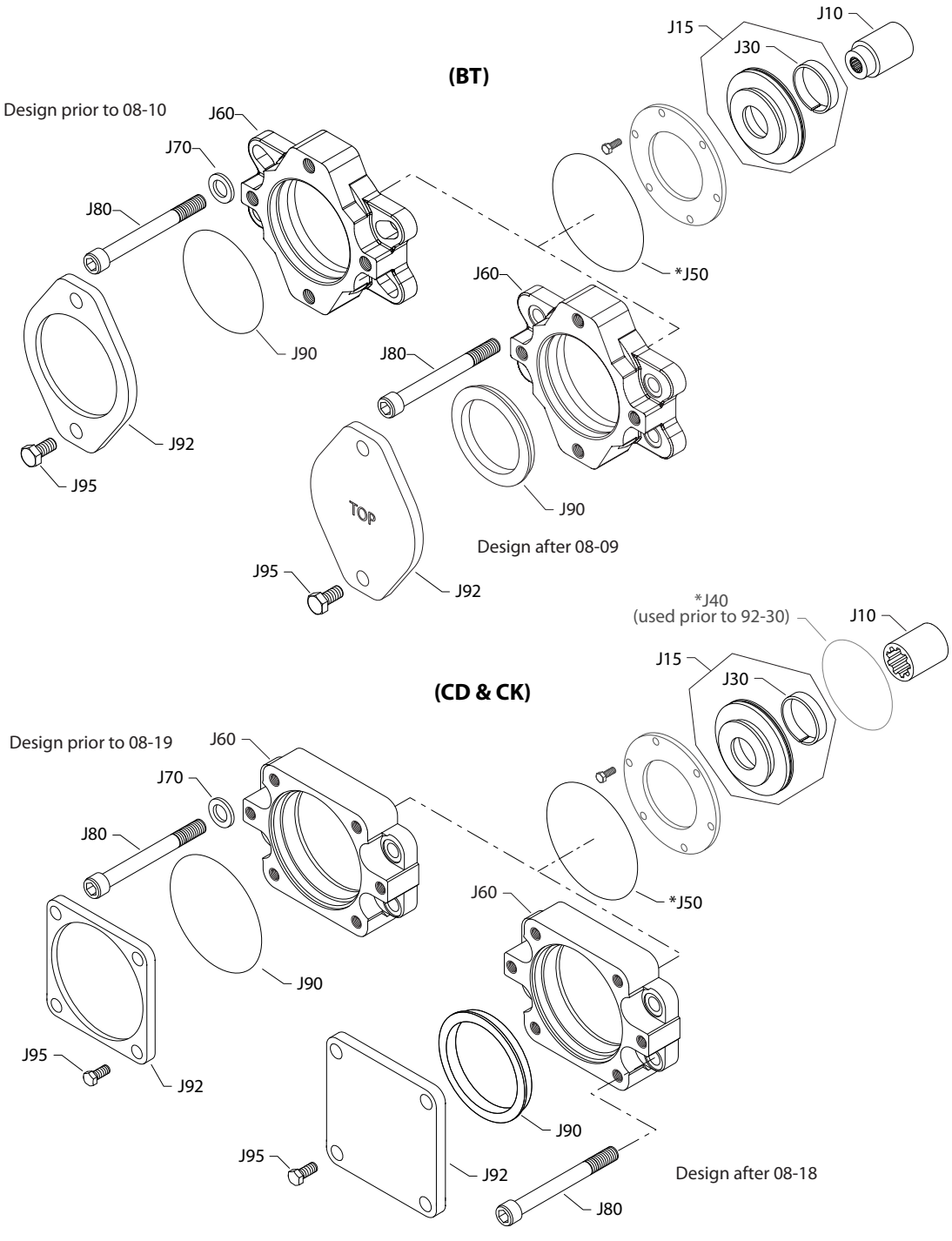
*Order code: BR*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| J10 | 04-50 | | 8100273 | Coupling, 15 tooth | 1 |
| J50 | 04-50 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 04-50 | | 8100938 | Flange adapter, SAE B (*SB-2007-055* on page 355) | 1 |
| J70 | 04-50 | 09-30 | 664920 (9009625-0132) | Washer (*SB-2007-055* on page 355) | 4 |
| J80 | 04-50 | | 518721 | Screw M16x 140 | 4 |
| J90 | 08-10 | | 8801061 | B pad seal (*SB-2007-055* on page 355) | 1 |
| J90 | 04-50 | 09-30 | 726935 (9004104-0450) | O-ring | 1 |
| J92 | 08-10 | | 8801059 | Coverplate (*SB-2007-055* on page 355) | 1 |
| J92 | 87-02 | 08-09 | 4460370 | Coverplate | 1 |
| J95 | 04-50 | | 370320 (9007314-1207) | Screw | 2 |

## Auxiliary mounting

### S90P 75cc aux mounting BT-CD

*Parts configuration*




* Included in base pump seal kit Q210

## Auxiliary mounting

*Order code: BT*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| J10 | 05-12 | | 11053346 | Coupling, 14 tooth, high strength | 1 |
| J15 | 05-12 | | 8800832 | Cover assembly, CW (*SB-1993-001* on page 315* & *SB-2005-011* on page 350) | 1 |
| J15 | 05-12 | | 8800833 | Cover assembly, CCW (*SB-1993-001* on page 315* & *SB-2005-011* on page 350) | 1 |
| J30 | 05-12 | | 664771 (8700008) | Bushing | 1 |
| J50 | 05-12 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 05-12 | | 8100847 | Flange adapter, SAE B (*SB-2007-055* on page 355) | 1 |
| J70 | 05-12 | 08-09 | 9009625-0132 | Washer (*SB-2007-055* on page 355) | 4 |
| J80 | 98-44 | | 518721 | Screw, M16x 140 | 4 |
| J80 | 05-12 | 98-43 | 9007314-1622 | Screw M16 x130 (*SB-1998-073* on page 334) | 4 |
| J90 | 08-10 | | 8801061 | B pad seal (*SB-2007-055* on page 355) | 1 |
| J90 | 05-12 | 08-09 | 726935 (9004104-0450) | O-ring | 1 |
| J92 | 08-10 | | 8801059 | Coverplate (*SB-2007-055* on page 355) | 1 |
| J92 | 05-12 | 08-09 | 4460370 | Coverplate | 1 |
| J95 | 05-12 | | 9007200-5021 | Screw | 2 |

* For information regarding replacement parts for units built from 89-17 to 93-09, refer to AN152886483362 in the appendix. New style covers may be used with either charge pump design.

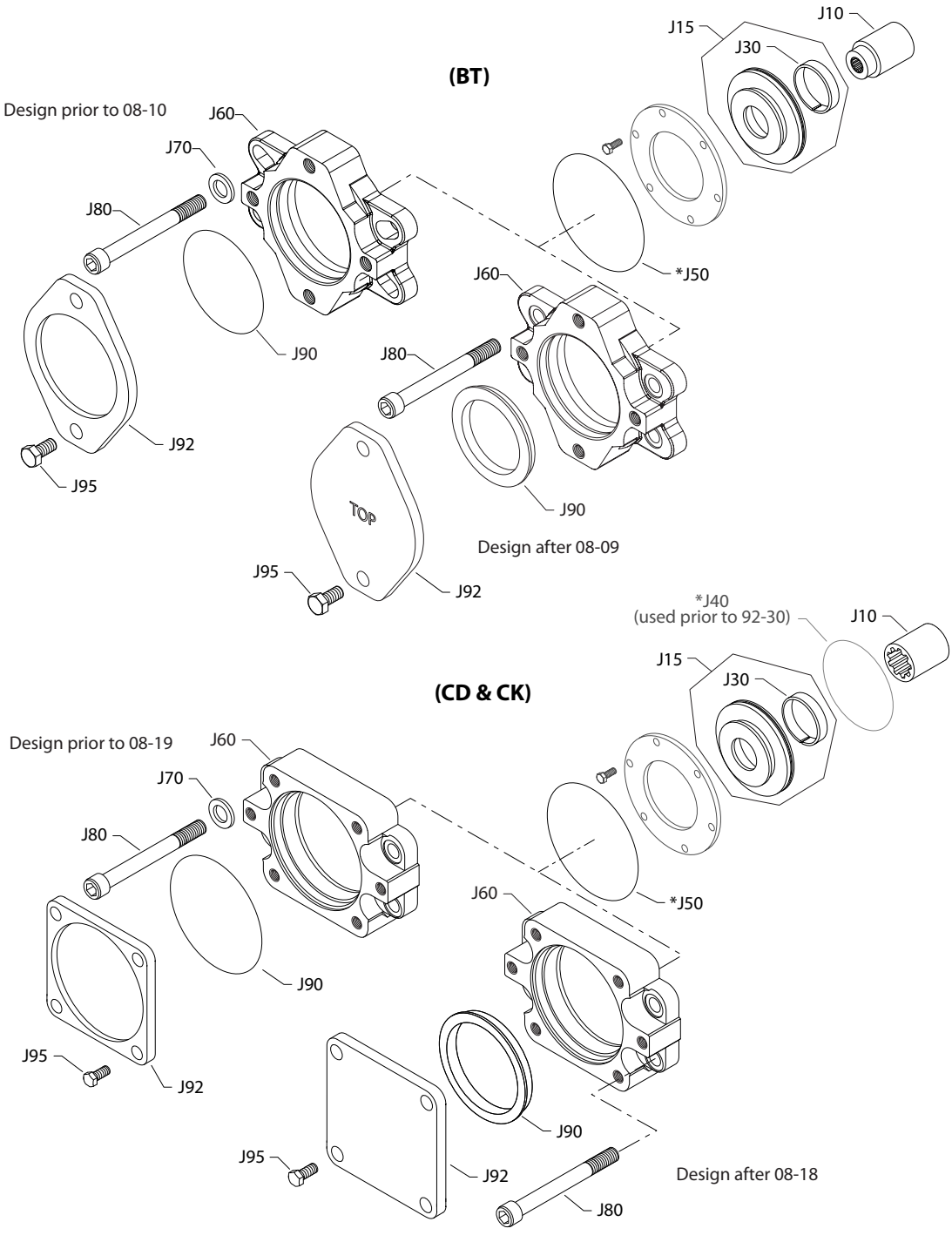
*Order code: CD & C*

| | | | | | |
|---|---|---|---|---|---|
| J10 | 87-02 | | 11053346 | Coupling, 14 tooth, high strength | 1 |
| J15 | 87-02 | | 8800832 | Cover assembly, CW (*SB-1993-001* on page 315* & *SB-2005-011* on page 350) | 1 |
| J15 | 87-02 | | 8800833 | Cover assembly, CCW (*SB-1993-001* on page 315* & *SB-2005-011* on page 350) | 1 |
| J30 | 87-02 | | 664771 (8700008) | Bushing | 1 |
| J40 | 87-02 | 92-15 | 680892 (9004104-0440) | O-ring | 1 |
| J50 | 87-02 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 87-02 | | 8100897 | Flange adapter, SAE C (*SB-2007-051* on page 353) | 1 |
| J70 | 87-02 | 03-10 | 5000602 | Washer (*SB-2002-050* on page 346) | 4 |
| J80 | 98-44 | | 518721 | Screw, M16x 140 | 4 |
| J80 | 87-02 | 98-43 | 9007314-1622 | Screw M16 x130 (*SB-1998-073* on page 334) | 4 |
| J90 | 08-19 | | 11081805 | C pad seal (*SB-2007-051* on page 353) | 1 |
| J90 | 87-02 | 08-18 | 726943 (9004104-0490) | O-ring | 1 |
| J92 | 08-19 | | 8801060 | Coverplate (*SB-2007-051* on page 353) | 1 |
| J92 | 87-02 | 08-18 | 8800406 | Coverplate | 1 |
| J95 | 87-02 | | 9007200-5021 | Screw | 4 |

## Auxiliary mounting

### S90P 75cc aux mounting CK

*Parts configuration*




* Included in base pump seal kit Q210

## Auxiliary mounting

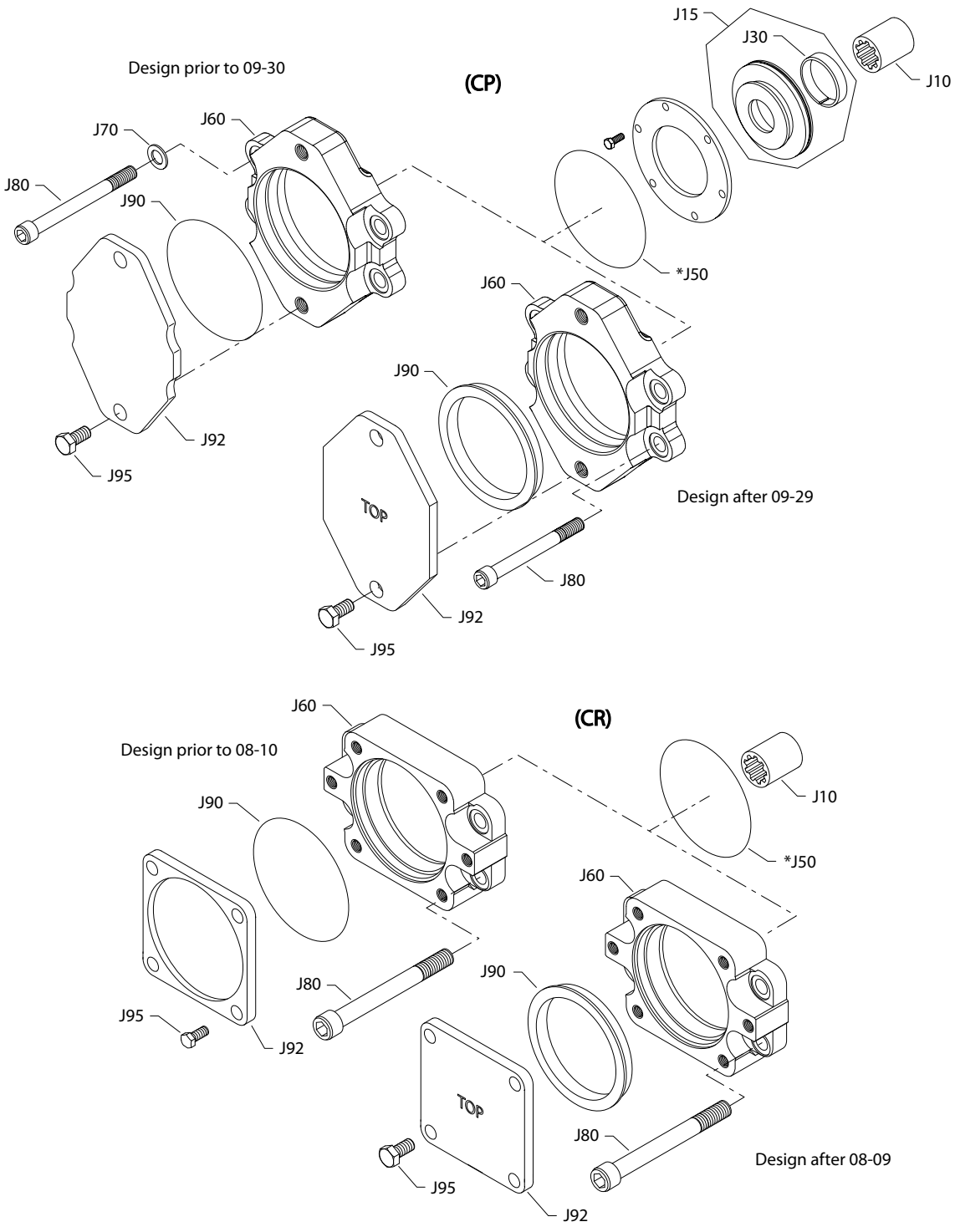
*Order code: CK*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| J10 | 96-04 | | 11053278 | Coupling, 25 tooth, high strength | 1 |
| J15 | 96-04 | | 8800832 | Cover assembly, CW (*SB-2005-011* on page 350) | 1 |
| J15 | 96-04 | | 8800833 | Cover assembly, CCW (*SB-2005-011* on page 350) | 1 |
| J30 | 96-04 | | 664771 (8700008) | Bushing | 1 |
| J50 | 96-04 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 96-04 | | 8100897 | Flange adapter, SAE C (*SB-2007-051* on page 353) | 1 |
| J70 | 96-04 | 03-10 | 5000602 | Washer (*SB-2002-050* on page 346) | 4 |
| J80 | 98-44 | | 518721 | Screw M16x 140 | 4 |
| J80 | 96-04 | 98-43 | 9007314-1622 | Screw M16 x130 (*SB-1998-073* on page 334) | 4 |
| J90 | 08-19 | | 11081805 | C pad seal (*SB-2007-051* on page 353) | 1 |
| J90 | 96-04 | 08-18 | 726943 (9004104-0490) | O-ring | 1 |
| J92 | 08-19 | | 8801060 | Coverplate (*SB-2007-055* on page 355) | 1 |
| J92 | 96-04 | 08-18 | 4460370 | Coverplate | 1 |
| J95 | 96-04 | | 9007200-5021 | Screw | 4 |

## Auxiliary mounting

### S90P aux mounting CP, CR

*Parts configuration*




* Included in base pump seal kit Q210

## Auxiliary mounting

*Order code: CP*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| J10 | 93-14 | | 11053346 | Coupling, 14 tooth, high strength | 1 |
| J15 | 93-14 | | 8800832 | Cover assembly, CW (*SB-1993-001* on page 315* & *SB-2005-011* on page 350) | 1 |
| J15 | 93-14 | | 8800833 | Cover assembly, CCW (*SB-1993-001* on page 315* & *SB-2005-011* on page 350) | 1 |
| J30 | 93-14 | | 664771 (8700008) | Bushing | 1 |
| J50 | 93-14 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 93-14 | | 8200551 | Flange adapter, SAE C (*SB-2007-051* on page 353) | 1 |
| J70 | 93-14 | 03-10 | 664920 | Washer | 4 |
| J80 | 98-44 | | 518721 | Screw, M16x 140 | 4 |
| J80 | 93-14 | 98-43 | 9007314-1624 | Screw M16 x130 (*SB-1989-023* on page 310) | 4 |
| J90 | 09-30 | | 11081805 | C-pad seal (*SB-2007-051* on page 353) | 1 |
| J90 | 93-14 | 09-29 | 726943 (9004104-0490) | O-ring | 1 |
| J92 | 09-30 | | 11048554 | Cover plate (*SB-2007-051* on page 353) | 1 |
| J92 | 93-14 | 09-29 | 8800406 | Cover plate | 1 |
| J95 | 93-14 | | 9007200-6222 | Screw | 2 |

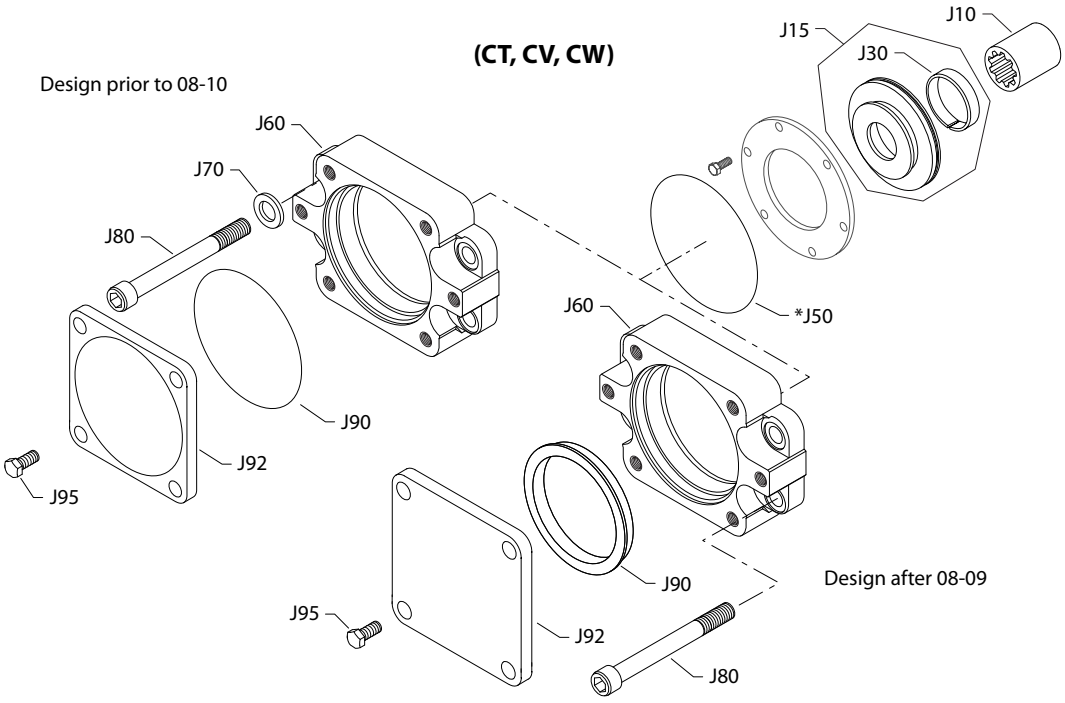
*Order code: CR*

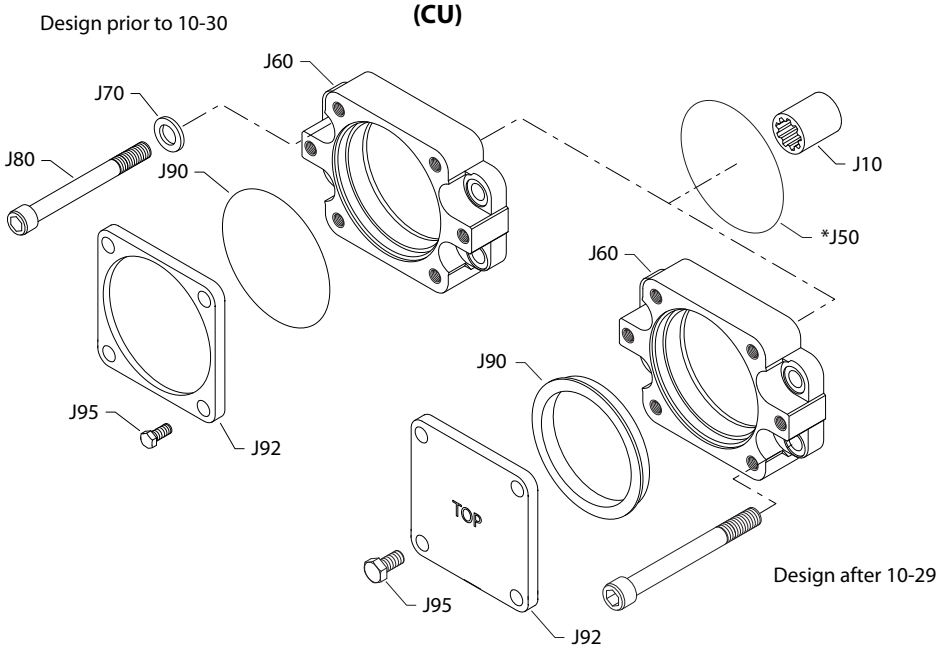
| | | | | | |
|---|---|---|---|---|---|
| J10 | 03-14 | | 11053346 | Coupling, 14 tooth, high strength | 1 |
| J50 | 03-14 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 03-14 | | 8200538 | Flange adapter, SAE C (*SB-2007-051* on page 353) | 1 |
| J80 | 03-14 | | 518721 | Screw, M16x 140 | 4 |
| J90 | 08-10 | | 11081805 | C-pad seal (*SB-2007-051* on page 353) | 1 |
| J90 | 03-14 | 09-29 | 726943 (9004104-0490) | O-ring | 1 |
| J92 | 08-10 | | 8801060 | Cover plate (*SB-2007-051* on page 353) | 1 |
| J92 | 03-14 | 09-29 | 8800406 | Cover plate | 1 |
| J95 | 03-14 | | 370320 | Screw | 4 |

## Auxiliary mounting

### S90P 75cc aux mounting CT-CV

*Parts configuration*




* Included in base pump seal kit Q210

## Auxiliary mounting

*Order code: CT*

| Item | Date Begin | Date End | Part Number | Part Number | Qty. per Model/Kit |
|---|---|---|---|---|---|
| J10 | 98-42 | | 11053342 | Coupling, 19 tooth | 1 |
| J15 | 98-42 | | 8800832 | Cover assembly, CW (*SB-2005-011* on page 350) | 1 |
| J15 | 98-42 | | 8800833 | Cover assembly, CCW (*SB-2005-011* on page 350) | 1 |
| J30 | 98-42 | | 664771 (8700008) | Bushing | 1 |
| J50 | 98-42 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 98-42 | | 8100897 | Flange adapter, SAE C (*SB-2002-050* on page 346 & *SB-2007-051* on page 353) | 1 |
| J70 | 98-42 | 03-10 | 5000602 | Washer (*SB-2002-050* on page 346) | 4 |
| J80 | 98-44 | | 518721 | Screw, M16x 140 | 4 |
| J80 | 98-42 | 98-43 | 9007314-1622 | Screw M16 x130 (*SB-1998-073* on page 334) | 4 |
| J90 | 08-10 | | 11081805 | C pad seal | 1 |
| J90 | 98-42 | 08-09 | 719179 (9004100-0480) | O-ring | 1 |
| J92 | 08-10 | | 8801060 | Coverplate | 1 |
| J92 | 98-42 | 08-09 | 8800406 | Coverplate | 1 |
| J95 | 98-42 | | 9007200-5021 | Screw | 4 |

*Order code: CU*

| | | | | | |
|---|---|---|---|---|---|
| J10 | 99-04 | | 11053346 | Coupling, 14 tooth,high strength | 1 |
| J50 | 99-04 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 99-04 | | 8100897 | Flange adapter, SAE C (*SB-2007-051* on page 353) | 1 |
| J70 | 99-04 | 04-02 | 5000602 | Washer (*SB-2002-050* on page 346) | 4 |
| J80 | 99-04 | | 518721 | Screw, M16x 140 | 4 |
| J90 | 10-30 | | 11081805 | C pad seal (*SB-2007-051* on page 353) | 1 |
| J90 | 99-04 | 10-29 | 726943 (9004104-0490) | O-ring | 1 |
| J92 | 10-30 | | 8801060 | Coverplate (*SB-2007-051* on page 353) | 1 |
| J92 | 99-04 | 10-29 | 8800406 | Coverplate | 1 |
| J95 | 99-04 | | 9007200-5021 | Screw | 4 |

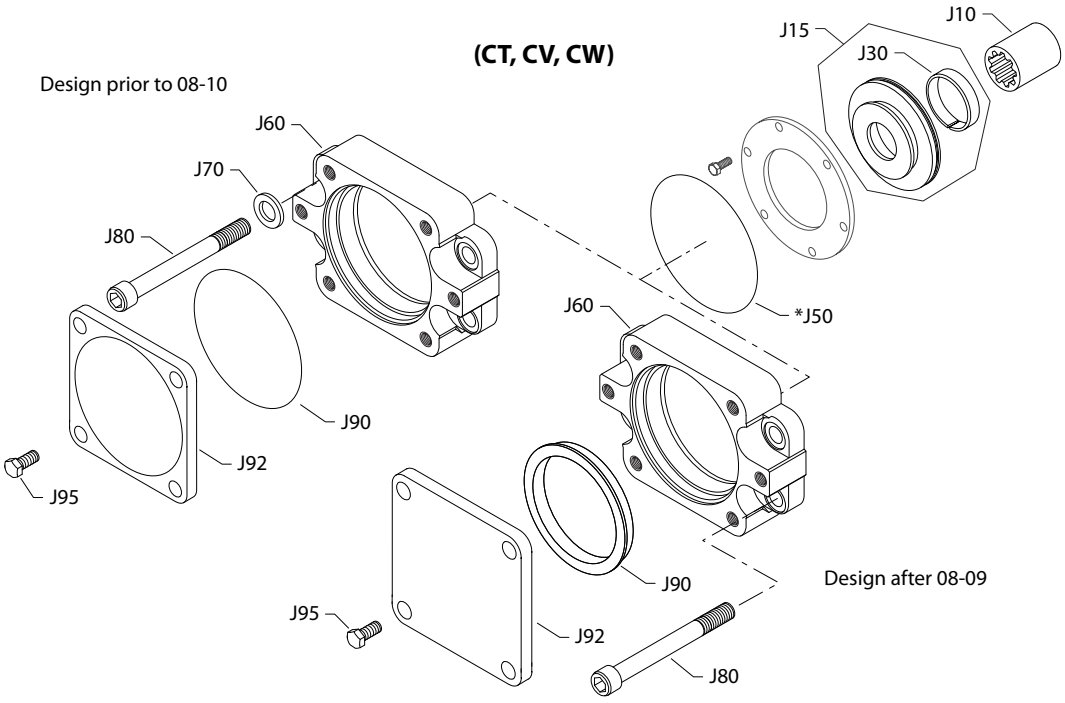
*Order code: CV*

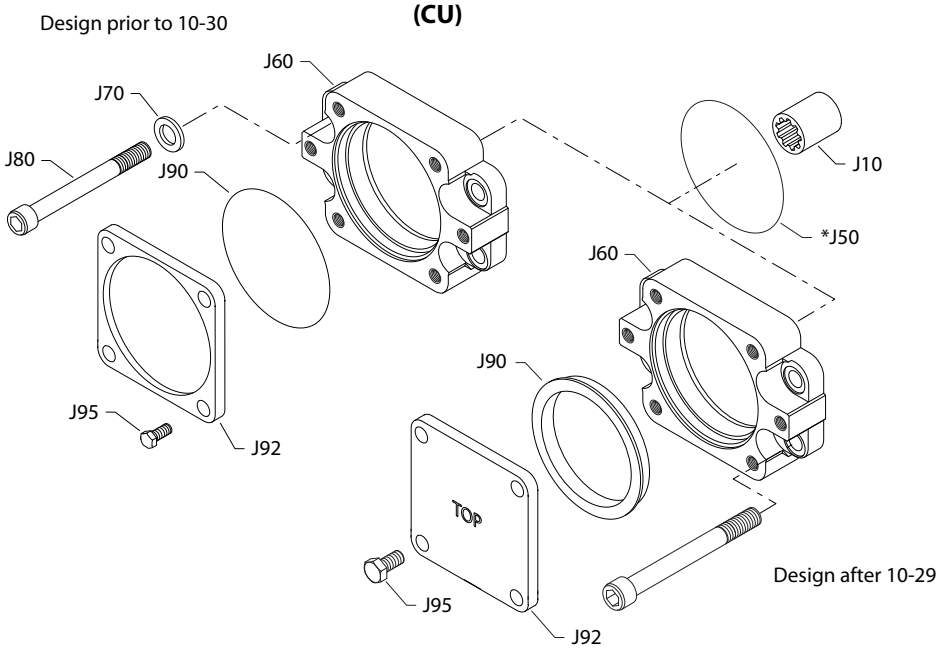
| | | | | | |
|---|---|---|---|---|---|
| J10 | 00-16 | | 11053278 | Coupling, 25 tooth, high strength | 1 |
| J15 | 00-16 | | 8800832 | Cover assembly, CW (*SB-2005-011* on page 350) | 1 |
| J30 | 00-16 | | 664771 (8700008) | Bushing | 1 |
| J50 | 00-16 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 00-16 | | 8100897 | Flange adapter, SAE C (*SB-2007-051* on page 353) | 1 |
| J80 | 00-16 | | 518721 | Screw, M16x 140 | 4 |
| J90 | 00-16 | | 11081805 | C pad seal | 1 |
| J92 | 00-16 | | 8801060 | Coverplate | 1 |
| J95 | 00-16 | | 9007200-5021 | Screw | 4 |

## Auxiliary mounting

### S90P 75cc aux mounting CW

*Parts configuration*




* Included in base pump seal kit Q210

## Auxiliary mounting

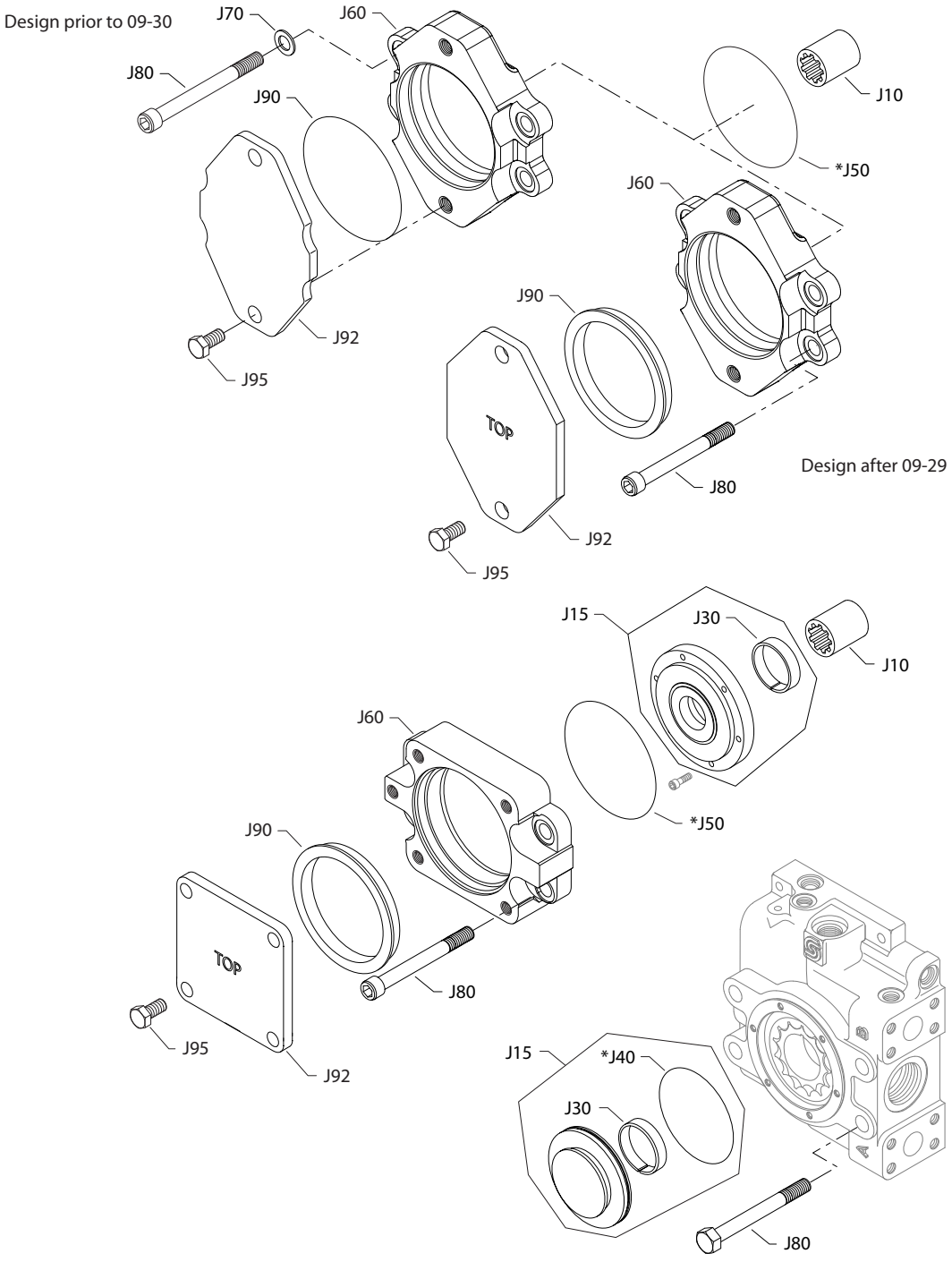
*Order code: CW*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| J10 | 98-46 | | 11053346 | Coupling, 14 tooth,high strength | 1 |
| J15 | 98-46 | | 8800832 | Cover assembly, CW (*SB-2005-011* on page 350) | 1 |
| J30 | 98-46 | | 664771 (8700008) | Bushing | 1 |
| J50 | 98-46 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 98-46 | | 8100897 | Flange adapter, SAE C | 1 |
| J70 | 98-46 | 00-10 | 5000602 | Washer (*SB-2002-050* on page 346) | 4 |
| J80 | 98-44 | | 518721 | Screw, M16x 140 | 4 |
| J90 | 98-46 | | 11081805 | C pad seal | 1 |
| J92 | 98-46 | | 8801060 | Coverplate | 1 |
| J95 | 98-46 | | 9007200-5021 | Screw | 2 |

## Auxiliary mounting

### S90P 75cc aux mounting CX-NN

*Parts configuration*




* Included in base pump seal kit Q210

## Auxiliary mounting

*Order code: CX*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| J10 | 01-35 | | 11053346 | Coupling, 14 tooth, high strength | 1 |
| J50 | 01-35 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 01-35 | | 8100949 | Flange adapter, SAE C | 1 |
| J70 | 01-35 | 09-29 | 5000602 | Washer (*SB-2002-050* on page 346) | 4 |
| J80 | 01-35 | | 518721 | Screw, M16 x 140 | 4 |
| J90 | 09-30 | | 11081805 | C pad seal | 1 |
| J90 | 01-35 | 09-29 | 726943 | O-ring | 1 |
| J92 | 09-30 | | 11048554 | Cover plate | 1 |
| J92 | 01-35 | 09-29 | 350678 | Cover plate | 1 |
| J95 | 01-35 | | 9007200-6222 | Screw | 2 |

*Order code: CZ*

| | | | | | |
|---|---|---|---|---|---|
| J10 | 02-08 | | 11053346 | Coupling, 14 tooth, high strength | 1 |
| J15 | 02-08 | | 8801248 | Cover assembly, CW (*SB-2005-011* on page 350) | 1 |
| J30 | 02-08 | | 664771 (8700008) | Bushing | 1 |
| J50 | 02-08 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 02-08 | | 8100897 | Flange adapter, SAE C | 1 |
| J80 | 02-08 | | 518721 | Screw, M16 x 140 | 4 |
| J90 | 02-08 | | 11081805 | C pad seal | 1 |
| J92 | 02-08 | | 8801060 | Cover plate | 1 |
| J95 | 02-08 | | 9007200-5021 | Screw | 2 |

*Order code: NN & N*

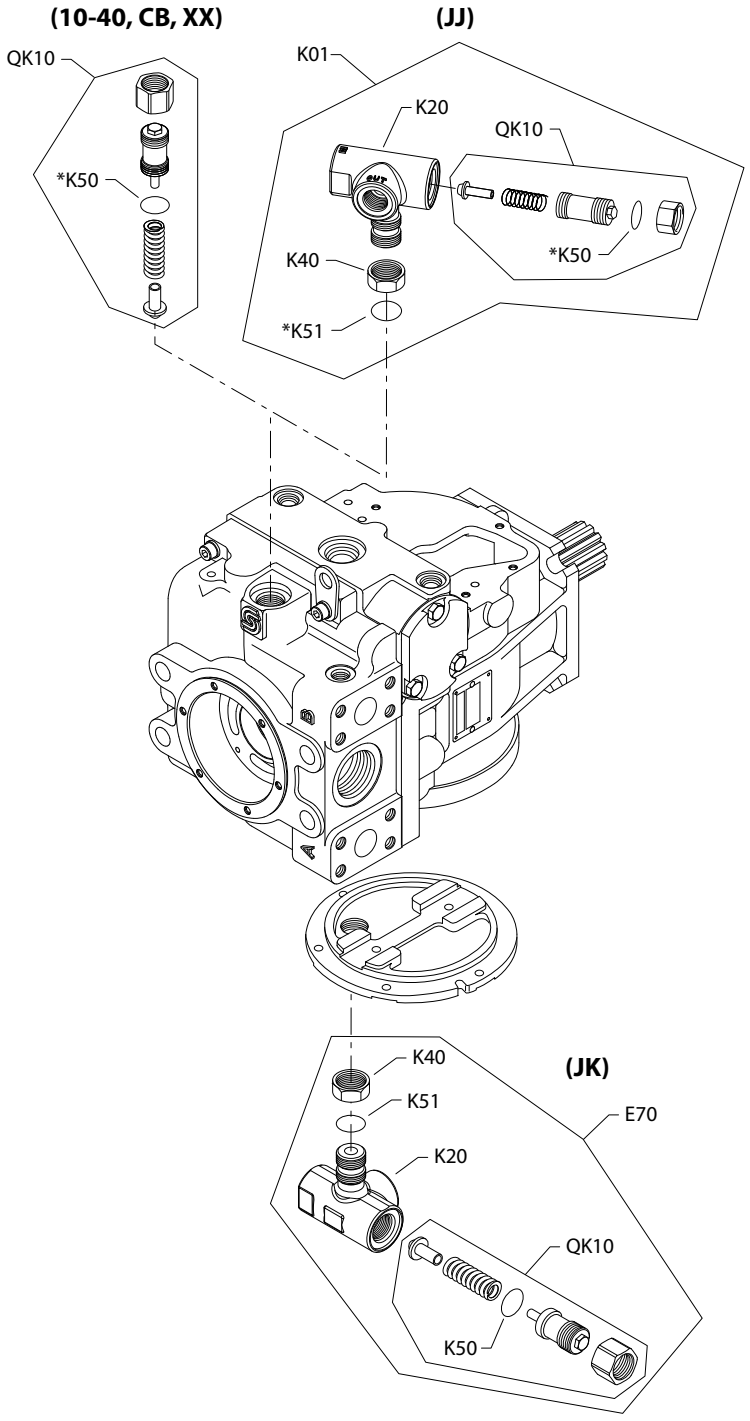
| | | | | | |
|---|---|---|---|---|---|
| J15 | 87-02 | | 8800834 | Cover assembly (*SB-1993-001* on page 315*) | 1 |
| J30 | 87-02 | | 664771 (8700008) | Bushing | 1 |
| J40 | 87-02 | | 680892 (9004104-0440) | O-ring | 1 |
| J80 | 98-44 | | 9007210-1621 | Screw, M16 x 120 | 4 |
| J80 | 87-02 | 98-43 | 9007210-1620 | Screw, M16 x 100 (*SB-1998-073* on page 334) | 4 |

* For additional information regarding replacement parts for units built prior to 93-10, refer to AN152886483362 in the appendix

## Charge pressure setting

### S90P 75cc charge pressure setting

*Parts configuration*




* Included in base pump seal kit Q210

## Charge pressure setting

*Order code: 10-30*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| K50 | 87-42 | | 001149 (9004201-6200) | O-ring (*SB-1989-002* on page 306) | 1 |
| QK10 | 87-42 | | 8002K000-A | Charge relief valve kit, 10-30 bar (*SB-1989-002* on page 306) | 1 |

*Order code: 32-42*

| | | | | | |
|---|---|---|---|---|---|
| K50 | 94-13 | | 001149 (9004201-6200) | O-ring | 1 |
| QK10 | 94-13 | | 8510269 | Charge relief valve kit, 30-42 bar | 1 |

*Order code: CB*

| | | | | | |
|---|---|---|---|---|---|
| K50 | 14-37 | | 001149 (9004201-6200) | O-ring | 1 |
| QK10 | 14-37 | | 11156917 | Charge relief valve kit, 30-42 bar | 1 |

*Order code: JD*

| |
|---|
| none |

*Order code: JJ*

| | | | | | |
|---|---|---|---|---|---|
| K01 | 99-11 | | 8100832 | Externally mounted charge pressure relief valve | 1 |
| QK10 | 99-11 | | 8510272 | Charge relief valve kit, 10-30 bar | 1 |
| K20 | 99-11 | | 8100816 | Charge relief housing | 1 |
| K40 | 99-11 | | 8000658 | Nut | 1 |
| K50 | 99-11 | | 001149 (9004201-6200) | O-ring | 1 |
| K51 | 99-11 | | 001156 (9004201-7500) | O-ring | 1 |

*Order code: JK*

| | | | | | |
|---|---|---|---|---|---|
| E70 | 99-11 | | 8100832 | Externally mounted charge pressure relief valve | 1 |
| QK10 | 99-11 | | 8510272 | Charge relief valve kit, 10-30 bar | 1 |
| K20 | 99-11 | | 8100816 | Charge relief housing | 1 |
| K40 | 99-11 | | 8000658 | Nut | 1 |
| K50 | 99-11 | | 001149 (9004201-6200) | O-ring | 1 |
| K51 | 99-11 | | 001156 (9004201-7500) | O-ring | 1 |

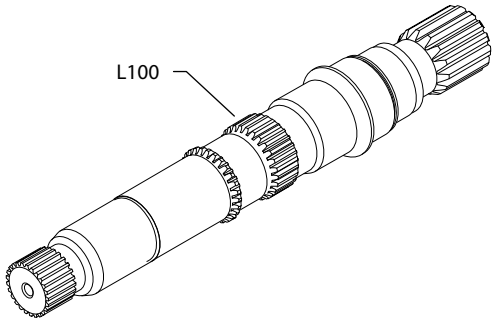
*Order code: XX*

| | | | | | |
|---|---|---|---|---|---|
| K50 | 94-13 | | 012559 (9004202-6200) | O-ring, viton | 1 |
| QK10 | 94-13 | | 11086335 | Charge relief valve kit, viton | 1 |

## Shaft

### S90P 75cc shaft C6-SA

*Parts configuration*



## Shaft

*Order code: C6*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| L100 | 87-02 | | 318998 (8100299) | Shaft, 21 tooth spline | 1 |

*Order code: C7*

| | | | | | |
|---|---|---|---|---|---|
| L100 | 87-02 | | 693838 (8100266) | Shaft, 23 tooth spline | 1 |

*Order code: D7*

| | | | | | |
|---|---|---|---|---|---|
| L100 | 95-08 | | 506860 | Shaft, 23 tooth spline, M10 threaded tapped hole | 1 |

*Order code: D9*

| | | | | | |
|---|---|---|---|---|---|
| L100 | 95-08 | | 11094648 (500054) | Shaft, 21 tooth spline, M10 threaded tapped hole | 1 |

*Order code: G1*

| | | | | | |
|---|---|---|---|---|---|
| L100 | 97-15 | | 504004 | Shaft, 25 tooth spline | 1 |

*Order code: G6*

| | | | | | |
|---|---|---|---|---|---|
| L100 | 97-15 | | 8100652 | Shaft, 25 tooth spline, special | 1 |

*Order code: J1*

| | | | | | |
|---|---|---|---|---|---|
| L100 | 92-16 | | 8100469 | Shaft, 23 tooth spline, special length | 1 |

*Order code: S1*

| | | | | | |
|---|---|---|---|---|---|
| L100 | 87-02 | | 701441 (8100264) | Shaft, 14 tooth spline | 1 |

*Order code: S3*

| | | | | | |
|---|---|---|---|---|---|
| L100 | 87-02 | | 8100238 | Shaft, 16 tooth spline | 1 |

*Order code: S4*

| | | | | | |
|---|---|---|---|---|---|
| L100 | 87-02 | | 8100440 | Shaft, 17 tooth spline | 1 |

*Order code: SA*

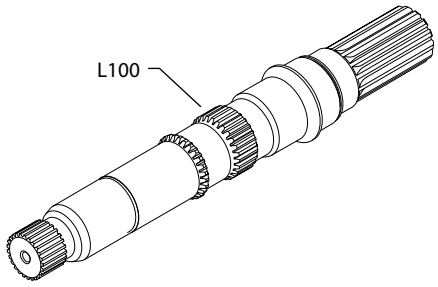
| | | | | | |
|---|---|---|---|---|---|
| L100 | 87-02 | | 1713914 | Shaft, 14 tooth spline long | 1 |

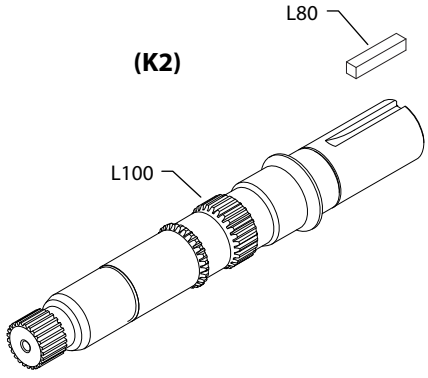
## Shaft

### S90P 75cc shaft G2, J8, K2

*Parts configuration*

**(G2, J8)**



## Shaft

*Order code: G2*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| L100 | 97-15 | | 8100701 | Shaft, 21 tooth spline, special length | 1 |

*Order code: J8*

| | | | | | |
|---|---|---|---|---|---|
| L100 | 99-11 | | 8100830 | Shaft, 23 tooth spline, special length | 1 |

*Order code: K2*

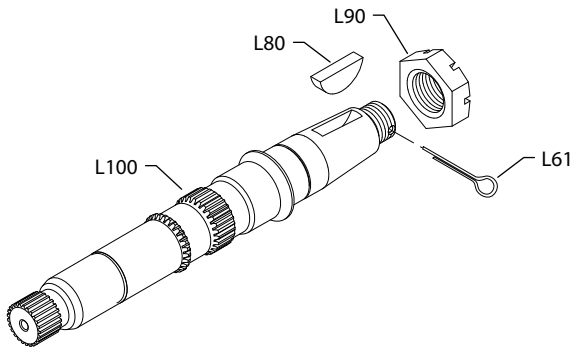
| | | | | | |
|---|---|---|---|---|---|
| L80 | 87-02 | | 9003261-3724 | Key | 1 |
| L100 | 87-02 | | 8100354 | Shaft, straight key, 1.5" diameter | 1 |

## Shaft

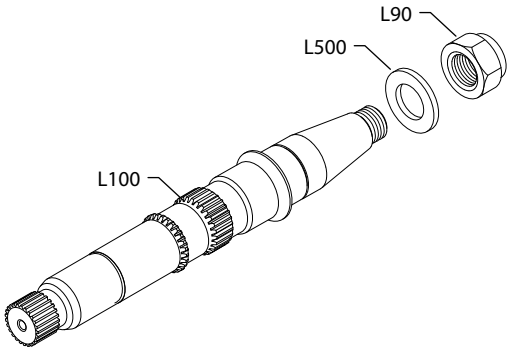
### S90P 75cc shaft T1-TJ

*Parts configuration*

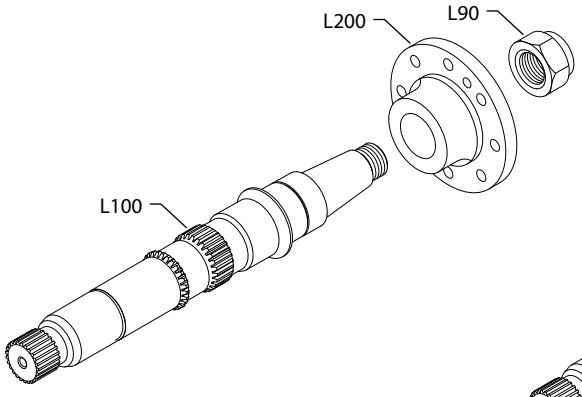
**(T1, T2)**



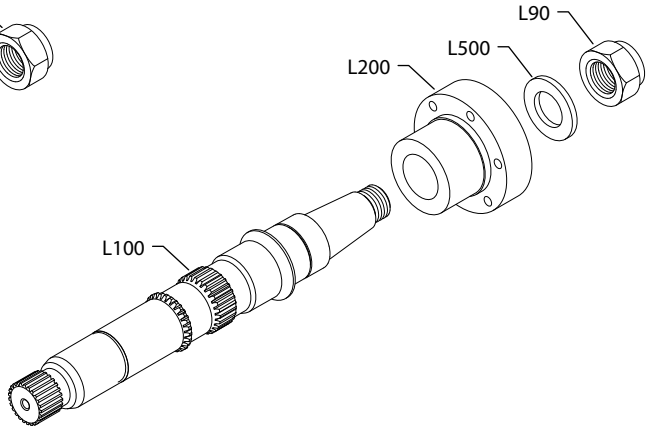

**(T6)**




**(TG)**




**(TJ)**



## Shaft

*Order code: T1*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| L61 | 87-02 | | 716779 (9004600-1230) | Cotter pin | 1 |
| L80 | 87-02 | | 9003310-3724 | Key | 1 |
| L90 | 87-02 | | 5000606 | Slotted nut | 1 |
| L100 | 87-02 | | 8100310 | Shaft, 1.375" tapered | 1 |

*Order code: T2*

| | | | | | |
|---|---|---|---|---|---|
| L61 | 87-02 | | 716779 (9004600-1230) | Cotter pin | 1 |
| L80 | 87-02 | | 9003310-3724 | Key | 1 |
| L90 | 87-02 | | 5000606 | Slotted nut | 1 |
| L100 | 87-02 | | 312009 (11114770) | Shaft, 1.5" tapered | 1 |

*Order code: T6*

| | | | | | |
|---|---|---|---|---|---|
| L90 | 87-02 | | 504060 | Slotted nut | 1 |
| L100 | 87-02 | | 511616 | Shaft, 1.5" tapered | 1 |
| L500 | 87-02 | | 511627 | Washer | 1 |

*Order code: TG*

| | | | | | |
|---|---|---|---|---|---|
| L90 | 87-02 | | 504060 | Slotted nut | 1 |
| L100 | 87-02 | | 504059 | Shaft, 1.5" tapered | 1 |
| L200 | 87-02 | | 504061 | Flange adapter | 1 |

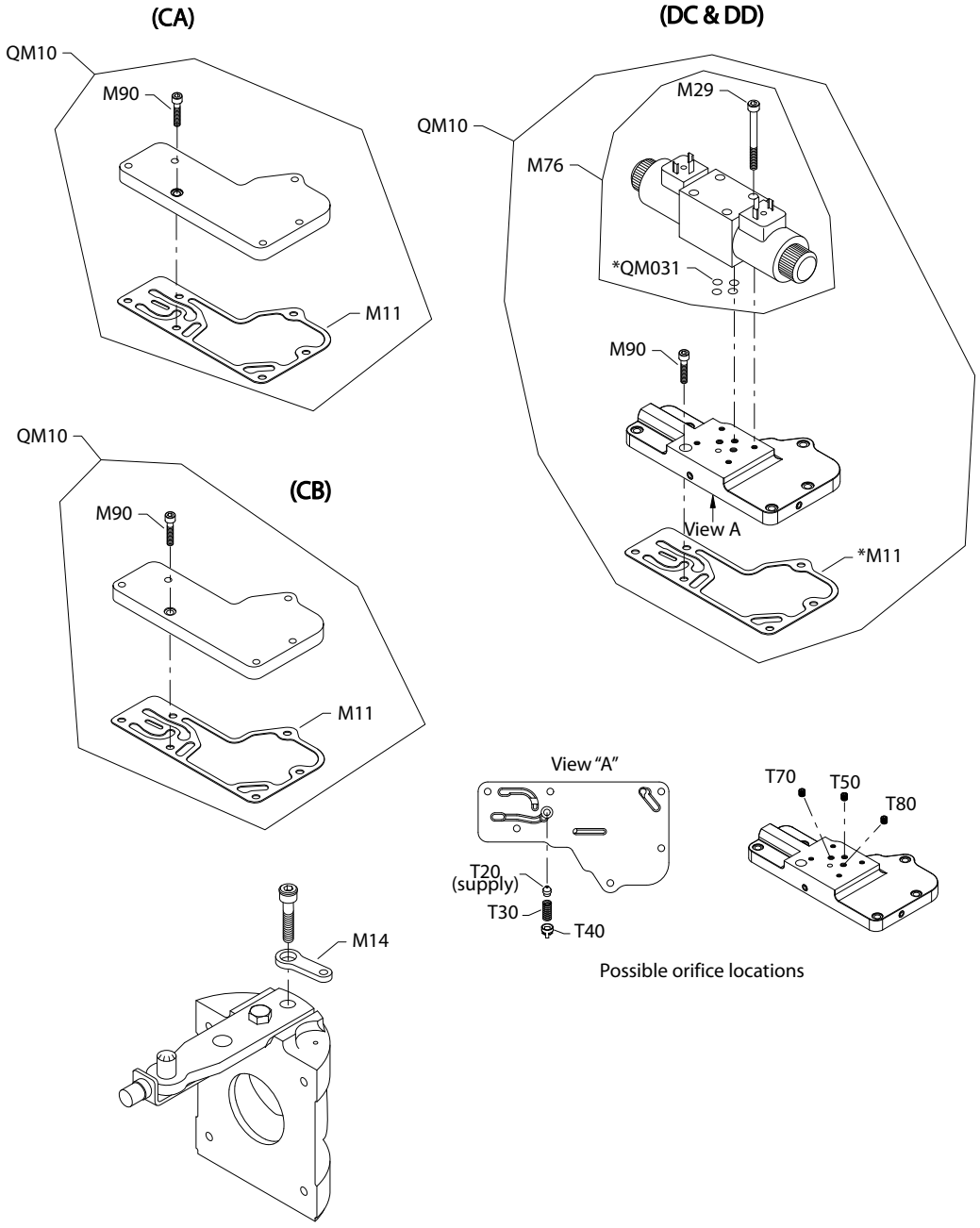
*Order code: TJ*

| | | | | | |
|---|---|---|---|---|---|
| L90 | 87-02 | | 504060 | Slotted nut | 1 |
| L100 | 87-02 | | 511616 | Shaft, 1.5" tapered | 1 |
| L200 | 87-02 | | 511462 | Coupling | 1 |
| L500 | 87-02 | | 511627 | Washer | 1 |

## Control

### S90P control CA-DD

*Parts configuration*




All orifices present in the original control must be transferred to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

## Control

*Order code: CA*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 87-02 | | 8800923 | Control gasket | 1 |
| M90 | 87-02 | | 693341 (9007314-0606) | Screw | 6 |
| QM10 | 87-02 | | 8102M0CA-A | Control cover plate kit | 1 |

*Order code: CB*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 87-02 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 338 & *SB-2013-011* on page 359) | 1 |
| M14 | 87-02 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 329) | 1 |
| M90 | 87-02 | | 693341 (9007314-0606) | Screw | 6 |
| QM10 | 87-02 | | 8102M0CA-A | Control cover plate kit | 1 |

*Order code: DC*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 87-02 | | 8800923 | Control gasket | 1 |
| M29 | 87-02 | | 035592 | Screw | 4 |
| M76 | 87-02 | | 687103 | Solenoid valve, 12v | 1 |
| M90 | 87-02 | | 693341 (9007314-0606) | Screw | 6 |
| QM10 | 87-02 | | 8102M0DC-A | Control kit, 12v | 1 |
| QM031 | 87-02 | | 11099647 | O-ring kit | 1 |
| QM210 | 87-02 | | 11096172 | Control seal kit | 1 |

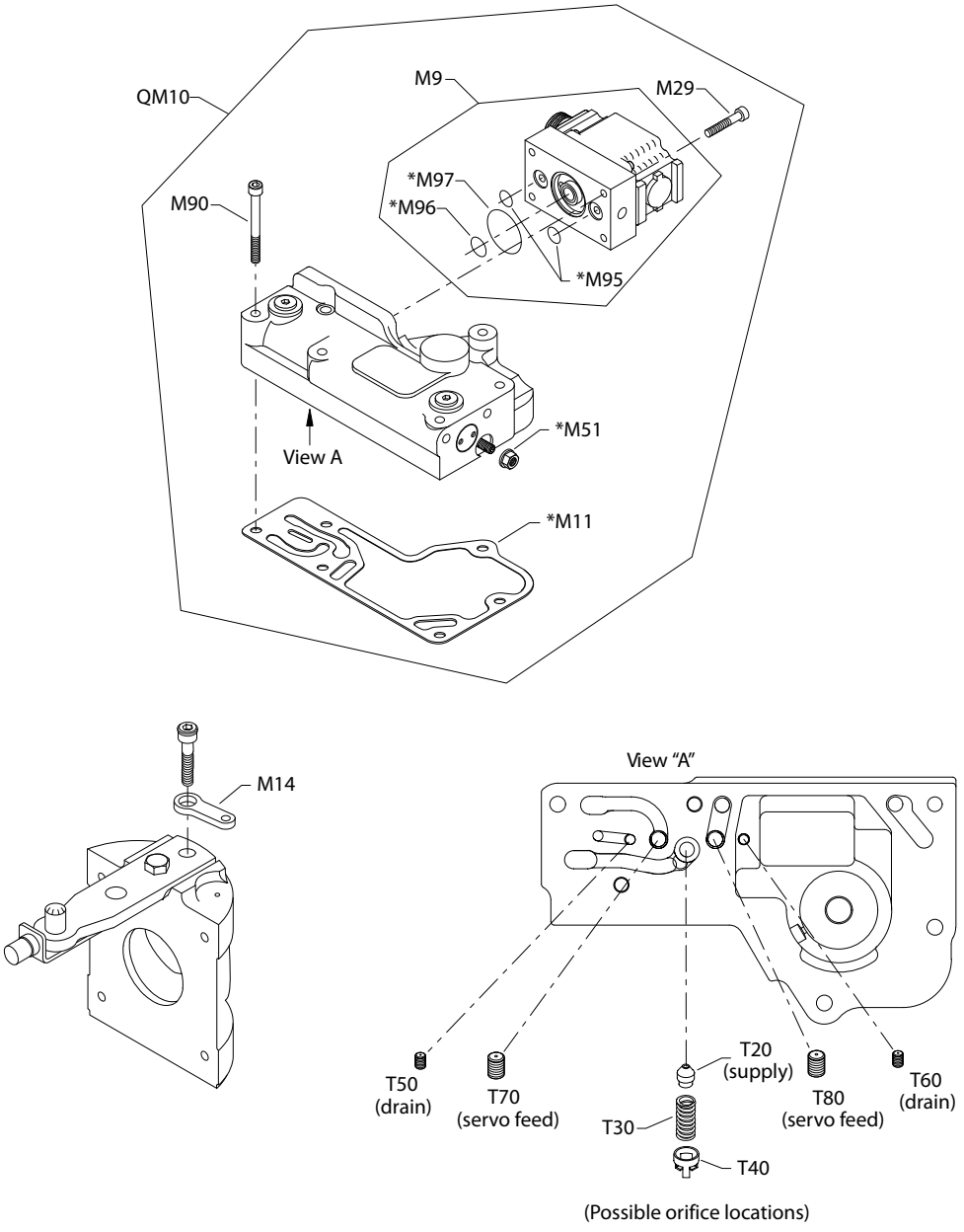
*Order code: DD*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 87-02 | | 8800923 | Control gasket | 1 |
| M29 | 87-02 | | 035592 | Screw | 4 |
| M76 | 87-02 | | 549907 | Solenoid valve, 24v | 1 |
| M90 | 87-02 | | 693341 (9007314-0606) | Screw | 6 |
| QM10 | 87-02 | | 8102M0DD-A | Control kit, 24v | 1 |
| QM031 | 87-02 | | 11099647 | O-ring kit | 1 |
| QM210 | 87-02 | | 11096172 | Control seal kit | 1 |

## Control

### S90P control EA, EG

*Parts configuration*




(Possible orifice locations)

All orifices present in the original control must be transferred to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

Generic PCP and swashplate used to show part location only.

* Included in control seal kit QM210

## Control

*Order code: EA*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M9 | 91-16 | | MCV110A1017 | PCP, MS connector | 1 |
| M11 | 91-16 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 338 & *SB-2013-011* on page 359) | 1 |
| M14 | 91-16 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 329) | 1 |
| M29 | 91-16 | | K07067 | Screw | 4 |
| M51 | 91-16 | | 9003509-0008 | Seal nut | 1 |
| M90 | 91-16 | | 692889 (9007314-0611) | Screw | 6 |
| M95 | 91-16 | | 318337 (9004104-0120) | O-ring | 2 |
| M96 | 91-16 | | 011304 (9004104-0140) | O-ring | 1 |
| M97 | 91-16 | | 318345 (9004104-0240) | O-ring | 1 |
| QM10 | 91-16 | | 8102M0EA-B | EDC kit, MS connector | 1 |
| QM210 | 91-16 | | 11096174 | Control seal kit | 1 |

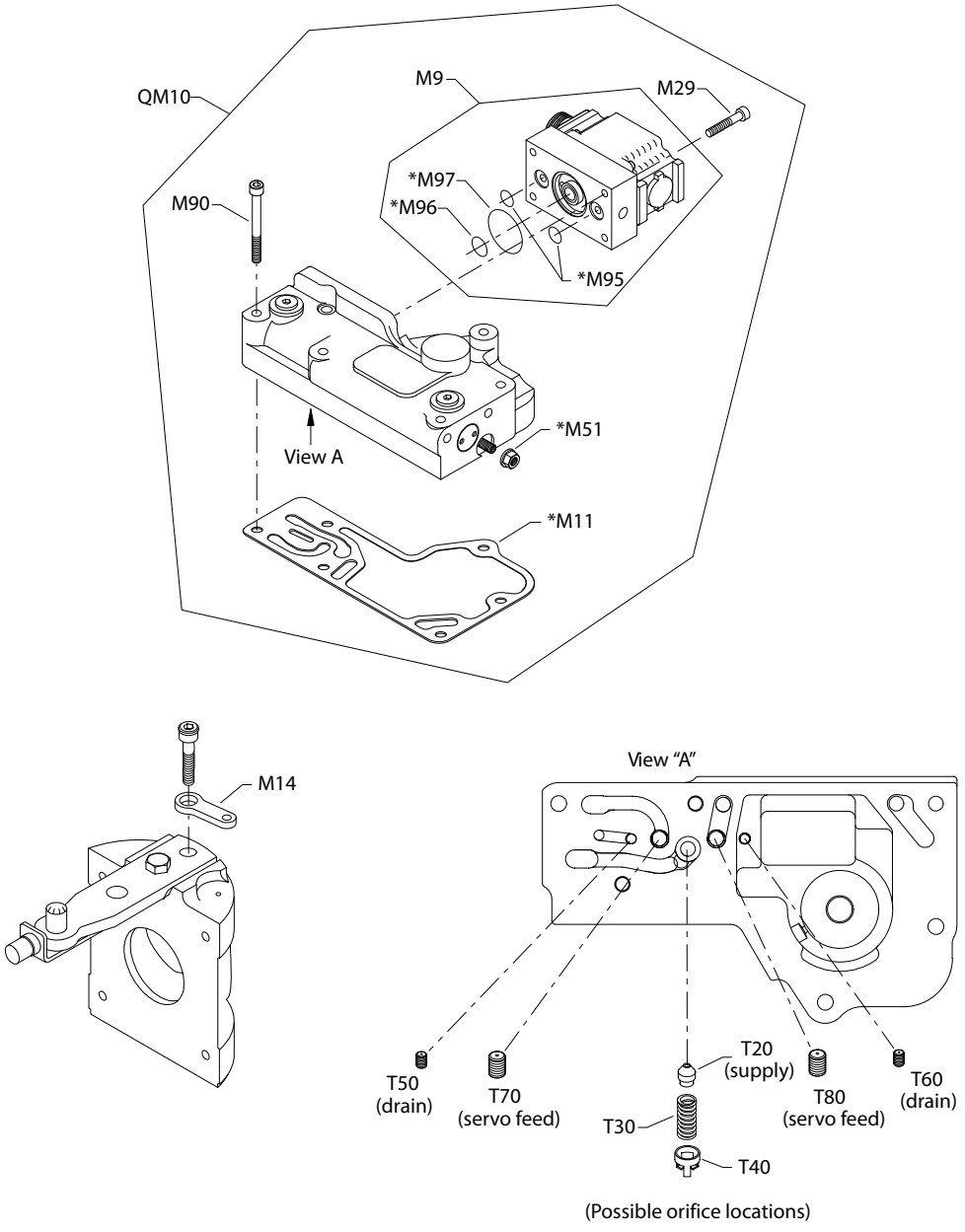
*Order code: EG*

| | | | | | |
|---|---|---|---|---|---|
| M9 | 91-16 | 12-35 | MCV110A1018 | PCP, MS connector | 1 |
| M11 | 91-16 | 12-35 | 8800923 | Control gasket | 1 |
| M14 | 96-40 | 12-35 | 11070305 | Feedback link (*SB-1999-019* on page 338 & *SB-2013-011* on page 359) | 1 |
| M14 | 91-16 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| M29 | 91-16 | 12-35 | K07067 | Screw | 4 |
| M51 | 91-16 | 12-35 | 9003509-0008 | Seal nut | 1 |
| M90 | 91-16 | 12-35 | 692889 (9007314-0611) | Screw | 6 |
| M95 | 91-16 | 12-35 | 318337 (9004104-0120) | O-ring | 2 |
| M96 | 91-16 | 12-35 | 011304 (9004104-0140) | O-ring | 1 |
| M97 | 91-16 | 12-35 | 318345 (9004104-0240) | O-ring | 1 |
| QM10 | 91-16 | 12-35 | 11097110 | EDC kit, MS connector | 1 |
| QM210 | 91-16 | 12-35 | 11096174 | Control seal kit | 1 |

## Control

### S90P control EP, EX

*Parts configuration*




(Possible orifice locations)

All orifices present in the original control must be transferred to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

Generic PCP and swashplate used to show part location only.

* Included in control seal kit QM210

## Control

*Order code: EP*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M9 | 91-07 | | MCV110A1058 | PCP, Packard connector | 1 |
| M11 | 91-07 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070305 | Feedback link (SB-1999-019 & SB-2013-011) | 1 |
| M14 | 91-07 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| M29 | 91-07 | | K07067 | Screw | 4 |
| M51 | 91-07 | | 9003509-0008 | Seal nut | 1 |
| M90 | 91-07 | | 692889 (9007314-0611) | Screw | 6 |
| M95 | 91-07 | | 318337 (9004104-0120) | O-ring | 2 |
| M96 | 91-07 | | 011304 (9004104-0140) | O-ring | 1 |
| M97 | 91-07 | | 318345 (9004104-0240) | O-ring | 1 |
| QM10 | 91-07 | | 8102M0EP-B | EDC kit, Packard connector | 1 |
| QM210 | 91-07 | | 11096174 | Control seal kit | 1 |

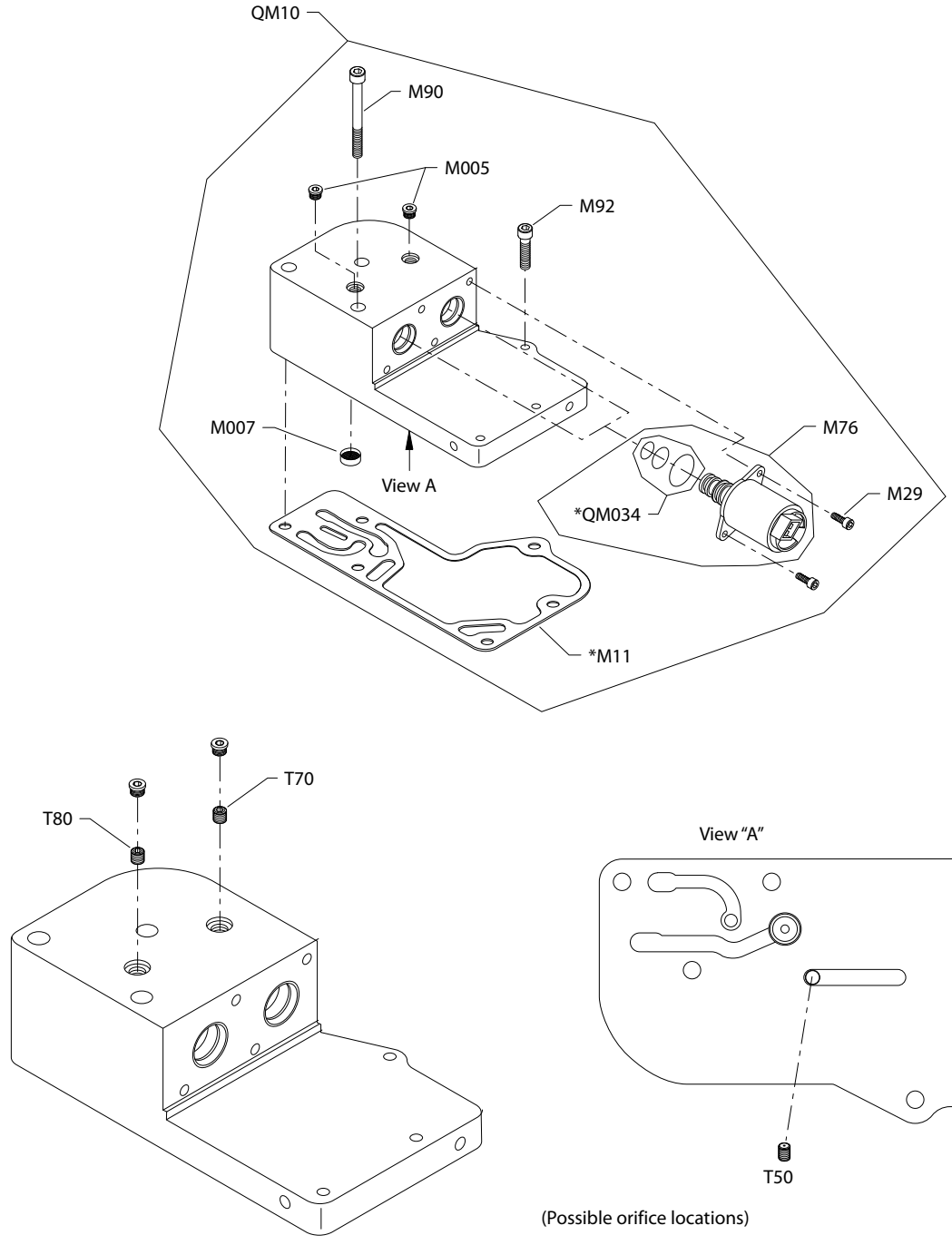
*Order code: EX*

| | | | | | |
|---|---|---|---|---|---|
| M9 | 93-16 | | MCV110A1090 | PCP, Metri-pack connector | 1 |
| M11 | 93-16 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070305 | Feedback link (*SB-1999-019* on page 338 & *SB-2013-011* on page 359) | 1 |
| M14 | 93-16 | 96-39 | 8000481 | Feedback link (*SB-1996-009* on page 329) | 1 |
| M29 | 93-16 | | K07067 | Screw | 4 |
| M51 | 93-16 | | 9003509-0008 | Seal nut | 1 |
| M90 | 93-16 | | 692889 (9007314-0611) | Screw | 6 |
| M95 | 93-16 | | 318337 (9004104-0120) | O-ring | 2 |
| M96 | 93-16 | | 011304 (9004104-0140) | O-ring | 1 |
| M97 | 93-16 | | 318345 (9004104-0240) | O-ring | 1 |
| QM10 | 93-16 | | 8102M0EX-B | EDC kit, Packard connector | 1 |
| QM210 | 93-16 | | 11096174 | Control seal kit | 1 |

## Control

### S90P control FA-FD

*Parts configuration*




(Possible orifice locations)

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

*Order code: FA*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 98-14 | | 8800923 | Control gasket | 1 |
| M29 | 98-14 | | 067694 | Screw | 4 |
| M76 | 98-14 | | 518080 | Solenoid valve, 12 volt, 25 bar | 2 |
| M90 | 98-14 | | 9007314-0614 | Screw | 3 |
| M92 | 98-14 | | 693341 (9007314-0606) | Screw | 3 |
| M007 | 98-14 | | K00775 | Filter screen | 1 |
| QM10 | 98-14 | | 11015079 | NFPE control kit, 12 volt, 25 bar | 1 |
| QM034 | 98-14 | | 11099849 | Solenoid valve seal kit | 2 |
| QM210 | 98-14 | | 11100028 | Control seal kit | 1 |

*Order code: FB*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 98-14 | | 8800923 | Control gasket | 1 |
| M29 | 98-14 | | 067694 | Screw | 4 |
| M76 | 98-14 | | 518081 | Solenoid valve, 24 volt, 25 bar | 2 |
| M90 | 98-14 | | 9007314-0614 | Screw | 3 |
| M92 | 98-14 | | 693341 (9007314-0606) | Screw | 3 |
| M007 | 98-14 | | K00775 | Filter screen | 1 |
| QM10 | 98-14 | | 11015080 | NFPE control kit, 24 volt, 25 bar | 1 |
| QM034 | 98-14 | | 11099849 | Solenoid valve seal kit | 2 |
| QM210 | 98-14 | | 11100028 | Control seal kit | 1 |

*Order code: FC*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 98-14 | | 8800923 | Control gasket | 1 |
| M29 | 98-14 | | 067694 | Screw | 4 |
| M76 | 98-14 | | 521709 | Solenoid valve, 12 volt, 32 bar | 2 |
| M90 | 98-14 | | 9007314-0614 | Screw | 3 |
| M92 | 98-14 | | 693341 (9007314-0606) | Screw | 3 |
| M007 | 98-14 | | K00775 | Filter screen | 1 |
| QM10 | 98-14 | | 8510230 | NFPE control kit, 12 volt, 32 bar | 1 |
| QM034 | 98-14 | | 11099849 | Solenoid valve seal kit | 2 |
| QM210 | 98-14 | | 11100028 | Control seal kit | 1 |

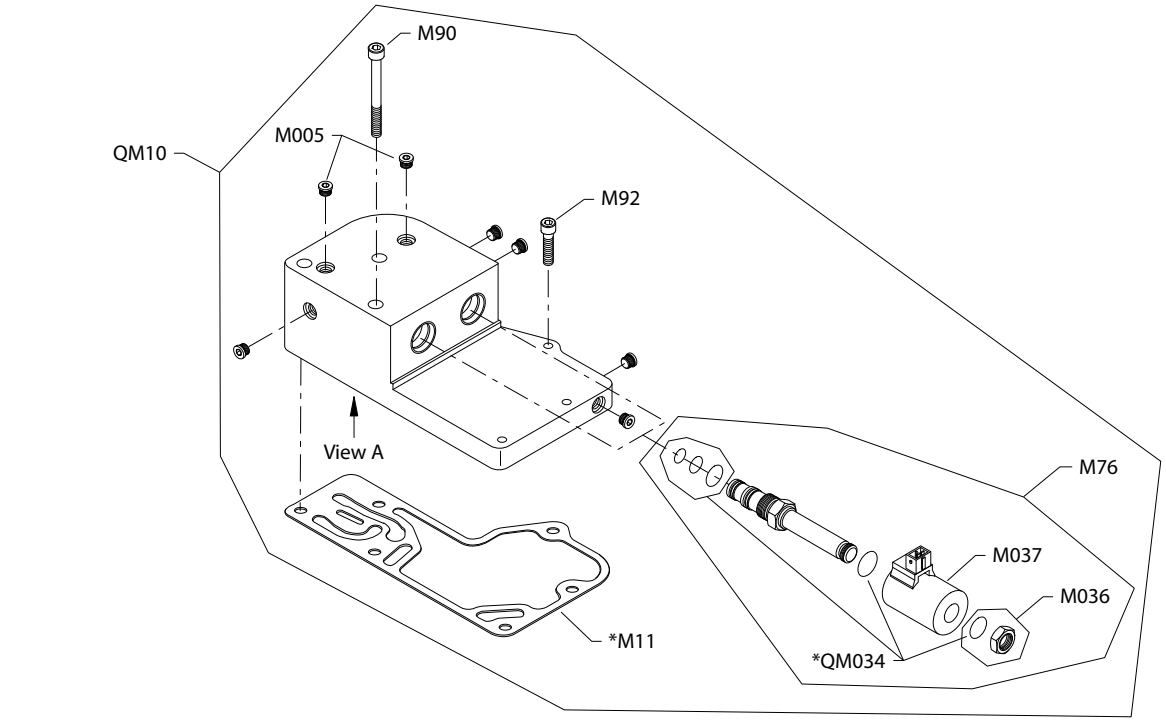
*Order code: FD*

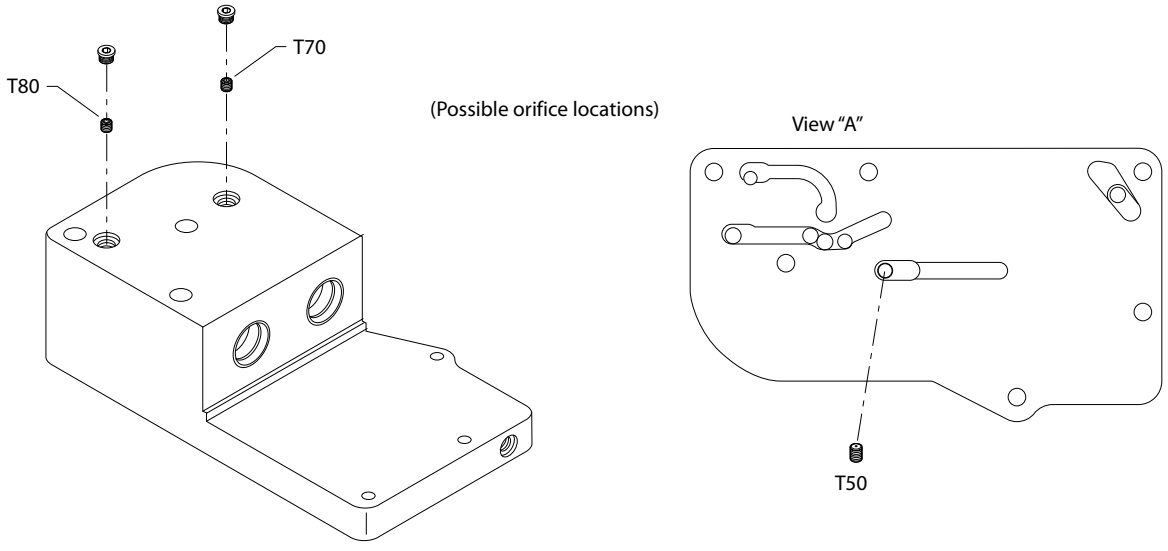
| | | | | | |
|---|---|---|---|---|---|
| M11 | 98-14 | | 8800923 | Control gasket | 1 |
| M29 | 98-14 | | 067694 | Screw | 4 |
| M76 | 98-14 | | 517214 | Solenoid valve, 24 volt, 32 bar | 2 |
| M90 | 98-14 | | 9007314-0614 | Screw | 3 |
| M92 | 98-14 | | 693341 (9007314-0606) | Screw | 3 |
| M007 | 98-14 | | K00775 | Filter screen | 1 |
| QM10 | 98-14 | | 11015081 | NFPE control kit, 24 volt, 32 bar | 1 |
| QM034 | 98-14 | | 11099849 | Solenoid valve seal kit | 2 |
| QM210 | 98-14 | | 11100028 | Control seal kit | 1 |

## Control

### S90P control FG, FH

*Parts configuration*




All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

*Order code: FG*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 00-30 | | 8800923 | Control gasket | 1 |
| M76 | 00-30 | | 516006 | Solenoid valve, 12 volt, 32 bar | 2 |
| M90 | 00-30 | | 9007314-0614 | Screw | 3 |
| M92 | 00-30 | | 693341 (9007314-0606) | Screw | 3 |
| M005 | 00-30 | | 11040532 | Plug assembly | 2 |
| QM10 | 00-30 | | 11026563 | NFPE control kit, 12 volt, 32 bar | 1 |
| QM034 | 00-30 | | 11100185 | Solenoid valve seal kit | 2 |
| QM036 | 00-30 | | 518088 | Coil nut kit | 2 |
| QM037 | 00-30 | | 516003 | Coil, 12v Jet connector | 2 |
| QM210 | 00-30 | | 11100001 | Control seal kit | 1 |

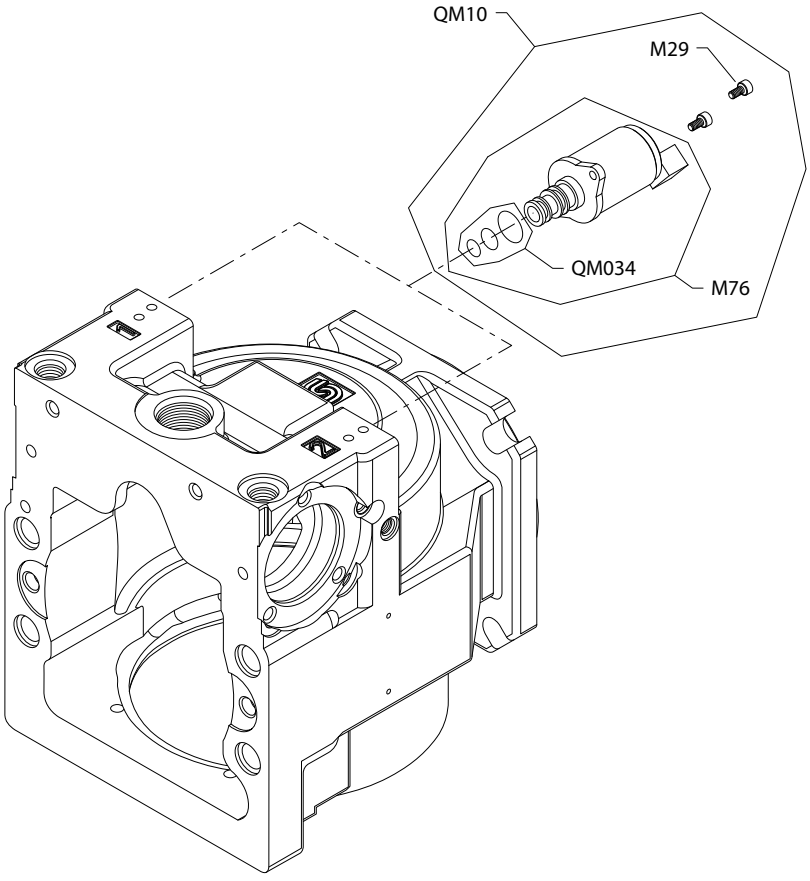
*Order code: FH*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 00-30 | | 8800923 | Control gasket | 1 |
| M76 | 00-30 | | 515617 | Solenoid valve, 24 volt, 32 bar | 2 |
| M90 | 00-30 | | 9007314-0614 | Screw | 3 |
| M92 | 00-30 | | 693341 (9007314-0606) | Screw | 3 |
| M005 | 00-30 | | 11040532 | Plug assembly | 2 |
| QM10 | 00-30 | | 11026569 | NFPE control kit, 24 volt, 32 bar | 1 |
| QM034 | 00-30 | | 11100185 | Solenoid valve seal kit | 2 |
| QM036 | 00-30 | | 518088 | Coil nut kit | 2 |
| QM037 | 00-30 | | 516004 | Coil, 24v Jet connector | 2 |
| QM210 | 00-30 | | 11100001 | Control seal kit | 1 |

## Control

### S90P control FK-FN

*Parts configuration*



## Control

*Order code: FK*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M29 | 02-27 | | 346957 | Screw | 4 |
| M76 | 02-27 | | 521711 | Solenoid valve, 12 volt, 25 bar | 1 |
| QM10 | 02-27 | | 11098764 | NFPE control kit, 12 volt, 25 bar | 2 |
| QM034 | 02-27 | | 11099849 | Solenoid valve seal kit | 2 |

*Order code: FL*

| | | | | | |
|---|---|---|---|---|---|
| M29 | 03-52 | | 346957 | Screw | 4 |
| M76 | 02-27 | | 521710 | Solenoid valve, 24 volt, 25 bar | 1 |
| QM10 | 03-52 | | 11098765 | NFPE control kit, 24 volt, 25 bar | 2 |
| QM034 | 03-52 | | 11099849 | Solenoid valve seal kit | 2 |

*Order code: FM*

| | | | | | |
|---|---|---|---|---|---|
| M29 | 04-06 | | 346957 | Screw | 4 |
| M76 | 04-06 | | 521709 | Solenoid valve, 12 volt, 32 bar | 1 |
| QM10 | 04-06 | | 11098766 | NFPE control kit, 12 volt, 32 bar | 2 |
| QM034 | 04-06 | | 11099849 | Solenoid valve seal kit | 2 |

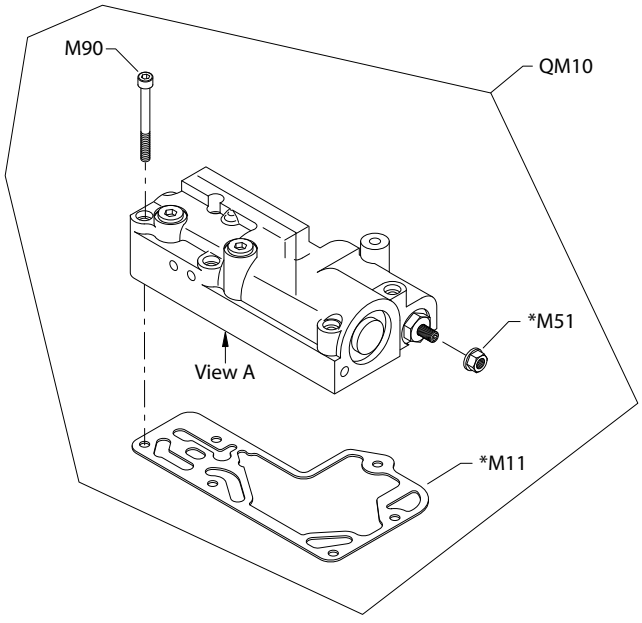
*Order code: FN*

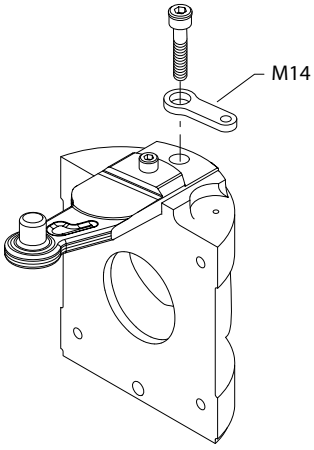
| | | | | | |
|---|---|---|---|---|---|
| M29 | 04-06 | | 346957 | Screw | 4 |
| M76 | 04-06 | | 521707 | Solenoid valve, 24 volt, 32 bar | 1 |
| QM10 | 04-06 | | 11098767 | NFPE control kit, 24 volt, 32 bar | 2 |
| QM034 | 04-06 | | 11099849 | Solenoid valve seal kit | 2 |

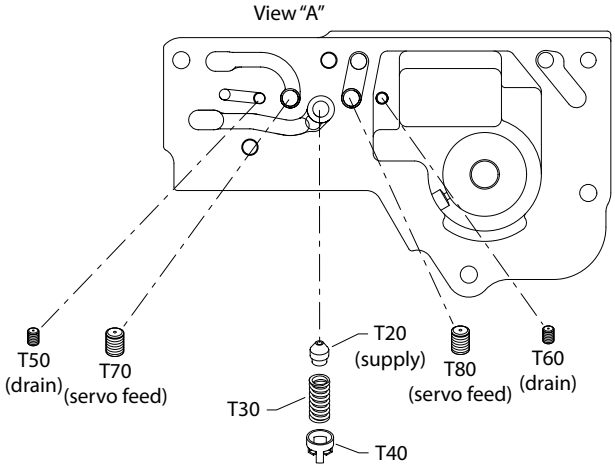
## Control

### S90P control HF-HS 75cc

*Parts configuration*




(Possible orifice locations)

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

*Order code: HF*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 92-15 | | 8801241 | Control gasket (*SB-1999-065* on page 341) | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 338 & *SB-2013-011* on page 359) | 1 |
| M14 | 92-15 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 329) | 1 |
| M51 | 92-15 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 92-15 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 92-15 | | 8102M0HF-A | HDC kit, 3-11 bar | 1 |
| QM210 | 92-15 | | 11096266 | Control seal kit | 1 |

*Order code: HK*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 92-15 | | 8801241 | Control gasket (*SB-1999-065* on page 341) | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 338 & *SB-2013-011* on page 359) | 1 |
| M14 | 92-15 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 329) | 1 |
| M51 | 92-15 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 92-15 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 92-15 | | 8102M0HK-A | HDC kit, 1-11 bar | 1 |
| QM210 | 92-15 | | 11096266 | Control seal kit | 1 |

*Order code: HM*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 92-15 | | 8801241 | Control gasket (SB-1999-065) | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 338 & *SB-2013-011* on page 359) | 1 |
| M14 | 92-15 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 329) | 1 |
| M51 | 92-15 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 92-15 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 92-15 | | 8102M0HM-A | HDC kit, 1.1 -6.7 bar | 1 |
| QM210 | 92-15 | | 11096266 | Control seal kit | 1 |

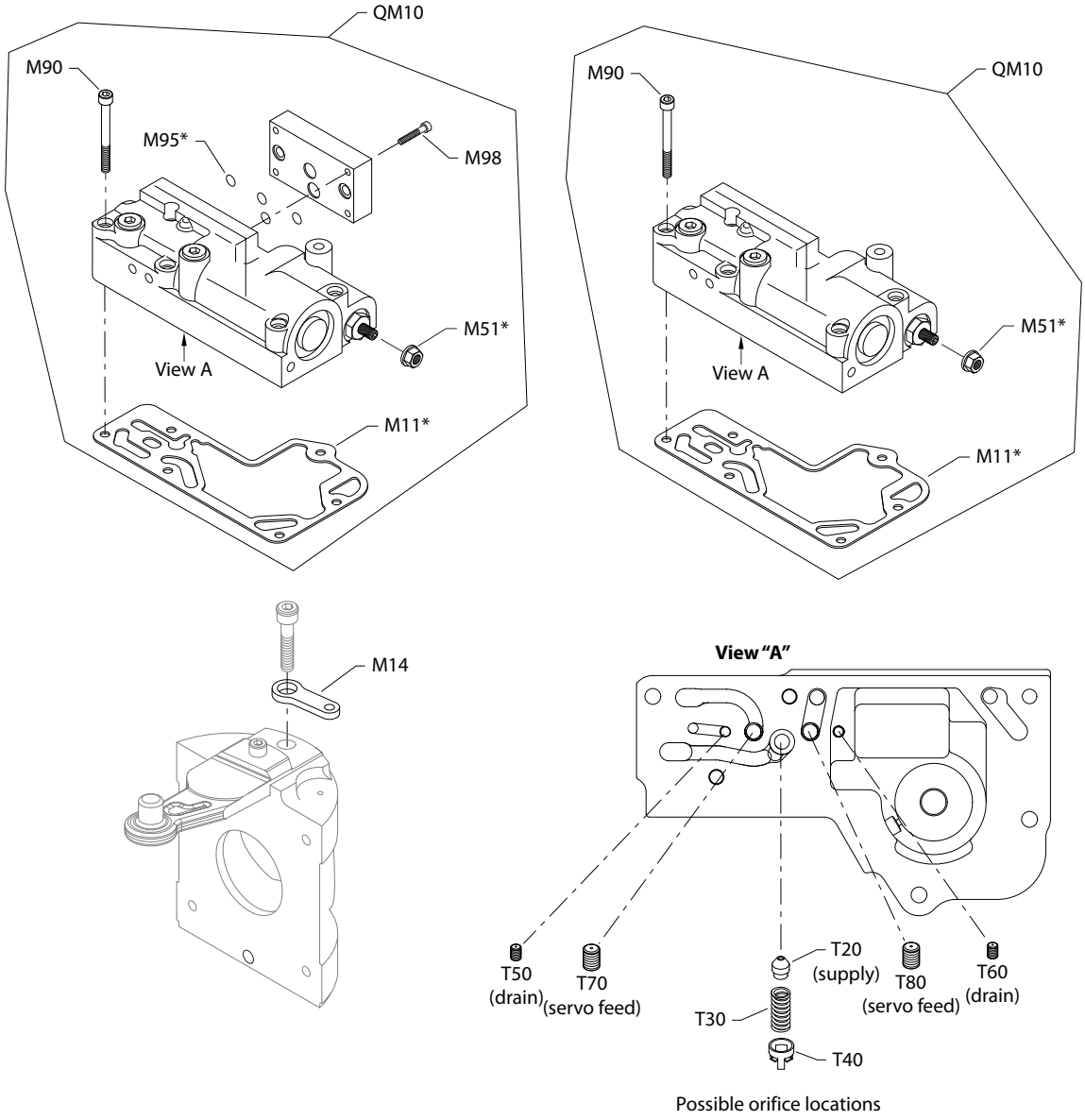
*Order code: HS*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 94-19 | | 8801241 | Control gasket (*SB-1999-065* on page 341) | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 338 & *SB-2013-011* on page 359) | 1 |
| M14 | 94-19 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 329) | 1 |
| M51 | 94-19 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 94-19 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 94-19 | | 8102M0HS-A | HDC kit, 6-18 bar | 1 |
| QM210 | 94-19 | | 11096266 | Control seal kit | 1 |

## Control

### S90P control HU-JC

*Parts configuration*




Possible orifice locations

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

*Order code: HU*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 96-06 | 14-17 | 8801241 | Control gasket (*SB-1999-065* on page 341) | 1 |
| M14 | 96-40 | 14-17 | 11070305 | Feedback link (*SB-1999-019* on page 338 & *SB-2013-011* on page 359) | 1 |
| M14 | 96-06 | 96-39 | 8000481 | Feedback link (*SB-1996-009* on page 329) | 1 |
| M51 | 96-06 | 14-17 | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 96-06 | 14-17 | 692889 (9007314-0611) | Screw | 6 |
| M95 | 96-06 | 14-17 | 611517 (9004100-0120) | O-ring | 4 |
| M98 | 96-06 | 14-17 | K14798 | Screw | 4 |
| QM10 | 96-06 | 14-17 | 8510276 | HDC kit, 3-11 bar | 1 |
| QM210 | 96-06 | 14-17 | 11096276 | Control seal kit | 1 |

*Order code: HX*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 00-19 | | 8801241 | Control gasket | 1 |
| M14 | 00-19 | | 11070305 | Feedback link (*SB-2013-011* on page 359) | 1 |
| M51 | 00-19 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 00-19 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 00-19 | | 11015102 | HDC kit, 3-11 bar | 1 |
| QM210 | 00-19 | | 11096266 | Control seal kit | 1 |

*Order code: HY*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 98-11 | | 8801241 | Control gasket (*SB-1999-065* on page 341) | 1 |
| M14 | 98-11 | | 11070305 | Feedback link | 1 |
| M51 | 98-11 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 98-11 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 98-11 | | 8510280 | HDC kit, 4-14 bar | 1 |
| QM210 | 98-11 | | 11096266 | Control seal kit | 1 |

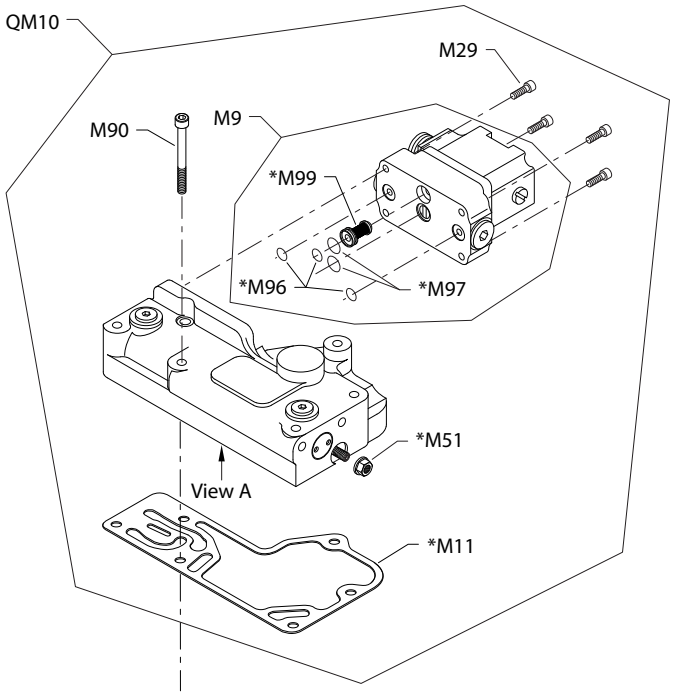
*Order code: JC*

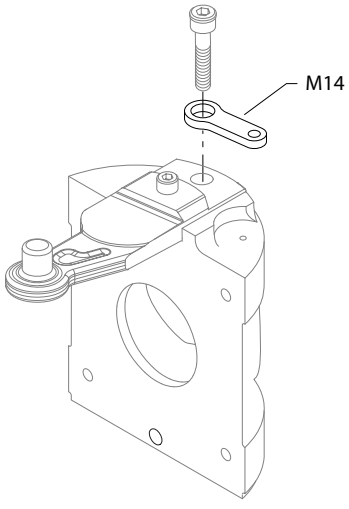
| | | | | | |
|---|---|---|---|---|---|
| M11 | 03-06 | | 8801241 | Control gasket | 1 |
| M14 | 03-06 | | 11070305 | Feedback link | 1 |
| M51 | 03-06 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 03-06 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 03-06 | | 8510312 | HDC kit, 6-18 bar, steel barrel | 1 |
| QM210 | 03-06 | | 11096266 | Control seal kit | 1 |

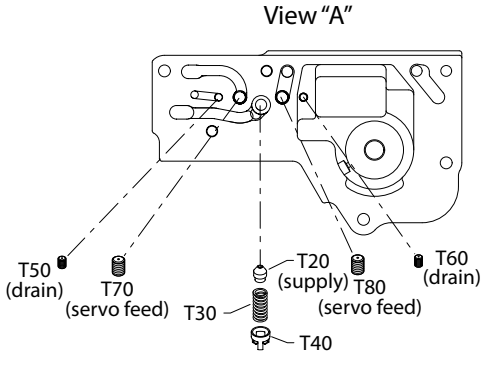
## Control

### S90P control K0-K7

*Parts configuration*




Possible orifice locations

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

*Order code: K0*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M9 | 02-49 | | MCV116G4217 | PCP, Packard connector, dual coil | 1 |
| M11 | 02-49 | | 8800923 | Control gasket | 1 |
| M14 | 02-49 | | 11070305 | Feedback link | 1 |
| M29 | 02-49 | | K07067 | Screw | 4 |
| M51 | 02-49 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 02-49 | | 692889 (9007314-0611) | Screw | 6 |
| M96 | 02-49 | | 011296 (9004105-0120) | O-ring | 3 |
| M97 | 02-49 | | 9004105-0130 | O-ring | 2 |
| M99 | 02-49 | | K08572 | Filter assembly | 1 |
| QM10 | 02-49 | | 11015103 | EDC3 kit, Packard connector, dual coil | 1 |
| QM210 | 02-49 | | 11095724 | Control seal kit | 1 |

*Order code: K2*

| | | | | | |
|---|---|---|---|---|---|
| M9 | 09-22 | | MCV116G4214 | PCP, DEUTSCH connector, dual coil | 1 |
| M11 | 09-22 | | 8800923 | Control gasket | 1 |
| M14 | 09-22 | | 11070305 | Feedback link (*SB-2013-011* on page 359) | 1 |
| M29 | 09-22 | | K07067 | Screw | 4 |
| M51 | 09-22 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 09-22 | | 692889 (9007314-0611) | Screw | 6 |
| M96 | 09-22 | | 011296 (9004105-0120) | O-ring | 3 |
| M97 | 09-22 | | 9004105-0130 | O-ring | 2 |
| M99 | 09-22 | | K08572 | Filter assembly | 1 |
| QM10 | 09-22 | | 11066897 | EDC3 kit, DEUTSCH connector, dual coil | 1 |
| QM210 | 09-22 | | 11095724 | Control seal kit | 1 |

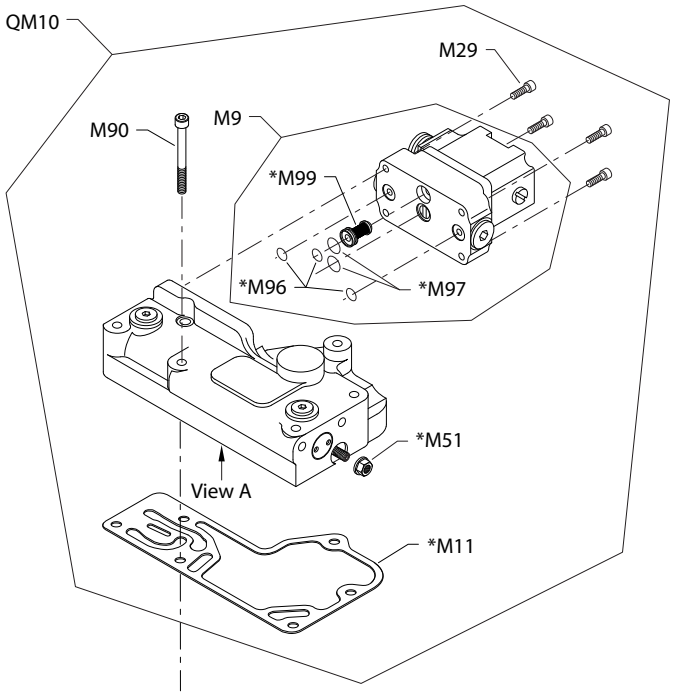
*Order code: K7*

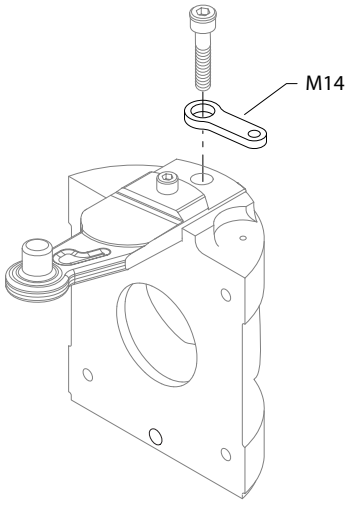
| | | | | | |
|---|---|---|---|---|---|
| M9 | 14-12 | | 11101116 | PCP, MS connector | 1 |
| M11 | 14-12 | | 8800923 | Control gasket | 1 |
| M14 | 14-12 | | 11070305 | Feedback link | 1 |
| M29 | 14-12 | | K07067 | Screw | 4 |
| M51 | 14-12 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 14-12 | | 692889 (9007314-0611) | Screw | 6 |
| M96 | 14-12 | | 011296 (9004105-0120) | O-ring | 3 |
| M97 | 14-12 | | 9004105-0130 | O-ring | 2 |
| M99 | 14-12 | | K08572 | Filter assembly | 1 |
| QM10 | 14-12 | | 11139993 | EDC3 kit, MS connector | 1 |
| QM210 | 14-12 | | 11095724 | Control seal kit | 1 |

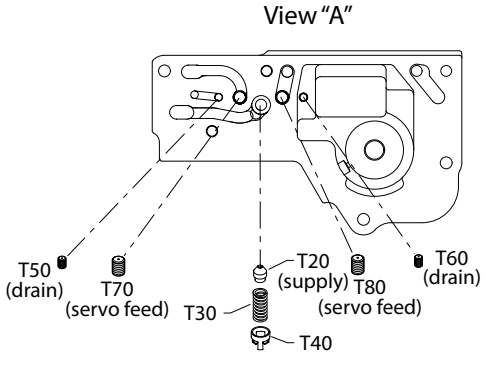
## Control

### S90P control KA-KC

*Parts configuration*




Possible orifice locations

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

*Order code: KA*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M9 | 95-26 | | MCV116G4201 | PCP, MS connector, dual coil | 1 |
| M11 | 95-26 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070305 | Feedback link (*SB-1999-019* on page 338 & *SB-2013-011* on page 359) | 1 |
| M14 | 95-26 | 96-39 | 8000481 | Feedback link (*SB-1996-009* on page 329) | 1 |
| M29 | 95-26 | | K07067 | Screw | 4 |
| M51 | 95-26 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 95-26 | | 692889 (9007314-0611) | Screw | 6 |
| M96 | 95-26 | | 011296 (9004105-0120) | O-ring | 3 |
| M97 | 95-26 | | 9004105-0130 | O-ring | 2 |
| M99 | 95-26 | | K08572 | Filter assembly | 1 |
| QM10 | 95-26 | | 8510115 | EDC3 kit, MS connector, dual coil | 1 |
| QM210 | 95-26 | | 11095724 | Control seal kit | 1 |

*Order code: KB*

| | | | | | |
|---|---|---|---|---|---|
| M9 | 15-25 | | 11164284 | PCP, cold oil special | 1 |
| M11 | 15-25 | | 8800923 | Control gasket | 1 |
| M14 | 15-25 | | 11070305 | Feedback link (*SB-1999-019* on page 338 & *SB-2013-011* on page 359) | 1 |
| M29 | 15-25 | | K07067 | Screw | 4 |
| M51 | 15-25 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 15-25 | | 692889 (9007314-0611) | Screw | 6 |
| M96 | 15-25 | | 011296 (9004105-0120) | O-ring | 3 |
| M97 | 15-25 | | 9004105-0130 | O-ring | 1 |
| M99 | 15-25 | | K08572 | Filter assembly | 1 |
| QM10 | 15-25 | | 11166988 | EDC3 kit, cold oil special | 1 |
| QM210 | 15-25 | | 11095724 | Control seal kit | 1 |

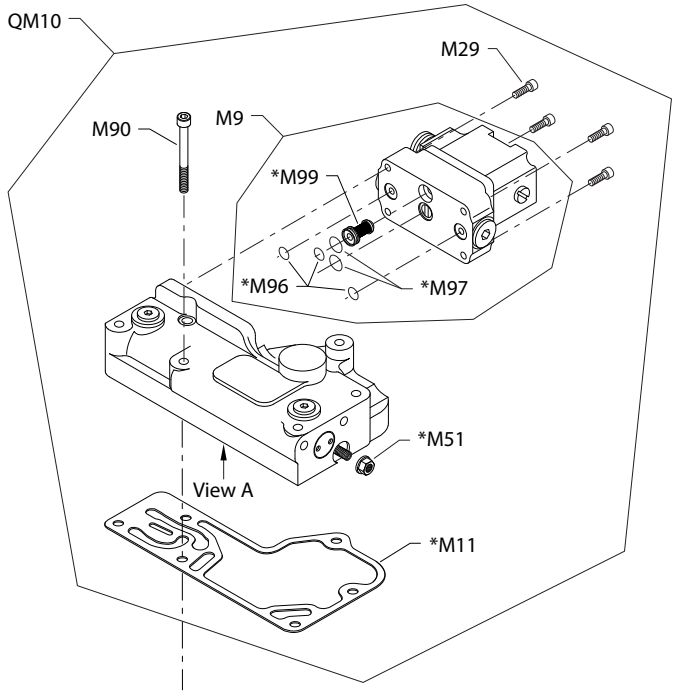
*Order code: KC*

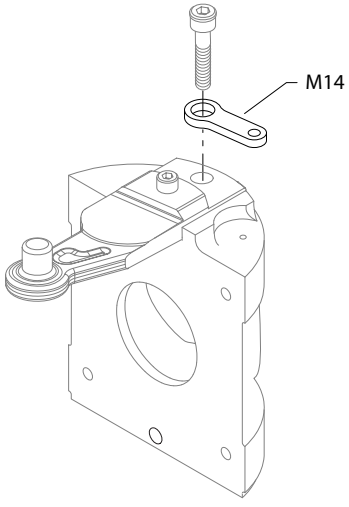
| | | | | | |
|---|---|---|---|---|---|
| M9 | 02-22 | 14-39 | MCV116C1401 | PCP, MS connector | 1 |
| M11 | 02-22 | 14-39 | 8800923 | Control gasket | 1 |
| M14 | 02-22 | 14-39 | 11070305 | Feedback link (*SB-2013-011* on page 359) | 1 |
| M29 | 02-22 | 14-39 | K07067 | Screw | 4 |
| M51 | 02-22 | 14-39 | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 02-22 | 14-39 | 692889 (9007314-0611) | Screw | 6 |
| M96 | 02-22 | 14-39 | 011296 (9004105-0120) | O-ring | 3 |
| M97 | 02-22 | 14-39 | 9004105-0130 | O-ring | 2 |
| M99 | 02-22 | 14-39 | K08572 | Filter assembly | 1 |
| QM10 | 02-22 | 14-39 | 11013634 | EDC kit, MS connector, dual coil | 1 |
| QM210 | 02-22 | 14-39 | 11095724 | Control seal kit | 1 |

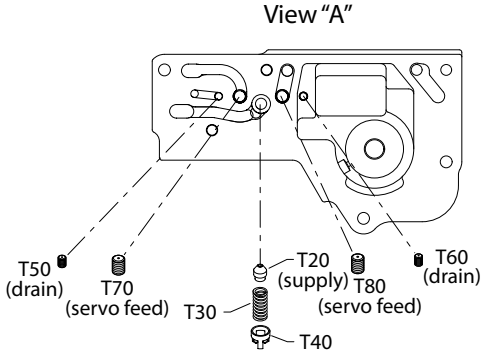
## Control

### S90P control KD-KH

*Parts configuration*




Possible orifice locations

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

*Order code: KD*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M9 | 97-49 | | MCV116F3113 | PCP, Metripack | 1 |
| M11 | 97-49 | | 8800923 | Control gasket | 1 |
| M14 | 97-49 | | 11070305 | Feedback link (*SB-1999-019* on page 338 & *SB-2013-011* on page 359) | 1 |
| M29 | 97-49 | | K07067 | Screw | 4 |
| M51 | 97-49 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 97-49 | | 692889 (9007314-0611) | Screw | 6 |
| M96 | 97-49 | | 011296 (9004105-0120) | O-ring | 3 |
| M97 | 97-49 | | 9004105-0130 | O-ring | 1 |
| M99 | 02-22 | | K08572 | Filter assembly | 1 |
| QM10 | 97-49 | | 8510246 | EDC3 kit, Metripack | 1 |
| QM210 | 97-49 | | 11095724 | Control seal kit | 1 |

*Order code: KE*

| | | | | | |
|---|---|---|---|---|---|
| M9 | 97-49 | | MCV116F3118 | PCP, DEUTSCH connector | 1 |
| M11 | 97-49 | | 8800923 | Control gasket | 1 |
| M14 | 97-49 | | 11070305 | Feedback link (*SB-1999-019* on page 338 & *SB-2013-011* on page 359) | 1 |
| M29 | 97-49 | | K07067 | Screw | 4 |
| M51 | 97-49 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 97-49 | | 692889 (9007314-0611) | Screw | 6 |
| M96 | 97-49 | | 011296 (9004105-0120) | O-ring | 3 |
| M97 | 97-49 | | 9004105-0130 | O-ring | 1 |
| M99 | 02-22 | | K08572 | Filter assembly | 1 |
| QM10 | 97-49 | | 8510322 | EDC3 kit, DEUTSCH connector | 1 |
| QM210 | 97-49 | | 11095724 | Control seal kit | 1 |

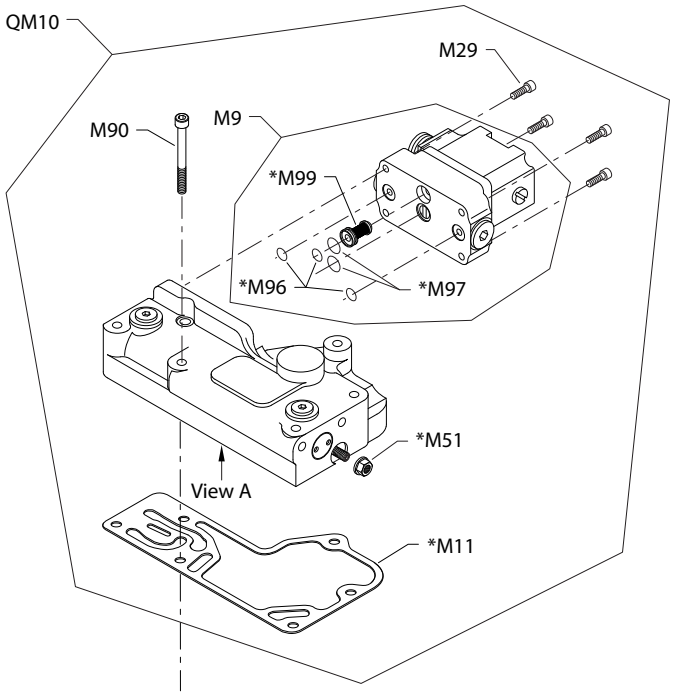
*Order code: KH*

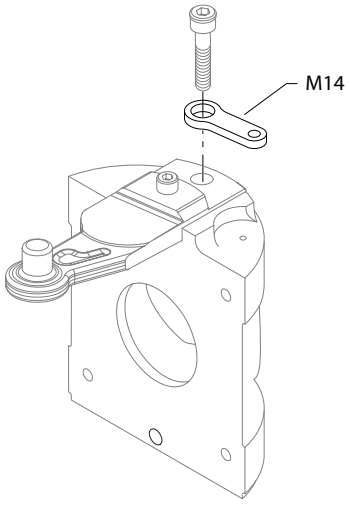
| | | | | | |
|---|---|---|---|---|---|
| M9 | 00-06 | | MCV116G4211 | PCP, cold oil special | 1 |
| M11 | 00-06 | | 8800923 | Control gasket | 1 |
| M14 | 00-06 | | 11070305 | Feedback link | 1 |
| M29 | 00-06 | | K07067 | Screw | 4 |
| M51 | 00-06 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 00-06 | | 692889 (9007314-0611) | Screw | 6 |
| M96 | 00-06 | | 011296 (9004105-0120) | O-ring | 3 |
| M97 | 00-06 | | 9004105-0130 | O-ring | 1 |
| M99 | 00-06 | | K08572 | Filter assembly | 1 |
| QM10 | 00-06 | | 11015105 | EDC3 kit, cold oil special | 1 |
| QM210 | 00-06 | | 11095724 | Control seal kit | 1 |

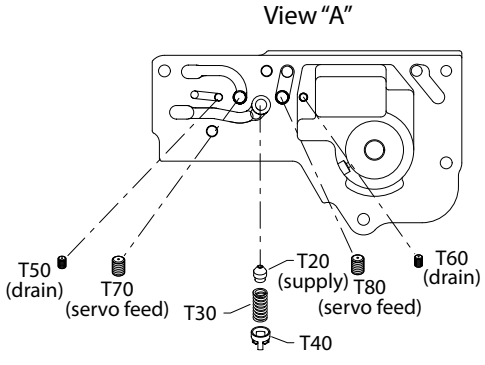
## Control

### S90P control KK-KP

*Parts configuration*




Possible orifice locations

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

*Order code: KK*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M9 | 00-06 | | MCV116G4211 | PCP, cold oil special | 1 |
| M11 | 00-06 | | 8800923 | Control gasket | 1 |
| M14 | 00-06 | | 11070305 | Feedback link (*SB-2013-011* on page 359) | 1 |
| M29 | 00-06 | | K07067 | Screw | 4 |
| M51 | 00-06 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 00-06 | | 692889 (9007314-0611) | Screw | 6 |
| M96 | 00-06 | | 011296 (9004105-0120) | O-ring | 3 |
| M97 | 00-06 | | 9004105-0130 | O-ring | 2 |
| M99 | 00-06 | | K08572 | Filter assembly | 1 |
| QM10 | 00-06 | | 11013632 | EDC3 kit, cold oil special | 1 |
| QM210 | 00-06 | | 11095724 | Control seal kit | 1 |

*Order code: KN*

| | | | | | |
|---|---|---|---|---|---|
| M9 | 95-51 | | MCV116A3501 | PCP, MS connector, single coil | 1 |
| M11 | 95-51 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070305 | Feedback link (*SB-1999-019* on page 338 & *SB-2013-011* on page 359) | 1 |
| M14 | 95-51 | 96-39 | 8000481 | Feedback link (*SB-1996-009* on page 329) | 1 |
| M29 | 95-51 | | K07067 | Screw | 4 |
| M51 | 95-51 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 95-51 | | 692889 (9007314-0611) | Screw | 6 |
| M96 | 95-51 | | 011296 (9004105-0120) | O-ring | 3 |
| M97 | 95-51 | | 9004105-0130 | O-ring | 2 |
| M99 | 95-51 | | K08572 | Filter assembly | 1 |
| QM10 | 95-51 | | 11013622 | EDC3 kit, MS connector, single coil | 1 |
| QM210 | 95-51 | | 11095724 | Control seal kit | 1 |

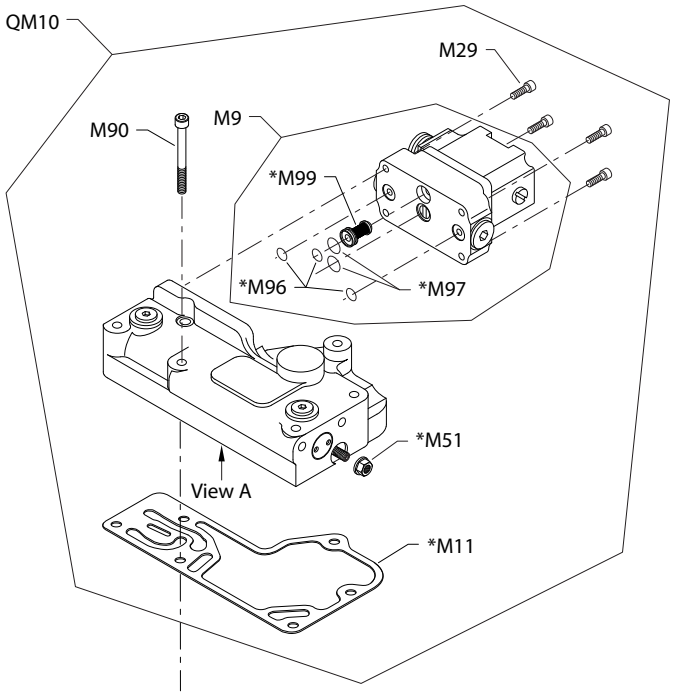
*Order code: KP*

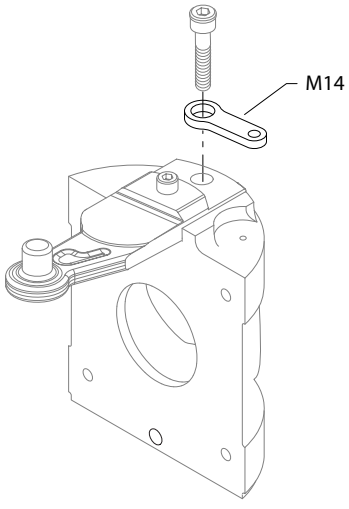
| | | | | | |
|---|---|---|---|---|---|
| M9 | 95-26 | | MCV116G4204 | PCP, Weather-pack connector, dual coil | 1 |
| M11 | 95-26 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070305 | Feedback link (*SB-1999-019* on page 338 & *SB-2013-011* on page 359) | 1 |
| M14 | 95-26 | 96-39 | 8000481 | Feedback link (*SB-1996-009* on page 329) | 1 |
| M29 | 95-26 | | K07067 | Screw | 4 |
| M51 | 95-26 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 95-26 | | 692889 (9007314-0611) | Screw | 6 |
| M96 | 95-26 | | 011296 (9004105-0120) | O-ring | 3 |
| M97 | 95-26 | | 9004105-0130 | O-ring | 2 |
| M99 | 95-26 | | K08572 | Filter assembly | 1 |
| QM10 | 95-26 | | 8510116 | EDC3 kit, Weather-pack connector, dual coil | 1 |
| QM210 | 95-26 | | 11095724 | Control seal kit | 1 |

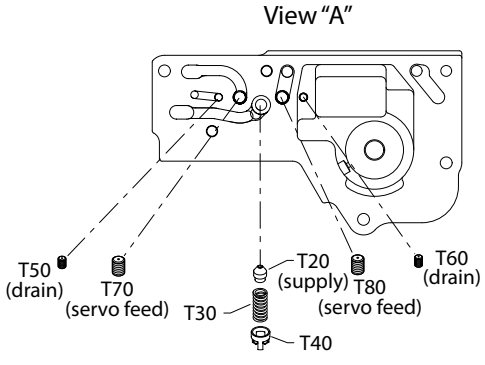
## Control

### S90P control KT

*Parts configuration*




Possible orifice locations

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

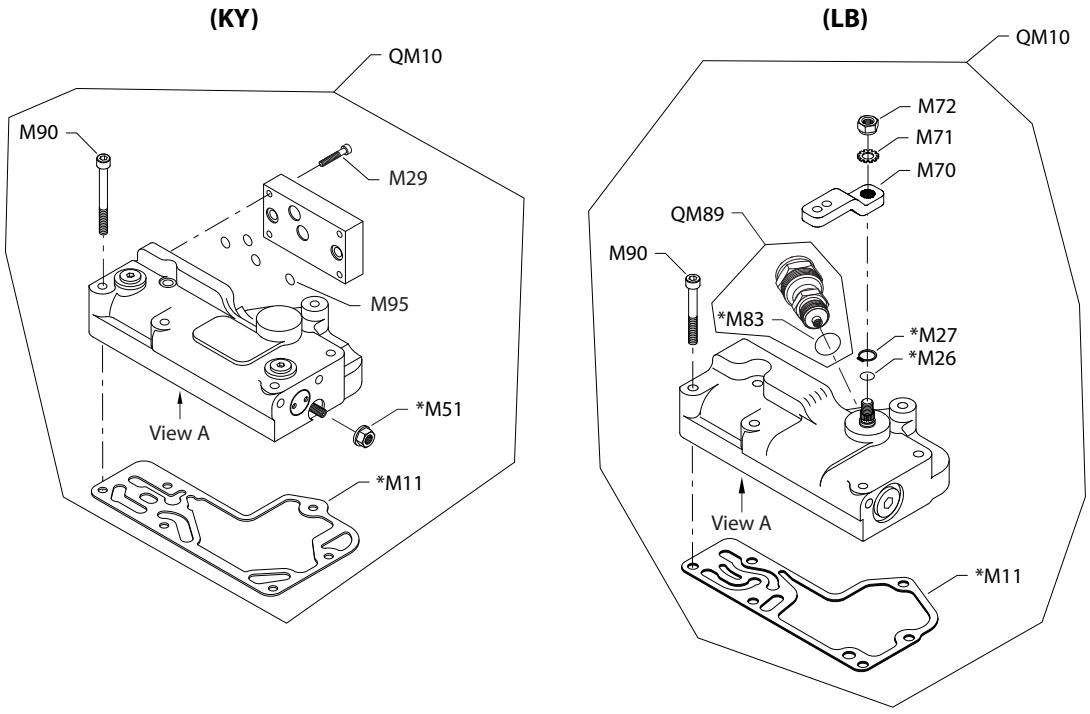
*Order code: KT*

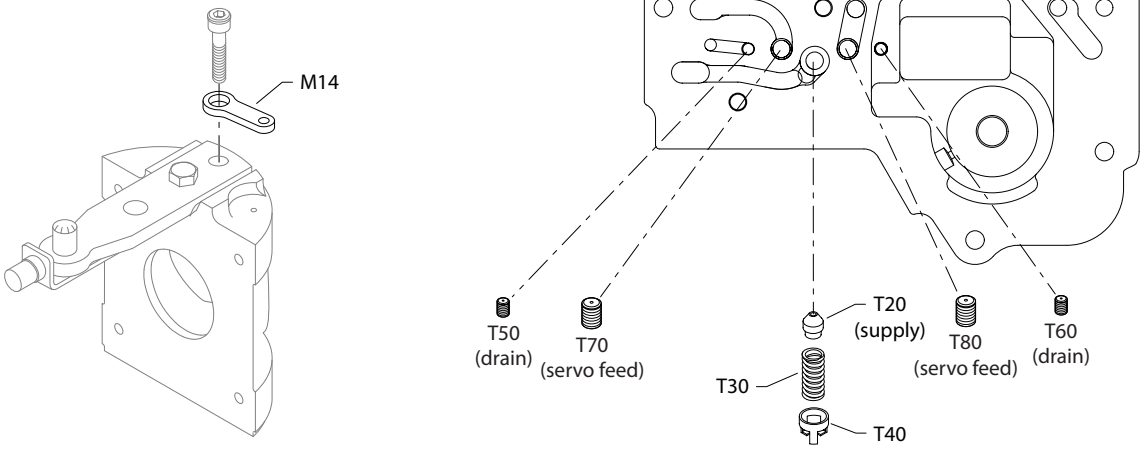
| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M9 | 99-49 | | MCV116G4214 | PCP, DEUTSCH connector | 1 |
| M11 | 99-49 | | 8800923 | Control gasket | 1 |
| M14 | 99-49 | | 11070305 | Feedback link | 1 |
| M29 | 99-49 | | K07067 | Screw | 4 |
| M51 | 99-49 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 99-49 | | 692889 (9007314-0611) | Screw | 6 |
| M96 | 99-49 | | 011296 (9004105-0120) | O-ring | 3 |
| M97 | 99-49 | | 9004105-0130 | O-ring | 2 |
| M99 | 99-49 | | K08572 | Filter assembly | 1 |
| QM10 | 99-49 | | 8510298 | EDC3 kit, DEUTSCH connector | 1 |
| QM210 | 99-49 | | 11095724 | Control seal kit | 1 |

## Control

### S90P control KY, LB

*Parts configuration*




Possible orifice locations

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

*Order code: KY*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 02-22 | | 8800923 | Control gasket | 1 |
| M14 | 02-22 | | 11070305 | Feedback link | 1 |
| M29 | 02-22 | | K07067 | Screw | 4 |
| M51 | 02-22 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 02-22 | | 692889 (9007314-0611) | Screw | 6 |
| M95 | 02-22 | | 611517 (9004100-0120) | O-ring | 4 |
| QM10 | 02-22 | | 11015106 | EDC3 w/HDC plate kit | 1 |
| QM210 | 02-22 | | 11096195 | Control seal kit | 1 |

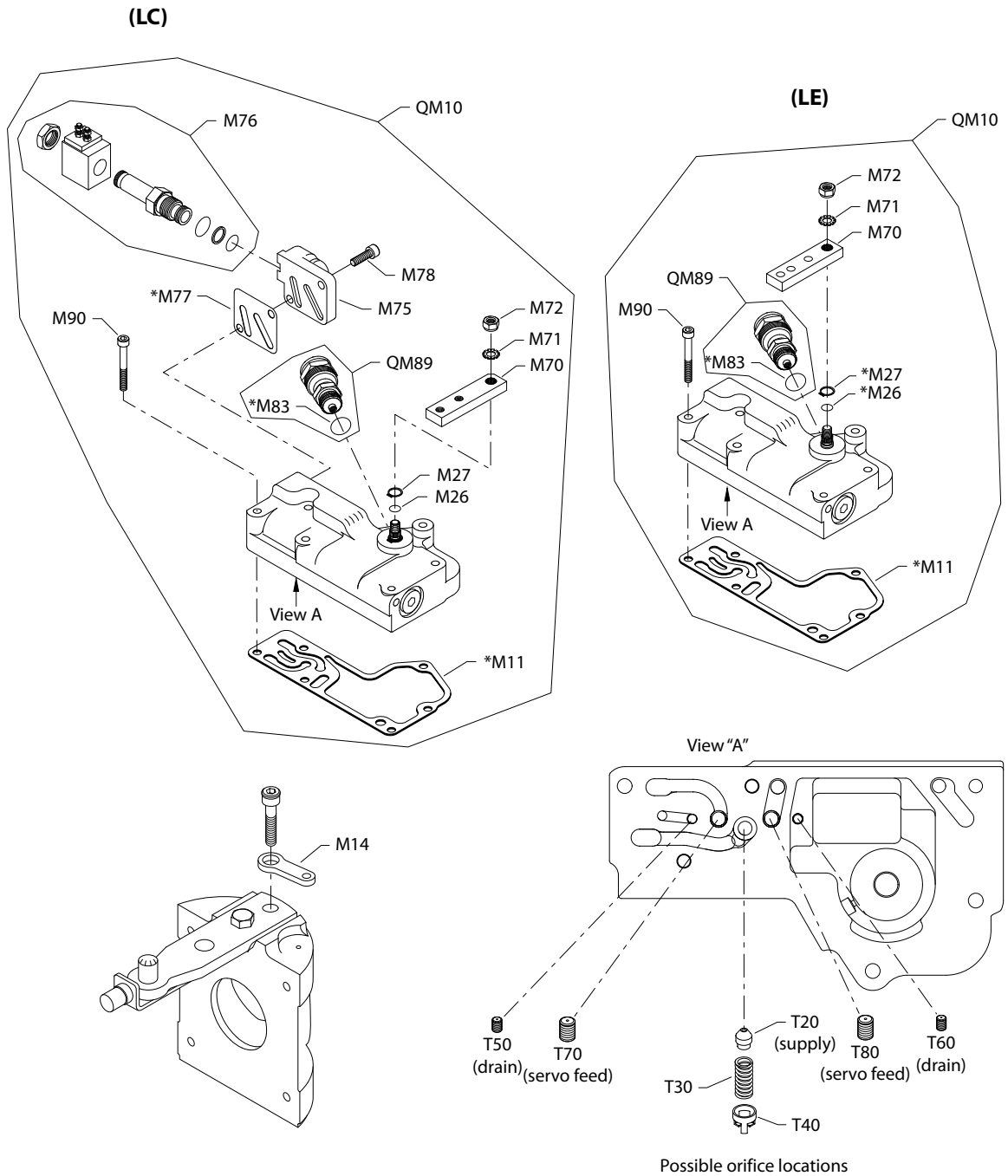
*Order code: LB*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 96-40 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070305 | Feedback link (*SB-1996-009* on page 329 & *SB-1999-019* on page 338) | 1 |
| M26 | 96-40 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 96-40 | | 042557 (9006300-0044) | Retaining ring | 1 |
| M70 | 96-40 | | 8801007 | Control handle | 1 |
| M71 | 96-40 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 96-40 | | 040642 (9003513-0800) | Nut | 1 |
| M83 | 96-40 | | 001131 (9004201-5000) | O-ring | 1 |
| M90 | 96-40 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 96-40 | | 8510173 | MDC kit, w/4 lbs neutral start switch | 1 |
| QM89 | 96-40 | | 8510174 | Neutral start switch kit, 4 lbs, Weather-pack | 1 |
| QM210 | 96-40 | | 11096274 | Control seal kit | 1 |

## Control

### S90P control LC, LE

*Parts configuration*




Possible orifice locations

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

*Order code: LC*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 97-06 | | 8800923 | Control gasket | 1 |
| M14 | 97-06 | | 11070305 | Feedback link (*SB-1999-019* on page 338 & *SB-2013-011* on page 359) | 1 |
| M26 | 97-06 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 97-06 | | 042557 (9006300-0044) | Retaining ring | 1 |
| M70 | 97-06 | | 9802360 | Control handle | 1 |
| M71 | 97-06 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 97-06 | | 040642 (9003513-0800) | Nut | 1 |
| M75 | 97-06 | | 505022 | Control manifold | 1 |
| M76 | 97-06 | | 11127986 | Solenoid valve, 12 volt, 2-pole | 1 |
| M77 | 97-06 | | 8800882 | Manifold gasket | 1 |
| M78 | 97-06 | | 693341 (9007314-0606) | Screw | 2 |
| M83 | 97-06 | | 001131 (9004201-5000) | O-ring | 1 |
| M90 | 97-06 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 97-06 | | 11015107 | MDC kit, w/neutral start switch, 2 pole 12vsolenoid | 1 |
| QM89 | 97-06 | | 8510027 | Neutral start switch kit | 1 |
| QM210 | 97-06 | | 11100031 | Control seal kit | 1 |

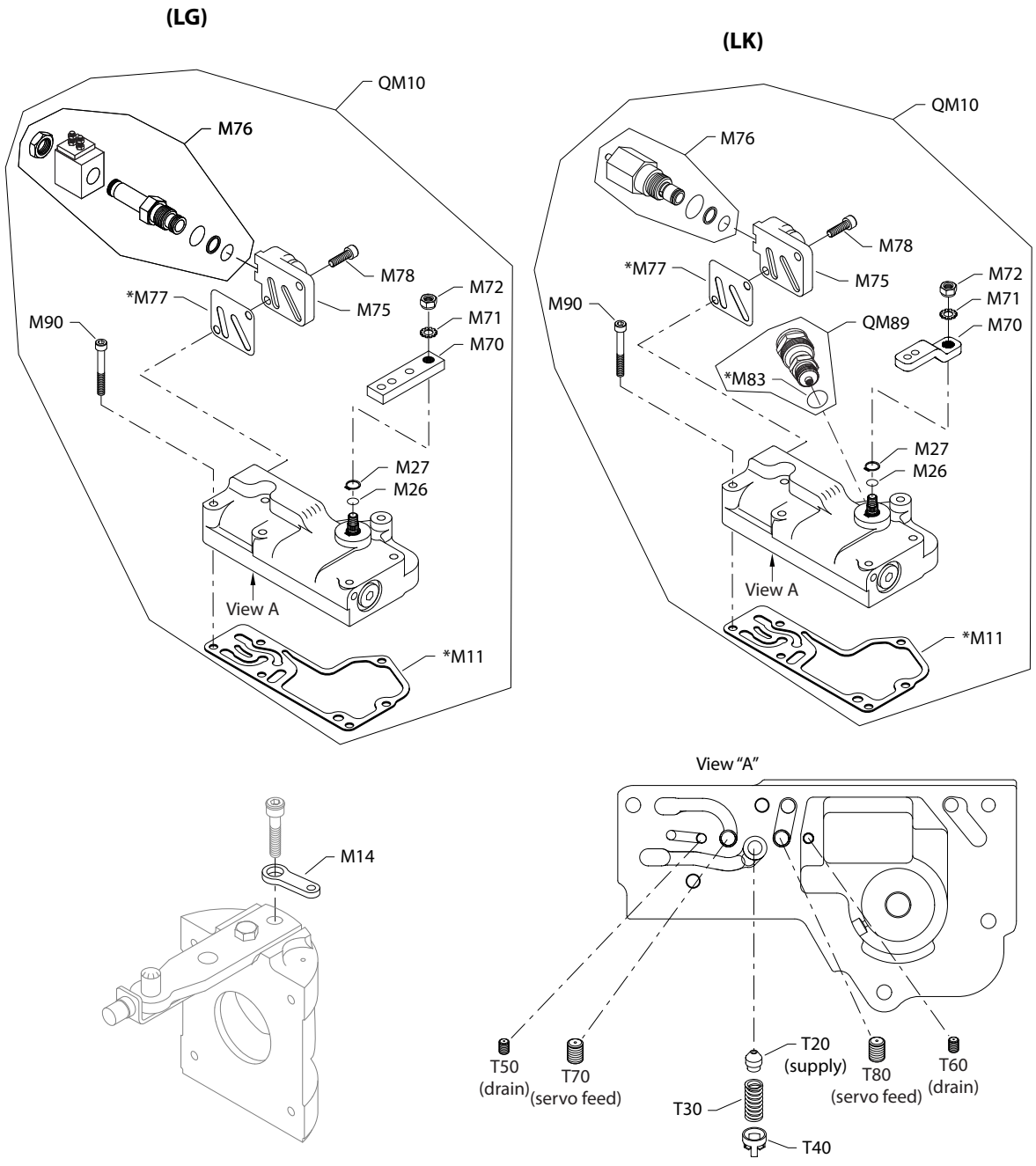
*Order code: LE*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 01-07 | | 8800923 | Control gasket | 1 |
| M14 | 01-07 | | 11070305 | Feedback link | 1 |
| M26 | 01-07 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 01-07 | | 042557 (9006300-0044) | Retaining ring | 1 |
| M70 | 01-07 | | 9800916 | Control handle | 1 |
| M71 | 01-07 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 01-07 | | 040642 (9003513-0800) | Nut | 1 |
| M83 | 01-07 | | 001131 (9004201-5000) | O-ring | 1 |
| M90 | 01-07 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 01-07 | | 8510291 | MDC kit, high force neutral start switch | 1 |
| QM89 | 01-07 | | 8510316 | Neutral start switch kit, high force | 1 |
| QM210 | 01-07 | | 11096274 | Control seal kit | 1 |

## Control

### S90P control LG, LK

*Parts configuration*




Possible orifice locations

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

*Order code: LG*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 01-01 | | 8800923 | Control gasket | 1 |
| M14 | 01-01 | | 11070305 | Feedback link | 1 |
| M26 | 01-01 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 01-01 | | 042557 (9006300-0044) | Retaining ring | 1 |
| M70 | 01-01 | | 9800916 | Control handle | 1 |
| M71 | 01-01 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 01-01 | | 040642 (9003513-0800) | Nut | 1 |
| M75 | 01-01 | | 505022 | Control manifold | 1 |
| M76 | 01-01 | | 11127986 | Solenoid valve, 12 volt, 2-pole | 1 |
| M77 | 01-01 | | 8800882 | Manifold gasket | 1 |
| M78 | 01-01 | | 693341 (9007314-0606) | Screw | 2 |
| M90 | 01-01 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 01-01 | | 11015108 | MDC kit, w/2-pole 12v solenoid | 1 |
| QM210 | 01-01 | | 11100031 | Control seal kit | 1 |

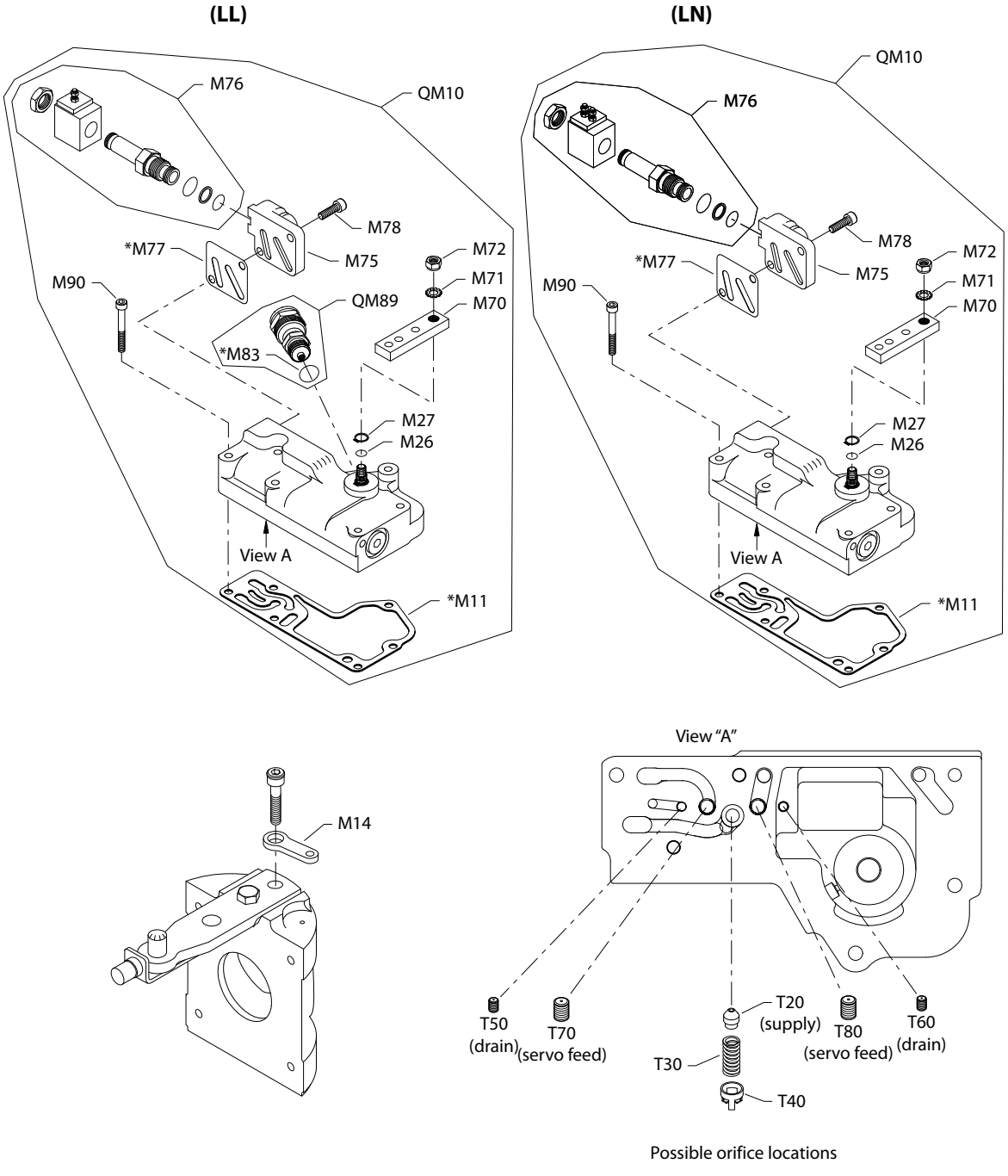
*Order code: LK*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 99-49 | 14-16 | 8800923 | Control gasket | 1 |
| M14 | 99-49 | 14-16 | 11070305 | Feedback link | 1 |
| M26 | 99-49 | 14-16 | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 99-49 | 14-16 | 042557 (9006300-0044) | Retaining ring | 1 |
| M70 | 99-49 | 14-16 | 8801007 | Control handle | 1 |
| M71 | 99-49 | 14-16 | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 99-49 | 14-16 | 040642 (9003513-0800) | Nut | 1 |
| M75 | 99-49 | 14-16 | 8800920 | Control manifold | 1 |
| M76 | 99-49 | 14-16 | 8800921 | Mechanical shunt valve | 1 |
| M77 | 99-49 | 14-16 | 8800882 | Manifold gasket | 1 |
| M78 | 99-49 | 14-16 | 693341 (9007314-0606) | Screw | 2 |
| M83 | 99-49 | 14-16 | 001131 (9004201-5000) | O-ring | 1 |
| M90 | 99-49 | 14-16 | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 99-49 | 14-16 | 11015109 | MDC kit, neutral start switch, shunt valve | 1 |
| QM89 | 99-49 | 14-16 | 8510174 | Neutral start switch kit, high force, Weather-pack | 1 |
| QM210 | 99-49 | 14-16 | 11100031 | Control seal kit | 1 |

## Control

### S90P control LL, LN

*Parts configuration*




Possible orifice locations

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

*Order code: LL*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 02-16 | | 8800923 | Control gasket | 1 |
| M14 | 02-16 | | 11070305 | Feedback link | 1 |
| M26 | 02-16 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 02-16 | | 042557 (9006300-0044) | Retaining ring | 1 |
| M70 | 02-16 | | 9800916 | Control handle | 1 |
| M71 | 02-16 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 02-16 | | 040642 (9003513-0800) | Nut | 1 |
| M75 | 02-16 | | 505022 | Control manifold | 1 |
| M76 | 02-16 | | 11127988 | Solenoid valve, 12v, single pole | 1 |
| M77 | 02-16 | | 8800882 | Manifold gasket | 1 |
| M78 | 02-16 | | 693341 (9007314-0606) | Screw | 2 |
| M83 | 02-16 | | 001131 (9004201-5000) | O-ring | 1 |
| M90 | 02-16 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 02-16 | | 8510393 | MDC kit, w/single pole 12v solenoid | 1 |
| QM89 | 02-16 | | 8510316 | Neutral start switch kit, high force, Weather-pack | 1 |
| QM210 | 02-16 | | 11100031 | Control seal kit | 1 |

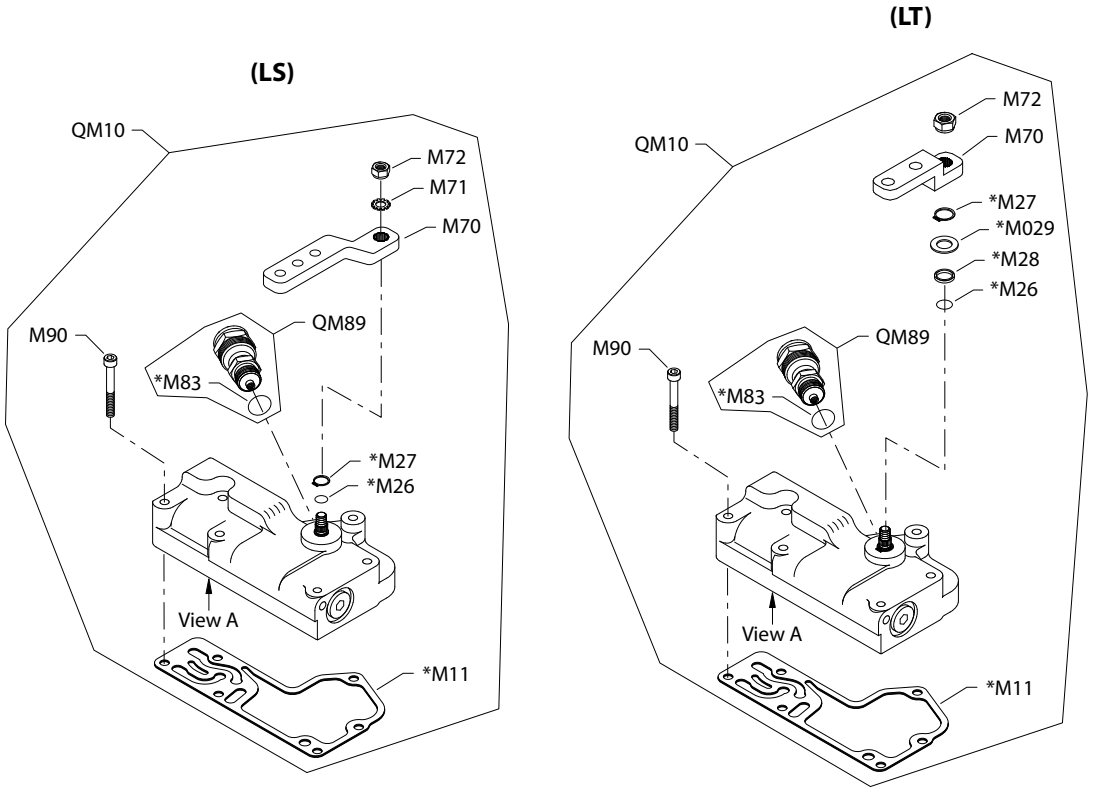
*Order code: LN*

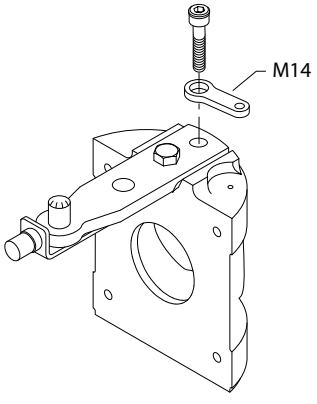
| | | | | | |
|---|---|---|---|---|---|
| M11 | 04-33 | | 8800923 | Control gasket | 1 |
| M14 | 04-33 | | 11070305 | Feedback link | 1 |
| M26 | 04-33 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 04-33 | | 042557 (9006300-0044) | Retaining ring | 1 |
| M70 | 04-33 | | 9800916 | Control handle | 1 |
| M71 | 04-33 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 04-33 | | 040642 (9003513-0800) | Nut | 1 |
| M75 | 04-33 | | 505022 | Control manifold | 1 |
| M76 | 04-33 | | 11127986 | Solenoid valve, 12 volt, 2-pole | 1 |
| M77 | 04-33 | | 8800882 | Manifold gasket | 1 |
| M78 | 04-33 | | 693341 (9007314-0606) | Screw | 2 |
| M90 | 04-33 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 04-33 | | 8100961 | MDC kit, w/special orifice | 1 |
| QM210 | 04-33 | | 11100031 | Control seal kit | 1 |

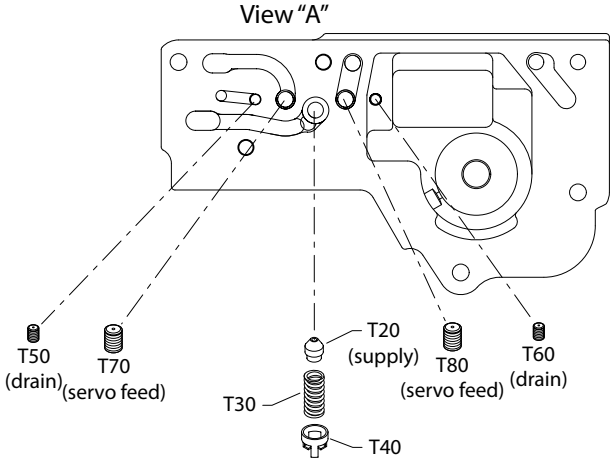
## Control

### S90P control LS, LT

*Parts configuration*




Possible orifice locations

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

*Order code: LS*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 13-45 | | 8800923 | Control gasket | 1 |
| M14 | 13-45 | | 11070305 | Feedback link | 1 |
| M26 | 13-45 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 13-45 | | 042557 (9006300-0044) | Retaining ring | 1 |
| M70 | 13-45 | | 8801339 | Control handle, offset | 1 |
| M72 | 13-45 | | 040642 (9003513-0800) | Nut | 1 |
| M83 | 13-45 | | 001131 (9004201-5000) | O-ring | 1 |
| M90 | 13-45 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 13-45 | | 8510360 | MDC kit, with high force neutral start switch | 1 |
| QM89 | 13-45 | | 8510316 | Neutral start switch kit, high force, Weather-pack | 1 |
| QM210 | 13-45 | | 11096274 | Control seal kit | 1 |

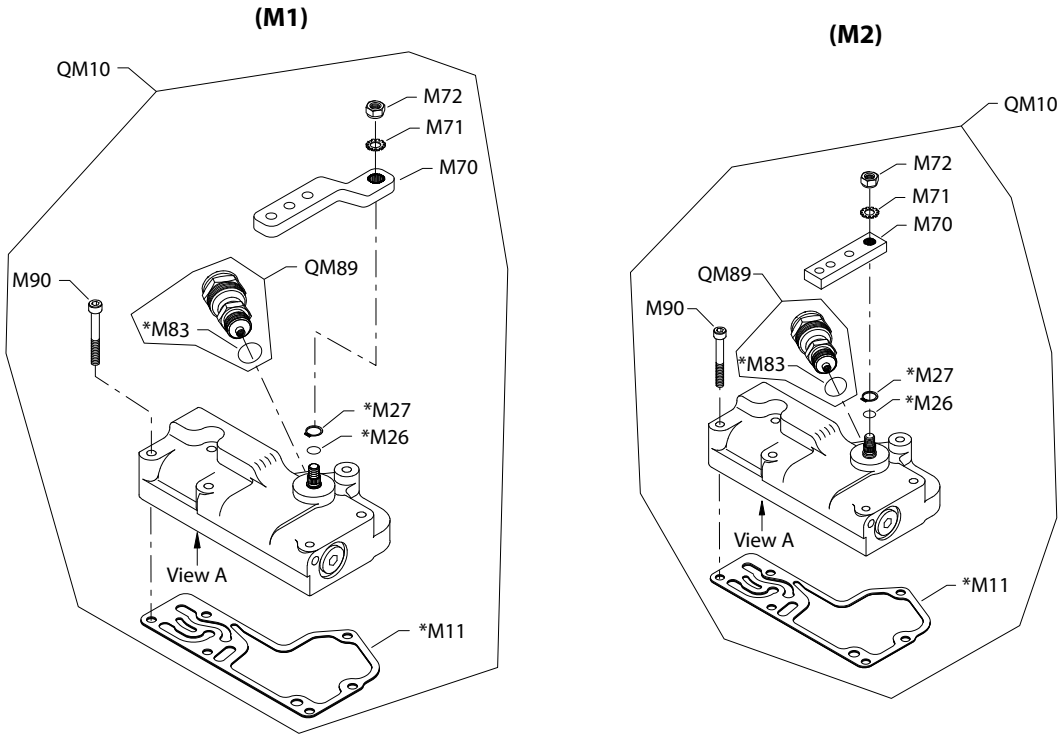
*Order code: LT*

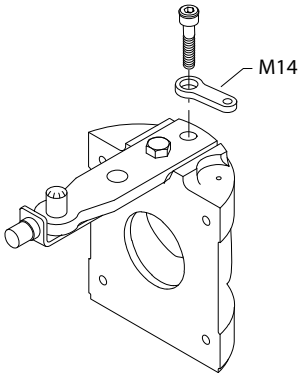
| | | | | | |
|---|---|---|---|---|---|
| M11 | 06-13 | | 8800923 | Control gasket | 1 |
| M14 | 06-13 | | 11070305 | Feedback link | 1 |
| M26 | 06-13 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 06-13 | | 042507 | Retaining ring | 1 |
| M28 | 06-13 | | 510690 | Lip seal | 1 |
| M70 | 06-13 | | 769075 | Control handle, offset | 1 |
| M72 | 06-13 | | 040642 (9003513-0800) | Nut | 1 |
| M83 | 06-13 | | 001131 (9004201-5000) | O-ring | 1 |
| M90 | 06-13 | | 692889 (9007314-0611) | Screw | 6 |
| M029 | 06-13 | | 512047 | Washer | 1 |
| QM10 | 06-13 | | 11098763 | MDC kit, with high force neutral start switch | 1 |
| QM89 | 06-13 | | 8510027 | Neutral start switch kit, high force, Weather-pack | 1 |
| QM210 | 06-13 | | 11109083 | Control seal kit, with lip seal | 1 |

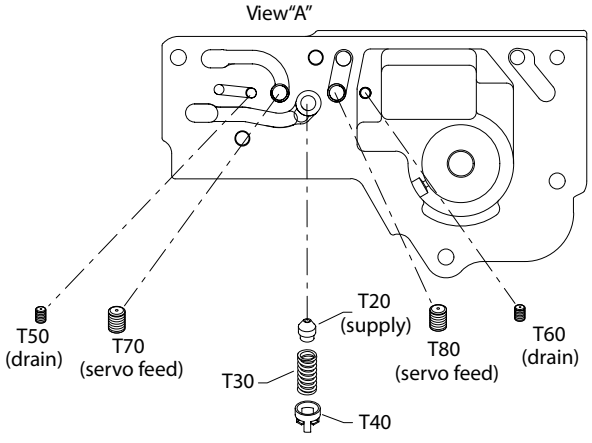
## Control

### S90P control M1, M2

*Parts configuration*




(Possible orifice locations)

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

*Order code: M1*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 95-37 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 338 & *SB-2013-011* on page 359) | 1 |
| M14 | 95-37 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 329) | 1 |
| M26 | 95-37 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 95-37 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M70 | 95-37 | | 9800916 | Control handle | 1 |
| M71 | 95-37 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 95-37 | | 040642 (9003513-0800) | Nut | 1 |
| M90 | 95-37 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 95-37 | | 11014378 | MDC kit, brass sleeve | 1 |
| QM210 | 95-37 | | 11096274 | Control seal kit | 1 |

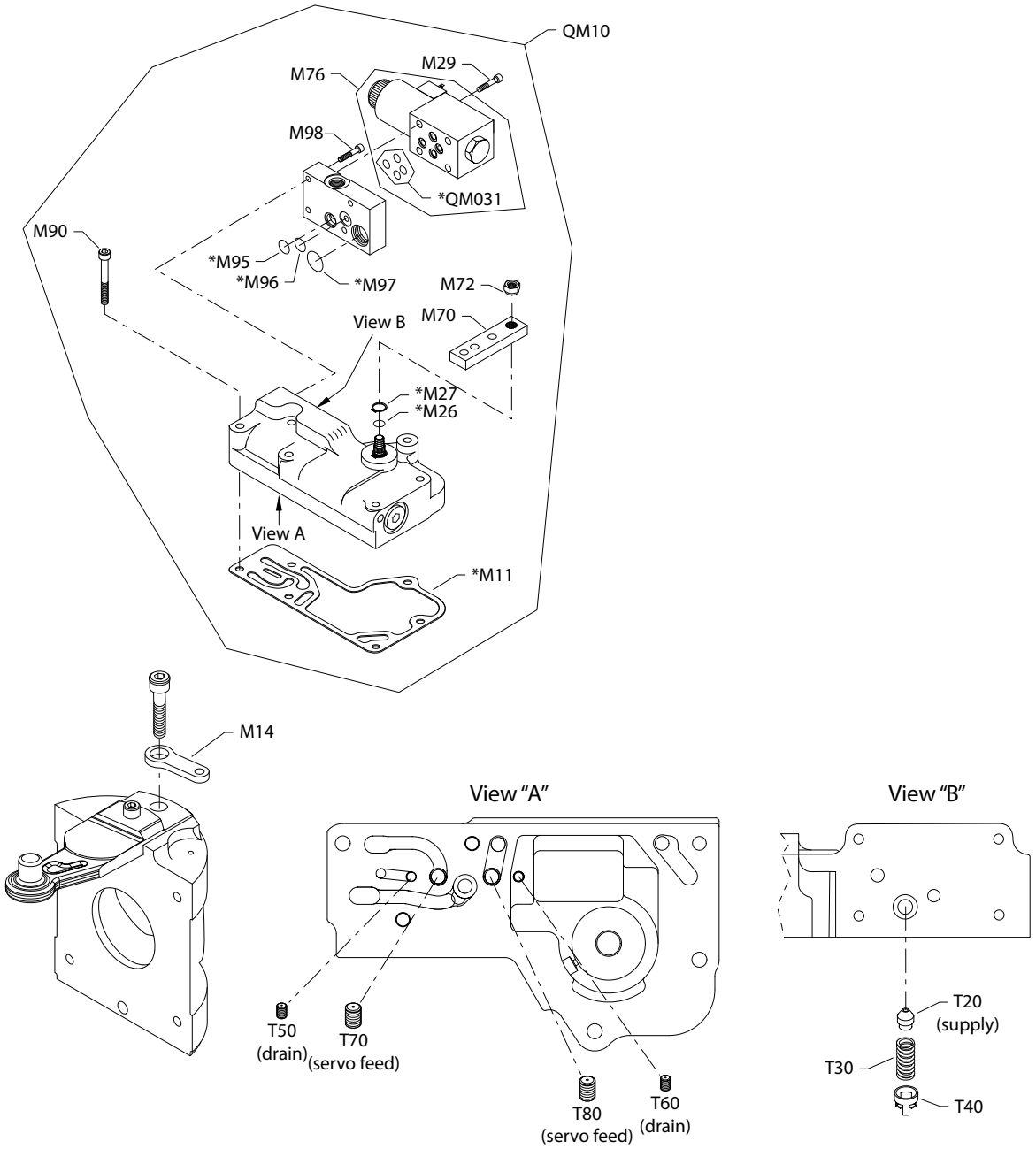
*Order code: M2*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 95-37 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 338 & *SB-2013-011* on page 359) | 1 |
| M14 | 95-37 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 329) | 1 |
| M26 | 95-37 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 95-37 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M70 | 95-37 | | 9800916 | Control handle | 1 |
| M71 | 95-37 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 95-37 | | 040642 (9003513-0800) | Nut | 1 |
| M83 | 95-37 | | 001131 (9004201-5000) | O-ring | 1 |
| M90 | 95-37 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 95-37 | | 8510112 | MDC kit, with neutral start switch, brass sleeve | 1 |
| QM89 | 95-37 | | 80020S40 | Neutral start switch kit | 1 |
| QM210 | 95-37 | | 11096274 | Control seal kit | 1 |

## Control

### S90P control M3

*Parts configuration*




All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

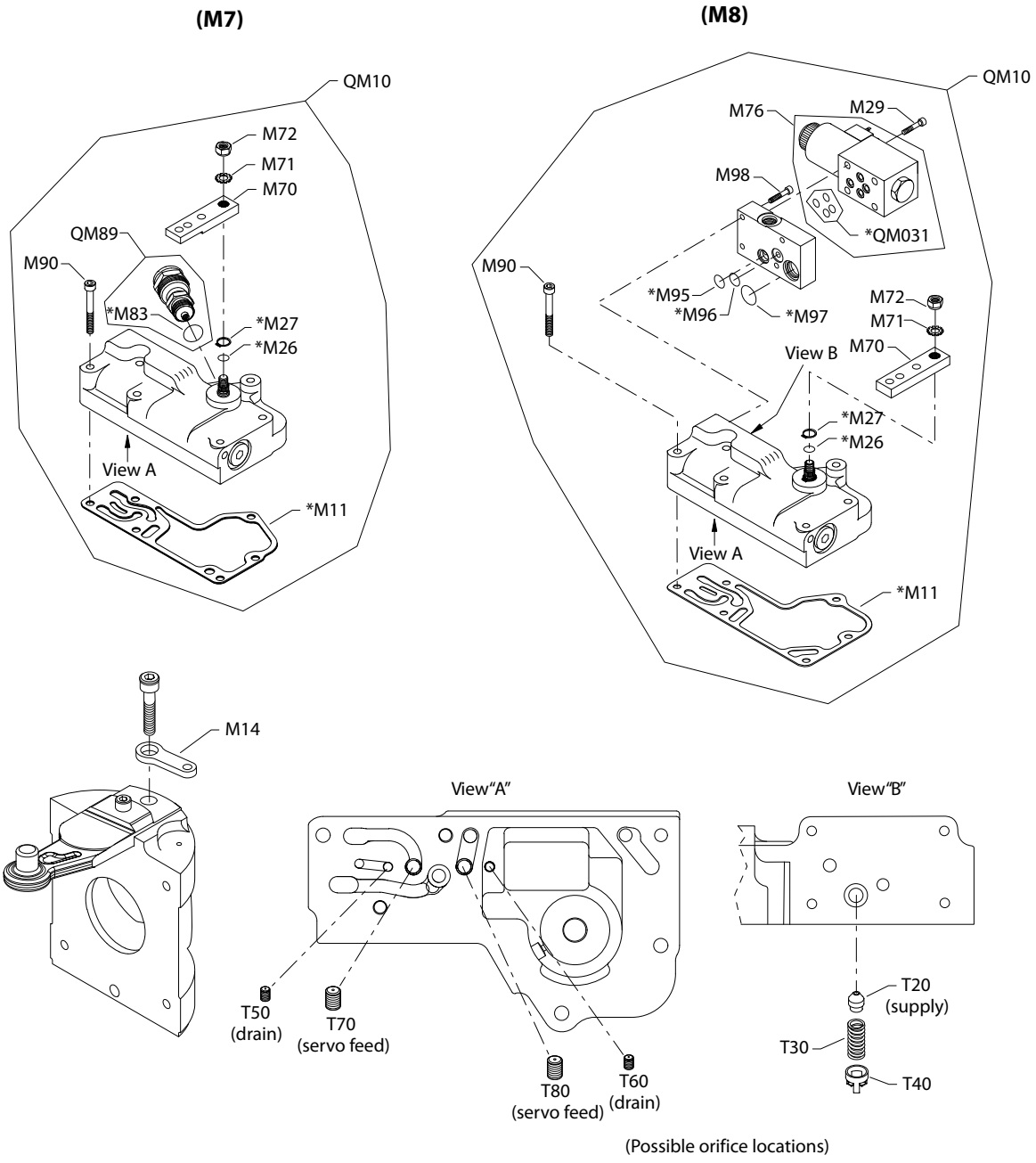
*Order code: M3*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 14-18 | | 8800923 | Control gasket | 1 |
| M14 | 14-18 | | 11070305 | Feedback link | 1 |
| M26 | 14-18 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 14-18 | | 042557 (9006300-0044) | Retaining ring | 1 |
| M29 | 14-18 | | 035592 | Screw, M5 x 45 | 4 |
| M70 | 14-18 | | 9800916 | Control handle | 1 |
| M72 | 14-18 | | 040642 (9003513-0800) | Nut | 1 |
| M76 | 14-18 | | 11146844 | Solenoid valve, DEUTSCH connector | 1 |
| M90 | 14-18 | | 692889 (9007314-0611) | Screw | 6 |
| M95 | 14-18 | | 056713 | O-ring | 1 |
| M96 | 14-18 | | 056713 | O-ring | 1 |
| M97 | 14-18 | | 544742 | O-ring | 1 |
| M98 | 14-18 | | 067686 | Screw, M5 x 20 | 4 |
| QM10 | 14-18 | | 11148988 | MDC kit w/2-position solenoid, DEUTSCH connector | 1 |
| QM031 | 14-18 | | 11099647 | Solenoid valve seal kit | 1 |
| QM210 | 14-18 | | 11099978 | Control seal kit | 1 |

## Control

### S90P control M7, M8

*Parts configuration*




(Possible orifice locations)

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

*Order code: M7*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 11-04 | | 8800923 | Control gasket | 1 |
| M14 | 11-04 | | 11070306 | Feedback link (*SB-2013-011* on page 359) | 1 |
| M26 | 11-04 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 11-04 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M70 | 11-04 | | 8801260 | Control handle | 1 |
| M71 | 11-04 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 11-04 | | 040642 (9003513-0800) | Nut | 1 |
| M83 | 11-04 | | 001131 (9004201-5000) | O-ring | 1 |
| M90 | 11-04 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 11-04 | | 11099070 | MDC kit, with neutral start switch | 1 |
| QM89 | 11-04 | | 709014 (8510170) | Neutral start switch kit | 1 |
| QM210 | 11-04 | | 11096274 | Control seal kit | 1 |

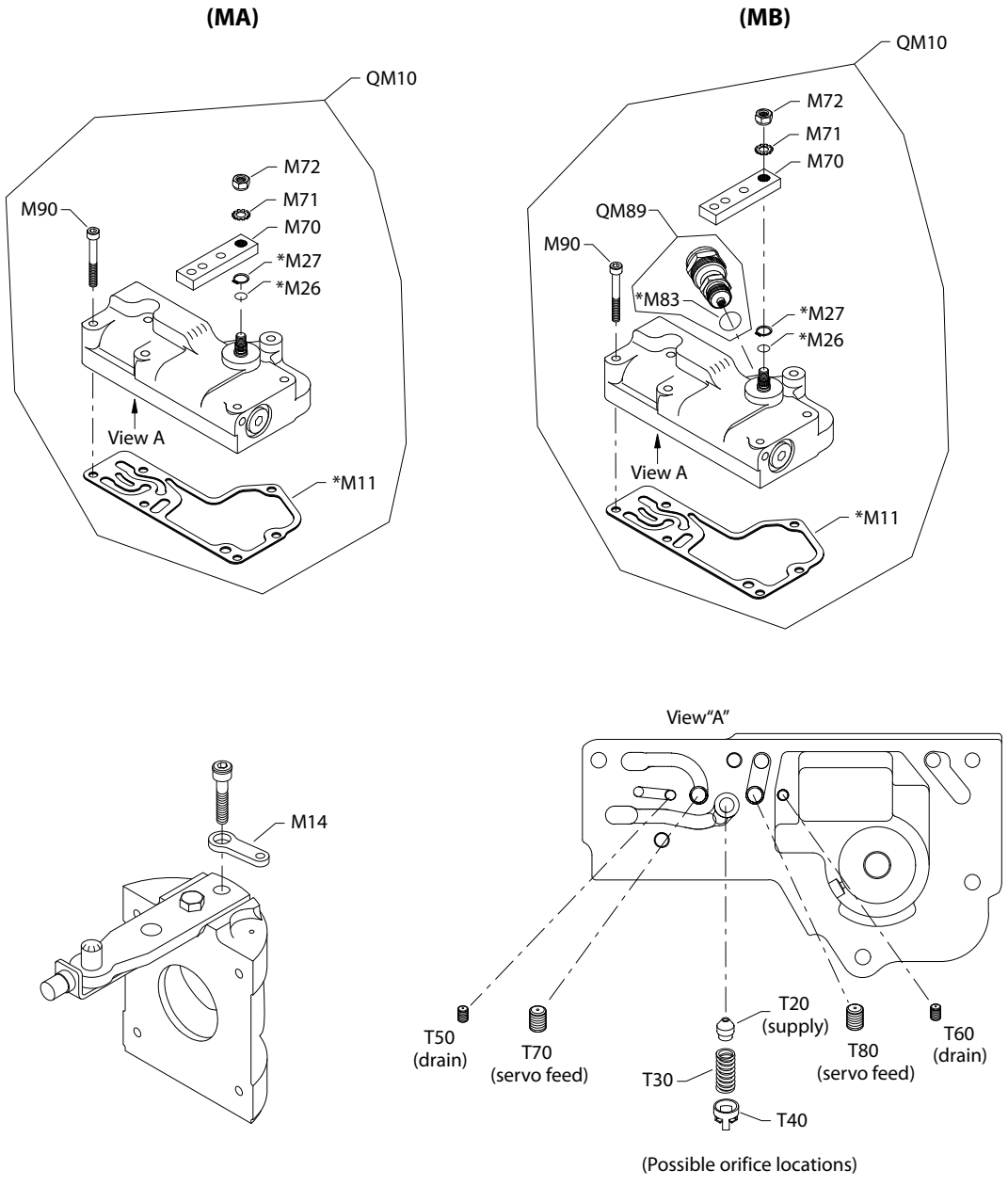
*Order code: M8*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 04-38 | | 8800923 | Control gasket | 1 |
| M14 | 04-38 | | 11070306 | Feedback link | 1 |
| M26 | 04-38 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 04-38 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M29 | 04-38 | | 9007315-0507 | Screw | 4 |
| M70 | 04-38 | | 9800916 | Control handle | 1 |
| M71 | 04-38 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 04-38 | | 040642 (9003513-0800) | Nut | 1 |
| M76 | 04-38 | | 508009 | Solenoid valve | 1 |
| M90 | 04-38 | | 692889 (9007314-0611) | Screw | 6 |
| M95 | 04-38 | | 9004105-0140 | O-ring | 1 |
| M96 | 04-38 | | 9004105-0140 | O-ring | 1 |
| M97 | 04-38 | | 9004105-0190 | O-ring | 1 |
| M98 | 04-38 | | 9007315-0505 | Screw | 4 |
| QM10 | 04-38 | | 11015110 | MDC kit, w/2-position solenoid valve | 1 |
| QM031 | 04-38 | | 11099647 | Solenoid seal kit | 1 |
| QM210 | 04-38 | | 11099978 | Control seal kit | 1 |

## Control

### S90P control MA, MB

*Parts configuration*




All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

*Order code: MA*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 87-02 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 338 & *SB-2013-011* on page 359) | 1 |
| M14 | 87-02 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 329) | 1 |
| M26 | 87-02 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 87-02 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M70 | 87-02 | | 9800916 | Control handle | 1 |
| M71 | 87-02 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 87-02 | | 040642 (9003513-0800) | Nut | 1 |
| M90 | 87-02 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 87-02 | | 8102M0MA-A | MDC kit | 1 |
| QM210 | 87-02 | | 11096274 | Control seal kit | 1 |

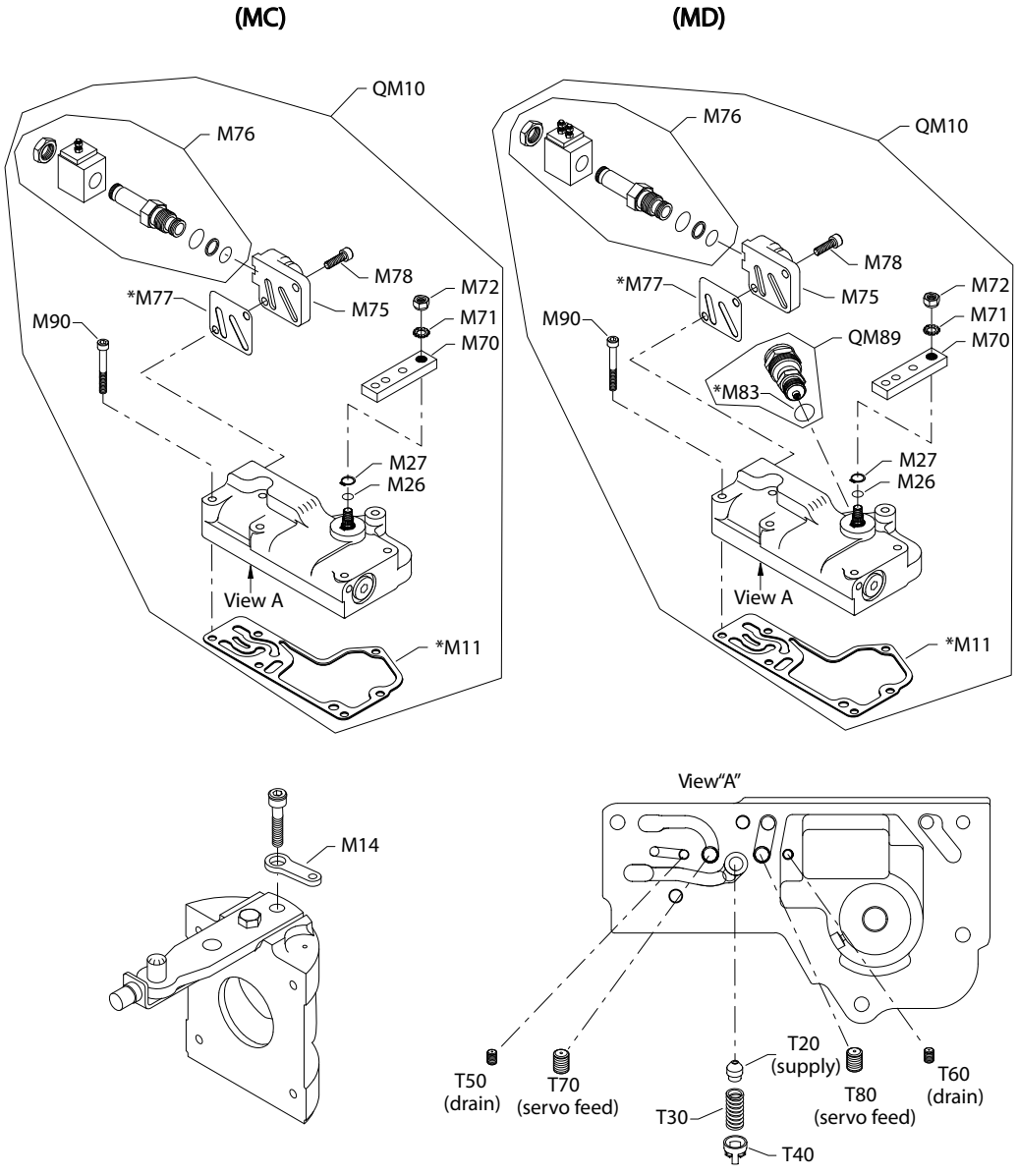
*Order code: MB*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 87-02 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 338 & *SB-2013-011* on page 359) | 1 |
| M14 | 87-02 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 329) | 1 |
| M26 | 87-02 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 87-02 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M70 | 87-02 | | 9800916 | Control handle | 1 |
| M71 | 87-02 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 87-02 | | 040642 (9003513-0800) | Nut | 1 |
| M83 | 87-02 | | 001131 (9004201-5000) | O-ring | 1 |
| M90 | 87-02 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 87-02 | | 8102M0MB-A | MDC kit with neutral start switch | 1 |
| QM89 | 87-02 | | 80020S40 | Neutral start switch kit | 1 |
| QM210 | 87-02 | | 11096274 | Control seal kit | 1 |

## Control

### S90P control MC, MD

*Parts configuration*




(Possible orifice locations)

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

*Order code: MC*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 87-02 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 338 & *SB-2013-011* on page 359) | 1 |
| M14 | 87-02 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 329) | 1 |
| M26 | 87-02 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 87-02 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M70 | 87-02 | | 9800916 | Control handle | 1 |
| M71 | 87-02 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 87-02 | | 040642 (9003513-0800) | Nut | 1 |
| M75 | 87-02 | | 505022 | Control manifold (*SB-1995-003* on page 324) | 1 |
| M76 | 87-02 | | 11127987 | Solenoid valve, 12 volt, single pole | 1 |
| M77 | 87-02 | | 8800882 | Manifold gasket | 1 |
| M78 | 95-10 | | 693341 (9007314-0606) | Screw (*SB-1995-003* on page 324) | 2 |
| M78 | 87-02 | 95-09 | 041160 (9007314-0605) | Screw | 2 |
| M90 | 87-02 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 87-02 | | 8102M0MC-A | MDC kit w/12 volt solenoid, single pole | 1 |
| QM210 | 87-02 | | 11100031 | Control seal kit | 1 |

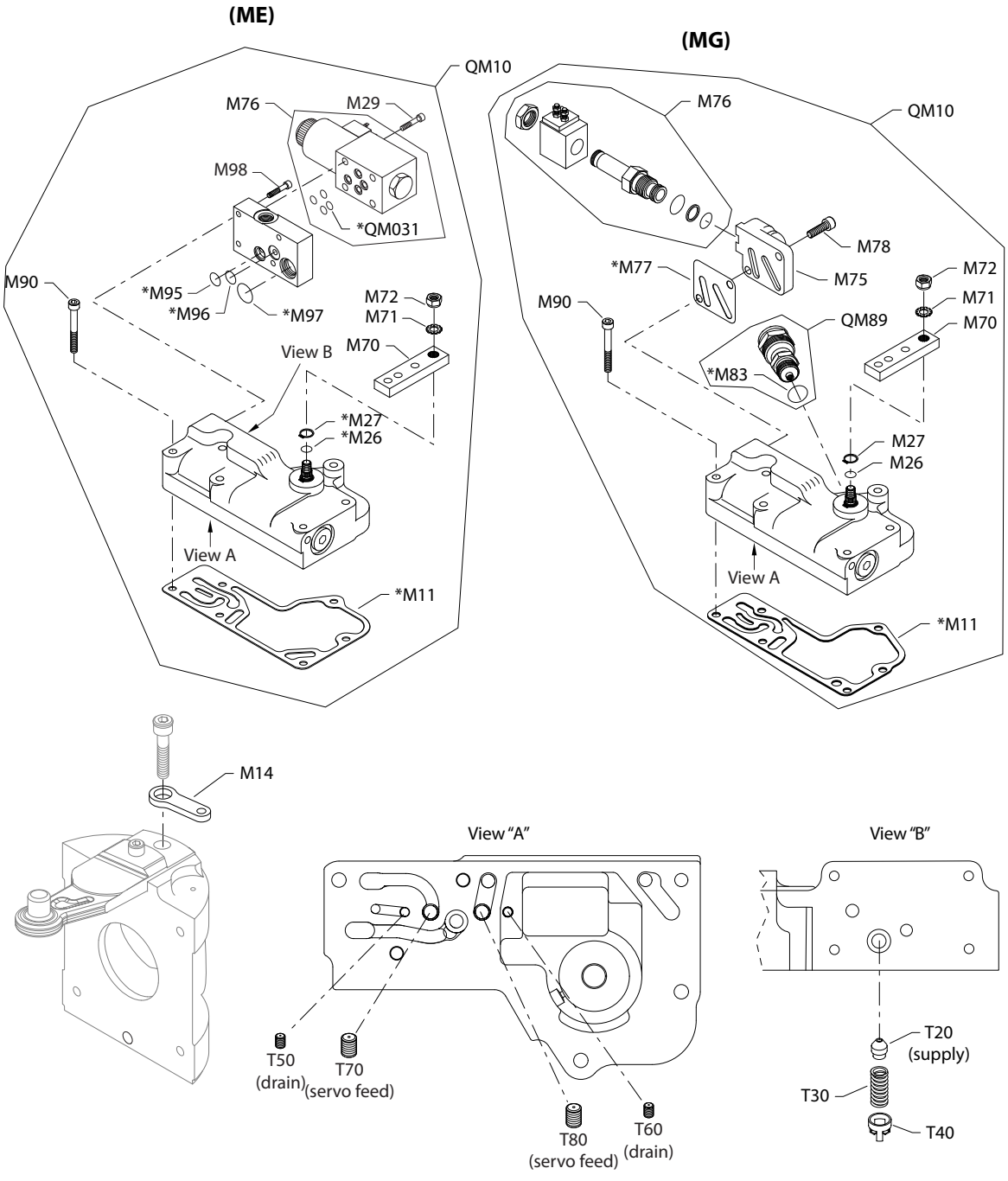
*Order code: MD*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 02-16 | | 8800923 | Control gasket | 1 |
| M14 | 02-16 | | 11070306 | Feedback link | 1 |
| M26 | 02-16 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 02-16 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M70 | 02-16 | | 9800916 | Control handle | 1 |
| M71 | 02-16 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 02-16 | | 040642 (9003513-0800) | Nut | 1 |
| M75 | 02-16 | | 505022 | Control manifold | 1 |
| M76 | 02-16 | | 11127986 | Solenoid valve, 12v, double pole | 1 |
| M77 | 02-16 | | 8800882 | Manifold gasket | 1 |
| M78 | 02-16 | | 693341 (9007314-0606) | Screw | 2 |
| M83 | 02-16 | | 001131 (9004201-5000) | O-ring | 1 |
| M90 | 02-16 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 02-16 | | 8102M0MD-A | MDC kit, w/double pole 12v solenoid | 1 |
| QM89 | 02-16 | | 8510027 | Neutral start switch kit, high force, Weather-pack | 1 |
| QM210 | 02-16 | | 11100031 | Control seal kit | 1 |

## Control

### S90P control ME, MG

*Parts configuration*




Possible orifice locations

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

*Order code: ME*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 87-02 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070305 | Feedback link (*SB-1999-019* on page 338 & *SB-2013-011* on page 359) | 1 |
| M14 | 87-02 | 96-39 | 8000481 | Feedback link (*SB-1996-009* on page 329) | 1 |
| M26 | 87-02 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 87-02 | | 042557 (9006300-0044) | Retaining ring | 1 |
| M29 | 87-02 | | 9007315-0510 | Screw | 4 |
| M70 | 87-02 | | 9800916 | Control handle | 1 |
| M71 | 87-02 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 87-02 | | 040642 (9003513-0800) | Nut | 1 |
| M76 | 87-02 | | 519357 | Solenoid valve, 12 volt | 1 |
| M90 | 87-02 | | 692889 (9007314-0611) | Screw | 6 |
| M95 | 87-02 | | 056713 (9004105-0140) | O-ring | 1 |
| M96 | 87-02 | | 056713 (9004105-0140) | O-ring | 1 |
| M97 | 87-02 | | 544742 (9004105-0190) | O-ring | 1 |
| M98 | 87-02 | | 9007315-0505 | Screw | 4 |
| QM10 | 87-02 | | 8102M0ME-A | MDC kit w/2-position solenoid valve, 12 volt | 1 |
| QM031 | 87-02 | | 11099647 | Solenoid seal kit | 1 |
| QM210 | 87-02 | | 11099978 | Control seal kit | 1 |

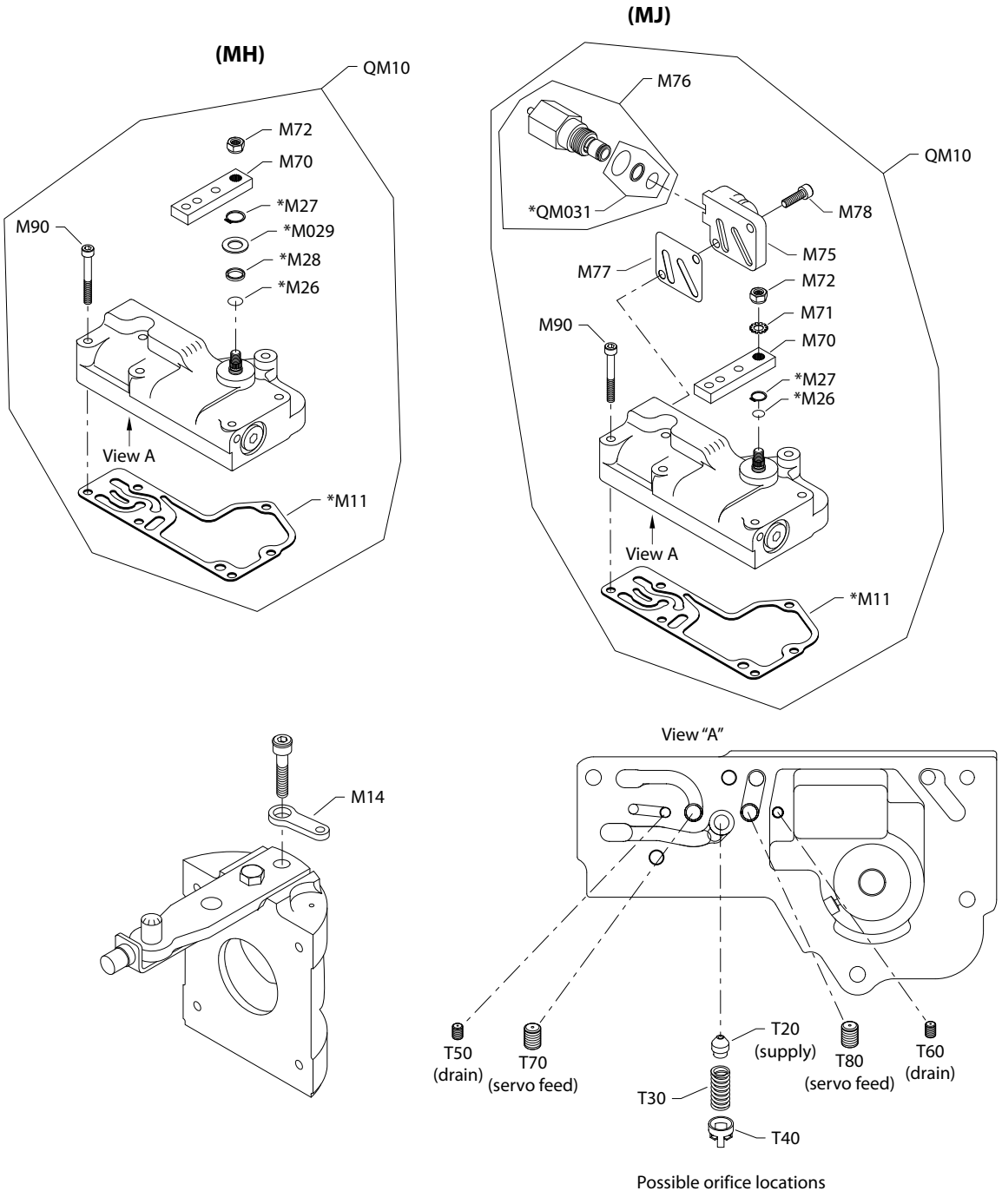
*Order code: MG*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 02-16 | | 8800923 | Control gasket | 1 |
| M14 | 02-16 | | 11070305 | Feedback link | 1 |
| M26 | 02-16 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 02-16 | | 042557 (9006300-0044) | Retaining ring | 1 |
| M70 | 02-16 | | 9800916 | Control handle | 1 |
| M71 | 02-16 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 02-16 | | 040642 (9003513-0800) | Nut | 1 |
| M75 | 02-16 | | 505022 | Control manifold | 1 |
| M76 | 02-16 | | 11127985 | Solenoid valve, 24v, double pole | 1 |
| M77 | 02-16 | | 8800882 | Manifold gasket | 1 |
| M78 | 02-16 | | 693341 (9007314-0606) | Screw | 2 |
| M83 | 02-16 | | 001131 (9004201-5000) | O-ring | 1 |
| M90 | 02-16 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 02-16 | | 8510061 | MDC kit, w/double pole 24v solenoid | 1 |
| QM89 | 02-16 | | 80020S40 | Neutral start switch kit, high force | 1 |
| QM210 | 02-16 | | 11100031 | Control seal kit | 1 |

## Control

### S90P control MH, MJ

*Parts configuration*




Possible orifice locations

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

*Order code: MH*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 87-02 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070305 | Feedback link (*SB-1999-019* on page 338 & *SB-2013-011* on page 359) | 1 |
| M14 | 87-02 | 96-39 | 8000481 | Feedback link (*SB-1996-009* on page 329) | 1 |
| M26 | 87-02 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 87-02 | | 042507 | Retaining ring | 1 |
| M28 | 14-44 | | 510690 | Lip seal | 1 |
| M029 | 14-44 | | 512047 | Washer | 1 |
| M70 | 87-02 | | 9800916 | Control handle | 1 |
| M72 | 87-02 | | 040642 (9003513-0800) | Nut | 1 |
| M90 | 87-02 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 87-02 | | 8510282 | MDC kit | 1 |
| QM210 | 87-02 | | 11096274 | Control seal kit | 1 |

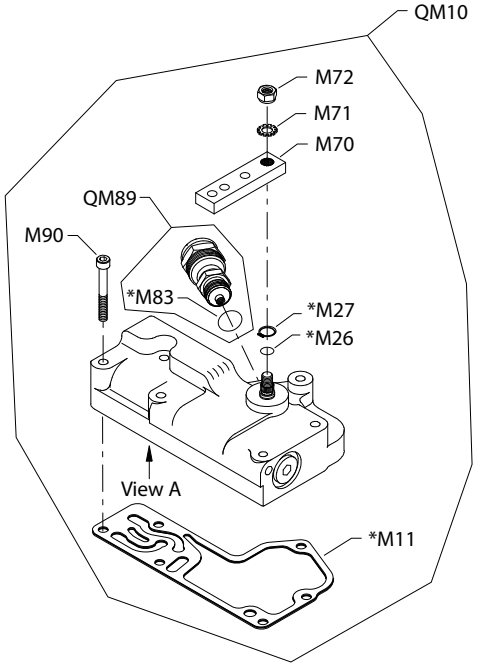
*Order code: MJ*

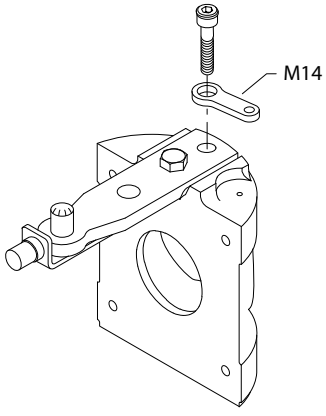
| | | | | | |
|---|---|---|---|---|---|
| M11 | 96-12 | 14-12 | 8800923 | Control gasket | 1 |
| M14 | 96-40 | 14-12 | 11070305 | Feedback link (*SB-1999-019* on page 338 & *SB-2013-011* on page 359) | 1 |
| M14 | 96-12 | 96-39 | 8000481 | Feedback link (*SB-1996-009* on page 329) | 1 |
| M26 | 96-12 | 14-12 | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 96-12 | 14-12 | 042557 (9006300-0044) | Retaining ring | 1 |
| M70 | 96-12 | 14-12 | 9800916 | Control handle | 1 |
| M71 | 96-12 | 14-12 | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 96-12 | 14-12 | 040642 (9003513-0800) | Nut | 1 |
| M75 | 96-12 | 14-12 | 8800920 | Control manifold | 1 |
| M76 | 96-12 | 14-12 | 8800921 | Mechanical shunt valve | 1 |
| M77 | 96-12 | 14-12 | 8800882 | Manifold gasket | 1 |
| M78 | 96-12 | 14-12 | 693341 (9007314-0606) | Screw | 2 |
| M90 | 96-12 | 14-12 | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 96-12 | 14-12 | 11015111 | MDC kit, shunt valve | 1 |
| QM034 | 96-12 | 14-12 | 11099649 | Shunt valve seal kit | 1 |
| QM210 | 96-12 | 14-12 | 11100031 | Control seal kit | 1 |

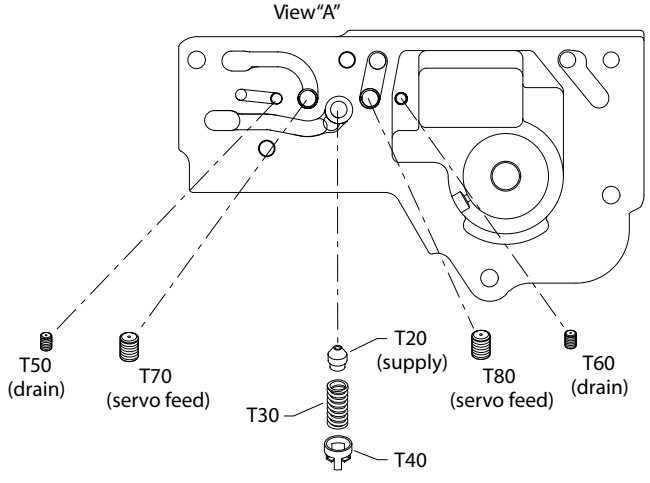
## Control

### S90P control MK, ML

*Parts configuration*




(Possible orifice locations)

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

*Order code: MK*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 87-02 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 338 & *SB-2013-011* on page 359) | 1 |
| M14 | 87-02 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 329) | 1 |
| M26 | 87-02 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 87-02 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M70 | 87-02 | | 9800916 | Control handle | 1 |
| M71 | 87-02 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 87-02 | | 040642 (9003513-0800) | Nut | 1 |
| M83 | 87-02 | | 001131 (9004201-5000) | O-ring | 1 |
| M90 | 87-02 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 87-02 | | 8102M0MK-A | MDC kit w/wide deadband, nss | 1 |
| QM89 | 87-02 | | 80020S40 | Neutral start switch kit | 1 |
| QM210 | 87-02 | | 11096274 | Control seal kit | 1 |

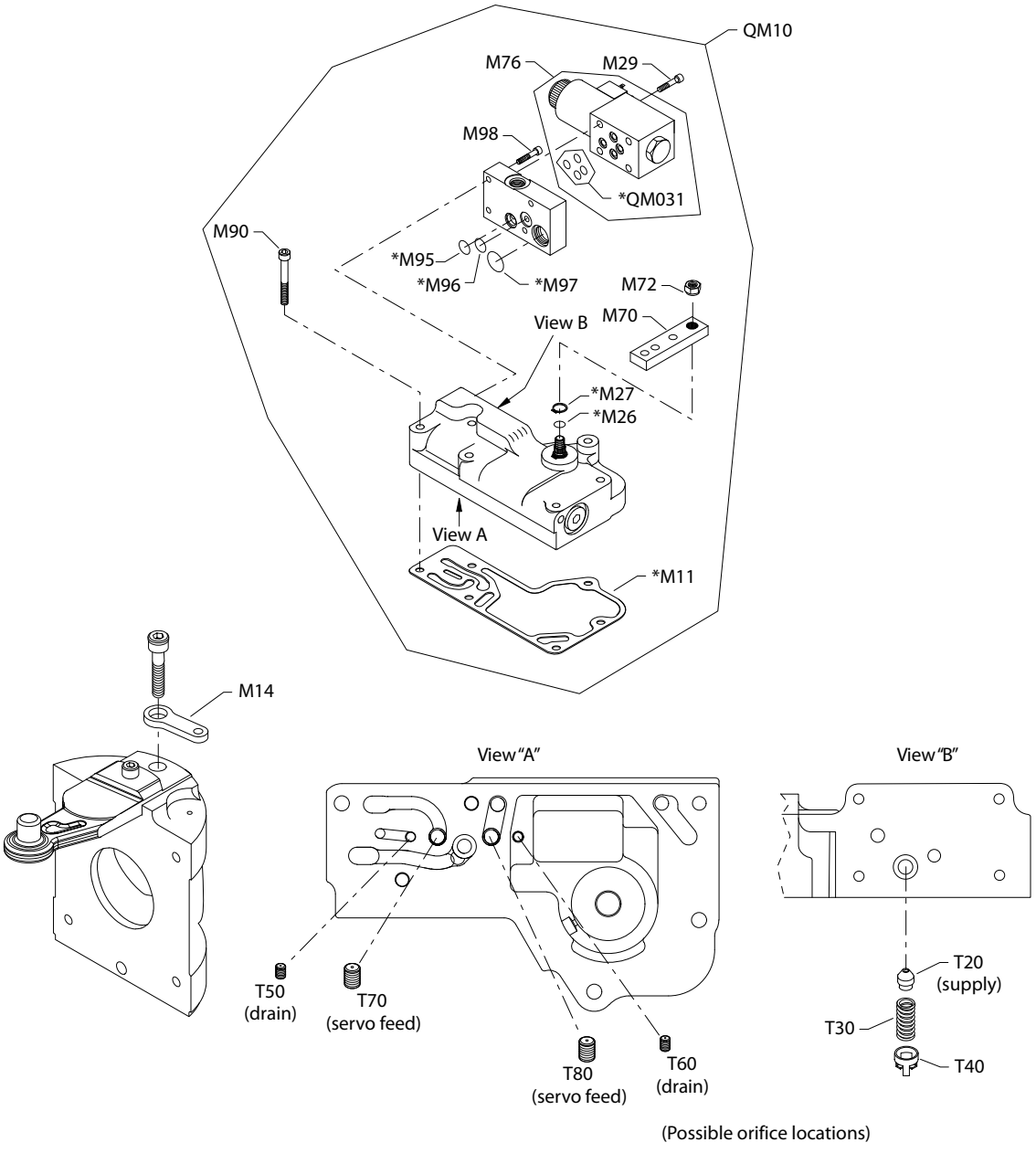
*Order code: ML*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 87-02 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 338 & *SB-2013-011* on page 359) | 1 |
| M14 | 87-02 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 329) | 1 |
| M26 | 87-02 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 87-02 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M70 | 87-02 | | 9800916 | Control handle | 1 |
| M71 | 87-02 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 87-02 | | 040642 (9003513-0800) | Nut | 1 |
| M83 | 87-02 | | 001131 (9004201-5000) | O-ring | 1 |
| M90 | 87-02 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 87-02 | | 11015112 | MDC kit w/wide deadband, high force nss | 1 |
| QM89 | 87-02 | | 8510027 | Neutral start switch kit, high force | 1 |
| QM210 | 87-02 | | 11096274 | Control seal kit | 1 |

## Control

### S90P control MN

*Parts configuration*




(Possible orifice locations)

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

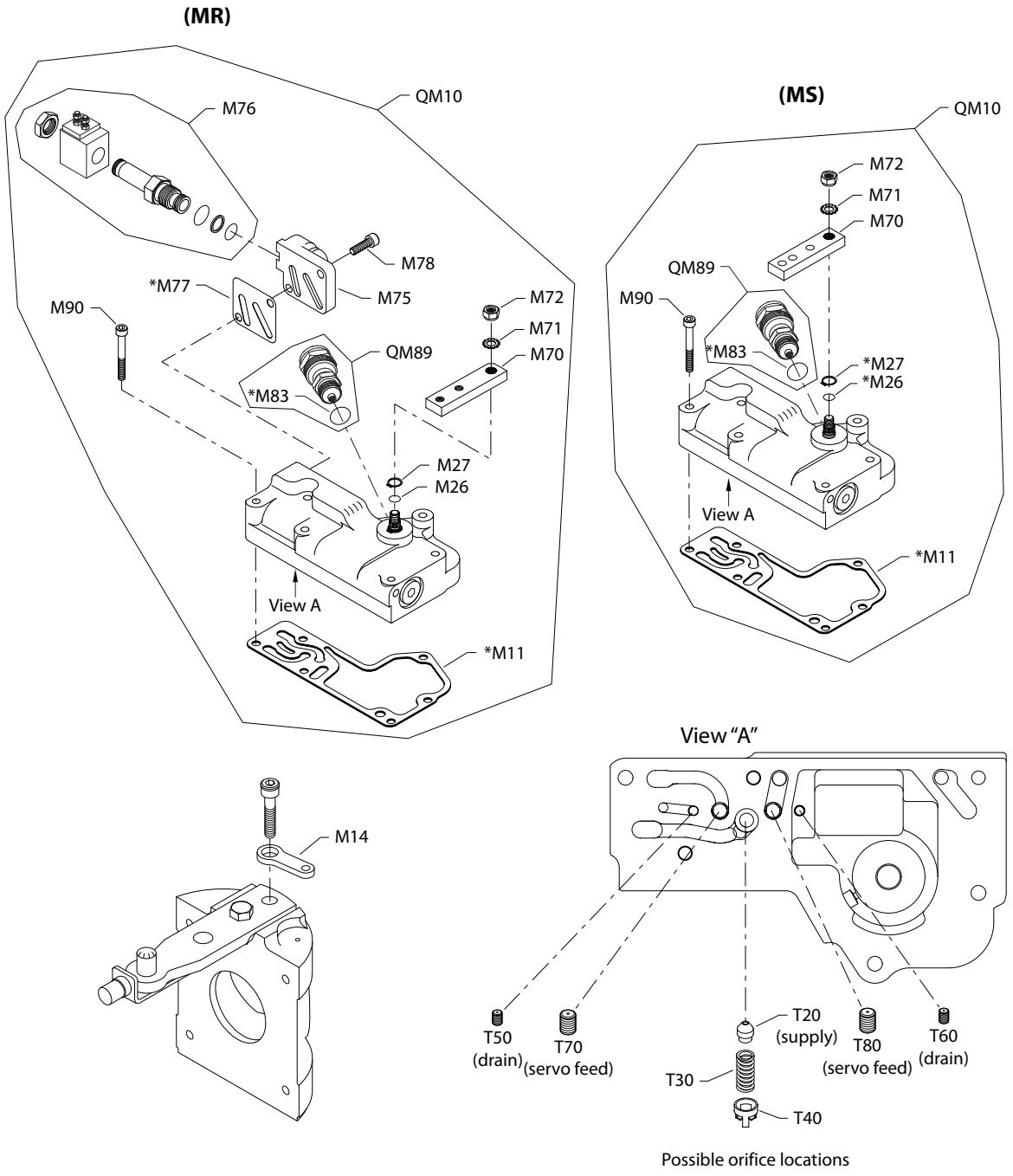
*Order code: MN*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 94-02 | | 8800923 | Control gasket | 1 |
| M14 | 94-02 | | 11070306 | Feedback link | 1 |
| M26 | 94-02 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 94-02 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M29 | 94-02 | | 035592 | Screw, M5 x 45 | 4 |
| M70 | 94-02 | | 9800916 | Control handle | 1 |
| M72 | 94-02 | | 040642 (9003513-0800) | Nut | 1 |
| M76 | 94-02 | | 519357 | Solenoid valve, 12 volt | 1 |
| M90 | 94-02 | | 692889 (9007314-0611) | Screw | 6 |
| M95 | 94-02 | | 056713 | O-ring | 1 |
| M96 | 94-02 | | 056713 | O-ring | 1 |
| M97 | 94-02 | | 544742 | O-ring | 1 |
| M98 | 94-02 | | 067686 | Screw, M5 x 20 | 4 |
| QM10 | 94-02 | | 11087557 | MDC kit w/2-position solenoid | 1 |
| QM031 | 94-02 | | 11099647 | Solenoid valve seal kit | 1 |
| QM210 | 94-02 | | 11099978 | Control seal kit | 1 |

## Control

### S90P control MR, MS

*Parts configuration*




Possible orifice locations

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

*Order code: MR*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 96-43 | | 8800923 | Control gasket | 1 |
| M14 | 96-43 | | 11070305 | Feedback link | 1 |
| M26 | 96-43 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 96-43 | | 042557 (9006300-0044) | Retaining ring | 1 |
| M70 | 96-43 | | 9800916 | Control handle | 1 |
| M71 | 96-43 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 96-43 | | 040642 (9003513-0800) | Nut | 1 |
| M75 | 96-43 | | 505022 | Control manifold | 1 |
| M76 | 96-43 | | 11127985 | Solenoid valve, 24 volt, double pole | 1 |
| M77 | 96-43 | | 8800882 | Manifold gasket | 1 |
| M78 | 96-43 | | 693341 (9007314-0606) | Screw | 2 |
| M83 | 96-43 | | 001131 (9004201-5000) | O-ring | 1 |
| M90 | 96-43 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 96-43 | | 8510394 | MDC kit w/24 v solenoid, 2-pole, high force nss | 1 |
| QM89 | 96-43 | | 709014 (8510027) | Neutral start switch kit, high force | 1 |
| QM210 | 96-43 | | 11100031 | Control seal kit | 1 |

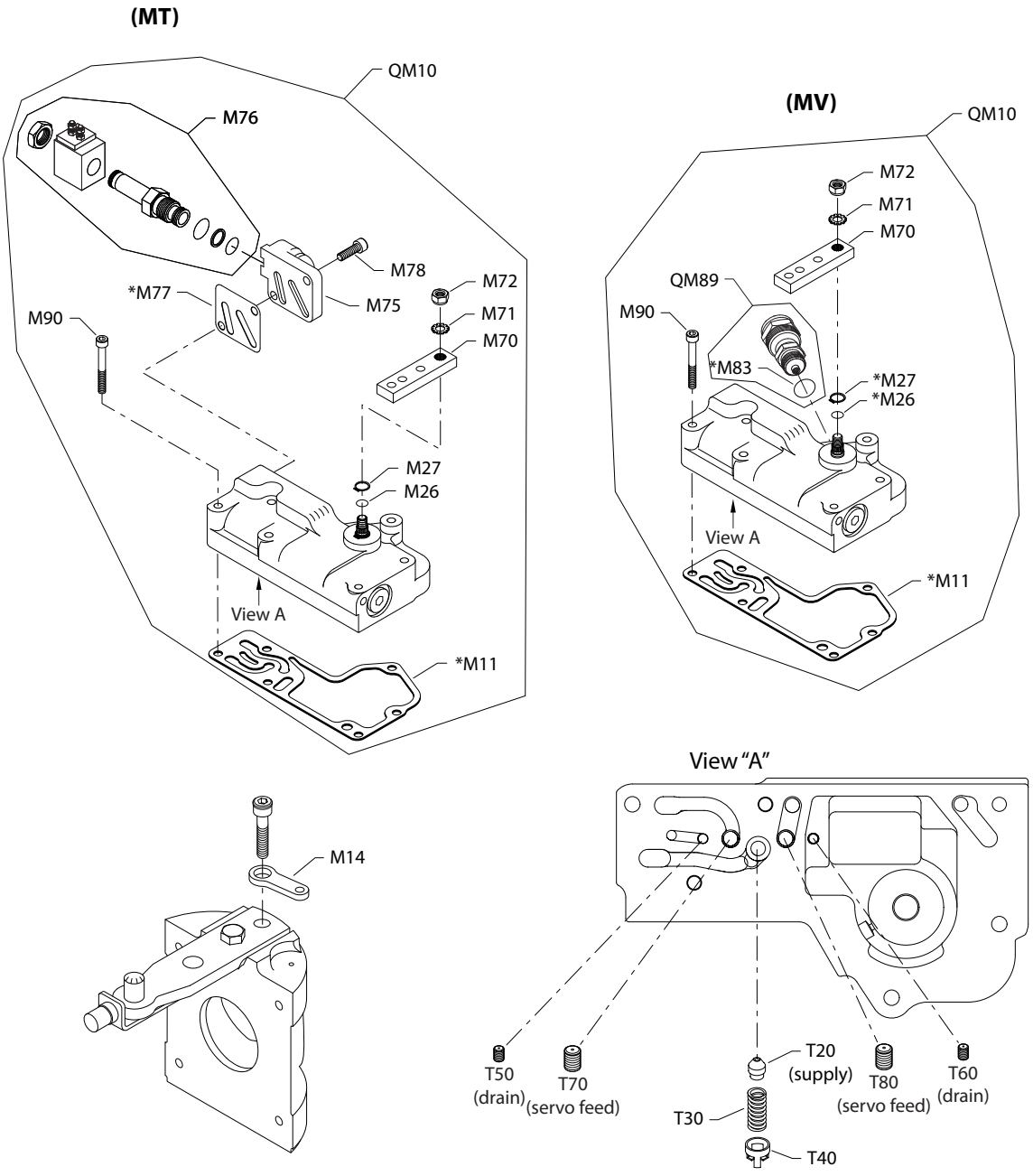
*Order code: MS*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 01-07 | | 8800923 | Control gasket | 1 |
| M14 | 01-07 | | 11070305 | Feedback link | 1 |
| M26 | 01-07 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 01-07 | | 042557 (9006300-0044) | Retaining ring | 1 |
| M70 | 01-07 | | 9800916 | Control handle | 1 |
| M71 | 01-07 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 01-07 | | 040642 (9003513-0800) | Nut | 1 |
| M83 | 01-07 | | 001131 (9004201-5000) | O-ring | 1 |
| M90 | 01-07 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 01-07 | | 8510287 | MDC kit, high force neutral start switch | 1 |
| QM89 | 01-07 | | 8510027 | Neutral start switch kit, high force | 1 |
| QM210 | 01-07 | | 11096274 | Control seal kit | 1 |

## Control

### S90P control MT, MV

*Parts configuration*




Possible orifice locations

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

*Order code: MT*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 01-01 | | 8800923 | Control gasket | 1 |
| M14 | 01-01 | | 11070305 | Feedback link | 1 |
| M26 | 01-01 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 01-01 | | 042557 (9006300-0044) | Retaining ring | 1 |
| M70 | 01-01 | | 9800916 | Control handle | 1 |
| M71 | 01-01 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 01-01 | | 040642 (9003513-0800) | Nut | 1 |
| M75 | 01-01 | | 505022 | Control manifold | 1 |
| M76 | 01-01 | | 11127986 | Solenoid valve, 12 volt, 2-pole | 1 |
| M77 | 01-01 | | 8800882 | Manifold gasket | 1 |
| M78 | 01-01 | | 693341 (9007314-0606) | Screw | 2 |
| M90 | 01-01 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 01-01 | | 8510320 | MDC kit, w/2-pole 12v solenoid | 1 |
| QM210 | 01-01 | | 11100031 | Control seal kit | 1 |

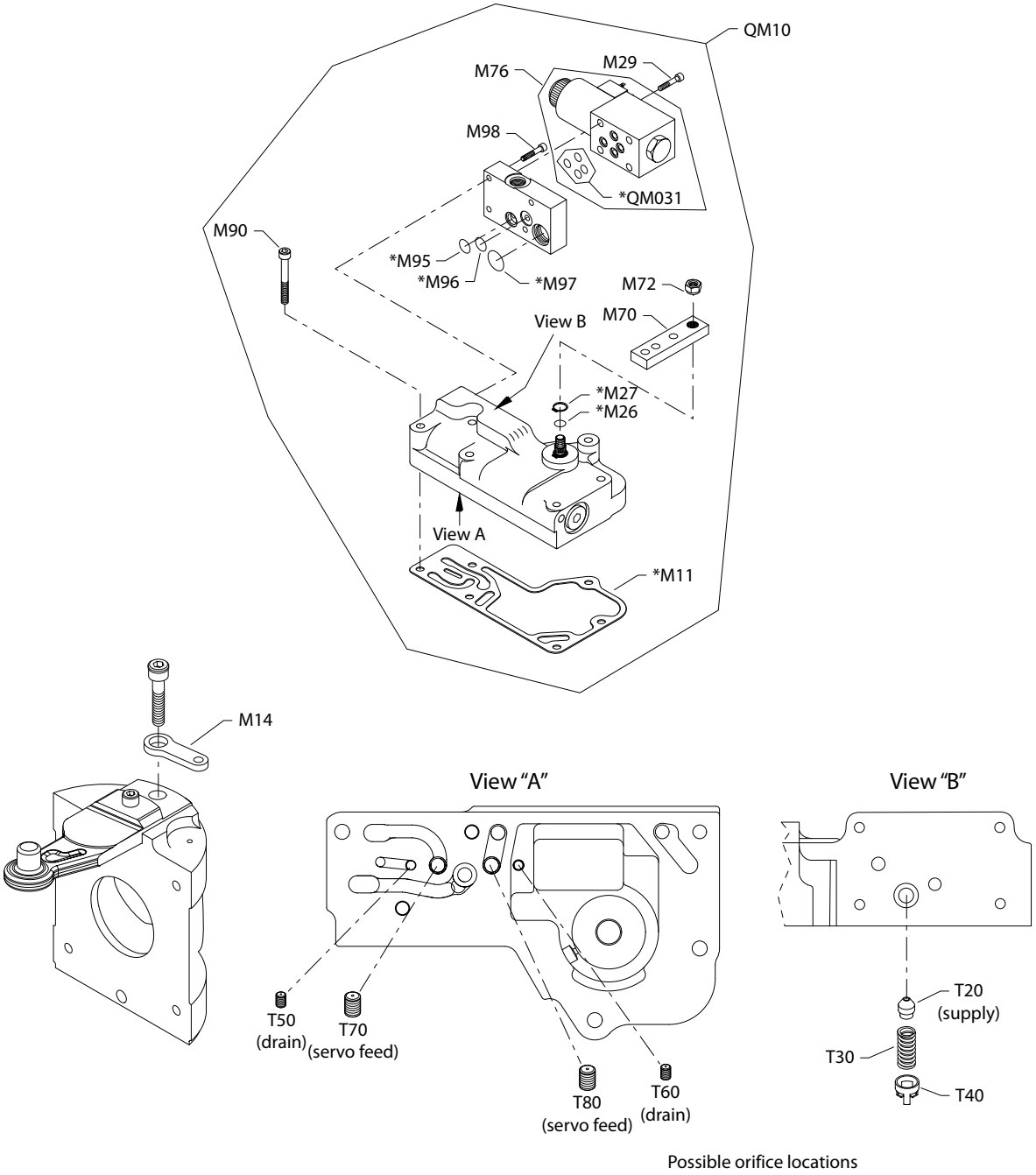
*Order code: MV*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 94-30 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070305 | Feedback link (*SB-1999-019* on page 338 & *SB-2013-011* on page 359) | 1 |
| M14 | 94-30 | 96-39 | 8000481 | Feedback link (*SB-1996-009* on page 329) | 1 |
| M26 | 94-30 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 94-30 | | 042557 (9006300-0044) | Retaining ring | 1 |
| M70 | 94-30 | | 9800916 | Control handle | 1 |
| M71 | 94-30 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 94-30 | | 040642 (9003513-0800) | Nut | 1 |
| M83 | 94-30 | | 001131 (9004201-5000) | O-ring | 1 |
| M90 | 94-30 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 94-30 | | 8510342 | MDC kit, nss w/weatherpack connector, 2-way | 1 |
| QM89 | 94-30 | | 8510170 | Neutral start switch kit, weather pack connector, 2-way | 1 |
| QM210 | 94-30 | | 11096274 | Control seal kit | 1 |

## Control

### S90P control MW

*Parts configuration*




Possible orifice locations

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

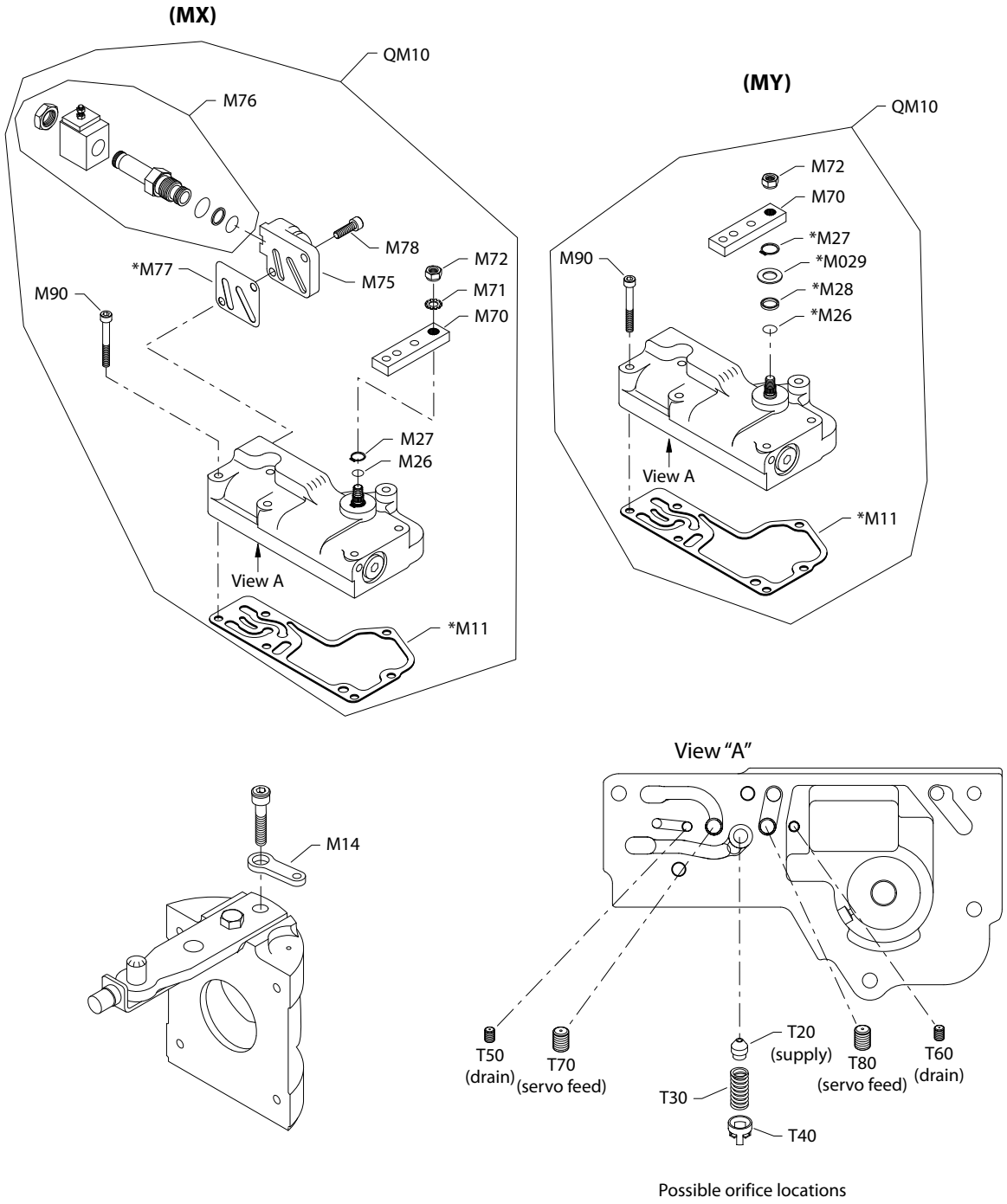
*Order code: MW*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 14-18 | | 8800923 | Control gasket | 1 |
| M14 | 14-18 | | 11070305 | Feedback link | 1 |
| M26 | 14-18 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 14-18 | | 042557 (9006300-0044) | Retaining ring | 1 |
| M29 | 14-18 | | 035592 | Screw, M5 x 45 | 4 |
| M70 | 14-18 | | 9800916 | Control handle | 1 |
| M72 | 14-18 | | 040642 (9003513-0800) | Nut | 1 |
| M76 | 14-18 | | 11146844 | Solenoid valve, DEUTSCH connector | 1 |
| M90 | 14-18 | | 692889 (9007314-0611) | Screw | 6 |
| M95 | 14-18 | | 056713 | O-ring | 1 |
| M96 | 14-18 | | 056713 | O-ring | 1 |
| M97 | 14-18 | | 544742 | O-ring | 1 |
| M98 | 14-18 | | 067686 | Screw, M5 x 20 | 4 |
| QM10 | 14-18 | | 11148990 | MDC kit w/2-position solenoid, DEUTSCH connector | 1 |
| QM031 | 14-18 | | 11099647 | Solenoid valve seal kit | 1 |
| QM210 | 14-18 | | 11099978 | Control seal kit | 1 |

## Control

### S90P control MX, MY

*Parts configuration*




Possible orifice locations

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

*Order code: MX*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 94-30 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070305 | Feedback link (*SB-1999-019* on page 338 & *SB-2013-011* on page 359) | 1 |
| M14 | 94-30 | 96-39 | 8000481 | Feedback link (*SB-1996-009* on page 329) | 1 |
| M26 | 94-30 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 94-30 | | 042557 (9006300-0044) | Retaining ring | 1 |
| M70 | 94-30 | | 9800916 | Control handle | 1 |
| M71 | 94-30 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 94-30 | | 040642 (9003513-0800) | Nut | 1 |
| M75 | 94-30 | | 505022 | Control manifold (*SB-1995-003* on page 324) | 1 |
| M76 | 94-30 | | 11127988 | Solenoid valve, 12 volt, single pole | 1 |
| M77 | 94-30 | | 8800882 | Manifold gasket | 1 |
| M78 | 95-10 | | 693341 (9007314-0606) | Screw (*SB-1995-003* on page 324) | 2 |
| M78 | 94-30 | 95-09 | 041160 (9007314-0605) | Screw | 2 |
| M90 | 94-30 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 94-30 | | 11015113 | MDC kit w/12 volt solenoid, single pole | 1 |
| QM210 | 94-30 | | 11100031 | Control seal kit | 1 |

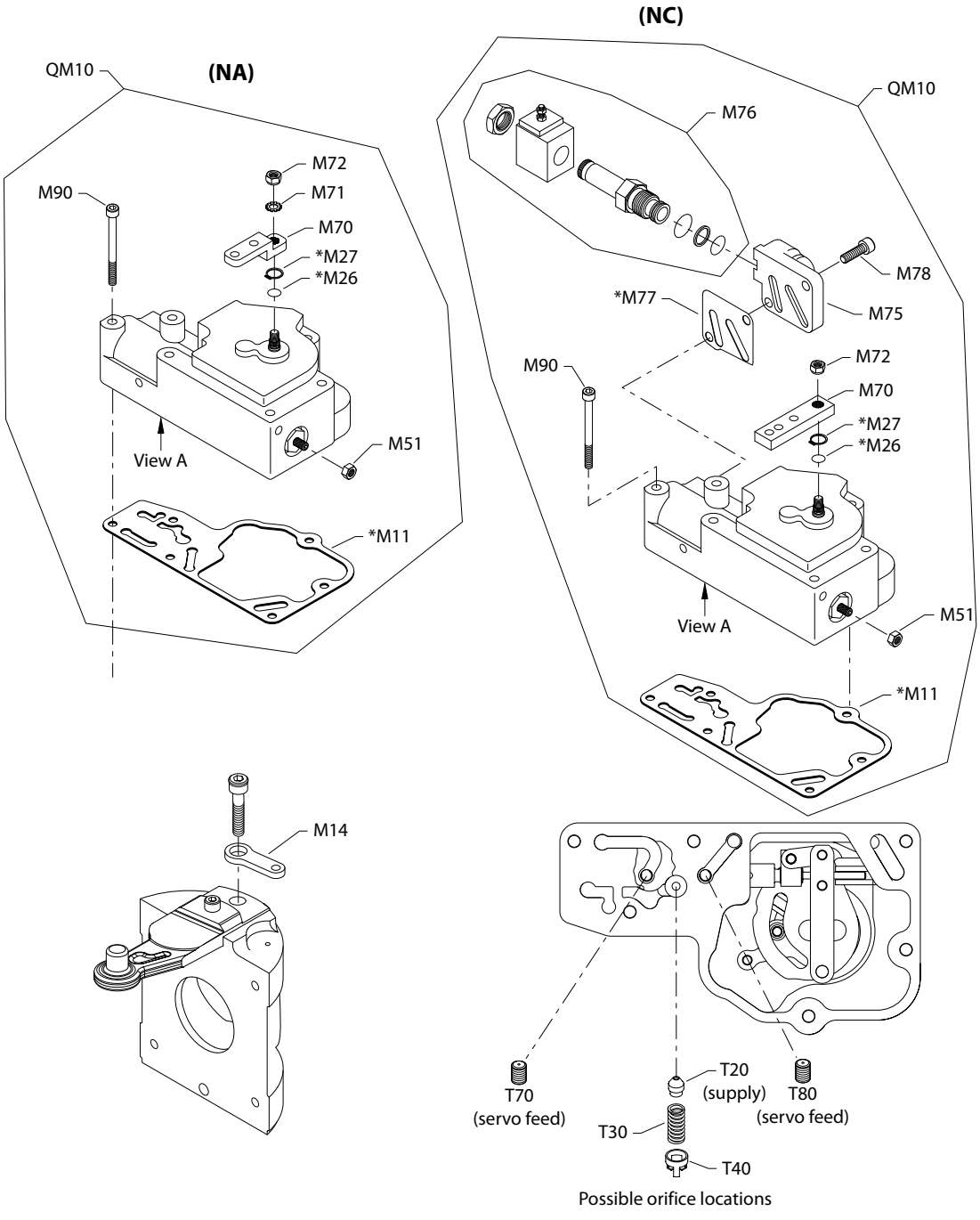
*Order code: MY*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 96-07 | | 8800923 | Control gasket | 1 |
| M14 | 96-07 | | 11070305 | Feedback link (*SB-1999-019* on page 338 & *SB-2013-011* on page 359) | 1 |
| M14 | 87-02 | 96-39 | 8000481 | Feedback link (*SB-1996-009* on page 329) | 1 |
| M26 | 87-02 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 87-02 | | 042507 | Retaining ring | 1 |
| M28 | 15-05 | | 510690 | Lip seal | 1 |
| M029 | 15-05 | | 512047 | Washer | 1 |
| M70 | 96-07 | | 9800916 | Control handle | 1 |
| M72 | 96-07 | | 040642 (9003513-0800) | Nut | 1 |
| M90 | 96-07 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 96-07 | | 11087559 | MDC kit | 1 |
| QM210 | 96-07 | | 11096274 | Control seal kit | 1 |

## Control

### S90P control NA, NC

*Parts configuration*




All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

*Order code: NA*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 94-30 | | 504733 | Control gasket | 1 |
| M14 | 96-40 | | 11070305 | Feedback link (*SB-1999-019* on page 338 & *SB-2013-011* on page 359) | 1 |
| M14 | 94-30 | 96-39 | 8000481 | Feedback link (*SB-1996-009* on page 329) | 1 |
| M26 | 94-30 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 94-30 | | 042557 (9006300-0044) | Retaining ring | 1 |
| M51 | 94-30 | | 345462 | Nut | 1 |
| M70 | 94-30 | | 769075 | Control handle, sharp bend | 1 |
| M71 | 94-30 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 94-30 | | 040642 (9003513-0800) | Nut | 1 |
| M90 | 94-30 | | 9007314-0614 | Screw | 6 |
| QM10 | 94-30 | | 8102M0NA-A | MDC kit, NL | 1 |
| QM210 | 94-30 | | 11096273 | Control seal kit | 1 |

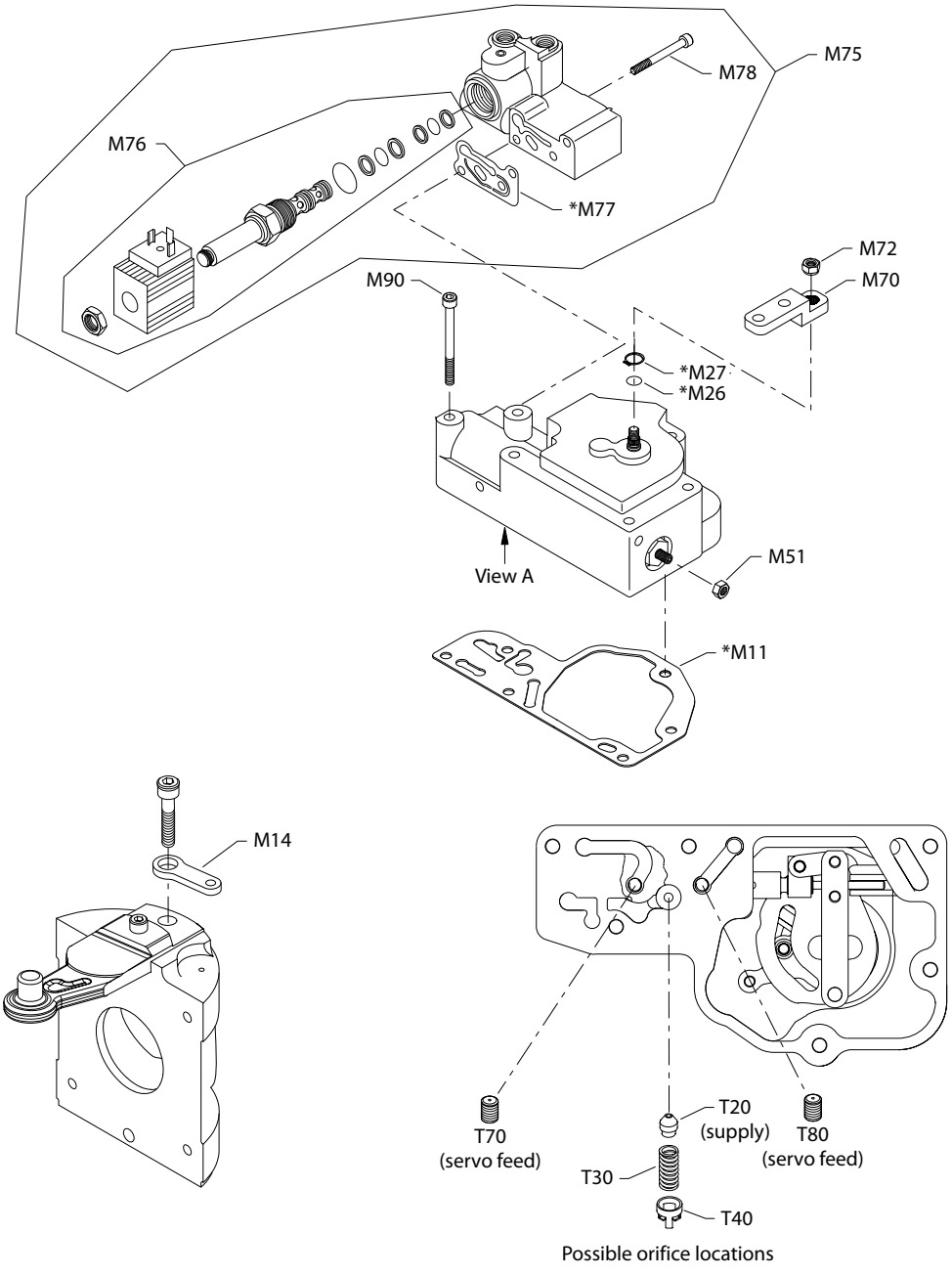
*Order code: NC*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 94-50 | 14-42 | 504733 | Control gasket | 1 |
| M14 | 96-40 | 14-42 | 11070305 | Feedback link (*SB-1999-019* on page 338 & *SB-2013-011* on page 359) | 1 |
| M14 | 94-50 | 96-39 | 8000481 | Feedback link (*SB-1996-009* on page 329) | 1 |
| M26 | 94-30 | 14-42 | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 94-30 | 14-42 | 042557 (9006300-0044) | Retaining ring | 1 |
| M51 | 94-30 | 14-42 | 345462 | Nut | 1 |
| M70 | 94-50 | 14-42 | 9800916 | Control handle | 1 |
| M72 | 94-50 | 14-42 | 040642 (9003513-0800) | Nut | 1 |
| M75 | 94-50 | 14-42 | 502128 | Control manifold | 1 |
| M76 | 94-50 | 14-42 | 9700803 | Solenoid valve | 1 |
| M77 | 94-50 | 14-42 | 502129 | Manifold gasket | 1 |
| M78 | 94-50 | 14-42 | 693341 (9007314-0606) | Screw | 2 |
| M90 | 94-50 | 14-42 | 9007314-0614 | Screw | 6 |
| QM10 | 94-50 | 14-42 | 11098758 | MDC kit, NL | 1 |
| QM210 | 94-50 | 14-42 | 11099983 | Control seal kit | 1 |

## Control

### S90P control NE

*Parts configuration*




Possible orifice locations

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

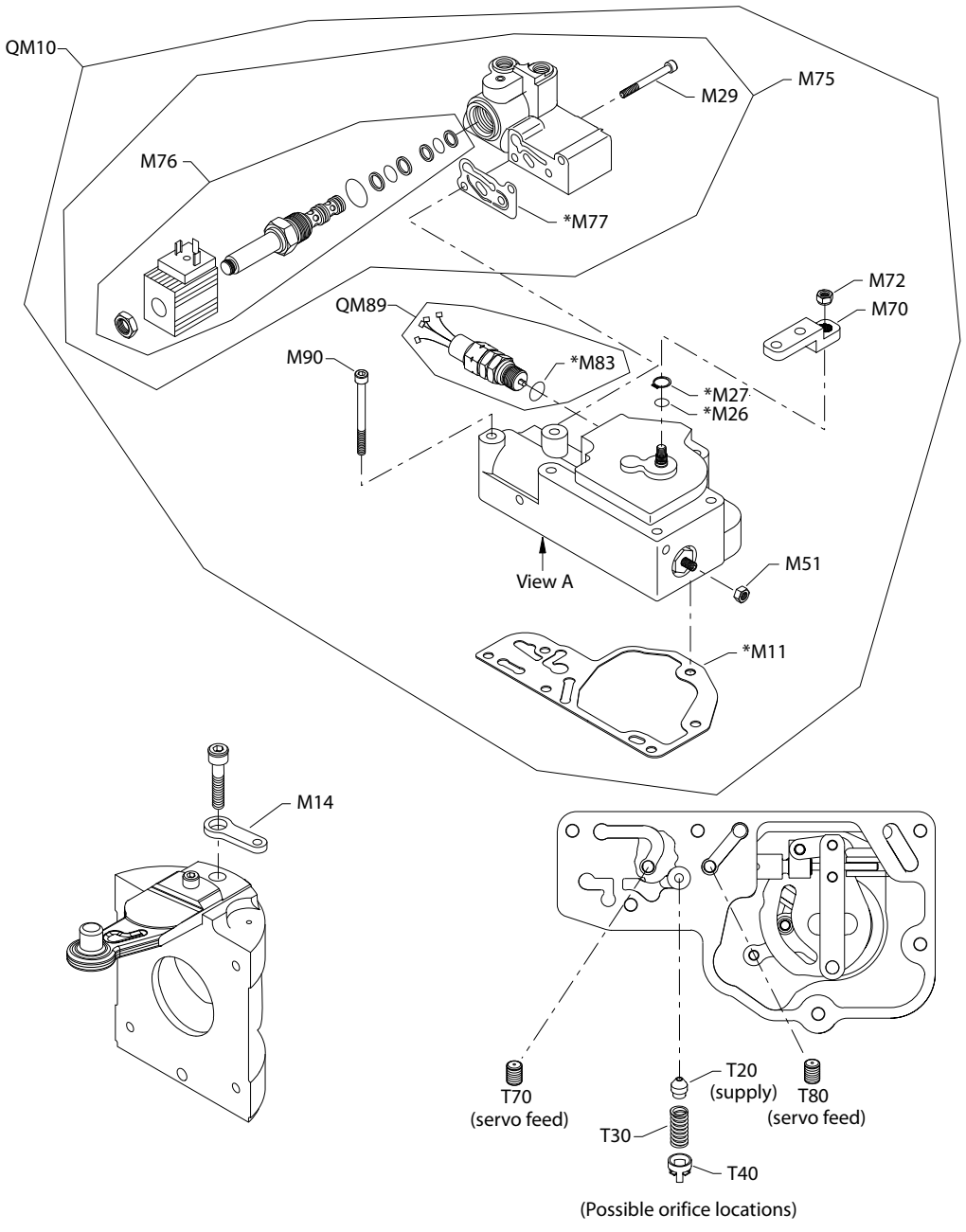
*Order code: NE*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 94-05 | 14-15 | 504733 | Control gasket | 1 |
| M14 | 96-40 | 14-15 | 11070305 | Feedback link (*SB-1999-019* on page 338 & *SB-2013-011* on page 359) | 1 |
| M14 | 94-05 | 96-39 | 8000481 | Feedback link (*SB-1996-009* on page 329) | 1 |
| M26 | 94-05 | 14-15 | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 94-05 | 14-15 | 042557 (9006300-0044) | Retaining ring | 1 |
| M51 | 94-05 | 14-15 | 345462 | Nut | 1 |
| M70 | 94-05 | 14-15 | 769075 | Control handle, sharp bend | 1 |
| M72 | 94-05 | 14-15 | 040642 (9003513-0800) | Nut | 1 |
| M75 | 94-05 | 14-15 | 500147 | Control manifold assembly | 1 |
| M76 | 94-05 | 14-15 | 8700100 | Solenoid valve | 1 |
| M77 | 94-05 | 14-15 | 500260 | Manifold gasket | 1 |
| M78 | 94-05 | 14-15 | 692889 (9007314-0611) | Screw | 2 |
| M90 | 94-05 | 14-15 | 9007314-0614 | Screw | 6 |
| QM210 | 94-05 | 14-15 | 11100415 | Control seal kit | 1 |

## Control

### S90P control NU

*Parts configuration*




All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

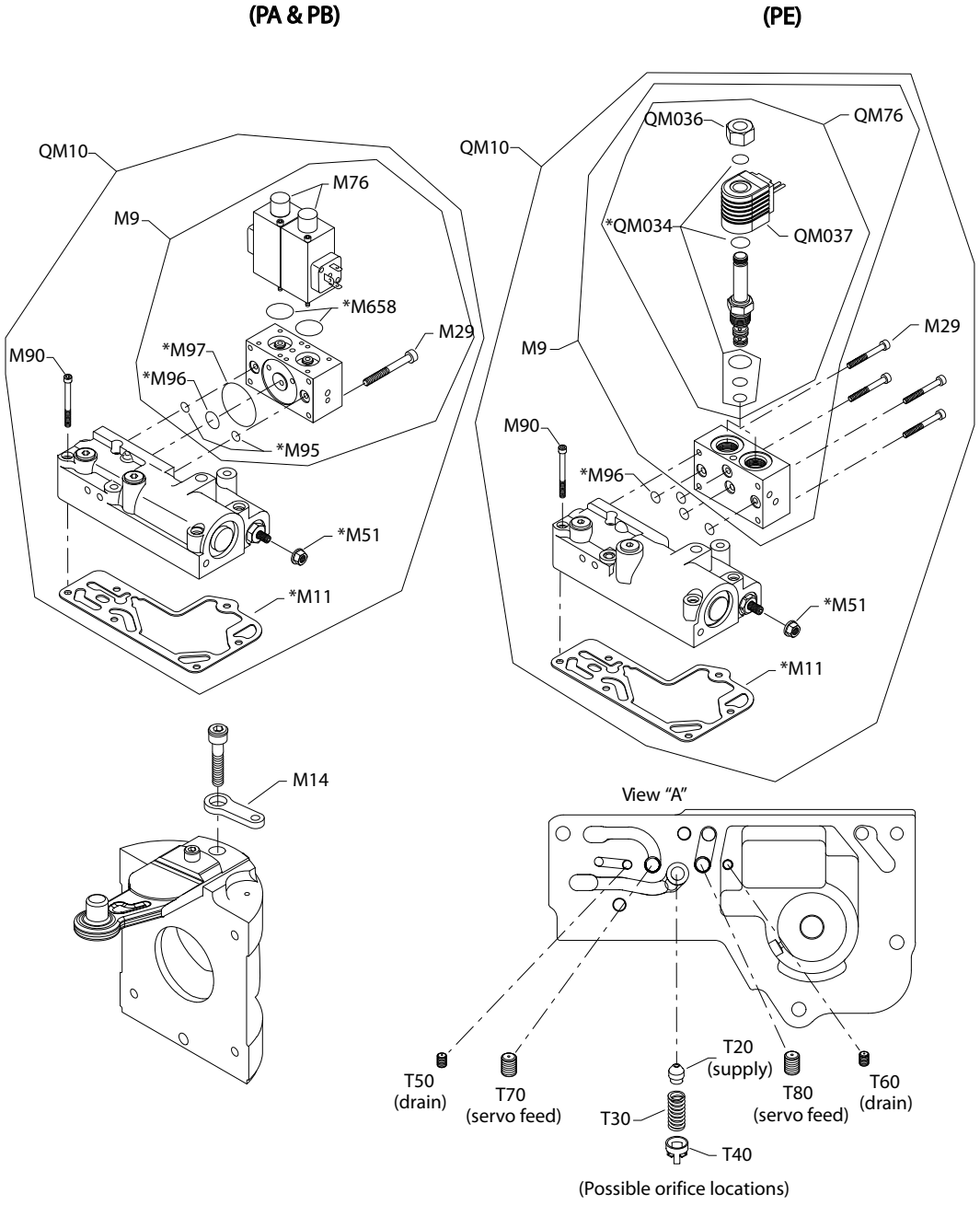
*Order code: NU*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 94-05 | | 504733 | Control gasket | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 338 & *SB-2013-011* on page 359) | 1 |
| M14 | 94-05 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 329) | 1 |
| M26 | 94-05 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 94-05 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M29 | 94-05 | | 692889 (9007314-0611) | Screw | 2 |
| M51 | 94-05 | | 345462 | Nut | 1 |
| M70 | 94-05 | | 769075 | Control handle, sharp bend | 1 |
| M72 | 94-05 | | 040642 (9003513-0800) | Nut | 1 |
| M75 | 94-05 | | 500147 | Control manifold assembly | 1 |
| M76 | 94-05 | | 8700100 | Solenoid valve | 1 |
| M77 | 94-05 | | 500260 | Manifold gasket | 1 |
| M83 | 94-05 | | 784686 (9004104-0130) | O-ring | 1 |
| M90 | 94-05 | | 9007314-0614 | Screw | 6 |
| QM10 | 94-05 | | 11015114 | MDC kit, NL w/nss | 1 |
| QM89 | 94-05 | | 11087773 | Back-up alarm switch kit | 1 |
| QM210 | 94-05 | | 11100415 | Control seal kit | 1 |

## Control

### S90P 75cc control PA, PB

*Parts configuration*




All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

*Control code: PA*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M9 | 94-07 | | 782037 | PDC, 12 volt | 1 |
| M11 | 94-07 | | 8801241 | Control gasket | 1 |
| M14 | 96-40 | | 11070305 | Feedback link (*SB-1999-019* on page 338 & *SB-2013-011* on page 359) | 1 |
| M14 | 94-07 | 96-39 | 8000481 | Feedback link (*SB-1996-009* on page 329) | 1 |
| M29 | 94-07 | | 035592 | Screw | 4 |
| M51 | 94-07 | | 9003509-0008 | Seal nut | 1 |
| M76 | 94-07 | | 11001795 | Solenoid, 12 volt, din connector | 2 |
| M90 | 94-07 | | 692889 (9007314-0611) | Screw | 6 |
| M95 | 94-07 | | 011296 (9004105-0120) | O-ring | 2 |
| M96 | 94-07 | | 688721 (9004104-0170) | O-ring | 1 |
| M97 | 94-07 | | 314534 (9004104-0310) | O-ring | 1 |
| M658 | 94-07 | | 635938 (9004100-0210) | O-ring | 2 |
| QM10 | 94-07 | | 8510166 | HDC2, w/PDC | 1 |
| QM210 | 94-07 | | 11096251 | Control seal kit | 1 |

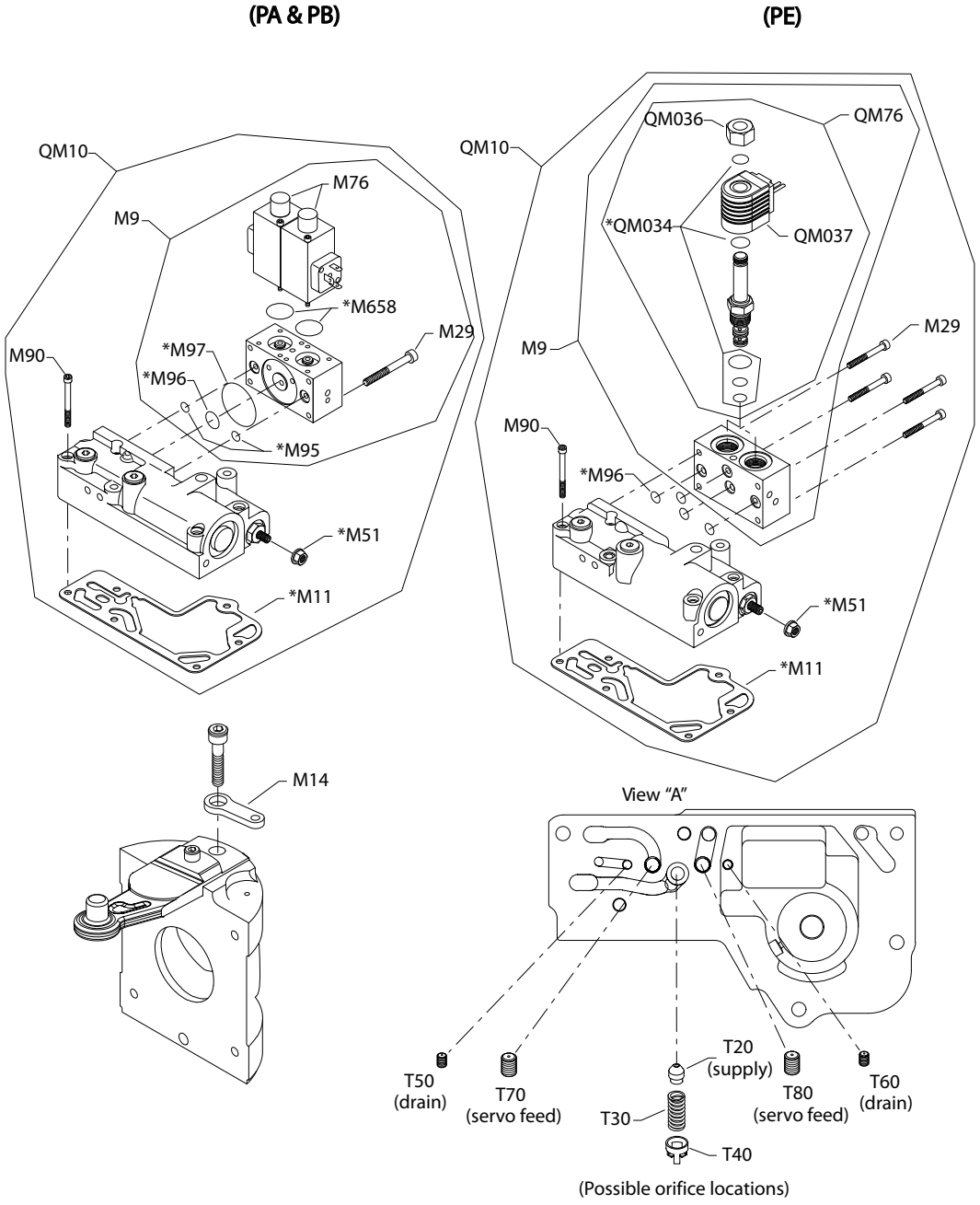
*Order code: PB*

| | | | | | |
|---|---|---|---|---|---|
| M9 | 94-15 | | 782045 | PDC, 24 volt | 1 |
| M11 | 94-15 | | 8801241 | Control gasket | 1 |
| M14 | 96-40 | | 11070305 | Feedback link (*SB-1999-019* on page 338 & *SB-2013-011* on page 359) | 1 |
| M14 | 94-15 | 96-39 | 8000481 | Feedback link (*SB-1996-009* on page 329) | 1 |
| M29 | 94-15 | | 035592 | Screw | 4 |
| M51 | 94-15 | | 9003509-0008 | Seal nut | 1 |
| M76 | 94-15 | | 11001794 | Solenoid, 24 volt, din connector | 2 |
| M90 | 94-15 | | 692889 (9007314-0611) | Screw | 6 |
| M95 | 94-15 | | 011296 (9004105-0120) | O-ring | 2 |
| M96 | 94-15 | | 688721 (9004104-0170) | O-ring | 1 |
| M97 | 94-15 | | 314534 (9004104-0310) | O-ring | 1 |
| M658 | 94-15 | | 635938 (9004100-0210) | O-ring | 2 |
| QM10 | 94-15 | | 11034092 | Electro-hydraulic control kit | 1 |
| QM210 | 94-15 | | 11096251 | Control seal kit | 1 |

## Control

### S90P control PE

*Parts configuration*




All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

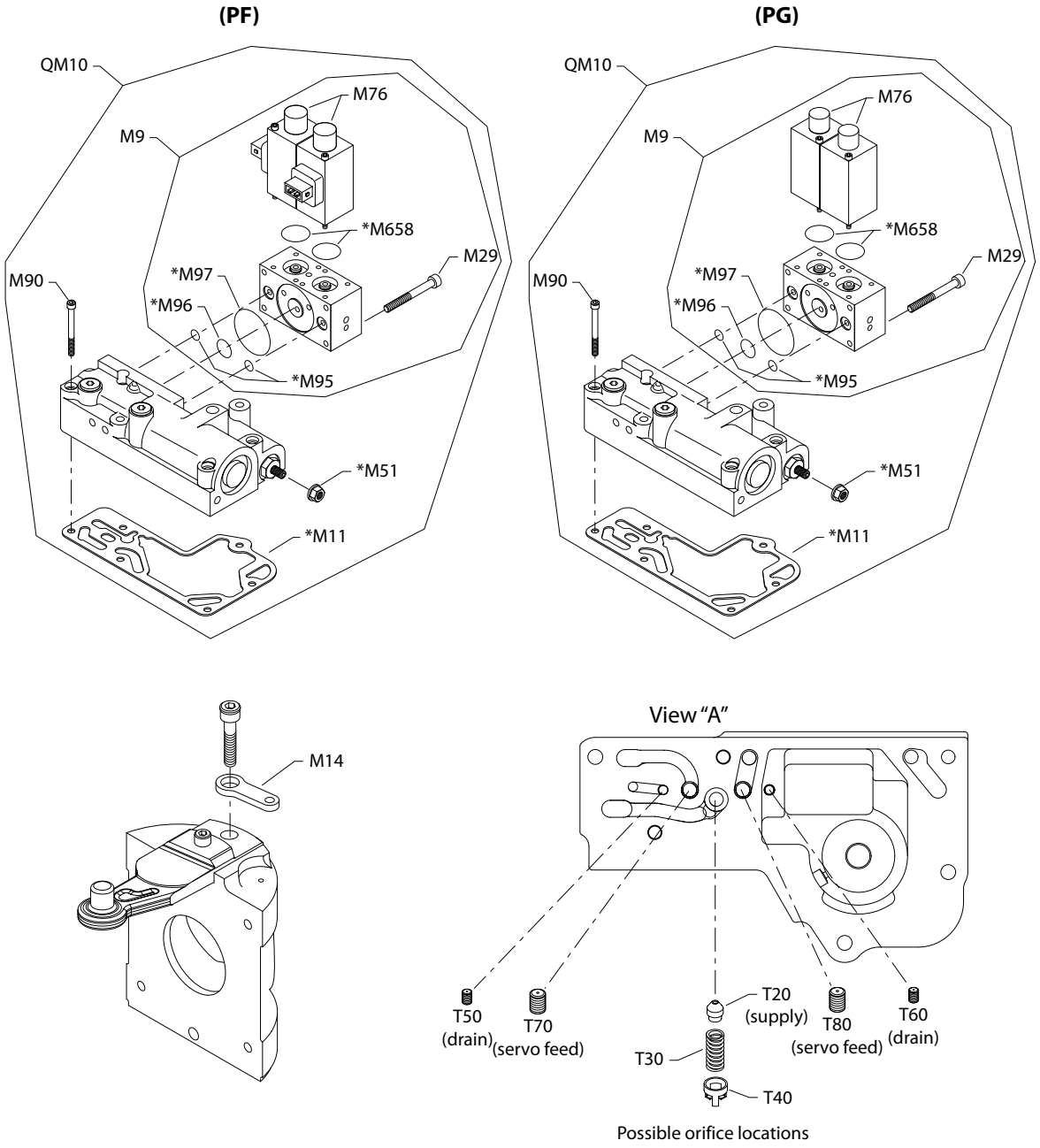
*Order code: PE*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M9 | 10-30 | | 11175053 | HIC, proportional reducing manifold assembly | 1 |
| M11 | 10-30 | | 8801241 | Control gasket | 1 |
| M14 | 10-30 | | 11070306 | Feedback link | 1 |
| M29 | 10-30 | | K28807 | Screw | 4 |
| M51 | 10-30 | | 9003509-0008 | Seal nut | 1 |
| M90 | 10-30 | | 692889 (9007314-0611) | Screw | 6 |
| M96 | 10-30 | | 9004105-0120 | O-ring | 4 |
| QM10 | 10-30 | | 8510286 | EDC, high current, 3-11 bar, 12 volt | 1 |
| QM034 | 10-30 | | 11100210 | Solenoid valve seal kit | 2 |
| QM036 | 10-30 | | 11175054 | Coil nut | 2 |
| QM037 | 10-30 | | 322466 | Coil, 12 volt | 2 |
| QM76 | 10-30 | | 138108 | Solenoid valve, 12 volt | 2 |
| QM210 | 10-30 | | 11100211 | Control seal kit | 1 |

## Control

### S90P control PF, PG

*Parts configuration*




Possible orifice locations

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

*Order code: PF*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M9 | 03-32 | | 519719 | PDC, 12 volt | 1 |
| M11 | 03-32 | | 8801241 | Control gasket | 1 |
| M14 | 03-32 | | 11070305 | Feedback link (*SB-2013-011* on page 359) | 1 |
| M29 | 03-32 | | 035592 | Screw | 4 |
| M51 | 03-32 | | 9003509-0008 | Seal nut | 1 |
| M76 | 03-32 | | 11001793 | Solenoid, 12 volt, AMP connector | 2 |
| M90 | 03-32 | | 692889 (9007314-0611) | Screw | 6 |
| M95 | 03-32 | | 011296 (9004105-0120) | O-ring | 2 |
| M96 | 03-32 | | 688721 (9004104-0170) | O-ring | 1 |
| M97 | 03-32 | | 314534 (9004104-0310) | O-ring | 1 |
| M658 | 03-32 | | 635938 (9004100-0210) | O-ring | 2 |
| QM10 | 03-32 | | 11098760 | EDC2, 12 volt, AMP connector | 1 |
| QM210 | 03-32 | | 11096251 | Control seal kit | 1 |

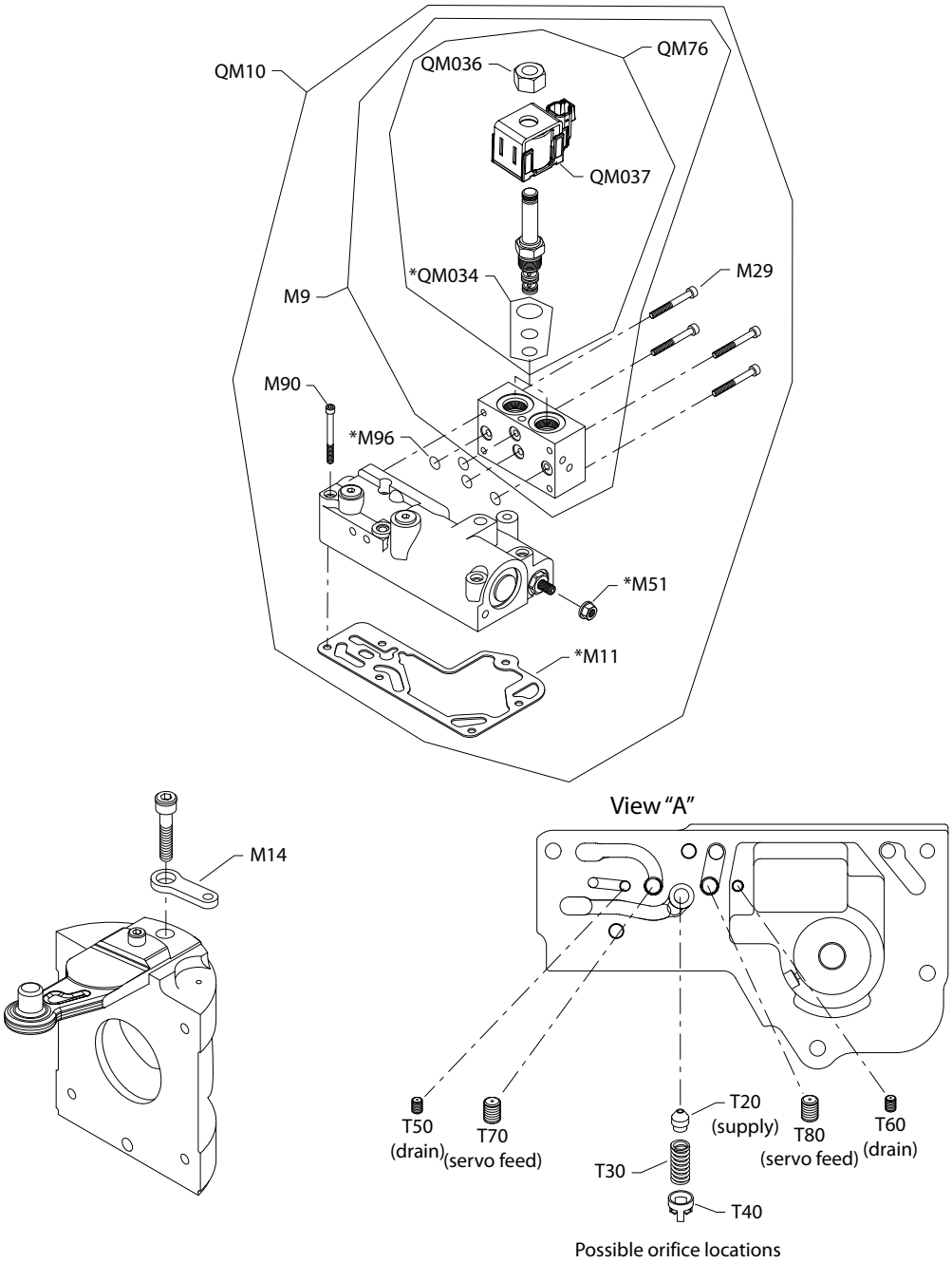
*Order code: PG*

| | | | | | |
|---|---|---|---|---|---|
| M9 | 06-13 | | 11001679 | PDC, 12 volt | 1 |
| M11 | 06-13 | | 8801241 | Control gasket | 1 |
| M14 | 06-13 | | 11070305 | Feedback link (*SB-2013-011* on page 359) | 1 |
| M29 | 06-13 | | 035592 | Screw | 4 |
| M51 | 06-13 | | 9003509-0008 | Seal nut | 1 |
| M76 | 06-13 | | 11001793 | Solenoid, 12 volt, AMP connector | 2 |
| M90 | 06-13 | | 692889 (9007314-0611) | Screw | 6 |
| M95 | 06-13 | | 011296 (9004105-0120) | O-ring | 2 |
| M96 | 06-13 | | 688721 (9004104-0170) | O-ring | 1 |
| M97 | 06-13 | | 314534 (9004104-0310) | O-ring | 1 |
| M658 | 06-13 | | 635938 (9004100-0210) | O-ring | 2 |
| QM10 | 06-13 | | 11098761 | EDC2, 12 volt, AMP connector | 1 |
| QM210 | 06-13 | | 11096251 | Control seal kit | 1 |

## Control

### S90P control PH, PJ

*Parts configuration*




Possible orifice locations

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

*Order code: PH*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M9 | 13-37 | | 11120541 | HIC, proportional reducing manifold assembly | 1 |
| M11 | 13-37 | | 8801241 | Control gasket | 1 |
| M14 | 13-37 | | 11070305 | Feedback link | 1 |
| M29 | 13-37 | | K28807 | Screw | 4 |
| M51 | 13-37 | | 9003509-0008 | Seal nut | 1 |
| M90 | 13-37 | | 692889 (9007314-0611) | Screw | 6 |
| M96 | 13-37 | | 9004105-0120 | O-ring | 4 |
| QM10 | 13-37 | | 11121735 | EDC, high current | 1 |
| QM034 | 13-37 | | 11175057 | Solenoid valve seal kit | 2 |
| QM036 | 13-37 | | 11117349 | Coil nut | 2 |
| QM037 | 13-37 | | 171180419 | Coil, 12 volt | 2 |
| QM76 | 13-37 | | 11120557 | Solenoid valve, 12 volt | 2 |
| QM210 | 13-37 | | 11138468 | Control seal kit | 1 |

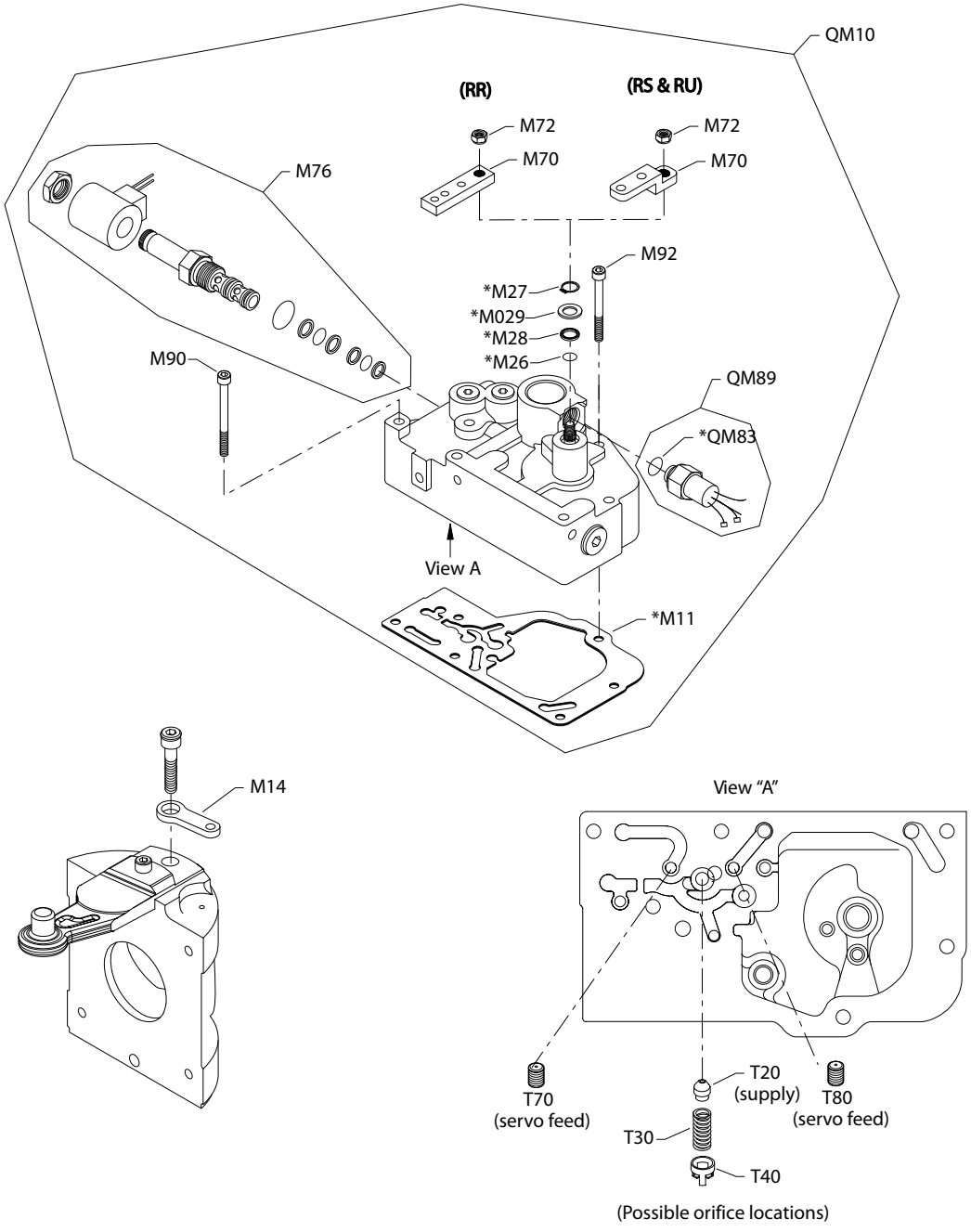
*Order code: PJ*

| | | | | | |
|---|---|---|---|---|---|
| M9 | 14-15 | | 11175061 | HIC, proportional reducing manifold assembly | 1 |
| M11 | 14-15 | | 8801241 | Control gasket | 1 |
| M14 | 14-15 | | 11070305 | Feedback link | 1 |
| M29 | 14-15 | | K28807 | Screw | 4 |
| M51 | 14-15 | | 9003509-0008 | Seal nut | 1 |
| M90 | 14-15 | | 692889 (9007314-0611) | Screw | 6 |
| M96 | 14-15 | | 9004105-0120 | O-ring | 4 |
| QM10 | 14-15 | | 11141115 | EDC, high current | 1 |
| QM034 | 14-15 | | 11175057 | Solenoid valve seal kit | 2 |
| QM036 | 14-15 | | 11175058 | Coil nut | 2 |
| QM037 | 14-15 | | 11175074 | Coil, 24 volt | 2 |
| QM76 | 14-15 | | 11136795 | Solenoid valve, 24 volt | 2 |
| QM210 | 14-15 | | 11138468 | Control seal kit | 1 |

## Control

### S90P control RR, RS

*Parts configuration*




All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

*Order code: RR*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 99-06 | | 510378 | Control gasket | 1 |
| M14 | 99-06 | | 11070306 | Feedback link (*SB-2013-011* on page 359) | 1 |
| M26 | 99-06 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 99-06 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M28 | 99-06 | | 510690 | Lip seal | 1 |
| M70 | 99-06 | | 9800916 | Control handle | 1 |
| M72 | 99-06 | | 040642 (9003513-0800) | Nut | 1 |
| M76 | 99-06 | | 513582 | Solenoid valve, 12 volt | 1 |
| M90 | 99-06 | | 354407 | Screw | 5 |
| M92 | 99-06 | | 510382 | Screw | 1 |
| QM10 | 99-06 | | 8510245 | MDC kit, roller | 1 |
| QM83 | 99-06 | | 001131 (9004201-5000) | O-ring | 1 |
| QM89 | 99-06 | | 11099847 | Neutral start switch, high force | 1 |
| QM210 | 99-06 | | 11100030 | Control seal kit | 1 |

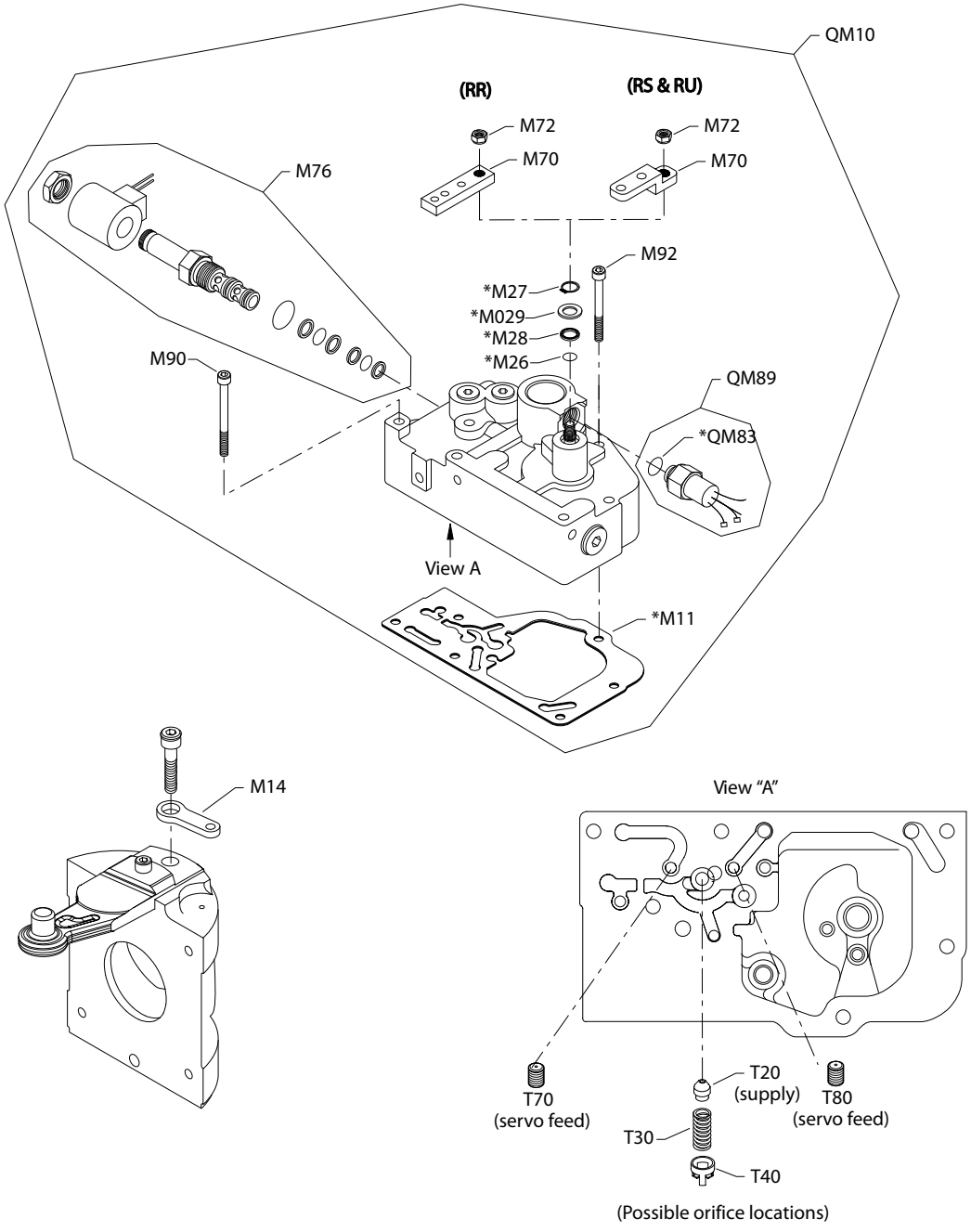
*Order code: RS*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 01-15 | | 510378 | Control gasket | 1 |
| M14 | 01-15 | | 11070306 | Feedback link (*SB-2013-011* on page 359) | 1 |
| M26 | 01-15 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 01-15 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M28 | 01-15 | | 510690 | Lip seal | 1 |
| M70 | 01-15 | | 769075 | Control handle, sharp bend | 1 |
| M72 | 01-15 | | 040642 (9003513-0800) | Nut | 1 |
| M76 | 01-15 | | 513018 | Solenoid valve, 24 volt | 1 |
| M90 | 01-15 | | 354407 | Screw | 5 |
| M92 | 99-06 | | 510382 | Screw | 1 |
| QM10 | 01-15 | | 11087610 | MDC kit, roller | 1 |
| QM83 | 01-15 | | 001131 (9004201-5000) | O-ring | 1 |
| QM89 | 01-15 | | 11099847 | Neutral start switch, high force | 1 |
| QM210 | 01-15 | | 11100030 | Control seal kit | 1 |

## Control

### S90P control RU

*Parts configuration*




All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

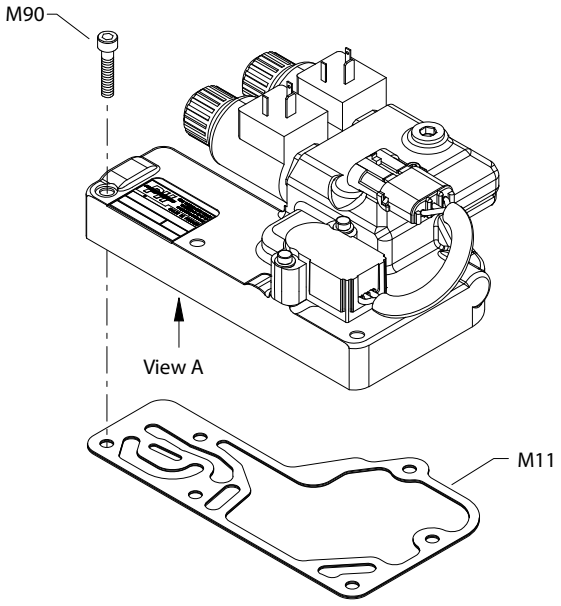
*Order code: RU*

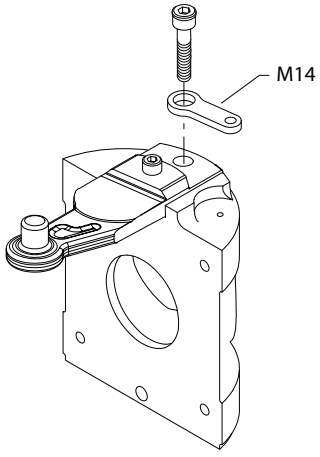
| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 97-30 | | 510378 | Control gasket | 1 |
| M14 | 97-30 | | 11070306 | Feedback link (*SB-2013-011* on page 359) | 1 |
| M26 | 97-30 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 97-30 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M28 | 97-30 | | 510690 | Lip seal | 1 |
| M70 | 97-30 | | 769075 | Control handle, sharp bend | 1 |
| M72 | 97-30 | | 040642 (9003513-0800) | Nut | 1 |
| M76 | 97-30 | | 11197563 | Solenoid valve, 12 volt | 1 |
| M90 | 97-30 | | 354407 | Screw | 5 |
| M92 | 99-06 | | 510382 | Screw | 1 |
| QM10 | 97-30 | | 11087609 | MDC kit, roller | 1 |
| QM83 | 97-30 | | 001131 (9004201-5000) | O-ring | 1 |
| QM89 | 97-30 | | 11099847 | Neutral start switch, high force | 1 |
| QM210 | 97-30 | | 11100030 | Control seal kit | 1 |

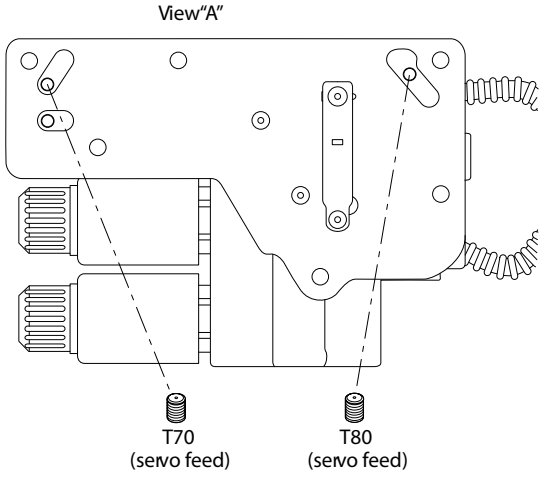
## Control

### S90P control SA-SE

*Parts configuration*




Possible orifice locations

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

*Order code: SA*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 07-23 | | 8800923 | Gasket | 1 |
| M14 | 07-23 | | 11070305 | Feedback link | 1 |
| M90 | 07-23 | | 694356 (9007314-0608) | Screw | 6 |

*Order code: SB*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 07-23 | | 8800923 | Gasket | 1 |
| M14 | 07-23 | | 11070305 | Feedback link | 1 |
| M90 | 07-23 | | 694356 (9007314-0608) | Screw | 6 |

*Order code: SD*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 10-34 | | 8800923 | Gasket | 1 |
| M14 | 10-34 | | 11070305 | Feedback link | 1 |
| M90 | 10-34 | | 694356 (9007314-0608) | Screw | 6 |

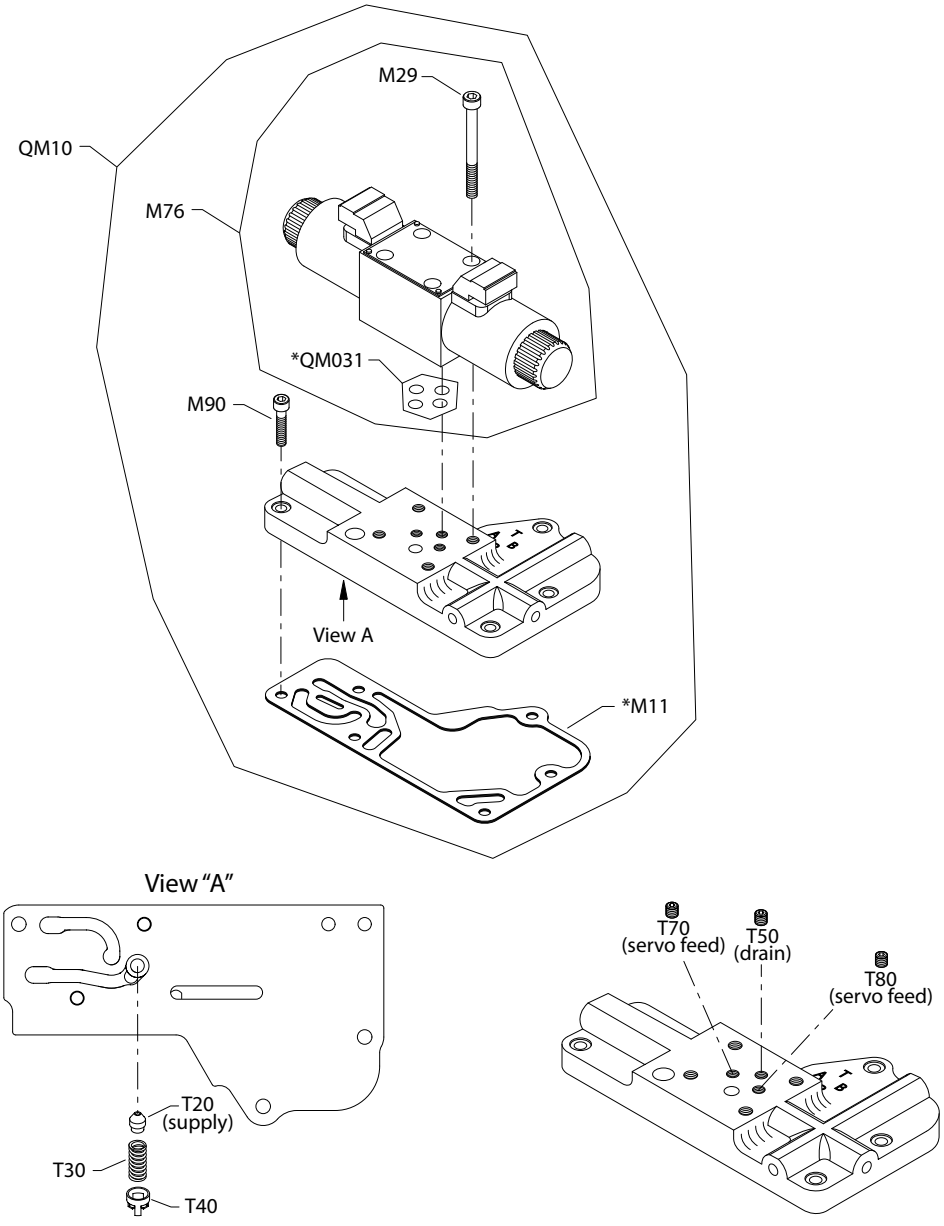
*Order code: SE*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 10-34 | | 8800923 | Gasket | 1 |
| M14 | 10-34 | | 11070305 | Feedback link | 1 |
| M90 | 10-34 | | 694356 (9007314-0608) | Screw | 6 |

## Control

### S90P control SC

*Parts configuration*




Possible orifice locations

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Control

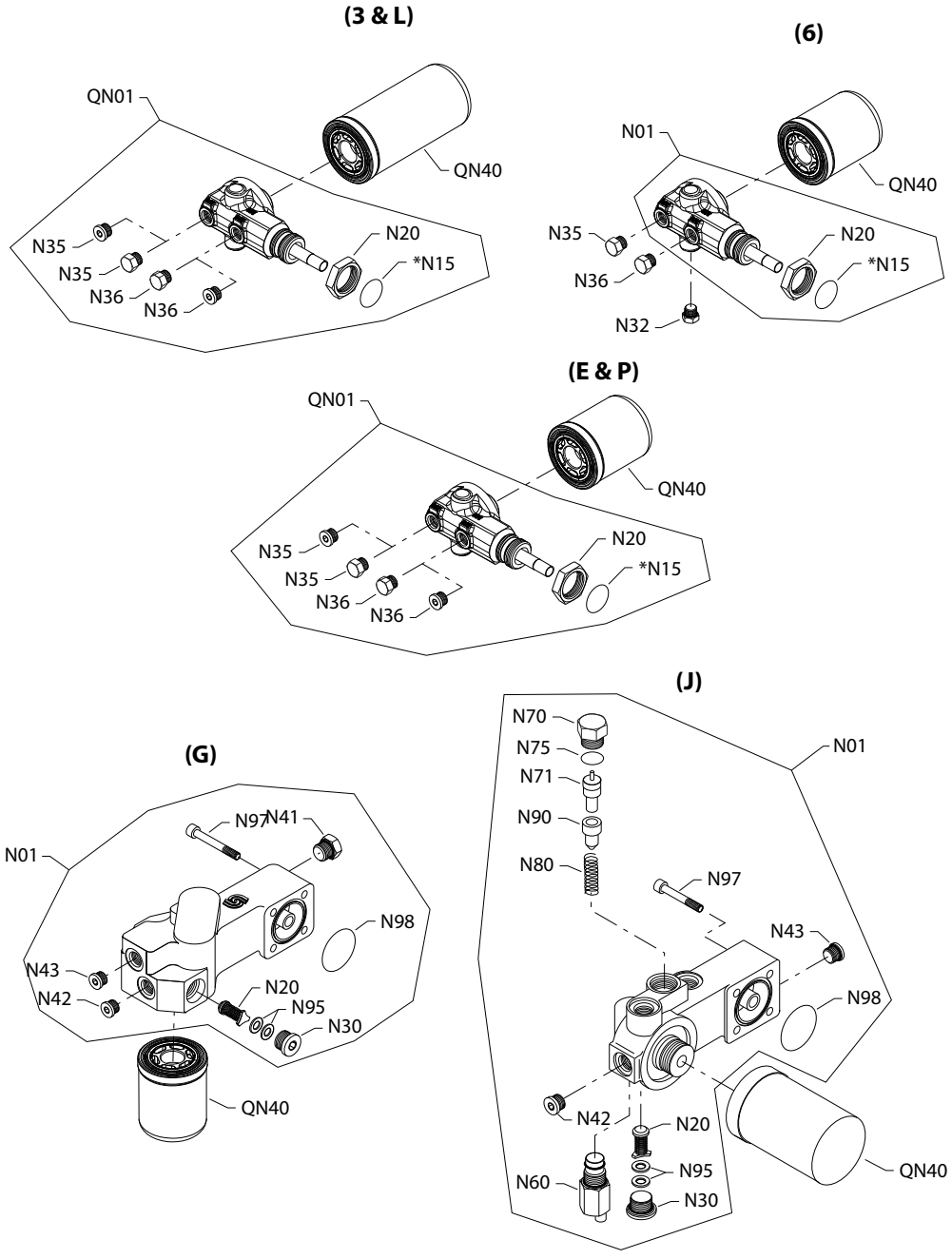
*Order code: SC*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 98-21 | | 8800923 | Gasket | 1 |
| M29 | 98-21 | | 035592 | Screw | 4 |
| M76 | 98-21 | | 509848/P | Solenoid valve, 12 volt | 1 |
| M90 | 98-21 | | 693341 (9007314-0606) | Screw | 6 |
| QM10 | 98-21 | | 11098762 | Control kit, 3-position, 12 volt | 1 |
| QM031 | 98-21 | | 11099647 | Valve seal kit | 1 |
| QM210 | 98-21 | | 11096172 | Control seal kit | 1 |

## Filtration

### S90P 75cc filtration 3-J

*Parts configuration*




* included in base pump seal kit Q210

## Filtration

*Order code: 3*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| N15 | 99-18 | | 001172 (9004201-9000) | O-ring | 1 |
| N20 | 99-18 | | 11049997 | Nut | 1 |
| N35 | 99-18 | | 140644 (9005100-5600) | Plug assembly | 1 |
| N36 | 99-18 | | 140644 (9005100-5600) | Plug assembly | 1 |
| QN01 | 99-18 | | 11145249 | Filter manifold kit | 1 |
| QN40 | 99-18 | | 11004919 | Filter, long | 1 |

*Order code: 6*

| | | | | | |
|---|---|---|---|---|---|
| N01 | 00-01 | | 11060345 | Filter manifold assembly | 1 |
| N15 | 00-01 | | 001172 (9004201-9000) | O-ring | 1 |
| N20 | 00-01 | | 11049997 | Nut | 1 |
| N32 | 00-01 | | 140644 (9005100-5600) | Plug assembly | 1 |
| N35 | 00-01 | | 140644 (9005100-5600) | Plug assembly | 1 |
| N36 | 00-01 | | 140644 (9005100-5600) | Plug assembly | 1 |
| QN40 | 00-01 | | 11004917 | Filter, short | 1 |

*Order code: E*

| | | | | | |
|---|---|---|---|---|---|
| N15 | 96-46 | | 001172 (9004201-9000) | O-ring | 1 |
| N20 | 96-46 | | 360768 | Check valve | 1 |
| N35 | 96-46 | | 140644 (9005100-5600) | Plug assembly | 1 |
| N36 | 96-49 | | 140644 (9005100-5600) | Plug assembly | 1 |
| QN01 | 96-46 | | 11145249 | Filter manifold kit | 1 |
| QN40 | 96-46 | | 11004917 | Filter, short | 1 |

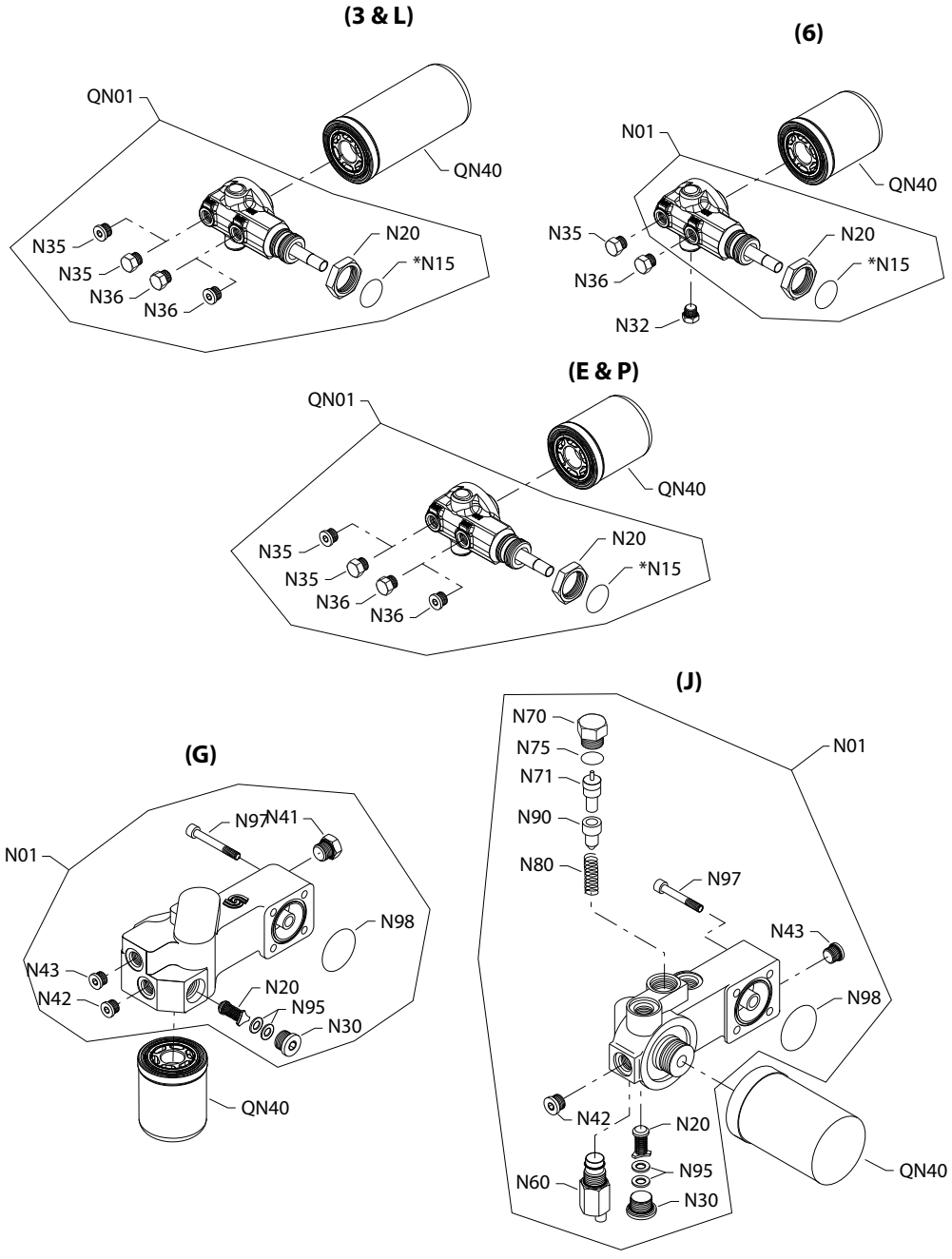
*Order code: G & J*

| | | | | | |
|---|---|---|---|---|---|
| N01 | 96-46 | | 501831 | Filter manifold assembly | 1 |
| N20 | 96-46 | | 360768 | Check valve | 1 |
| N30 | 96-46 | | 365965 | Plug assembly | 1 |
| N41 | 96-46 | | 001537 | Plug assembly | 1 |
| N42 | 96-46 | | 140644 (9005100-5600) | Plug assembly | 1 |
| N43 | 96-46 | | 140644 (9005100-5600) | Plug assembly | 1 |
| N95 | 96-46 | | 500115 | Washer | 2 |
| N97 | 96-46 | | 376269 | Screw | 4 |
| N98 | 96-46 | | 9004104-0320 | O-ring | 1 |
| QN40 | 96-46 | | 11004917 | Filter, short | 1 |

## Filtration

### S90P 75cc filtration L, P

*Parts configuration*




* included in base pump seal kit Q210

## Filtration

*Order code: L*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| N15 | 87-02 | | 001172 | O-ring | 1 |
| N20 | 95-18 | | 11049997 | Nut (*SB-1994-36* on page 323) | 1 |
| N20 | 87-02 | 95-17 | 700492 (9002863-1600) | Nut | 1 |
| N35 | 87-02 | | 140644 (9005100-5600) | Plug assembly | 1 |
| N36 | 87-02 | | 140644 (9005100-5600) | Plug assembly | 1 |
| QN01 | 87-02 | | 11145249 | Filter manifold kit | 1 |
| QN40 | 87-02 | | 11004919 | Filter, long | 1 |

*Order code: P*

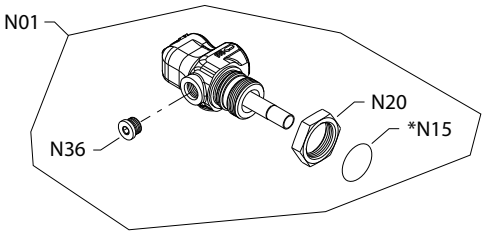
| | | | | | |
|---|---|---|---|---|---|
| N15 | 87-02 | | 001172 (9004201-9000) | O-ring | 1 |
| N20 | 95-18 | | 11049997 | Nut (*SB-1994-36* on page 323) | 1 |
| N20 | 87-02 | 95-17 | 700492 (9002863-1600) | Nut | 1 |
| N35 | 87-02 | | 140644 (9005100-5600) | Plug assembly | 1 |
| N36 | 87-02 | | 140644 (9005100-5600) | Plug assembly | 1 |
| QN01 | 87-02 | | 11145249 | Filter manifold kit | 1 |
| QN40 | 87-02 | | 11004917 | Filter, short | 1 |

## Filtration

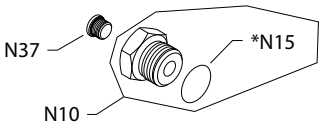
### S90P 75cc filtration R-X

*Parts configuration*

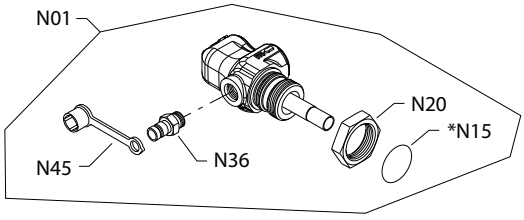
**(R)**



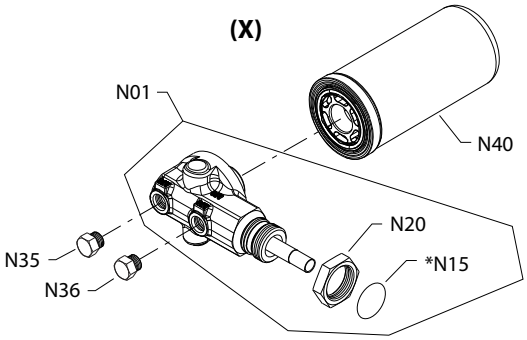

**(S)**




**(U)**




**(X)**




* included in base pump seal kit Q210

## Filtration

*Order code: R*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| N01 | 87-02 | | 11060427 | Filter manifold assembly | 1 |
| N15 | 87-02 | | 001172 (9004201-9000) | O-ring | 1 |
| N20 | 95-18 | | 11049997 | Nut (*SB-1994-36* on page 323) | 1 |
| N20 | 87-02 | 95-17 | 700492 (9002863-1600) | Nut | 1 |
| N36 | 87-02 | | 140644 (9005100-5600) | Plug assembly | 1 |

*Order code: S*

| | | | | | |
|---|---|---|---|---|---|
| N10 | 87-02 | | 707554 (5000230) | Reducer assembly | 1 |
| N15 | 87-02 | | 001172 (9004201-9000) | O-ring | 1 |
| N37 | 87-02 | | 140644 (9005100-5600) | Plug assembly | 1 |

*Order code: U*

| | | | | | |
|---|---|---|---|---|---|
| N01 | 96-16 | | 11060428 | Filter manifold assembly | 1 |
| N15 | 96-16 | | 001172 (9004201-9000) | O-ring | 1 |
| N20 | 96-16 | | 11049997 | Nut | 1 |
| N36 | 96-16 | | 140644 | Plug assembly | 1 |
| N41 | 96-16 | | 8700127 | Diagnostic receptacle | 1 |
| N45 | 96-16 | | 8700128 | Dust cover | 1 |

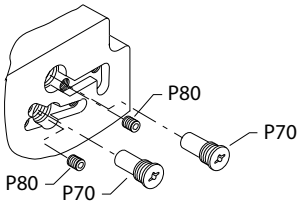
*Order code: X*

| | | | | | |
|---|---|---|---|---|---|
| N01 | 01-01 | | 11060344 | Filter manifold assembly | 1 |
| N15 | 01-01 | | 001172 (9004201-9000) | O-ring | 1 |
| N20 | 01-01 | | 11049997 | Nut | 1 |
| N25 | 01-01 | | 700302 (8800180) | Tube | 1 |
| N35 | 01-01 | | 9005100-5600 | Plug assembly | 1 |
| N36 | 01-01 | | 9005100-5600 | Plug assembly | 1 |
| QN40 | 01-01 | | 11004919 | Filter, long | 1 |

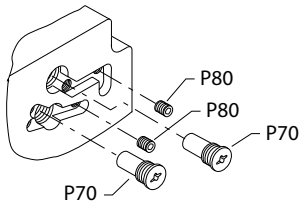
## High pressure protection

### S90 75cc pump high pressure regulation 1-7

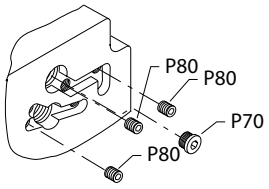
*Parts configuration*



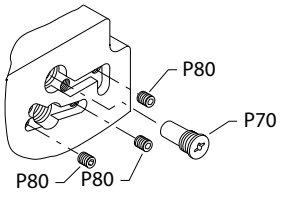

View “A” of end cap
with pressure limiters,
CCW pump rotation.
**Options 1, 5, 6 and F**



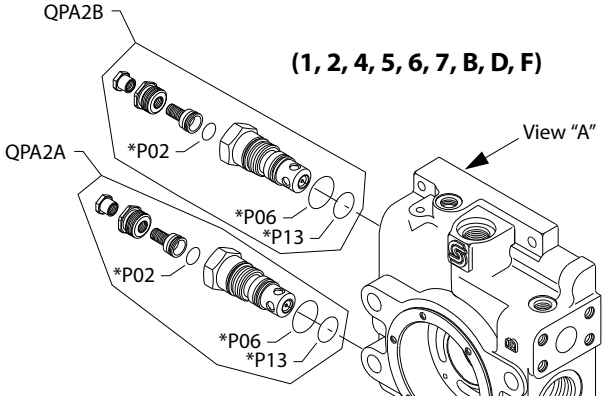

View “A” of end cap
with pressure limiters,
CW pump rotation.
**Options 1, 5, 6 and F**

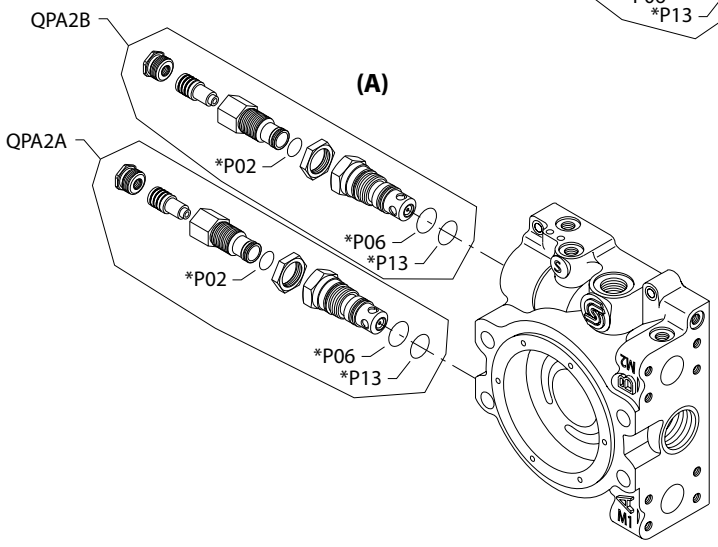



View “A” of end cap
without pressure limiters,
CCW and CW pump rotation.
**Options 2 and 7**




View “A” of end cap
with pressure limiter port A,
CW pump rotation.
**Option B**




Generic end cap used to show valve location only.

* included in base pump seal kit Q210

## High pressure protection

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| P02 | 87-02 | | 688721 (9004104-0170) | O-ring | 2 |
| P06 | 87-02 | | 071811 | O-ring | 2 |
| P13 | 87-02 | | 544742 (9004105-0190) | O-ring | 2 |

*Order code: 1*

| | | | | | |
|---|---|---|---|---|---|
| P70 | 87-02 | | 8800188 | Check valve | 2 |
| P80 | 87-02 | | 9005475-004 | Special plug assembly | 2 |
| QPA2A | 87-02 | | 8510022-1 | Multi-function valve kit | 1 |
| QPA2B | 87-02 | | 8510022-1 | Multi-function valve kit | 1 |

*Order code: 2*

| | | | | | |
|---|---|---|---|---|---|
| P70 | 87-02 | | 9005110-4400 | Plug (*SB-1989-003* on page 306) | 1 |
| P80 | 87-02 | | 9005475-0004 | Special plug assembly | 3 |
| QPA2A | 87-02 | | 8510022-2 | Multi-function valve kit | 1 |
| APA2B | 87-02 | | 8510022-2 | Multi-function valve kit | 1 |

*Order code: 4*

| | | | | | |
|---|---|---|---|---|---|
| QPA2A | 87-02 | | 8510022-7 | Multi-function valve kit | 1 |
| QPA2B | 87-02 | | 8510022-7 | Multi-function valve kit | 1 |

*Order code: 5*

| | | | | | |
|---|---|---|---|---|---|
| P70 | 87-02 | | 8800188 | Check valve | 2 |
| P80 | 87-02 | | 9005475-0004 | Special plug assembly | 2 |
| QPA2A | 87-02 | | 8510240 | Multi-function valve kit | 1 |
| QPA2B | 87-02 | | 8510240 | Multi-function valve kit | 1 |

*Order code: 6*

| | | | | | |
|---|---|---|---|---|---|
| P70 | 87-02 | | 8800188 | Check valve | 2 |
| P80 | 87-02 | | 9005475-0004 | Special plug assembly | 2 |
| QPA2A | 87-02 | | 8510240 | Multi-function valve kit | 1 |
| QPA2B | 87-02 | | 8510240 | Multi-function valve kit | 1 |

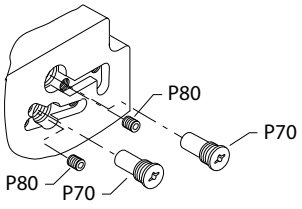
*Order code: 7*

| | | | | | |
|---|---|---|---|---|---|
| P70 | 87-02 | | 9005110-4400 | Plug (*SB-1989-003* on page 306) | 1 |
| P80 | 87-02 | | 9005475-0004 | Special plug assembly | 3 |
| QPA2A | 87-02 | | 8510022-7 | Multi-function valve kit | 1 |
| QPA2B | 87-02 | | 8510022-7 | Multi-function valve kit | 1 |

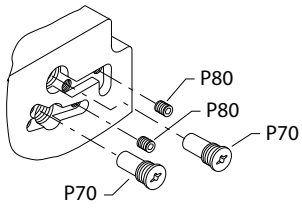
## High pressure protection

### S90P 75cc high pressure regulation A-F

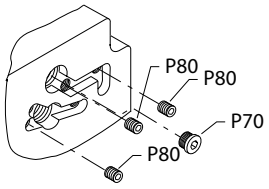
*Parts configuration*



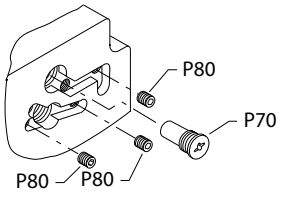

View “A” of end cap
with pressure limiters,
CCW pump rotation.
**Options 1, 5, 6 and F**



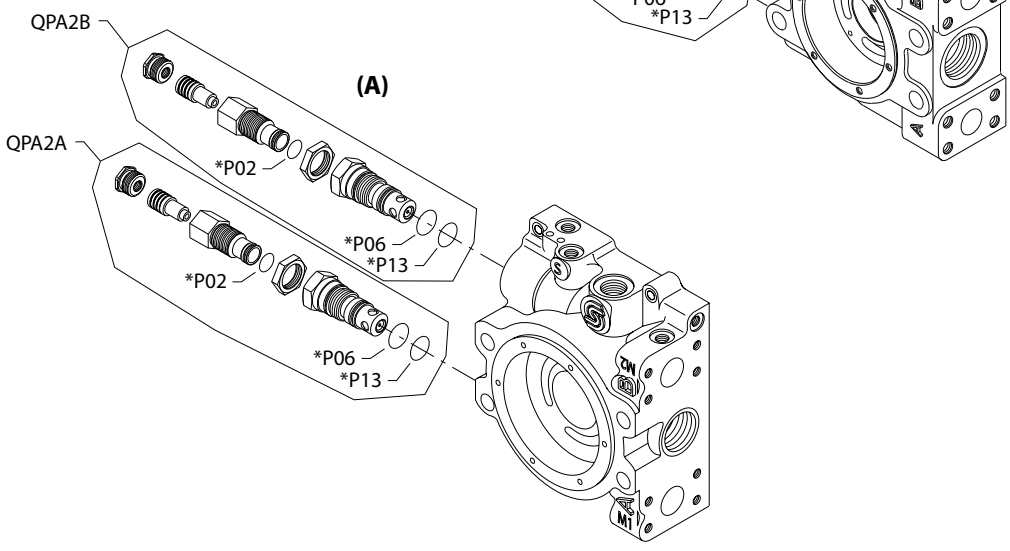

View “A” of end cap
with pressure limiters,
CW pump rotation.
**Options 1, 5, 6 and F**




View “A” of end cap
without pressure limiters,
CCW and CW pump rotation.
**Options 2 and 7**




View “A” of end cap
with pressure limiter port A,
CW pump rotation.
**Option B**




Generic end cap used to show valve location only.

* included in base pump seal kit Q210

## High pressure protection

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| P02 | 87-02 | | 688721 (9004104-0170) | O-ring | 2 |
| P06 | 87-02 | | 071811 | O-ring | 2 |
| P13 | 87-02 | | 544742 (9004105-0190) | O-ring | 2 |

*Order code: A*

| | | | | | |
|---|---|---|---|---|---|
| QPA2A | 87-02 | | 8510202 | Multi-function valve kit, 420 bar | 1 |
| QP2AB | 87-02 | | 8510202 | Multi-function valve kit, 420 bar | 1 |

*Order code: B*

| | | | | | |
|---|---|---|---|---|---|
| P70 | 95-22 | | 8800188 | Check valve | 1 |
| P80 | 95-22 | | 9005475-0004 | Special plug assembly | 3 |
| QPA2A | 95-22 | | 8510022-1 | Multi-function valve kit | 1 |
| QPA2B | 95-22 | | 8510022-7 | Multi-function valve kit | 1 |

*Order code: D*

| | | | | | |
|---|---|---|---|---|---|
| QPA2A | 92-39 | | 8510388 | Multi-function valve kit, 420 bar | 1 |
| QP2AB | 92-39 | | 8510388 | Multi-function valve kit, 420 bar | 1 |

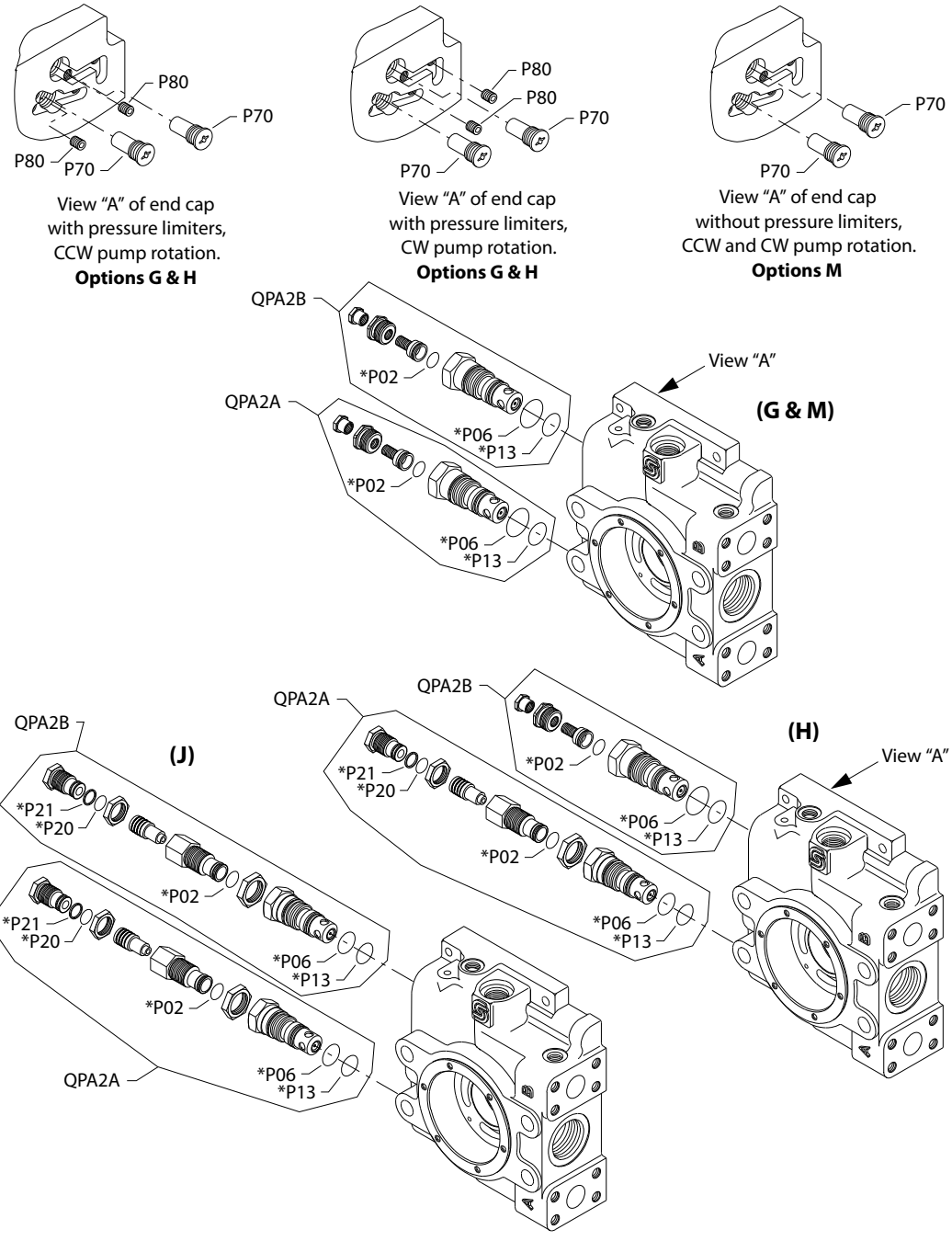
*Order code: F*

| | | | | | |
|---|---|---|---|---|---|
| P70 | 04-36 | | 8800188 | Check valve | 2 |
| P80 | 04-36 | | 9005475-0004 | Special plug assembly | 2 |
| QPA2A | 04-36 | | 8510022-2 | Multi-function valve kit | 1 |
| QPA2B | 04-36 | | 8510022-2 | Multi-function valve kit | 1 |

## High pressure protection

### S90P 75cc high pressure regulation G-M

*Parts configuration*




Generic end cap used to show valve location only.

* included in base pump seal kit Q210

## High pressure protection

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| P02 | 87-02 | | 688721 (9004104-0170) | O-ring | 2 |
| P06 | 87-02 | | 071811 | O-ring | 2 |
| P13 | 87-02 | | 544742 (9004105-0190) | O-ring | 2 |

*Order code: G*

| | | | | | |
|---|---|---|---|---|---|
| P70 | 97-06 | | 8800188 | Check valve | 2 |
| P80 | 97-06 | | 9005475-0004 | Special plug | 2 |
| QPA2A | 97-06 | | 8510196 | Multi-function valve kit | 1 |
| QPA2B | 97-06 | | 8510196 | Multi-function valve kit | 1 |

*Order code: H*

| | | | | | |
|---|---|---|---|---|---|
| P20 | 97-40 | | 9004105-0160 | O-ring | 1 |
| P21 | 97-40 | | 9006110-0160 | Backup O-ring | 1 |
| P70 | 97-40 | | 8800188 | Check valve | 2 |
| P80 | 97-40 | | 9005475-0004 | Special plug | 2 |
| QPA2A | 97-40 | | 8510275 | Multi-function valve kit | 1 |
| QPA2B | 97-40 | | 8510022-1 | Multi-function valve kit | 1 |

*Order code: J*

| | | | | | |
|---|---|---|---|---|---|
| P20 | 97-06 | | 9004105-0160 | O-ring | 2 |
| P21 | 97-06 | | 9006110-0160 | Backup O-ring | 2 |
| QPA2A | 97-06 | | 8510273 | Multi-function valve kit | 1 |
| QPA2B | 97-06 | | 8510273 | Multi-function valve kit | 1 |

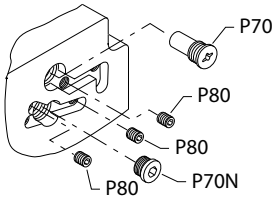
*Order code: M*

| | | | | | |
|---|---|---|---|---|---|
| P70 | 98-11 | | 8800188 | Check valve | 2 |
| QPA2A | 98-11 | | 8510022-1 | Multi-function valve kit | 1 |
| QPA2B | 98-11 | | 8510022-1 | Multi-function valve kit | 1 |

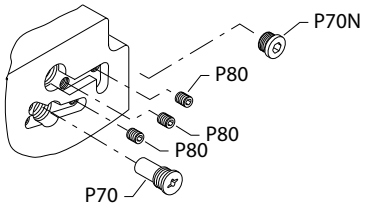
## High pressure protection

### S90P 75cc high pressure regulation N, P

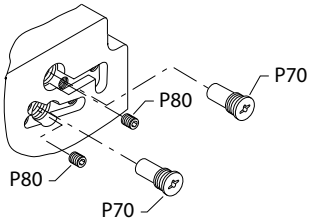
*Parts configuration*



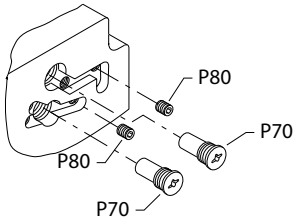

View "A" of end cap
with pressure limiter port B,
CCW pump rotation.
**Option N**



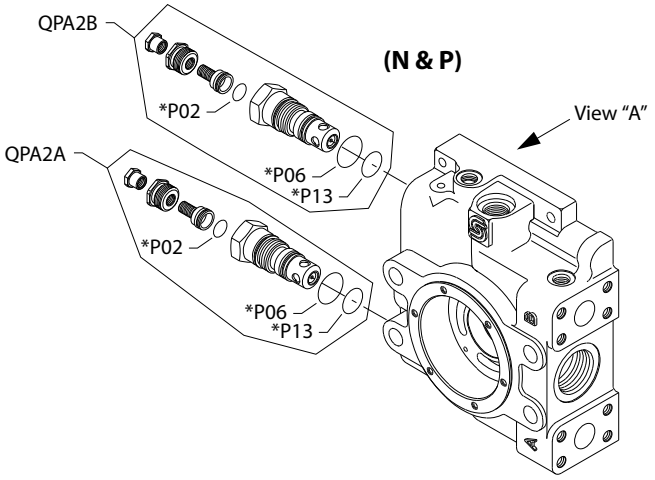

View "A" of end cap
with pressure limiter port B,
CW pump rotation.
**Option N**




View "A" of end cap
with pressure limiters,
CCW pump rotation.
**Options P**




View "A" of end cap
with pressure limiters,
CW pump rotation.
**Options P**




Generic end cap used to show valve location only.

* included in base pump seal kit Q210

## High pressure protection

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| P02 | 87-02 | | 688721 (9004104-0170) | O-ring | 2 |
| P06 | 87-02 | | 071811 | O-ring | 2 |
| P13 | 87-02 | | 544742 (9004105-0190) | O-ring | 2 |

*Order code: N*

| | | | | | |
|---|---|---|---|---|---|
| P70 | 98-41 | | 8800188 | Check valve | 1 |
| P70N | 98-41 | | 9005110-4400 | Plug assembly | 1 |
| P80 | 98-41 | | 9005475-0004 | Special plug | 3 |
| PA2A | 98-41 | | 781971 | Plug assembly | 1 |
| QPA2B | 98-41 | | 8510022-1 | Multi-function valve kit | 1 |

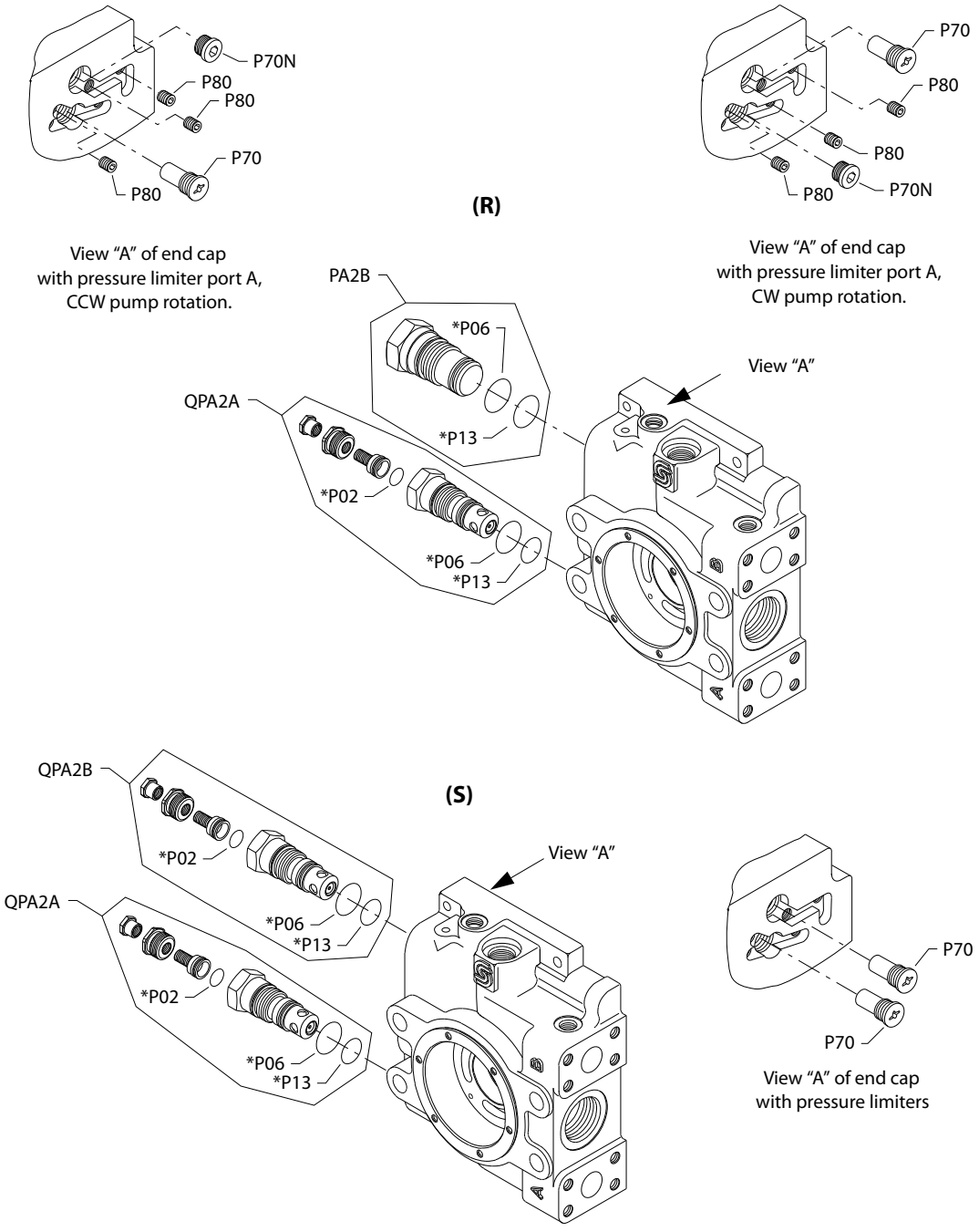
*Order code: P*

| | | | | | |
|---|---|---|---|---|---|
| P70 | 99-26 | | 8800188 | Check valve | 2 |
| P80 | 99-26 | | 9005475-0004 | Special plug | 2 |
| QPA2A | 99-26 | | 8510389 | Multi-function valve kit | 1 |
| QPA2B | 99-26 | | 8510389 | Multi-function valve kit | 1 |

## High pressure protection

### S90P 75cc high pressure regulation R, S

*Parts configuration*




Generic end cap used to show valve location only.

* included in base pump seal kit Q210

## High pressure protection

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| P02 | 87-02 | | 688721 (9004104-0170) | O-ring | 2 |
| P06 | 87-02 | | 071811 | O-ring | 2 |
| P13 | 87-02 | | 544742 (9004105-0190) | O-ring | 2 |

*Order code: R*

| | | | | | |
|---|---|---|---|---|---|
| P70 | 99-14 | | 8800188 | Check valve | 1 |
| P70N | 99-14 | | 9005110-4400 | Plug assembly | 1 |
| P80 | 99-14 | | 9005475-0004 | Special plug | 3 |
| PA2A | 99-14 | | 781971 | Plug assembly | 1 |
| QPA2A | 99-14 | | 8510022-1 | Multi-function valve kit | 1 |

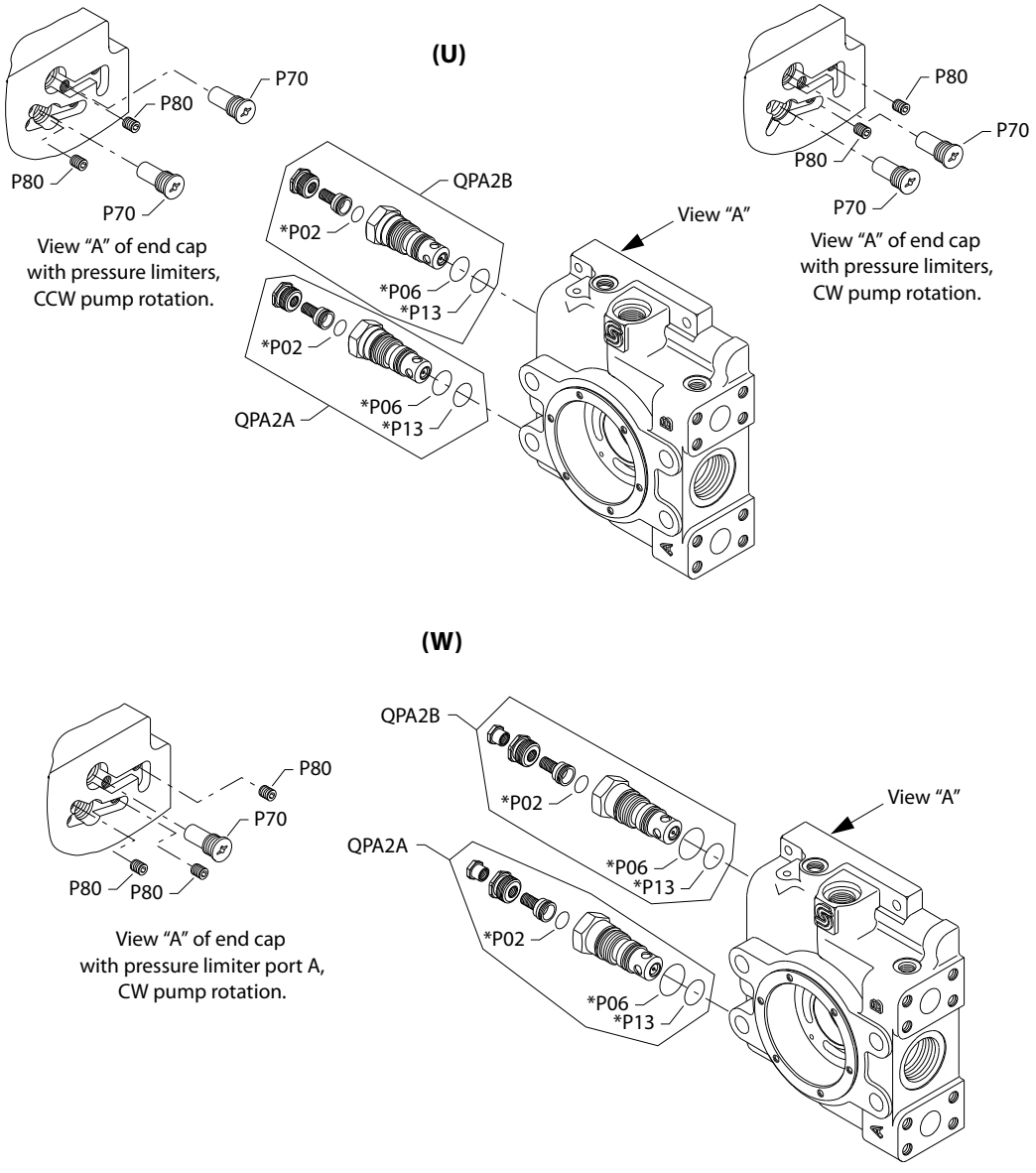
*Order code: S*

| | | | | | |
|---|---|---|---|---|---|
| P70 | 02-23 | | 8800188 | Check valve | 2 |
| QPA2A | 02-23 | | 8510389 | Multi-function valve kit | 1 |
| QPA2B | 02-23 | | 8510389 | Multi-function valve kit | 1 |

## High pressure protection

### S90P 75cc high pressure regulation U, W

*Parts configuration*




Generic end cap used to show valve location only.

* included in base pump seal kit Q210

## High pressure protection

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| P02 | 87-02 | | 688721 (9004104-0170) | O-ring | 2 |
| P06 | 87-02 | | 071811 | O-ring | 2 |
| P13 | 87-02 | | 544742 (9004105-0190) | O-ring | 2 |

*Order code: U*

| | | | | | |
|---|---|---|---|---|---|
| P70 | 04-36 | | 8800188 | Check valve | 2 |
| P80 | 04-36 | | 9005475-0004 | Special plug | 2 |
| QPA2A | 04-36 | | 8510022-7 | Multi-function valve kit | 1 |
| QPA2B | 04-36 | | 8510022-7 | Multi-function valve kit | 1 |

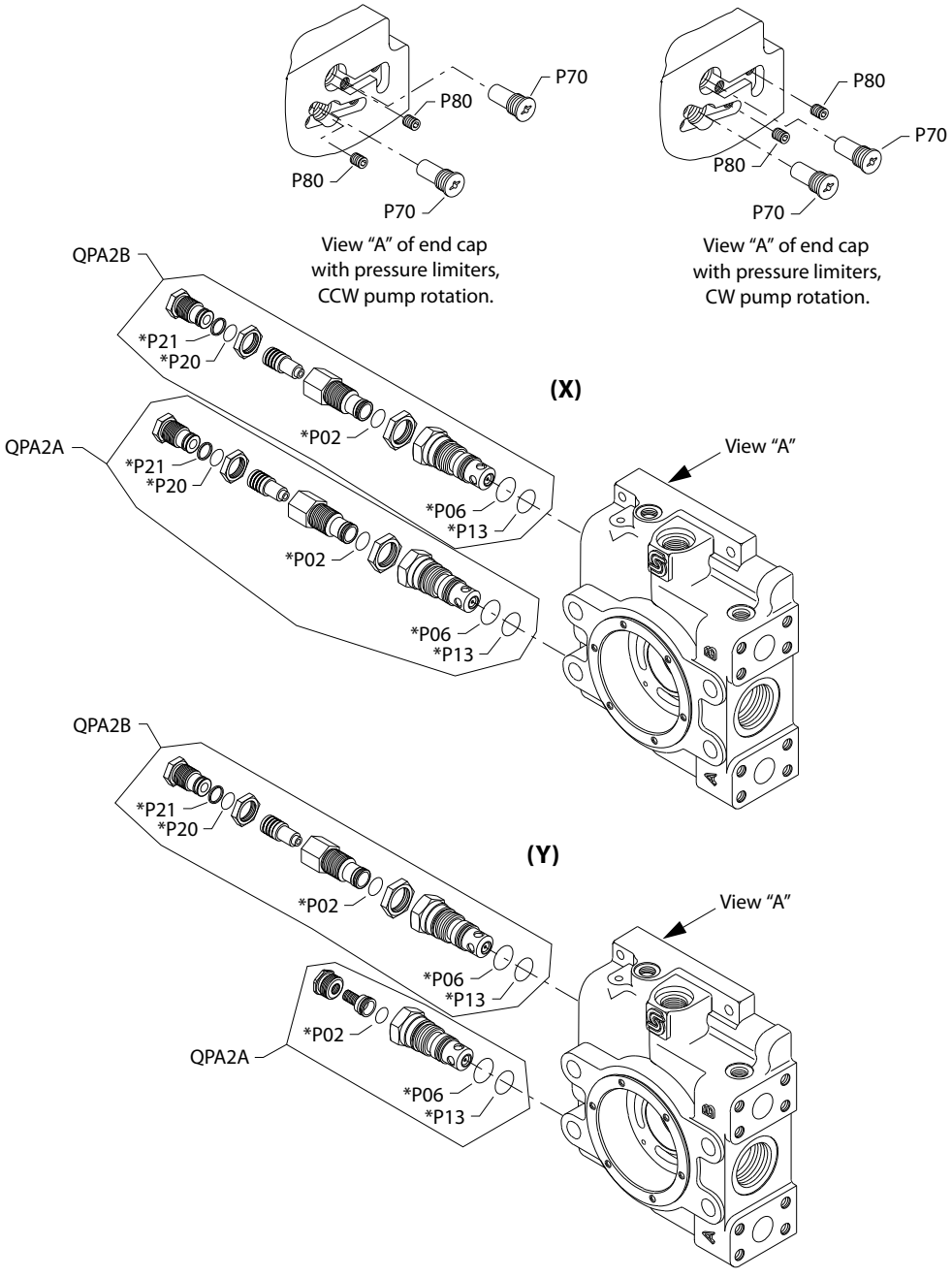
*Order code: W*

| | | | | | |
|---|---|---|---|---|---|
| P70 | 09-50 | | 8800188 | Check valve | 1 |
| P80 | 09-50 | | 9005475-0004 | Special plug | 3 |
| QPA2A | 09-50 | | 8510022-1 | Multi-function valve kit | 1 |
| QPA2B | 09-50 | | 8510022-1 | Multi-function valve kit | 1 |

## High pressure protection

### S90P 75cc high pressure regulation X, Y

*Parts configuration*




Generic end cap used to show valve location only.

* included in base pump seal kit Q210

## High pressure protection

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| P02 | 87-02 | | 688721 (9004104-0170) | O-ring | 2 |
| P06 | 87-02 | | 071811 | O-ring | 2 |
| P13 | 87-02 | | 544742 (9004105-0190) | O-ring | 2 |

*Order code: X*

| | | | | | |
|---|---|---|---|---|---|
| P20 | 09-19 | | 9004105-0160 | O-ring | 2 |
| P21 | 09-19 | | 9006110-0160 | Backup O-ring | 2 |
| P70 | 09-19 | | 8800188 | Check valve | 2 |
| P80 | 09-19 | | 9005475-0004 | Special plug | 2 |
| QPA2A | 09-19 | | 11079763 | Multi-function valve kit | 1 |
| QPA2B | 09-19 | | 11079763 | Multi-function valve kit | 1 |

*Order code: Y*

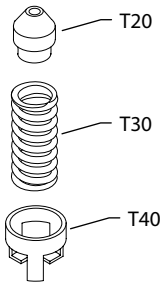
| | | | | | |
|---|---|---|---|---|---|
| P20 | 11-02 | | 9004105-0160 | O-ring | 1 |
| P21 | 11-02 | | 9006110-0160 | Backup O-ring | 1 |
| P70 | 11-02 | | 8800188 | Check valve | 2 |
| P80 | 11-02 | | 9005475-0004 | Special plug | 2 |
| QPA2A | 11-02 | | 8510022-1 | Multi-function valve kit | 1 |
| QPA2B | 11-02 | | 8510275 | Multi-function valve kit | 1 |

## Orifice

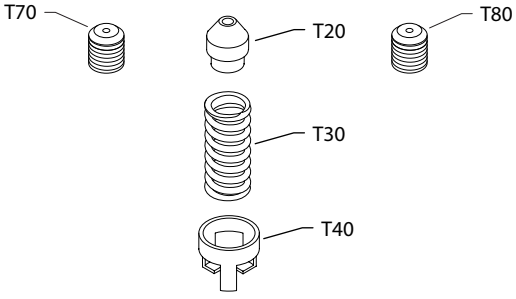
### S90P 75cc orifice 01-24

*Parts configuration*

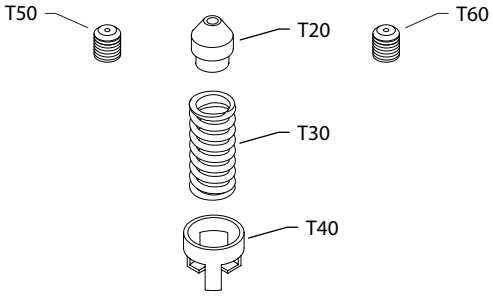
**(01, 02, 03, 04, 05, 06, 09 & 22)**




**(21)**




**(23 & 24)**




See control housing for orifice locations.

## Orifice

*Common parts (excluding order code 00)*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |

*Order code: 00*

| |
|---|
| No parts |

*Order code: 01*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801136 | Orificed check valve, .018" | 1 |

*Order code: 02*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801139 | Orificed check valve, .026" | 1 |

*Order code: 03*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061958 | Orificed check valve, .032" | 1 |

*Order code: 04*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061970 | Orificed check valve, .040" | 1 |

*Order code: 05*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061981 | Orificed check valve, .054" | 1 |

*Order code: 06*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061993 | Orificed check valve, .062" | 1 |

*Order code: 09*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11062006 | Orificed check valve, .092" | 1 |

*Order code: 21*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061970 | Orificed check valve, .040" | 1 |
| T70 | 87-42 | | 714477 | Orifice plug, 0.8mm, M8 x 8 | 1 |
| T80 | 87-42 | | 714477 | Orifice plug, 0.8mm, M8 x 8 | 1 |

*Order code: 22*

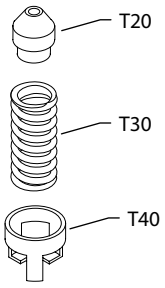
| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801137 | Orificed check valve, .022" | 1 |

Part numbers continue to the next 2 pages.

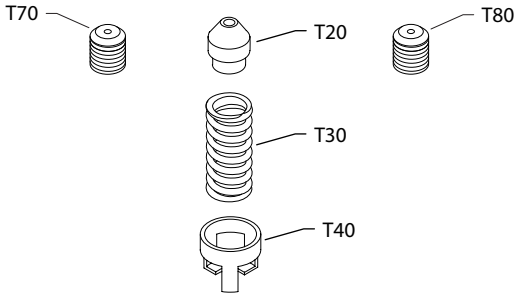
## Orifice

*Parts configuration*

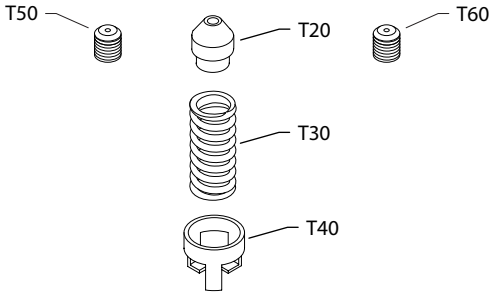
**(01, 02, 03, 04, 05, 06, 09 & 22)**




**(21)**




**(23 & 24)**




See control housing for orifice locations.

## Orifice

*Common parts (excluding order code 00)*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |

*Order code: 23*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061958 | Orificed check valve, .032" | 1 |
| T50 | 87-42 | | 639153 | Orifice plug, 1.3mm, M5 x 6 | 1 |
| T60 | 87-42 | | 639153 | Orifice plug, 1.3mm, M5 x 6 | 1 |

*Order code: 24*

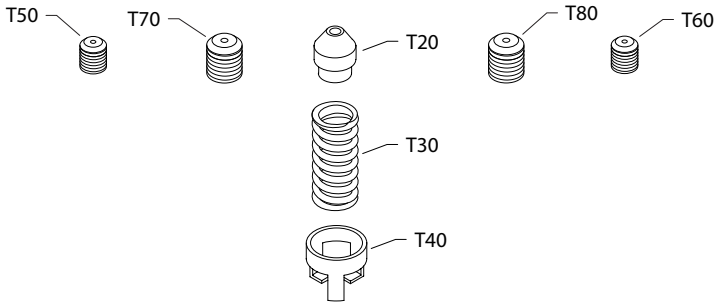
| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801136 | Orificed check valve, .018" | 1 |
| T50 | 87-42 | | 617159 | Orifice plug, 1.8mm, M5 x 6 | 1 |
| T60 | 87-42 | | 617159 | Orifice plug, 1.8mm, M5 x 6 | 1 |

## Orifice

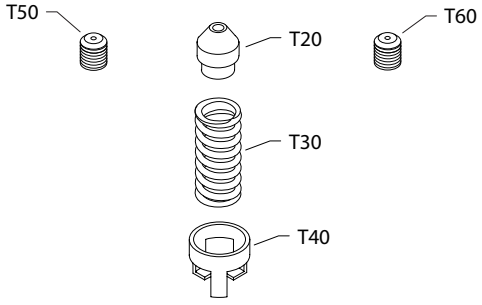
### S90P 75cc orifice 25-34

*Parts configuration*

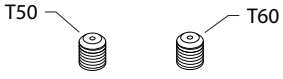
**(25, 28, 30 & 35)**



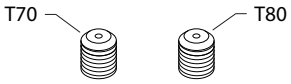

**(26 & 29)**




**(32)**




**(34)**




See control drawing for orifice location.

## Orifice

*Common parts (excludes order codes 32-34)*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |

*Order code: 25*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801139 | Orificed check valve, .026" | 1 |
| T50 | 87-42 | | 606657 | Orifice plug, 0.5mm, M5 x 6 | 1 |
| T60 | 87-42 | | 606657 | Orifice plug, 0.5mm, M5 x 6 | 1 |
| T70 | 87-42 | | 716837 | Orifice plug, 0.6mm, M8 x 8 | 1 |
| T80 | 87-42 | | 716837 | Orifice plug, 0.6mm, M8 x 8 | 1 |

*Order code: 26*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061958 | Orificed check valve, .032" | 1 |
| T50 | 87-42 | | 598292 (11062004) | Orifice plug, 0.8mm, M5 x 6 | 1 |
| T60 | 87-42 | | 598292 (11062004) | Orifice plug, 0.8mm, M5 x 6 | 1 |

*Order code: 28*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801139 | Orificed check valve, .026" | 1 |
| T50 | 87-42 | | 639104 (11062012) | Orifice plug, 0.7mm, M5 x 6 | 1 |
| T60 | 87-42 | | 639104 (11062012) | Orifice plug, 0.7mm, M5 x 6 | 1 |
| T70 | 87-42 | | 704650 (11062018) | Orifice plug, 0.7mm, M8 x 8 | 1 |
| T80 | 87-42 | | 704650 (11062018) | Orifice plug, 0.7mm, M8 x 8 | 1 |

*Order code: 29*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061958 | Orificed check valve, .032" | 1 |
| T50 | 87-42 | | 639104 (11062012) | Orifice plug, 0.7mm, M5 x 6 | 1 |
| T60 | 87-42 | | 639104 (11062012) | Orifice plug, 0.7mm, M5 x 6 | 1 |

*Order code: 30*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801139 | Orificed check valve, .026" | 1 |
| T50 | 87-42 | | 639153 | Orifice plug, 1.3mm, M5 x 6 | 1 |
| T60 | 87-42 | | 639153 | Orifice plug, 1.3mm, M5 x 6 | 1 |
| T70 | 87-42 | | 704650 (11062018) | Orifice plug, 0.7mm, M8 x 8 | 1 |
| T80 | 87-42 | | 704650 (11062018) | Orifice plug, 0.7mm, M8 x 8 | 1 |

*Order code: 32*

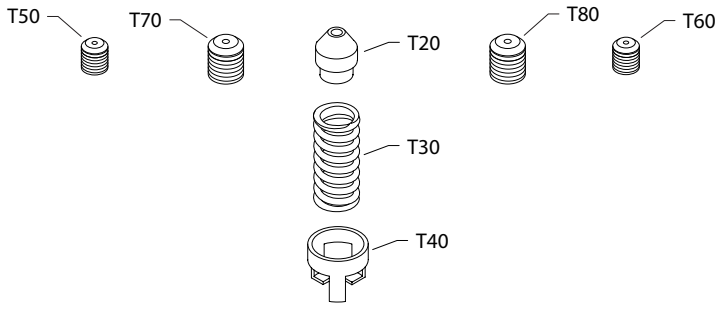
| | | | | | |
|---|---|---|---|---|---|
| T50 | 87-42 | | 639120 | Orifice plug, 1.0mm, M5 x 6 | 1 |
| T60 | 87-42 | | 639120 | Orifice plug, 1.0mm, M5 x 6 | 1 |

Part numbers continue to the next 2 pages.

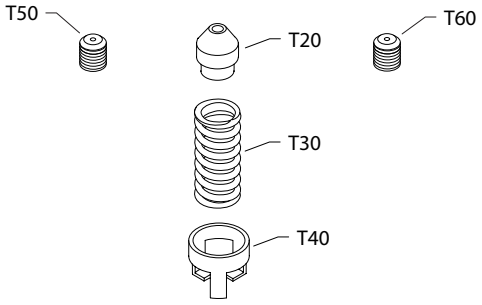
## Orifice

*Parts configuration*

**(25, 28, 30 & 35)**

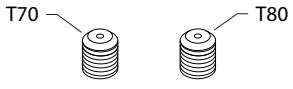



**(26 & 29)**




**(32)**

**(34)**




See control drawing for orifice location.

## Orifice

*Common parts (excludes order codes 32-34)*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |

*Order code: 33*

| |
|---|
| No parts |

*Order code: 34*

| | | | | | |
|---|---|---|---|---|---|
| T70 | 87-42 | | 755793 | Orifice plug, 1.0mm, M8 x 8 | 1 |
| T80 | 87-42 | | 755793 | Orifice plug, 1.0mm, M8 x 8 | 1 |

*Order code: 35*

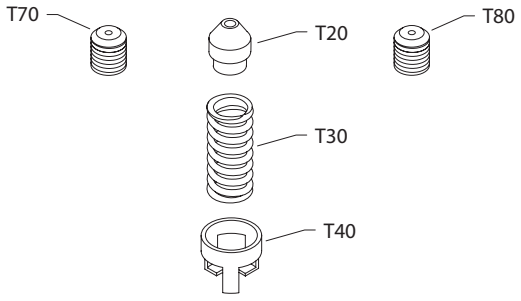
| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061958 | Orificed check valve, .032" | 1 |
| T50 | 87-42 | | 639120 | Orifice plug, 1.0mm, M5 x 6 | 1 |
| T60 | 87-42 | | 639120 | Orifice plug, 1.0mm, M5 x 6 | |

## Orifice

### S90P 75cc orifice 38-49

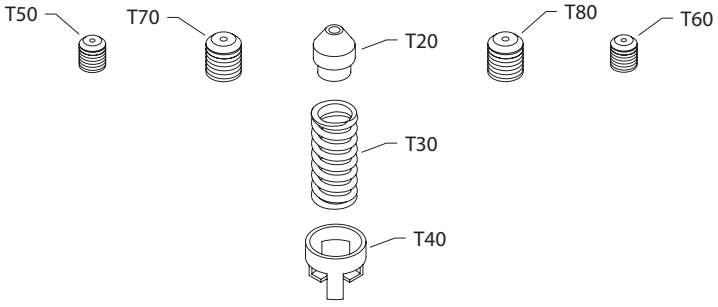
*Parts configuration*

**(38 & 42)**

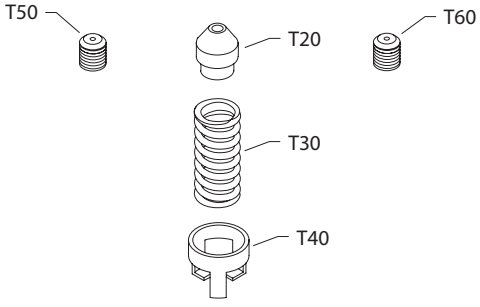



**(41)**

**(43)**




**(45, 46 & 49)**




See control drawing for orifice location.

## Orifice

*Common parts (excluding order code 41)*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |

*Order code: 38*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801139 | Orificed check valve, .026" | 1 |
| T70 | 87-42 | | 716837 | Orifice plug, 0.6mm, M8 x 8 | 1 |
| T80 | 87-42 | | 716837 | Orifice plug, 0.6mm, M8 x 8 | 1 |

*Order code: 41*

| | | | | | |
|---|---|---|---|---|---|
| T50 | 87-42 | | 639153 | Orifice plug, 1.3mm, M5 x 6 | 1 |
| T60 | 87-42 | | 639153 | Orifice plug, 1.3mm, M5 x 6 | 1 |
| T70 | 87-42 | | 704650 (11062018) | Orifice plug, 0.7mm, M8 x 8 | 1 |
| T80 | 87-42 | | 704650 (11062018) | Orifice plug, 0.7mm, M8 x 8 | 1 |

*Order code: 42*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061958 | Orificed check valve, .032" | 1 |
| T70 | 87-42 | | 714477 | Orifice plug, 0.8mm, M8 x 8 | 1 |
| T80 | 87-42 | | 714477 | Orifice plug, 0.8mm, M8 x 8 | 1 |

*Order code: 43*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061958 | Orificed check valve, .032" | 1 |
| T50 | 87-42 | | 639153 | Orifice plug, 1.3mm, M5 x 6 | 1 |
| T60 | 87-42 | | 639153 | Orifice plug, 1.3mm, M5 x 6 | 1 |
| T70 | 87-42 | | 755793 | Orifice plug, 1.0mm, M8 x 8 | 1 |
| T80 | 87-42 | | 755793 | Orifice plug, 1.0mm, M8 x 8 | 1 |

*Order code: 45*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061958 | Orificed check valve, .032" | 1 |
| T50 | 87-42 | | 639153 | Orifice plug, 1.3mm, M5 x 6 | 1 |
| T60 | 87-42 | | 598292 (11062004) | Orifice plug, 0.8mm, M5 x 6 | 1 |

*Order code: 46*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801139 | Orificed check valve, .026" | 1 |
| T50 | 87-42 | | 598292 (11062004) | Orifice plug, 0.8mm, M5 x 6 | 1 |
| T60 | 87-42 | | 598292 (11062004) | Orifice plug, 0.8mm, M5 x 6 | 1 |

*Order code: 49*

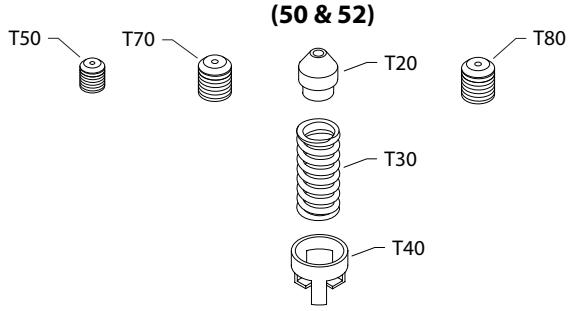
| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061958 | Orificed check valve, .032" | 1 |
| T50 | 87-42 | | 598292 (11062004) | Orifice plug, 0.8mm, M5 x 6 | 1 |
| T60 | 87-42 | | 598292 (11062004) | Orifice plug, 0.8mm, M5 x 6 | 1 |

## Orifice

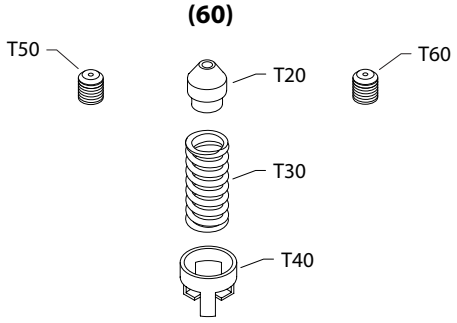
### S90P 75cc orifice 50-76

*Parts configuration*

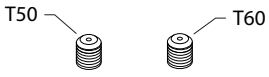
**(50 & 52)**



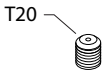

**(60)**



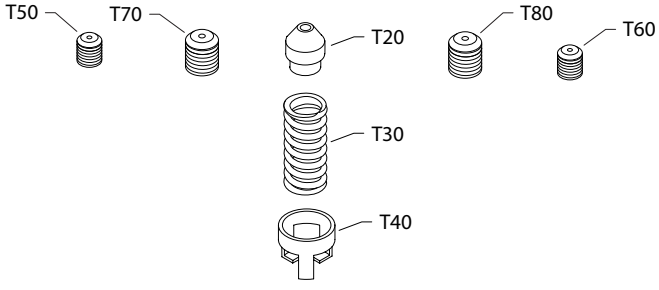

**(64)**



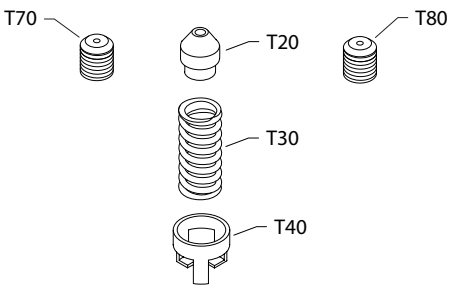

**(71)**




**(73, 74)**




**(76)**




See control drawing for orifice location.

## Orifice

*Common parts (excluding order codes 64 & 71)*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |

*Order code: 550*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801139 | Orificed check valve, .026" | 1 |
| T50 | 87-42 | | 310771 | Orifice plug, 1.2mm, M6 x 6 | 1 |
| T70 | 87-42 | | 517571 | Orifice plug, 0.9mm, M8 x 8 | 1 |
| T80 | 87-42 | | 517571 | Orifice plug, 0.9mm, M8 x 8 | 1 |

*Order code: 52*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061970 | Orificed check valve, 1.02mm | 1 |
| T50 | 87-42 | | 310771 | Orifice plug, 1.2mm, M6 x 6 | 1 |
| T70 | 87-42 | | 739144 | Orifice plug, 0.8mm, M6 x 6 | 1 |
| T80 | 87-42 | | 739144 | Orifice plug, 0.8mm, M6 x 6 | 1 |

*Order code: 60*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801136 | Orificed check valve, .018" | 1 |
| T50 | 87-42 | | 598292 (11062004) | Orifice plug, 0.8mm, M5 x 6 | 1 |
| T60 | 87-42 | | 598292 (11062004) | Orifice plug, 0.8mm, M5 x 6 | 1 |

*Order code: 64*

| | | | | | |
|---|---|---|---|---|---|
| T50 | 87-42 | | 617159 | Orifice plug, 1.8mm, M5 x 6 | 1 |
| T60 | 87-42 | | 617159 | Orifice plug, 1.8mm, M5 x 6 | 1 |

*Order code: 71*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061957 | Orificed plug, 0.79mm | 1 |

*Order code: 73*

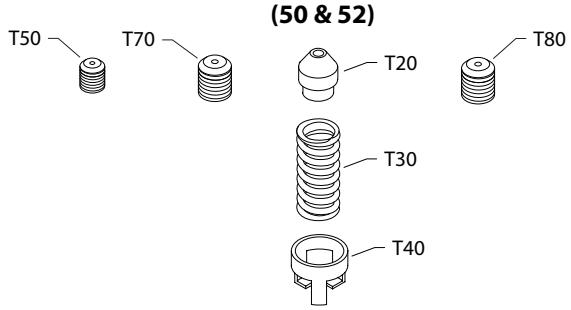
| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801137 | Orificed check valve, .022" | 1 |
| T50 | 87-42 | | 598292 (11062004) | Orifice plug, 0.8mm, M5 x 6 | 1 |
| T60 | 87-42 | | 598292 (11062004) | Orifice plug, 0.8mm, M5 x 6 | 1 |
| T70 | 87-42 | | 714477 | Orifice plug, 0.8mm, M8 x 8 | 1 |
| T80 | 87-42 | | 714477 | Orifice plug, 0.8mm, M8 x 8 | 1 |

Part numbers continue to the next 2 pages.

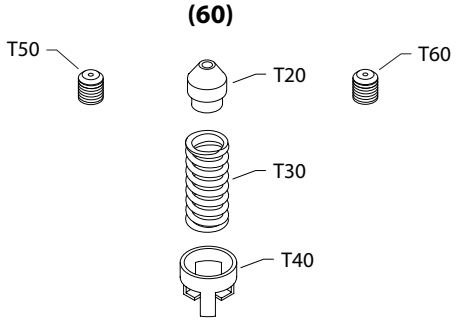
## Orifice

*Parts configuration*

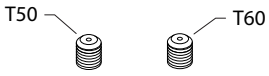
**(50 & 52)**



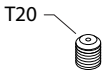

**(60)**



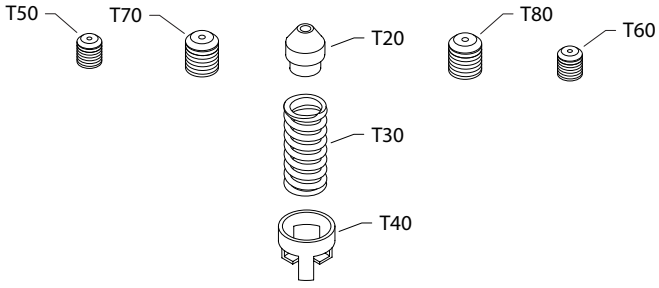

**(64)**



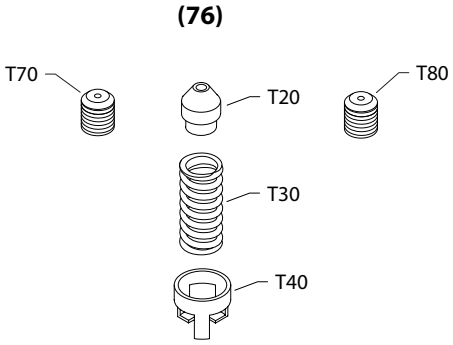

**(71)**




**(73, 74)**




**(76)**




See control drawing for orifice location.

## Orifice

*Common parts (excluding order codes 64 & 71)*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |

*Order code: 74*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061958 | Orificed check valve, .032" | 1 |
| T50 | 87-42 | | 598292 (11062004) | Orifice plug, 0.8mm, M5 x 6 | 1 |
| T60 | 87-42 | | 598292 (11062004) | Orifice plug, 0.8mm, M5 x 6 | 1 |
| T70 | 87-42 | | 755793 | Orifice plug, 1.0mm, M8 x 8 | 1 |
| T80 | 87-42 | | 755793 | Orifice plug, 1.0mm, M8 x 8 | 1 |

*Order code: 76*

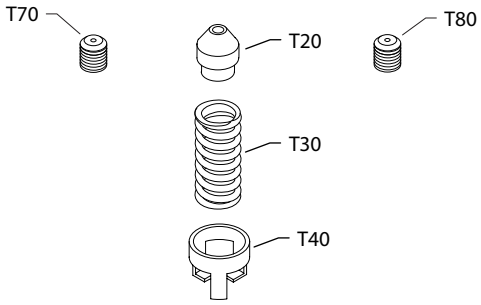
| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801139 | Orificed check valve, .026" | 1 |
| T70 | 87-42 | | 578542 | Orifice plug, 0.8mm, M6 x 8 | 1 |
| T80 | 87-42 | | 578542 | Orifice plug, 0.9mm, M6 x 8 | 1 |

## Orifice

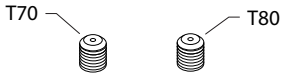
### S90P 75cc orifice 78-A7

*Parts configuration*

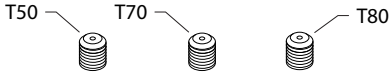
**(78, 99, A5, A6 & A7)**



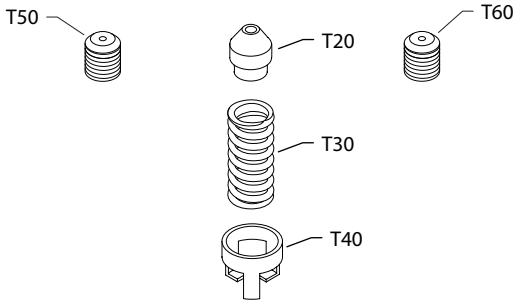

**(82, A2 & A4)**




**(84)**




**(A3)**




See control drawing for orifice location.

## Orifice

*Common parts (excluding 82, 84, A2 & A4)*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |

*Order code: 78*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801139 | Orificed check valve, .026" | 1 |
| T70 | 87-42 | | 518215 | Orifice plug, 2.2mm, M6 x 6 | 1 |
| T80 | 87-42 | | 518215 | Orifice plug, 2.2mm, M6 x 6 | 1 |

*Order code: 82*

| | | | | | |
|---|---|---|---|---|---|
| T70 | 87-42 | | 310771 | Orifice plug, 1.2mm, M6 x 6 | 1 |
| T80 | 87-42 | | 310771 | Orifice plug, 1.2mm, M6 x 6 | 1 |

*Order code: 84*

| | | | | | |
|---|---|---|---|---|---|
| T50 | 87-42 | | 310771 | Orifice plug, 1.2mm, M6 x 6 | 1 |
| T70 | 87-42 | | 310771 | Orifice plug, 1.2mm, M6 x 6 | 1 |
| T80 | 87-42 | | 310771 | Orifice plug, 1.2mm, M6 x 6 | 1 |

*Order code: 99*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801301 | Orificed check valve, .047" | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T70 | 87-42 | | 517572 | Orifice plug, 1.5mm, M6 x 6 | 1 |
| T80 | 87-42 | | 517572 | Orifice plug, 1.5mm, M6 x 6 | 1 |

*Order code: A2*

| | | | | | |
|---|---|---|---|---|---|
| T70 | 87-42 | | 043364 | Orifice plug, 1.02mm, M6 x 6 | 1 |
| T80 | 87-42 | | 043364 | Orifice plug, 1.02mm, M6 x 6 | 1 |

*Order code: A3*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061958 | Orificed check valve, .032" | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T50 | 87-42 | | 704650 (11062018) | Orifice plug, 0.7mm, M8 x 8 | 1 |
| T60 | 87-42 | | 704650 (11062018) | Orifice plug, 0.7mm, M8 x 8 | 1 |

*Order code: A4*

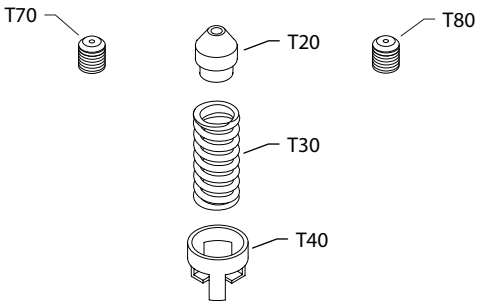
| | | | | | |
|---|---|---|---|---|---|
| T70 | 87-42 | | 578542 | Orifice plug, 0.8mm, M6 x 8 | 1 |
| T80 | 87-42 | | 578542 | Orifice plug, 0.8mm, M6 x 8 | 1 |

Part numbers continue to the next 2 pages.

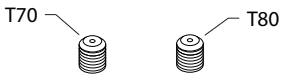
## Orifice

*Parts configuration*

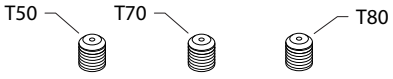
**(78, 99, A5, A6 & A7)**



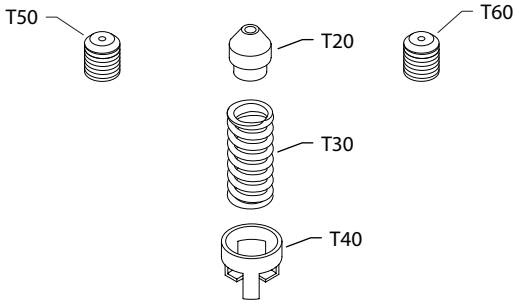

**(82, A2 & A4)**




**(84)**




**(A3)**




See control drawing for orifice location.

## Orifice

*Common parts (excluding 82, 84, A2 & A4)*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |

*Order code: A5*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061970 | Orificed check valve, 0.40" | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T70 | 87-42 | | 578542 | Orifice plug, 0.8mm, M6 x 8 | 1 |
| T80 | 87-42 | | 578542 | Orifice plug, 0.9mm, M6 x 8 | 1 |

*Order code: A6*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801139 | Orificed check valve, .026" | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T70 | 87-42 | | 507333 | Orifice plug, 0.6mm, M6 x 4 | 1 |
| T80 | 87-42 | | 507333 | Orifice plug, 0.6mm, M6 x 4 | 1 |

*Order code: A7*

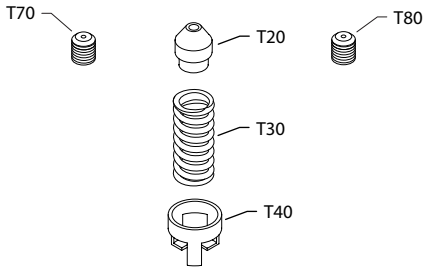
| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061958 | Orificed check valve, .032" | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T70 | 87-42 | | 578542 | Orifice plug, 0.8mm, M6 x 8 | 1 |
| T80 | 87-42 | | 578542 | Orifice plug, 0.9mm, M6 x 8 | 1 |

## Orifice

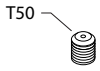
### S90P 75cc orifice A8-C4

*Parts configuration*

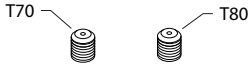
**(A8, A9 & C1)**



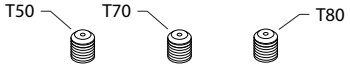

**(B1, B7, B8 & B9)**



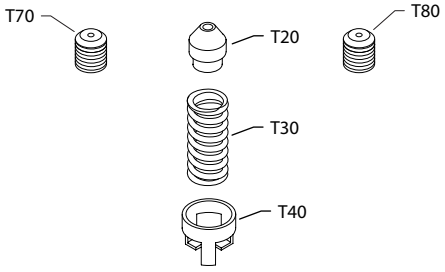

**(B2)**



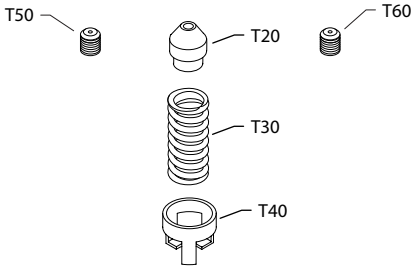

**(B3)**




**(B2)**




**(C2 & C3)**




**(C4)**

See control drawing for orifice location.

## Orifice

*Order code: A8*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061970 | Orificed check valve, 0.40″ | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T70 | 87-42 | | 508014 | Orifice plug, 1.0mm, M6 x 8 | 1 |
| T80 | 87-42 | | 508014 | Orifice plug, 1.0mm, M6 x 8 | 1 |

*Order code: A9*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061993 | Orificed check valve, 1.57mm | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T70 | 87-42 | | 507042 | Orifice plug, 1.5mm, M6 x 8 | 1 |
| T80 | 87-42 | | 507042 | Orifice plug, 1.5mm, M6 x 8 | 1 |

*Order code: B1*

| | | | | | |
|---|---|---|---|---|---|
| T50 | 87-42 | | 507042 | Orifice plug, 1.5 mm, M6 x 8 | 1 |

*Order code: B2*

| | | | | | |
|---|---|---|---|---|---|
| T70 | 87-42 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |
| T80 | 87-42 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |

*Order code: B3*

| | | | | | |
|---|---|---|---|---|---|
| T50 | 87-42 | | 507042 | Orifice plug, 1.5mm, M6 x 8 | 1 |
| T70 | 87-42 | | 739144 | Orifice plug, 0.8mm, M6 x 6 | 1 |
| T80 | 87-42 | | 739144 | Orifice plug, 0.8mm, M6 x 6 | 1 |

*Order code: B6*

| |
|---|
| No parts |

*Order code: B7*

| | | | | | |
|---|---|---|---|---|---|
| T50 | 87-42 | | 578542 | Orifice plug, 0.8mm, M6 x 8 | 1 |

*Order code: B8*

| | | | | | |
|---|---|---|---|---|---|
| T50 | 87-42 | | 508014 | Orifice plug, 1.0mm, M6 x 8 | 1 |

*Order code: B9*

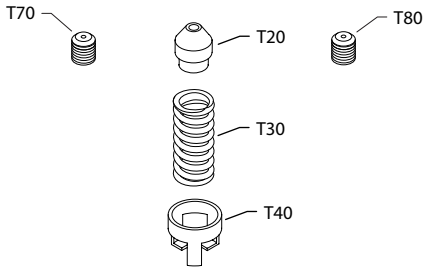
| | | | | | |
|---|---|---|---|---|---|
| T50 | 87-42 | | 516598 | Orifice plug, 1.2mm, M6 x 8 | 1 |

Part numbers continue to the next 2 pages.

## Orifice

*Parts configuration*

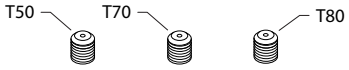
**(A8, A9 & C1)**



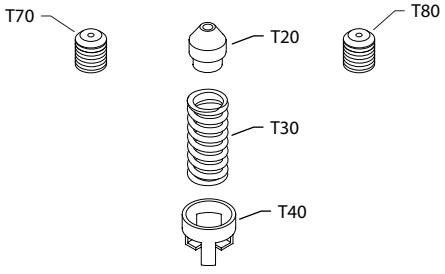

**(B1, B7, B8 & B9)**

**(B2)**

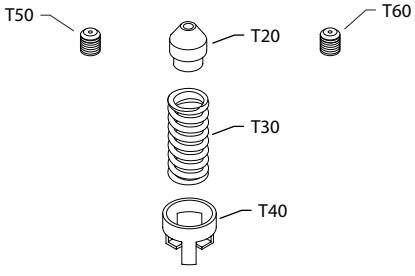
**(B3)**




**(B2)**




**(C2 & C3)**




**(C4)**

See control drawing for orifice location.

## Orifice

*Order code: C1*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801139 | Orificed check valve, 0.26" | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T70 | 87-42 | | 714477 | Orifice plug, 0.8mm, M8 x 8 | 1 |
| T80 | 87-42 | | 714477 | Orifice plug, 0.8mm, M8 x 8 | 1 |

*Order code: C2*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801136 | Orificed check valve, 0.18" | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T50 | 87-42 | | 639120 | Orifice plug, 1.0mm, M5 x 6 | 1 |
| T60 | 87-42 | | 639120 | Orifice plug, 1.0mm, M5 x 6 | 1 |

*Order code: C3*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801139 | Orificed check valve, 0.26" | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T50 | 87-42 | | 11061989 | Orifice plug, 1.3mm, M5 x 6 | 1 |
| T60 | 87-42 | | 11061989 | Orifice plug, 1.3mm, M5 x 6 | 1 |

*Order code: C4*

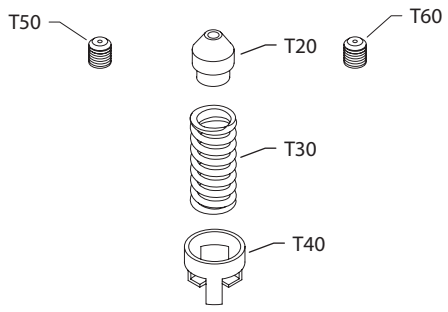
| | | | | | |
|---|---|---|---|---|---|
| T50 | 87-42 | | 639161 | Orifice plug, 1.4mm, M5 x 6 | 1 |
| T60 | 87-42 | | 639161 | Orifice plug, 1.4mm, M5 x 6 | 1 |

## Orifice

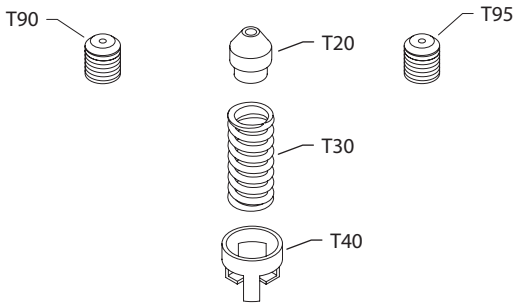
### S90P 75cc orifice C5-G8

*Parts configuration*

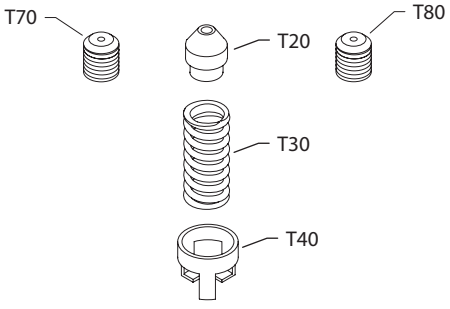
**(C5, C6, C7 & C9)**



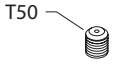

**(C8)**



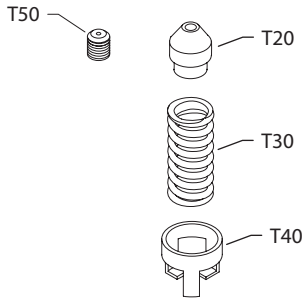

**(D2)**




**(G1)**




**(G4 & G8)**




See control drawing for orifice location.

## Orifice

*Common parts (excluding order code G1)*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |

*Order code: C5*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061958 | Orificed check valve, .032" | 1 |
| T50 | 87-42 | | 639161 | Orifice plug, 1.4 mm, M5 x 6 | 1 |
| T60 | 87-42 | | 639161 | Orifice plug, 1.4 mm, M5 x 6 | 1 |

*Order code: C6*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061970 | Orificed check valve, 0.40" | 1 |
| T50 | 87-42 | | 639161 | Orifice plug, 1.4 mm, M5 x 6 | 1 |
| T60 | 87-42 | | 639161 | Orifice plug, 1.4 mm, M5 x 6 | 1 |

*Order code: C7*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061981 | Orificed check valve, 1.37 mm | 1 |
| T50 | 87-42 | | 639161 | Orifice plug, 1.4 mm, M5 x 6 | 1 |
| T60 | 87-42 | | 639161 | Orifice plug, 1.4 mm, M5 x 6 | 1 |

*Order code: C8*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801139 | Orificed check valve, .026" | 1 |
| T90 | 87-42 | | 704650 (1162018) | Orifice plug, 0.7 mm, M8 x 8 | 1 |
| T95 | 87-42 | | 704650 (1162018) | Orifice plug, 0.7 mm, M8 x 8 | 1 |

*Order code: C9*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061958 | Orificed check valve, .032" | 1 |
| T50 | 87-42 | | 639146 | Orifice plug, 1.2 mm, M5 x 6 | 1 |
| T60 | 87-42 | | 639146 | Orifice plug, 1.2 mm, M5 x 6 | 1 |

*Order code: D2*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061981 | Orificed check valve, 1.37 mm | 1 |
| T70 | 87-42 | | 714477 | Orifice plug, 0.8 mm, M8 x 8 | 1 |
| T80 | 87-42 | | 714477 | Orifice plug, 0.8 mm, M8 x 8 | 1 |

*Order code: D4*

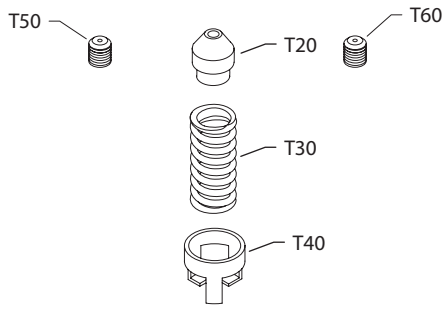
| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801139 | Orificed check valve, .026" | 1 |
| T90 | 87-42 | | 704650 (11062018) | Orifice plug, 0.7 mm, M8 x 8 | 1 |
| T95 | 87-42 | | 704650 (11062018) | Orifice plug, 0.7 mm, M8 x 8 | 1 |

Part numbers continue to the next 2 pages.

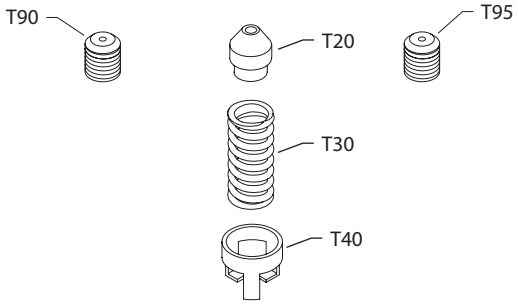
## Orifice

*Parts configuration*

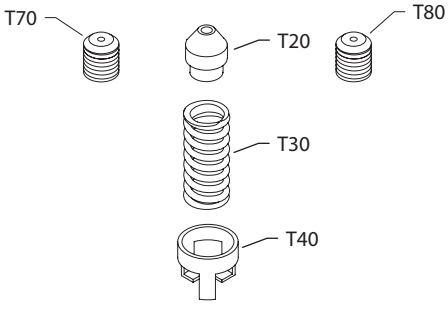
**(C5, C6, C7 & C9)**



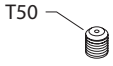

**(C8)**



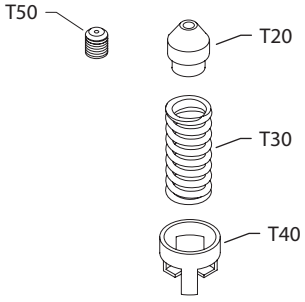

**(D2)**




**(G1)**




**(G4 & G8)**




See control drawing for orifice location.

## Orifice

*Common parts (excluding order code G1)*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |

*Order code: G1*

| | | | | | |
|---|---|---|---|---|---|
| T50 | 87-42 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |

*Order code: G4*

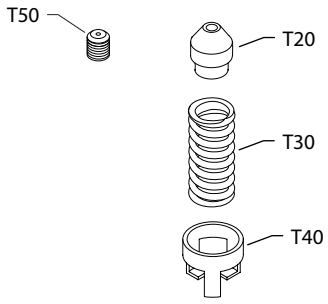
| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801136 | Orificed check valve, .018" | 1 |
| T50 | 87-42 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |

## Orifice

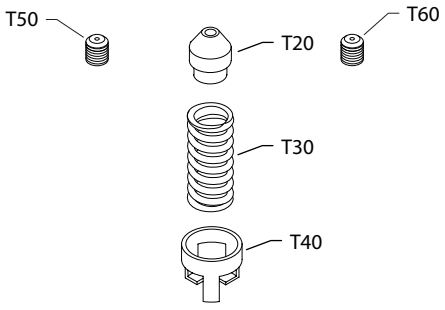
### S90P 75cc orifice G8-P1

*Parts configuration*

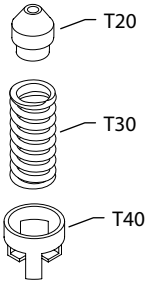
**(GB, GD, GF & GJ)**




**(H1, H9 & K2)**




**(K1)**




**(P1)**

See control drawing for orifice location.

## Orifice

*Common parts (excluding order code P1)*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |

*Order code: G8*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801139 | Orificed check valve, .026" | 1 |
| T50 | 87-42 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |

*Order code: GB*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061958 | Orificed check valve, .032" | 1 |
| T50 | 87-42 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |

*Order code: GD*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061993 | Control orifice kit, 1.57 mm | 1 |
| T50 | 87-42 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |

*Order code: GF*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061970 | Control orifice kit, 0.040" | 1 |
| T50 | 87-42 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |

*Order code: GJ*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061981 | Control orifice kit, 1.37 mm | 1 |
| T50 | 87-42 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |

*Order code: H1*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061958 | Orificed check valve, .032" | 1 |
| T50 | 87-42 | | 714477 | Orifice plug, 0.8 mm, M8 x 8 | 1 |
| T60 | 87-42 | | 714477 | Orifice plug, 0.8 mm, M8 x 8 | 1 |

*Order code: H9*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801139 | Orificed check valve, .026" | 1 |
| T50 | 87-42 | | 714477 | Orifice plug, 0.8 mm, M8 x 8 | 1 |
| T60 | 87-42 | | 714477 | Orifice plug, 0.8 mm, M8 x 8 | 1 |

*Order code: K1*

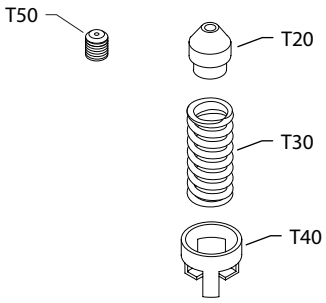
| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061981 | Orificed check valve, 1.37 mm | 1 |

Part numbers continue to the next 2 pages.

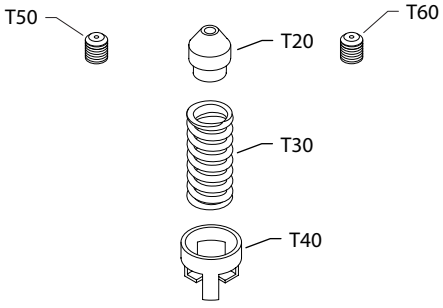
## Orifice

*Parts configuration*

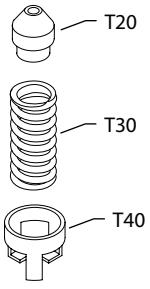
**(GB, GD, GF & GJ)**




**(H1, H9 & K2)**




**(K1)**




**(P1)**

See control drawing for orifice location.

## Orifice

*Common parts (excluding order code P1)*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |

*Order code: K2*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061958 | Orificed check valve, .032" | 1 |
| T50 | 87-42 | | 639104 | Orifice plug, 0.7mm, M5 x 6 | 1 |
| T60 | 87-42 | | 639104 | Orifice plug, 0.7mm, M5 x 6 | 1 |

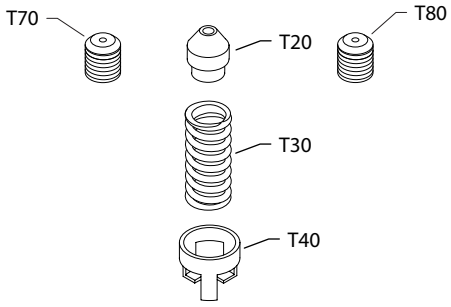
*Order code: P1*

| | | | | | |
|---|---|---|---|---|---|
| T70 | 87-42 | | 508014 | Orifice plug, 1.0 mm, M6 x 8 | 1 |
| T80 | 87-42 | | 508014 | Orifice plug, 1.0 mm, M6 x 8 | 1 |

## Orifice

### S90P 75cc orifice Z1, Z3

*Parts configuration*




See control drawing for orifice location.

## Orifice

*Order code: Z1*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061958 | Orificed check valve, .032" | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T70 | 87-42 | | 519659 | Orifice plug, 1.0 mm, M6 x 6 | 1 |
| T80 | 87-42 | | 519659 | Orifice plug, 1.0 mm, M6 x 6 | 1 |

*Order code: Z3*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061970 | Orificed check valve, .040" | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T70 | 87-42 | | 519659 | Orifice plug, 1.0 mm, M6 x 6 | 1 |
| T80 | 87-42 | | 519659 | Orifice plug, 1.0 mm, M6 x 6 | 1 |

## overhaul seal kit

### S90 75cc pump overhaul seal kit

*Overhaul seal kit*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| Q210 | 87-42 | | 11095648 | Overhaul seal kit | 1 |
| B90 | 87-42 | | 9803390 | Control screen | 3 |
| C70 | 88-22 | | 314419 (9007276-0114) | Screw (SB-1988-016 & SB-1998-041) | 4 |
| E40 | 87-02 | | 505412 (9003509-0008) | Seal nut | 2 |
| E50 | 87-02 | | 517377 | O-ring | 1 |
| E60 | 87-02 | | 517228 (5000206) | Screw (SB-1994-018) | 6 |
| F11 | 87-02 | | 6765569 (9004100-1270) | O-ring | 2 |
| F12 | 87-02 | | 507797 (8700066) | Piston ring | 2 |
| F40 | 87-02 | | 363754 (9004104-1350) | O-ring | 2 |
| F50 | 89-41 | | 9004104-0320 | O-ring | 2 |
| F112 | 87-02 | | 505412 (9003509-0008) | Seal nut | 1 |
| F124 | 87-02 | | 336826 | Seal nut | 1 |
| F212 | 87-02 | | 505412 (9003509-0008) | Seal nut | 1 |
| F224 | 87-02 | | 336826 | Seal nut | 1 |
| G30 | 92-19 | | 8100565 | End cap gasket | 1 |
| G30 | 87-02 | 96-04 | 8100466 | End cap gasket (SB-1992-003) | 1 |
| G30 | 87-02 | 92-18 | 8100212 | End cap gasket (SB-1992-003) | 1 |
| J40 | 87-02 | | 680892 (9004104-0440) | O-ring | 1 |
| J50 | 87-02 | | 056739 (9004104-1580) | O-ring | 1 |
| K50 | 87-02 | | 001149 (9004201-6200) | O-ring | 1 |
| K51 | 87-02 | | 9004201-7500 | O-ring | 1 |
| L25 | 87-02 | | 519671 | Lip seal (SB-2005-007) | 1 |
| N15 | 87-42 | | 001172 (9004201-9000) | O-ring | 1 |
| N98 | 87-42 | | 9004104-0320 | O-ring | 1 |
| P02 | 87-02 | | 688721 (9004201-0170) | O-ring | 2 |
| P06 | 87-02 | | 071811 | O-ring | 2 |
| P13 | 87-02 | | 544742 (9004105-0190) | O-ring | 2 |
| P20 | 87-02 | | 9004105-0190 | O-ring | 2 |
| P21 | 87-02 | | 9006110-0160 | O-ring | 2 |

## Service bulletin

**SB-1988-009**

### Products affected

Series 90 pumps

### Subject

Servo arm change

### Description

As a product improvement, Danfoss has changed the series 90 pump servo arm and swashplate (item D10 and D50). The old style servo arm and swashplate will become obsolete. Because this change creates non-interchangeability between new and old swashplates, servo arms, and possibly servo piston (item S10) and slider block (item F20), separate servo arms and swashplates will no longer be sold as service parts.

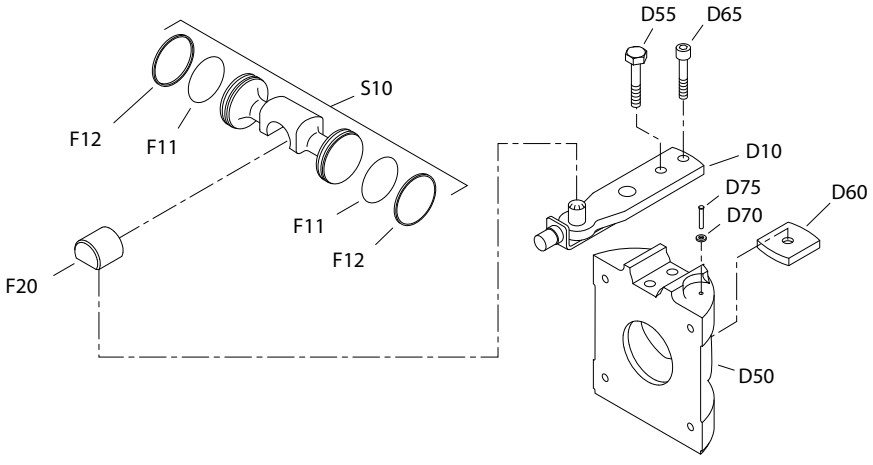
Also, the new servo arm is pressed into a groove in the new swashplate. This situation requires special tooling for assembly, therefore, pre-assembled kits will be created for 55, 75, and 100 cc pumps. The kits will work in any vintage pump.

The kit for 55 cc pumps will include all the items in the figure, except item S10

The kit for 75 cc pumps will include all items in the figure.

The kit for 100 cc pumps will include all items in the figure, except items S10 and F20.

The slider block (item F20) in 55 cc pumps and the slider block and the servo piston (item S10) in 75 cc pumps had to be changed slightly to allow clearance for the new servo arm. The new servo piston and slider block will work in any vintage pump.




### Models affected

All 94-2xxx (55 cc), 95-2xxx (75 cc), and 96-2xxx (100 cc) pumps

### Serial numbers

Change goes into effect with s/n 88-14-xxxxx on 55 cc pumps and with s/n 88-16-xxxxx for 75 cc and 100 cc pumps

## Service bulletin

### Part numbers affected

- New 55 cc slider block is p/n 8000189
- New 75 cc slider block is p/n 8100368
- New 100 cc slider block is p/n 8100369
- New 55 cc servo arm/swashplate kit is p/n 8000201
- New 75 cc servo arm/swashplate kit is p/n 8100377
- New 100 cc servo arm/swashplate kit is p/n 8200192

### Parts disposition

Non-interchangeable

## Service bulletin

**SB-1988-016**

### Products affected

Series 90 pumps

### Subject

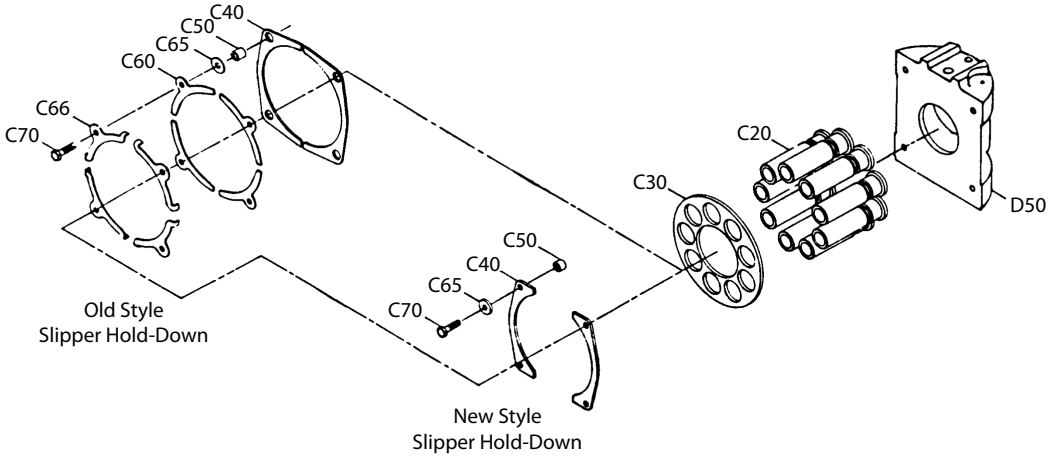
Change to fix clearance slipper hold down.

### Description

As a product improvement, Danfoss has simplified the design of the series 90 pump slipper hold down mechanism. The hold down changes from spring loaded with a fixed maximum clearance design.

The leaf spring (item C60) and spring aligner (item C66) will be eliminated and will not be available as service parts. The spacer (item C50), bearing (item C40), and washer (item C65) will change and the old part numbers will not be available as service parts. The swashplate (item D50), pistons (item C20), slipper retainer (item C30), and screws (item C70) will remain the same.

If any of the affected parts (item C66, C60, C65, C50, or C40) require replacement during repair of older style pumps, discard these parts and rebuild using new style parts (items C40, C50, and C65). As before, the screws (item C70) which are coated with locking compound MUST always be replaced after removal.




### Models affected

All 94-2xxx (55 cc), 95-2xxx (75 cc), and 96-2xxx (100 cc) pumps

### Serial numbers

- 55 cc pumps, 94-2xxx, changed at s/n 88-43-xxxxx
- 75 cc pumps, 95-2xxx, changed at s/n 88-22-xxxxx
- 100cc pumps, 96-2xxx, changed at s/n 88-20-xxxxx

### Part numbers affected

| Item | Qty/pump | 55cc | 75cc | 100cc |
|---|---|---|---|---|
| C40 | 2 | 8000137 | 8100294 | 8200144 |
| C50 | 4 | 8000138 | 8100295 | 8200145 |

## Service bulletin

| Item | Qty/pump | 55cc | 75cc | 100cc |
|---|---|---|---|---|
| C65 | 4 | 9009625-0159 | 9009625-0159 | 9009625-0159 |
| C70 | 4 | 314419 (9007276-0114) | 9007276-0099 | 9007276-0099 |

### Parts disposition

Non-interchangeable as individual parts, but new style C40, C50, and C65 can be used in any vintage pump, if all three are changed.

## Service bulletin

**SB-1988-023**

### Products affected

Series 90 pumps and motors

### Subject

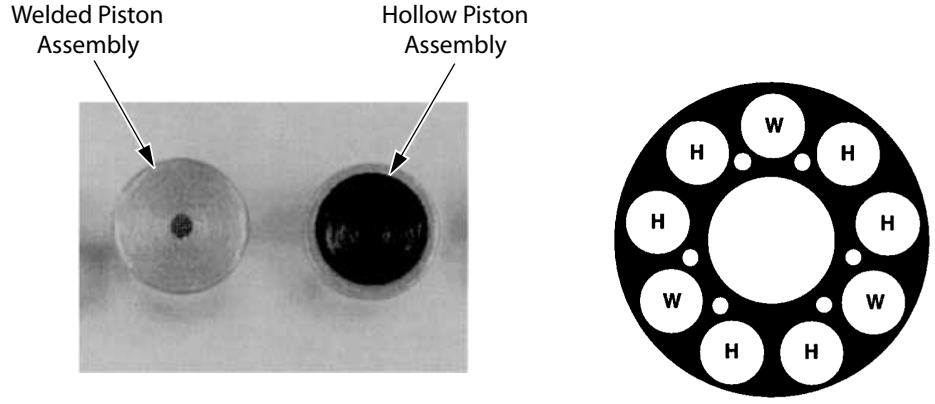
Piston improvement

### Description

Product Information Bulletin PIB-8801 (March, 1988) announced the incorporation of fabricated (welded) piston assemblies, replacing non-fabricated (hollow) piston assemblies, in the cylinder blocks of all Series 90 pumps and motors. This change increases the overall efficiency of the Series 90 product line.

To simplify service parts inventory for all Series 90 units, only individual welded piston assemblies will be available as spare parts. The hollow pistons will be obsoleted. Part numbers for individual welded piston assemblies are listed in this bulletin.

Since all Series 90 pumps and motors have nine (9) pistons, welded pistons being used to replace hollow pistons during repair MUST be install in the cylinder block symmetrically, in multiples of three (3).




When replacing hollow pistons with welded pistons, it is mandatory that the welded pistons be incorporated symmetrically in multiples of three.

### Models affected

All series 90 pumps and motors: 93-xxxx, 94-xxxx, 95-xxxx, and 96-xxxx pumps

### Serial numbers

Welded pistons will be incorporated into all series 90 pumps and motors by the end of the first quarter of 1998.

### Part numbers affected

| Part number | Description |
|---|---|
| 706101 | Piston assembly, welded - 42 cc |
| 367672 | Piston assembly, welded - 55 cc |
| 708230 | Piston assembly, welded - 75 cc |
| 364000 | Piston assembly, welded - 100 cc |

## Service bulletin

**Parts disposition**

Interchangeable

## Service bulletin

### SB-1989-002

#### Products affected

Series 90 pumps

#### Subject

Incorporation of adjustable charge relief valve

#### Description

As a product improvement Danfoss is incorporating an adjustable charge relief valve on all series 90 variable displacement pumps. This design replaces the previous shim adjustable charge relief valve. The new design valve provides a range of pressure adjustment which covers the available charge pressure options of 290, 348, and 406 psi [20, 24, and 28 bar].

This improvement changes the design of the charge relief valve poppet and plug. The new style charge relief may protrude from the pump end cap approximately 0.27 in [6.9 mm] farther than the adjustable relief valve.

To adjust the new design valve, first install a gauge to measure charge pressure as described in the series 90 service manual. Loosen the adjustment lock nut with a 1-1/16 in hex wrench. Operate the pump at an input speed of 1700 to 2000 rpm and turn the adjustment plug with a large screwdriver while observing the charge pressure. Clockwise rotation of the plug increases the setting, while counterclockwise rotation decreases the setting at a rate of approximately 50 psi [3.4 bar] per turn. Once the desired setting is achieved, torque the lock nut to 34-41 lbf·ft [46-55 Nm], and remove the charge pressure gauge.

Danfoss will offer an adjustable charge relief valve kit for sale as a service part. This kit can be used to service any vintage series 90 variable pump. Since the new and old style charge relief valves are interchangeable as an assembly, the old style parts will no longer be available as service parts.

#### Models affected

All 93-2xxx, 94-2xxx, 95-2xxx, and 96-2xxx pumps

#### Part numbers affected

| Part number | Description |
|---|---|
| 8002K000-A | Adjustable charge relief valve kit - new style (includes poppet, spring, plug, O-ring, and nut) |

#### Parts disposition

Interchangeable (as an assembly)

### SB-1989-003

#### Products affected

Series 90 pumps

#### Subject

Swashplate leveler spring seat change and servo pressure relief valve deletion

## Service bulletin

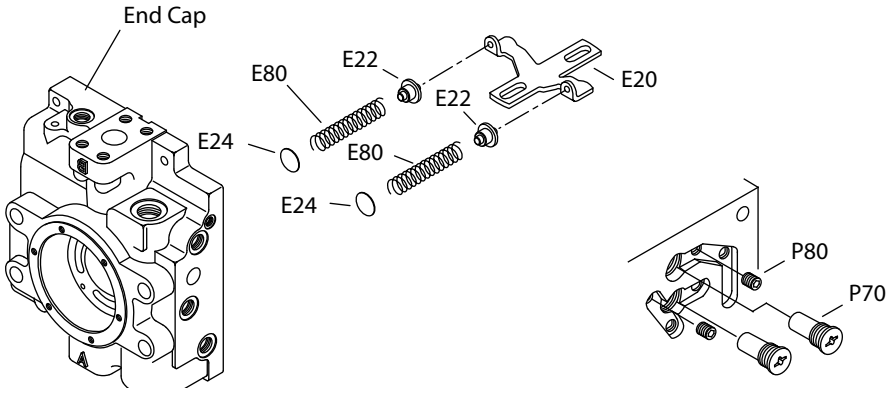
### Description

As a product improvement, Danfoss is adding hardened shims between the swashplate leveler springs and the end cap in series 90 variable pumps. In addition, the leveler spring seats have been hardened, and are now separate pieces from the leveler. Previously, the seats were peened to the leveler.

These improvements require some minor changes in the repair procedures for the series 90 pumps. When installing the lever springs (E80), take care that the spring seats (E22) are in position on the swashplate leveler (E20). Before installing the end cap, assemble the hardened shims (E24) into their pockets in the end cap and retain with petroleum jelly.

In an unrelated change, the servo pressure check relief valves installed in the pump end cap (or rotation valve housing) are no longer required. These valves (P70) will be replaced by standard socket head, straight thread O-ring plugs.

The swashplate leveler, plus the separate spring seats, are directly interchangeable with the old design part. When performing major repairs on any series 90 pump, the hardened shims should be installed between the leveler springs and the end cap. The plugs are also interchangeable with the servo pressure check relief valves.




### Models affected

All 93-2xxx (42 cc), 94-2xxx (55 cc), 95-2xxx (75 cc), and 96-2xxx (100 cc) pumps

### Serial numbers

The hardened swashplate leveler spring seats and hardened shims incorporated at serial number 89-09-xxxxx. Due to the interchangeability of the straight thread plugs with the servo pressure check relief valves, this change will be incorporated during the 1st quarter of 1989.

### Part numbers affected

| Item | Description | Qty | 42cc | 55cc | 75cc | 100cc |
|---|---|---|---|---|---|---|
| E20 | Leveler | 1 | 673897 | 8000094 | 8100130 | 8200007 |
| E22 | Spring seat | 2 | 358820 | 358838 | 358523 | 358846 |
| E24 | Shim | 2 | 359034 | 359042 | 359042 | 359059 |
| P70 | Plug | 2 | 9005110-4400 | 9005110-4400 | 9005110-4400 | 9005110-4400 |

### Parts disposition

Non-interchangeable

## Service bulletin

**SB-1989-006**

### Products affected

Series 90 pumps

### Subject

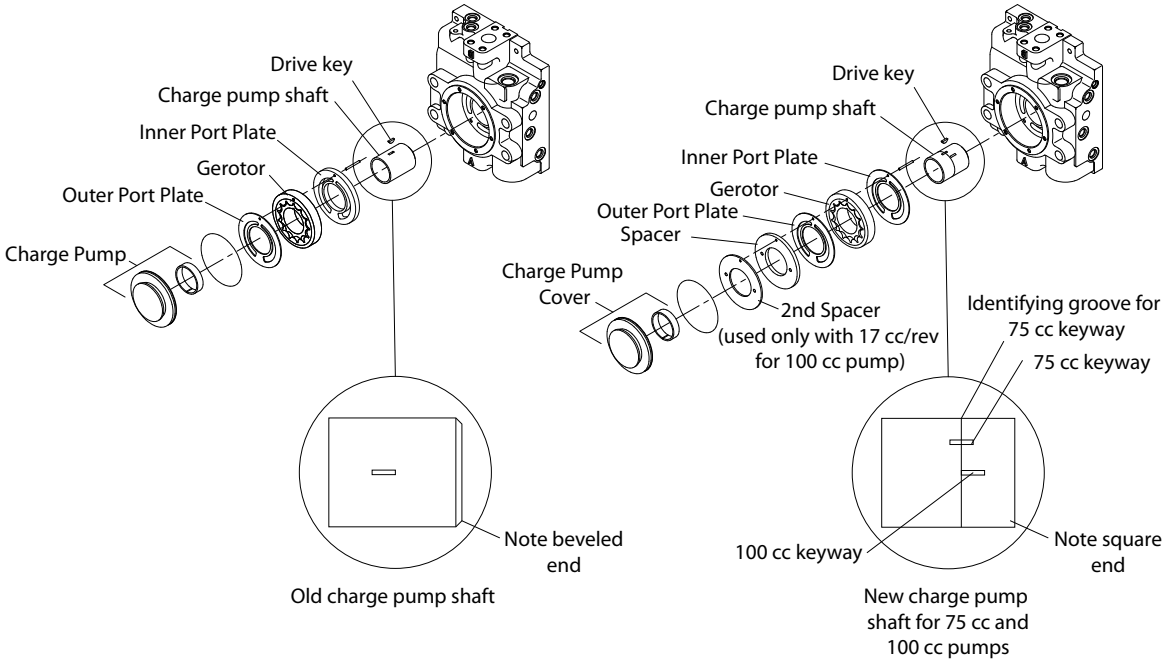
Charge pump design change

### Description

The original series 90 charge pump design included two (2) port plates, one (1) on each side of the gerotor. If the charge pump displacement was less than the maximum available for the pump's frame size, the inside port plate was thicker than the 0.050 in. (1.27 mm) outside port plate.

The new design charge pump will always have two (2) 0.050 in (1.27 mm) thickness port plates, one (1) on each side of the gerotor. Additionally, if the charge pump displacement is less than the maximum available for the pump's frame size, one (1) or two (2) spacers were install between the outside port plate and the charge pump cover.

In addition, the location of the keyway in the change pump shaft has been changed to ensure full engagement of the drive key in the gerotor. The new charge pump shaft used in 75 and 100 cc pumps has two (2) keyways. The rear keyway (farthest from the end cap and splined end of the shaft) is used for 75 cc pumps, while the front keyway is used for 100 cc pumps. The new style charge pump shafts for 55, 75, and 100 cc pumps also changed from having a beveled end to a square end on the end closest to the pump end cap.




### Models affected

All 94-2xxx (55 cc), 95-2xxx (75 cc), and 96-2xxx (100 cc) pumps

## Service bulletin

### Serial numbers

- A-89-17-xxxxx for all pumps manufactured in Ames, Iowa.
- N-89-07-xxxxx for all 95-2xxx (75 cc) pumps manufacture in Neumunster, West Germany.
- N-88-48-xxxxx for all 96-2xxx (100 cc) pumps manufacture in Neumunster, West Germany.

### Part numbers affected

Proper part number versus pump serial number information can be found in the series 90 Parts Manuals.

The thicker inside port plates (thicker than 0.050 in (1.27 mm) will be obsoleted and no longer available as service parts. If these parts require replacement, use the 0.050 in. 1.27 mm) port plate and appropriate spacer(s) as service parts. On 100 cc pumps only, the new charge pump shaft must be used if the new style spacer is used on 55 and 75 cc pumps, the change pump shaft clearance pocket in the end cap changed from a beveled to a straight corner to correspond with the change in the charge pump shaft. Old style charge pump shafts will remain available as service parts and must be used in the 55 and 75 cc beveled pocket end caps.

Old style (beveled pocket) end caps will be obsoleted and no longer available as service parts. If an old style end cap needs replacement, new style end caps can be used with any vintage charge pump hardware and charge pump shaft.

### Parts disposition

Non-interchangeable- must use correct charge pump shaft per serial number of pump

## Service bulletin

**SB-1989-023**

### Products affected

Series 90 100cc variable pumps

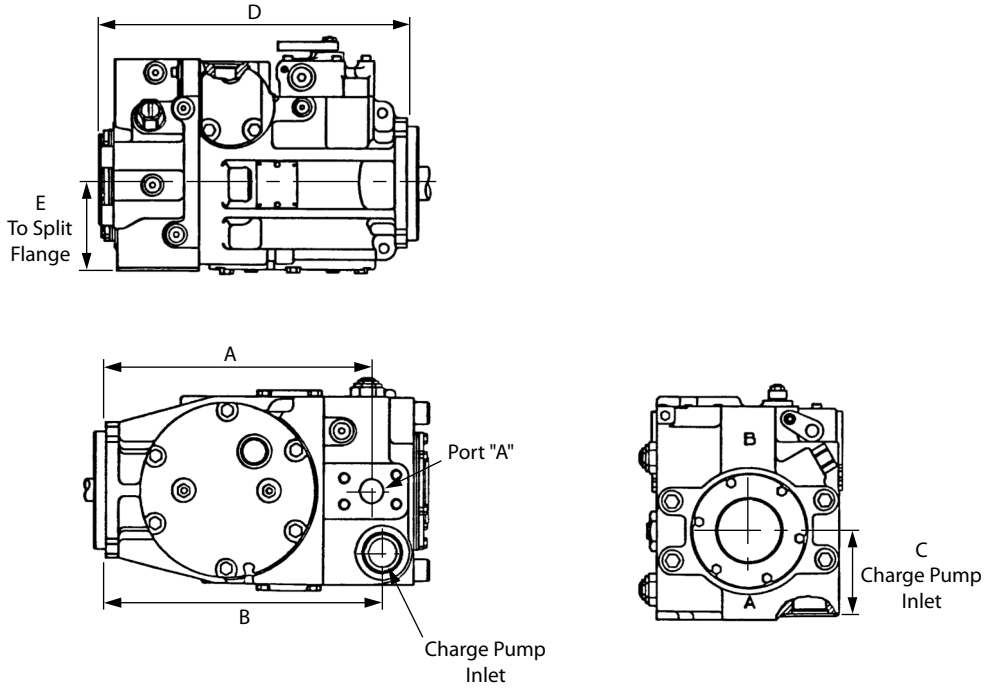
### Subject

Reduction in overall length

### Description

To improve application flexibility, the overall length of series 90 100 cc pumps will be reduced by .39" [10 mm]. Some port locations will also change.

Shown below are all dimensional differences between the current and new design pumps.




| Dim | Old | New |
|---|---|---|
| A | 11.22" [285 mm] | 10.94" [277.9 mm] |
| B | 11.73" [297.9 mm] | 11.34" [288 mm] |
| C | 3.64" [92.5 mm] | 3.53" [89.7 mm] |
| D* | 13.73" [348.7 mm] | 13.34" [338.8 mm] |
| E | 3.87" [98.3 mm] | 3.75" [95.3 mm] |

* All dimensions from the mounting face to an auxiliary pump will also be reduced by .39" [10 mm].

### Models affected

All 96-2xxx variable pumps

### Serial numbers

This change will take place at the serial number A-89-46-xxxxx

## Service bulletin

### Part numbers affected

Non-interchangeability will exist with drive shafts, which become shorter with this change,end caps, end cap gaskets, and the end cap to the variable housing retaining screws. Old style end caps will no longer be available as service parts. In the rare event that a new end cap is required, a new shaft, end cap gasket and screws will also be needed. The new part numbers are as follows:

| Item | Part number | Description | Quantity |
|---|---|---|---|
| G04 | 8200175 | End cap, side port | 1 |
| G30 | 8200166 | Gasket | 1 |
| G90 | 9007210-0608 | Screw | 1 |
| G95 | 9007210-0608 | Screw | 1 |
| J80 | 9007314-1623 | Screw | 4 |
| J80N | 9007210-1621 | Screw | 4 |
| L100 | 8200169 | Shaft, 23 tooth spline | 1 |
| L100 | 8200170 | Shaft, 13 tooth spline | 1 |
| L100 | 8200179 | Shaft, 14 tooth spline | 1 |
| L100 | 8200173 | Shaft, tapered | 1 |
| L100 | 8200176 | Shaft, straight key | 1 |

### Parts disposition

Non-interchangeable

## Service bulletin

**SB-1992-003**

### Products affected

Series 90: 55, 75,100.130 cc pumps

### Subject

Block point change: components redesign

### Description

As part of our overall series 90 product improvement program, numerous components are being redesigned. This redesign is referred to as a “block point” change. The objective of the block point change is to minimize the number of times we change the units while we convert to high volume tooling at various plant sites. These design improvements will provide increased reliability and more application flexibility. The nature of these changes makes customer re-qualification unnecessary. Old style (pre-block point) variable housings and end caps will no longer be available as spare parts.

### Models affected

All series 90 94-2xxx, 95-2xxx, 96-2xxx, and 97-2xxx variable pumps

### Serial numbers

Changes will take place at the serial number 92-12-xxxxx for 100 cc pumps

### Part numbers affected

**Housing** Thickness adjacent to the side cover has been increased

**Side cover** Thickness increased

**End cap** Match housing change; small end cap screws will be larger, orientation of charge relief valve on side port end caps has been changed from oblique to vertical.

| Item | Description | Old part number | New part number |
|---|---|---|---|
| B10 | Variable housing | 8200117 (O) | 726554 |
| E10 | Side cover | 8200011 | 748560 |
| F20 | Slider block | 8200016 (I)(O) | 8200225 (I) |
| G93 | Spacer | 8800404 | 8800564 |
| G94 | Lifting bracket | 8800401 | 8800565 |
| G95 | Washer | n/a | 9009610-3469 |
| B82 | Plug | n/a | 9005110-5600 |
| B83 | Plug | n/a | 9005110-5600 |
| G048 | End cap - twin ports | 8200157 (O) | 8200235 |
| G308 | End cap gasket | 8200166 | 8200212 |
| G908 | Screw | 9007210-0608 | 9007314-0810 |
| G958 | Screw | 9007314-0608 | 9007314-0810 |
| G968 | Screw | 9007314-0607 | 9007314-0808 |
| G046 | End cap - side ports | 8200175 (O) | 8200236 |
| G306 | End cap gasket | 8200166 | 8200212 |
| G906 | Screw | 9007314-0608 | 9007314-0810 |

## Service bulletin

| Item | Description | Old part number | New part number |
|---|---|---|---|
| G956 | Screw | 9007314-0608 | 9007314-0810 |
| G968 | Screw | 9007314-0607 | 9007314-080 |
| G172 | Plug | n/a | 9005110-4400 |
| G182 | Plug | n/a | 9005110-4400 |

### Parts disposition

Non-interchangeable

## Service bulletin

**SB-1992-011**

### Products affected

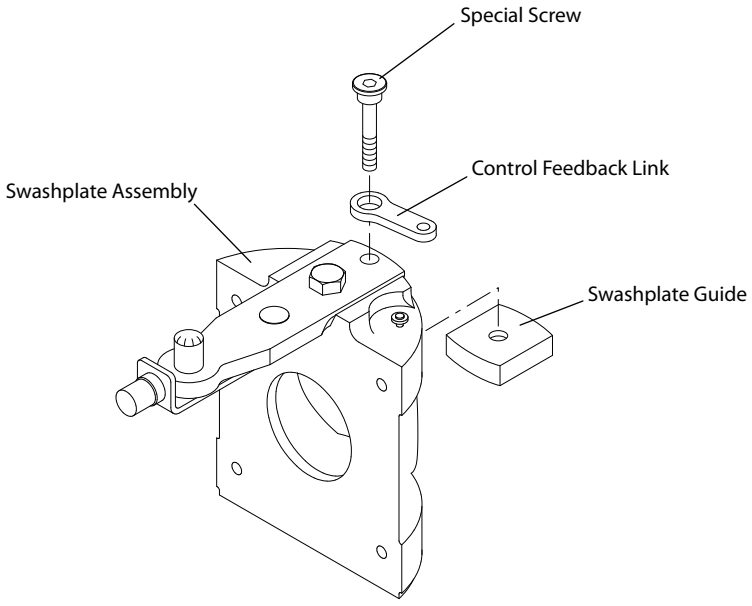
Series 90 - 055, 075, and 100 frame size pumps

### Subject

Feedback link retention

### Description

Effective in September of 1992, the feedback link in series 90 pumps will be mechanically retained to the swashplate. In the past, the link slipped over a specially ground socket head screw and could fall off the screw during assembly. The screw has changed to include a head to retain the link. The feedback link does not change.




### Models affected

All 94-2xxx (55 cc), 95-2xxx (75 cc), and 96-2xxx (100 cc) pumps

### Serial numbers

Pumps with serial number A-92-38-xxxx and beyond include the new feature.

### Part numbers affected

| Frame size | Old screw | New headed screw |
|---|---|---|
| 55 & 75 cc | 9007276-0109 | 9007375-0044 |
| 100 cc | 9007375-0030 | 9007375-0032 |

### Parts disposition

Interchangeable

## Service bulletin

**SB-1993-001**

### Products affected

Series90 - 55, 75, and 100 cc pumps

### Subject

Charge pump design change

### Description

The serial numbers mentioned apply only to Ames production units. Neumunster will incorporate the change in July or August of this year.

To improve efficiency and reliability, the number of parts in series 90 charge pumps is being reduced. The charge pump design on 55 cc through 100 cc frame sizes is being changed such that the outer port plate (H30) is an integral part of the charge pump cover (J15) and distance plates are eliminated.

For auxiliary pad options, the new charge pump cover is rotation dependent. The cover will be marked either left hand (L) or right hand (R). The non-auxiliary pad cover is not rotation dependent.

The charge pump shaft also changes and must be replaced when using the new style hardware. The complete charge pump assembly can be interchanged with corresponding hardware from 89-17 and beyond. However, piece parts are not interchangeable. For units prior to 89-17, consult Danfoss.

### Models affected Serial numbers

All 94-2xxx, 95-2xxx, and 96-2xxx pumps

### Serial numbers

- 55 cc: A-93-10 & beyond
- 75 cc: A-93-10 & beyond
- 100 cc: A93-15 & beyond

### Part numbers affected

| 55 cc | | 75 cc | | 100 cc | | Item number | Description |
|---|---|---|---|---|---|---|---|
| Before 93-10 | After 93-10 | Before 93-10 | After 93-10 | Before 93-15 | After 93-15 | | |
| 8000169 | 8000268 | N/A | N/A | N/A | N/A | H05 | 11 cc charge pump set |
| 8000170 | 8000269 | 8100313 | 8100479 | N/A | N/A | H05 | 14 cc charge pump set |
| 8000171 | 8000270 | 8100314 | 8100480 | 8200158 | 8200238 | H05 | 17 cc charge pump set |
| N/A | N/A | 8100315 | 8100481 | 8200159 | 8200239 | H05 | 20 cc charge pump set |
| N/A | N/A | N/A | N/A | 8200160 | 8200240 | H05 | 26 cc charge pump set |
| 8800314 | N/A | 8800314 | N/A | 8800314 | N/A | H30 | Port plate |
| N/A | Incl. in H05 | N/A | Incl. in H05 | 8800315 | Incl. in H05 | H31 | Port plate |
| 8000174 | 8000267 | 337956 | 8100476 | 337956 | 8100476 | H50 | Charge pump shaft |
| 8800513 | 8800834 | 8800513 | 8800834 | 8800513 | 8800834 | J15N | Charge pump cover assy. |
| 8800514 | See J15L/R | 8800514 | See J15L/R | 8800514 | See J15L/R | J15 | Aux. charge pump cover |

## Service bulletin

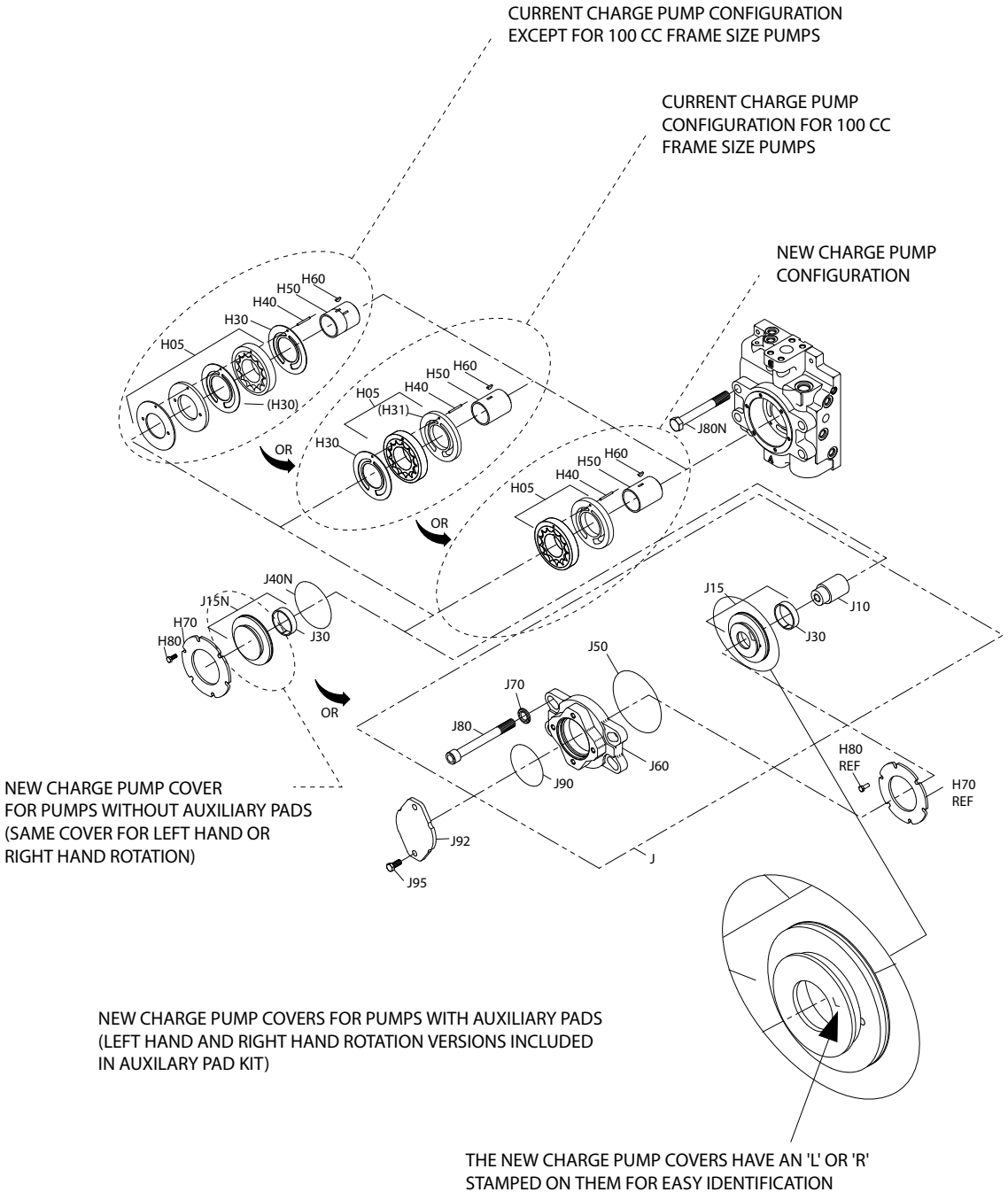
| 55 cc | | 75 cc | | 100 cc | | Item number | Description |
|---|---|---|---|---|---|---|---|
| **Before 93-10** | **After 93-10** | **Before 93-10** | **After 93-10** | **Before 93-15** | **After 93-15** | | |
| N/A | 8800833 | N/A | 8800833 | N/A | 8800833 | J15L | Aux. L.H. cover assy. |
| N/A | 8800832 | N/A | 8800832 | N/A | 8800832 | J15R | Aux. R.H. cover assy. |

Piece parts are not interchangeable

### Parts disposition

Interchangeable for s/n 89-17-xxxxx and beyond. Piece parts are not interchangeable.

## Service bulletin



## Service bulletin

**SB-1993-015**

### Products affected

Series 90 pump: all frame sizes

### Subject

Servo arm interference with speed sensor ring

### Description

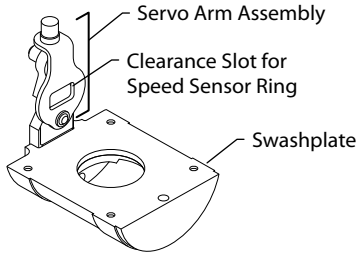
This service bulletin revision adds the 42 cc frame size and the incorporation date of 55 through 100 cc.

A potential interference problem has been identified in series 90 42, 55, 75, and 100 cc frame size pumps built since early 1992. Interference may occur between the swashplate hold down bracket on the servo arm and the speed sensor ring, which may be installed on the cylinder block as an option.

A new hold down bracket has been designed to provide clearance for the speed sensor ring.

If a cylinder block with speed ring must be installed in one of the subject pumps, a servo arm assembly with the new hold down will also be required.

Sometime during the first quarter of 1994, all 55, 75, and 100 cc pumps will be equipped with the new design hold down bracket. The 42 cc pumps will implement the new design hold down bracket in the second quarter of 1994.




### Models affected

All 93-2xxx, 94-2xxx, 95-2xxx, and 96-2xxx variable pumps

### Serial numbers

- 42 cc at serial number 92-16-xxxxx
- 55 cc at serial number 92-06-xxxxx
- 75 cc at serial number 92-17-xxxxx
- 1000 cc at serial number 92-12-xxxxx

### Part numbers affected

| Frame size | Old servo arm (no slot in bracket) | New servo arm (with slot in bracket) |
|---|---|---|
| 42 cc | 354282 | 502976 |
| 55 cc | 8000191 | 8000318 |
| 75 cc | 8100366 | 8100499 |
| 100 cc | 8200182 | 8200268 |

## Service bulletin

### Parts disposition

Non-interchangeable - Pumps with speed sensor ring must use the new servo arm.

## Service bulletin

**SB-1994-017**

### Products affected

Series 90 55-100cc variable pumps

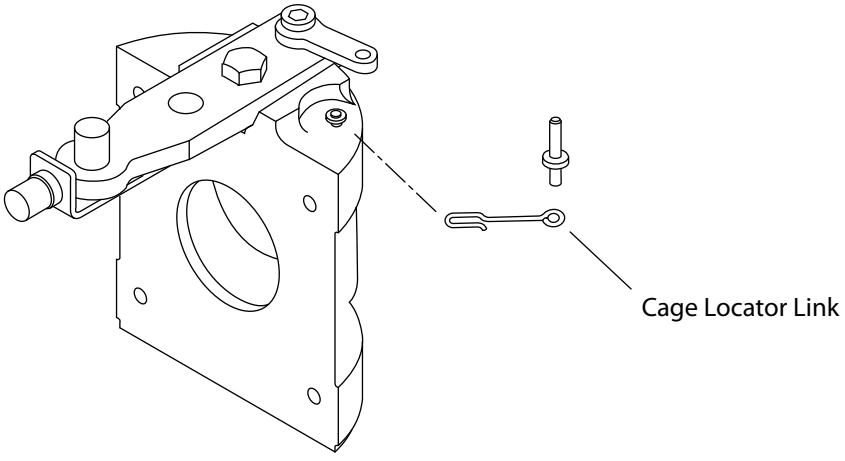
### Subject

Swashplate cage locator

### Description

As a product improvement, Danfoss has made a design change to the cage locator link used on the 55 thru 100 cc variable pumps.

The new link is made from square wire. In the past, the link was made from round wire, This is an interchangeable change.




### Models affected

All 94-2xxx + 942xxx, 95-2xxx, + 952xxx and 96-2xxx + 962xxx variable pumps

### Serial numbers

- 55and 75 cc pumps serial number 94-18-xxxxx
- 100 cc pumps will begin 4th quarter 1994

### Part numbers affected

| Size | Old link | New link |
|---|---|---|
| 55cc | 8100241 | 8100506 |
| 75cc | 8100241 | 8100506 |
| 100cc | 8200108 | 8200273 |

### Parts disposition

Interchangeable

## Service bulletin

**SB-1994-018**

### Products affected

Series 90 variable pumps

### Subject

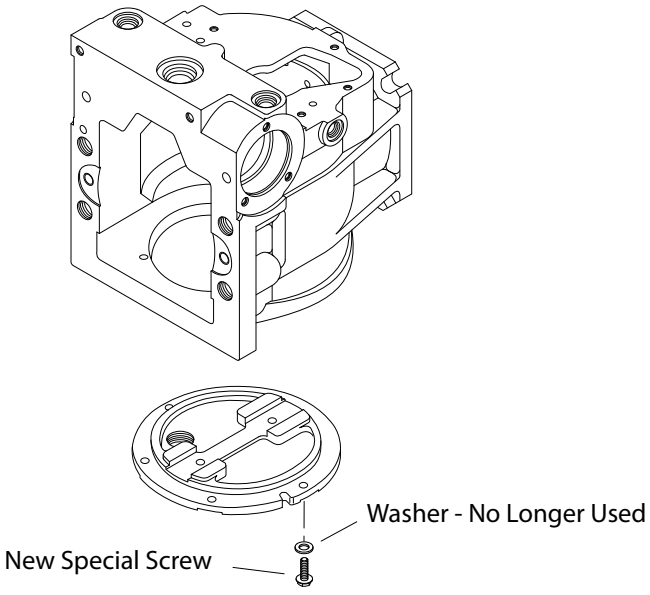
Side cover washer elimination

### Description

The washers located under the side cover screws have been removed on all series 90 42 through 130 cc variable pumps.

As before, the side cover screws must be replaced if they are removed for any reason. The special coating, which seals and retains the screws, wears off when the screws are removed.

The screw length changed on 55 through 100 cc pumps, so it is important that the washers are discarded during repair. The proper screw is included in the overhaul seal kits.




### Models affected

All 93-2xxx, 94-2xxx, 95-2xxx, 96-2xxx, and 97-2xxx variable pumps

### Serial numbers

Change took place during the quarter 2 and 3 of 1994

### Part numbers affected

| Pump size | Old screw | New screw |
|---|---|---|
| 42 cc | 648477 | Same part number |
| 55-100 cc | 9007276-0115 | 517228 (5000206) |
| 130 cc | 308700 | Same part number |

## Service bulletin

**Parts disposition**

Interchangeable

## Service bulletin

**SB-1994-36**

### Products affected

Series 90 55 thru 130 cc variable pumps

### Subject

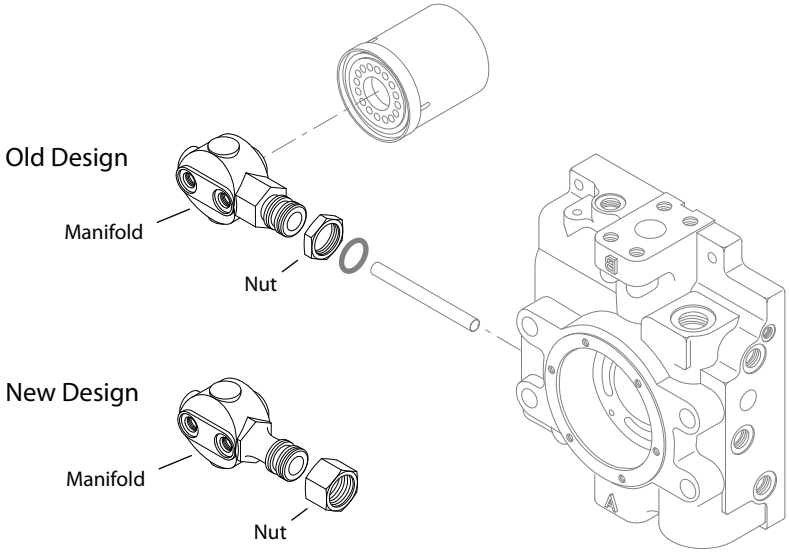
Integral filtration manifold

### Description

As a product improvement, Danfoss is changing the integral filter manifold and bulkhead nut to make it more easily indexed.

The old bulkhead nut may be used with either the old or new filter manifold. The new bulkhead nut can only be used with the new filter manifold.

The old bulkhead nut will remain available as a service part. The old filter manifold will be obsoleted and no longer available as a service part.




### Models affected

All series 90 55 thru 130 cc variable pumps with “L”, “M”, or “P” filtration option code

### Serial numbers

Change occurred at serial number95-18-xxxxx

### Part numbers affected

| Description | Part number (prior to 95-18) | Part number (after 95-18) |
|---|---|---|
| Filter manifold | 8800200 | 8800896 |
| Bulkhead nut | 9002863-1600 | 5000222 |

### Parts disposition

Interchangeable- new bulkhead nut can only be used with new filter manifold

## Service bulletin

**SB-1995-003**

### Products affected

Series 90 variable pumps, all frame sizes

### Subject

Manual displacement control (MDC) with DC electric solenoid override

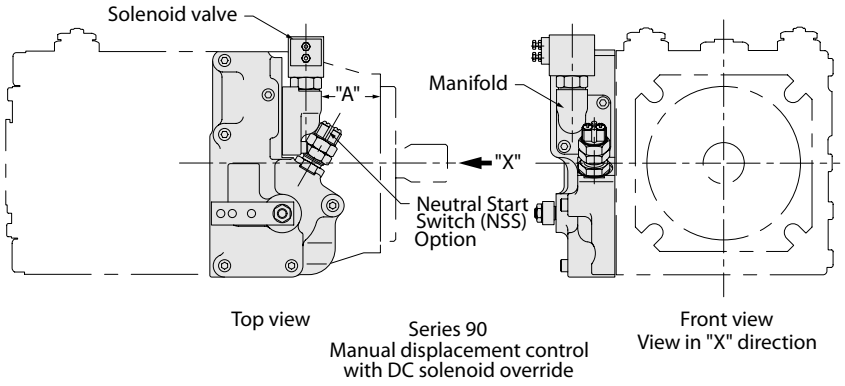
### Description

In order to accommodate our European customers, the manifold which attaches to the front of the manual displacement control (MDC) housing is being changed.

The European solenoid valve requires a thicker manifold to provide clearance between the solenoid and the front of the MDC housing. The revised manifold will protrude closer to the mounting flange of the pump, reducing dimension"A" shown in the accompanying drawing by approximately 5 mm [0.2 in]. Please see chart below for specific clearances.

The thicker manifold requires longer screws and may be used with either the U.S. or European sourced solenoid.

This change will become effective during March of 1995. The old manifold will be obsoleted and no longer available as a service part.




Series 90
Manual displacement control
with DC solenoid override

| Frame size | | 42 | 55 | 75 | 100 | 130 |
|---|---|---|---|---|---|---|
| Dimension "A" mm [in] | Old | 39.9 [1.57] | 55.9 [2.20] | 54.1 [2.31] | 60.2 [2.37] | 74.4 [2.93] |
| | New | 34.9 [1.39] | 50.9 [2.0] | 49.1 [1.93] | 55.2 [2.17] | 69.4 [2.73] |

### Models affected

All series 90 variable pumps using MDC with DC electric solenoid override.

### Part numbers affected

| Description | Current part number | New part number | Quantity |
|---|---|---|---|
| Manifold | 8800365 | 505022 | 1 |
| Screw | 9007314-0605 | 9007314-0606 | 2 |

### Parts disposition

Interchangeable (new manifold requires longer screws)

## Service bulletin

**SB-1995-012**

### Products affected

Series 90 75cc variable pumps

### Subject

End cap design change

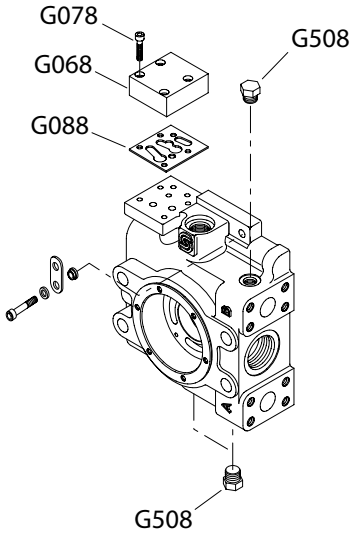
### Description

As part of a Series 90 product improvement program, the 75cc twin ported end cap is being redesigned. The redesign will eliminate the logic block and place the pressure limiter logic area in the same location as the side ported end cap, which is on the back side of the end cap. The logic pattern will be the same as the current 75cc side ported end cap. Old style end caps will be obsoleted and no longer available as a service part.

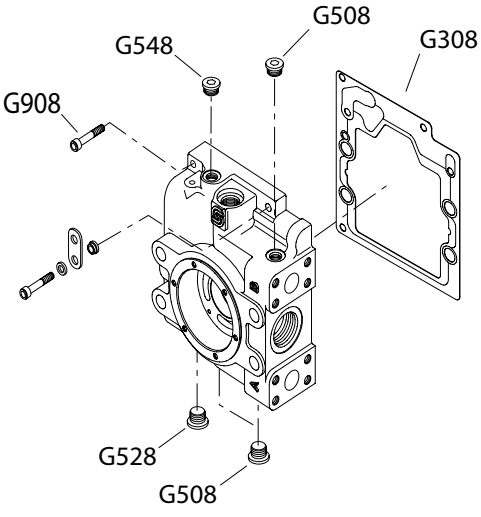
Any unit with a twin ported end cap and built prior to serial number A-96-05-xxxxx, must use the 8100466 gasket. Any unit with a serial number A-96-05-xxxxx and beyond must use the 8100565 gasket. The two gaskets are not interchangeable.

Any unit with a side ported end cap and built prior to A-92-19-xxxxx must use the 8100212 gasket. Any unit with a serial number of A-92-19-xxxxx and beyond must use the 8100565 gasket.

The end cap assembly and its appropriate gasket is interchangeable. However, piece parts are not interchangeable.




Old Design Twin Port End Cap




New Design Twin Port End Cap

### Models affected

All 75cc variable pumps

### Serial numbers

This change became effective at serial number A-96-05-xxxxx

## Service bulletin

### Part numbers affected

| Description | Item | 92-19 to 96-04 | 96-05 and beyond |
|---|---|---|---|
| End cap assembly | G048 | 8100471 | 8100566 |
| Logic block | G068 | 364281 | - |
| Logic block gasket | G088 | 689117 | - |
| Logic block screw | G078 | 9007314-0608 | - |
| Screw | G908 | - | 9007314-0810 |
| Screw | G958 | 9007314-0804 | 9007314-0810 |
| Plug | G508 | 9005100-5600 | 9005110-5600 |
| Plug | G528 | - | 9005110-5600 |
| Plug | G548 | - | 9005110-5600 |

### Parts disposition

Non-interchangeable except where noted

## Service bulletin

**SB-1995-025**

### Products affected

Series 90 55, 75, and 100 cc variable pumps

### Subject

Side cover design change

### Description

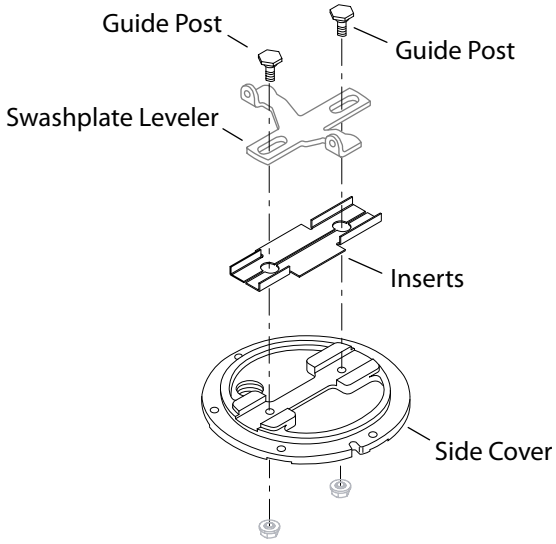
As a product improvement, Danfoss is changing the side cover and swashplate leveler ("T-bar") guide post design.

The new design side cover will have two hardened inserts in the machined slot, which serves as a guide for the swashplate leveler, and modified guide posts. The swashplate leveler does not change.

Old guide posts will remain available for service requirements of pumps with the old design side cover.

The old style side cover will be obsoleted and no longer available as a service part. A service kit has been created for replacing the old design side cover. The kit includes the new side cover, guide posts, and inserts.

Piece parts are not interchangeable.




### Models affected

All 55,75, & 100 cc variable pumps

### Serial numbers

This change became effective at serial number A-95-50-xxxxx.

## Service bulletin

### Part numbers affected

| Description | Old part numbers | | New part numbers | | |
|---|---|---|---|---|---|
| | Guide post | Side cover | Insert assy. | Guide post | Side cover kit |
| 55 cc | 8100353 | 8000157 | 8000406 | 8000379 | 8510097 |
| 75 cc | 8100353 | 8100226 | 8100562 | 8000379 | 8510098 |
| 100 cc | 8100353 | 746560 | 8200321 | 8000379 | 8510099* |

### Parts disposition

Interchangeable as a kit. Piece parts are not interchangeable.

## Service bulletin

**SB-1996-009**

### Products affected

Series 90 55, 75, and 100 cc variable pumps

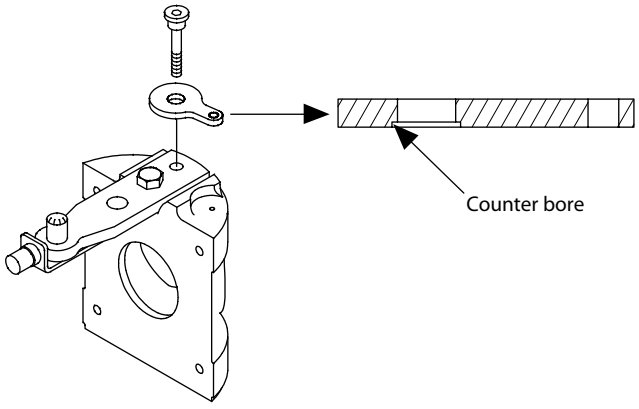
### Subject

Change swashplate feedback link

### Description

As a product improvement, Danfoss is changing the design of the swashplate feedback link used on the 55, 75, and 100 cc variable pumps.

The new swashplate link has a counter bore that allows for clearance between the feedback link and the servo arm screw. The counter bore side of the link must be installed such that the counter.




### Models affected

All 942xxx, 952xxxx, and 962xxx variable pumps

### Serial numbers

For 55and 75 cc pumps, the change became effective at serial number A-96-22-xxxxx. For 100 cc pumps, the change became effective at serial number A-96-12-xxxxx.

### Part numbers affected

| Frame size | Old part number | New part number |
|---|---|---|
| 55cc | 8000096 | 8000481 |
| 75cc | 8000096 | 8000481 |
| 100cc | 8200106 | 8200344 |

### Parts disposition

Interchangeable

## Service bulletin

**SB-1998-066**

### Products affected

Series 90, 55, 75, and 100cc variable pumps

### Subject

Charge pump shaft part number change

### Description

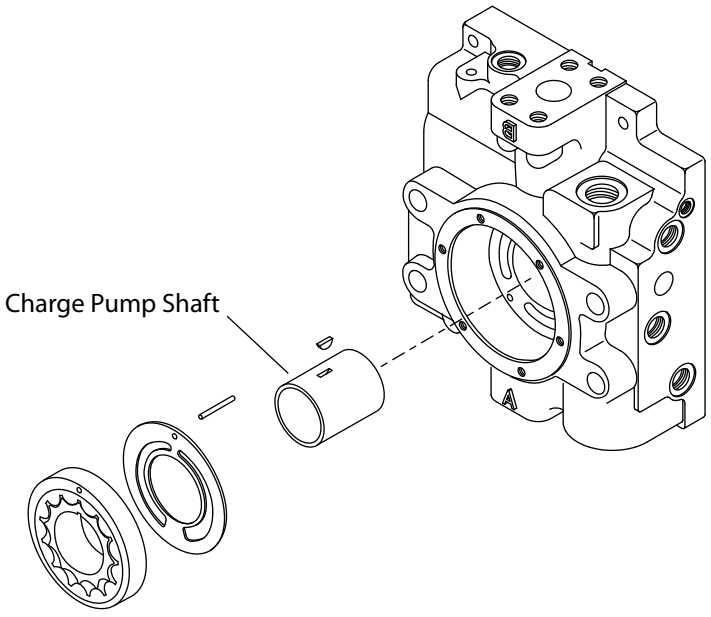
As a product improvement, Danfoss has modified the design of the charge pump shaft used in series 90 55, 75 and 100 cc pumps. This change affects all charge pump sizes (11, 14, 17, 20, 26, and 31 cc) available in the series 90 displacement range.

The series 90 55 cc variable displacement pump uses the same charge pump shaft, regardless of charge pump size (11, 14, or 17 cc). The series 90 75 and 100 cc variable displacement pumps, utilize a common charge pump shaft for the standard size charge pumps (75 cc standard equals 14, 17, and 20 cc and 100 cc standard equals 17, 20, and 26 cc).

A unique charge pump shaft is utilized by series 90 75 cc variable displacement pumps equipped with the 26 cc size charge pump., while the same unique shaft is used by series 90 100 cc variable displacement pumps equipped with 31 cc size charge pumps.

The design modification includes a surface finish change to the charge pump shaft which improves the wear characteristics between the charge pump shaft and the journal bearings in the charge pump cover and end cap.

To assist in identifying this change, Danfoss has released new charge pump shaft part numbers. The new shafts are completely interchangeable with the previous shafts. The new shaft has replaced the previous shaft in new pump assemblies and charge pump service kits. The previous shafts have been obsoleted and are no longer available as a service part. The chart on the next page will assist you in determining the part number changes.




### Models affected

94-2xxx, 942xxxx, 95-2xxx, 952xxxx, 96-2xxx, and 962xxxx variable pumps

## Service bulletin

Pump models 9621723 and 9622117 were released with a special charge pump option (code W-26 cc charge pump with special shaft). With this product modification, the charge pump option code for these two models has been changed from W to the standard option (code F-26 cc charge pump). The special shaft part number 8801176 has been obsoleted and replaced with shaft part number 8801178.

### Serial numbers

Danfoss Ames production - effective at serial number A-99-40-xxxxx

Danfoss Neumunster production - effective at serial number N-99-39-xxxxx

### Part numbers affected

| Series 90 Size | Charge pump | Previous shaft | New shaft | Charge kit | | |
|---|---|---|---|---|---|---|
| | | | | No aux. pad | LH w/aux. | RH w/aux. |
| 55 | 11 | 8000267 | 8801177 | 8510028 | 8510029 | 8510030 |
| 55 | 14 | 8000267 | 8801177 | 8510031 | 8510032 | 8510033 |
| 55 | 17 | 8000267 | 8801177 | 8510034 | 8510035 | 8510036 |
| 75 | 14 | 8100476 | 8801178 | 8510037 | 8510038 | 8510039 |
| 75 | 17 | 8100476 | 8801178 | 8510040 | 8510041 | 8510042 |
| 75 | 20 | 8100476 | 8801178 | 8510043 | 8510044 | 8510045 |
| 75 | 26* | 8100478 | 8801179 | N/A | N/A | N/A |
| 100 | 17 | 8100476 | 8801178 | 8510046 | 8510047 | 8510048 |
| 100 | 20 | 8100476 | 8801178 | 8510049 | 8510050 | 8510051 |
| 100 | 26 | 8100476 | 8801178 | 8510052 | 8510053 | 8510054 |
| 100 | 31* | 8100478 | 8801179 | N/A | N/A | N/A |

### Parts disposition

Interchangeable

## Service bulletin

**SB-1998-041**

### Products affected

Series 90 55, 75, and 100 cc variable pumps, Series 90 55 and 75 cc variable motors

### Subject

Piston hold down mechanism design change

### Description

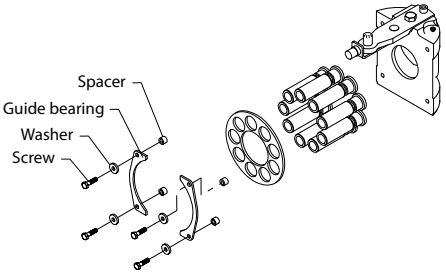
Danfoss has initiated a change to the piston hold down mechanism used on series 90 55, 75, and 100 cc variable displacement pump and the series 90 55 and 75 cc variable displacement motors.

Previously, the hold down assembly consisted of a spacer, slipper guide bearing, washer, and screw. The spacer provides a fixed amount of operational clearance for the slipper and slipper retainer. The guide bearing provides a wear surface for the slipper retainer, while the hold down screws and washers retain the assembly.

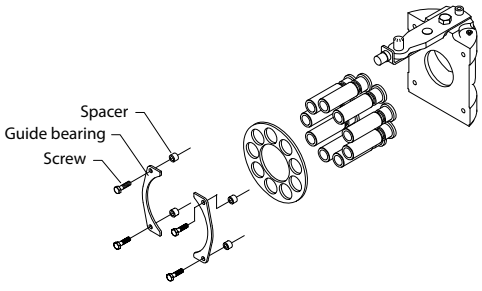
The change involved with the current design update is the removal of the washer from the assembly. This design was initially introduced on the series 90 42 and 130 cc pumps in 1994, and with this change a uniform product family is achieved.

With the removal of the washer, the required length of the assembly screw is reduced. The change in the assembly screw also affects the dimensions of the spacer. Therefore, with this change, the part numbers associated with the assembly screw and spacer have been changed. Some of the assembly screws are parts already maintained in the parts system.

Although the new spacer and assembly screw are directly interchangeable with the previous swashplate assembly components, we recommend that the components be serviced in combination. Since the new spacer may be serviced as a stand alone item, the previous spacer has been obsoleted and will no longer be available as a service part.




Previous hold down design




New hold down design

### Models affected

94-2xxx,942xxxx, 95-2xxx, 952xxxx, 96-2xxx, and 962xxxx variable pumps

94-2xxx,942xxxx, 95-2xxx, and 952xxxx variable motors

### Serial numbers

Danfoss Ames production - effective at serial number A-98-48-xxxxx

## Service bulletin

### Part numbers affected

| Component | Displacement | Prior to 98-48 | Current |
|---|---|---|---|
| Hold down screw | 55 cc | 314419 (9007276-0114) | 648477 |
| Spacer | 55 cc | 8000266 | 8000619 |
| Washer - pumps | 55 cc | 9009625-0159 | N/A |
| Washer - motors | 55 cc | 9009625-0129 | N/A |
| Hold down screw | 75 cc | 9007276-0099 | 9007276-0114 |
| Spacer | 75 cc | 8100450 | 8100777 |
| Washer - pumps | 75 cc | 9009625-0159 | N/A |
| Washer - motors | 75 cc | 9009625-0129 | N/A |
| Hold down screw | 100 cc | 9007276-0099 | 9007276-0114 |
| Spacer | 100 cc | 8200216 | 8200422 |
| Washer - pumps | 100 cc | 9009625-0159 | N/A |

### Parts disposition

Interchangeable

## Service bulletin

**SB-1998-073**

### Products affected

Series 90 75cc variable pumps

### Subject

Large end cap screw change

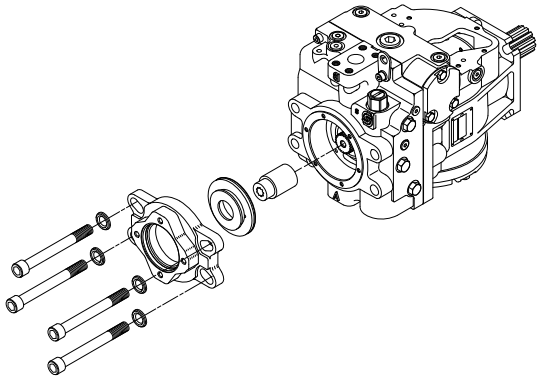
### Description

Danfoss has introduced a design modification to the Series 90 75cc Variable Displacement pump assembly. The (4) large cap screws which fasten the end cap to the main pump housing on the Series 90 75cc and 100cc pumps have a common screw thread designation (M16x1.75). Until recently however, the screws had a different overall length, with the screw used in 75cc pumps being 10 mm (0.394 in) shorter than the screw used with the 100cc pumps.

Danfoss has now modified the design of the Series 90 75cc pump housing by increasing the drilled and tapped depth of the end cap mounting screw bore. This change now makes it possible for Series 90 75cc and 100cc pumps to use a common end cap screw. With this change, a common large screw is now used in the assembly of 75cc and 100cc pumps which are not equipped with an auxiliary drive flange, and a second, common large screw, is used for pumps equipped with an auxiliary drive flange. The improvement in hardware commonality also assists in preventing insufficient gasket clamp load due to assembly with the incorrect length screw.

It is important to note that pumps assembled prior to the change incorporation, must continue to be serviced with the original, shorter, assembly screw. Auxiliary drive flange service kits have been updated to include both 146mm (5.74 in.) and 156mm (6.14 in.) length screws, so that you may properly service pumps of either vintage. The shorter screw may be used to service pumps built after the change incorporation, if required.

To assist in identifying this change, Danfoss has released a new pump housing part number. The previous pump housing has been obsoleted and is no longer available as a service part. The end cap screws will continue to remain available as service items.



### Models affected

95-2xxx and 962xxxx variable displacement pumps

### Serial numbers

Danfoss Ames production: A-98-44-xxxxx

Danfoss Neumunster production: N-00-05-xxxxx

## Service bulletin

### Part numbers affected

| Component | Prior to 98-44 | Current |
|---|---|---|
| Pump housing | 8100551 | 8100761 |
| Screw- no auxiliary drive | 9007210-1620 | 9007210-1621 |
| Screw- with auxiliary drive | 9007314-1622 | 9007314-1623 |

Auxiliary drive kits include both screws: 8102J00A-A, 8102J00B-A, 8102J00T-A and 8102J00V-A.

## Service bulletin

**SB-1999-009**

### Products affected

Series 90 75cc pumps

### Subject

Eliminate potential interference between speed ring and spring seats and springs

### Description

Danfoss has modified the design of the swashplate leveler and spring seat assembly used on Series 90 75cc pumps. The design and serviceability of the pump has been improved by integrating the spring seats directly into the swashplate leveler.

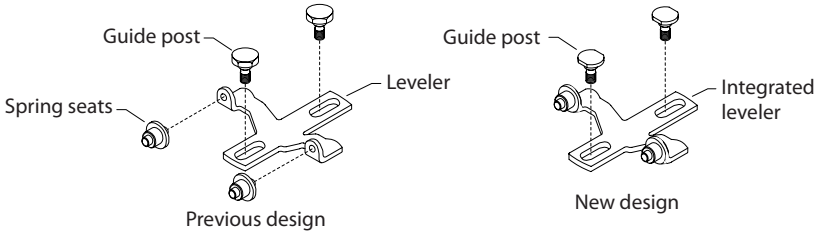
This new design eliminates the potential for the spring seats to separate from the leveler during assembly and servicing.

The old spring seats part number 358523 will be available as a service part and will only be used with the old style leveler part number 8100682.

If the need to replace the leveler part number 8100682 arises it must be replace it with the new leveler with integrated spring seats, part number 8100698. The old swashplate leveler will be obsolete and no longer available as a service part.

At the same time, Danfoss has changed the leveler guide post to help eliminate the possibility of interference between the leveler and the speed ring. The new guide post allows less movement of the leveler. The old and new guide posts are not interchangeable. The old hex head guide post, part number 8000510, must be used with the old leveler, part number 8100682. The new oval guide post, part number 8000575, must be used with the new leveler, part number 8100698.

93-2xxx, 94-2xxxx, 95-2xxx, 96-2xxxx, 97-2xxx, 98-2xxx, and 99-2xxx




### Models affected

All series 90 75cc variable displacement pumps

### Serial numbers

This change became effective at serial number A-99-27-xxxxx

### Part numbers affected

| Description | Prior to 99-27 | 99-27 or later |
|---|---|---|
| Spring seat | 358523 | N/A |
| Leveler | 8100682 | 8100698 |
| Guide post | 800510 | 8000575 |

### Parts disposition

Interchangeable only when the new guide posts and leveler are used

**Service bulletin**

## Service bulletin

**SB-1999-019**

### Products affected

Series90 55, 75, and 100 cc variable pumps

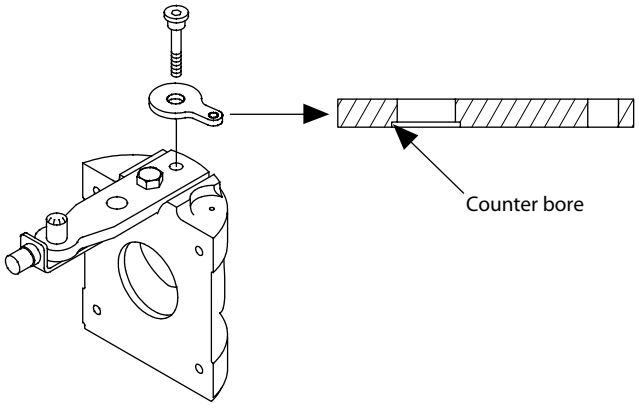
### Subject

Feedback link change

### Description

As a product improvement, Danfoss is changing the design of the swashplate feedback link used on the 55, 75, and 100 cc variable pumps.

In 1996, a counter bore was added to the design of our swashplate link to allow for a higher clamping load when assembled to the servo arm. This change was described in SB-1996-009. The counter bore is no longer required on most units due to a design change to the servo arm. Danfoss recommends the old feedback link be used when servicing pumps with dates codes prior to 96-40-xxxxx. The old feedback link will remain available as a service part.




### Models affected

All series 90 55, 75, and 100cc variable pumps

### Serial numbers

This change became effective at serial number A-96-40-xxxxx

### Part numbers affected

| Size | Old part number | New part number |
|---|---|---|
| 100 cc | 8200344 | 8200413 |
| 55 & 75 cc | 8000481 | 11070305 |

### Parts disposition

Non-interchangeable

## Service bulletin

**SB-1999-041**

### Products affected

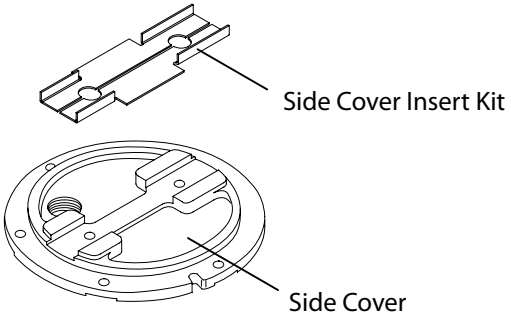
Series 90 variable pumps

### Subject

Change to side cover insert material

### Description

As a continuous product improvement, Danfoss has changed the side cover insert material to improve wear characteristics. The new material is more wear resistant than the previous material. In order to track this change, new part numbers have been created and the old part numbers will be obsolete.




### Models affected

93-2xxx, 94-2xxxx, 95-2xxx, 96-2xxxx, 97-2xxx, 98-2xxx, and 99-2xxx

### Serial numbers

| Frame size | NMS effective date | Ames effective date |
|---|---|---|
| 42 cc | N-99-36-xxxxx | N/A |
| 55 cc | N-00-18-xxxxx | A-00-18-xxxxx |
| 75 cc | N-99-26-xxxxx | A-00-38-xxxxx |
| 100 cc | N-99-31-xxxxx | A-00-38-xxxxx |
| 130 cc | N-99-33-xxxxx | N/A |
| 180 cc | N-99-36-xxxxx | N/A |
| 250 cc | N-99-36-xxxxx | N/A |

### Part numbers affected

| Frame size | Old part number | New part number |
|---|---|---|
| 42 cc | 506916 | 513885 |
| 55 cc | 8000406 | 513886-S |
| 75 cc | 8000562 | 513888 |
| 100 cc | 8200321 | 513889-S |
| 130 cc | 8300004 | 513890-S |
| 180 cc | 506914 | 513891 |
| 250 cc | 506914 | 513891 |

## Service bulletin

**Parts disposition**

Interchangeable

## Service bulletin

**SB-1999-065**

### Products affected

Series 90 75, 100, 130, 180, and 250cc variable displacement pumps

### Subject

Hydraulic displacement control gasket and swashplate bearing locator pin retention

### Description

The Series 90 75cc, 100cc, 130cc, 180cc, and 250cc variable displacement pumps utilize a common gasket to seal the joint between the displacement control housing and main pump housing.

In November 1998, Danfoss introduced a new gasket design for Hydraulic Displacement Controls (HDC - all options), version 2 Electrical Displacement Controls (EDC2- options EE and EN), and two amp current control (options PA and PB) equipped pumps (see SB-1998-038). The purpose of this gasket is primarily to seal the joint and aid in the retention of the bearing cage locator pin in the main pump housing. Danfoss has identified that the new gasket may not adequately aid in the retention of this pin in 75cc pump sizes due to casting and machining tolerances. Installations which are particularly sensitive to pin retention include those oriented with the control on the side or on the bottom when the pump is installed. In these types of installations, it is possible for the pin to come out of its position in the pump housing. This will result in a loss of alignment between the swashplate and swashplate bearing assembly and the potential for erratic pump control and/or system performance.

To address this situation, Danfoss has introduced a design modification to the control gasket. The modification will insure that the cage locator pin is retained in 75cc pumps in all circumstances, while still maintaining the desired gasket clamp load to avoid leaks.

The new gasket is completely interchangeable with the previous gasket. Danfoss recommends that the previous control gasket be replaced immediately on 75cc pump assemblies, with controls noted above, in which the control is on the side or on the bottom of the pump. The pump serial numbers involved are A-98-41-xxxxx through A-99-49-xxxxx.It is not required to replace the gasket in pumps with the control in the up position, until the initial servicing of the pump assembly.

The 100cc, 130cc, 180cc, and 250cc pumps are not dependent upon the gasket to maintain retention of the bearing cage locator pin and are not affected by the information above.

The new gasket has replaced the previous gasket in all new pump assemblies with Hydraulic Displacement Control (HDC), version 2 Electrical Displacement Control (EDC2-EE and EN), and two amp current (PA and PB) controls. The new gasket has also been placed in all appropriate control kits and overhaul seal kits. Page 3 of this bulletin will assist you in identifying the new gasket from the previous gasket.

### Models affected

95-2xxx,952xxxx, 96-2xxx, 962xxxx, 97-2xxx, 972xxxx, 98-2xxx, 982xxxx, 99-2xxx, and 992xxxx variable displacement pumps equipped with hydraulic displacement controls and specific option electronic displacement control. (EE, EN, PA, PB)

### Serial numbers

Danfoss Ames 75cc pump production:A-99-50-xxxxx.

Danfoss Ames 100cc pump production: A-00-25-xxxxx.

Danfoss Neumunster production: N-00-01-xxxxx.

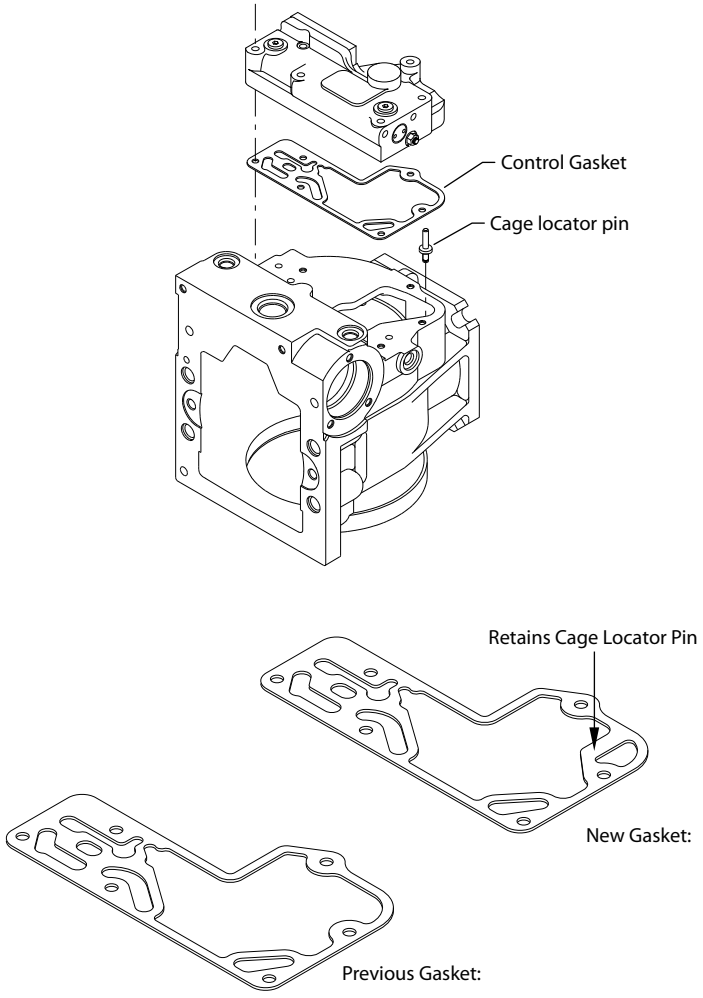
## Service bulletin

### Part numbers affected

| Previous gasket | New gasket |
|---|---|
| 511608 | 8801241 |

### Parts disposition

Interchangeable



## Service bulletin

**SB-2000-022**

### Products affected

Series 90 75, 100, and 130 cc variable displacement pumps

### Subject

Displacement limiter screw and servo piston change

### Description

Danfoss has identified a product issue affecting a limited number of Series 90 100cc variable displacement pumps built at the Ames, Iowa, USA facility in the time frame of June 2000 through August 2000 (serial date range A-00-23-xxxxx up to and including A-00-34- xxxxx). This same issue also affects a limited number of Series 90 75cc, 100cc, and 130cc variable displacement pumps built at the Neumunster, Germany facility in the time frame of June 2000 through September 2000 (serial date range N-00-23-xxxxx up to and including A-00-39-xxxxx).

These pumps, equipped with displacement limiters, may have a servo piston with large center drills. These large center drills may allow the displacement limiter screw to thread into the servo piston while turning the screw in against the servo piston while adjusting the pump's displacement. If this occurs, the pump will be mechanically held in stroke by the displacement limiter screw. This situation can only happen during adjustment; it will not occur during normal operation.

Danfoss has introduced a change to the servo piston and the displacement limiter screw to prevent the recurrence of this issue. We have made a change to the servo piston to limit the size of the center drill. We have also changed the design of the service displacement limiter screw from a "flat" point to a "dog nose" point. When servicing a pump that meets the above criteria, you must verify that the displacement limiter screw of the new "dog nose" version. If it is not, you must replace the displacement limiter screw with the new version. If the pump is not inside the date code ranges and displacements mentioned, you do not need to verify the version of the displacement limiter screws.

To assist in tracking this change, we have issued new part numbers for the servo pistons and displacement limiter screws. Even though this issue did not affect the 42cc or 55cc pumps, the service displacement limiter screw part number will change also to keep one common service part. We do this as the same displacement limiter screw is used on 42cc, 55cc, 75cc, and 100cc pumps.

Old
"flat point"
displacement limiter screw

New
"dog nose"
displacement limiter screw

### Models affected

All 95-2xxx, 952xxxx, 96-2xxx, 962xxxx, 97-2xxx, and 972xxxx variable displacement pumps with 1, 2, 4, or P displacement limitation option.

### Serial numbers

Danfoss Ames 100cc production with serial number A-00-23-xxxxx up to and including A-00-34-xxxxx.

Danfoss Neumunster, Germany production with serial number N-00-23-xxxxx up to and including A-00-39-xxxxx.

## Service bulletin

### Part numbers affected

| Frame size | Old servo piston | New servo piston | Old screw | New screw |
|---|---|---|---|---|
| 42 & 55cc | N/A | N/A | 9007712-0814 | 516677 |
| 75 cc | 509282 | 516683 | 9007712-0814 | 516677 |
| 100 cc | 509284 | 516684 | 9007712-0814 | 516677 |
| 130 cc | 510496 | 516685 | 572180 | 516678 |

### Parts disposition

Interchangeable

## Service bulletin

**SB-2000-041**

### Products affected

Series 90 55, 75, 1nd 100 cc variable displacement pumps

### Subject

Common leveler spring shim

### Description

The date code for the series 90 55cc should have been for a date code of A-92-06-xxxxx not A-02-06-xxxxx.

Danfoss has standardized the leveler spring shim used on all 55, 75, and 100 cc variable displacement pumps. Two different shims were used in the past. One size was for 55 and 75 cc pumps, and the other for the 100 cc pumps. The new shim can be used in all three frame sizes.

Danfoss has issued a new part number for the new shim. The new shim is interchangeable for 55 cc pumps built after A-92-06-xxxxx, 75 cc pumps built after A-96- 19-xxxxx,and 100 cc pumps. For pumps manufactured prior to these dates, you will need to reuse the old shims, as the new shim outer diameter is larger, and this will cause the new shim to not seat correctly in the bottom of the pocket in the end cap. The old shim part numbers are obsolete.

### Models affected

All 94-2xxx, 942xxxx, 95-2xxx, 952xxxx, 96-2xxx, and 962xxxx variable pumps.

### Serial numbers

Danfoss Ames, Iowa production change was effective at serial number A-00-40-xxxxx

Danfoss Neumunster, Germany production change was effective at serial number N-01-27-xxxxx

### Part numbers affected

| Frame size | Old part number | New part number |
|---|---|---|
| 55 cc | 359042 | 8801225* |
| 75 cc | 359042 | 8801225** |
| 100 cc | 359059 | 8801225 |

* can only be used in pumps manufactured after A-92-06-xxxxx

** can only be used in pumps manufactured after A-96-19-xxxxx

### Parts disposition

Interchangeable

## Service bulletin

**SB-2002-050**

### Products affected

Series 90 55, 75, and 100 cc pumps

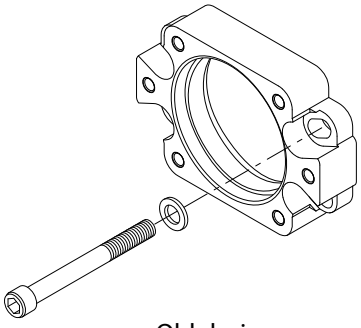
### Subject

Auxiliary mounting pad

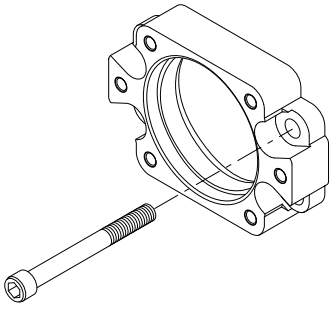
### Description

As a product improvement, Danfoss has changed the design of the SAE C auxiliary mounting pad to increase strength and reduce corrosion. The old auxiliary mounting pad and new auxiliary mounting pad are interchangeable. The new auxiliary mounting pads are frame size dependent, because they do not have slotted mounting holes. The auxiliary mounting pad screws remain the same, but they do not require washers.

The old auxiliary mounting pad is obsolete and no longer available as a service part. The washers will remain available.



Old design



New design

### Models affected

Series 90 55, 75, and 100 cc pumps with SAE C auxiliary mounting.

### Part numbers affected

The new auxiliary mounting pads are frame size dependent and do not use washers.

| Frame size | Old aux-pad part number | New aux-pad part number | Old washer part number |
|---|---|---|---|
| 55cc | 723205 | 8000643 | 5000602 |
| 75cc | 723205 | 8100848 | 9009625-0132 |
| 100cc | 723205 | 8200469 | 9009625-0132 |

### Parts disposition

Interchangeable

## Service bulletin

**SB-2004-012**

### Products affected

Series 90 55cc and 75cc pumps

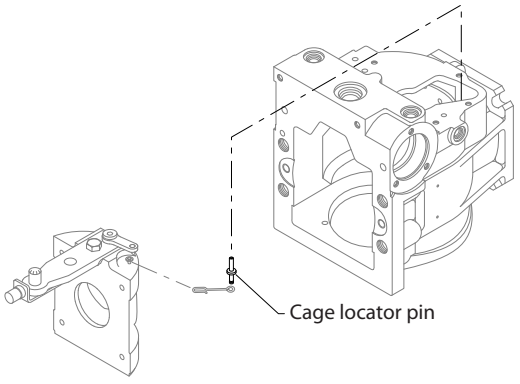
### Subject

Cage locator pin

### Description

As a product improvement, Danfoss is standardizing the cage locator pin for all series 90 55, 75, and 100 cc pumps. All 55 and 75 cc pumps will now use the same locator pin used in 100 cc pumps. The new locator pin extends 2 mm further into the housing than the old pin. The housings have been machined to accept the longer pin.

The old cage locator pin must be used in pumps that have not had the housings modified. The old pin can be used in any vintage pump and will remain available as a service part.




### Models affected

Series 90 55cc and 75cc pumps

### Serial numbers and part numbers affected

| Frame size | Old number | New number | Housing modification date* |
|---|---|---|---|
| | | | A-04-43-xxxxx |
| 55cc | 8801135 | 8801235 | N-04-43-xxxxx |
| | | | S- not determined |
| | | | A-01-26-xxxxx |
| 75cc | 8801135 | 8801235 | N-00-01-xxxxx |
| | | | S- not determined |
| 100cc | 8801235 | 8801235 | No change |

* A = Ames, Iowa; N = Neumunster, Germany; S = Shanghai, China

### Parts disposition

Non-interchangeable

## Service bulletin

**SB-2005-007**

### Products affected

Series 90 75cc pumps

### Subject

Pump redesign

### Description

As a global improvement, the series 90 75cc displacement pump has redesigned components as a product improvement program. The following components are being redesigned: servo arm, swashplate guide, pump housing, shaft seal, and cradle bearing.

All parts are non-interchangeable with the exception of the shaft seal. Model numbers and order codes will not be changed.

Servo arm: A “one piece” servo arm is introduced. The pin that engages the servo piston is now machined as part of the servo arm instead of pressed in. The old servo arm will remain available as a service part for a period of time.

Swashplate Guide: The swashplate position is now guided by the fit between the servo arm and the pump housing . A “shelf” on the servo arm fits under a boss in the housing to provide a fixed clearance swashplate hold-down. The swashplate was previously held down with a spring and bracket, which was riveted to the servo arm. The servo arm to housing clearance now limits lateral movement of the swashplate. The separate swashplate guide that was bolted to the bottom of the swashplate has been removed. The separate swashplate guide will remain available as a service part for a period of time.

Housing: The housing is modified internally to provide the servo arm pivot. Also, the cradle and side cover radii are reduced. The housing casting is common globally. Some customers may notice cosmetic external changes. The old housing will be obsoleted and no longer available as a service part.

Shaft seal: The new shaft seal is interchangeable with the old version. The shaft seal will be sourced from one global supplier. The old shaft seal will be obsoleted and no longer available as a service part.

Cradle bearing: The new design is a single piece cold formed with the positioning pin now integral with the bearing. The old cradle bearing will remain available as a service part for a period of time.

Side cover: The side cover will have a 138.58 mm pilot as the old side cover had a 140.589 mm pilot.

The current version of the housing will not be available globally long term. Current bearings will be available under the 8700048 part number. Swashplate 8100367 will be maintained for service parts. It is interchangeable for the 516201 swashplate in current housings. Fastener 660032 (90007276-0107), swashplate guide 8800669, and spring 8100035 are used in other series 90 frame sizes and will remain active. The side cover will be kept for service parts replacement.

### Models affected

All 952xxxx pumps.

### Serial numbers affected

This change was effective at serial number: A-05-49-xxxxx, N-05-40-xxxxx and S-05-47-xxxxx.

### Part numbers affected

| Description | Old part number | New part number |
|---|---|---|
| Housing | 500170 (N), 724674 ( N), 8100761 (A) | 11001300 |
| Cradle bearing | 676841/P (N), 8700048 (A) | 518671 |
| Servo arm | 518323 (N), 8100499 (A) | 519046 |

## Service bulletin

| Description | Old part number | New part number |
|---|---|---|
| Swashplate | 516201 (N), 8100367 (A) | 521366 (N), 11000688 (A) |
| Screw | 666032 (N), 9007276-0107 (A) | 519150 |
| Swashplate guide | 8800669 | No longer used |
| Spring | 664367 (N), 8100035 (A) | No longer used |
| Side cover | 501572 | 11001286 |
| Shaft seal assembly | 510015 (N), 8100553 (A) | 519671 |
| Lip seal | 664508 (N), 9008000-0115 (A) | 519666 |
| Side cover kit | 8510098 | 8510392 |
| Swashplate assembly | 8100376 | 8100984 |
| Servo/swashplate kit | 8100377 | 8510391 |

### Parts disposition

Non-interchangeable; interchangeable.

See Description for details.

## Service bulletin

**SB-2005-011**

### Products affected

Series 90 42 through 100 cc pumps

### Subject

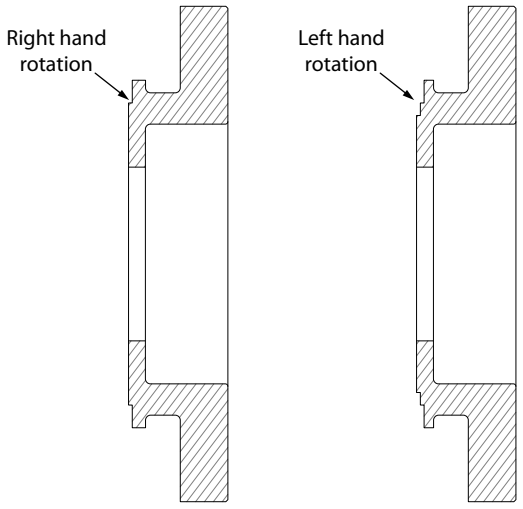
Auxiliary flange charge pump cover

### Description

Danfoss will no longer mark auxiliary flange charge pump cover with an “R” for right hand rotation or an “L” for left hand rotation.

The pilot surface has changed on the covers. The right hand rotation charge pump cover will have 1 step and the left hand rotation charge pump cover will have 2 steps. Refer to the drawings below for example.

The part numbers of the charge pump covers will not change.




### Models affected

Series 90 42 thru 100 cc pumps with auxiliary pad options.

### Serial numbers

This change became effective at serial number A-05-17-xxxxx

### Part numbers affected

None

### Parts disposition

Interchangeable

## Service bulletin

**SB-2007-027**

### Products affected

Series 90; 55, 75 , and 100 cc pumps

### Subject

SAE A auxiliary mounting flange

### Description

Danfoss is pleased to announce a design improvement on the SAE A auxiliary mounting flange adapter on all its series 90 pumps. All manufacturing locations producing these pumps will be changed to this configuration.

The improvement comes in the form of a more robust sealing geometry with a larger cross- section O-ring. The O-ring groove in the flange will now be sized to mate with a 2.62mm [0.103] cross section O-ring rather than the old 1.78mm [0.070] cross-section O-ring.

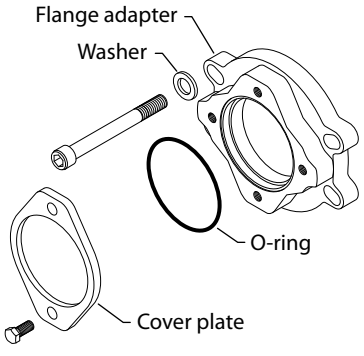
The Danfoss part number for the new O-ring is 9004104-1520 (2.62mm [0.103]. x 82.22mm [3.237]). The larger cross-section sealing geometry allows for the use of a donut style A pad seal and a new flat cover for improved assembly. This new configuration is qualified as a running cover. When installing an auxiliary pump, the donut style A pad seal must be discarded and the part number 9004104-1520 O-ring used.

Also, the flanges will no longer have a slotted interface with a washer for the end cap screws. The flanges will now have round through holes for the end cap screws and will use no washers. The end cap screws do not change. This eliminates the area where water or high pressure wash chemicals can be trapped around the end cap screws. There now are specific part numbers for the flanges used on each of the three displacement size pumps; 55, 75 and 100 cc.

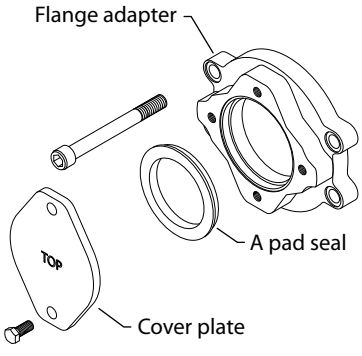
The pumps will now be supplied with the donut style A pad seal and new flat cover, instead of the small O-ring and cover plate (shown in the drawing below).

The overhaul seal kit will include the old O-ring, the new O-ring and the A pad seal.

Old Design




New Design




### Models affected

All series 90; 55, 75, and 100 cc pumps with SAE"A" auxiliary mounting flanges.

### Serial numbers

This change became effective at serial number A-07-05-xxxxx

## Service bulletin

### Part numbers affected

| Description | Old p/n | Used on | New p/n | Used on |
|---|---|---|---|---|
| Flange adapter | 8000262 | 55 cc | 8000641 | 55 cc |
| Flange adapter | 8800172 | 55, 75 & 100 cc | 8000641 | 55 cc |
| Flange adapter | 8800172 | 55, 75 & 100 cc | 8100846 | 75 cc |
| Flange adapter | 8800172 | 55, 75 & 100 cc | 8200467 | 100 cc |
| Washer | 9009625-0132 | 55, 75 & 100 cc | NA | NA |
| O-ring | 9004104-0420 | All sizes | 9004104-1520 | All sizes |
| A Pad seal | NA | All sizes | 4800482 | All sizes |
| Flange cover | 9802336 | All sizes | 4460586 | All sizes |

If the new auxiliary flange adapter is used, the new o-ring or A-pad seal and cover must also be used.

### Parts disposition

- Interchangeable- if new o-ring or A-pad seal and cover are replaced
- Use parts in stock
- Order replacement parts
- Revise existing part orders

## Service bulletin

**SB-2007-051**

### Products affected

Series 90; 55, 75 , and 100 cc pumps

### Subject

SAE C auxiliary mounting flange

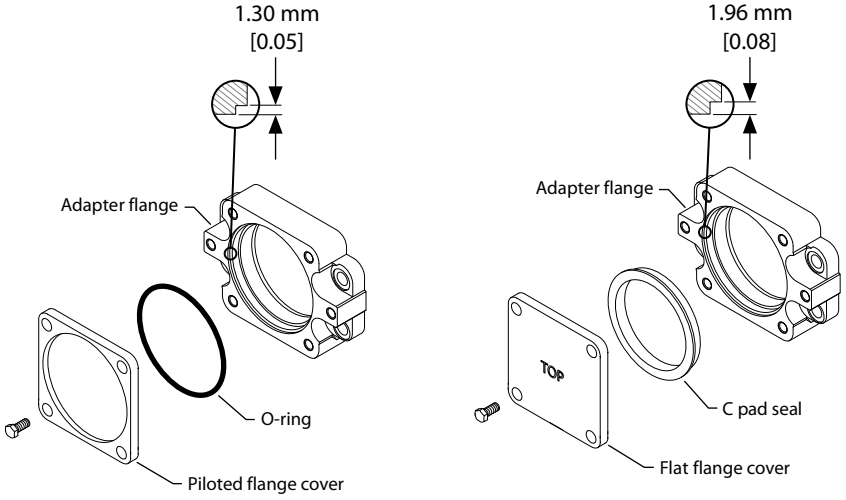
### Description

Danfoss is pleased to announce a design improvement on the SAE C auxiliary mounting flange adapter on its series 90 pumps. The frame sizes affected by this change are 55, 75, and 100cc. All manufacturing locations producing these pumps will be changed to this configuration.

The improvement comes in the form of a more robust sealing geometry with a larger cross-section O-ring. The O-ring groove in the flange will now be sized to mate with a 2.62mm [0.103] cross section O-ring rather than the old 1.78mm [0.070] cross-section O-ring. The Danfoss part number for the new O-ring is 9004104-1580 (2.62mm [0.103] x 120.32mm [4.737]). The larger cross-section sealing geometry allows for the use of a donut style C pad seal and a new flat cover for improved assembly. This new configuration is qualified as a running cover. When installing an auxiliary pump, the donut style C pad seal must be discarded and part number 9004104-1580 O-ring used.

The pumps will now be supplied with the donut style seal and new flat cover, instead of the small O-ring and cover plate (shown in the drawing below).

The overhaul seal kit will include the old O-ring, the new O-ring and the new C pad seal.




### Models affected

All series 90; 55, 75, and 100 cc pumps with SAE"C" auxiliary mounting flanges.

### Serial numbers

This change became effective at serial number A-08-19-xxxxx and N-09-30-xxxxx

## Service bulletin

### Part numbers affected

| Description | Old part number | Used on | New part number |
|---|---|---|---|
| SAE C flange | 8200469 | 100cc | 8200515 |
| SAE C flange | 8100848 | 75cc | 8100897 |
| SAE C flange | 8000643 | 55cc | 8000740 |
| O-ring | 9004100-0480 | 55, 75, 100cc | 9004104-1580 |
| C pad seal | N/A | 55, 75, 100cc | 8801062 |
| Flange cover | 8800406 | 55, 75, 100cc | 8801060 |

If the auxiliary flange adapter is used, the new o-ring or C pad seal and cover must also be used.

### Parts disposition

- Interchangeable- if new o-ring or C pad seal and cover are replaced
- Use parts in stock
- Order replacement parts
- Revise existing part orders

## Service bulletin

**SB-2007-055**

### Products affected

Series 90; 55, 75 , and 100 cc pumps

### Subject

SAE B auxiliary mounting flange

### Description

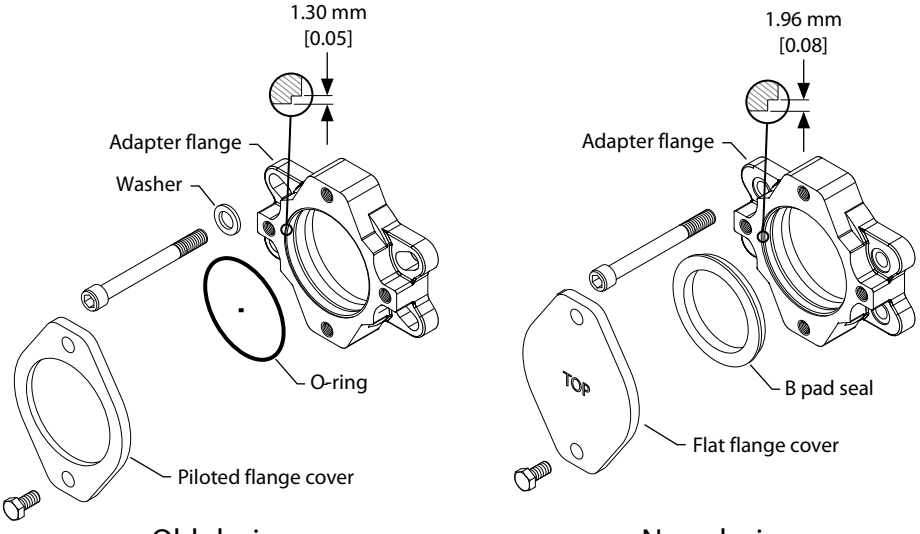
Danfoss is pleased to announce a design improvement on the SAE B auxiliary mounting flange adapter on its series 90 pumps. The frame sizes affected by this change are 55, 75, and 100cc. All manufacturing locations producing these pumps will be changed to this configuration.

The improvement comes in the form of a more robust sealing geometry with a larger cross-section O-ring. The O-ring groove in the flange will now be sized to mate with a 2.62mm [0.103] cross section O-ring rather than the old 1.78mm [0.070] cross-section O-ring. The Danfoss part number for the new O-ring is 9004104-1540 (2.62mm [0.103] x 94.92mm [3.737]). The larger cross-section sealing geometry allows for the use of a donut style B pad seal and a new flat cover for improved assembly. This new configuration is qualified as a running cover. When installing an auxiliary pump, the donut style B pad seal must be discarded and part number 9004104-1540 O-ring used.

Also, the flanges will no longer have a slotted interface with a washer for the end cap screws. The flanges will now have round through holes for the end cap screws and will use no washers. The end cap screws do not change. This eliminates the area where water or high pressure wash chemicals can be trapped around the end cap screws. There now are specific part numbers for the flanges used on each of the three displacement size pumps; 55, 75 and 100 cc.

The pumps will now be supplied with the donut style seal and new flat cover, instead of the small O-ring and cover plate (shown in the drawing below).

The overhaul seal kit will include the old O-ring, the new O-ring and the new B pad seal.




Old design

New design

### Models affected

All series 90; 55, 75, and 100 cc pumps with SAE"B" auxiliary mounting flanges.

## Service bulletin

### Serial numbers

This change became effective at serial number A-08-19-xxxxx

### Part numbers affected

| Description | Old part number | Used on | New part number | Used on |
|---|---|---|---|---|
| Metric B flange | 8800983 | 55, 75 & 100 cc | 8200540 | 100 cc |
| SAE B flange | 8800173 | 55, 75 & 100 cc | 8200468 | 100 cc |
| SAE B flange | 8800173 | 55, 75 & 100 cc | 8100847 | 75 cc |
| Metric B flange | 8800983 | 55, 75 & 100 cc | 8100938 | 75 cc |
| SAE B flange | 8800173 | 55, 75 & 100 cc | 8000642 | 55 cc |
| SAE B flange | 8000263 | 55, 75 & 100 cc | 8000642 | 55 cc |
| Washer | 9009625-0132 | 55, 75 & 100 cc | N/A | N/A |
| O-ring | 9004104-0450 | 55, 75 & 100 cc | 9004104-1540 | 55, 75 & 100 cc |
| B Pad seal | N/A | 55, 75 & 100 cc | 8801061 | 55, 75 & 100 cc |
| Flange cover | 4460370 | 55, 75 & 100 cc | 8801059 | 55, 75 & 100 cc |

If the new auxiliary flange adapter is used, the new o-ring or B pad seal and cover must also be used.

### Parts disposition

- Interchangeable- if new o-ring or C pad seal and cover are replaced
- Use parts in stock
- Order replacement parts
- Revise existing part orders

## Service bulletin

**SB-2009-073**

### Products affected

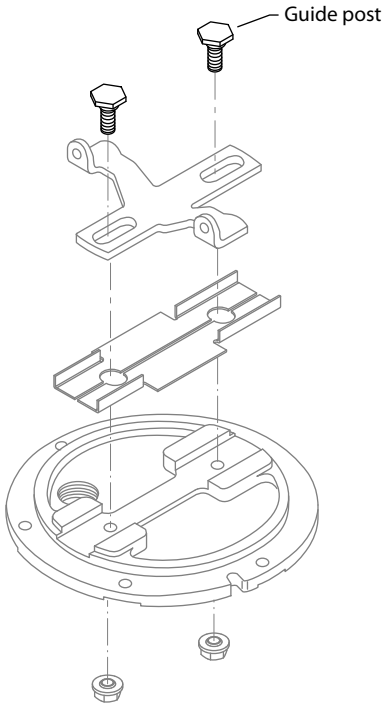
Series 90: 75 and 100 cc pumps

### Subject

Supplier change for guide posts

### Description

The supplier has changed, for the guide posts used in series 90: 75 and 100 cc pumps. The new guide posts are interchangeable with the old guide posts. A new part number has been assigned to the new guide post to better track this change. The old part number has become obsolete and not available for service.




### Models affected

Series 90: 75 and 100cc pumps

### Serial numbers

This change became effective at serial number A-09-50-xxxxx (21 December 2009)

### Part numbers affected

| Description | Old part number | New part number |
|---|---|---|
| Guide post | 8000575 | 11056531 |

## Service bulletin

**Part numbers affected**

Interchangeable

## Service bulletin

**SB-2013-011**

### Products affected

Series 90: 42-250cc pumps

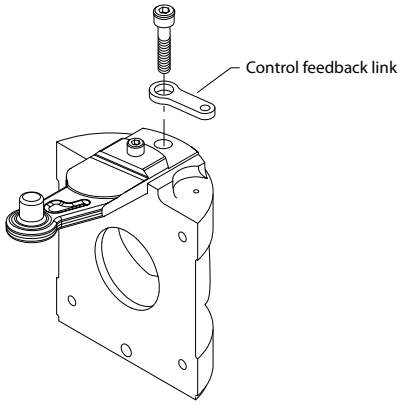
### Subject

Feedback link - control

### Description

Danfoss has changed to a global supplier for the control feedback links used in Series 90 42-250cc pumps.

Old parts and new parts are completely interchangeable. Part numbers will be changing for tracking purposes. Old parts will become obsolete and no longer available as a service part.




### Models affected

Series 90: 42-250cc pumps

### Part numbers affected

| Control feedback link | Old part number | New part number |
|---|---|---|
| 42cc pumps | 648600 | 11070304 |
| 55 & 75cc pumps | 8000602 | 11070305 |
| 100cc pumps | 8200413 | 11070306 |
| 130cc pumps | 340091 | 11070307 |
| 180 & 250cc pumps | 747451 | 11070308 |

### Parts disposition

- Interchangeable
- Use parts in stock

## Service bulletin

**SB-2015-005**

### Products affected

Series 90: 42-250cc pumps

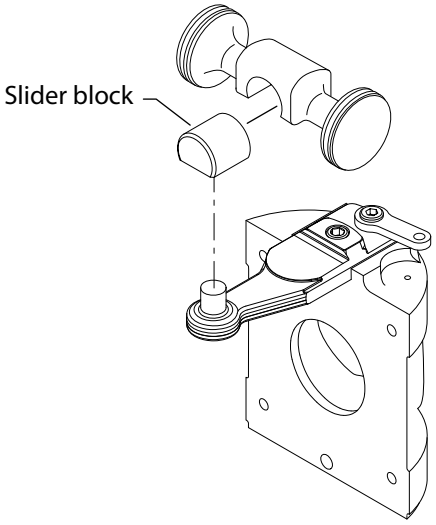
### Subject

Slider block supplier change

### Description

The supplier has changed for Series 90 pump slider blocks. Parts are completely interchangeable.

Part numbers have been changed for tracking purposes. As a result old part numbers will become obsolete and no longer available as service parts.




### Models affected

Series 90 42-250cc pumps

### Part numbers affected

| Description | Old Part Number | New Part Number | Effective Date |
|---|---|---|---|
| Slider block 42 NMS | 648303 | 11116314 | N/A |
| Slider block 55-75 NMS | 8800750 | 11116313 | 6-Aug-2014 |
| Slider block 55-75 AMS | 11061964 | 11116313 | 6-Sept-2014 |
| Slider block100 AMS | 11061908 | 11116312 | 10-Mar-2014 |
| Slider block 100 NMS | 756197 | 11116312 | 20-Feb-2015 |
| Slider block 130 NMS | 11000317 | 11116309 | 9-Dec-2014 |
| Slider block 180-250 NMS | 746479 | 11116308 | 24-Oct-2014 |

### Parts disposition

- Interchangeable
- Use parts in stock

## Service bulletin

**SB-2017-033**

### Products affected

Series 90 pumps

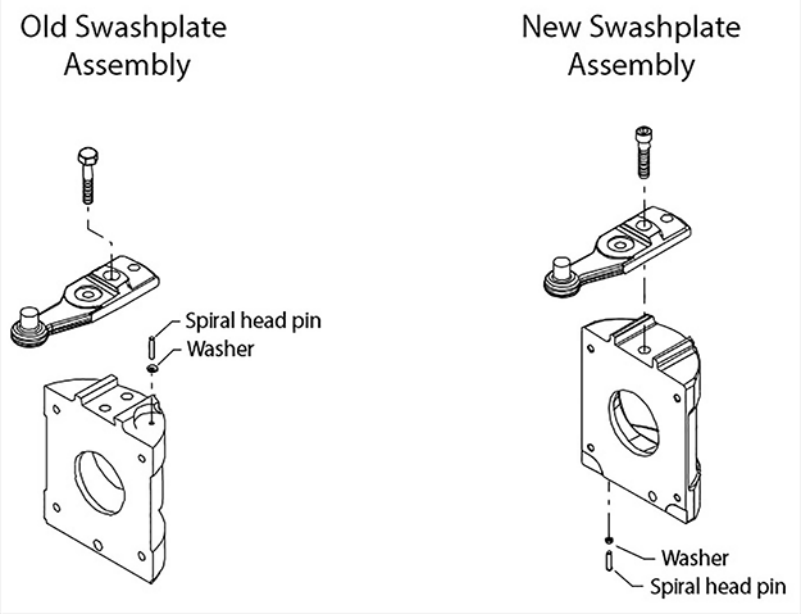
### Subject

Swashplate service kit revision

### Description

The swashplate service kit for Series 90 75cc NFPE pumps has been revised following a design change to the pump housing on those units. The housing change required a change to the location of the cradle bearing cage locator link on the swashplate. The link is now located under the side cover.

Parts are not interchangeable.




### Models affected

Series 90 75cc NFPE pumps

### Serial numbers affected

This change became effective at serial number N1732xxxxx (August 11, 2017)

### Part numbers affected

| Description | Old part number | Description | New part number |
|---|---|---|---|
| Swashplate SVC kit | 11103350 | Swashplate SVC kit | 11192313 |
| 90PV075 w/o D65, M14 | - | 90P075 NFPE assembly | - |

### Parts disposition

Non-interchangeable; use parts in stock with old style pump housings

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ENGINEERING
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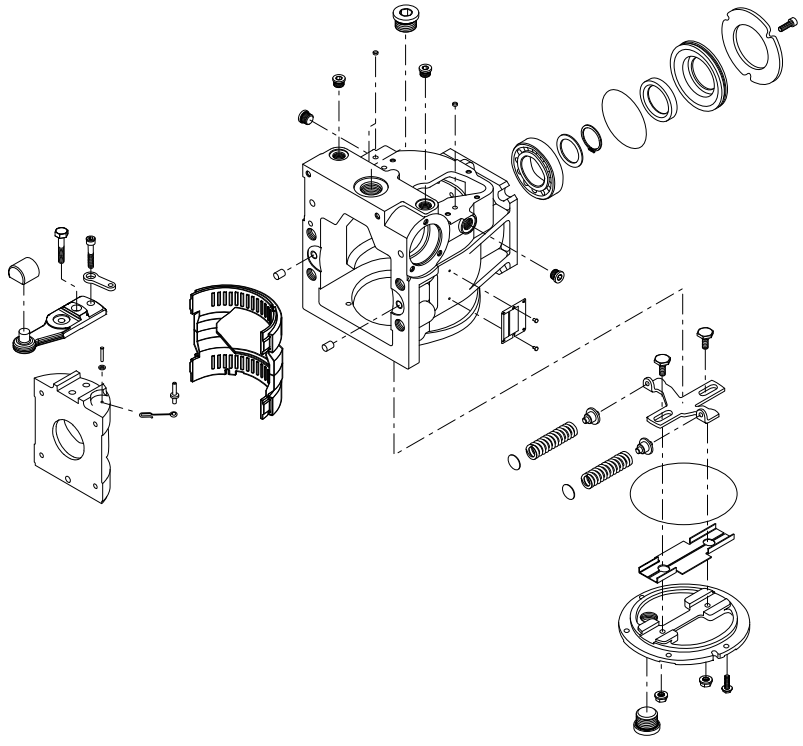
Parts Manual

# Series 90
## 100cc Axial Piston Pump



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## Revision history

*Table of revisions*

| Date | Changed | Rev |
|---|---|---|
| August 2025 | Removed obsolete controls option, added H91 to order code D, removed MY option | 0701 |
| August 2025 | Removed HD, HE controls | 0601 |
| August 2025 | Removed obsolete end cap options, part numbers, and controls | 0501 |
| May 2025 | Removed F5 shaft option,Updated shaft option TF part number | 0402 |
| June 2022 | Corrected various part numbers | 0401 |
| June 2020 | Corrected lip seal and seal carrier assembly part numbers; changed document number from 'AX00000093' | 0311 |
| January 2020 | Corrected filter description for filtration option 9 | 0209 |
| July 2019 | Corrected control part numbers | 0208 |
| November 2018 | Obsoleted screw part numbers in charging system | 0207 |
| September 2018 | Removed old part number from common parts section | 0206 |
| February 2018 | Removed part number from seal kit | 0205 |
| January 2018 | Fixed typo | 0204 |
| December 2017 | Updated to Engineering Tomorrow | 0203 |

## Contents

**General Information**

Service parts identification ... 6
Nameplate ... 6
Date code ... 7
About service bulletins ... 7
Procedure to identify a part ... 7
Regional part numbers ... 7
Example of a part identification (S90 100cc) ... 7
Adobe Acrobat 2-page viewing ... 8
Order code ... 9

**Common parts and special hardware**

Common parts ... 10
Special hardware EAB, EAS, EED ... 14
Special hardware EBC, EFC, EEB, EEG ... 16
Special hardware EFI-SKA, FAA-FAD ... 18
Special hardware FAL-FAU ... 22
Special hardware FAW, FAZ, FAX ... 26
Special hardware FBA-GAA ... 28
Special hardware GB1, GB4, GB8 ... 30
Special hardware GBA-GBT ... 34
Special hardware GCA-GFJ ... 38
Special hardware GFK-GP4 ... 42
Special hardware GTB-JCB ... 46
Special hardware JCC-PEB ... 48
Special hardware PGA and PGB ... 52

**Displacement limitation**

Displacement limitation 2-4 ... 54
Displacement limitation 7 ... 56
Displacement limitation 8, B ... 58
Displacement limitation D ... 60
Displacement limitation E, F ... 62
Displacement limitation H ... 64
Displacement limitation P ... 66

**End cap**

End cap H, 2, 6, 60-65 (built in US) ... 68
End cap 60, 62 (built in Germany) ... 70
End cap 1, 8, 8G, M, 80-82 ... 72
End cap 8M, 8W ... 74
End cap 80 (built in Germany) ... 76
End cap 8P, 8S ... 78
End cap 8E, 8F ... 82
End cap 8N ... 86

**Charging system**

Charging system 3, D-G ... 88
Charging system M, N, S, X ... 92

**Auxiliary mounting**

Auxiliary mounting AB and AC ... 94
Auxiliary mounting AG-BB and V ... 96
Auxiliary mounting BC, BD, BE ... 98
Auxiliary mounting BF and BL ... 102
Auxiliary mounting BM, BU, C2, CA ... 104
Auxiliary mounting CB, CC, CD ... 108
Auxiliary mounting CE, CJ, CK ... 110
Auxiliary mounting CP, CR ... 112
Auxiliary mounting CT, CU ... 114
Auxiliary mounting NN, NU ... 116

## Contents

**Charge pressure setting**

Charge pressure system 08-42 and XX ..... 118

**Shaft**

Shaft C6-S3 ..... 120
Shaft T2-TJ ..... 124

**Controls**

Control CA-DD ..... 126
Control EA-EP ..... 128
Control EV-EZ ..... 132
Control FA-FD ..... 134
Control FG, FH ..... 136
Control GA ..... 138
Control HF-HS ..... 140
Control HT-JC ..... 142
Control K1-K9 ..... 146
Control KA-KF ..... 150
Control KK-KP ..... 154
Control KT-KW ..... 158
Control LE, LG ..... 160
Control LR, LS ..... 162
Control LW ..... 164
Control M1, M2 ..... 166
Control M7, M8 ..... 168
S90P control M9 ..... 170
Control MA, MB ..... 172
Control MC, MD ..... 174
Control ME, MH ..... 176
Control MK, ML ..... 178
Control MN ..... 180
Control MO, MS ..... 182
Control MT, MU ..... 184
Control MV ..... 186
Control NA ..... 188
Control NU ..... 190
Control PA, PB ..... 192
S90P control PE ..... 194
Control PF, PH, PJ ..... 196
Control RR, RS ..... 198
S90P control RU ..... 200
Control SA, SB, SD, SE ..... 202

**Filtration**

Filtration 0-9 ..... 204
Filtration A-L ..... 208
Filtration P-X ..... 212

**High pressure protection**

High pressure protection 1-7, A-F ..... 216
High pressure protection G-P ..... 220
High pressure protection R, T ..... 224
High pressure protection V, Z ..... 226

**Orifice**

Orifice 00-26 ..... 228
Orifice 28-40 ..... 232
Orifice 45-99 ..... 236
Orifice A3-C1 ..... 240
Orifice C3-GD ..... 244
Orifice GF-Z3 ..... 248

## Contents

**Overhaul seal kit**

Seal kit....250

**Service bulletin**

AN152886483362....251
AN152886483362 charge pump replacements....252
SB-1988-009....253
SB-1988-016....255
SB-1988-023....257
SB-1989-002....259
SB-1989-003....260
SB-1989-006....262
SB-1989-023....264
SB-1992-003....266
SB-1992-011....268
SB-1993-001....269
SB-1993-015....272
SB-1994-017....274
SB-1994-018....275
SB-1994-035....277
SB-1994-36....279
SB-1995-003....280
SB-1995-025....281
SB-1996-009....283
SB-1997-048....284
SB-1998-018....286
SB-1998-041....288
SB-1998-066....290
SB-1998-070....292
SB-1999-019....294
SB-1999-041....295
SB-1999-057....297
SB-1999-065....298
SB-2000-022....300
SB-2000-041....302
SB-2001-013....303
SB-2002-050....305
SB-2005-011....306
SB-2007-018....307
SB-2007-027....309
SB-2007-051....311
SB-2007-055....313
SB-2009-035....315
SB-2009-038....316
SB-2009-049....317
SB-2009-073....318
SB-2013-011....320
SB-2015-005....321

## General Information

### Service parts identification

The following information and procedure is used to identify the module group, item number, manufacture date, part number, and part name of the parts included in the .

The parts listed include all parts which may be used when performing either “Minor Repairs”, “Major Repairs” or “Conversions” on the .

### Nameplate

Each unit will have a nameplate affixed to the housing. The nameplate of the will include the following information:

#### Model code

The Danfoss model code completely defines the specific unit and must be used when ordering parts to service this product.

#### Model/material number

The Danfoss model number (also known as material number) is used by the factory in manufacturing. On repeat orders, a complete unit can be ordered by the model number.

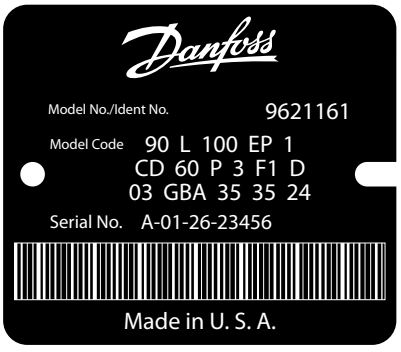
#### Serial number

The Danfoss serial number is used to identify the manufacture date and the unit sequence in the build. The serial number is also used to identify the units warranty time period.

The letter code indicates the location of original manufacture (assembly).

The first number (2 digits) indicates the year of manufacture. The second number (2 digits) indicates the calendar week of manufacture.

The third number (5 digits) is a sequential number used to identify a specific unit.



## General Information

### Date code

The date code is defined as the year and week of manufacture. The same item number may list more than one part number. This indicates that there is more than one configuration for that item number. You will see that there are different date codes for the different part numbers. Find the date code of your unit from the nameplate to determine which service part number you need to order.

*Example: The service part desired is item G30*

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 80 | G30 | 89-17 | | 8000243 | End cap gasket | 1 |
| | G30 | | 89-16 | 8000151 | End cap gasket (SB-1995-006) | 1 |

All units using this order code with a date code prior to 89-17 must use part number "8000151." All units with a date code of 89-17 and newer must use part number "8000243."

### About service bulletins

A Service Bulletin Number (SB-_ _ _ _ - _ _ _) may follow the "Part Name" of the part you desire. You must read that Service Bulletin prior to ordering that part. The information contained in these Service Bulletins, as of the print date of this bulletin, are included at the end of this manual. Service Bulletins contain more detailed information such as interchangeability, what additional parts are involved, etc. It is suggested that you add additional Service Bulletins to this manual as you receive them.

### Procedure to identify a part

The modular design of this product results in a simplified service parts list and part number identification procedure.

The same item numbers are used for same part names on all units within a product type. A part number that has another number following it in parentheses is done to make this a world wide manual.

#### Regional part numbers

Some part numbers are region specific and should be ordered accordingly.

As an example, the part number (example: 314583 (9008000-0118) will be used. The first number is sold in Germany. The number in parentheses is sold in the United States. Customers would order 9008000-0118 if ordering the part in the United States.

#### Example of a part identification (S90 100cc)

The nameplate on a Series 90 pump has an Order Code of 90L100 EP 1 CD 60 P 3 F1 D 03 GBA 35 35 24. Use the following procedures to determine the part number of the drive shaft used on this pump.

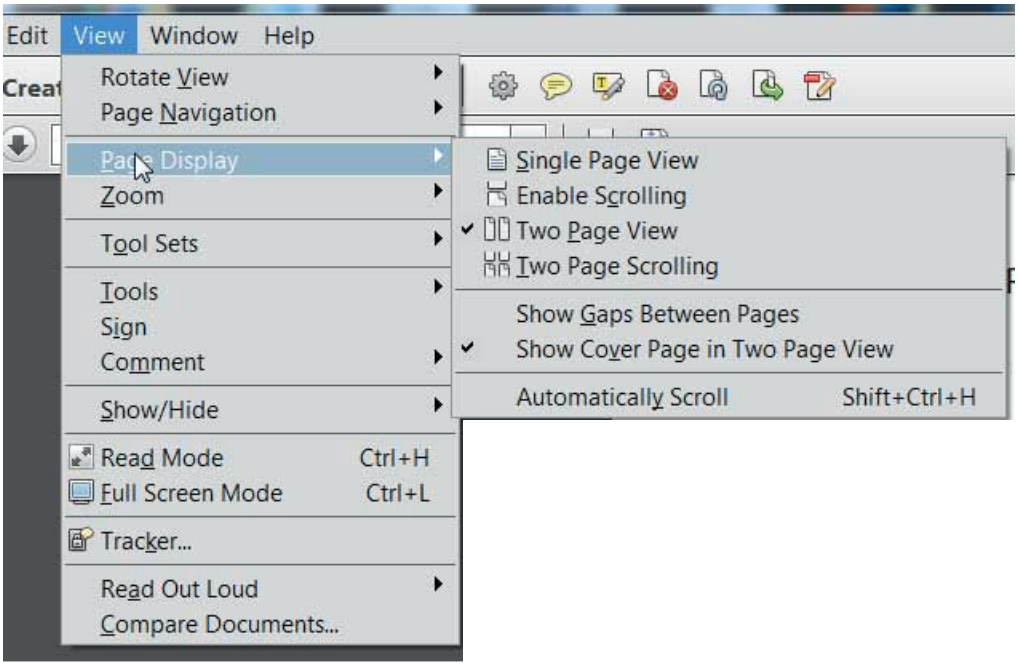
1. Referring to the input shaft module in the *Order Code*, the input shaft option for this pump is identified by the code "S1. (90L100 EP 1 CD 60 P 3 F1 D 03 GBA 35 35 24).
2. Referring to the Service Parts List, find the shaft group. Next find the order code that relates to this unit, which is "F1". The shaft is found to be item L100 and part number 8200170.

## General Information

### Adobe Acrobat 2-page viewing

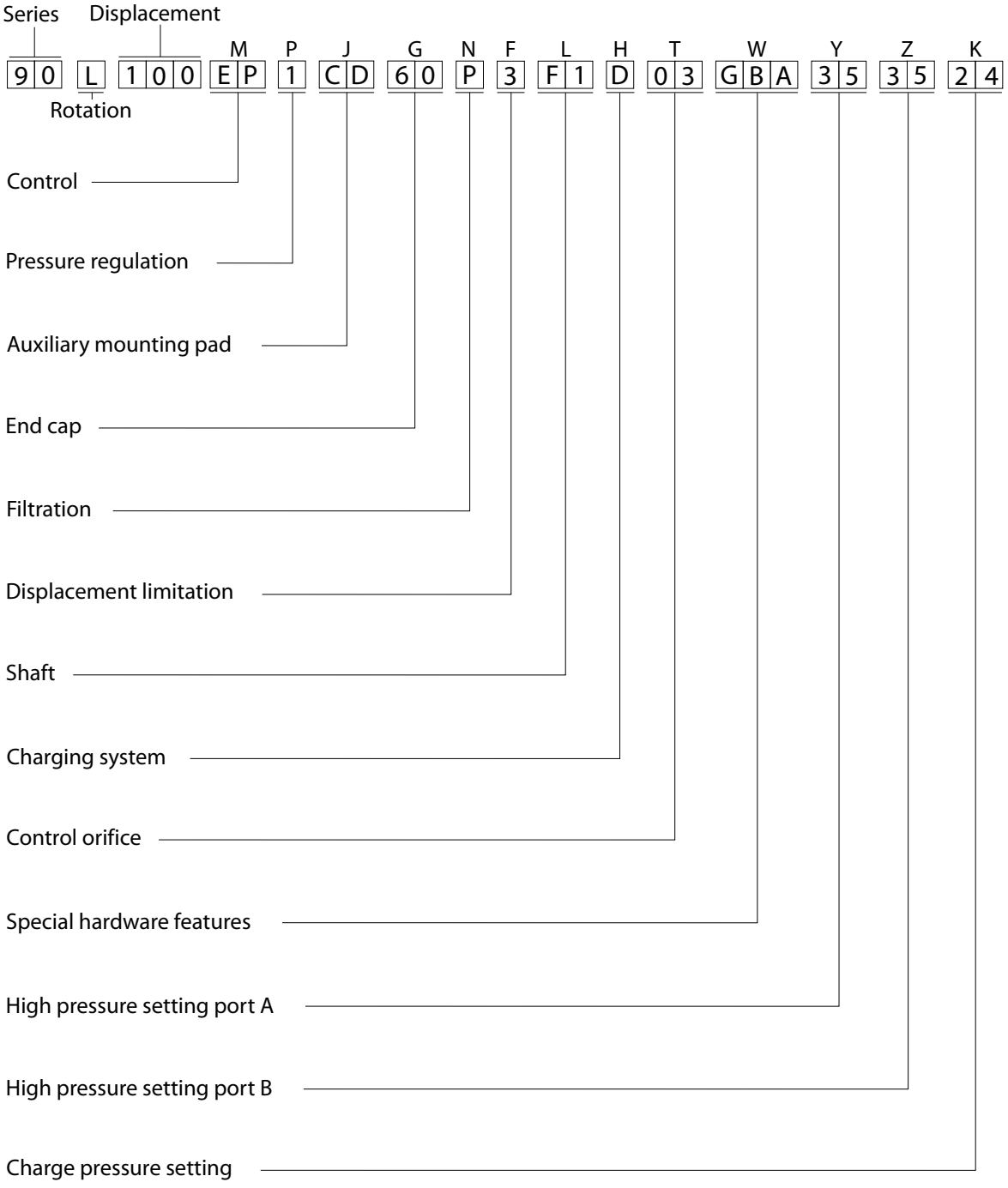
While viewing manual in Adobe Acrobat, the following settings need to be applied to ensure proper page display.

1. Select “View” → “Page Display” → “Two Page View”
2. Select “View” → “Page Display” → “Show Cover Page in Two Page View”



## General Information

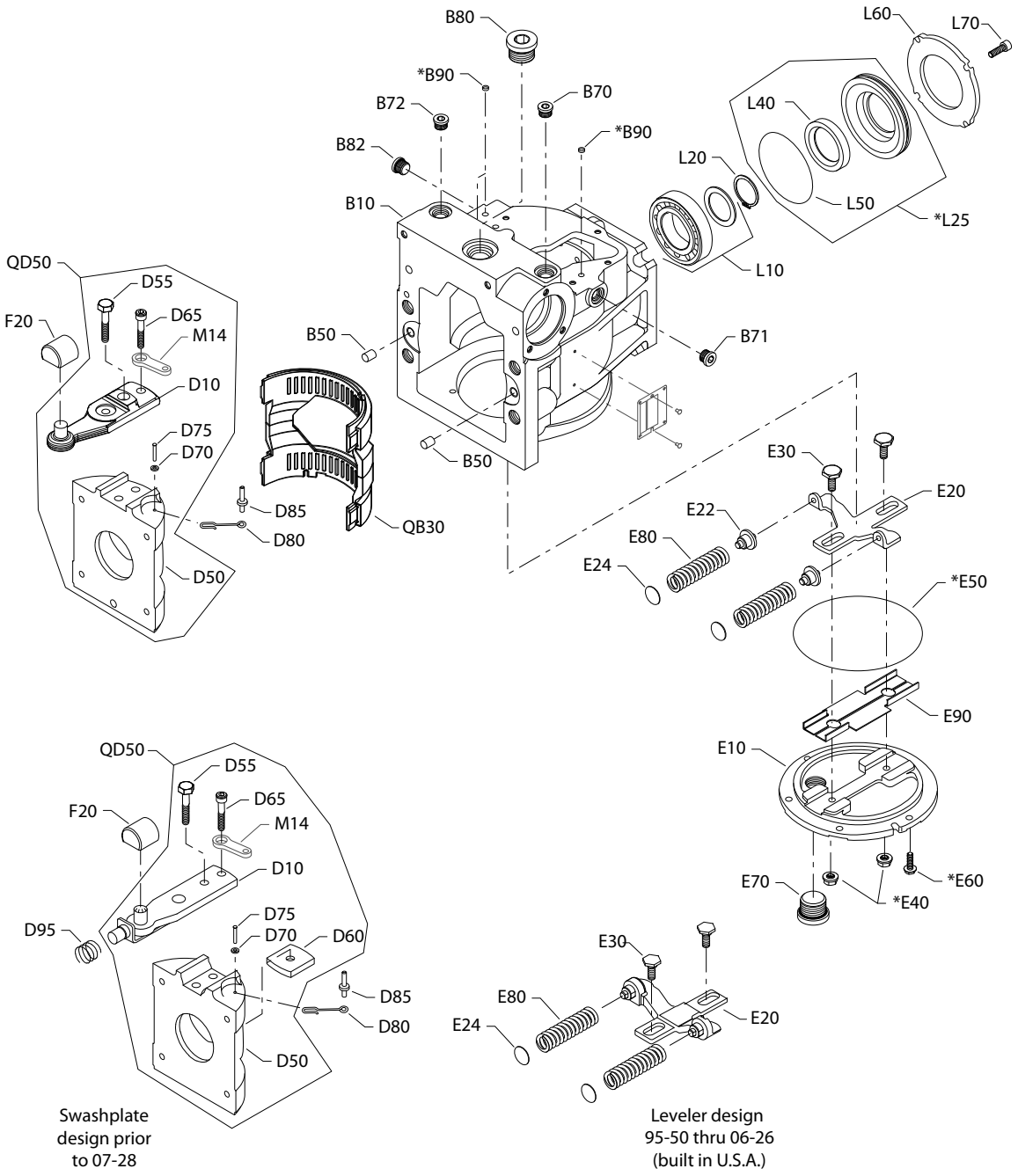
### Order code



## Common parts and special hardware

### S90 100cc pump common parts

*Parts configuration*



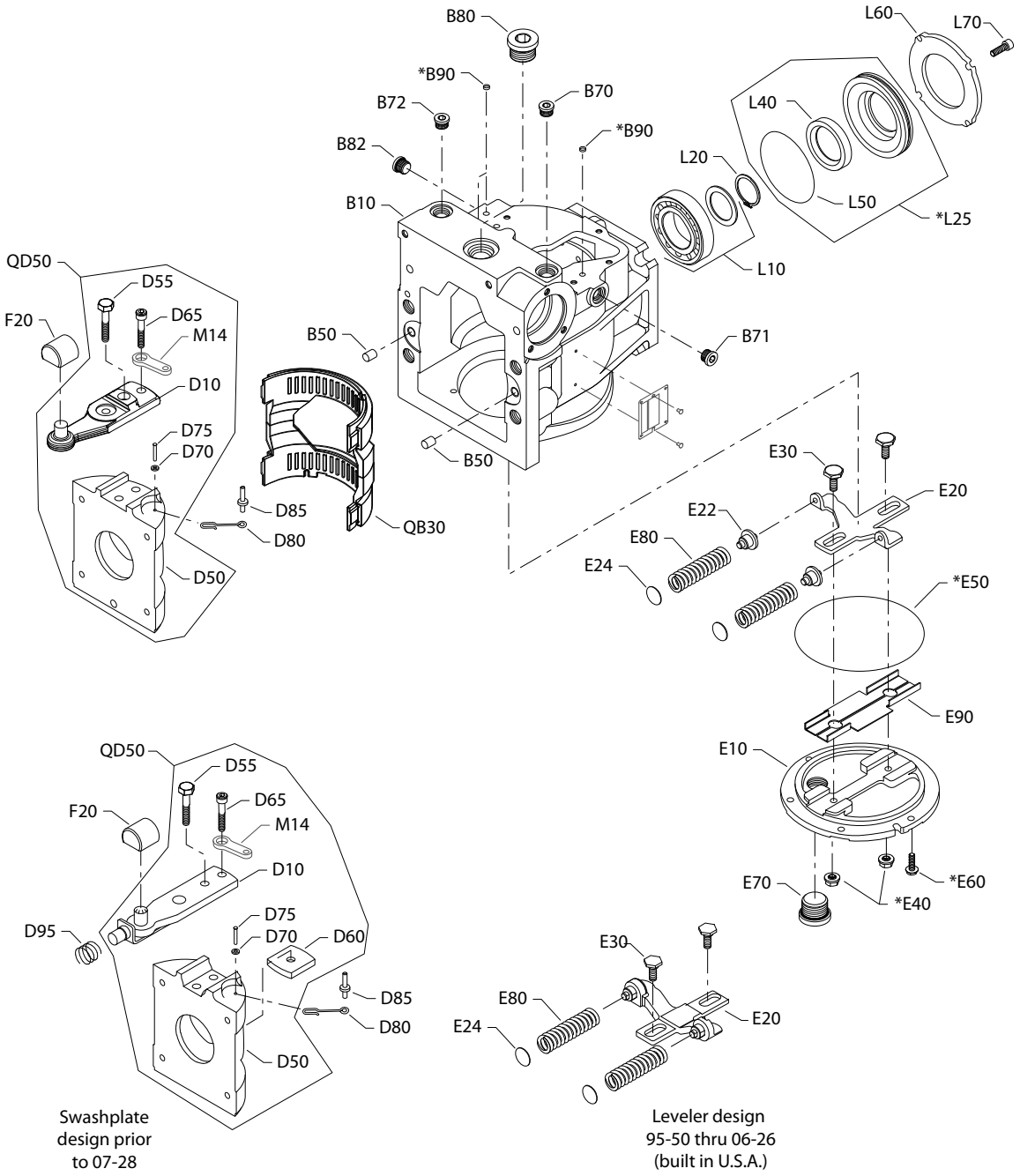

* Included in base pump seal kit Q210

## Common parts and special hardware

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| B10 | 07-28 | | 11002463 | Housing (*SB-1994-035* on page 277 & *SB-2007-018* on page 307) | 1 |
| B50 | 87-02 | | 9004800-3708 | Pin | 2 |
| B70 | 87-02 | | 140644 (9005110-5600) | Plug assembly | 1 |
| B71 | 87-02 | | 9005110-4400 | Plug assembly | 1 |
| B72 | 87-02 | | 140644 (9005110-5600) | Plug assembly | 1 |
| B80 | 87-02 | | 664524 (9005110-9000) | Plug assembly | 1 |
| B82 | 92-19 | | 140644 (9005110-5600) | Plug assembly (*SB-1992-003* on page 266) | 1 |
| B90 | 87-02 | | 9803390 | Control filter screen | 3 |
| D10 | 07-29 | | 521607 | Servo arm assembly (*SB-2007-018* on page 307) | 1 |
| D10 | 87-02 | 07-28 | 8200268 | Servo arm assembly (*SB-1993-015* on page 272) | 1 |
| D50 | 07-29 | | 11002493 | Swashplate (*SB-2007-018* on page 307) | 1 |
| D50 | 88-16 | 07-28 | 8200232 | Swashplate (*SB-1988-009* on page 253) | 1 |
| D55 | 07-29 | | 519150 | Screw (*SB-2007-018* on page 307) | 1 |
| D55 | 87-02 | 07-28 | 9007276-0111 | Screw | 1 |
| D60 | 87-02 | 07-28 | 8800669 | Swashplate guide (*SB-2007-018* on page 307) | 1 |
| D65 | 07-29 | | 9007375-0044 | Screw (*SB-2007-018* on page 307 | 1 |
| D65 | 87-02 | 07-28 | 9007375-0032 | Screw (*SB-1992-011* on page 268) | 1 |
| D70 | 87-02 | | 9009625-0146 | Washer | 1 |
| D75 | 87-02 | | 9004875-0098 | Spiral head pin | 1 |
| D80 | 87-02 | | 673038 (8200273) | Cage locator link (*SB-1994-017* on page 274) | 1 |
| D85 | 87-02 | | 8801235 | Pin (*SB-1998-018* on page 286 & *SB-1999-057* on page 297) | 1 |
| D95 | 87-02 | 07-28 | 673145 (8200058) | Spring (*SB-2007-018* on page 307) | 1 |
| E10 | 07-29 | | 11000790 | Side cover (*SB-2007-018* on page 307) | 1 |
| E10 | 95-50 | 07-28 | 501574 | Side cover | 1 |
| E10 | 92-12 | 95-49 | 8510204 | Side cover (*SB-1995-025* on page 281, *SB-1997-048* on page 284, *SB-1998-070* on page 292) | 1 |
| E10 | 87-02 | 92-11 | 8510132 | Side cover (*SB-1992-003* on page 266) | 1 |
| E20 | 06-27 | | 11042019 | Leveler | 1 |
| E20 | 95-50 | 06-26 | 8200393 | Leveler (*SB-1998-070* on page 292) | 1 |
| E20 | 92-12 | 95-49 | 8510204 | Leveler (*SB-1998-070* on page 292) | 1 |
| E20 | 87-02 | 92-11 | 8510132 | Leveler (*SB-1989-003* on page 260 & *SB-1998-070* on page 292) | 1 |

Part numbers are continued on the next 2 pages.

## Common parts and special hardware




* Included in base pump seal kit Q210

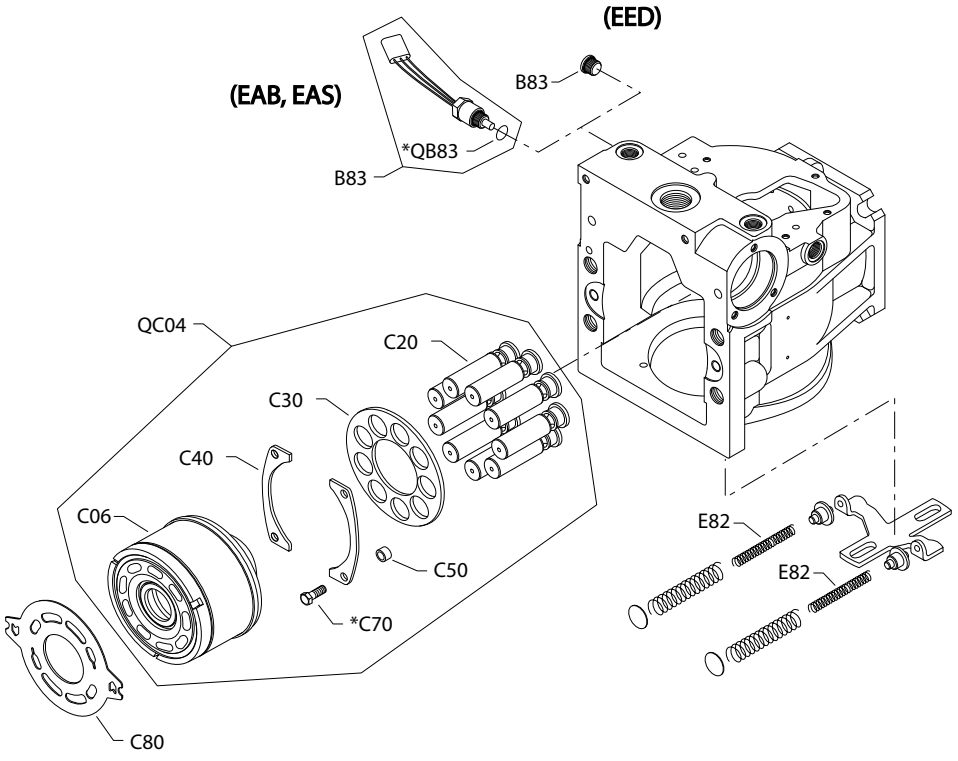
## Common parts and special hardware

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| E22 | 06-27 | | 517936 | Spring seat | 2 |
| E22 | 95-50 | 06-26 | none | Spring seat | 0 |
| E22 | 92-12 | 95-49 | 8510204 | Spring seat replacement kit (*SB-1998-070* on page 292) | 2 |
| E22 | 87-02 | 92-11 | 8510132 | Spring seat replacement kit (*SB-1998-070* on page 292) | 2 |
| E24 | 87-02 | | 8801225 | Shim (*SB-1989-003* on page 260 & *SB-2000-041* on page 302) | 2 |
| E30 | 09-52 | | 11056531 | Guide post (*SB-1998-070* on page 292 & *SB-2009-073* on page 318) | 2 |
| E30 | 92-12 | 97-46 | 8510204 | Guide post replacement kit (*SB-1997-048* on page 284) | 2 |
| E30 | 87-02 | 92-11 | 8510132 | Guide post replacement kit (*SB-1998-070* on page 292) | 2 |
| E40 | 87-02 | | 505412 (9003509-0008) | Seal nut | 2 |
| E50 | 87-02 | | 517378 (9004104-1620) | O-ring | 1 |
| E60 | 87-02 | | 517228 (5000206) | Screw (*SB-1994-018* on page 275) | 6 |
| E70 | 87-02 | | 664524 (9005110-9000) | Plug assembly | 1 |
| E80 | 87-02 | | 334979 (11062690) | Spring | 2 |
| E90 | 95-50 | | 513889-S | Insert assembly (*SB-1995-025* on page 281 & *SB-1999-041* on page 295) | 1 |
| F20 | 88-16 | | 11116312 | Slider block (*SB-1988-009* on page 253, *SB-2009-049* on page 317 & *SB-2015-005* on page 321) | 1 |
| L10 | 87-02 | | 5000506 | Roller bearing | 1 |
| L20 | 87-02 | | 9006300-0175 | Retaining ring | 1 |
| L25 | 87-02 | | 521722 | Seal carrier assembly (*SB-2007-018* on page 307) | 1 |
| L40 | 07-29 | | 519021 | Lip seal (*SB-2007-018* on page 307) | 1 |
| L50 | 87-02 | | 327627-S (9004104-1540) | O-ring | 1 |
| L60 | 87-02 | | 516768 | Retainer plate | 1 |
| L70 | 87-02 | | 041160 (9007314-0605) | Screw | 4 |
| QB30 | 07-29 | | 11131109 | Cradle bearing assembly (*SB-2007-018* on page 307) | 1 |
| QB30 | 87-02 | 07-28 | 305839 (8200053) | Cradle bearing assembly | 1 |
| QD50 | 07-29 | | 8200618 | Swashplate assembly (*SB-2007-018* on page 307) | 1 |
| QD50 | 88-16 | 07-28 | 346155 (8200192) | Swashplate assembly (*SB-1988-009* on page 253) | 1 |

## Common parts and special hardware

### S90 100cc pump special hardware EAB, EAS, EED

*EAB, EAS, EED parts configuration*




Generic speed sensor used to show part location only.

* Included in base pump seal kit Q210

## Common parts and special hardware

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| C20 | 87-02 | | 364000 | Piston assembly (*SB-1988-023* on page 257) | 9 |
| C30 | 87-02 | | 11067351 | Slipper guide | 1 |
| C40 | 88-22 | | 334409 (8200144) | Slipper guide bearing (*SB-1988-016* on page 255) | 2 |
| C50 | 88-22 | | 334383 (11065866) | Spacer (*SB-1988-016* on page 255, *SB-1998-041* on page 288 & *SB-2009-038* on page 316) | 4 |
| C65 | 88-22 | 98-47 | Obsolete | Washer (*SB-1988-016* on page 255 & *SB-1998-041* on page 288) | 4 |
| C70 | 88-22 | | 314419 (9007276-0114) | Screw (*SB-1988-016* on page 255 & *SB-1998-041* on page 288) | 4 |
| QB83 | 98-14 | | 085043 (9004201-3700) | O-ring | 1 |

*Order code: EAB*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 94-14 | | KPPG12508 | Speed sensor | 1 |
| C06 | 94-14 | | 11093925 (11012435) | Cylinder block assembly, with speed ring | 1 |
| C80 | 94-14 | | 518929 | Valve plate | 1 |
| E82 | 94-14 | | 356576 (11062702) | Spring | 2 |
| QC04 | 94-14 | | 8510371 | Cylinder block kit, with speed ring | 1 |

*Order code: EAS*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 98-14 | | KPPG12508 | Speed sensor | 1 |
| C06 | 98-14 | | 11093925 (11012435) | Cylinder block assembly, with speed ring | 1 |
| C80 | 98-14 | | 518929 | Valve plate | 1 |
| E82 | 98-14 | | 356576 (11062702) | Spring | 2 |
| QC04 | 98-14 | | 8510371 | Cylinder block kit, with speed ring | 1 |

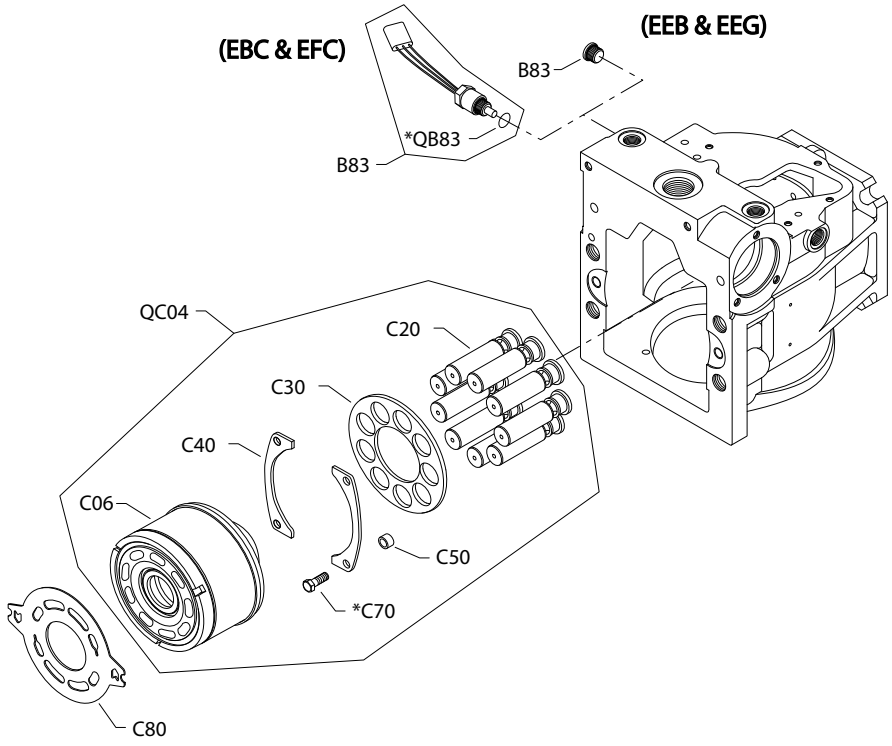
*Order code: EED*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 99-17 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C06 | 99-17 | | 11093925 (11012435) | Cylinder block assembly, with speed ring | 1 |
| C80 | 99-17 | | 518929 | Valve plate | 1 |
| E82 | 99-17 | | 356576 (11062702) | Spring | 2 |
| QC04 | 99-17 | | 8510371 | Cylinder block kit, with speed ring | 1 |

## Common parts and special hardware

### S90 100cc pump special hardware EBC, EFC, EEB, EEG

*EBC, EEB, EEG, EFC parts configuration*




Generic speed sensor used to show part location only.

* Included in base pump seal kit Q210

## Common parts and special hardware

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| C20 | 87-02 | | 364000 | Piston assembly (*SB-1988-023* on page 257) | 9 |
| C30 | 87-02 | | 11067351 | Slipper guide | 1 |
| C40 | 88-22 | | 334409 (8200144) | Slipper guide bearing (*SB-1988-016* on page 255) | 2 |
| C50 | 88-22 | | 334383 (11065866) | Spacer (*SB-1988-016* on page 255, *SB-1998-041* on page 288 & *SB-2009-038* on page 316) | 4 |
| C65 | 88-22 | 98-47 | Obsolete | Washer (*SB-1988-016* on page 255 & *SB-1998-041* on page 288) | 4 |
| C70 | 88-22 | | 314419 (9007276-0114) | Screw (*SB-1988-016* on page 255 & *SB-1998-041* on page 288) | 4 |
| QB83 | 98-14 | | 085043 (9004201-3700) | O-ring | 1 |

*Order code: EBC*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 98-14 | | KPPG13408 | Speed sensor | 1 |
| C06 | 94-14 | | 11093925 (11012435) | Cylinder block assembly, with speed ring | 1 |
| C80 | 94-14 | | 518806 | Valve plate | 1 |
| QC04 | 94-14 | | 8510371 | Cylinder block kit, with speed ring | 1 |

*Order code: EEB*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 06-05 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C06 | 06-05 | | 11093925 (11012435) | Cylinder block assembly, with speed ring | 1 |
| C80 | 06-05 | | 518806 | Valve plate | 1 |
| QC04 | 06-05 | | 8510371 | Cylinder block kit, with speed ring | 1 |

*Order code: EEG*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 00-13 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C06 | 00-13 | | 11093925 (11012435) | Cylinder block assembly, with speed ring | 1 |
| C80 | 00-13 | | 518931 | Valve plate, CCW | 1 |
| C80 | 00-13 | | 518930 | Valve plate, CW | 1 |
| E82 | 00-13 | | 356576 (11062702) | Spring | 2 |
| QC04 | 00-13 | | 8510371 | Cylinder block kit, with speed ring | 1 |

*Order code: EFC*

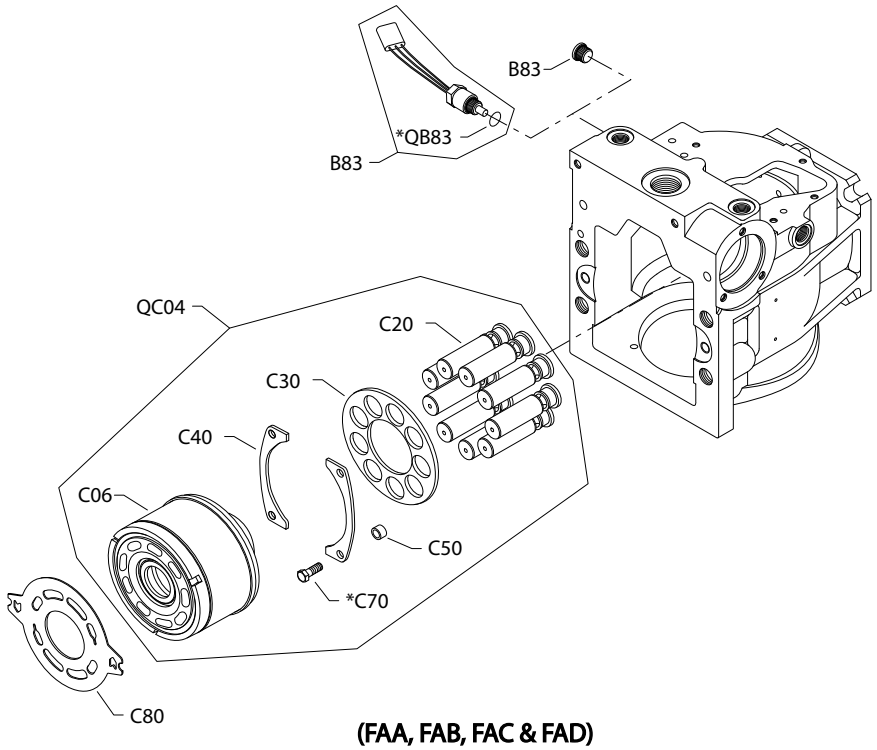
| | | | | | |
|---|---|---|---|---|---|
| B83 | 03-43 | | KPPG156 | Speed sensor | 1 |
| C06 | 03-43 | | 11093925 (11012435) | Cylinder block assembly, with speed ring | 1 |
| C80 | 03-43 | | 518806 | Valve plate | 1 |
| QC04 | 03-43 | | 8510371 | Cylinder block kit, with speed ring | 1 |

## Common parts and special hardware

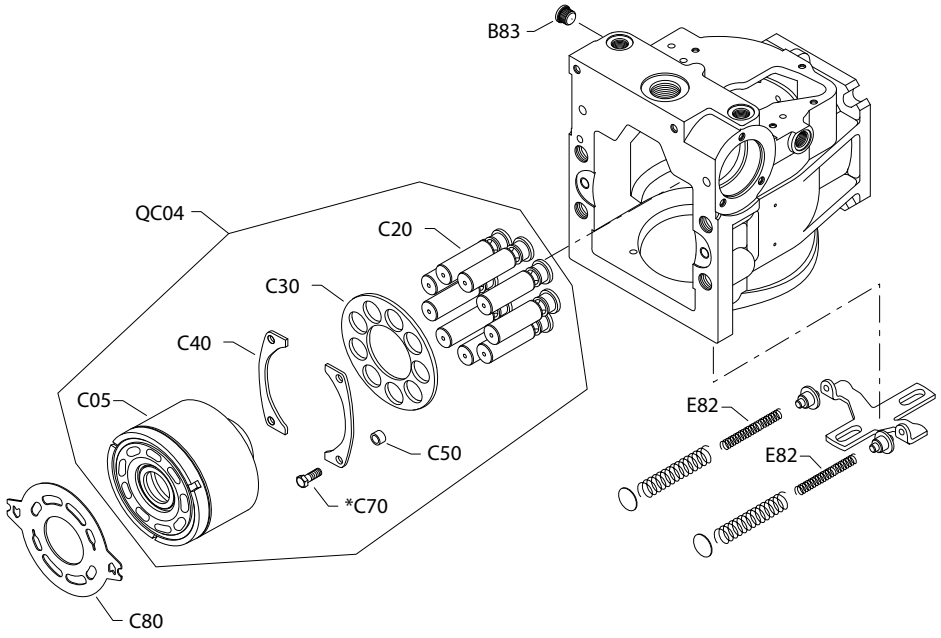
### S90 100cc pump special hardware EFI-EKA, FAA-FAD

*Parts configuration*

**(EFI, EHA & EKA)**




**(FAA, FAB, FAC & FAD)**




Generic speed sensor shown

* Included in base pump seal kit Q210

## Common parts and special hardware

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| C20 | 87-02 | | 364000 | Piston assembly (*SB-1988-023* on page 257) | 9 |
| C30 | 87-02 | | 11067351 | Slipper guide | 1 |
| C40 | 88-22 | | 334409 (8200144) | Slipper guide bearing (*SB-1988-016* on page 255) | 2 |
| C50 | 88-22 | | 334383 (11065866) | Spacer (*SB-1988-016* on page 255, *SB-1998-041* on page 288 & *SB-2009-038* on page 316) | 4 |
| C65 | 88-22 | 98-47 | Obsolete | Washer (*SB-1988-016* on page 255 & *SB-1998-041* on page 288) | 4 |
| C70 | 88-22 | | 314419 (9007276-0114) | Screw (*SB-1988-016* on page 255 & *SB-1998-041* on page 288) | 4 |

*Order code: EFI*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 98-12 | | KPPG156 | Speed sensor | 1 |
| C06 | 98-12 | | 11093925 (11012435) | Cylinder block assembly, with speed ring | 1 |
| C80 | 98-12 | | 518931 | Valve plate, CCW | 1 |
| C80 | 98-12 | | 518930 | Valve plate, CW | 1 |
| QC04 | 98-12 | | 8510371 | Cylinder block kit, with speed ring | 1 |

*Order code: EHA*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 00-42 | | KPPG16408 | Speed sensor | 1 |
| C06 | 00-42 | | 11093925 (11012435) | Cylinder block assembly, with speed ring | 1 |
| C80 | 00-42 | | 518806 | Valve plate | 1 |
| QC04 | 00-42 | | 8510371 | Cylinder block kit, with speed ring | 1 |

*Order code: EKA*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 99-31 | | KPPG16719 | Speed sensor | 1 |
| C06 | 99-31 | | 11093925 (11012435) | Cylinder block assembly, with speed ring | 1 |
| C80 | 99-31 | | 518806 | Valve plate | 1 |
| QC04 | 99-31 | | 8510371 | Cylinder block kit, with speed ring | 1 |

*Order code: FAA*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 87-02 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 87-02 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 87-02 | | 518994 | Valve plate | 1 |
| E82 | 87-02 | | 356576 (11062702) | Spring | 2 |
| QC04 | 87-02 | | 8510372 | Cylinder block kit | 1 |

*Order code: FAB*

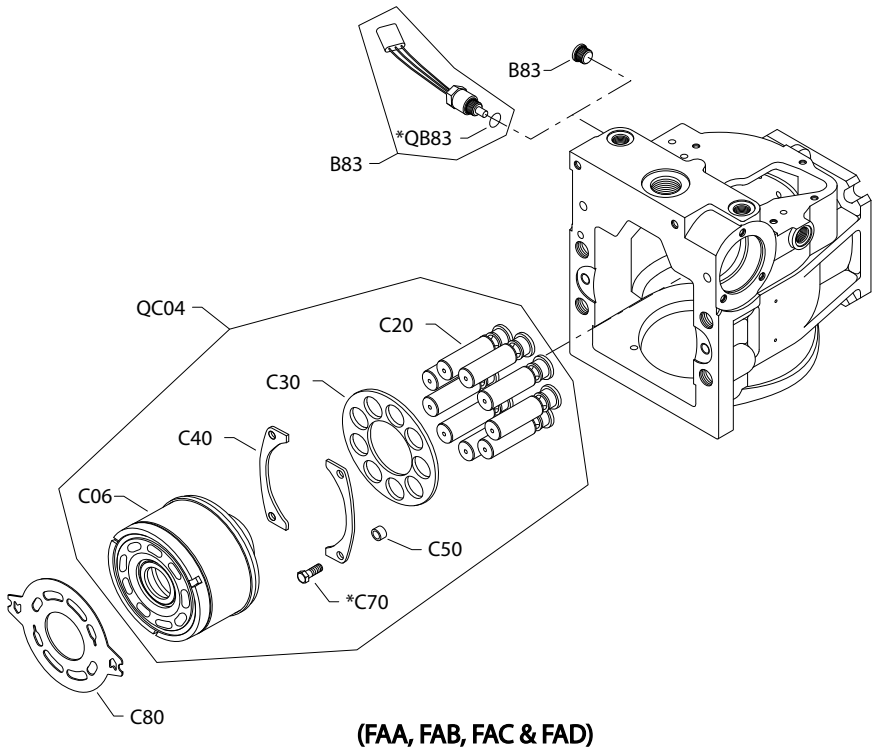
| | | | | | |
|---|---|---|---|---|---|
| B83 | 87-02 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 87-02 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 87-02 | | 518927 | Valve plate | 1 |
| E82 | 87-02 | | 356576 (11062702) | Spring | 2 |
| QC04 | 87-02 | | 8510372 | Cylinder block kit | 1 |

Part numbers continue to the next 2 pages.

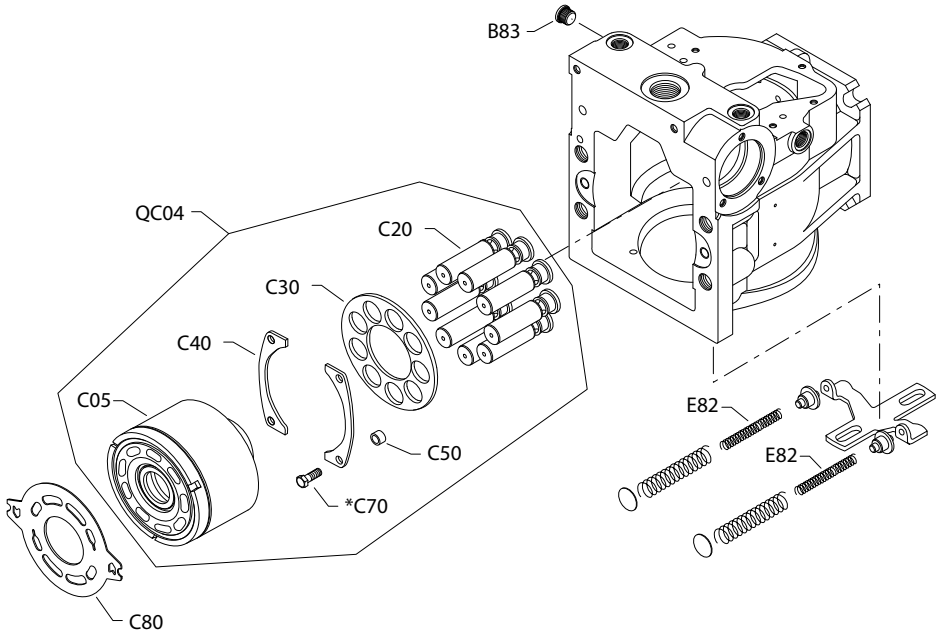
## Common parts and special hardware

*Parts configuration*

**(EFI, EHA & EKA)**




**(FAA, FAB, FAC & FAD)**




Generic speed sensor shown

* Included in base pump seal kit Q210

## Common parts and special hardware

*Order code: FAC*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| B83 | 87-02 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 87-02 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 87-02 | | 518929 | Valve plate | 1 |
| E82 | 87-02 | | 356576 (11062702) | Spring | 2 |
| QC04 | 87-02 | | 8510372 | Cylinder block kit | 1 |

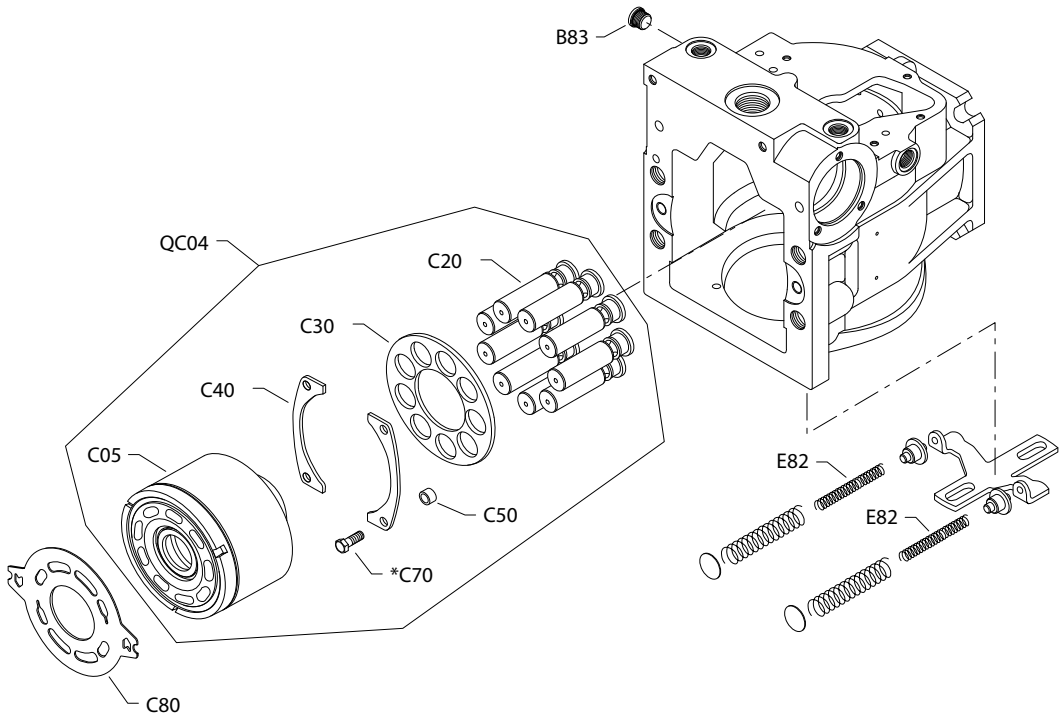
*Order code: FAD*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 87-02 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 87-02 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 87-02 | | 518806 | Valve plate | 1 |
| E82 | 87-02 | | 356576 (11062702) | Spring | 2 |
| QC04 | 87-02 | | 8510372 | Cylinder block kit | 1 |

## Common parts and special hardware

### S90 100cc pump special hardware FAL-FAU

*Parts configuration*




* Included in base pump seal kit Q210

## Common parts and special hardware

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| C20 | 87-02 | | 364000 | Piston assembly (*SB-1988-023* on page 257) | 9 |
| C30 | 87-02 | | 11067351 | Slipper guide | 1 |
| C40 | 88-22 | | 334409 (8200144) | Slipper guide bearing (*SB-1988-016* on page 255) | 2 |
| C50 | 88-22 | | 334383 (11065866) | Spacer (*SB-1988-016* on page 255, *SB-1998-041* on page 288 & *SB-2009-038* on page 316) | 4 |
| C65 | 88-22 | 98-47 | Obsolete | Washer (*SB-1988-016* on page 255 & *SB-1998-041* on page 288) | 4 |
| C70 | 88-22 | | 314419 (9007276-0114) | Screw (*SB-1988-016* on page 255 & *SB-1998-041* on page 288) | 4 |

*Order code: FAL*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 95-04 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 95-04 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 95-04 | | 518927 | Valve plate | 1 |
| E82 | 95-04 | | 356576 (11062702) | Spring | 2 |
| QC04 | 95-04 | | 8510372 | Cylinder block kit | 1 |

*Order code: FAN*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 13-41 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 13-41 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 13-41 | | 518927 | Valve plate | 1 |
| E82 | 13-41 | | 356576 (11062702) | Spring | 2 |
| QC04 | 13-41 | | 8510372 | Cylinder block kit | 1 |

*Order code: FAP*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 06-03 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 06-03 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 06-03 | | 518931 | Valve plate, CCW | 1 |
| C80 | 06-03 | | 518930 | Valve plate, CW | 1 |
| E82 | 06-03 | | 356576 (11062702) | Spring | 2 |
| QC04 | 06-03 | | 8510372 | Cylinder block kit | 1 |

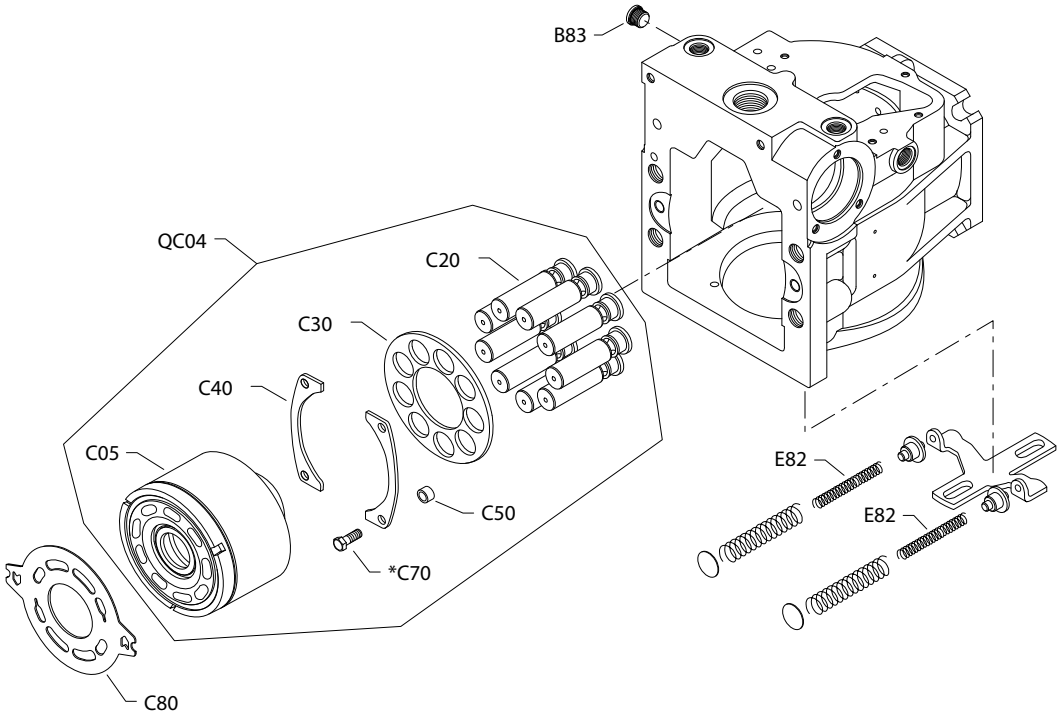
*Order code: FAQ*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 12-36 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 12-36 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 12-36 | | 518930 | Valve plate | 1 |
| E82 | 12-36 | | 356576 (11062702) | Spring | 2 |
| QC04 | 12-36 | | 8510372 | Cylinder block kit | 1 |

Part numbers continue to the next 2 pages.

## Common parts and special hardware

*Parts configuration*




* Included in base pump seal kit Q210

## Common parts and special hardware

*Order code: FAR*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| B83 | 95-39 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 95-39 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 95-39 | | 510720 | Valve plate | 1 |
| E82 | 95-39 | | 356576 (11062702) | Spring | 2 |
| QC04 | 95-39 | | 8510372 | Cylinder block kit | 1 |

*Order code: FAS*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 97-03 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 97-03 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 97-03 | | 518929 | Valve plate | 1 |
| E82 | 97-03 | | 356576 (11062702) | Spring | 2 |
| QC04 | 97-03 | | 8510372 | Cylinder block kit | 1 |

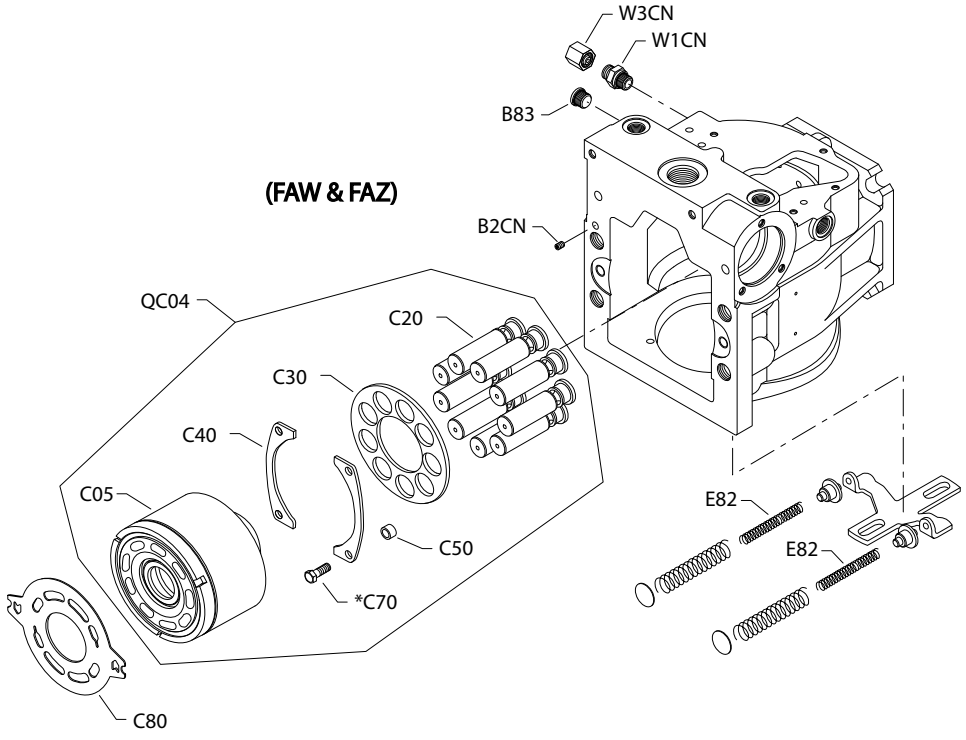
*Order code: FAU*

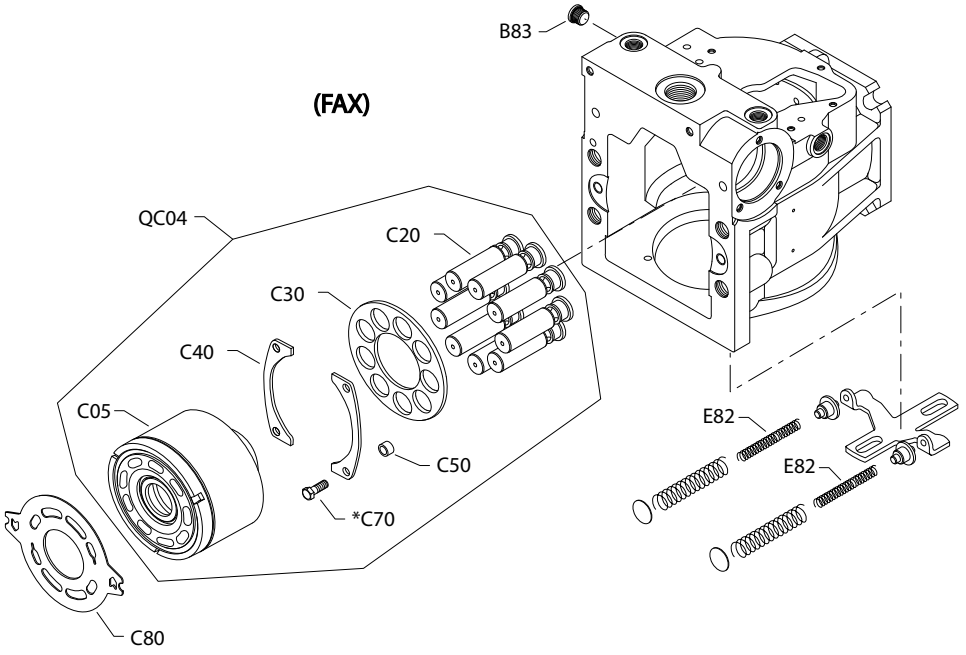
| | | | | | |
|---|---|---|---|---|---|
| B83 | 98-38 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 98-38 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 98-38 | | 518806 | Valve plate | 1 |
| E82 | 98-38 | | 356576 (11062702) | Spring | 2 |
| QC04 | 98-38 | | 8510372 | Cylinder block kit | 1 |

## Common parts and special hardware

### S90 100cc pump special hardware FAW, FAZ, FAX

*Parts configuration*




* Included in base pump seal kit Q210

## Common parts and special hardware

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| C20 | 87-02 | | 364000 | Piston assembly (*SB-1988-023* on page 257) | 9 |
| C30 | 87-02 | | 11067351 | Slipper guide | 1 |
| C40 | 88-22 | | 334409 (8200144) | Slipper guide bearing (*SB-1988-016* on page 255) | 2 |
| C50 | 88-22 | | 334383 (11065866) | Spacer (*SB-1988-016* on page 255, *SB-1998-041* on page 288 & *SB-2009-038* on page 316) | 4 |
| C65 | 88-22 | 98-47 | Obsolete | Washer (*SB-1988-016* on page 255 & *SB-1998-041* on page 288) | 4 |
| C70 | 88-22 | | 314419 (9007276-0114) | Screw (*SB-1988-016* on page 255 & *SB-1998-041* on page 288) | 4 |

*Order code: FAW*

| | | | | | |
|---|---|---|---|---|---|
| B2CN | 99-19 | | 775312 | Set screw | 1 |
| B83 | 99-19 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 99-19 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 99-19 | | 510720 | Valve plate | 1 |
| E82 | 99-19 | | 356576 (11062702) | Spring | 2 |
| QC04 | 99-19 | | 8510372 | Cylinder block kit | 1 |
| W1CN | 99-19 | | 723726 | Connector | 1 |
| W3CN | 99-19 | | 574095 | Cap | 1 |

*Order code: FAX*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 01-07 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 01-07 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 01-07 | | 510720 | Valve plate | 1 |
| E82 | 01-07 | | 356576 (11062702) | Spring | 2 |
| QC04 | 01-07 | | 8510372 | Cylinder block kit | 1 |

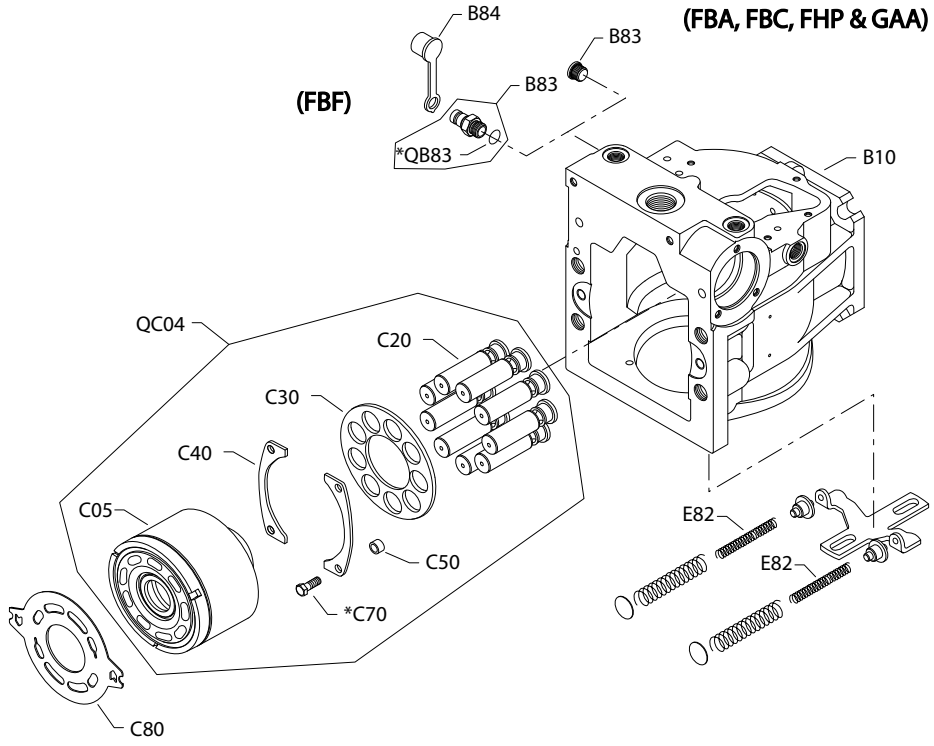
*Order code: FAZ*

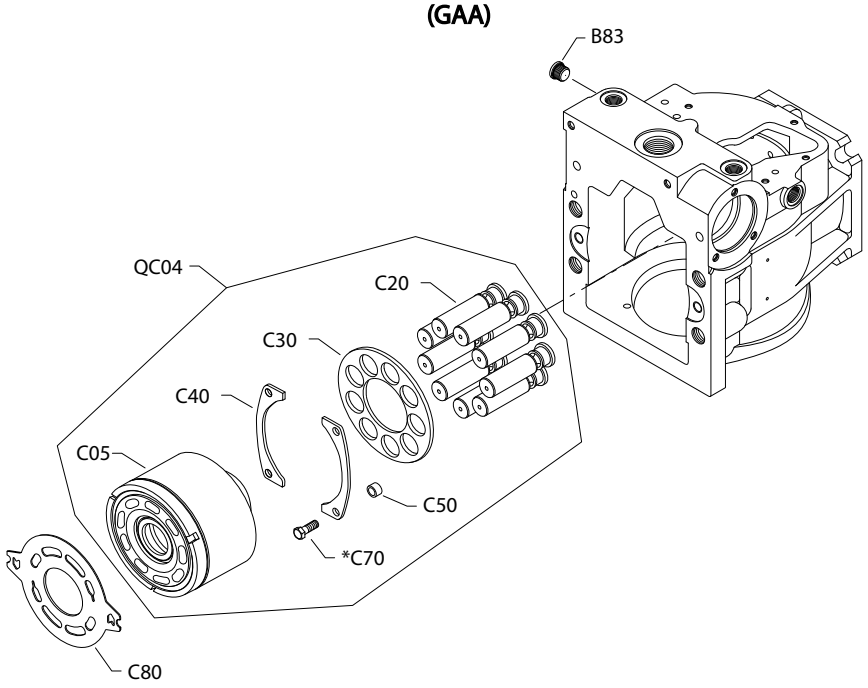
| | | | | | |
|---|---|---|---|---|---|
| B2CN | 05-14 | | 775312 | Set screw | 1 |
| B83 | 05-14 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 05-14 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 05-14 | | 518929 | Valve plate | 1 |
| E82 | 05-14 | | 356576 (11062702) | Spring | 2 |
| QC04 | 05-14 | | 8510372 | Cylinder block kit | 1 |
| W1CN | 05-14 | | 723726 | Connector | 1 |
| W3CN | 05-14 | | 574095 | Cap | 1 |

## Common parts and special hardware

### S90 100cc pump special hardware FBA-GAA

*Parts configuration*




* Included in base pump seal kit Q210

## Common parts and special hardware

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| C20 | 87-02 | | 364000 | Piston assembly (*SB-1988-023* on page 257) | 9 |
| C30 | 87-02 | | 11067351 | Slipper guide | 1 |
| C40 | 88-22 | | 334409 (8200144) | Slipper guide bearing (*SB-1988-016* on page 255) | 2 |
| C50 | 88-22 | | 334383 (11065866) | Spacer (*SB-1988-016* on page 255, *SB-1998-041* on page 288 & *SB-2009-038* on page 316) | 4 |
| C65 | 88-22 | 98-47 | Obsolete | Washer (*SB-1988-016* on page 255 & *SB-1998-041* on page 288) | 4 |
| C70 | 88-22 | | 314419 (9007276-0114) | Screw (*SB-1988-016* on page 255 & *SB-1998-041* on page 288) | 4 |

*Order code: FBA*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 06-12 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 06-12 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 06-12 | | 518929 | Valve plate | 1 |
| E82 | 06-12 | | 356576 (11062702) | Spring | 2 |
| QC04 | 06-12 | | 8510372 | Cylinder block kit | 1 |

*Order code: FBC*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 06-12 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 06-12 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 06-12 | | 518806 | Valve plate | 1 |
| E82 | 06-12 | | 356576 (11062702) | Spring | 2 |
| QC04 | 06-12 | | 8510372 | Cylinder block kit | 1 |

*Order code: FBF*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 06-12 | | 8700127 | Diagnostic receptacle | 1 |
| B84 | 06-12 | | 8700128 | Dust cover | 1 |
| C05 | 06-12 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 06-12 | | 518929 | Valve plate | 1 |
| E82 | 06-12 | | 356576 (11062702) | Spring | 2 |
| QC04 | 06-12 | | 8510372 | Cylinder block kit | 1 |

*Order code: FHP*

| | | | | | |
|---|---|---|---|---|---|
| B10 | 12-39 | | 11117130 | Housing, special | 1 |
| B83 | 12-39 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 12-39 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 12-39 | | 518806 | Valve plate | 1 |
| E82 | 12-39 | | 356576 (11062702) | Spring | 2 |
| QC04 | 12-39 | | 8510372 | Cylinder block kit | 1 |

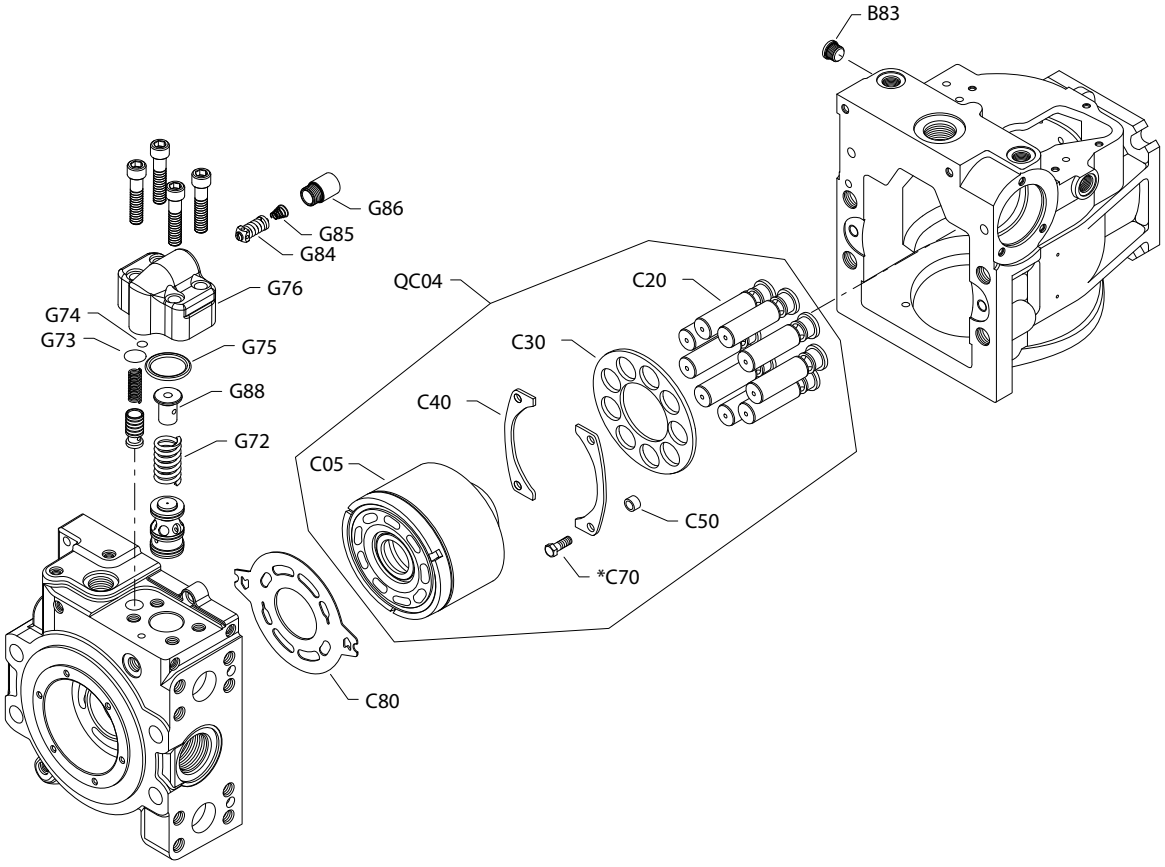
*Order code: GAA*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 94-03 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 94-03 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 94-03 | | 349266 | Valve plate | 1 |
| QC04 | 94-03 | | 8510372 | Cylinder block kit | 1 |

## Common parts and special hardware

### S90 100cc pump special hardware GB1, GB4, GB8

*Parts configuration*




* Included in base pump seal kit Q210

## Common parts and special hardware

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| C20 | 87-02 | | 364000 | Piston assembly (*SB-1988-023* on page 257) | 9 |
| C30 | 87-02 | | 11067351 | Slipper guide | 1 |
| C40 | 88-22 | | 334409 (8200144) | Slipper guide bearing (*SB-1988-016* on page 255) | 2 |
| C50 | 88-22 | | 334383 (11065866) | Spacer (*SB-1988-016* on page 255, *SB-1998-041* on page 288 & *SB-2009-038* on page 316) | 4 |
| C65 | 88-22 | 98-47 | Obsolete | Washer (*SB-1988-016* on page 255 & *SB-1998-041* on page 288) | 4 |
| C70 | 88-22 | | 314419 (9007276-0114) | Screw (*SB-1988-016* on page 255 & *SB-1998-041* on page 288) | 4 |

*Order code: GB1*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 02-30 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 02-30 | | 11033868 (11012434) | Cylinder block assembly | 1 |
| C80 | 02-30 | | 518806 | Valve plate | 1 |
| G73 | 02-30 | | 519873 | Seal | 1 |
| G74 | 02-30 | | 144725 (9004105-0110) | O-ring | 1 |
| G75 | 02-30 | | 518329 | O-ring | 1 |
| G76 | 02-30 | | 517828 | Valve housing | 1 |
| G84 | 02-30 | | 3103375-0175 | SCR valve, 175 bar [2538 psi] | 1 |
| G85 | 02-30 | | 4800780 | Spring | 1 |
| G86 | 02-30 | | 11126727 | Plug assembly | 1 |
| G88 | 02-30 | | 517829 | Spring seat | 1 |
| G89 | 02-30 | | 517831 | Spring | 1 |
| QC04 | 02-30 | | 8510372 | Cylinder block kit | 1 |

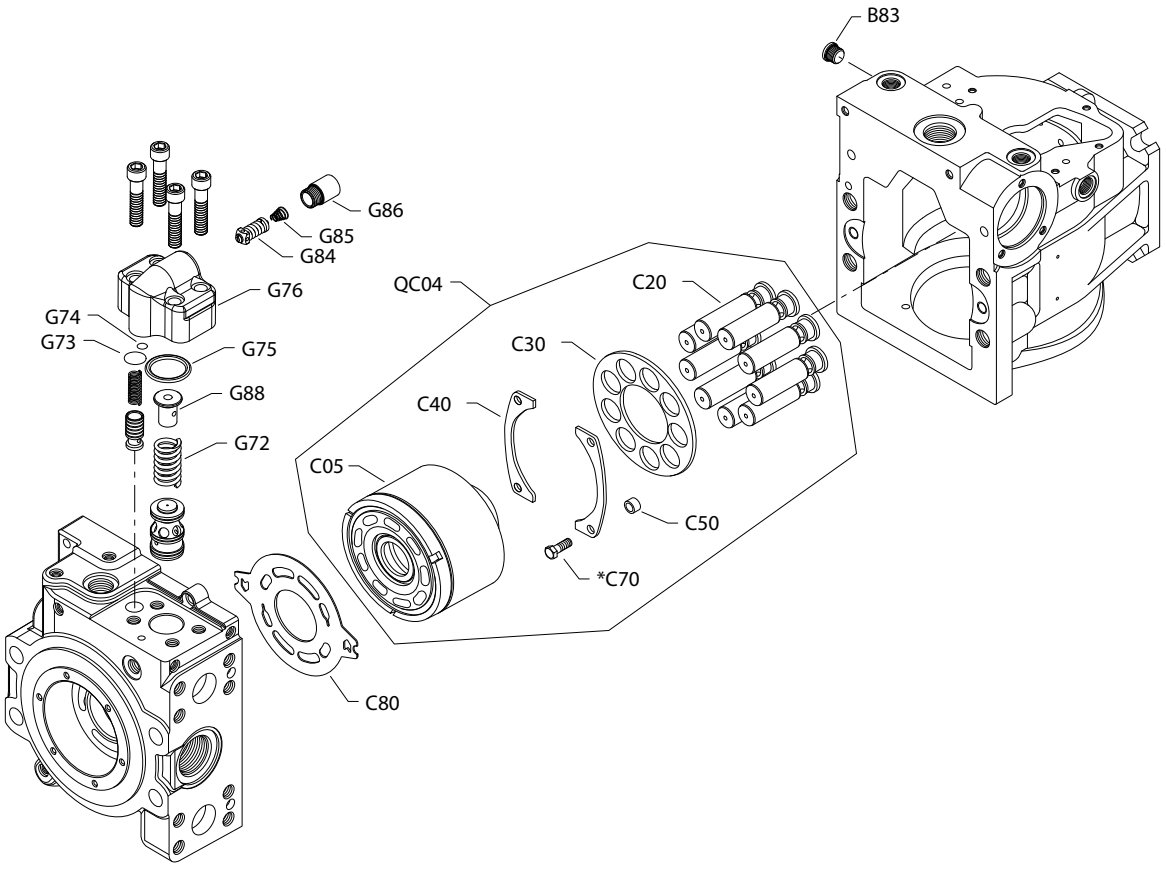
*Order code: GB4*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 02-30 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 02-30 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 02-30 | | 518806 | Valve plate | 1 |
| G73 | 02-30 | | 519873 | Seal | 1 |
| G74 | 02-30 | | 144725 (9004105-0110) | O-ring | 1 |
| G75 | 02-30 | | 518329 | O-ring | 1 |
| G76 | 02-30 | | 517828 | Valve housing | 1 |
| G84 | 02-30 | | 3103375-0140 | SCR valve, 140 bar [2030 psi] | 1 |
| G85 | 02-30 | | 4800780 | Spring | 1 |
| G86 | 02-30 | | 11126727 | Plug assembly | 1 |
| G88 | 02-30 | | 517829 | Spring seat | 1 |
| G89 | 02-30 | | 517831 | Spring | 1 |
| QC04 | 02-30 | | 8510372 | Cylinder block kit | 1 |

Part numbers continue to the next 2 pages.

## Common parts and special hardware

*Parts configuration*




* Included in base pump seal kit Q210

## Common parts and special hardware

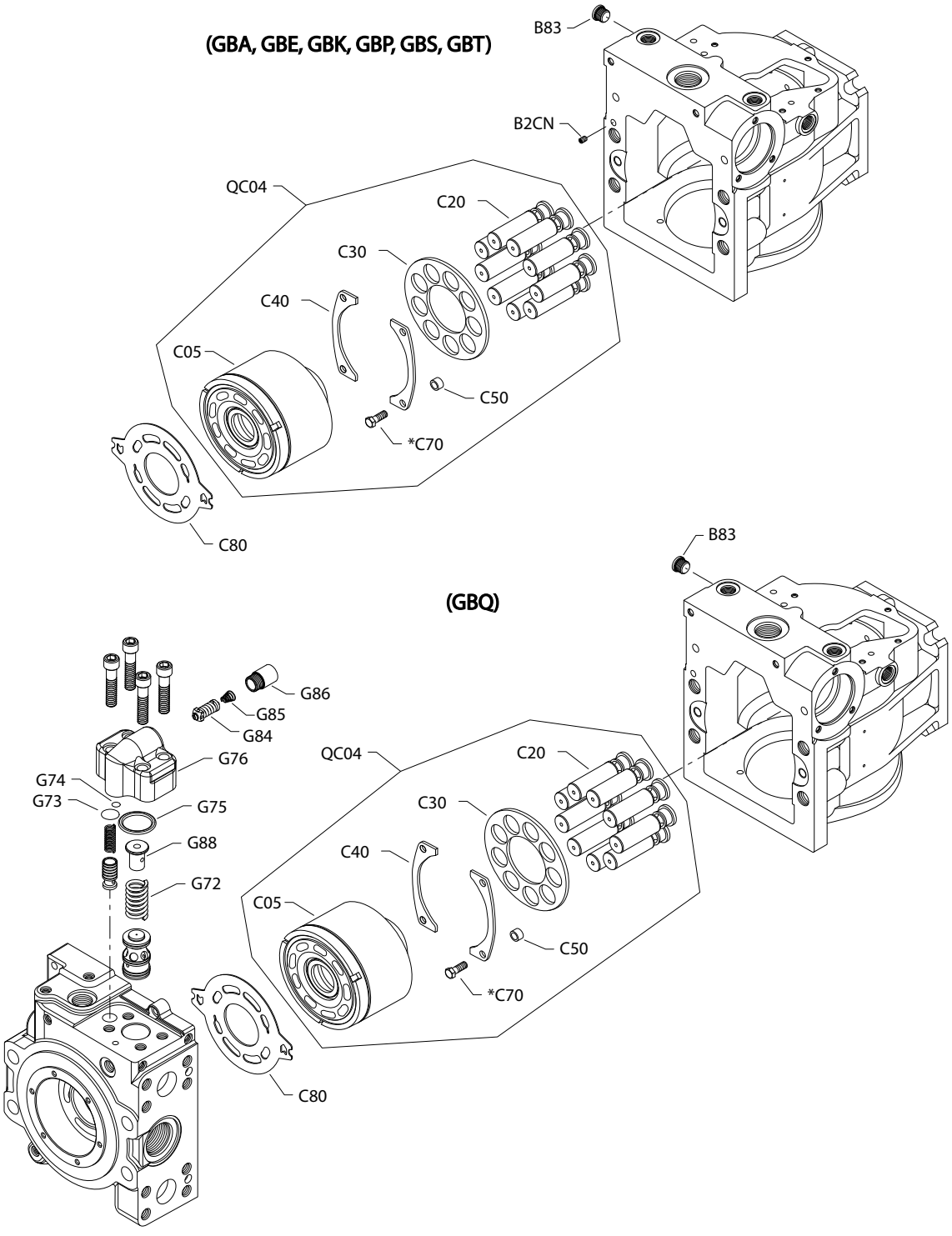
*Order code: GB8*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| B83 | 02-30 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 02-30 | | 11033868 (11012434) | Cylinder block assembly | 1 |
| C80 | 02-30 | | 518806 | Valve plate | 1 |
| G73 | 02-30 | | 519873 | Seal | 1 |
| G74 | 02-30 | | 144725 (9004105-0110) | O-ring | 1 |
| G75 | 02-30 | | 518329 | O-ring | 1 |
| G76 | 02-30 | | 517828 | Valve housing | 1 |
| G84 | 02-30 | | 3103375-0230 | SCR valve, 230 bar [3335 psi] | 1 |
| G85 | 02-30 | | 4800780 | Spring | 1 |
| G86 | 02-30 | | 11126727 | Plug assembly | 1 |
| G88 | 02-30 | | 517829 | Spring seat | 1 |
| G89 | 02-30 | | 517831 | Spring | 1 |
| QC04 | 02-30 | | 8510372 | Cylinder block kit | 1 |

## Common parts and special hardware

### S90 100cc pump special hardware GBA-GBT

*Parts configuration*




* Included in base pump seal kit Q210

## Common parts and special hardware

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| C20 | 87-02 | | 364000 | Piston assembly (*SB-1988-023* on page 257) | 9 |
| C30 | 87-02 | | 11067351 | Slipper guide | 1 |
| C40 | 88-22 | | 334409 (8200144) | Slipper guide bearing (*SB-1988-016* on page 255) | 2 |
| C50 | 88-22 | | 334383 (11065866) | Spacer (*SB-1988-016* on page 255, *SB-1998-041* on page 288 & *SB-2009-038* on page 316) | 4 |
| C65 | 88-22 | 98-47 | Obsolete | Washer (*SB-1988-016* on page 255 & *SB-1998-041* on page 288) | 4 |
| C70 | 88-22 | | 314419 (9007276-0114) | Screw (*SB-1988-016* on page 255 & *SB-1998-041* on page 288) | 4 |

*Order code: GBA*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 87-02 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 87-02 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 87-02 | | 518806 | Valve plate | 1 |
| QC04 | 87-02 | | 8510372 | Cylinder block kit | 1 |

*Order code: GBE*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 06-20 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 06-20 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 06-20 | | 518806 | Valve plate | 1 |
| QC04 | 06-20 | | 8510372 | Cylinder block kit | 1 |

*Order code: GBG*

| | | | | | |
|---|---|---|---|---|---|
| B2CN | 95-16 | | 042457 | Set screw | 1 |
| B83 | 95-16 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 95-16 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 95-16 | | 518806 | Valve plate | 1 |
| QC04 | 95-16 | | 8510372 | Cylinder block kit | 1 |

*Order code: GBK*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 95-16 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 95-16 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 95-16 | | 518806 | Valve plate | 1 |
| QC04 | 95-16 | | 8510372 | Cylinder block kit | 1 |

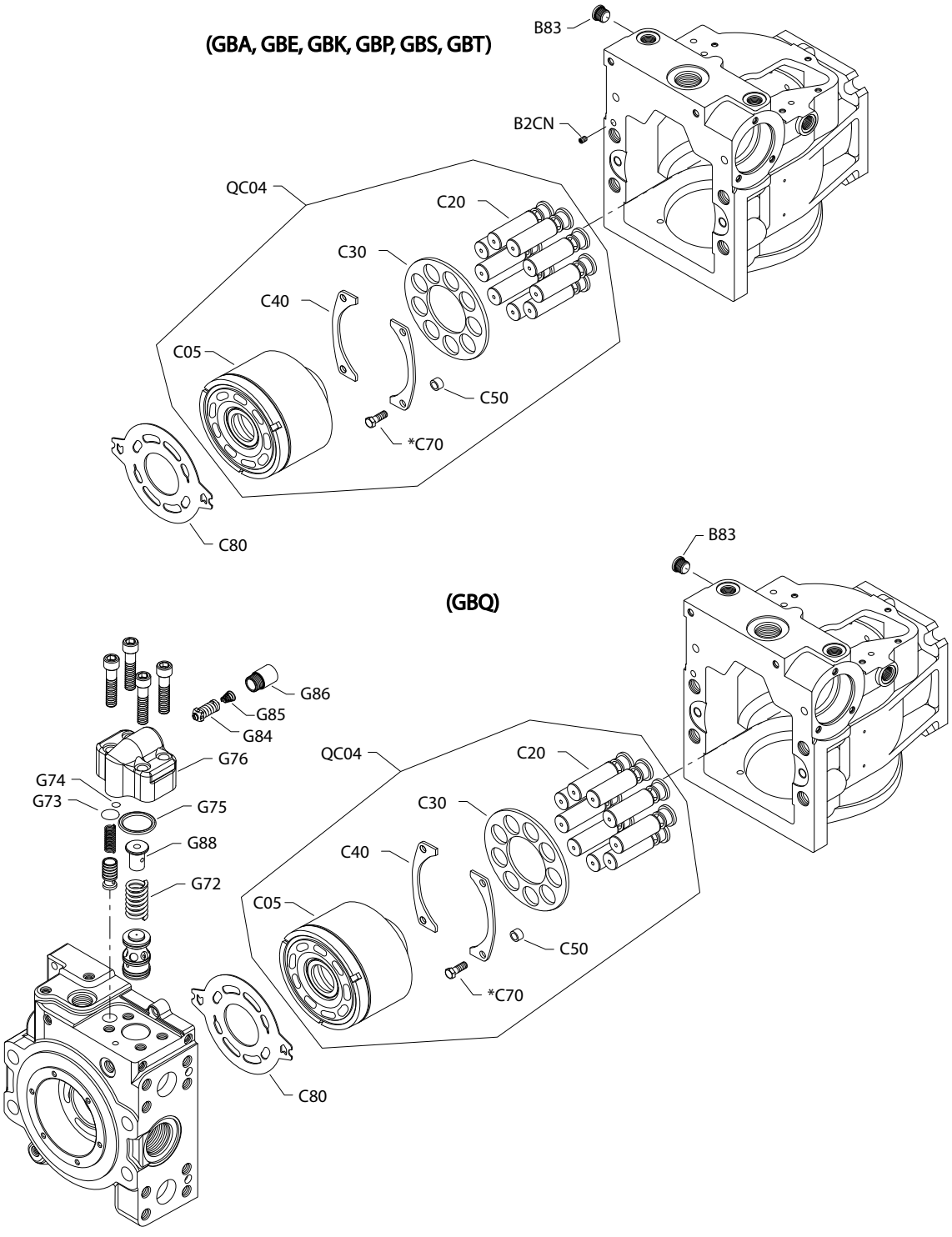
*Order code: GBP*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 06-17 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 06-17 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 06-17 | | 518806 | Valve plate | 1 |
| QC04 | 06-17 | | 8510372 | Cylinder block kit | 1 |

Parts continue to the next 2 pages.

## Common parts and special hardware

*Parts configuration*




* Included in base pump seal kit Q210

## Common parts and special hardware

*Order code: GBQ*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| B83 | 95-16 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 95-16 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 95-16 | | 518806 | Valve plate | 1 |
| QC04 | 95-16 | | 8510372 | Cylinder block kit | 1 |

*Order code: GBS*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 97-05 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 97-05 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 97-05 | | 518806 | Valve plate | 1 |
| QC04 | 97-05 | | 8510372 | Cylinder block kit | 1 |

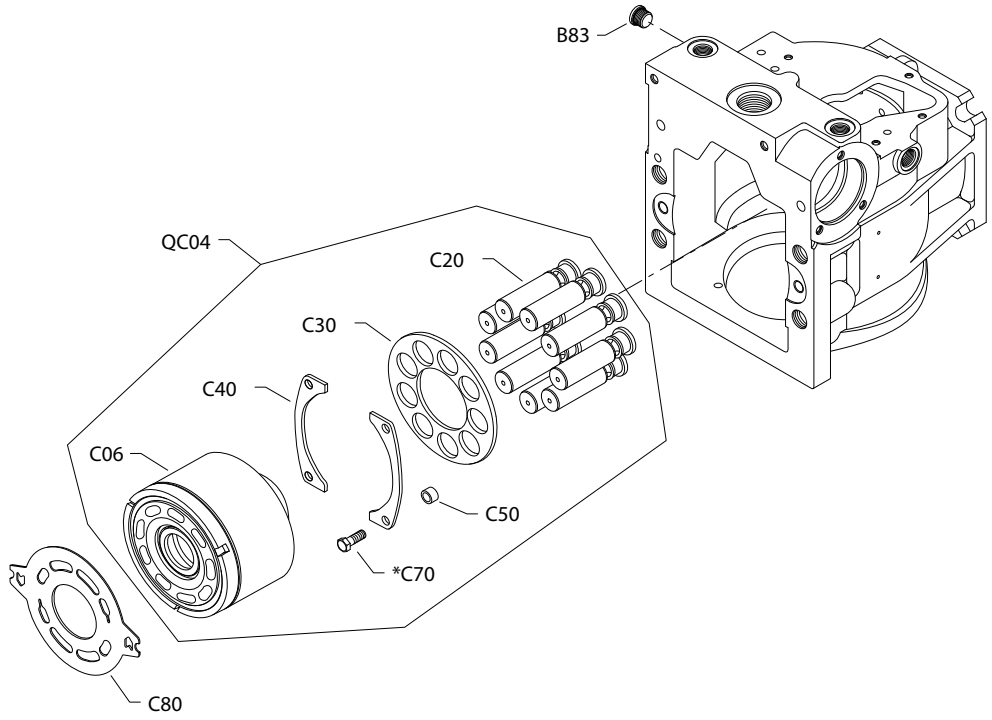
*Order code: GBT*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 04-50 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 04-50 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 04-50 | | 518806 | Valve plate | 1 |
| QC04 | 04-50 | | 8510372 | Cylinder block kit | 1 |

## Common parts and special hardware

### S90 100cc pump special hardware GCA-GFJ

*Parts configuration*




* Included in base pump seal kit Q210

## Common parts and special hardware

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| C20 | 87-02 | | 364000 | Piston assembly (*SB-1988-023* on page 257) | 9 |
| C30 | 87-02 | | 11067351 | Slipper guide | 1 |
| C40 | 88-22 | | 334409 (8200144) | Slipper guide bearing (*SB-1988-016* on page 255) | 2 |
| C50 | 88-22 | | 334383 (11065866) | Spacer (*SB-1988-016* on page 255, *SB-1998-041* on page 288 & *SB-2009-038* on page 316) | 4 |
| C65 | 88-22 | 98-47 | Obsolete | Washer (*SB-1988-016* on page 255 & *SB-1998-041* on page 288) | 4 |
| C70 | 88-22 | | 314419 (9007276-0114) | Screw (*SB-1988-016* on page 255 & *SB-1998-041* on page 288) | 4 |

*Order code: GCA*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 98-14 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 98-14 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 98-14 | | 518929 | Valve plate | 1 |
| QC04 | 98-14 | | 8510372 | Cylinder block kit | 1 |

*Order code: GCP*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 94-50 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 94-50 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 94-50 | | 518929 | Valve plate | 1 |
| QC04 | 94-50 | | 8510372 | Cylinder block kit | 1 |

*Order code: GCR*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 11-23 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 11-23 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 11-23 | | 518806 | Valve plate | 1 |
| QC04 | 11-23 | | 8510372 | Cylinder block kit | 1 |

*Order code: GCS*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 98-49 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 98-49 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 98-49 | | 518929 | Valve plate | 1 |
| QC04 | 98-49 | | 8510372 | Cylinder block kit | 1 |

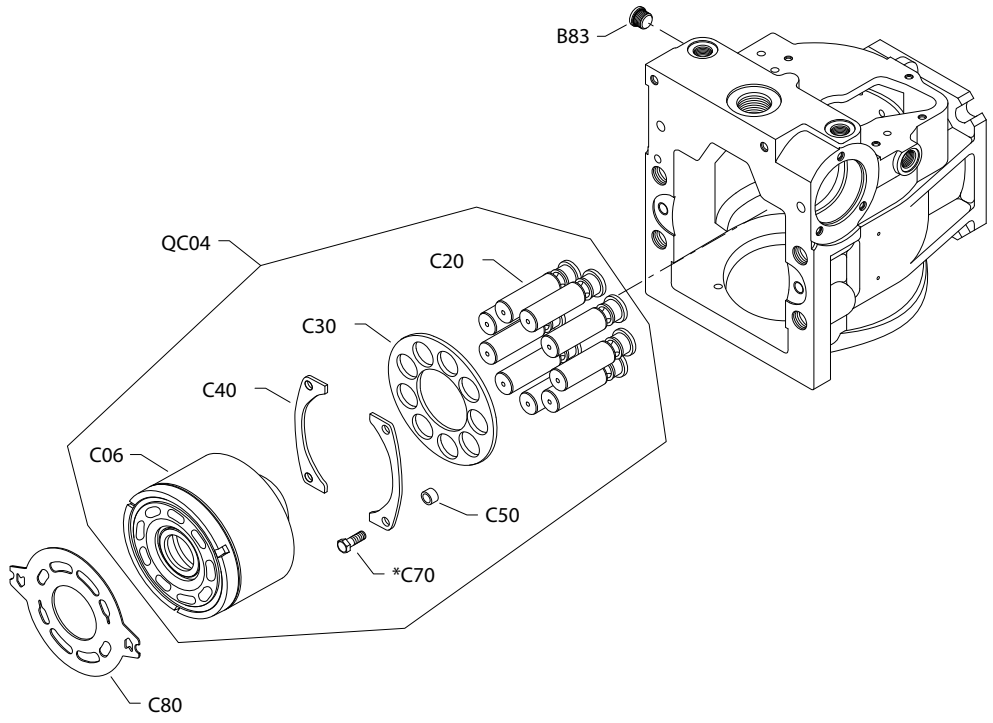
*Order code: GDE*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 98-49 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 98-49 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 98-49 | | 518806 | Valve plate | 1 |
| QC04 | 98-49 | | 8510372 | Cylinder block kit | 1 |

Parts continue to the next 2 pages.

## Common parts and special hardware

*Parts configuration*




* Included in base pump seal kit Q210

## Common parts and special hardware

*Order code: GFD*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| B83 | 06-12 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 06-12 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 06-12 | | 518806 | Valve plate | 1 |
| QC04 | 06-12 | | 8510372 | Cylinder block kit | 1 |

*Order code: GFH*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 06-12 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 06-12 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 06-12 | | 518806 | Valve plate | 1 |
| QC04 | 06-12 | | 8510372 | Cylinder block kit | 1 |

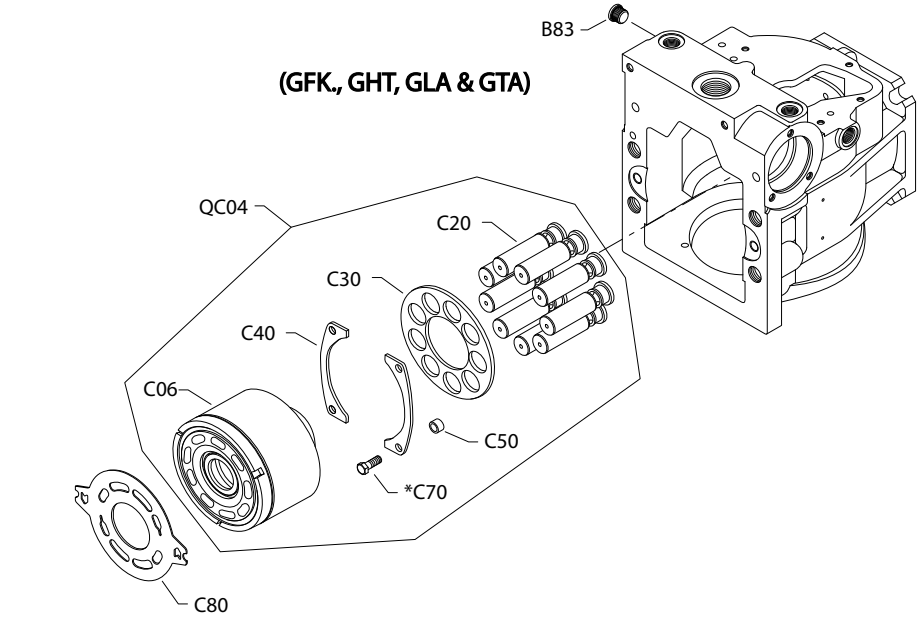
*Order code: GFJ*

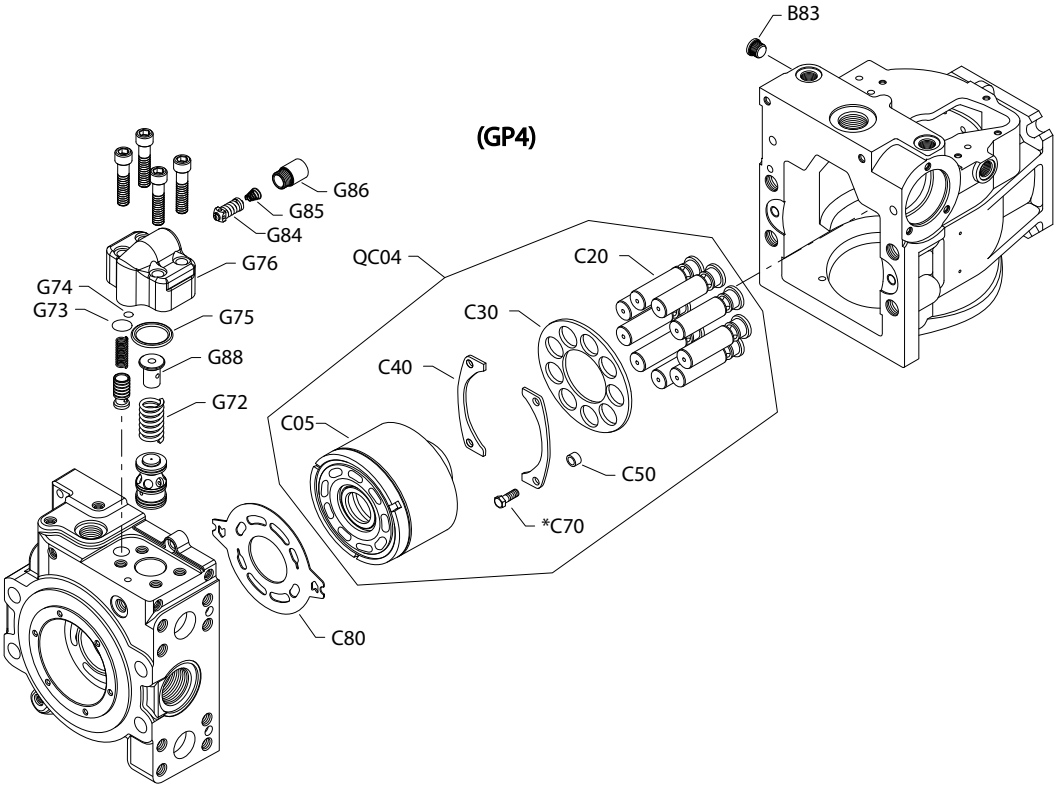
| | | | | | |
|---|---|---|---|---|---|
| B83 | 06-14 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 06-14 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 06-14 | | 518806 | Valve plate | 1 |
| QC04 | 06-14 | | 8510372 | Cylinder block kit | 1 |

## Common parts and special hardware

### S90 100cc pump special hardware GFK-GTA

*Parts configuration*




* Included in base pump seal kit Q210

## Common parts and special hardware

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| C20 | 87-02 | | 364000 | Piston assembly (*SB-1988-023* on page 257) | 9 |
| C30 | 87-02 | | 11067351 | Slipper guide | 1 |
| C40 | 88-22 | | 334409 (8200144) | Slipper guide bearing (*SB-1988-016* on page 255) | 2 |
| C50 | 88-22 | | 334383 (11065866) | Spacer (*SB-1988-016* on page 255, *SB-1998-041* on page 288 & *SB-2009-038* on page 316) | 4 |
| C65 | 88-22 | 98-47 | Obsolete | Washer (*SB-1988-016* on page 255 & *SB-1998-041* on page 288) | 4 |
| C70 | 88-22 | | 314419 (9007276-0114) | Screw (*SB-1988-016* on page 255 & *SB-1998-041* on page 288) | 4 |

*Order code: GFK*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 06-12 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 06-12 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 06-12 | | 518806 | Valve plate | 1 |
| QC04 | 06-12 | | 8510372 | Cylinder block kit | 1 |

*Order code: GHT*

| | | | | | |
|---|---|---|---|---|---|
| B10 | 12-39 | | 11117130 | Housing, special | 1 |
| B83 | 12-39 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 12-39 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 12-39 | | 518929 | Valve plate | 1 |
| QC04 | 12-39 | | 8510372 | Cylinder block kit | 1 |

*Order code: GLA*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 07-49 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 07-49 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 07-49 | | 518931 | Valve plate, CCW | 1 |
| C80 | 07-49 | | 518930 | Valve plate, CW | 1 |
| QC04 | 07-49 | | 8510372 | Cylinder block kit | 1 |

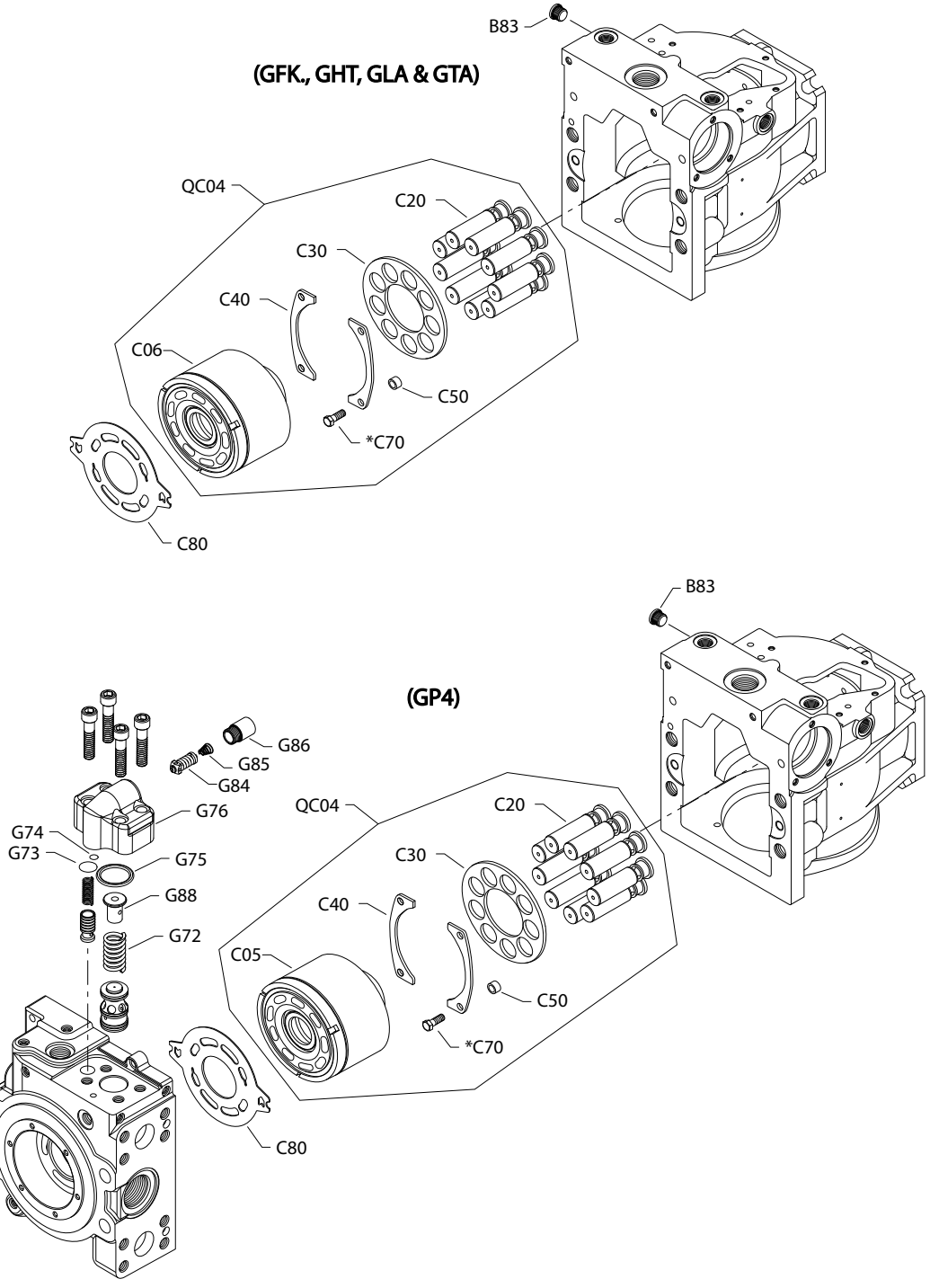
*Order code: GLS*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 07-49 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 07-49 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 07-49 | | 518931 | Valve plate, CCW | 1 |
| C80 | 07-49 | | 518930 | Valve plate, CW | 1 |
| QC04 | 07-49 | | 8510372 | Cylinder block kit | 1 |

Parts continue to the next 2 pages.

## Common parts and special hardware

*Parts configuration*




* Included in base pump seal kit Q210

## Common parts and special hardware

*Order code: GP4*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| B83 | 09-30 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 09-30 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 09-30 | | 518930 | Valve plate | 1 |
| G73 | 09-30 | | 519873 | Seal | 1 |
| G74 | 09-30 | | 144725 (9004105-0110) | O-ring | 1 |
| G75 | 09-30 | | 518329 | O-ring | 1 |
| G76 | 09-30 | | 517828 | Valve housing | 1 |
| G84 | 09-30 | | 3103375-0140 | SCR valve, 140 bar [2030 psi] | 1 |
| G85 | 09-30 | | 4800780 | Spring | 1 |
| G86 | 09-30 | | 11126727 | Plug assembly | 1 |
| G88 | 09-30 | | 517829 | Spring seat | 1 |
| G89 | 09-30 | | 517831 | Spring | 1 |
| QC04 | 09-30 | | 8510372 | Cylinder block kit | 1 |

*Order code: GTA*

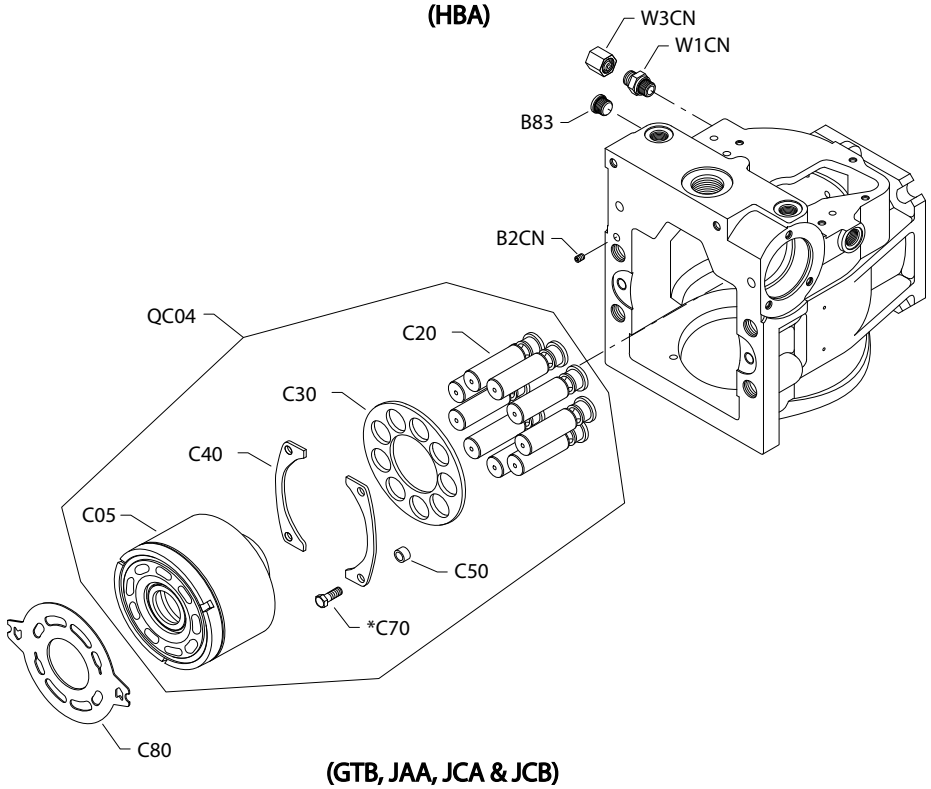
| | | | | | |
|---|---|---|---|---|---|
| B83 | 14-02 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 14-02 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 14-02 | | 518806 | Valve plate | 1 |
| QC04 | 14-02 | | 8510372 | Cylinder block kit | 1 |

## Common parts and special hardware

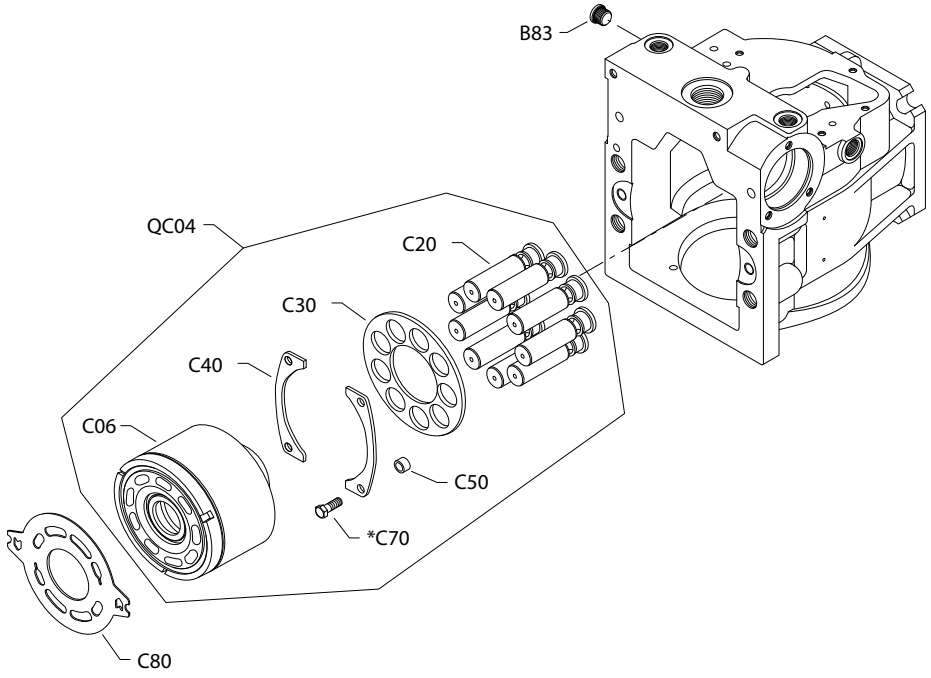
### S90 100cc pump special hardware GTB-JCB

*Parts configuration*

**(HBA)**




**(GTB, JAA, JCA & JCB)**




* Included in base pump seal kit Q210

## Common parts and special hardware

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| C20 | 87-02 | | 364000 | Piston assembly (*SB-1988-023* on page 257) | 9 |
| C30 | 87-02 | | 11067351 | Slipper guide | 1 |
| C40 | 88-22 | | 334409 (8200144) | Slipper guide bearing (*SB-1988-016* on page 255) | 2 |
| C50 | 88-22 | | 334383 (11065866) | Spacer (*SB-1988-016* on page 255, *SB-1998-041* on page 288 & *SB-2009-038* on page 316) | 4 |
| C65 | 88-22 | 98-47 | Obsolete | Washer (*SB-1988-016* on page 255 & *SB-1998-041* on page 288) | 4 |
| C70 | 88-22 | | 314419 (9007276-0114) | Screw (*SB-1988-016* on page 255 & *SB-1998-041* on page 288) | 4 |

*Order code: GTB*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 15-41 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 15-41 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 15-41 | | 518806 | Valve plate | 1 |
| QC04 | 15-41 | | 8510372 | Cylinder block kit | 1 |

*Order code: HBA*

| | | | | | |
|---|---|---|---|---|---|
| B2CN | 94-14 | | 775312 | Set screw | 1 |
| B83 | 94-14 | | 140644 | Plug assembly | 1 |
| C05 | 94-14 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 94-14 | | 518994 | Valve plate | 1 |
| QC04 | 94-14 | | 8510372 | Cylinder block kit | 1 |
| W1CN | 94-14 | | 723726 | Connector | 1 |
| W3CN | 94-14 | | 574095 | Cap | 1 |

*Order code: JAA*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 94-13 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 94-13 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 94-13 | | 518994 | Valve plate | 1 |
| QC04 | 94-13 | | 8510372 | Cylinder block kit | 1 |

*Order code: JCA*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 08-12 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 08-12 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 08-12 | | 518806 | Valve plate | 1 |
| QC04 | 08-12 | | 8510372 | Cylinder block kit | 1 |

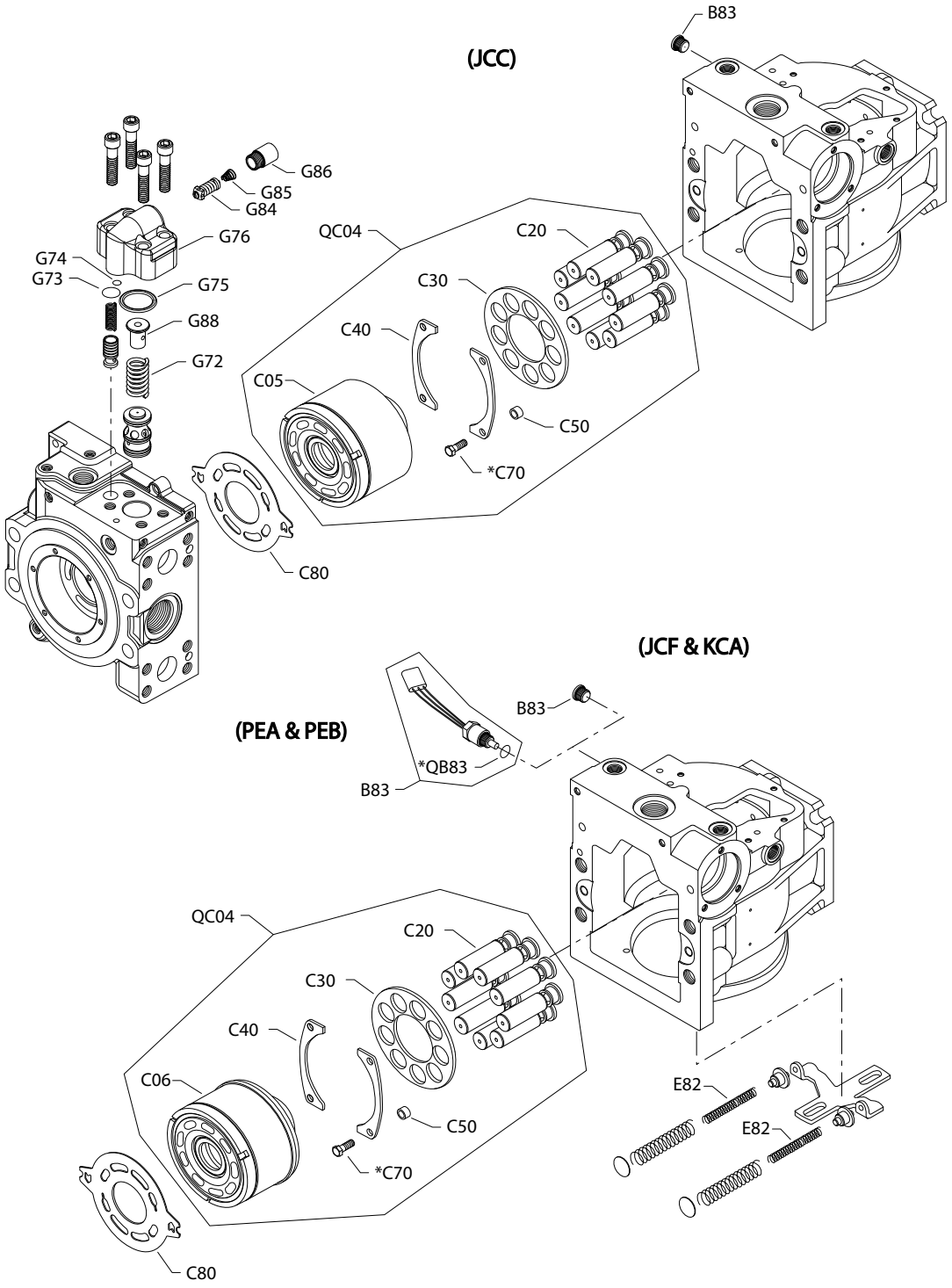
*Order code: JCB*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 09-13 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 09-13 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 09-13 | | 518806 | Valve plate | 1 |
| QC04 | 09-13 | | 8510372 | Cylinder block kit | 1 |

## Common parts and special hardware

### S90 100cc pump special hardware JCC-PEB

*Parts configuration*




* Included in base pump seal kit Q210

Generic speed sensor shown.

## Common parts and special hardware

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| C20 | 87-02 | | 364000 | Piston assembly (*SB-1988-023* on page 257) | 9 |
| C30 | 87-02 | | 11067351 | Slipper guide | 1 |
| C40 | 88-22 | | 334409 (8200144) | Slipper guide bearing (*SB-1988-016* on page 255) | 2 |
| C50 | 88-22 | | 334383 (11065866) | Spacer (*SB-1988-016* on page 255, *SB-1998-041* on page 288 & *SB-2009-038* on page 316) | 4 |
| C65 | 88-22 | 98-47 | Obsolete | Washer (*SB-1988-016* on page 255 & *SB-1998-041* on page 288) | 4 |
| C70 | 88-22 | | 314419 (9007276-0114) | Screw (*SB-1988-016* on page 255 & *SB-1998-041* on page 288) | 4 |

*Order code: JCC*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 09-13 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 09-13 | | 11033868 | Cylinder block assembly | 1 |
| C80 | 09-13 | | 518806 | Valve plate | 1 |
| G73 | 09-13 | | 519873 | Seal | 1 |
| G74 | 09-13 | | 144725 (9004105-0110) | O-ring | 1 |
| G75 | 09-13 | | 518329 | O-ring | 1 |
| G76 | 09-13 | | 517828 | Valve housing | 1 |
| G84 | 09-13 | | 3103375-0175 | SCR valve, 175 bar [2538 psi] | 1 |
| G85 | 09-13 | | 4800780 | Spring | 1 |
| G86 | 09-13 | | 11126727 | Plug assembly | 1 |
| G88 | 09-13 | | 517829 | Spring seat | 1 |
| G89 | 09-13 | | 517831 | Spring | 1 |
| QC04 | 09-13 | | 8510372 | Cylinder block kit | 1 |

*Order code: JCF*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 10-15 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 10-15 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 10-15 | | 518929 | Valve plate | 1 |
| E82 | 10-15 | | 356576 (11062702) | Spring | 2 |
| QC04 | 10-15 | | 8510372 | Cylinder block kit | 1 |

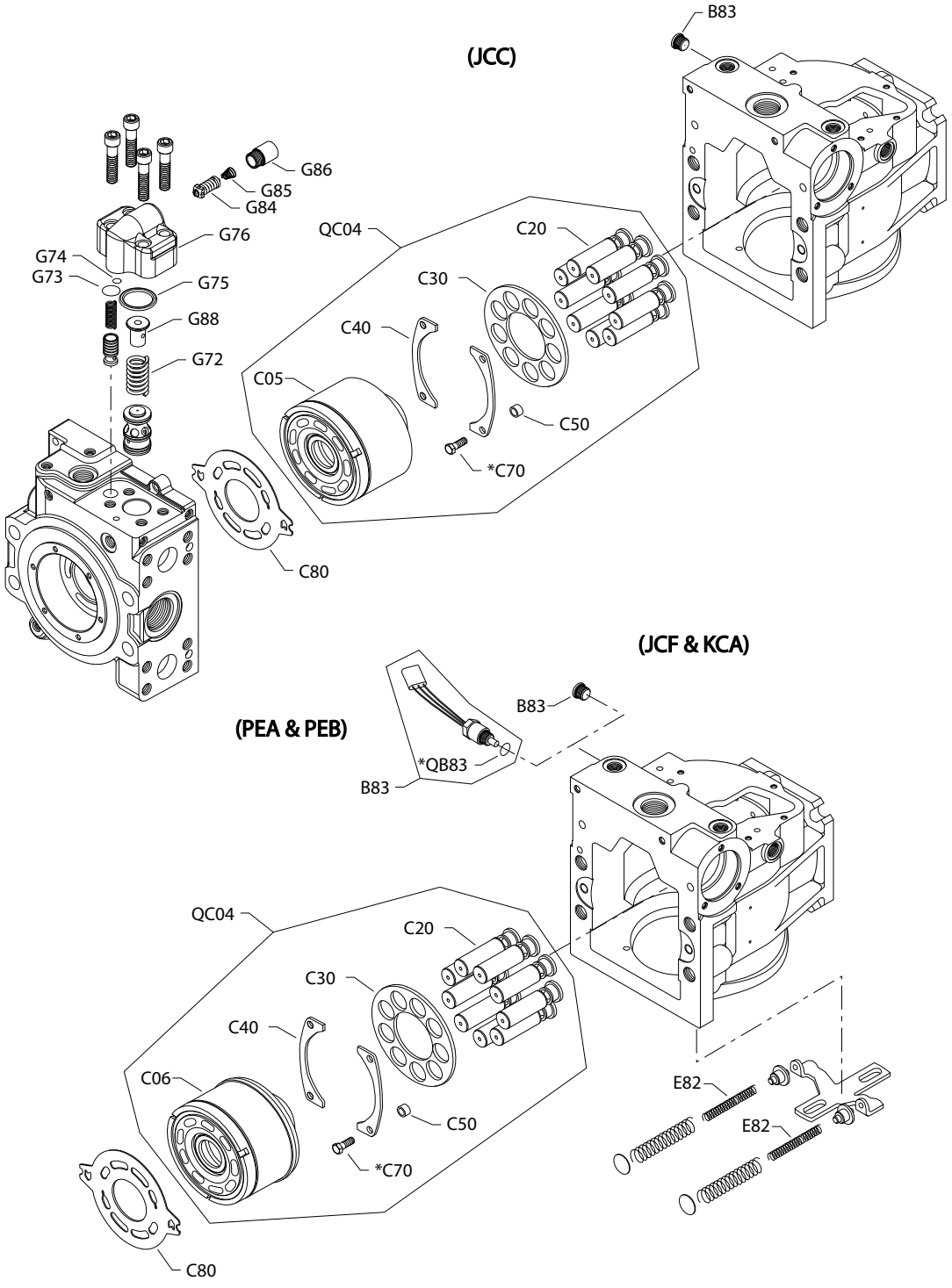
*Order code: KCA*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 94-29 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 94-29 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 94-29 | | 518994 | Valve plate | 1 |
| QC04 | 94-29 | | 8510372 | Cylinder block kit | 1 |

Parts continue to the next 2 pages.

## Common parts and special hardware

*Parts configuration*




* Included in base pump seal kit Q210

Generic speed sensor shown.

## Common parts and special hardware

*Order code: PEA*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| B83 | 07-04 | | KPPG156 | Speed sensor | 1 |
| C06 | 07-04 | | 11093925 | Cylinder block assembly, with speed ring | 1 |
| C80 | 07-04 | | 518806 | Valve plate | 1 |
| QB83 | 07-04 | | 085043 (9004201-3700) | O-ring | 1 |
| QC04 | 07-04 | | 8510371 | Cylinder block kit, with speed ring | 1 |

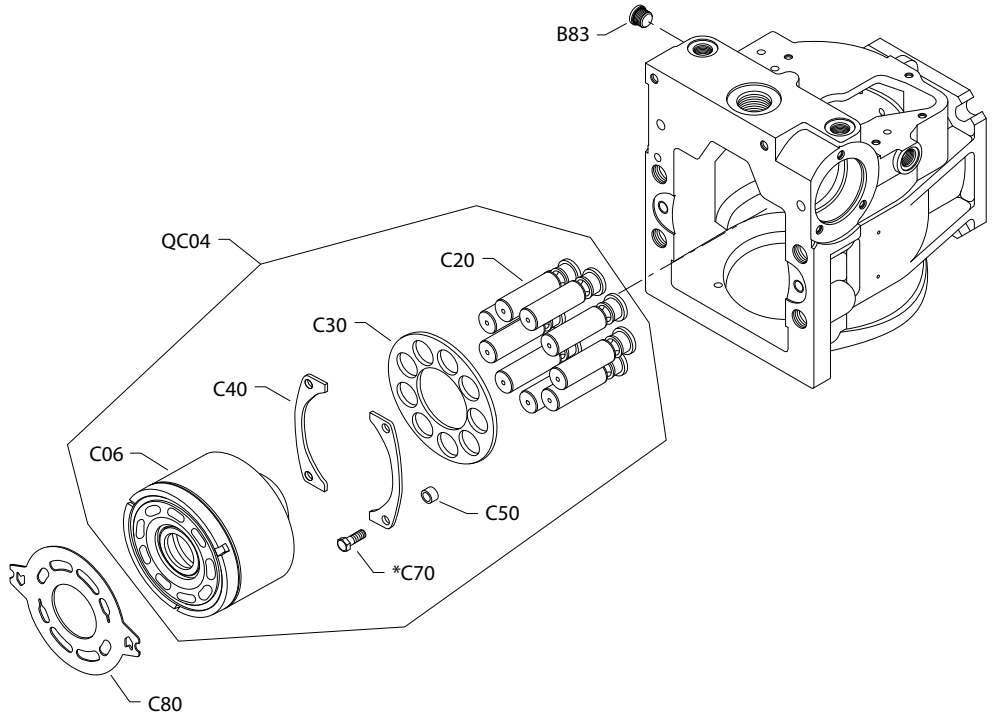
*Order code: PEB*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 08-32 | | KPPG156 | Speed sensor | 1 |
| C05 | 08-32 | | 11093925 | Cylinder block assembly, with speed ring | 1 |
| C80 | 08-32 | | 518931 | Valve plate | 1 |
| QB83 | 07-04 | | 085043 (9004201-3700) | O-ring | 1 |
| QC04 | 08-32 | | 8510371 | Cylinder block kit, with speed ring | 1 |

## Common parts and special hardware

### S90 100cc pump special hardware PGA, PGB

*Parts configuration*




* Included in base pump seal kit Q210

## Common parts and special hardware

*Common parts*

| Item | Date Begin | Date End | Part Name | Part Number | Qty. per Model/Kit |
|---|---|---|---|---|---|
| C20 | 87-02 | | 364000 | Piston assembly (*SB-1988-023* on page 257) | 9 |
| C30 | 87-02 | | 11067351 | Slipper guide | 1 |
| C40 | 88-22 | | 334409 (8200144) | Slipper guide bearing (*SB-1988-016* on page 255) | 2 |
| C50 | 88-22 | | 334383 (11065866) | Spacer (*SB-1988-016* on page 255, *SB-1998-041* on page 288 & *SB-2009-038* on page 316) | 4 |
| C65 | 88-22 | 98-47 | Obsolete | Washer (*SB-1988-016* on page 255 & *SB-1998-041* on page 288) | 4 |
| C70 | 88-22 | | 314419 (9007276-0114) | Screw (*SB-1988-016* on page 255 & *SB-1998-041* on page 288) | 4 |

*Order code: PGA*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 08-32 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 08-32 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 08-32 | | 518806 | Valve plate | 1 |
| QC04 | 08-32 | | 8510372 | Cylinder block kit | 1 |

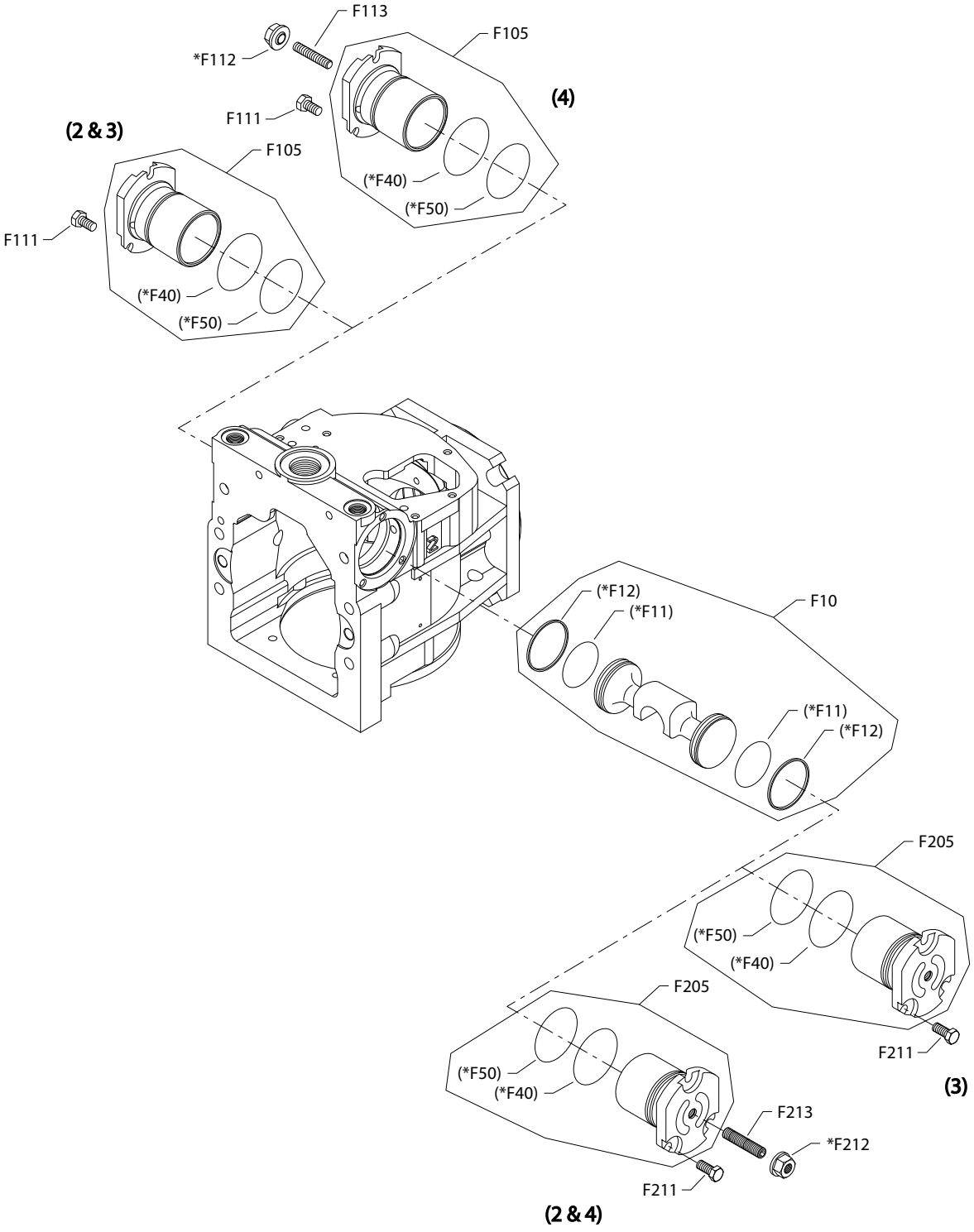
*Order code: PGB*

| | | | | | |
|---|---|---|---|---|---|
| B83 | 08-32 | | 140644 (9005110-5600) | Plug assembly | 1 |
| C05 | 08-32 | | 11012434 | Cylinder block assembly | 1 |
| C80 | 08-32 | | 518931 | Valve plate, CCW | 1 |
| QC04 | 08-32 | | 8510372 | Cylinder block kit | 1 |

## Displacement limitation

### S90 100cc pump displacement limitation 2-4

*Parts configuration*




* Included in base pump seal kit Q210

( ) Not available for individually

## Displacement limitation

*Order code: 2*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| F10 | 00-02 | | 11044943 | Servo piston assembly (*SB-2000-022* on page 300 & *SB-2009-035* on page 315) | 1 |
| F105 | 00-02 | | 11060703 (11055769) | Servo cylinder assembly | 1 |
| F111 | 00-02 | | 378083 (9007210-0804) | Screw | 3 |
| F205 | 00-02 | | 11060704 (11055771) | Servo cylinder assembly | 1 |
| F211 | 00-02 | | 378083 (9007210-0804) | Screw | 3 |
| F212 | 00-02 | | 505412 (9003509-0008) | Seal nut | 1 |
| F213 | 00-02 | | 5000747 | Set screw (*SB-2000-022* on page 300) | 1 |

*Order code: 3*

| | | | | | |
|---|---|---|---|---|---|
| F10 | 87-02 | | 11044943 | Servo piston assembly (*SB-2000-022* on page 300 & *SB-2009-035* on page 315) | 1 |
| F105 | 87-02 | | 11060703 (11055769) | Servo cylinder assembly | 1 |
| F111 | 87-02 | | 378083 (9007210-0804) | Screw | 3 |
| F205 | 87-02 | | 11060703 (11055769) | Servo cylinder assembly | 1 |
| F211 | 87-02 | | 378083 (9007210-0804) | Screw | 3 |

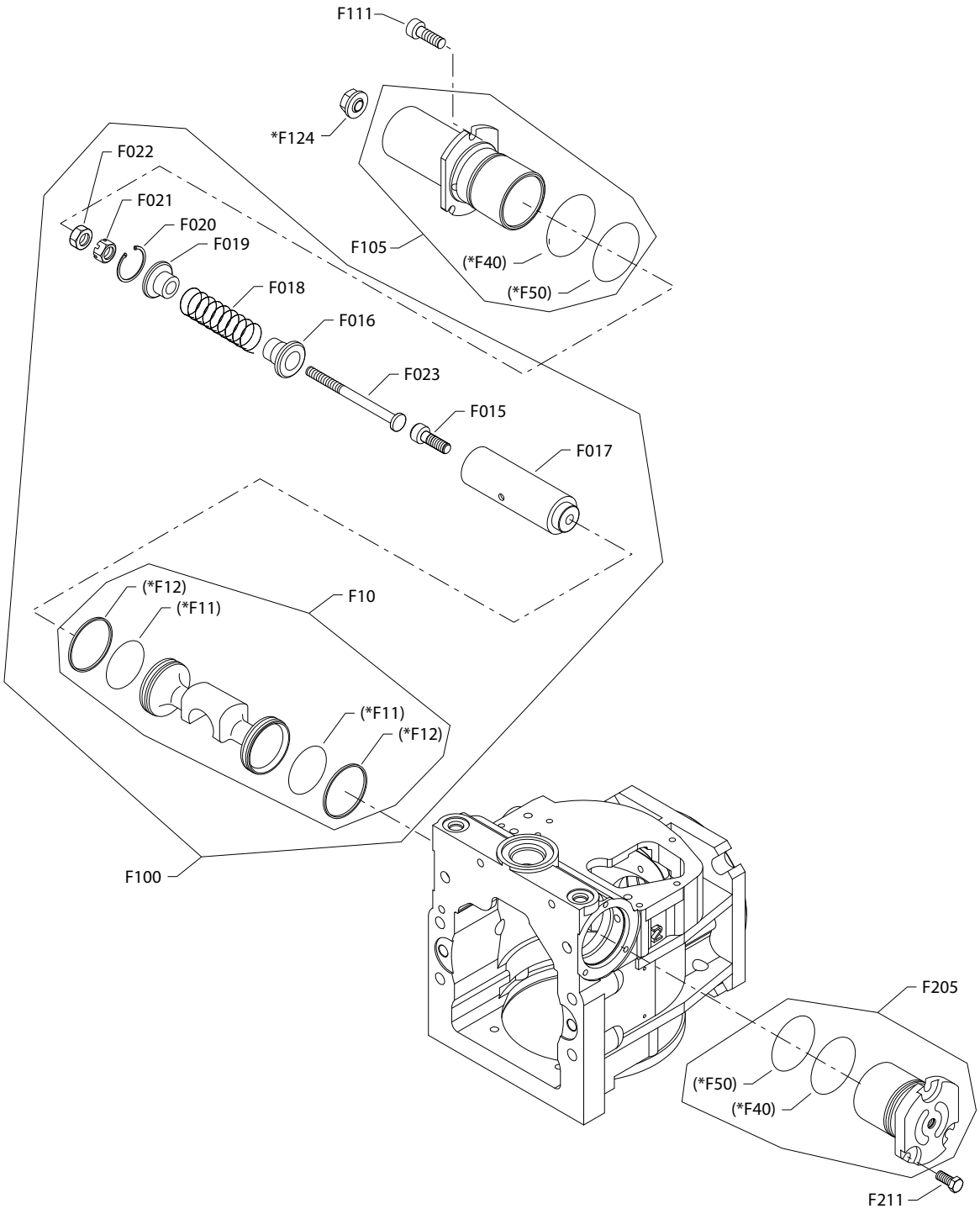
*Order code: 4*

| | | | | | |
|---|---|---|---|---|---|
| F10 | 87-02 | | 11044943 | Servo piston assembly (*SB-2000-022* on page 300 & *SB-2009-035* on page 315) | 1 |
| F105 | 87-02 | | 11060704 (11055771) | Servo cylinder assembly | 1 |
| F111 | 87-02 | | 378083 (9007210-0804) | Screw | 3 |
| F112 | 87-02 | | 505412 (9003509-0008) | Seal nut | 1 |
| F113 | 87-02 | | 5000747 | Setscrew (*SB-2000-022* on page 300) | 1 |
| F205 | 87-02 | | 11060704 (11055771) | Servo cylinder assembly | 1 |
| F211 | 87-02 | | 378083 (9007210-0804) | Screw | 3 |
| F212 | 87-02 | | 505412 (9003509-0008) | Seal nut | 1 |
| F213 | 87-02 | | 5000747 | Set screw (*SB-2000-022* on page 300) | 1 |

## Displacement limitation

### S90 100cc pump displacement limitation 7

*Parts configuration*




| | |
|---|---|
| * | Included in base pump seal kit Q210 |
| ( ) | Not available individually |

## Displacement limitation

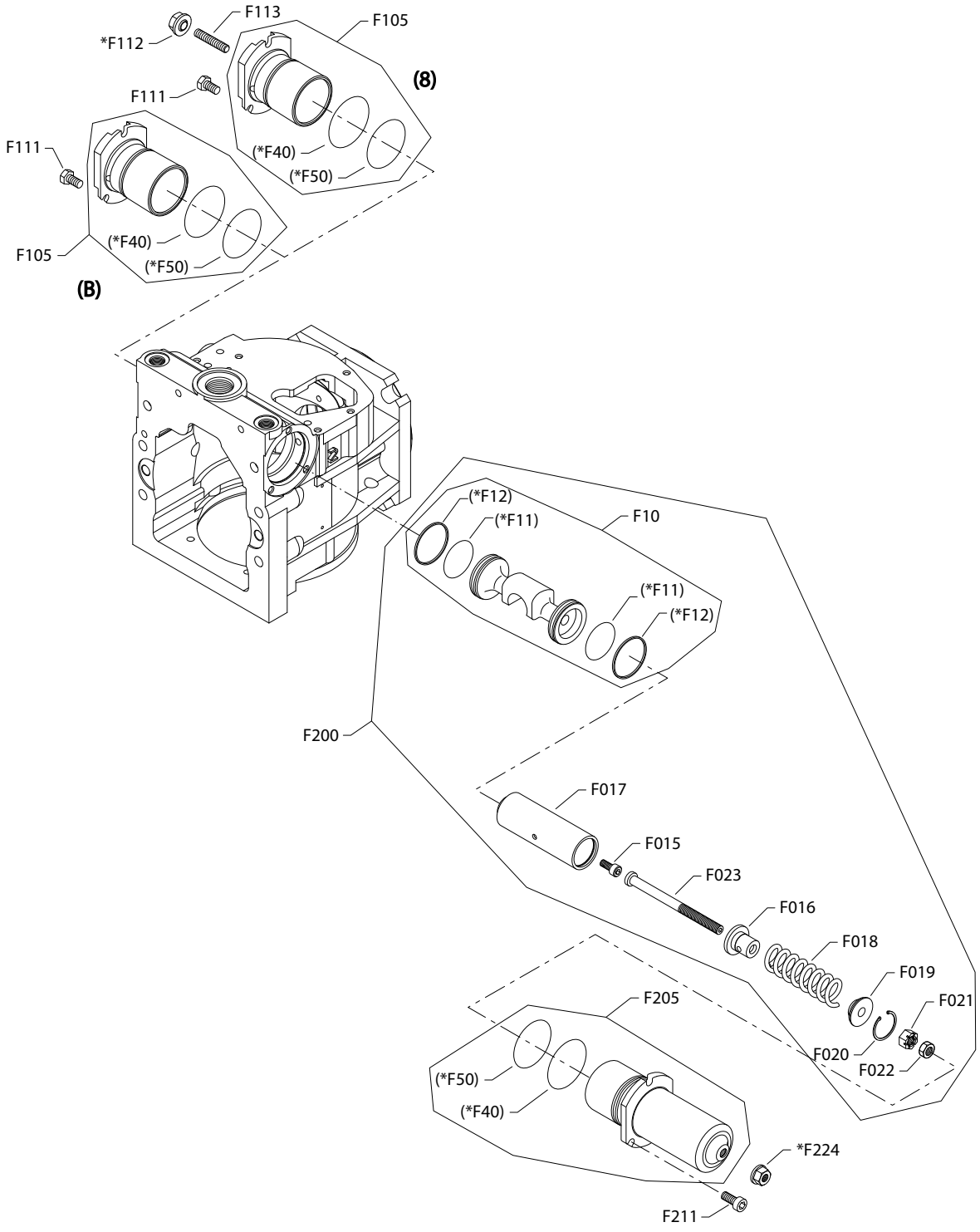
*Order code: 7*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| F10 | 98-14 | | 11044946 | Servo piston assembly | 1 |
| F015 | 98-14 | | 346031 | Screw | 1 |
| F016 | 98-14 | | 507096 | Spring guide | 1 |
| F017 | 98-14 | | 345967 | Servo spring housing | 1 |
| F018 | 98-14 | | 351742 | Spring | 1 |
| F019 | 98-14 | | 507094 | Spring guide | 1 |
| F020 | 98-14 | | 505826 | Retaining ring | 1 |
| F021 | 98-14 | | 507045 | Castle nut | 1 |
| F022 | 98-14 | | 346015 | Nut | 1 |
| F023 | 98-14 | | 11140221 | Adjusting screw | 1 |
| F100 | 98-14 | | 515327 (8200532) | Servo assembly | 1 |
| F105 | 98-14 | | 11059762 (11055776) | Servo cylinder assembly, automotive control | 1 |
| F111 | 98-14 | | 746651 (393595) | Screw | 3 |
| F124 | 98-14 | | 066159 | Seal nut | 1 |
| F205 | 98-14 | | 11060703 (11055769) | Servo cylinder assembly | 1 |
| F211 | 98-14 | | 378083 (9007210-0804) | Screw | 3 |

## Displacement limitation

### S90 100cc pump displacement limitation 8, B

*Parts configuration*



## Displacement limitation

*Order code: 8*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| F10 | 90-07 | 15-03 | 11044946 | Servo piston assembly | 1 |
| F015 | 90-07 | 15-03 | 346031 | Screw | 1 |
| F016 | 90-07 | 15-03 | 507096 | Spring guide | 1 |
| F017 | 90-07 | 15-03 | 345967 | Servo spring housing | 1 |
| F018 | 90-07 | 15-03 | 351742 | Spring | 1 |
| F019 | 90-07 | 15-03 | 507094 | Spring guide | 1 |
| F020 | 90-07 | 15-03 | 505826 | Retaining ring | 1 |
| F021 | 90-07 | 15-03 | 507045 | Castle nut | 1 |
| F022 | 90-07 | 15-03 | 346015 | Nut | 1 |
| F023 | 90-07 | 15-03 | 11140221 | Adjusting screw | 1 |
| F105 | 90-07 | 15-03 | 11060704 (11055771) | Servo cylinder assembly | 1 |
| F111 | 90-07 | 15-03 | 378083 (9007210-0804) | Screw | 3 |
| F112 | 90-07 | 15-03 | 505412 (9003509-0008) | Seal nut | 1 |
| F113 | 90-07 | 15-03 | 5000747 | Set screw, M8 x 45mm, (*SB-2000-022* on page 300) | 1 |
| F200 | 90-07 | 15-03 | 515327 (8200532) | Servo assembly | 1 |
| F205 | 90-07 | 15-03 | 11059762 (11055776) | Servo cylinder assembly | 1 |
| F211 | 90-07 | 15-03 | 746651 (393595) | Screw | 3 |
| F224 | 90-07 | 15-03 | 066159 | Seal nut | 1 |

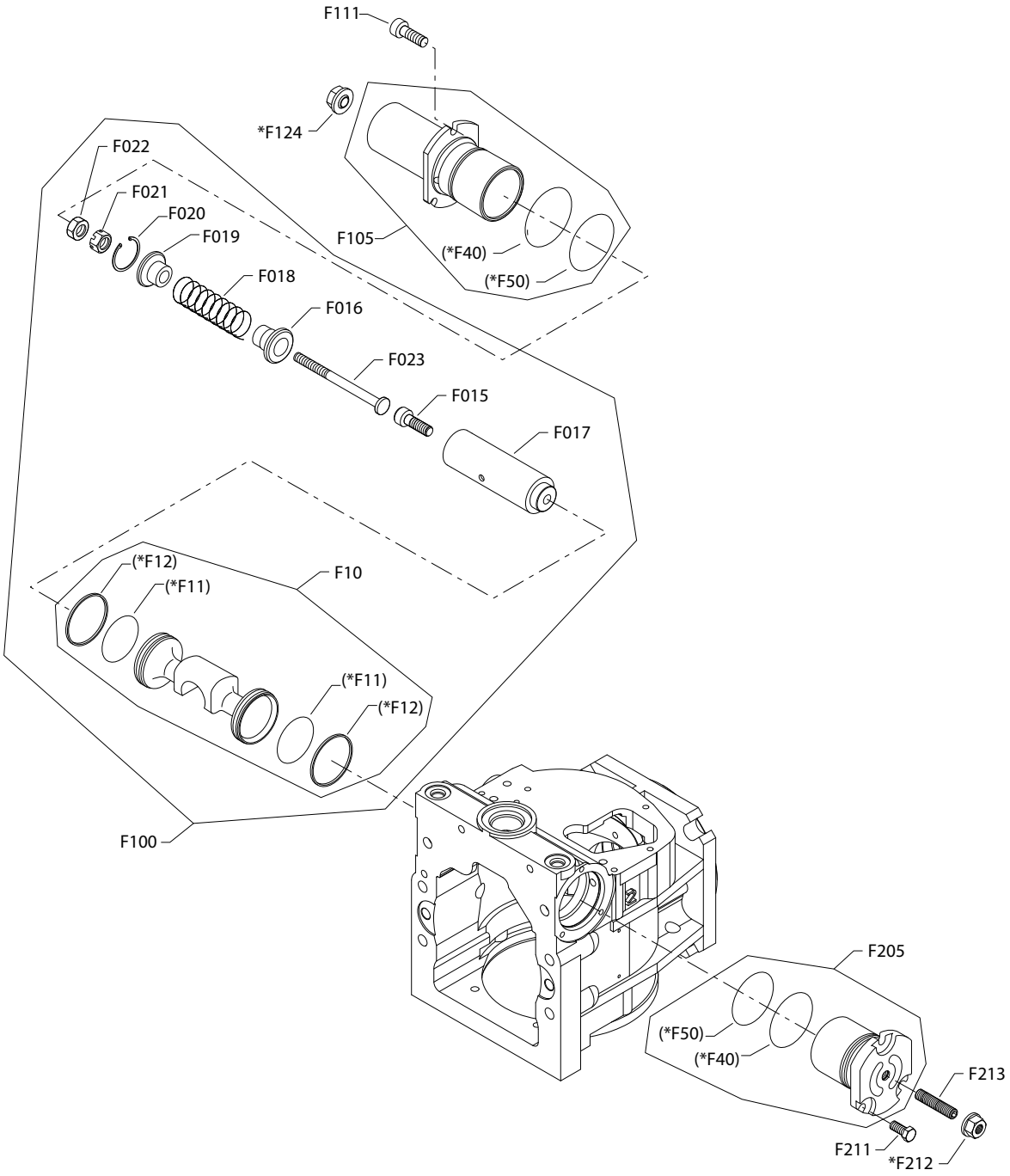
*Order code: B*

| | | | | | |
|---|---|---|---|---|---|
| F10 | 98-14 | | 11044946 | Servo piston assembly | 1 |
| F015 | 98-14 | | 346031 | Screw | 1 |
| F016 | 98-14 | | 507096 | Spring guide | 1 |
| F017 | 98-14 | | 345967 | Servo spring housing | 1 |
| F018 | 98-14 | | 351742 | Spring | 1 |
| F019 | 98-14 | | 507094 | Spring guide | 1 |
| F020 | 98-14 | | 505826 | Retaining ring | 1 |
| F021 | 98-14 | | 507045 | Castle nut | 1 |
| F022 | 98-14 | | 346015 | Nut | 1 |
| F023 | 98-14 | | 11140221 | Adjusting screw | 1 |
| F105 | 98-14 | | 11060703 (11055769) | Servo cylinder assembly | 1 |
| F111 | 98-14 | | 378083 (9007210-0804) | Screw | 3 |
| F200 | 98-14 | | 515327 (8200532) | Servo assembly | 1 |
| F205 | 98-14 | | 11059762 (11055776) | Servo cylinder assembly | 1 |
| F211 | 98-14 | | 746651 (393595) | Screw | 3 |
| F224 | 98-14 | | 066159 | Seal nut | 1 |

## Displacement limitation

### S90 100cc pump displacement limitation D

*Parts configuration*




| | |
|---|---|
| * | Included in base pump seal kit Q210 |
| ( ) | Not available individually |

## Displacement limitation

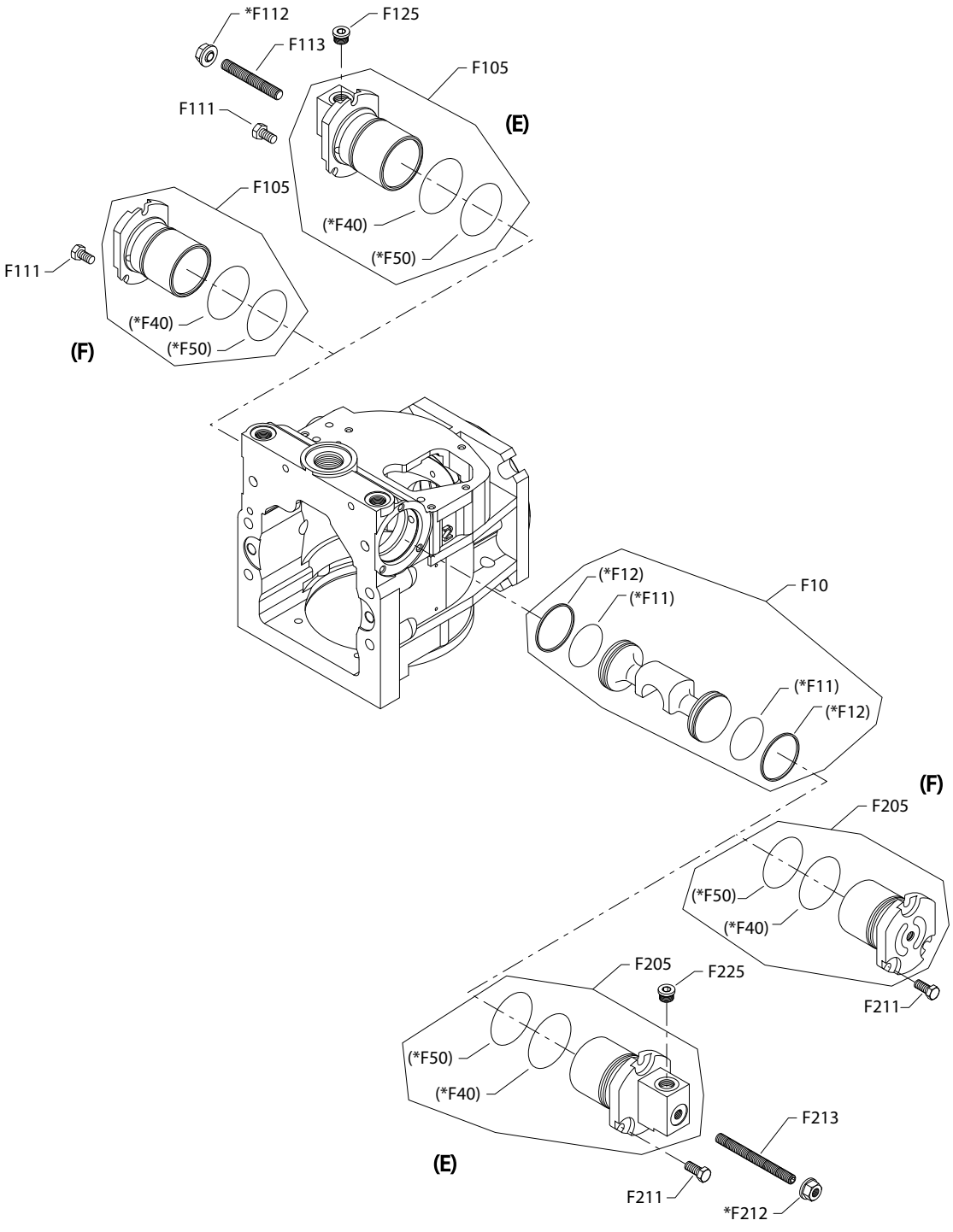
*Order code: D*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| F10 | 98-18 | | 11044946 | Servo piston assembly | 1 |
| F015 | 98-18 | | 346031 | Screw | 1 |
| F016 | 98-18 | | 507096 | Spring guide | 1 |
| F017 | 98-18 | | 345967 | Servo spring housing | 1 |
| F018 | 98-18 | | 351742 | Spring | 1 |
| F019 | 98-18 | | 507094 | Spring guide | 1 |
| F020 | 98-18 | | 505826 | Retaining ring | 1 |
| F021 | 98-18 | | 507045 | Castle nut | 1 |
| F022 | 98-18 | | 346015 | Nut | 1 |
| F023 | 98-18 | | 11140221 | Adjusting screw | 1 |
| F100 | 98-18 | | 515327 (8200532) | Servo assembly | 1 |
| F105 | 98-18 | | 11059762 | Servo cylinder assembly, automotive control | 1 |
| F111 | 98-18 | | 378083 | Screw | 3 |
| F124 | 98-18 | | 066159 | Seal nut | 1 |
| F205 | 98-18 | | 11060704 | Servo cylinder assembly | 1 |
| F211 | 98-18 | | 746651 | Screw | 3 |
| F212 | 98-18 | | 505412 (9003509-0008) | Seal nut | 1 |
| F213 | 98-18 | | 5000747 | Set screw (*SB-2000-022* on page 300) | 1 |

## Displacement limitation

### S90 100cc pump displacement limitation E, F

*Parts configuration*




* Included in base pump seal kit Q210

( ) Not available individually

## Displacement limitation

*Order code: E*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| F10 | 97-44 | | 511613 | Servo piston assembly (*SB-2000-022* on page 300) | 1 |
| F105 | 97-44 | | 11059761 | Servo cylinder assembly | 1 |
| F111 | 97-44 | | 746651 | Screw | 3 |
| F112 | 97-44 | | 336826 (9003508-0010) | Seal nut | 1 |
| F113 | 97-44 | | 733691 | Set screw | 1 |
| F125 | 97-44 | | 091033 | Plug assembly | 1 |
| F205 | 97-44 | | 11059761 | Servo cylinder assembly | 1 |
| F211 | 97-44 | | 746651 (9007210-0804) | Screw | 3 |
| F212 | 97-44 | | 336826 (9003508-0010) | Seal nut | 1 |
| F213 | 97-44 | | 733691 | Set screw | 1 |
| F225 | 97-44 | | 091033 | Plug assembly | 1 |

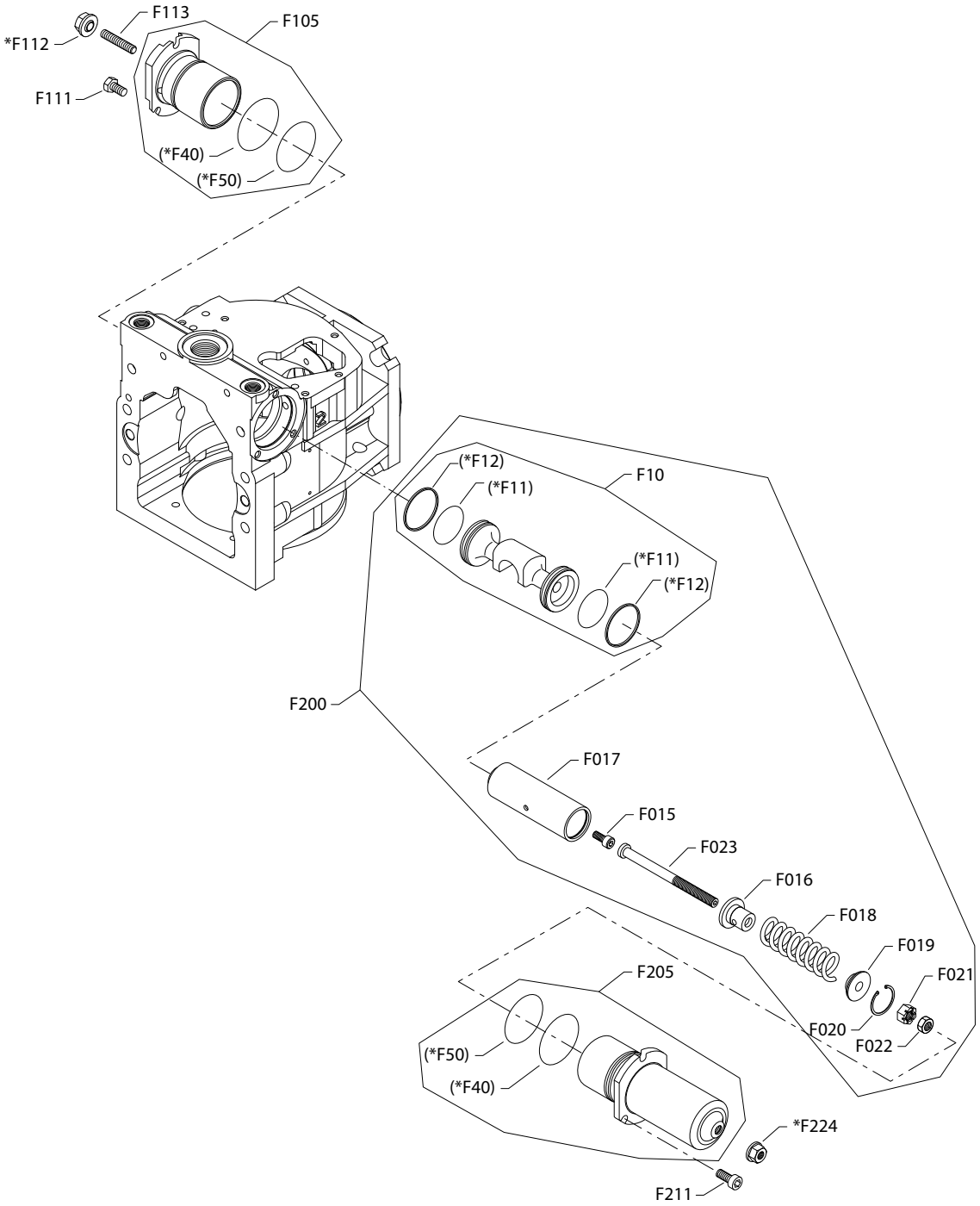
*Order code: F*

| | | | | | |
|---|---|---|---|---|---|
| F10 | 91-30 | | 11044943 | Servo piston assembly (*SB-2000-022* on page 300) | 1 |
| F105 | 91-30 | | 11055773 | Servo cylinder assembly | 1 |
| F111 | 91-30 | | 378083 (9007210-0804) | Screw | 3 |
| F205 | 91-30 | | 11055773 | Servo cylinder assembly | 1 |
| F211 | 91-30 | | 378083 (9007210-0804) | Screw | 3 |

## Displacement limitation

### S90 100cc pump displacement limitation H

*Parts configuration*




* Included in base pump seal kit Q210

( ) Not available individually

## Displacement limitation

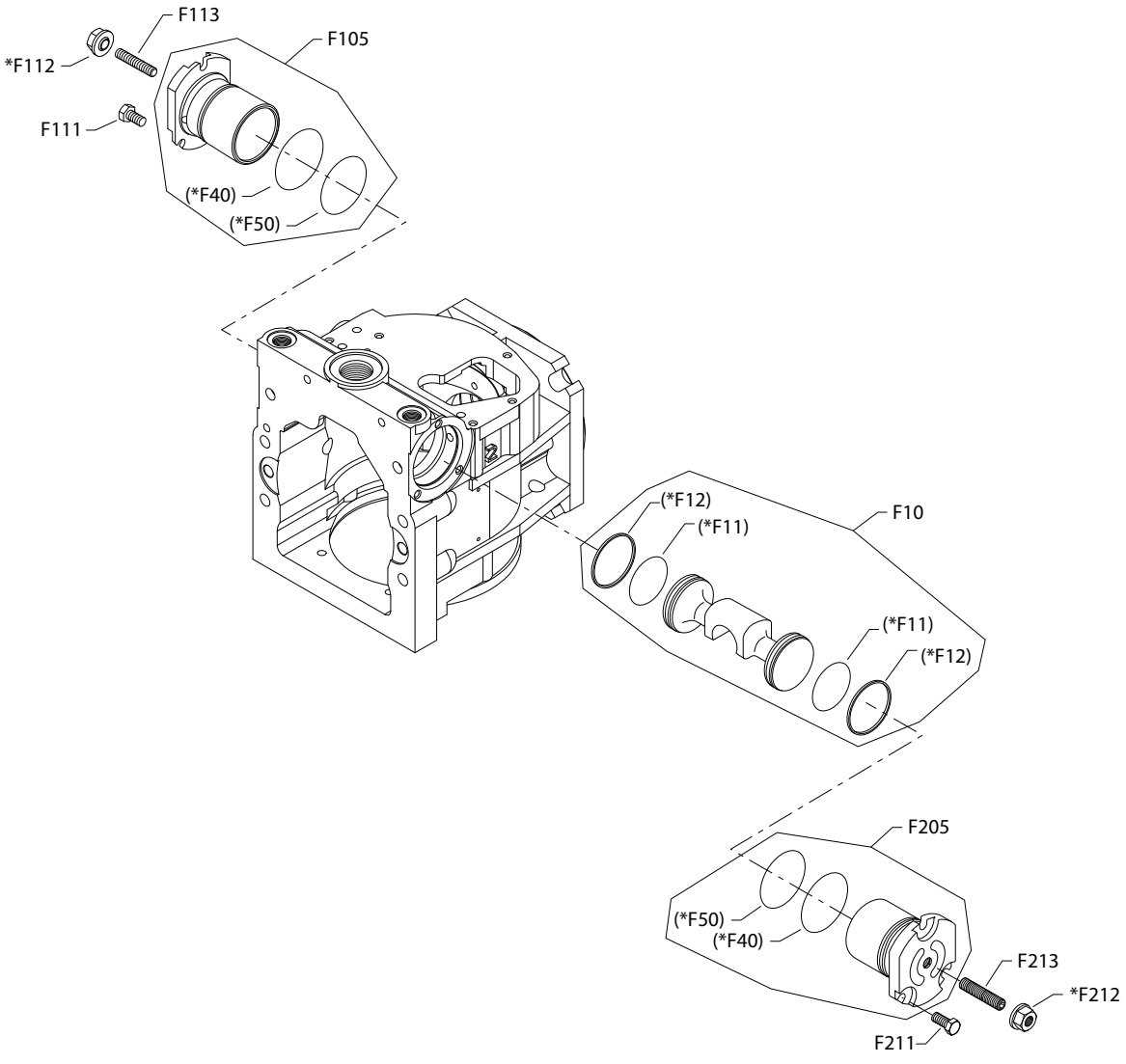
*Order code: H*

| Item | Date Begin | Date Begin | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| F10 | 98-18 | | 11044946 | Servo piston assembly | 1 |
| F015 | 98-18 | | 346031 | Screw | 1 |
| F016 | 98-18 | | 507096 | Spring guide | 1 |
| F017 | 98-18 | | 345967 | Servo spring housing | 1 |
| F018 | 98-18 | | 351742 | Spring | 1 |
| F019 | 98-18 | | 507094 | Spring guide | 1 |
| F020 | 98-18 | | 505826 | Retaining ring | 1 |
| F021 | 98-18 | | 507045 | Castle nut | 1 |
| F022 | 98-18 | | 346015 | Nut | 1 |
| F023 | 98-18 | | 11140221 | Adjusting screw | 1 |
| F105 | 98-18 | | 11060704 (11055771) | Servo cylinder assembly | 1 |
| F111 | 98-18 | | 746651 | Screw | 3 |
| F112 | 98-18 | | 505412 (9003509-0008) | Seal nut | 1 |
| F113 | 98-18 | | 5000747 | Set screw, M8 x 45mm, (*SB-2000-022* on page 300) | 1 |
| F200 | 98-18 | | 515327 (8200532) | Servo assembly | 1 |
| F205 | 98-18 | | 11059762 (11055776) | Servo cylinder assembly | 1 |
| F211 | 98-18 | | 378083 (9007210-0804) | Screw | 3 |
| F224 | 98-18 | | 066159 | Seal nut | 1 |

## Displacement limitation

### S90 100cc pump displacement limitation P

*Parts configuration*




* Included in base pump seal kit Q210

( ) Not available individually

## Displacement limitation

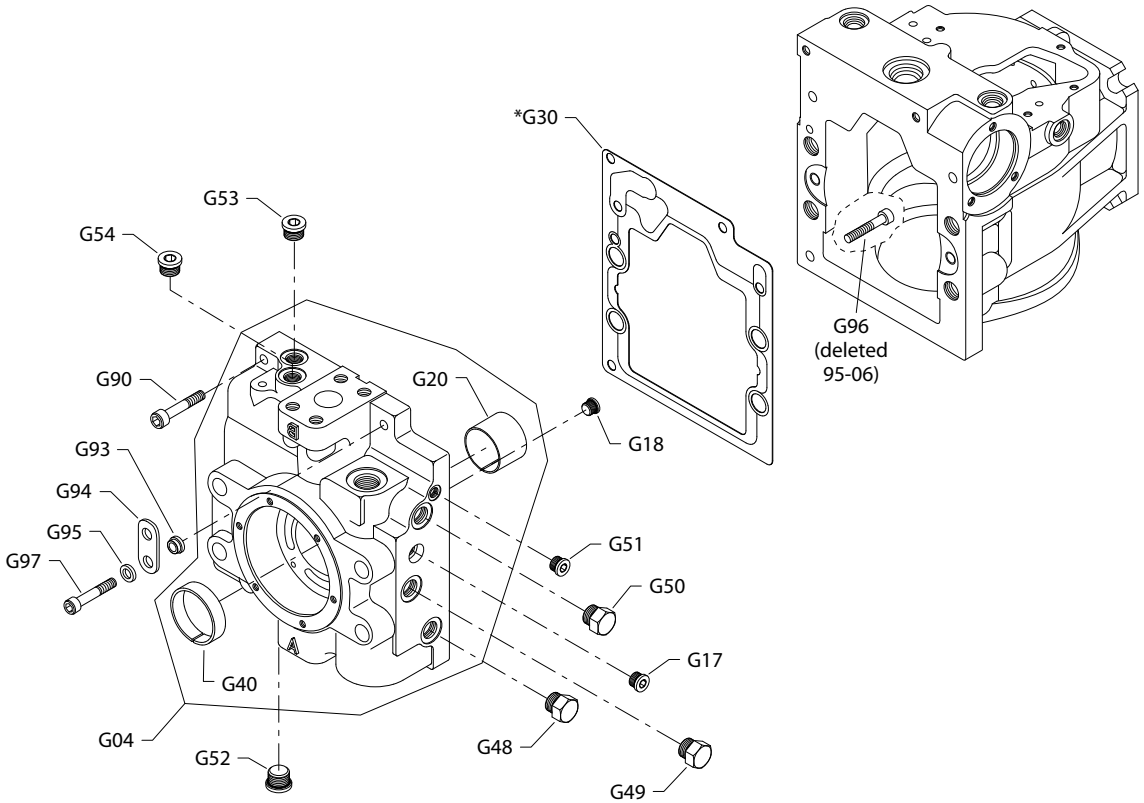
*Order code: P*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| F10 | 03-16 | | 11044943 | Servo piston assembly (*SB-2009-035* on page 315) | 1 |
| F105 | 03-16 | | 11060704 (11055771) | Servo cylinder assembly | 1 |
| F111 | 03-16 | | 378083 (9007210-0804) | Screw | 3 |
| F112 | 03-16 | | 505412 (9003509-0008) | Seal nut | 1 |
| F113 | 03-16 | | 11001516 | Set screw | 1 |
| F205 | 03-16 | | 11060704 (11055771) | Servo cylinder assembly | 1 |
| F211 | 03-16 | | 378083 (9007210-0804) | Screw | 3 |
| F212 | 03-16 | | 505412 (9003509-0008) | Seal nut | 1 |
| F213 | 03-16 | | 11001516 | Set screw | 1 |

## End cap

### S90 100cc pump end cap H, 2, 6-65

*Parts configuration*




* Included in base pump seal kit Q210

## End cap

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| G17 | 92-12 | | 9005110-4400 | Plug (*SB-1992-003* on page 266) | 1 |
| G18 | 92-12 | | 9005110-4400 | Plug (*SB-1992-003* on page 266) | 1 |
| G20 | 87-02 | | 673319 (8700030) | Journal bearing | 1 |
| G30 | 89-46 | | 8200212 | End cap gasket (*SB-1992-003* on page 266) | 1 |
| G30 | 87-02 | 89-45 | 8200043 | End cap gasket (*SB-1989-023* on page 264) | 1 |
| G40 | 87-02 | | 8700008 | Bushing | 1 |
| G48 | 87-02 | | 9005100-5600 | Plug assembly | 1 |
| G49 | 87-02 | | 9005100-5600 | Plug assembly | 1 |
| G50 | 87-02 | | 9005100-5600 | Plug assembly | 1 |
| G51 | 87-02 | | 140644 (9005110-5600) | Plug assembly | 1 |
| G52 | 87-02 | | 140644 (9005110-5600) | Plug assembly | 1 |
| G53 | 87-02 | | 140644 (9005110-5600) | Plug assembly | 1 |
| G54 | 87-02 | | 140644 (9005110-5600) | Plug assembly | 1 |
| G90 | 92-12 | | 746644 (9007314-0810) | Screw | 1 |
| G90 | 89-46 | 92-11 | 694356 (9007314-0608) | Screw (*SB-1992-003* on page 266) | 1 |
| G90 | 87-02 | 89-45 | 9007314-0607 | Screw | 1 |
| G93 | 92-12 | | 713800 (8800564) | Spacer | 1 |
| G93 | 87-02 | 92-11 | 307678 (8800404) | Spacer | 1 |
| G94 | 92-12 | | 8800565 | Lifting bracket | 1 |
| G94 | 87-02 | 92-11 | 8800522 | Lifting bracket | 1 |
| G95 | 92-12 | | 002311 (9009610-3459) | Washer | 1 |
| G95 | 87-02 | 92-11 | 502195 | Washer | 1 |
| G96 | 92-12 | 95-06 | 9007314-0808 | Screw (*SB-1994-035* on page 277) | 1 |
| G96 | 87-02 | 92-11 | 9007314-0607 | Screw (*SB-1992-003* on page 266) | 1 |
| G97 | 92-12 | | 746644 (9007314-0810) | Screw | 1 |
| G97 | 87-02 | 92-11 | 694356 (9007314-0608) | Screw (*SB-1992-003* on page 266) | 1 |

*Order codes: 2, 6, 60, 61*

| | | | | | |
|---|---|---|---|---|---|
| G04 | 92-12 | | 8200236 | End cap assembly, side ports (*SB-1992-003* on page 266) | 1 |

*Order codes: H, 62*

| | | | | | |
|---|---|---|---|---|---|
| G04 | 94-29 | | 8200294 | End cap assembly, metric side ports | 1 |

*Order code: 65*

| | | | | | |
|---|---|---|---|---|---|
| G04 | 98-11 | | 8200284 | End cap assembly, metric side ports | 1 |

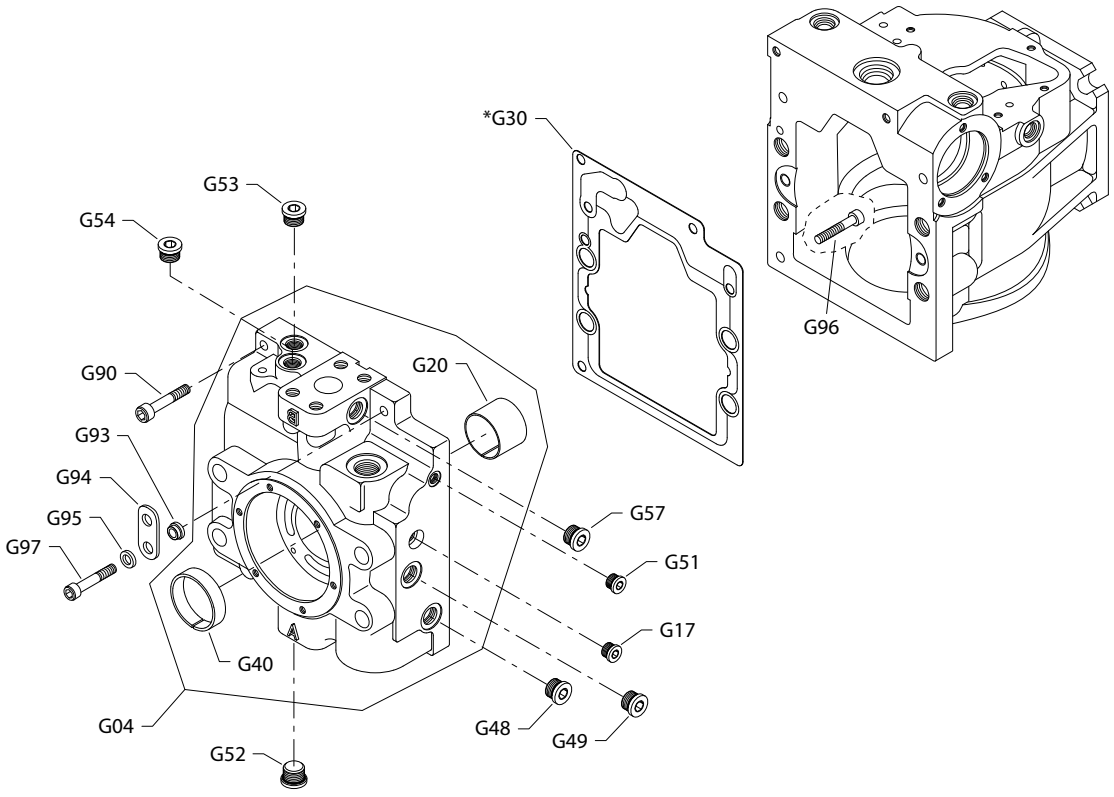
*Order code: 6P*

| | | | | | |
|---|---|---|---|---|---|
| G04 | 98-13 | | 8200388 | End cap assembly, side ports, CW | 1 |

## End cap

### S90 100cc pump end cap 60, 62

*Parts configuration*




* Included in base pump seal kit Q210

## End cap

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| G17 | 94-24 | | 140644 | Plug assembly | 1 |
| G20 | 94-24 | | 673319 (8700030) | Journal bearing | 1 |
| G30 | 94-24 | | 8200212 | End cap gasket | 1 |
| G40 | 94-24 | | 664771 | Bushing | 1 |
| G48 | 94-24 | | 140644 | Plug assembly | 1 |
| G49 | 94-24 | | 140644 | Plug assembly | 1 |
| G51 | 94-24 | | 9005110-4400 | Plug assembly | 1 |
| G52 | 94-24 | | 140644 | Plug assembly | 1 |
| G53 | 94-24 | | 140644 | Plug assembly | 1 |
| G54 | 94-24 | | 140644 | Plug assembly | 1 |
| G57 | 94-24 | | 140644 | Plug assembly | 1 |
| G90 | 94-24 | | 746644 (9007314-0810) | Screw | 1 |
| G93 | 94-24 | | 713800 (8800564) | Spacer | 1 |
| G94 | 94-24 | | 8800565 | Lifting bracket | 1 |
| G95 | 94-24 | | 502195 | Washer | 1 |
| G96 | 94-24 | | 746594 (9007314-0807) | Screw | 1 |
| G97 | 94-24 | | 746644 (9007314-0810) | Screw | 1 |

*Order code: 60*

| | | | | | |
|---|---|---|---|---|---|
| G04 | 94-24 | | 505048 | End cap assembly, side ports | 1 |

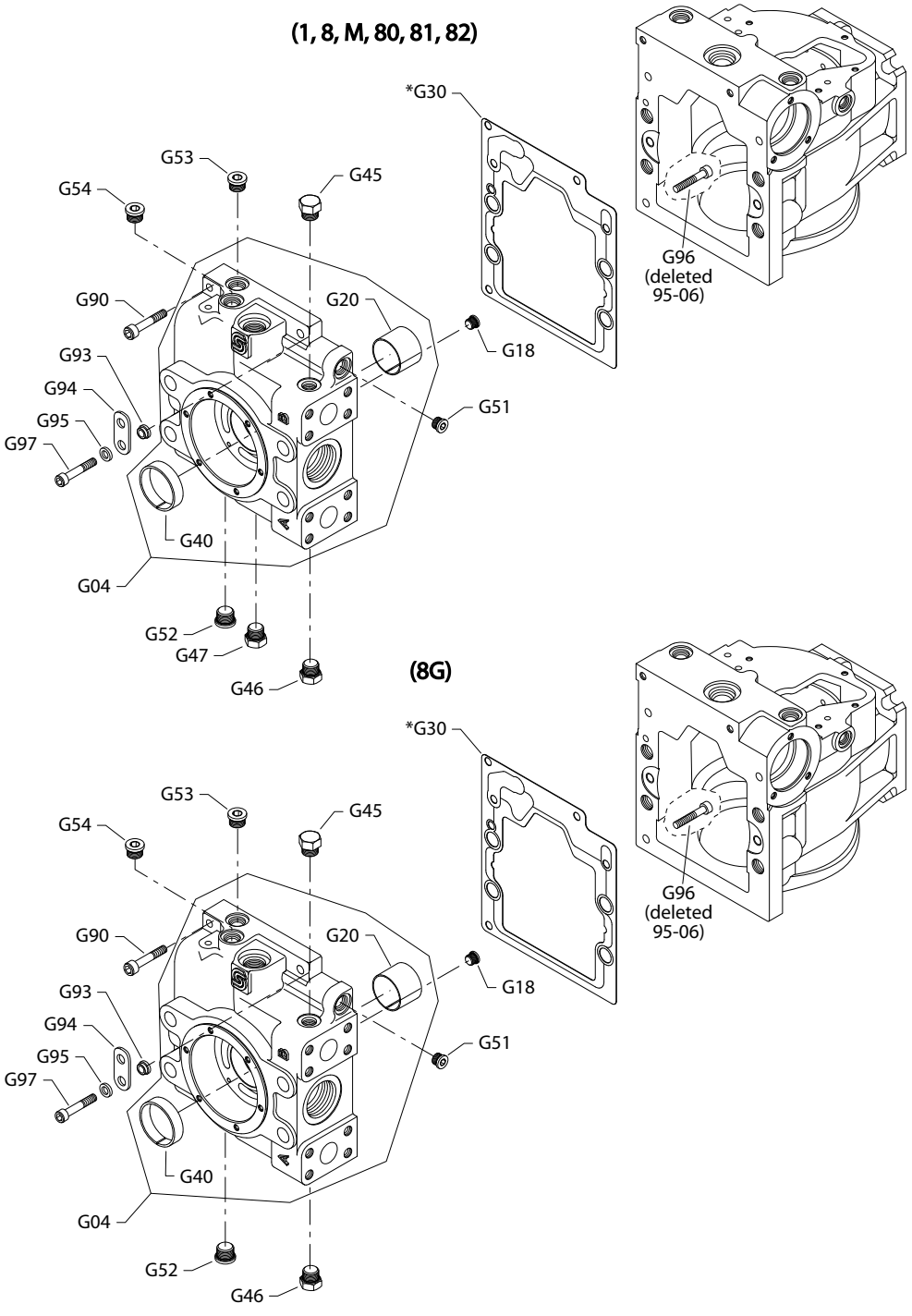
*Order code: 62*

| | | | | | |
|---|---|---|---|---|---|
| G04 | 99-12 | | 506442 | End cap assembly, metric side ports | 1 |

## End cap

### S90 100cc pump end cap 1, 8, 8G, M, 80-82

*Parts configuration*




* Included in base pump seal kit Q210

## End cap

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| G20 | 87-02 | | 673319 (8700030) | Journal bearing | 1 |
| G30 | 87-02 | | 8200212 | End cap gasket | 1 |
| G40 | 87-02 | | 664771 (8700008) | Bushing | 1 |
| G46 | 87-02 | | 9005100-5600 | Plug assembly | 1 |
| G90 | 87-02 | | 746644 (9007314-0810) | Screw | 1 |
| G93 | 87-02 | | 713800 (8800564) | Spacer | 1 |
| G94 | 87-02 | | 8800565 | Lifting bracket | 1 |
| G95 | 87-02 | | 502195 | Washer | 1 |
| G97 | 87-02 | | 746644 (9007314-0810) | Screw | 1 |

*Order codes: 1, 8, 80, 81*

| | | | | | |
|---|---|---|---|---|---|
| G04 | 92-12 | | 8200235 | End cap assembly | 1 |
| G45 | 87-02 | | 9005100-5600 | Plug assembly | 1 |
| G47 | 87-02 | | 9005100-5600 | Plug assembly | 1 |
| G51 | 87-02 | | 140644 (9005110-5600) | Plug assembly | 1 |
| G52 | 87-02 | | 140644 (9005110-5600) | Plug assembly | 1 |
| G53 | 87-02 | | 140644 (9005110-5600) | Plug assembly | 1 |
| G54 | 87-02 | | 140644 (9005110-5600) | Plug assembly | 1 |

*Order codes: M, 82*

| | | | | | |
|---|---|---|---|---|---|
| G04 | 94-15 | | 8200430 | End cap assembly, metric ports | 1 |
| G45 | 87-02 | | 9005100-5600 | Plug assembly | 1 |
| G47 | 87-02 | | 9005100-5600 | Plug assembly | 1 |
| G51 | 87-02 | | 140644 (9005110-5600) | Plug assembly | 1 |
| G52 | 87-02 | | 140644 (9005110-5600) | Plug assembly | 1 |
| G53 | 87-02 | | 140644 (9005110-5600) | Plug assembly | 1 |
| G54 | 87-02 | | 140644 (9005110-5600) | Plug assembly | 1 |

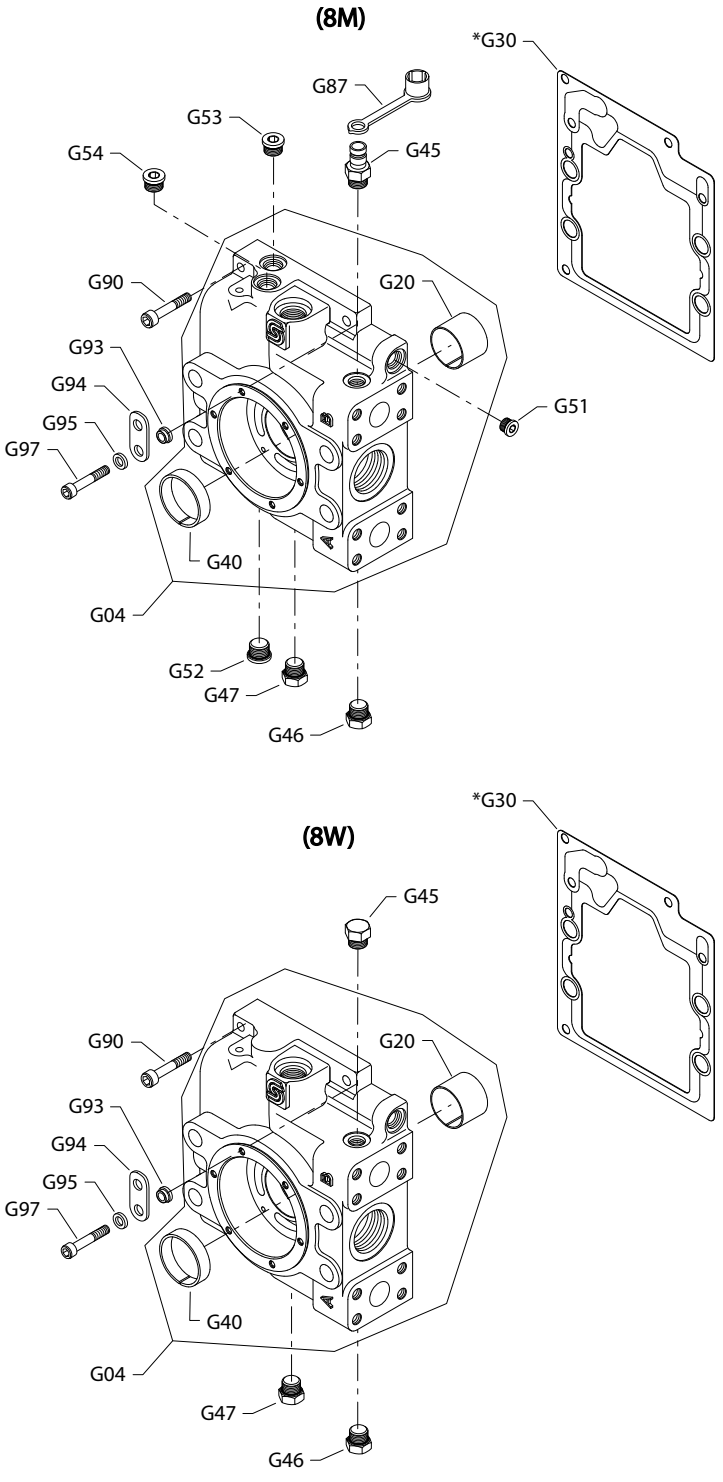
*Order code: 8G*

| | | | | | |
|---|---|---|---|---|---|
| G04 | 94-15 | | 8200346 | End cap assembly, no charge pump | 1 |
| G45 | 87-02 | | 9005100-5600 | Plug assembly | 1 |
| G51 | 87-02 | | 140644 (9005110-5600) | Plug assembly | 1 |
| G52 | 87-02 | | 140644 (9005110-5600) | Plug assembly | 1 |
| G53 | 87-02 | | 140644 (9005110-5600) | Plug assembly | 1 |
| G54 | 87-02 | | 140644 (9005110-5600) | Plug assembly | 1 |

## End cap

### S90 100cc pump end cap 8M, 8W

*Parts configuration*




* Included in base pump seal kit Q210

## End cap

*Order code: 8M*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| G04 | 97-26 | | 8200235 | End cap assembly | 1 |
| G20 | 97-26 | | 673319 (8700030) | Journal bearing | 1 |
| G30 | 97-26 | | 8200212 | End cap gasket | 1 |
| G40 | 97-26 | | 664771 (8700008) | Bushing | 1 |
| G45 | 97-26 | | 8700127 | Diagnostic receptacle | 1 |
| G46 | 97-26 | | 9005100-5600 | Plug assembly | 1 |
| G47 | 97-26 | | 9005100-5600 | Plug assembly | 1 |
| G51 | 97-26 | | 140644 (9005110-5600) | Plug assembly | 1 |
| G52 | 97-26 | | 140644 (9005110-5600) | Plug assembly | 1 |
| G53 | 97-26 | | 140644 (9005110-5600) | Plug assembly | 1 |
| G54 | 97-26 | | 140644 (9005110-5600) | Plug assembly | 1 |
| G87 | 97-26 | | 8700128 | Dust cover | 1 |
| G90 | 97-26 | | 746644 (9007314-0810) | Screw | 1 |
| G93 | 97-26 | | 713800 (8800564) | Spacer | 1 |
| G94 | 97-26 | | 8800565 | Lifting bracket | 1 |
| G95 | 97-26 | | 002311 (9009610-3459) | Washer | 1 |
| G97 | 97-26 | | 746644 (9007314-0810) | Screw | 1 |

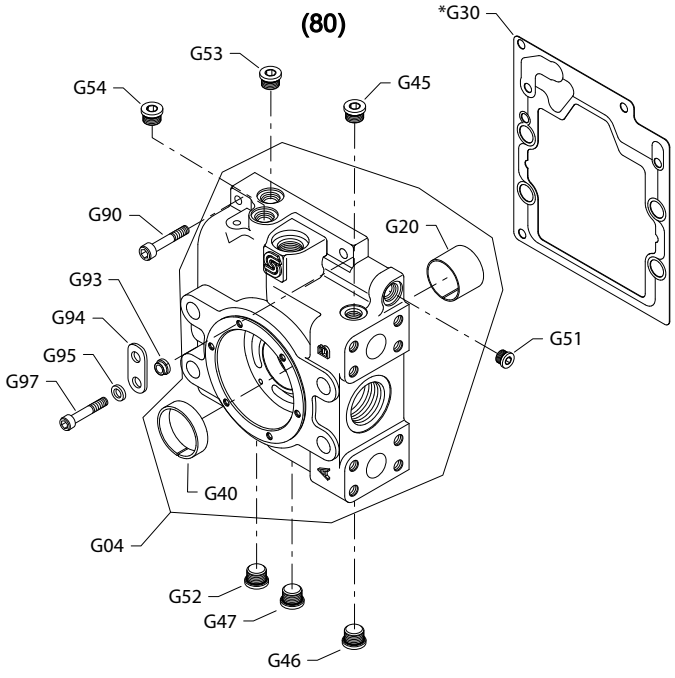
*Order code: 8W*

| | | | | | |
|---|---|---|---|---|---|
| G04 | 03-35 | | 8200541 | End cap assembly, CW | 1 |
| G20 | 03-35 | | 673319 (8700030) | Journal bearing | 1 |
| G30 | 03-35 | | 8200212 | End cap gasket | 1 |
| G40 | 03-35 | | 664771 (8700008) | Bushing | 1 |
| G45 | 03-35 | | 9005100-5600 | Plug assembly | 1 |
| G46 | 03-35 | | 9005100-5600 | Plug assembly | 1 |
| G47 | 03-35 | | 9005100-5600 | Plug assembly | 1 |
| G90 | 03-35 | | 746644 (9007314-0810) | Screw | 1 |
| G93 | 03-35 | | 713800 (8800564) | Spacer | 1 |
| G94 | 03-35 | | 8800565 | Lifting bracket | 1 |
| G95 | 03-35 | | 002311 (9009610-3459) | Washer | 1 |
| G97 | 03-35 | | 746644 (9007314-0810) | Screw | 1 |

## End cap

### S90 100cc pump end cap 80

*Parts configuration*




* Included in base pump seal kit Q210

## End cap

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| G20 | 87-02 | | 673319 (8700030) | Journal bearing | 1 |
| G30 | 87-02 | | 8200212 | End cap gasket | 1 |
| G40 | 87-02 | | 664771 (8700008) | Bushing | 1 |
| G90 | 87-02 | | 746644 (9007314-0810) | Screw | 1 |
| G93 | 87-02 | | 713800 (8800564) | Spacer | 1 |
| G94 | 87-02 | | 8800565 | Lifting bracket | 1 |
| G95 | 87-02 | | 002311 (9009610-3459) | Washer | 1 |
| G97 | 87-02 | | 746644 (9007314-0810) | Screw | 1 |

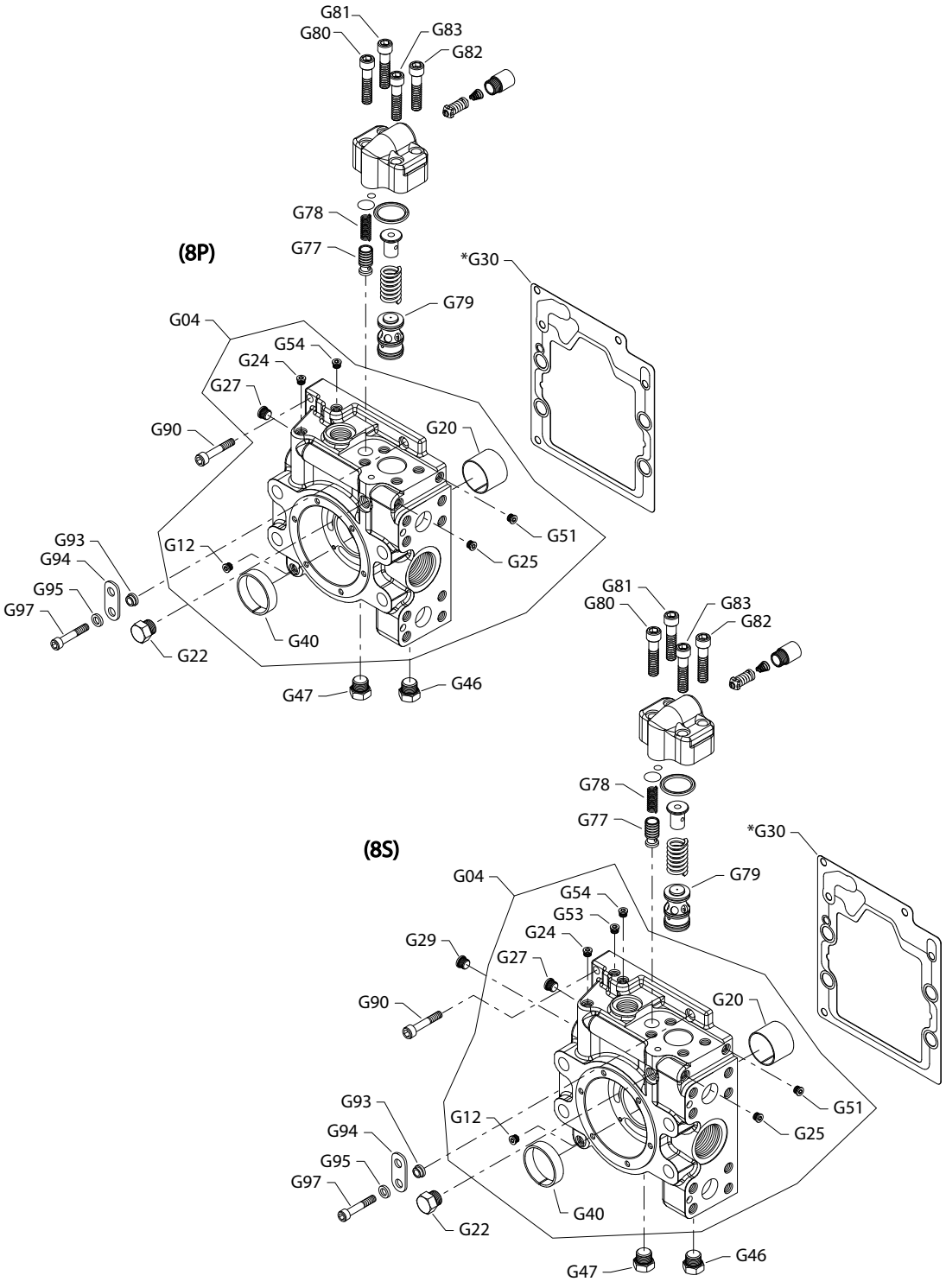
*Order code: 80*

| | | | | | |
|---|---|---|---|---|---|
| G04 | 92-12 | | 777490 | End cap assembly | 1 |
| G45 | 87-02 | | 140644 | Plug assembly | 1 |
| G46 | 87-02 | | 140644 | Plug assembly | 1 |
| G47 | 87-02 | | 140644 | Plug assembly | 1 |
| G51 | 87-02 | | 140644 | Plug assembly | 1 |
| G52 | 87-02 | | 140644 | Plug assembly | 1 |
| G53 | 87-02 | | 140644 | Plug assembly | 1 |
| G54 | 87-02 | | 140644 | Plug assembly | 1 |

## End cap

### S90 100cc pump end cap 8P, 8S

*Parts configuration*




* Included in base pump seal kit Q210

## End cap

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| G20 | 08-09 | | 673319 (8700030) | Journal bearing | 1 |
| G30 | 08-09 | | 8200212 | End cap gasket | 1 |
| G40 | 08-09 | | 664771 (8700008) | Bushing | 1 |
| G93 | 08-09 | | 713800 (8800564) | Spacer | 1 |
| G94 | 08-09 | | 8800565 | Lifting bracket | 1 |
| G95 | 08-09 | | 002311 (9009610-3459) | Washer | 1 |

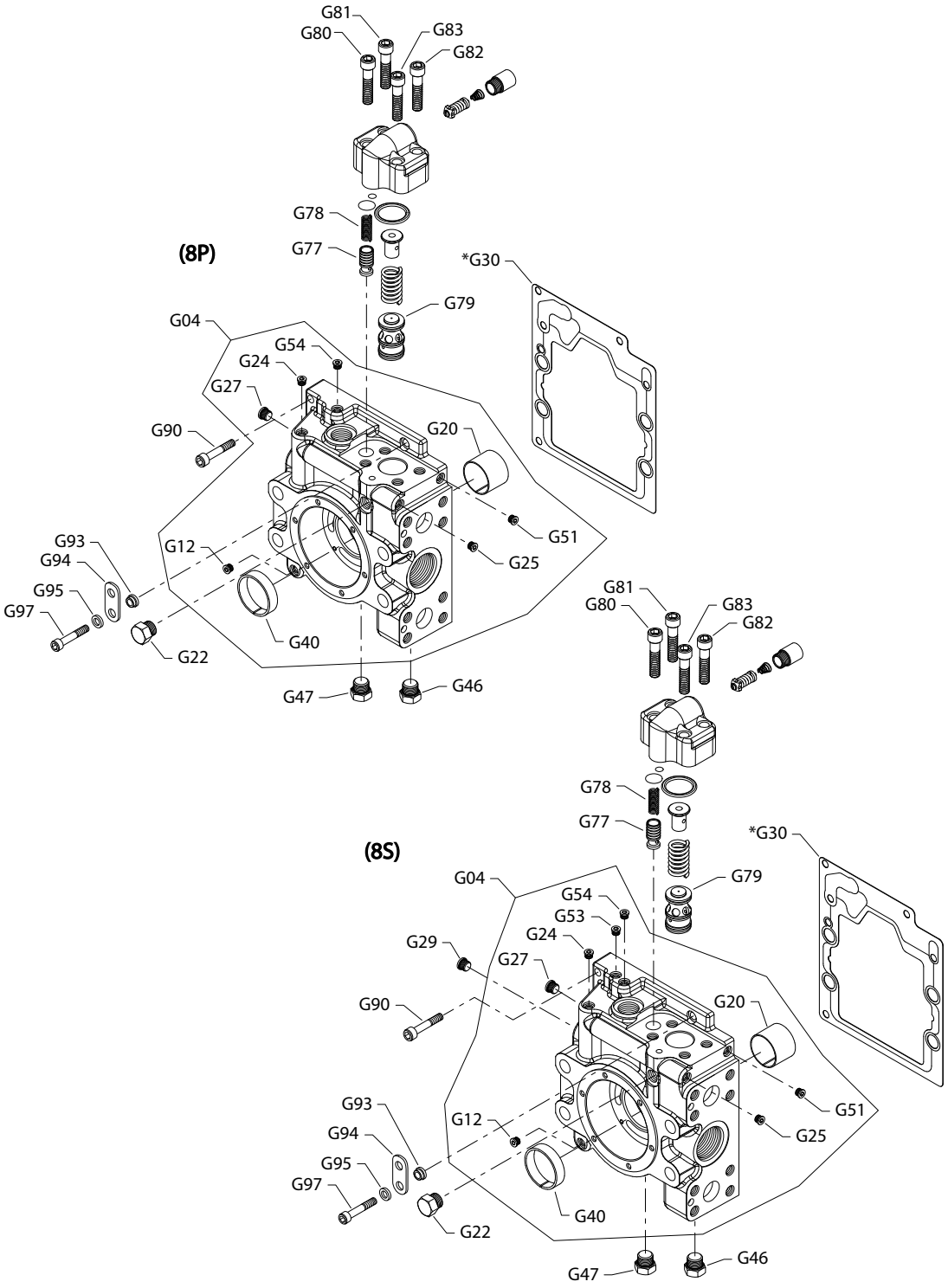
*Order code: 8P*

| | | | | | |
|---|---|---|---|---|---|
| G04 | 08-09 | | 11034378 | End cap assembly, CCW | 1 |
| G12 | 08-09 | | 11040532 | Plug assembly | 1 |
| G22 | 08-09 | | 9005100-5600 | Plug assembly | 1 |
| G24 | 08-09 | | 11040532 | Plug assembly | 1 |
| G25 | 08-09 | | 11040532 | Plug assembly | 1 |
| G27 | 08-09 | | 11040532 | Plug assembly | 1 |
| G46 | 08-09 | | 9005100-5600 | Plug assembly | 1 |
| G47 | 08-09 | | 9005100-5600 | Plug assembly | 1 |
| G51 | 08-09 | | 11040532 | Plug assembly | 1 |
| G54 | 08-09 | | 11040532 | Plug assembly | 1 |
| G77 | 08-09 | | 517830 | Valve spool | 1 |
| G78 | 08-09 | | 517832 | Spring | 1 |
| G79 | 08-09 | | 11034287 | Valve spool | 1 |
| G80 | 08-09 | | 504681 | Screw | 1 |
| G81 | 08-09 | | 504681 | Screw | 1 |
| G82 | 08-09 | | 504681 | Screw | 1 |
| G83 | 08-09 | | 504681 | Screw | 1 |
| G90 | 08-09 | | 9007314-0812 | Screw | 1 |
| G97 | 08-09 | | 506969 | Screw | 1 |

Parts continue to the next 2 pages.

## End cap

*Parts configuration*




* Included in base pump seal kit Q210

## End cap

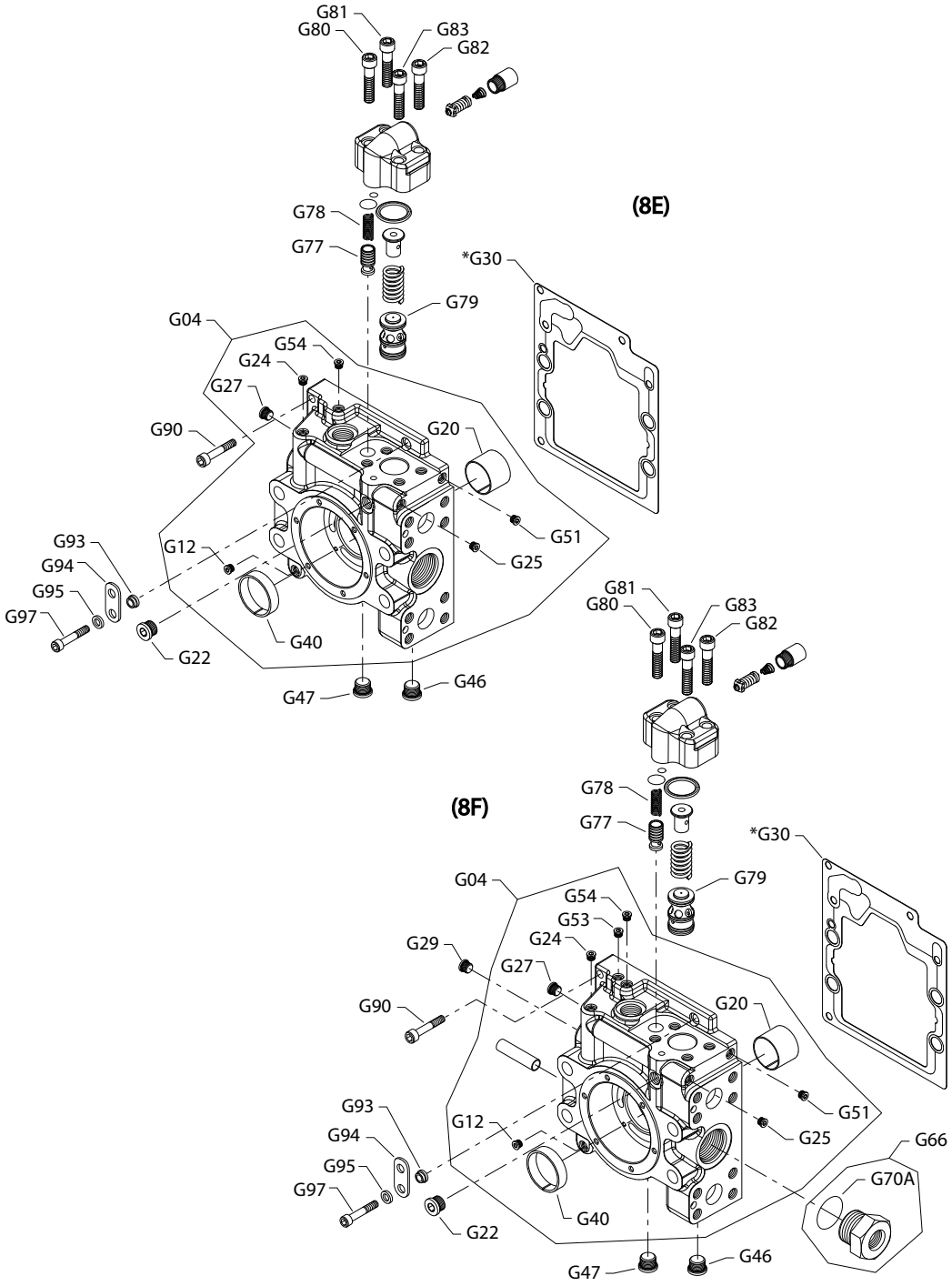
*Order code: 8S*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| G04 | 09-30 | | 11068445 | End cap assembly, CW | 1 |
| G12 | 09-30 | | 11040532 | Plug assembly | 1 |
| G22 | 09-30 | | 9005100-5600 | Plug assembly | 1 |
| G24 | 09-30 | | 11040532 | Plug assembly | 1 |
| G25 | 09-30 | | 11040532 | Plug assembly | 1 |
| G27 | 09-30 | | 11040532 | Plug assembly | 1 |
| G29 | 09-30 | | 9005110-4400 | Plug assembly | 1 |
| G46 | 09-30 | | 9005100-5600 | Plug assembly | 1 |
| G47 | 09-30 | | 9005100-5600 | Plug assembly | 1 |
| G51 | 09-30 | | 11040532 | Plug assembly | 1 |
| G53 | 09-30 | | 11040532 | Plug assembly | 1 |
| G54 | 09-30 | | 11040532 | Plug assembly | 1 |
| G77 | 09-30 | | 517830 | Valve spool | 1 |
| G78 | 09-30 | | 517832 | Spring | 1 |
| G79 | 09-30 | | 11068446 | Valve spool | 1 |
| G80 | 09-30 | | 504681 | Screw | 1 |
| G81 | 09-30 | | 504681 | Screw | 1 |
| G82 | 09-30 | | 504681 | Screw | 1 |
| G83 | 09-30 | | 504681 | Screw | 1 |
| G90 | 09-30 | | 9007314-0812 | Screw | 1 |
| G97 | 09-30 | | 506969 | Screw | 1 |

## End cap

### S90 100cc pump end cap 8E, 8F

*Parts configuration*




* Included in base pump seal kit Q210

## End cap

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| G20 | 02-30 | | 673319 (8700030) | Journal bearing | 1 |
| G30 | 02-30 | | 8200212 | End cap gasket | 1 |
| G40 | 02-30 | | 664771 (8700008) | Bushing | 1 |
| G93 | 02-30 | | 713800 (8800564) | Spacer | 1 |
| G94 | 02-30 | | 8800565 | Lifting bracket | 1 |
| G95 | 02-30 | | 502195 | Washer | 1 |

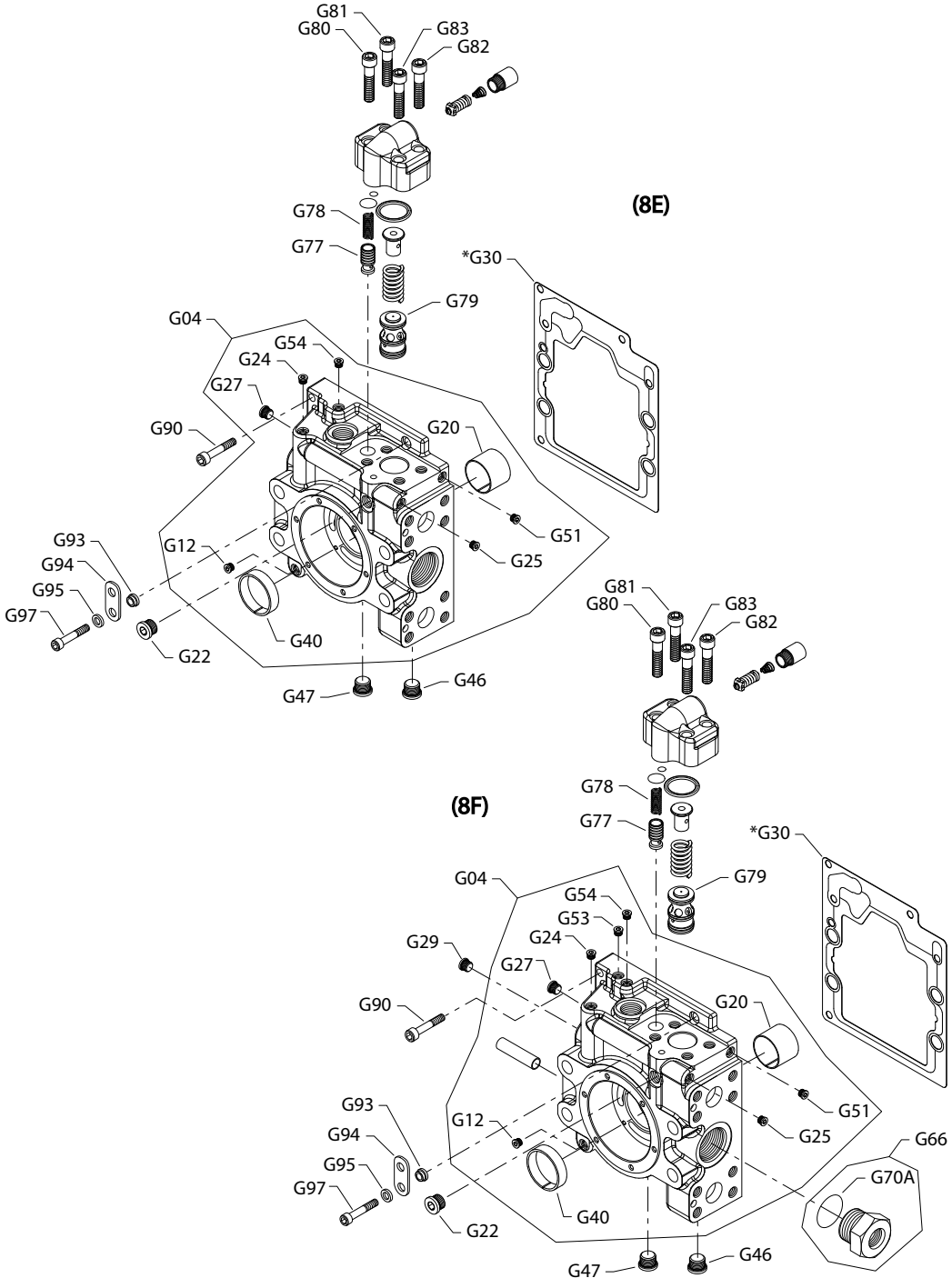
*Order code: 8E*

| | | | | | |
|---|---|---|---|---|---|
| G04 | 02-30 | | 11093581 | End cap assembly, CCW | 1 |
| G12 | 02-30 | | 11040532 | Plug assembly | 1 |
| G22 | 02-30 | | 140644 | Plug assembly | 1 |
| G24 | 02-30 | | 11040532 | Plug assembly | 1 |
| G25 | 02-30 | | 11040532 | Plug assembly | 1 |
| G27 | 02-30 | | 11040532 | Plug assembly | 1 |
| G46 | 02-30 | | 140644 | Plug assembly | 1 |
| G47 | 02-30 | | 140644 | Plug assembly | 1 |
| G51 | 02-30 | | 11040532 | Plug assembly | 1 |
| G54 | 02-30 | | 11040532 | Plug assembly | 1 |
| G77 | 02-30 | | 517830 | Valve spool | 1 |
| G78 | 02-30 | | 517832 | Spring | 1 |
| G79 | 02-30 | | 517827 | Valve spool | 1 |
| G80 | 02-30 | | 504681 | Screw | 1 |
| G81 | 02-30 | | 504681 | Screw | 1 |
| G82 | 02-30 | | 504681 | Screw | 1 |
| G83 | 02-30 | | 504681 | Screw | 1 |
| G90 | 02-30 | | 713768 | Screw | 1 |
| G97 | 02-30 | | 506969 | Screw | 1 |

Parts continue to the next 2 pages.

## End cap

*Parts configuration*




* Included in base pump seal kit Q210

## End cap

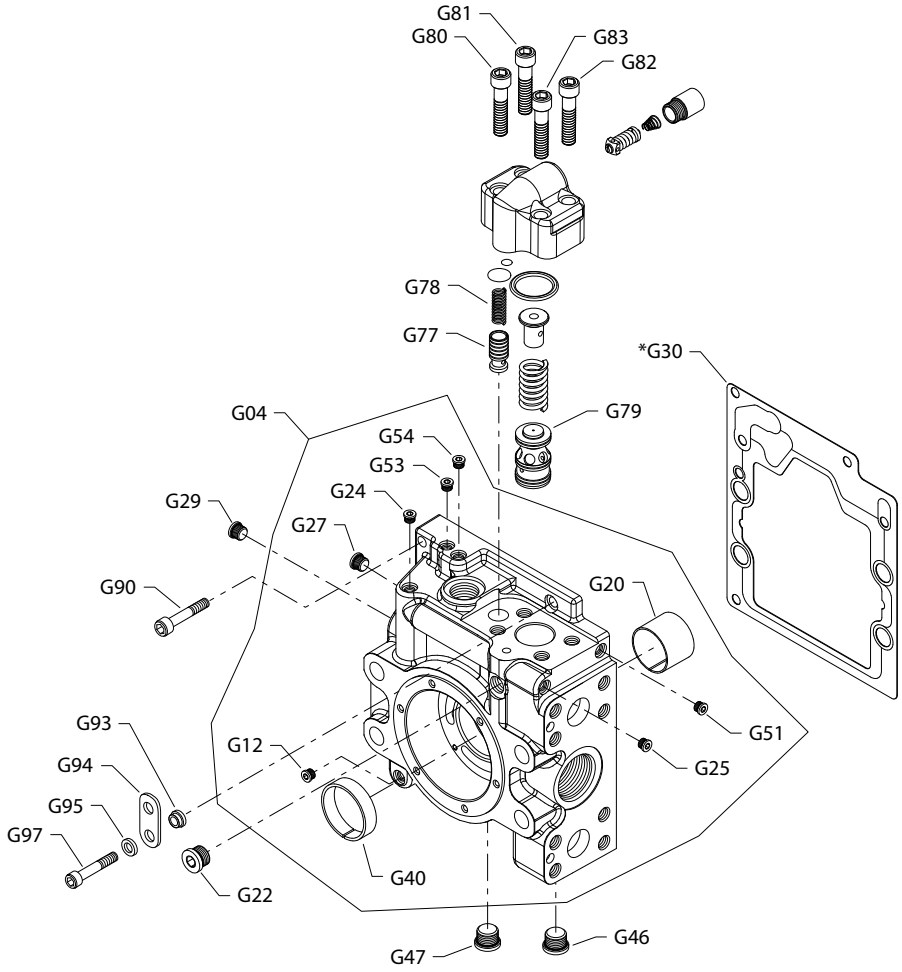
*Order code: 8F*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| G04 | 02-30 | | 11093577 | End cap assembly, CW | 1 |
| G12 | 02-30 | | 11040532 | Plug assembly | 1 |
| G22 | 02-30 | | 140644 | Plug assembly | 1 |
| G24 | 02-30 | | 11040532 | Plug assembly | 1 |
| G25 | 02-30 | | 11040532 | Plug assembly | 1 |
| G27 | 02-30 | | 11040532 | Plug assembly | 1 |
| G29 | 02-30 | | 9005110-4400 | Plug assembly | 1 |
| G46 | 02-30 | | 140644 | Plug assembly | 1 |
| G47 | 02-30 | | 140644 | Plug assembly | 1 |
| G51 | 02-30 | | 11040532 | Plug assembly | 1 |
| G53 | 02-30 | | 11040532 | Plug assembly | 1 |
| G54 | 02-30 | | 11040532 | Plug assembly | 1 |
| G66 | 02-30 | | 521318 | Reducer assembly | 1 |
| G70A | 02-30 | | 093823 | O-ring | 1 |
| G77 | 02-30 | | 517830 | Valve spool | 1 |
| G78 | 02-30 | | 517832 | Spring | 1 |
| G79 | 02-30 | | 517827 | Valve spool | 1 |
| G80 | 02-30 | | 504681 | Screw | 1 |
| G81 | 02-30 | | 504681 | Screw | 1 |
| G82 | 02-30 | | 504681 | Screw | 1 |
| G83 | 02-30 | | 504681 | Screw | 1 |
| G90 | 02-30 | | 713768 | Screw | 1 |
| G97 | 02-30 | | 506969 | Screw | 1 |

## End cap

### S90 100cc pump end cap 8N

*Parts configuration*




* Included in base pump seal kit Q210

## End cap

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| G30 | 07-45 | | 8200212 | End cap gasket | 1 |
| G40 | 07-45 | | 664771 (8700008) | Bushing | 1 |
| G93 | 07-45 | | 713800 (8800564) | Spacer | 1 |
| G94 | 07-45 | | 8800565 | Lifting bracket | 1 |
| G95 | 07-45 | | 502195 | Washer | 1 |

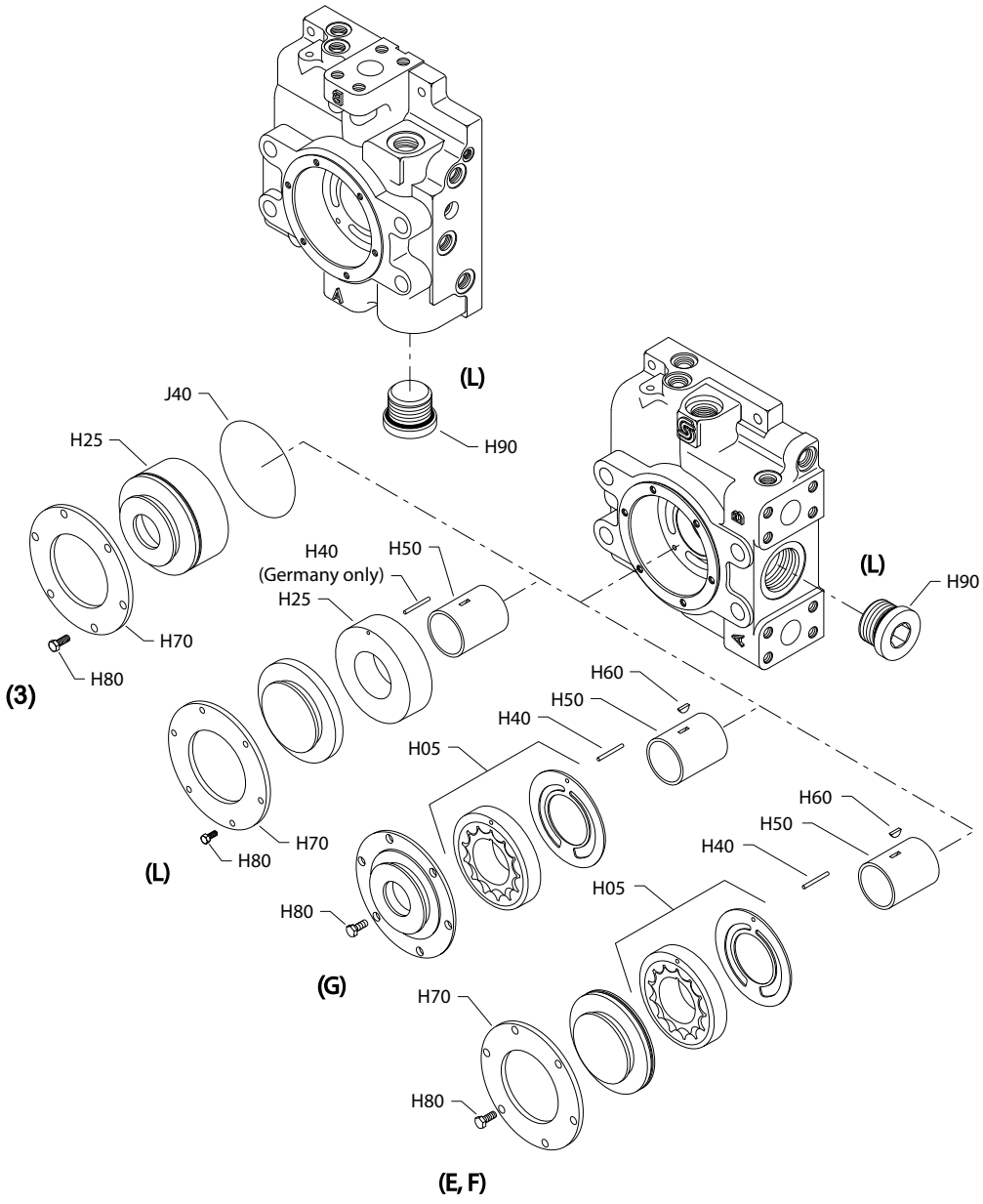
*Order code: 8N*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| G04 | 10-40 | | 11093574 | End cap assembly, CW | 1 |
| G12 | 10-40 | | 11040532 | Plug assembly | 1 |
| G22 | 10-40 | | 140644 | Plug assembly | 1 |
| G24 | 10-40 | | 11040532 | Plug assembly | 1 |
| G25 | 10-40 | | 11040532 | Plug assembly | 1 |
| G27 | 10-40 | | 11040532 | Plug assembly | 1 |
| G29 | 10-40 | | 9005110-4400 | Plug assembly | 1 |
| G46 | 10-40 | | 140644 | Plug assembly | 1 |
| G47 | 10-40 | | 140644 | Plug assembly | 1 |
| G51 | 10-40 | | 11040532 | Plug assembly | 1 |
| G53 | 10-40 | | 11040532 | Plug assembly | 1 |
| G54 | 10-40 | | 11040532 | Plug assembly | 1 |
| G77 | 10-40 | | 517830 | Valve spool | 1 |
| G78 | 10-40 | | 517832 | Spring | 1 |
| G79 | 10-40 | | 517827 | Valve spool | 1 |
| G80 | 10-40 | | 504681 | Screw | 1 |
| G81 | 10-40 | | 504681 | Screw | 1 |
| G82 | 10-40 | | 504681 | Screw | 1 |
| G83 | 10-40 | | 504681 | Screw | 1 |
| G90 | 10-40 | | 713768 | Screw | 1 |
| G97 | 10-40 | | 506969 | Screw | 1 |

## Charging system

### S90 100cc pump charging system 3, D-L

*Parts configuration*




* Included in base pump seal kit Q210

## Charging system

*Order code: 3*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| H25 | 01-29 | | 517683 | Spacer | 1 |
| H70 | 01-29 | | 516761 | Retaining plate | 1 |
| H80 | 01-29 | | 648451 | Screw | 6 |
| H90 | 01-29 | | 676734 (9005110-9500) | Plug assembly | 1 |
| J40 | 01-29 | | 680892 | O-ring | 1 |

*Order code: D*

| | | | | | |
|---|---|---|---|---|---|
| H05 | 93-15 | | 8200238 | Charge pump set, 17 cc (*SB-1993-001* on page 269*) | 1 |
| H40 | 87-02 | | 9004800-1224 | Pin | 1 |
| H50 | 93-15 | | 8801178 | Charge pump shaft (*SB-1993-001* on page 269* & *SB-1998-066* on page 290) | 1 |
| H50 | 87-02 | 89-16 | 8100142 | Charge pump shaft (*SB-1989-006* on page 262) | 1 |
| H60 | 87-02 | | 9003310-1208 | Key | 1 |
| H70 | 87-02 | | 516761 | Retaining plate | 1 |
| H80 | 87-02 | | 648451 (9007210-0604) | Screw | 6 |
| H91 | 87-02 | | 516581 | Reduction Screw | 1 |

* For information regarding replacement parts for units built from 89-17 to 93-14, refer to AN152886483362 in the appendix.

*Order code: E*

| | | | | | |
|---|---|---|---|---|---|
| H05 | 93-15 | | 8200239 | Charge pump set, 20 cc (*SB-1993-001* on page 269*) | 1 |
| H40 | 87-02 | | 9004800-1224 | Pin | 1 |
| H50 | 93-15 | | 8801178 | Charge pump shaft (*SB-1993-001* on page 269 & *SB-1998-066* on page 290) | 1 |
| H50 | 87-02 | 89-16 | 8100142 | Charge pump shaft (*SB-1989-006* on page 262) | 1 |
| H60 | 87-02 | | 9003310-1208 | Key | 1 |
| H70 | 87-02 | | 516761 | Retaining plate | 1 |
| H80 | 87-02 | | 648451 (9007210-0604) | Screw | 6 |

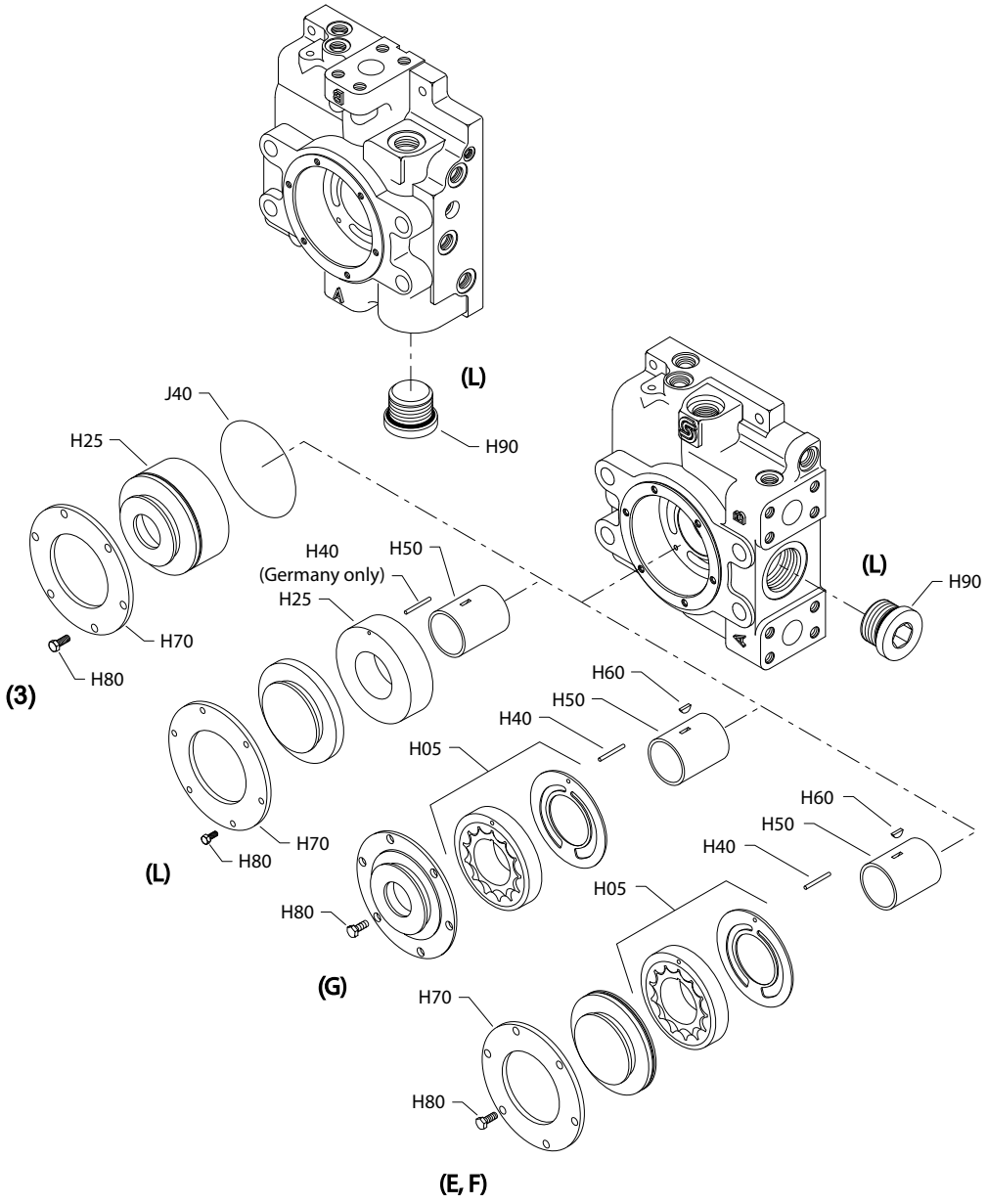
*Order code: F*

| | | | | | |
|---|---|---|---|---|---|
| H05 | 93-15 | | 8200240 | Charge pump set, 26 cc (*SB-1993-001* on page 269*) | 1 |
| H40 | 87-02 | | 9004800-1224 | Pin | 1 |
| H50 | 93-15 | | 8801178 | Charge pump shaft (*SB-1993-001* on page 269 & *SB-1998-066* on page 290) | 1 |
| H50 | 87-02 | 89-16 | 8100142 | Charge pump shaft (*SB-1989-006* on page 262) | 1 |
| H60 | 87-02 | | 9003310-1208 | Key | 1 |
| H70 | 87-02 | | 516761 | Retaining plate | 1 |
| H80 | 87-02 | | 648451 (9007210-0604) | Screw | 6 |

Part numbers continue to the next 2 pages.

## Charging system

*Parts configuration*




* Included in base pump seal kit Q210

## Charging system

*Order code: G*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| H05 | 01-20 | | 8200479 | Charge pump set | 1 |
| H05 | 94-27 | 01-19 | 8200245 | Charge pump set, 31 cc (*SB-2001-013* on page 303) | 1 |
| H40 | 94-27 | | 5000358 | Pin | 1 |
| H50 | 01-20 | | 8801210 | Charge pump shaft | 1 |
| H50 | 94-27 | 01-19 | 8801179 | Charge pump shaft (*SB-1998-066* on page 290 & *SB-2001-013* on page 303) | 1 |
| H60 | 94-27 | | 9003310-1208 | Key | 1 |
| H80 | 01-20 | | 041160 (9007314-0605) | Screw | 6 |
| H80 | 94-27 | 01-19 | 9007210-0604 | Screw (*SB-2001-013* on page 303) | 6 |

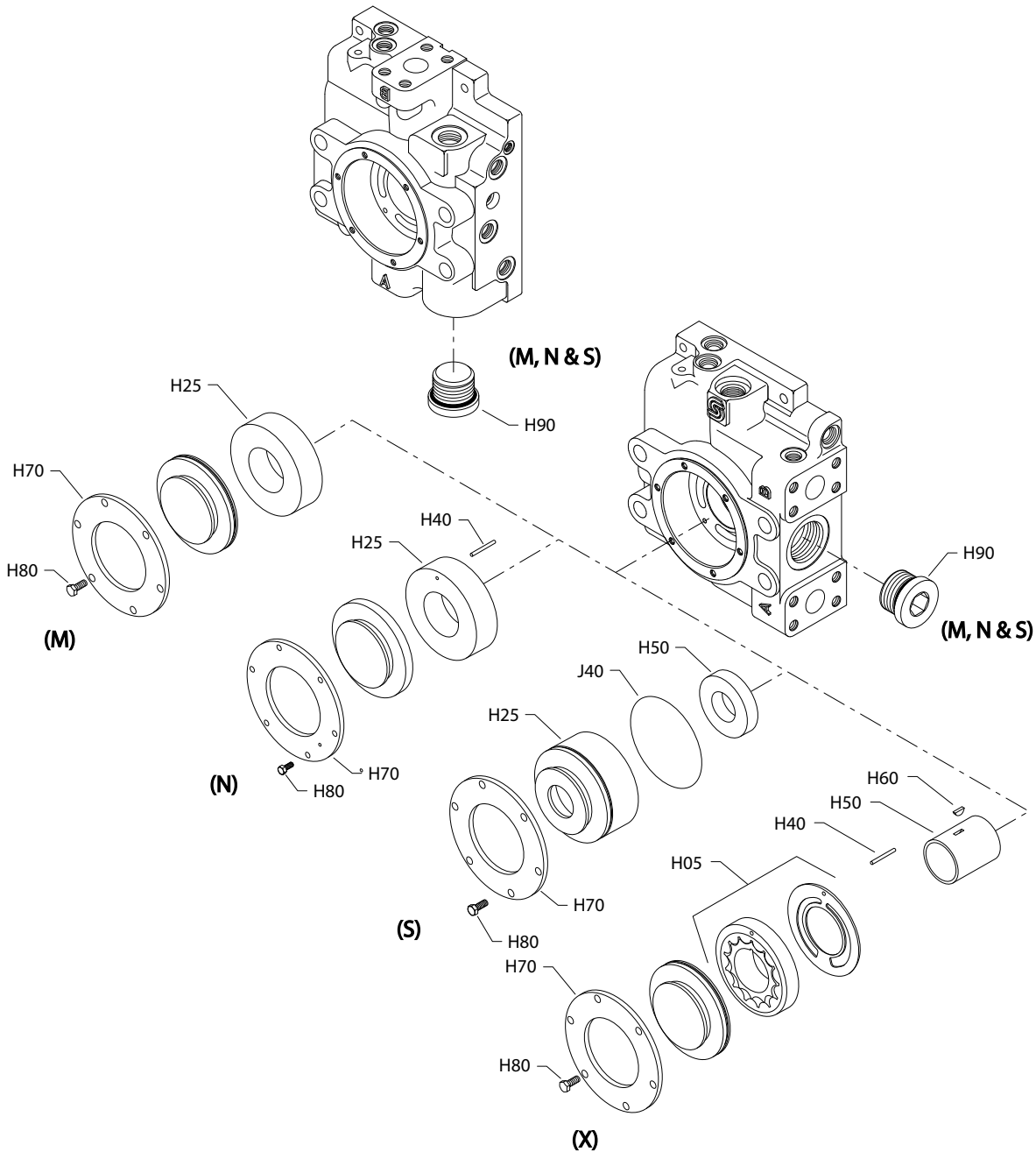
*Order code: L*

| | | | | | |
|---|---|---|---|---|---|
| H25 | 87-02 | | 326538 (8800466-0100) | Charge pump spacer | 1 |
| H40 | 87-02 | | 9004800-1224 | Pin (Germany only) | 1 |
| H50 | 93-15 | | 8801178 | Charge pump shaft (*SB-1993-001* on page 269 & *SB-1998-066* on page 290) | 1 |
| H50 | 87-02 | 89-16 | 8100142 | Charge pump shaft (*SB-1989-006* on page 262) | 1 |
| H70 | 87-02 | | 516761 | Retaining plate | 1 |
| H80 | 87-02 | | 9007210-0604 | Screw | 6 |
| H90 | 87-02 | | 676734 (9005110-9500) | Plug assembly | 1 |

## Charging system

### S90 100cc pump charging system M-X

*Parts configuration*




* Included in base pump seal kit Q210

## Charging system

*Order code: M*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| H25 | 96-05 | | 8800973 | Charge pump spacer | 1 |
| H70 | 96-05 | | 516761 | Retaining plate | 1 |
| H80 | 96-05 | | 9007210-0604 | Screw | 6 |
| H90 | 96-05 | | 676734 (9005110-9500) | Plug assembly | 1 |

*Order code: N*

| | | | | | |
|---|---|---|---|---|---|
| H25 | 01-29 | | 11077718 | Spacer | 1 |
| H40 | 01-29 | | 9004800-1224 | Pin | 1 |
| H70 | 01-29 | | 516761 | Retaining plate | 1 |
| H80 | 01-29 | | 648451 | Screw | 6 |
| H90 | 01-29 | | 676734 (9005110-9500) | Plug assembly | 1 |

*Order code: S*

| | | | | | |
|---|---|---|---|---|---|
| H25 | 96-24 | | 509242 | Charge pump spacer | 1 |
| H50 | 96-24 | | 509221 | Spacer | 1 |
| H70 | 96-24 | | 516761 | Retaining plate | 1 |
| H80 | 96-24 | | 648451 | Screw | 6 |
| H90 | 96-24 | | 676734 (9005110-9500) | Plug assembly | 1 |
| J40 | 96-24 | | 680892 (9004104-0440) | O-ring | 1 |

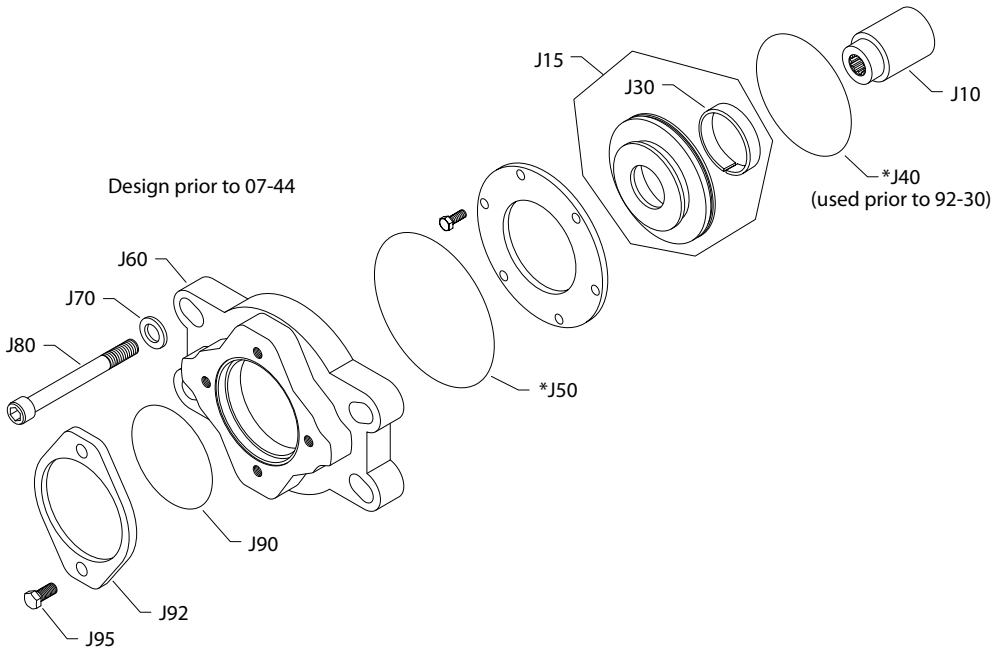
*Order code: X*

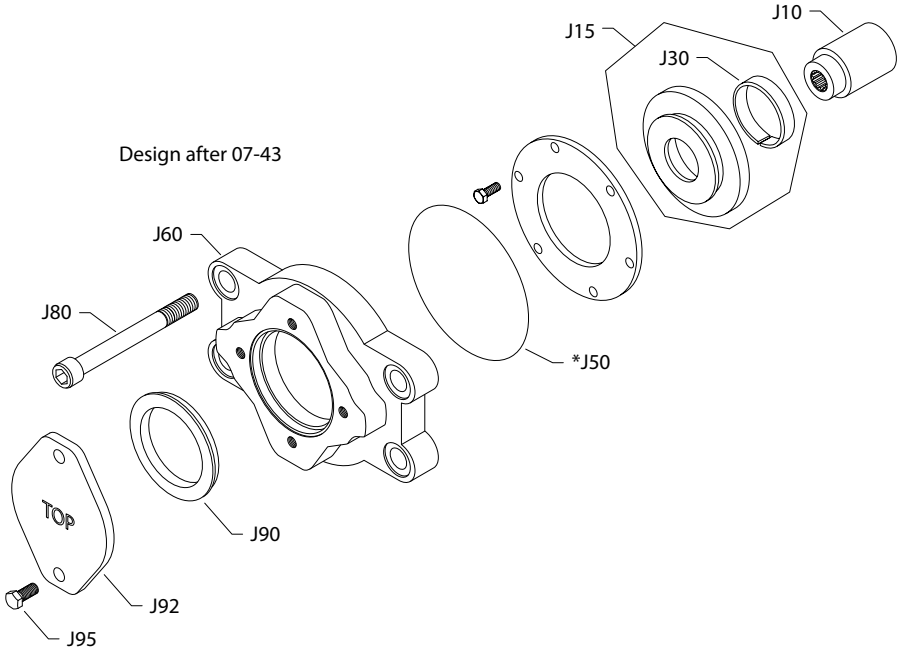
| | | | | | |
|---|---|---|---|---|---|
| H05 | 04-42 | | 8200239 | Charge pump set, 20 cc | 1 |
| H40 | 04-42 | | 9004800-1224 | Pin | 1 |
| H50 | 04-42 | | 8801178 | Charge pump shaft | 1 |
| H60 | 04-42 | | 9003310-1208 | Key | 1 |
| H70 | 04-42 | | 516761 | Retaining plate | 1 |
| H80 | 04-42 | | 648451 | Screw | 6 |

## Auxiliary mounting

### S90 pump aux mounting AB and AC

*Parts configuration*




* Included in base pump seal kit Q210

## Auxiliary mounting

*Order code: AB & A*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| J10 | 87-02 | | 8100147 | Coupling, 9 tooth | 1 |
| J15 | 87-02 | | 8800832 | Cover assembly, CW (*SB-1993-001* on page 269* & *SB-2005-011* on page 306) | 1 |
| J15 | 87-02 | | 8800833 | Cover assembly, CCW (*SB-1993-001* on page 269* & *SB-2005-011* on page 306 | 1 |
| J30 | 87-02 | | 664771 (8700008) | Bushing | 1 |
| J40 | 87-02 | 92-29 | 680892 (9004104-0440) | O-ring | 1 |
| J50 | 87-02 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 87-02 | | 8100846 | Flange adapter, SAE A (*SB-2007-027* on page 309) | 1 |
| J70 | 87-02 | 07-43 | 664920 (9009625-0132) | Washer (*SB-2007-027* on page 309) | 4 |
| J80 | 98-44 | | 518721 | Screw, M16 x 140 | 4 |
| J80 | 87-02 | 98-43 | 9007314-1624 | Screw, M16 x130 (*SB-1989-023* on page 264) | 4 |
| J90 | 07-44 | | 4800482 | A pad seal (*SB-2007-027* on page 309) | 1 |
| J90 | 87-02 | 07-43 | 545434 (9004100-0420) | O-ring | 1 |
| J92 | 07-44 | | 4460586 | Cover plate (*SB-2007-027* on page 309) | 1 |
| J92 | 87-02 | 07-43 | 9802336 | Cover plate | 1 |
| J95 | 87-02 | | 9007200-3714 | Screw | 3 |

* For information regarding replacement parts for units built from 89-17 to 93-09, refer to AN152886483362 in the appendix. New style covers may be used with either charge pump design.

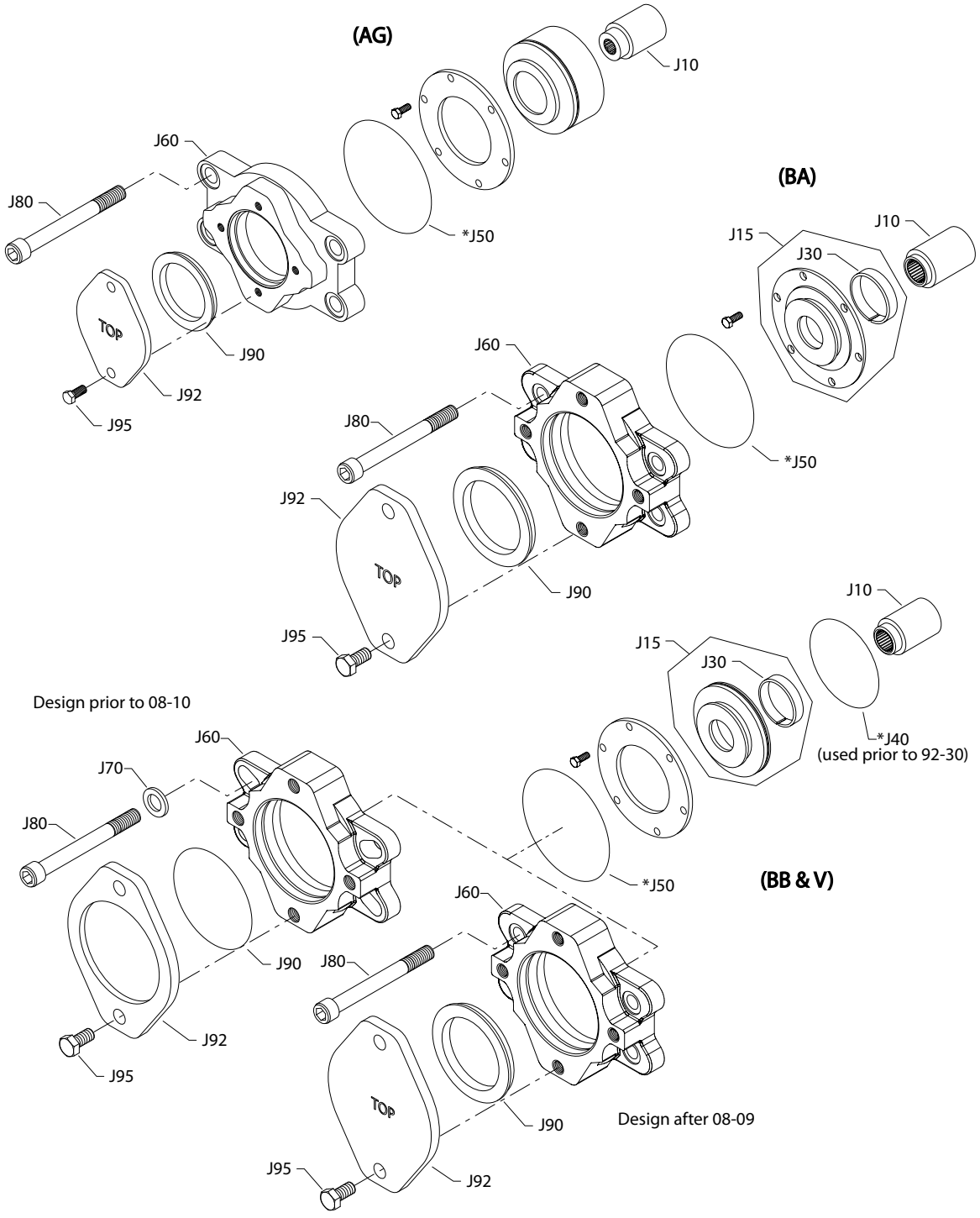
*Order code: AC & T*

| | | | | | |
|---|---|---|---|---|---|
| J10 | 87-02 | | 8100297 | Coupling, 11 tooth | 1 |
| J15 | 87-02 | | 8800832 | Cover assembly, CW (*SB-1993-001* on page 269* & *SB-2005-011* on page 306) | 1 |
| J15 | 87-02 | | 8800833 | Cover assembly, CCW (*SB-1993-001* on page 269* & *SB-2005-011* on page 306) | 1 |
| J30 | 87-02 | | 664771 (8700008) | Bushing | 1 |
| J40 | 87-02 | 92-29 | 680892 (9004104-0440) | O-ring | 1 |
| J50 | 87-02 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 87-02 | | 8100846 | Flange adapter, SAE A (*SB-2007-027* on page 309) | 1 |
| J70 | 87-02 | 07-43 | 664920 (9009625-0132) | Washer (*SB-2007-027* on page 309) | 4 |
| J80 | 98-44 | | 518721 | Screw, M16 x 140 | 4 |
| J80 | 87-02 | 98-43 | 9007314-1624 | Screw M16 x 130 | 4 |
| J90 | 07-44 | | 4800482 | A pad seal (*SB-2007-027* on page 309) | 1 |
| J90 | 87-02 | 07-43 | 545434 (9004100-0420) | O-ring | 1 |
| J92 | 07-44 | | 4460586 | Cover plate (*SB-2007-027* on page 309) | 1 |
| J92 | 87-02 | 07-43 | 9802336 | Cover plate | 1 |
| J95 | 87-02 | | 9007200-3714 | Screw | 2 |

## Auxiliary mounting

### S90 100cc pump aux mounting AG-BB, V

*Parts configuration*




* Included in base pump seal kit Q210

## Auxiliary mounting

*Order code: AG*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| J10 | 09-29 | | 8100147 | Coupling, 9 tooth | 1 |
| J50 | 09-29 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 09-29 | | 8200467 | Flange adapter, SAE A | 1 |
| J80 | 09-29 | | 518721 | Screw, M16x 140 | 4 |
| J90 | 09-29 | | 4800482 | A-pad seal | 1 |
| J92 | 09-29 | | 4460586 | Cover plate | 1 |
| J95 | 09-29 | | 9007200-3714 | Screw | 2 |

*Order code: BA*

| | | | | | |
|---|---|---|---|---|---|
| J10 | 05-14 | | 8100273 | Coupling, 15 tooth | 1 |
| J15 | 05-14 | | 8801248 | Cover assembly, CW | 1 |
| J15 | 05-14 | | 8801352 | Cover assembly, CCW | 1 |
| J30 | 05-14 | | 664771 (8700008) | Bushing | 1 |
| J50 | 05-14 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 05-14 | | 8200468 | Flange adapter, SAE B | 1 |
| J80 | 05-14 | | 518721 | Screw, M16 x 140 | 4 |
| J90 | 05-14 | | 8801061 | B-pad seal | 1 |
| J92 | 05-14 | | 8801059 | Cover plate | 1 |
| J95 | 05-14 | | 9007200-5021 | Screw | 2 |

*Order code: BB & V*

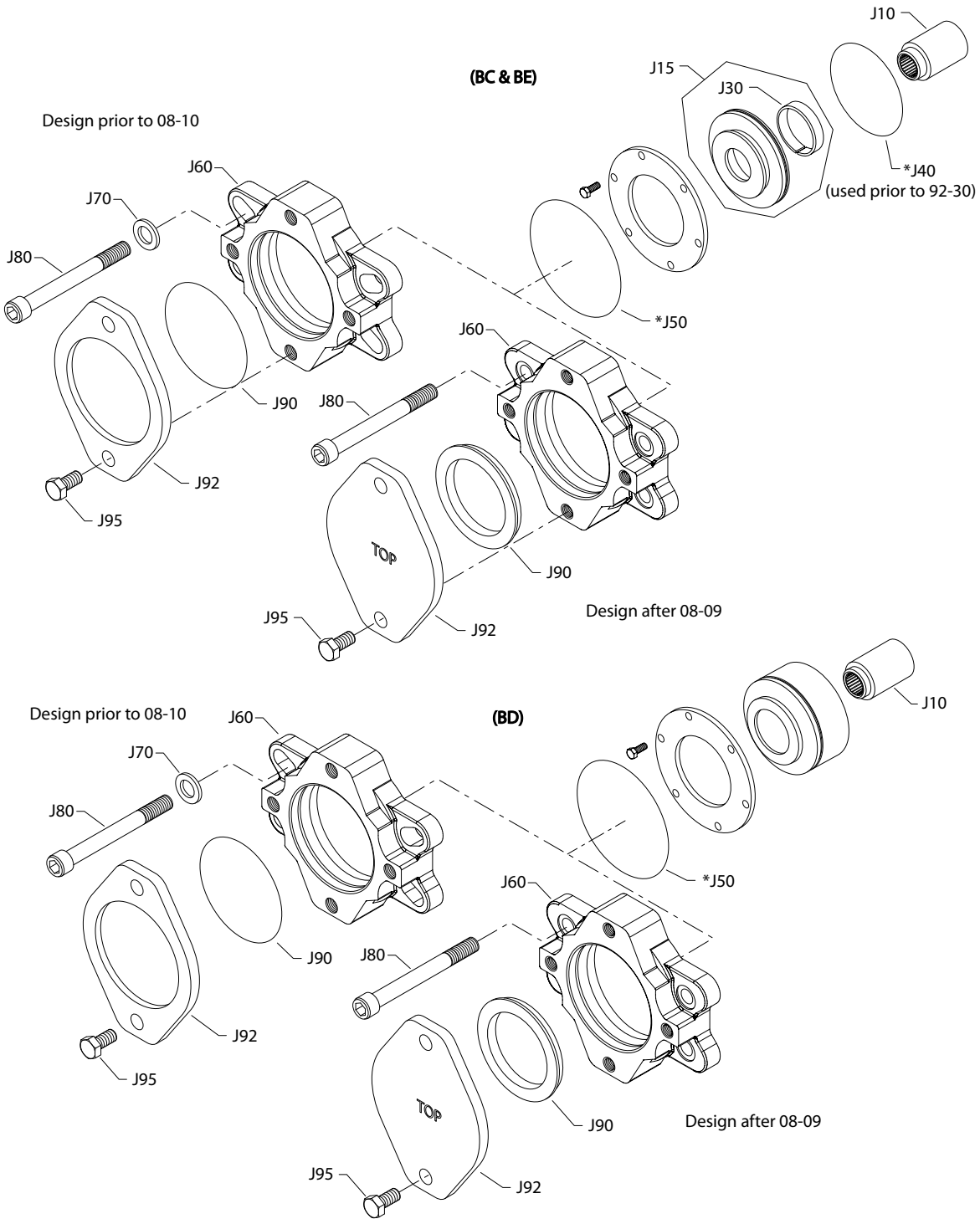
| | | | | | |
|---|---|---|---|---|---|
| J10 | 87-02 | | 8100273 | Coupling, 15 tooth | 1 |
| J15 | 87-02 | | 8800832 | Cover assembly, CW (*SB-1993-001* on page 269* & *SB-2005-011* on page 306) | 1 |
| J15 | 87-02 | | 8800833 | Cover assembly, CCW (*SB-1993-001* on page 269* & *SB-2005-011* on page 306) | 1 |
| J30 | 87-02 | | 664771 (8700008) | Bushing | 1 |
| J40 | 87-02 | 92-15 | 680892 (9004104-0440) | O-ring | 1 |
| J50 | 87-02 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 87-02 | | 8200468 | Flange adapter, SAE B (*SB-2007-055* on page 313) | 1 |
| J70 | 87-02 | 08-09 | 9009625-0132 | Washer (*SB-2007-055* on page 313) | 4 |
| J80 | 98-44 | | 518721 | Screw, M16 x 140 | 4 |
| J80 | 87-02 | 98-43 | 9007314-1624 | Screw M16 x 130 (*SB-1989-023* on page 264) | 4 |
| J90 | 08-10 | | 8801061 | B-pad seal (*SB-2007-055* on page 313) | 1 |
| J90 | 87-02 | 08-09 | 726935 (9004104-0450) | O-ring | 1 |
| J92 | 08-10 | | 8801059 | Cover plate (*SB-2007-055* on page 313) | 1 |
| J92 | 87-02 | 08-09 | 4460370 | Cover plate | 1 |
| J95 | 87-02 | | 9007200-5021 | Screw | 2 |

* For information regarding replacement parts for units built from 89-17 to 93-09, refer to AN152886483362 in the appendix. New style covers may be used with either charge pump design.

## Auxiliary mounting

### S90 100cc pump aux mounting BC, BD, BE

*Parts configuration*




* Included in base pump seal kit Q210

## Auxiliary mounting

*Order code: BC & B*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| J10 | 87-02 | | 8100148 | Coupling, 13 tooth | 1 |
| J15 | 87-02 | | 8800832 | Cover assembly, CW (*SB-1993-001* on page 269* & *SB-2005-011* on page 306) | 1 |
| J15 | 87-02 | | 8800833 | Cover assembly, CCW (*SB-1993-001* on page 269* & *SB-2005-011* on page 306) | 1 |
| J30 | 87-02 | | 664771 (8700008) | Bushing | 1 |
| J40 | 87-02 | 92-15 | 680892 (9004104-0440) | O-ring | 1 |
| J50 | 87-02 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 87-02 | | 8200468 | Flange adapter, SAE B (*SB-2007-055* on page 313) | 1 |
| J70 | 87-02 | 08-09 | 9009625-0132 | Washer (*SB-2007-055* on page 313) | 4 |
| J80 | 98-44 | | 518721 | Screw, M16 x 140 | 4 |
| J80 | 87-02 | 98-43 | 9007314-1624 | Screw M16 x130 (*SB-1989-023* on page 264) | 4 |
| J90 | 08-10 | | 8801061 | B-pad seal (*SB-2007-055* on page 313) | 1 |
| J90 | 87-02 | 08-09 | 726935 (9004104-0450) | O-ring | 1 |
| J92 | 08-10 | | 8801059 | Cover plate (*SB-2007-055* on page 313) | 1 |
| J92 | 87-02 | 08-09 | 4460370 | Cover plate | 1 |
| J95 | 87-02 | | 9007200-5021 | Screw | 2 |

* For information regarding replacement parts for units built from 89-17 to 93-09, refer to AN152886483362 in the appendix. New style covers may be used with either charge pump design.

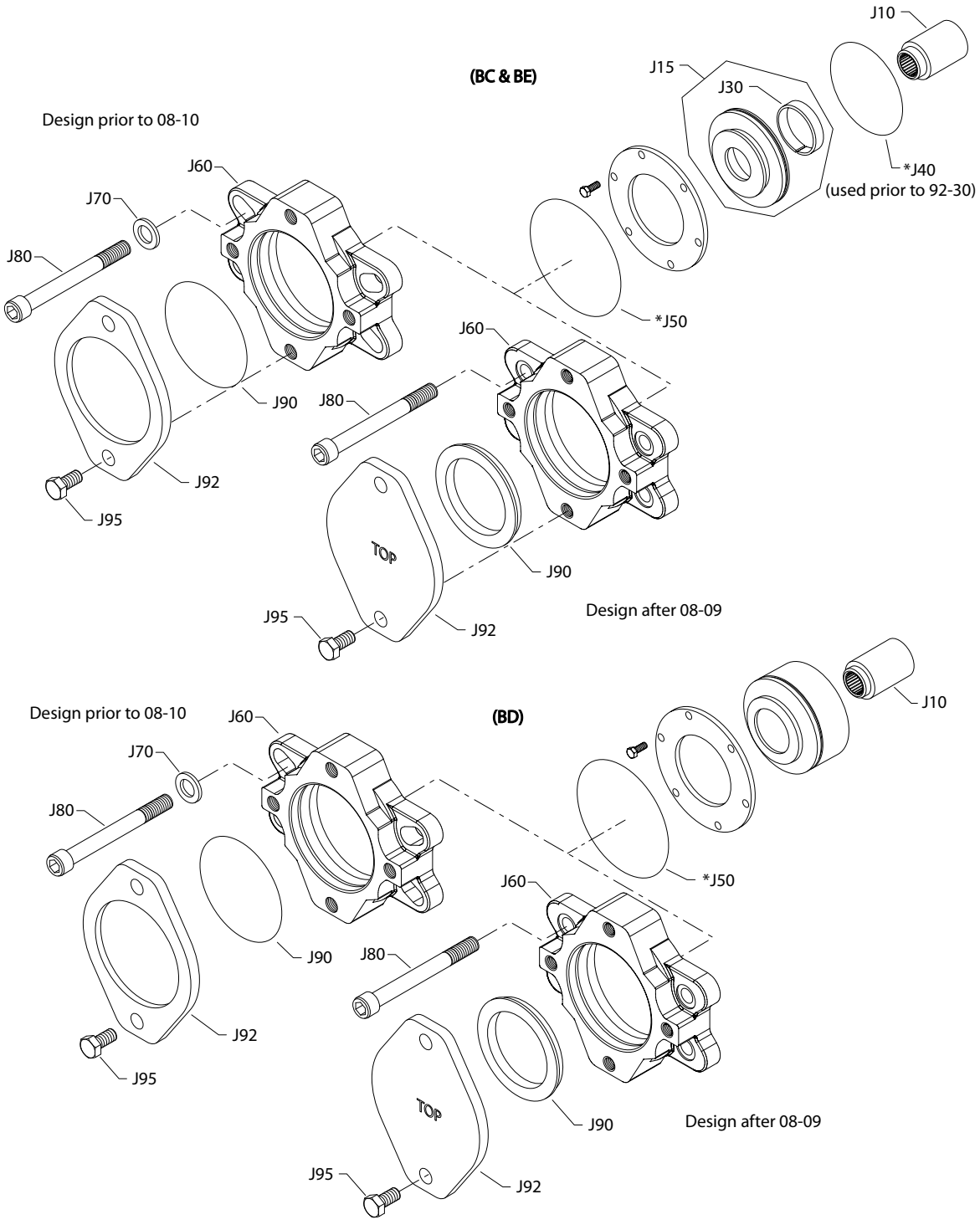
*Order code: BD*

| | | | | | |
|---|---|---|---|---|---|
| J10 | 99-17 | | 8100148 | Coupling, 13 tooth | 1 |
| J50 | 99-17 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 99-17 | | 8200540 | Flange adapter, SAE B (*SB-2007-055* on page 313) | 1 |
| J70 | 99-17 | 08-09 | 664920 (9009625-0132) | Washer (*SB-2007-055* on page 313) | 4 |
| J80 | 99-17 | | 518721 | Screw, M16 x 140 | 4 |
| J90 | 08-10 | | 8801061 | B pad seal (*SB-2007-055* on page 313) | 1 |
| J90 | 99-17 | 08-09 | 726935 (9004104-0450) | O-ring | 1 |
| J92 | 08-10 | | 8801059 | Cover plate (*SB-2007-055* on page 313) | 1 |
| J92 | 99-17 | 08-09 | 4460370 | Cover plate | 1 |
| J95 | 99-17 | | 370320 | Screw | 2 |

Parts continue to the next 2 pages.

## Auxiliary mounting

*Parts configuration*




* Included in base pump seal kit Q210

## Auxiliary mounting

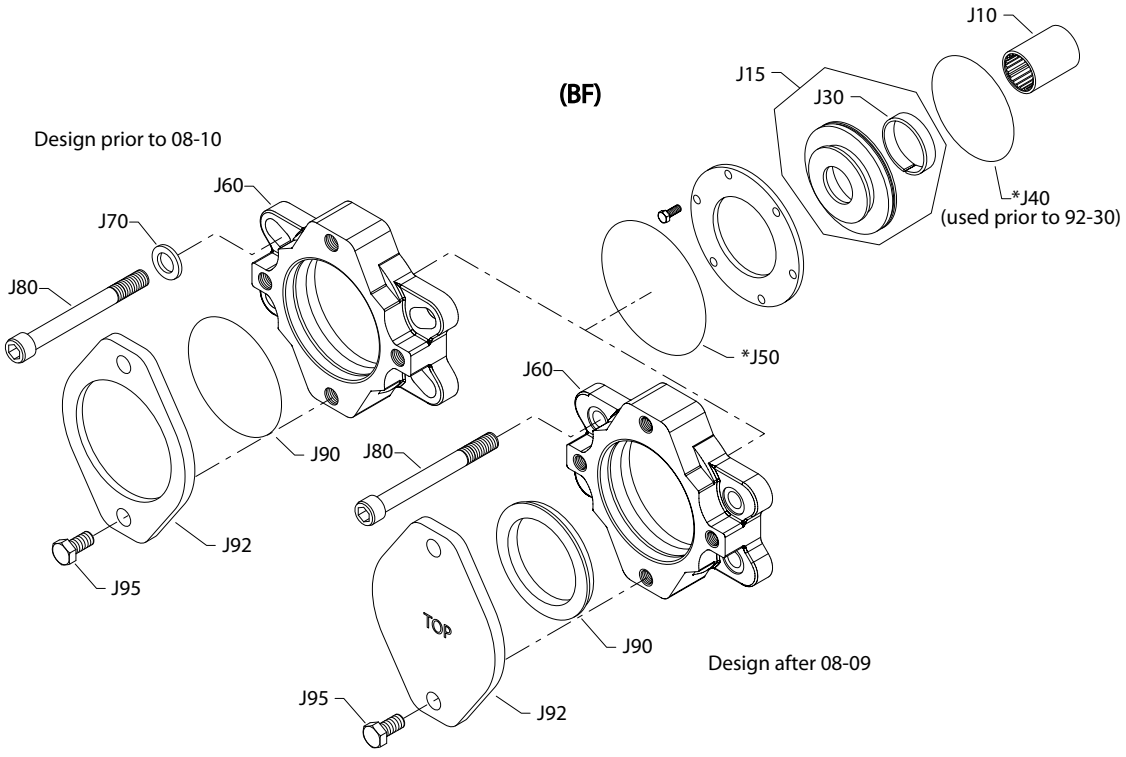
*Order code: BE & P*

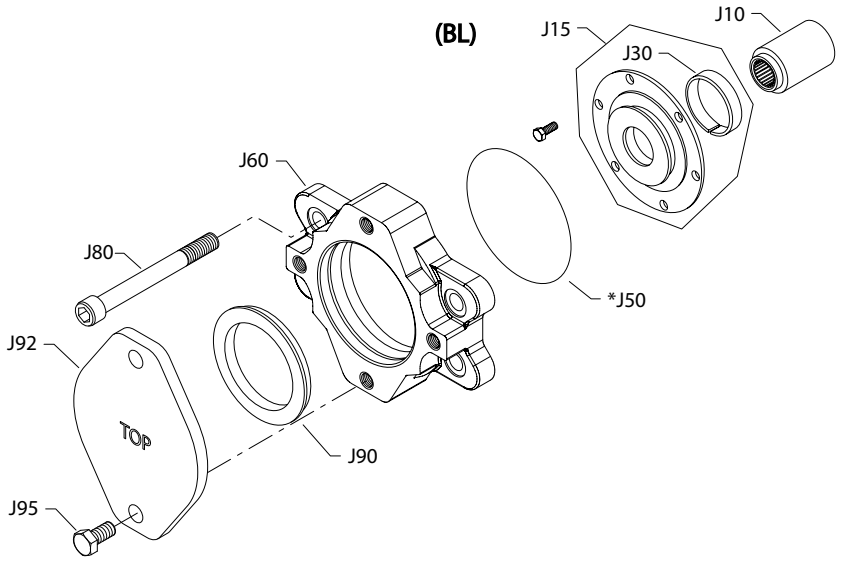
| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| J10 | 87-02 | | 8100148 | Coupling, 13 tooth | 1 |
| J15 | 87-02 | | 8800832 | Cover assembly, CW (*SB-1993-001* on page 269* & *SB-2005-011* on page 306) | 1 |
| J15 | 87-02 | | 8800833 | Cover assembly, CCW (*SB-1993-001* on page 269* & *SB-2005-011* on page 306) | 1 |
| J30 | 87-02 | | 664771 (8700008) | Bushing | 1 |
| J40 | 87-02 | 92-15 | 680892 (9004104-0440) | O-ring | 1 |
| J50 | 87-02 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 87-02 | | 8200540 | Flange adapter, SAE B (*SB-2007-055* on page 313) | 1 |
| J70 | 87-02 | 08-09 | 9009625-0132 | Washer (*SB-2007-055* on page 313) | 4 |
| J80 | 98-44 | | 518721 | Screw, M16 x 140 | 4 |
| J80 | 87-02 | 98-43 | 9007314-1624 | Screw M16 x 130 (*SB-1989-023* on page 264) | 4 |
| J90 | 08-10 | | 8801061 | B-pad seal (*SB-2007-055* on page 313) | 1 |
| J90 | 87-02 | 08-09 | 726935 (9004104-0450) | O-ring | 1 |
| J92 | 08-10 | | 8801059 | Cover plate (*SB-2007-055* on page 313) | 1 |
| J92 | 87-02 | 08-09 | 4460370 | Cover plate | 1 |
| J95 | 87-02 | | 370320 (9007314-1207) | Screw | 2 |

## Auxiliary mounting

### S90 100cc pump aux mounting BF, BL

*Parts configuration*




* Included in base pump seal kit Q210

## Auxiliary mounting

*Order code: BF & BL*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| J10 | 87-02 | | 11053342 | Coupling, 19 tooth | 1 |
| J15 | 87-02 | | 8800832 | Cover assembly, CW (*SB-1993-001* on page 269* & *SB-2005-011* on page 306) | 1 |
| J15 | 87-02 | | 8800833 | Cover assembly, CCW (*SB-1993-001* on page 269* & *SB-2005-011* on page 306) | 1 |
| J30 | 87-02 | | 664771 (8700008) | Bushing | 1 |
| J40 | 87-02 | 92-15 | 680892 (9004104-0440) | O-ring | 1 |
| J50 | 87-02 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 87-02 | | 8200468 | Flange adapter, SAE B (*SB-2007-055* on page 313) | 1 |
| J70 | 87-02 | 08-09 | 9009625-0132 | Washer (*SB-2007-055* on page 313) | 4 |
| J80 | 98-44 | | 518721 | Screw, M16 x 140 | 4 |
| J80 | 87-02 | 98-43 | 9007314-1624 | Screw M16 x130 (*SB-1989-023* on page 264) | 4 |
| J90 | 08-10 | | 8801061 | B-pad seal (*SB-2007-055* on page 313) | 1 |
| J90 | 87-02 | 08-09 | 726935 (9004104-0450) | O-ring | 1 |
| J92 | 08-10 | | 8801059 | Cover plate (*SB-2007-055* on page 313) | 1 |
| J92 | 87-02 | 08-09 | 4460370 | Cover plate | 1 |
| J95 | 87-02 | | 9007200-5021 | Screw | 2 |

* For information regarding replacement parts for units built from 89-17 to 93-09, refer to AN152886483362 in the appendix. New style covers may be used with either charge pump design.

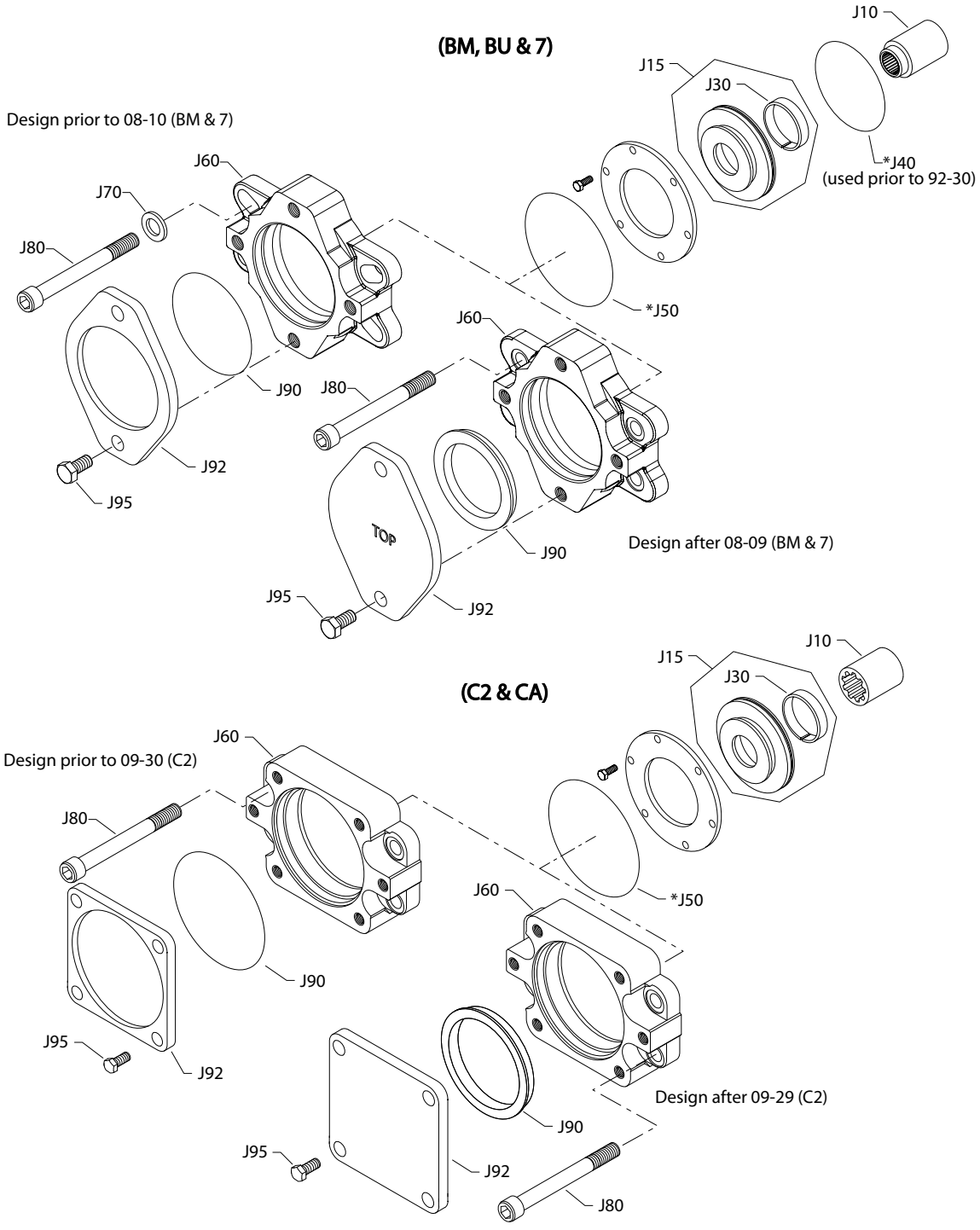
*Order code: BL*

| | | | | | |
|---|---|---|---|---|---|
| J10 | 06-01 | | 8100148 | Coupling, 13 tooth | 1 |
| J15 | 06-01 | | 8801248 | Cover assembly, CW | 1 |
| J15 | 06-01 | | 8801352 | Cover assembly, CCW | 1 |
| J30 | 06-01 | | 664771 (8700008) | Bushing | 1 |
| J50 | 06-01 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 06-01 | | 8200468 | Flange adapter, SAE B (*SB-2007-055* on page 313) | 1 |
| J80 | 06-01 | | 518721 | Screw, M16 x 140 | 4 |
| J90 | 06-01 | | 8801061 | B pad seal (*SB-2007-055* on page 313) | 1 |
| J92 | 06-01 | | 8801059 | Cover plate (*SB-2007-055* on page 313) | 1 |
| J95 | 06-01 | | 9007200-5021 | Screw | 2 |

## Auxiliary mounting

### S90 100cc pump aux mounting BM, BU, C2, CA

*Parts configuration*




* Included in base pump seal kit Q210

## Auxiliary mounting

*Order code: BM & 7*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| J10 | 94-16 | | 8100273 | Coupling,15 tooth | 1 |
| J15 | 94-16 | | 8800832 | Cover assembly,CW (*SB-2005-011* on page 306) | 1 |
| J15 | 94-16 | | 8800833 | Cover assembly,CCW (*SB-2005-011* on page 306) | 1 |
| J30 | 94-16 | | 664771 (8700008) | Bushing | 1 |
| J50 | 94-16 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 94-16 | | 8200540 | Flange adapter, SAE B, metric threads (*SB-2007-055* on page 313) | 1 |
| J70 | 94-16 | 08-09 | 9009625-0132 | Washer(*SB-2007-055* on page 313) | 4 |
| J80 | 98-44 | | 518721 | Screw, M16x 140 | 4 |
| J80 | 94-16 | 98-43 | 9007314-1624 | Screw M16 x130 (*SB-1989-023* on page 264) | 4 |
| J90 | 08-10 | | 8801061 | B-pad seal (*SB-2007-055* on page 313) | 1 |
| J90 | 06-13 | 08-09 | 726935 (9004104-0450) | O-ring | 1 |
| J92 | 08-10 | | 8801059 | Cover plate (*SB-2007-055* on page 313) | 1 |
| J92 | 94-16 | 08-09 | 4460370 | Cover plate | 1 |
| J95 | 94-16 | | 737866 (9007314-1207) | Screw | 2 |

*Order code: BU*

| | | | | | |
|---|---|---|---|---|---|
| J10 | 07-10 | | 8100297 | Coupling, 15 tooth | 1 |
| J15 | 07-10 | | 8800833 | Cover assembly, CCW | 1 |
| J30 | 07-10 | | 664771 (8700008) | Bushing | 1 |
| J50 | 07-10 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 07-10 | | 8200540 | Flange adapter, SAE B | 1 |
| J80 | 07-10 | | 518721 | Screw, M16x 140 | 4 |
| J90 | 07-10 | | 8801061 | B-pad seal | 1 |
| J92 | 07-10 | | 8801059 | Cover plate | 1 |
| J95 | 07-10 | | 9007314-1207 | Screw | 2 |

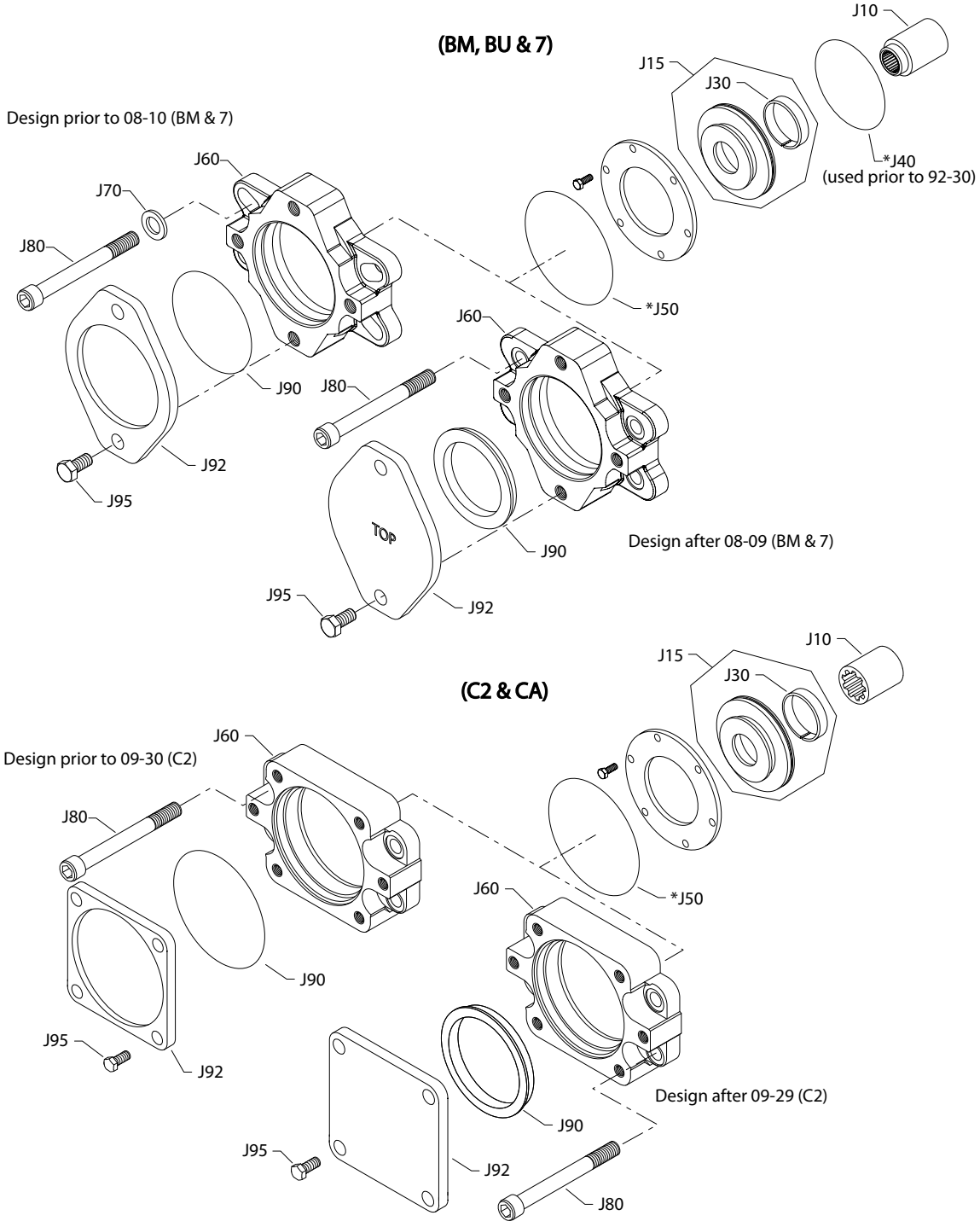
*Order code: C2*

| | | | | | |
|---|---|---|---|---|---|
| J10 | 06-43 | | 11017038 | Coupling, 25 tooth,high strength | 1 |
| J15 | 06-43 | | 8800832 | Cover assembly, CW | 1 |
| J30 | 06-43 | | 664771 (8700008) | Bushing | 1 |
| J50 | 06-43 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 06-43 | | 8200515 | Flange adapter, SAE C (*SB-2007-051* on page 311) | 1 |
| J80 | 06-43 | | 518721 | Screw, M16x 140 | 4 |
| J90 | 09-30 | | 11081805 | C-pad seal (*SB-2007-051* on page 311) | 1 |
| J90 | 06-43 | 09-29 | 726943 (9004104-0490) | O-ring | 1 |
| J92 | 09-30 | | 8801060 | Cover plate (*SB-2007-051* on page 311) | 1 |
| J92 | 06-43 | 09-29 | 8800406 | Cover plate | 1 |
| J95 | 06-43 | | 9007200-5021 | Screw | 4 |

Parts continue to the next 2 pages.

## Auxiliary mounting

*Parts configuration*




* Included in base pump seal kit Q210

## Auxiliary mounting

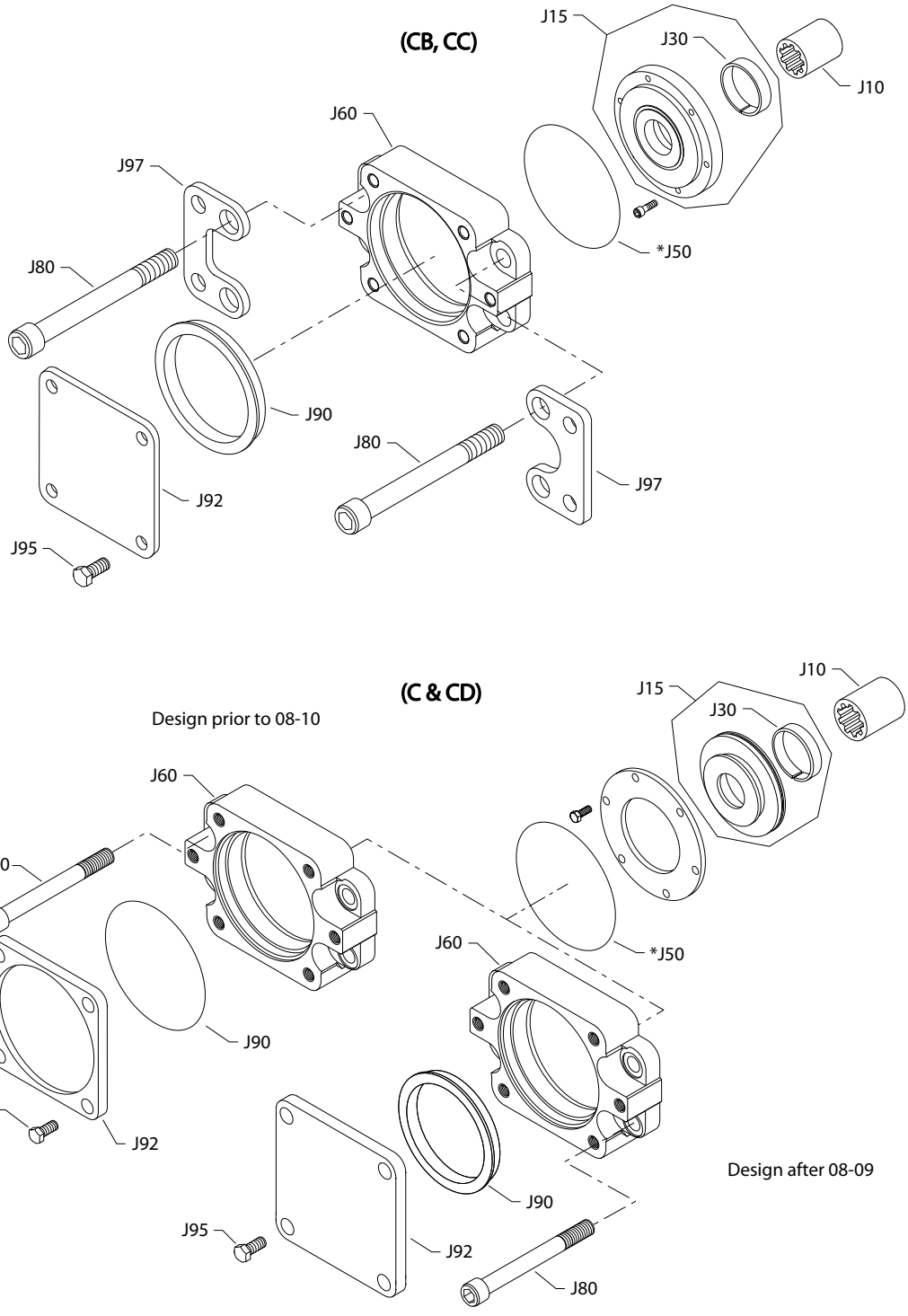
*Order code: CA*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| J10 | 06-01 | | 11053346 | Coupling, 14 tooth,high strength | 1 |
| J15 | 06-01 | | 8800832 | Cover assembly,CW (*SB-2005-011* on page 306) | 1 |
| J30 | 06-01 | | 664771 (8700008) | Bushing | 1 |
| J50 | 06-01 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 06-01 | | 8200515 | Flange adapter, SAE C | 1 |
| J80 | 06-01 | | 518721 | Screw, M16x 140 | 4 |
| J90 | 06-01 | | 11081805 | C-pad seal | 1 |
| J92 | 06-01 | | 8801060 | Cover plate | 1 |
| J95 | 06-01 | | 9007200-5021 | Screw | 4 |

## Auxiliary mounting

### S90 100cc pump aux mounting CB, CC, CD

*Parts configuration*




* Included in base pump seal kit Q210

## Auxiliary mounting

*Order code: CB*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| J10 | 03-35 | | 11053346 | Coupling, 14 tooth,high strength | 1 |
| J15 | 03-35 | | 8801248 | Cover assembly, CW (*SB-2005-011* on page 306) | 1 |
| J30 | 03-35 | | 664771 (8700008) | Bushing | 1 |
| J50 | 03-35 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 03-35 | | 8200550 | Flange adapter, SAE C | 1 |
| J80 | 03-35 | | 518721 | Screw, M16x 140 | 4 |
| J90 | 03-35 | | 11081805 | C-pad seal | 1 |
| J92 | 03-35 | | 8801060 | Cover plate | 1 |
| J95 | 03-35 | | 9007200-5021 | Screw | 4 |
| J97 | 03-35 | | 8200549 | Mounting bracket | 1 |

*Order code: CC*

| | | | | | |
|---|---|---|---|---|---|
| J10 | 13-07 | | 11053346 | Coupling, 14 tooth, high strength | 1 |
| J15 | 13-07 | | 8800832 | Cover assembly, CW | 1 |
| J30 | 13-07 | | 664771 (8700008) | Bushing | 1 |
| J50 | 13-07 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 13-07 | | 8200550 | Flange adapter, SAE C | 1 |
| J80 | 13-07 | | 518721 | Screw, M16x 140 | 4 |
| J90 | 13-07 | | 11081805 | C-pad seal | 1 |
| J92 | 13-07 | | 8801060 | Cover plate | 1 |
| J95 | 13-07 | | 9007200-5021 | Screw | 4 |
| J97 | 13-07 | | 8200549 | Mounting bracket | 1 |

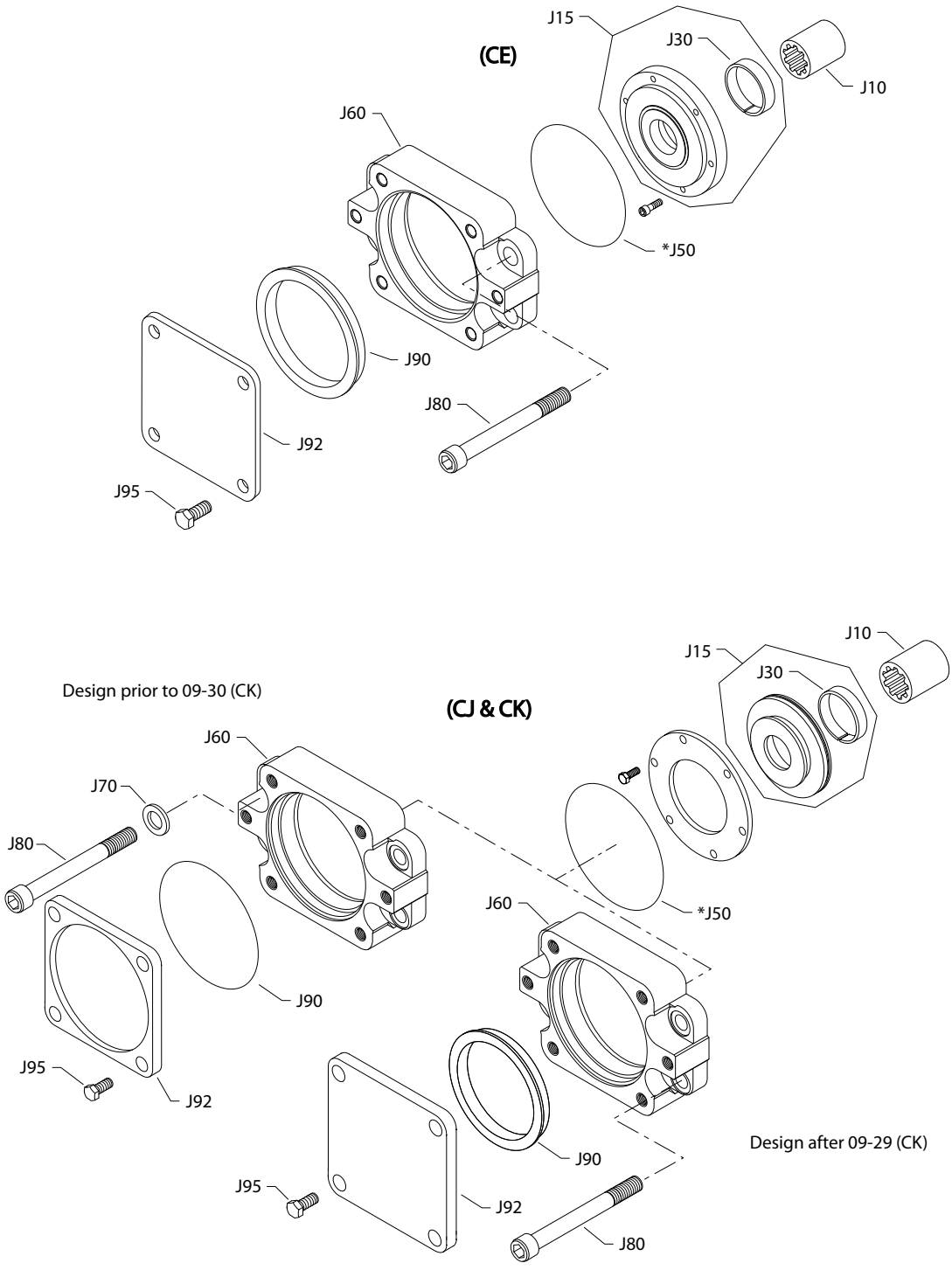
*Order code: C & CD*

| | | | | | |
|---|---|---|---|---|---|
| J10 | 87-02 | | 11053346 | Coupling, 14 tooth, high strength | 1 |
| J15 | 87-02 | | 8800832 | Cover assembly, CW (*SB-1993-001* on page 269 & *SB-2005-011* on page 306) | 1 |
| J15 | 87-02 | | 8800833 | Cover assembly, CCW (*SB-1993-001* on page 269 & *SB-2005-011* on page 306) | 1 |
| J30 | 87-02 | | 664771 (8700008) | Bushing | 1 |
| J40 | 87-02 | 92-15 | 680892 (9004104-0440) | O-ring | 1 |
| J50 | 87-02 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 87-02 | | 8200515 | Flange adapter, SAE C (*SB-2007-051* on page 311) | 1 |
| J70 | 87-02 | 03-10 | 5000602 | Washer(*SB-2002-050* on page 305) | 4 |
| J80 | 98-44 | | 518721 | Screw, M16 x 140 | 4 |
| J80 | 87-02 | 98-43 | 9007314-1624 | Screw M16 x130 (*SB-1989-023* on page 264) | 4 |
| J90 | 08-10 | | 11081805 | C-pad seal (*SB-2007-051* on page 311) | 1 |
| J90 | 87-02 | 08-09 | 726943 (9004104-0490) | O-ring | 1 |
| J92 | 08-10 | | 8801060 | Cover plate (*SB-2007-051* on page 311) | 1 |
| J92 | 87-02 | 08-09 | 8800406 | Cover plate | 1 |
| J95 | 87-02 | | 9007200-5021 | Screw | 4 |

## Auxiliary mounting

### S90 100cc pump aux mounting CE, CJ, CK

*Parts configuration*




* Included in base pump seal kit Q210

## Auxiliary mounting

*Order code: CE*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| J10 | 02-08 | | 11053346 | Coupling, 14 tooth, high strength | 1 |
| J15 | 02-08 | | 8801248 | Cover assembly, CW (*SB-2005-011* on page 306) | 1 |
| J30 | 02-08 | | 664771 (8700008) | Bushing | 1 |
| J50 | 02-08 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 02-08 | | 8200515 | Flange adapter, SAE C | 1 |
| J80 | 02-08 | | 518721 | Screw, M16x 140 | 4 |
| J90 | 02-08 | | 11081805 | C-pad seal | 1 |
| J92 | 02-08 | | 8801060 | Cover plate | 1 |
| J95 | 02-08 | | 9007200-5021 | Screw | 4 |

*Order code: CJ*

| | | | | | |
|---|---|---|---|---|---|
| J10 | 02-08 | | 11053346 | Coupling, 14 tooth, high strength | 1 |
| J15 | 02-08 | | 8800832 | Cover assembly, CW | 1 |
| J30 | 02-08 | | 664771 (8700008) | Bushing | 1 |
| J50 | 02-08 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 02-08 | | 8200516 | Flange adapter, SAE C | 1 |
| J80 | 02-08 | | 518721 | Screw, M16x 140 | 4 |
| J90 | 02-08 | | 11081805 | C-pad seal | 1 |
| J92 | 02-08 | | 8801060 | Cover plate | 1 |
| J95 | 02-08 | | 9007200-5021 | Screw | 4 |

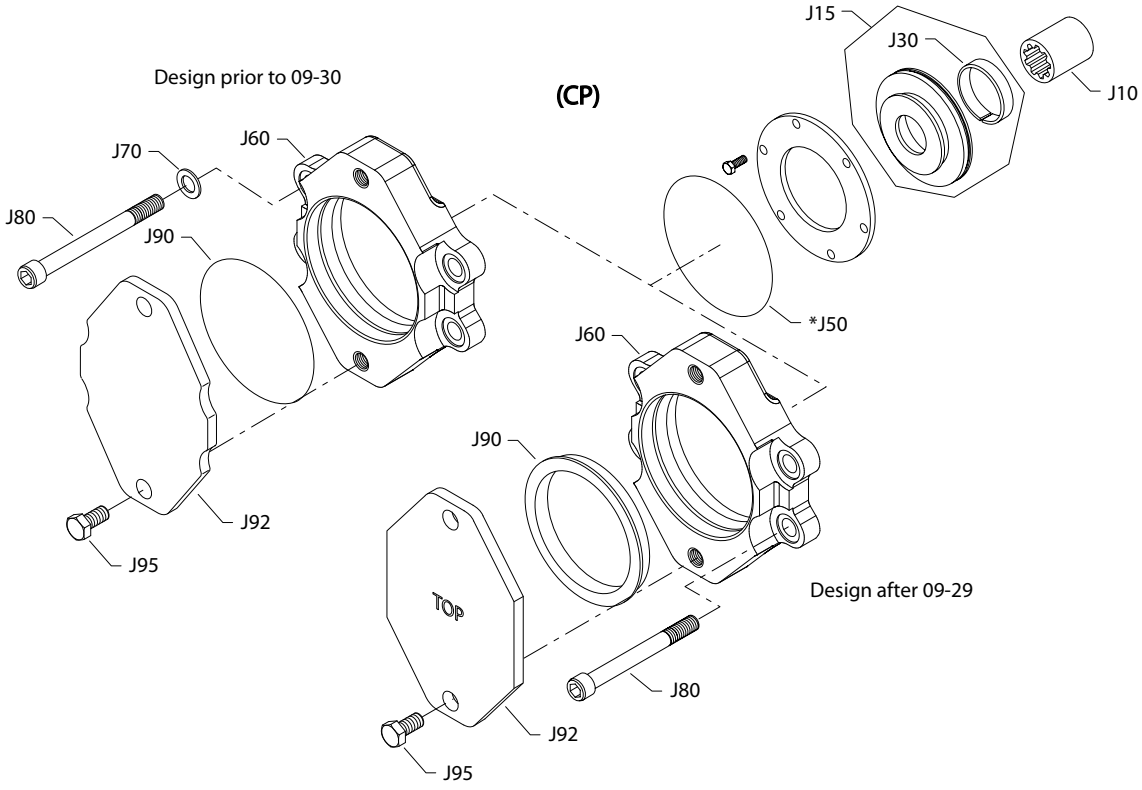
*Order code: CK*

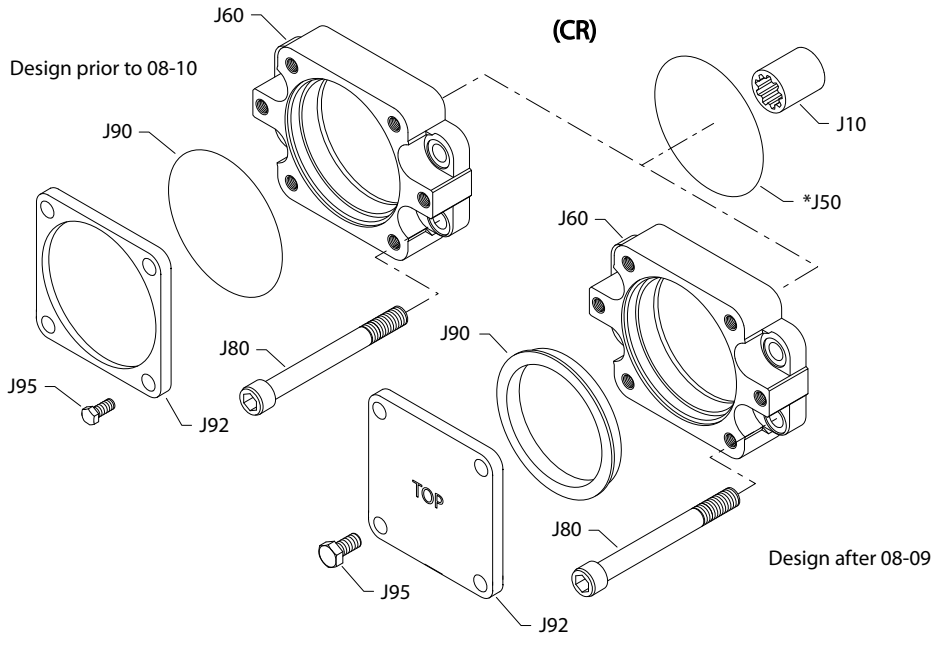
| | | | | | |
|---|---|---|---|---|---|
| J10 | 94-18 | | 11053278 | Coupling, 25 tooth, high strength | 1 |
| J15 | 94-18 | | 8800832 | Cover assembly, CW (*SB-1993-001* on page 269 & *SB-2005-011* on page 306) | 1 |
| J15 | 94-18 | | 8800833 | Cover assembly, CCW (*SB-1993-001* on page 269 & *SB-2005-011* on page 306) | 1 |
| J30 | 94-18 | | 664771 (8700008) | Bushing | 1 |
| J50 | 94-18 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 94-18 | | 8200515 | Flange adapter, SAE C (*SB-2007-051* on page 311) | 1 |
| J70 | 94-18 | 09-29 | 5000602 | Washer (*SB-2002-050* on page 305) | 4 |
| J80 | 98-44 | | 518721 | Screw, M16x 140 | 4 |
| J80 | 94-18 | 98-43 | 9007314-1624 | Screw M16 x130 (*SB-1989-023* on page 264) | 4 |
| J90 | 09-30 | | 11081805 | C-pad seal (*SB-2007-051* on page 311) | 1 |
| J90 | 94-18 | 09-29 | 726943 (9004104-0490) | O-ring | 1 |
| J92 | 09-30 | | 8801060 | Cover plate (*SB-2007-051* on page 311) | 1 |
| J92 | 94-18 | 09-29 | 8800406 | Cover plate | 1 |
| J95 | 94-18 | | 9007200-5021 | Screw | 4 |

## Auxiliary mounting

### S90P aux mounting CP, CR

*Parts configuration*




* Included in base pump seal kit Q210

## Auxiliary mounting

*Order code: CP*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| J10 | 94-18 | | 11053346 | Coupling, 14 tooth, high strength | 1 |
| J15 | 94-18 | | 8800832 | Cover assembly, CW (*SB-1993-001* on page 269* & *SB-2005-011* on page 306) | 1 |
| J15 | 94-18 | | 8800833 | Cover assembly, CCW (*SB-1993-001* on page 269* & *SB-2005-011* on page 306) | 1 |
| J30 | 94-18 | | 664771 (8700008) | Bushing | 1 |
| J50 | 94-18 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 94-18 | | 8200551 | Flange adapter, SAE C (*SB-2007-051* on page 311) | 1 |
| J70 | 94-18 | 09-29 | 664920 | Washer | 4 |
| J80 | 98-44 | | 518721 | Screw, M16x 140 | 4 |
| J80 | 94-18 | 98-43 | 9007314-1624 | Screw M16 x130 (*SB-1989-023* on page 264) | 4 |
| J90 | 09-30 | | 11081805 | C-pad seal (*SB-2007-051* on page 311) | 1 |
| J90 | 94-18 | 09-29 | 726943 (9004104-0490) | O-ring | 1 |
| J92 | 09-30 | | 11048554 | Cover plate (*SB-2007-051* on page 311) | 1 |
| J92 | 94-18 | 09-29 | 8800406 | Cover plate | 1 |
| J95 | 94-18 | | 9007200-6222 | Screw | 2 |

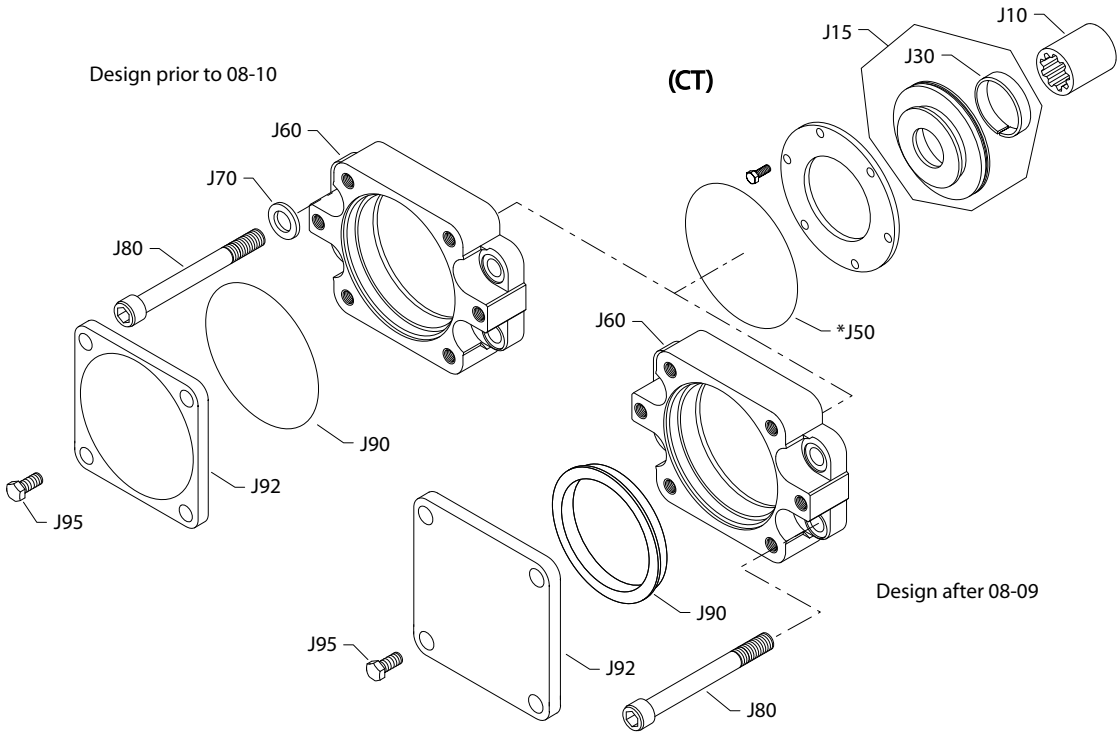
*Order code: CR*

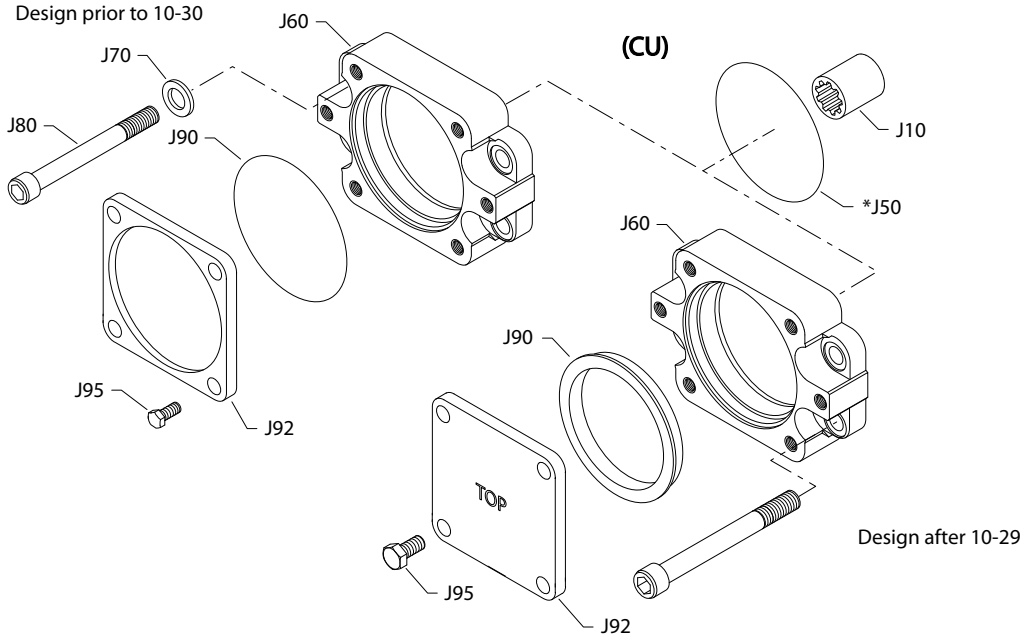
| | | | | | |
|---|---|---|---|---|---|
| J10 | 03-14 | | 11053346 | Coupling, 14 tooth, high strength | 1 |
| J50 | 03-14 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 03-14 | | 8200538 | Flange adapter, SAE C (*SB-2007-051* on page 311) | 1 |
| J80 | 03-14 | | 518721 | Screw, M16x 140 | 4 |
| J90 | 08-10 | | 11081805 | C-pad seal (*SB-2007-051* on page 311) | 1 |
| J90 | 03-14 | 08-09 | 726943 (9004104-0490) | O-ring | 1 |
| J92 | 08-10 | | 8801060 | Cover plate (*SB-2007-051* on page 311) | 1 |
| J92 | 03-14 | 08-09 | 8800406 | Cover plate | 1 |
| J95 | 03-14 | | 370320 | Screw | 4 |

## Auxiliary mounting

### S90 100cc pump aux mounting CT, CU

*Parts configuration*




* Included in base pump seal kit Q210

## Auxiliary mounting

*Order code: CT*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| J10 | 98-42 | | 11053342 | Coupling, 19 tooth | 1 |
| J15 | 98-42 | | 8800832 | Cover assembly, CW (*SB-2005-011* on page 306) | 1 |
| J15 | 98-42 | | 8800833 | Cover assembly, CCW (*SB-2005-011* on page 306) | 1 |
| J30 | 98-42 | | 664771 (8700008) | Bushing | 1 |
| J50 | 98-42 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 98-42 | | 8200515 | Flange adapter, SAE C (*SB-2002-050* on page 305 & *SB-2007-051* on page 311) | 1 |
| J70 | 98-42 | 03-10 | 5000602 | Washer(*SB-2002-050* on page 305) | 4 |
| J80 | 98-44 | | 518721 | Screw, M16 x 140 | 4 |
| J80 | 98-42 | 98-43 | 9007314-1622 | Screw M16 x 130 (*SB-1989-023* on page 264) | 4 |
| J90 | 08-10 | | 11081805 | C-pad seal | 1 |
| J90 | 98-42 | 08-09 | 719179 (9004100-0480) | O-ring | 1 |
| J92 | 08-10 | | 8801060 | Cover plate | 1 |
| J92 | 98-42 | 08-09 | 8800406 | Cover plate | 1 |
| J95 | 98-42 | | 9007200-5021 | Screw | 4 |

*Order code: CU*

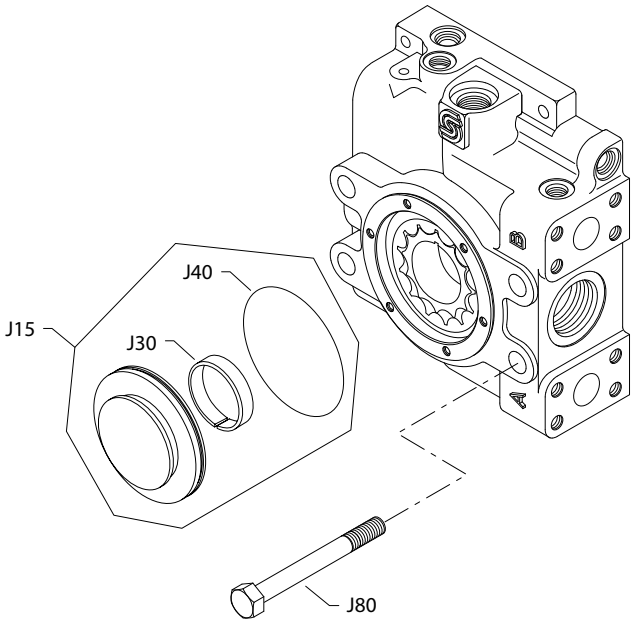
| | | | | | |
|---|---|---|---|---|---|
| J10 | 99-04 | | 11053346 | Coupling, 14 tooth, high strength | 1 |
| J50 | 99-04 | | 056739 (9004104-1580) | O-ring | 1 |
| J60 | 99-04 | | 8200515 | Flange adapter, SAE C (*SB-2007-051* on page 311) | 1 |
| J70 | 99-04 | 04-02 | 5000602 | Washer (*SB-2002-050* on page 305) | 4 |
| J80 | 99-04 | | 518721 | Screw, M16 x 140 | 4 |
| J90 | 10-30 | | 11081805 | C-pad seal (*SB-2007-051* on page 311) | 1 |
| J90 | 99-04 | 10-29 | 726943 (9004104-0490) | O-ring | 1 |
| J92 | 10-30 | | 8801060 | Cover plate (*SB-2007-051* on page 311) | 1 |
| J92 | 99-04 | 10-29 | 8800406 | Cover plate | 1 |
| J95 | 99-04 | | 9007200-5021 | Screw | 4 |

## Auxiliary mounting

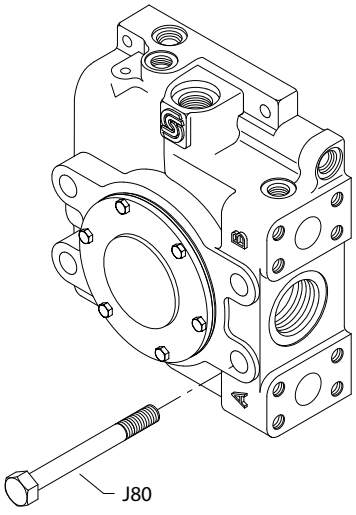
### S90 100cc pump aux mounting NN, NU

*Parts configuration*

**(NN)**




**(NU)**




* Included in overhaul seal kit Q210

## Auxiliary mounting

*Order code: NN & N*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| J15 | 87-02 | | 8800834 | Cover assembly, (*SB-1993-001* on page 269*) | 1 |
| J30 | 87-02 | | 664771 (8700008) | Bushing | 1 |
| J40 | 87-02 | | 680892 (9004104-0440) | O-ring | 1 |
| J80 | 98-44 | | 9007210-1621 | Screw, M16 x 120 | 4 |
| J80 | 87-02 | 98-43 | 9007210-1620 | Screw, M16 x 100 | 4 |

* For additional information regarding replacement parts for units built prior to 93-10, refer to AN152886483362 in the appendix

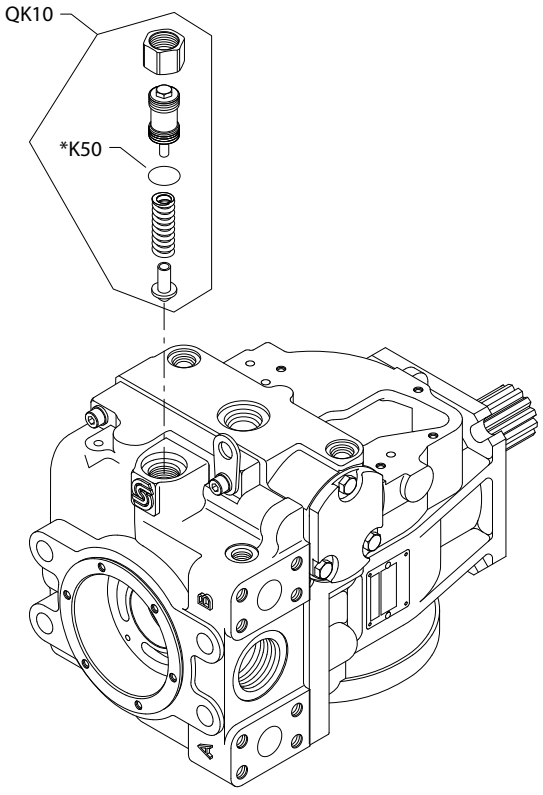
*Order code: NU*

| | | | | | |
|---|---|---|---|---|---|
| J80 | 98-47 | | 9007210-1621 | Screw, M16 x 120 | 4 |

## Charge pressure setting

### S90 100cc pump charge pressure system 08-42, XX

*Parts configuration*




* Included in base pump seal kit Q210

## Charge pressure setting

*Order code: 08-30*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| K50 | 87-42 | | 001149 (9004201-6200) | O-ring (*SB-1989-002* on page 259) | 1 |
| QK10 | 87-42 | | 8002K000-A | Charge relief valve kit, 8-30 bar (*SB-1989-002* on page 259) | 1 |

*Order code: 32-42*

| | | | | | |
|---|---|---|---|---|---|
| K50 | 94-13 | | 001149 (9004201-6200) | O-ring | 1 |
| QK10 | 94-13 | | 8510269 | Charge relief valve kit, 30-42 bar | 1 |

*Order code: JD*

| |
|---|
| No parts |

*Order code: XX*

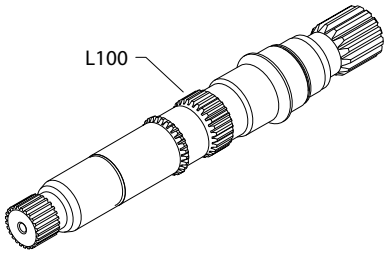
| | | | | | |
|---|---|---|---|---|---|
| K50 | 94-13 | | 012559 (9004202-6200) | O-ring, viton | 1 |
| QK10 | 94-13 | | 11086335 | Charge relief valve kit, viton | 1 |

## Shaft

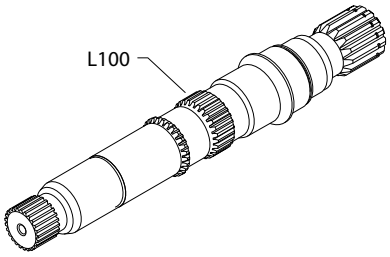
### S90 100cc pump shaft C6-S3

*Parts configuration*

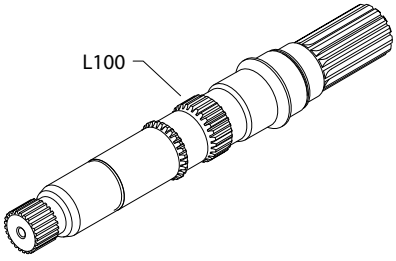
**(C6, C7, D7, F1, F7, G1, S1, S3)**



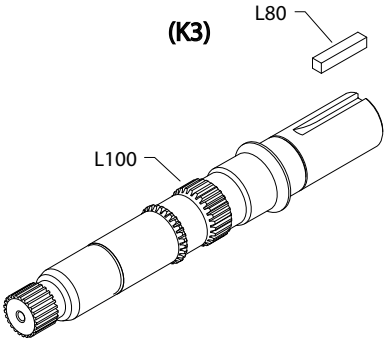

**(F3)**




**(J2 & J3)**




**(K3)**




* Included in base pump seal kit Q210

## Shaft

*Order code: C6*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| L100 | 98-38 | | 509239 | Shaft, 21 tooth spline | 1 |

*Order code: C7*

| | | | | | |
|---|---|---|---|---|---|
| L100 | 89-46 | | 341958 (8200169) | Shaft, 23 tooth spline | 1 |
| L100 | 87-02 | 89-45 | 320911 (8200119) | Shaft, 23 tooth spline (*SB-1989-023* on page 264) | 1 |

*Order code: D7*

| | | | | | |
|---|---|---|---|---|---|
| L100 | 94-14 | | 504307 | Shaft, 23 tooth spline, M10 threaded tapped hole | 1 |

*Order code: F1*

| | | | | | |
|---|---|---|---|---|---|
| L100 | 89-46 | | 341974 (8200170) | Shaft, 13 tooth spline | 1 |
| L100 | 87-02 | 89-45 | 306688 (8200118) | Shaft, 13 tooth spline (*SB-1989-023* on page 264) | 1 |

*Order code: F3*

| | | | | | |
|---|---|---|---|---|---|
| L100 | 96-45 | | 8200330 | Shaft, 13 tooth spline with retaining ring grooves | 1 |

*Order code: F7*

| | | | | | |
|---|---|---|---|---|---|
| L100 | 07-46 | | 11030912 | Shaft, 23 tooth spline | 1 |

*Order code: G1*

| | | | | | |
|---|---|---|---|---|---|
| L100 | 94-17 | | 504352 | Shaft, 25 tooth spline | 1 |

*Order code: J2*

| | | | | | |
|---|---|---|---|---|---|
| L100 | 92-16 | | 8200389 | Shaft, 23 tooth spline with no relief | 1 |

*Order code: J3*

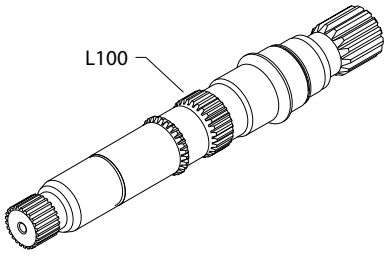
| | | | | | |
|---|---|---|---|---|---|
| L100 | 92-16 | | 8200234 | Shaft, 14 tooth spline with no relief | 1 |

Parts continue to the next 2 pages.

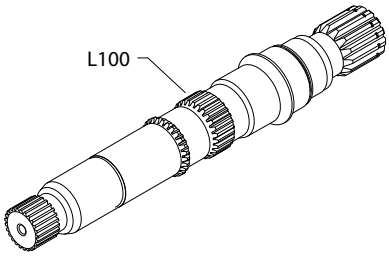
## Shaft

*Parts configuration*

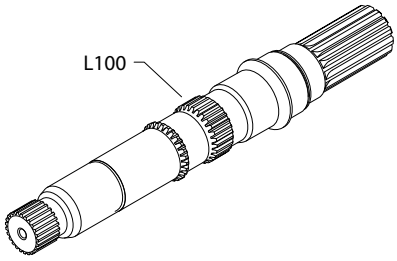
**(C6, C7, D7, F1, F5, F7, G1, S1, S3)**



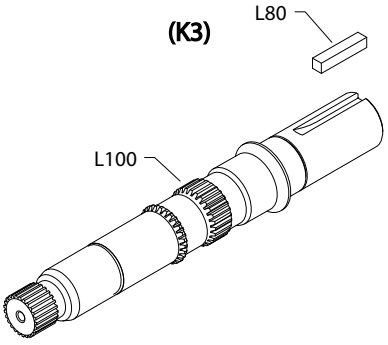

**(F3)**




**(J2 & J3)**




**(K3)**




* Included in base pump seal kit Q210

## Shaft

*Order code: K3*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| L80 | 87-02 | | 9003261-3724 | Key | 1 |
| L100 | 89-46 | | 8200176 | Shaft, straight key, 1.75″ diameter | 1 |
| L100 | 87-02 | 89-45 | 8200164 | Shaft, straight key, 1.75″ diameter (*SB-1989-023* on page 264) | 1 |

*Order code: S1*

| | | | | | |
|---|---|---|---|---|---|
| L100 | 89-46 | | 341982 (8200171) | Shaft, 14 tooth spline | 1 |
| L100 | 87-02 | 89-45 | 312835 (8200143) | Shaft, 14 tooth spline (*SB-1989-023* on page 264) | 1 |

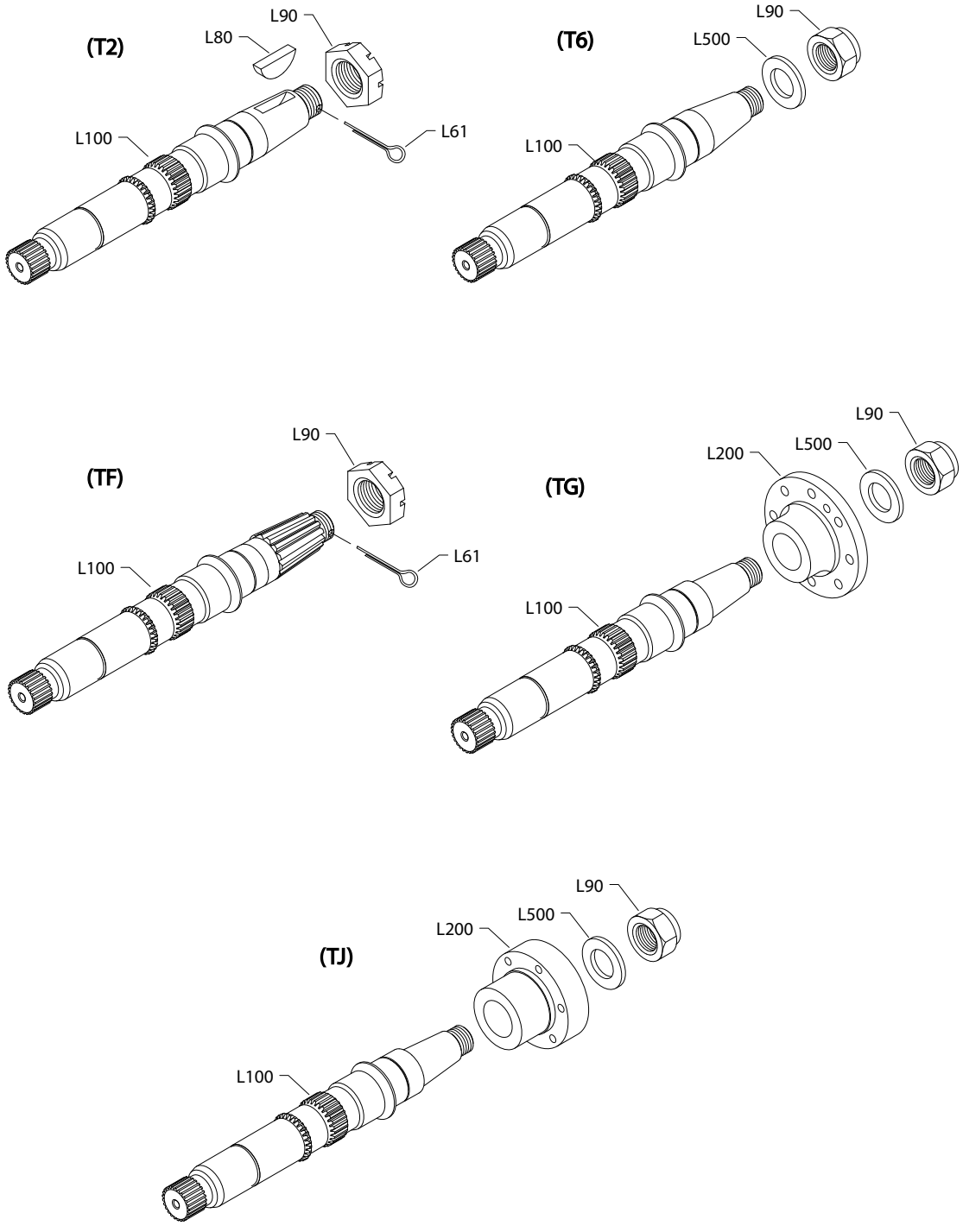
*Order code: S3*

| | | | | | |
|---|---|---|---|---|---|
| L100 | 89-46 | | 8200172 | Shaft, 16 tooth spline | 1 |
| L100 | 87-02 | 89-45 | 8200120 | Shaft, 16 tooth spline (*SB-1989-023* on page 264) | 1 |

## Shaft

### S90 100cc pump shaft T2-TJ

*Parts configuration*



## Shaft

*Order code: T2*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| L61 | 87-02 | | 716779 (9004600-1230) | Cotter pin | 1 |
| L80 | 87-02 | | 9003310-3724 | Key | 1 |
| L90 | 87-02 | | 5000606 | Slotted nut | 1 |
| L100 | 89-46 | | 342006 (11111525) | Shaft, 1.5" tapered | 1 |
| L100 | 87-02 | 89-45 | 8200133 | Shaft, 1.5" tapered (*SB-1989-023* on page 264) | 1 |

*Order code: T6*

| | | | | | |
|---|---|---|---|---|---|
| L90 | 97-42 | | 504060 | Slotted nut | 1 |
| L100 | 97-42 | | 511617 | Shaft, 1.5" tapered | 1 |
| L500 | 97-42 | | 511627 | Washer | 1 |

*Order code: TF*

| | | | | | |
|---|---|---|---|---|---|
| L61 | 87-02 | | 716779 (9004600-1230) | Cotter pin | 1 |
| L90 | 87-02 | | 9700189 | Slotted nut | 1 |
| L100 | 89-46 | | 8200179 | Shaft, 1.5" tapered spline | 1 |
| L100 | 87-02 | 89-45 | 8200132 | Shaft, 1.5" tapered spline (*SB-1989-023* on page 264) | 1 |

*Order code: TG*

| | | | | | |
|---|---|---|---|---|---|
| L90 | 97-42 | | 504060 | Lock nut, M24 | 1 |
| L100 | 97-42 | | 511617 | Shaft, 1.5" tapered spline | 1 |
| L200 | 97-42 | | 504061 | Flange | 1 |
| L500 | 97-42 | | 511627 | Washer | 1 |

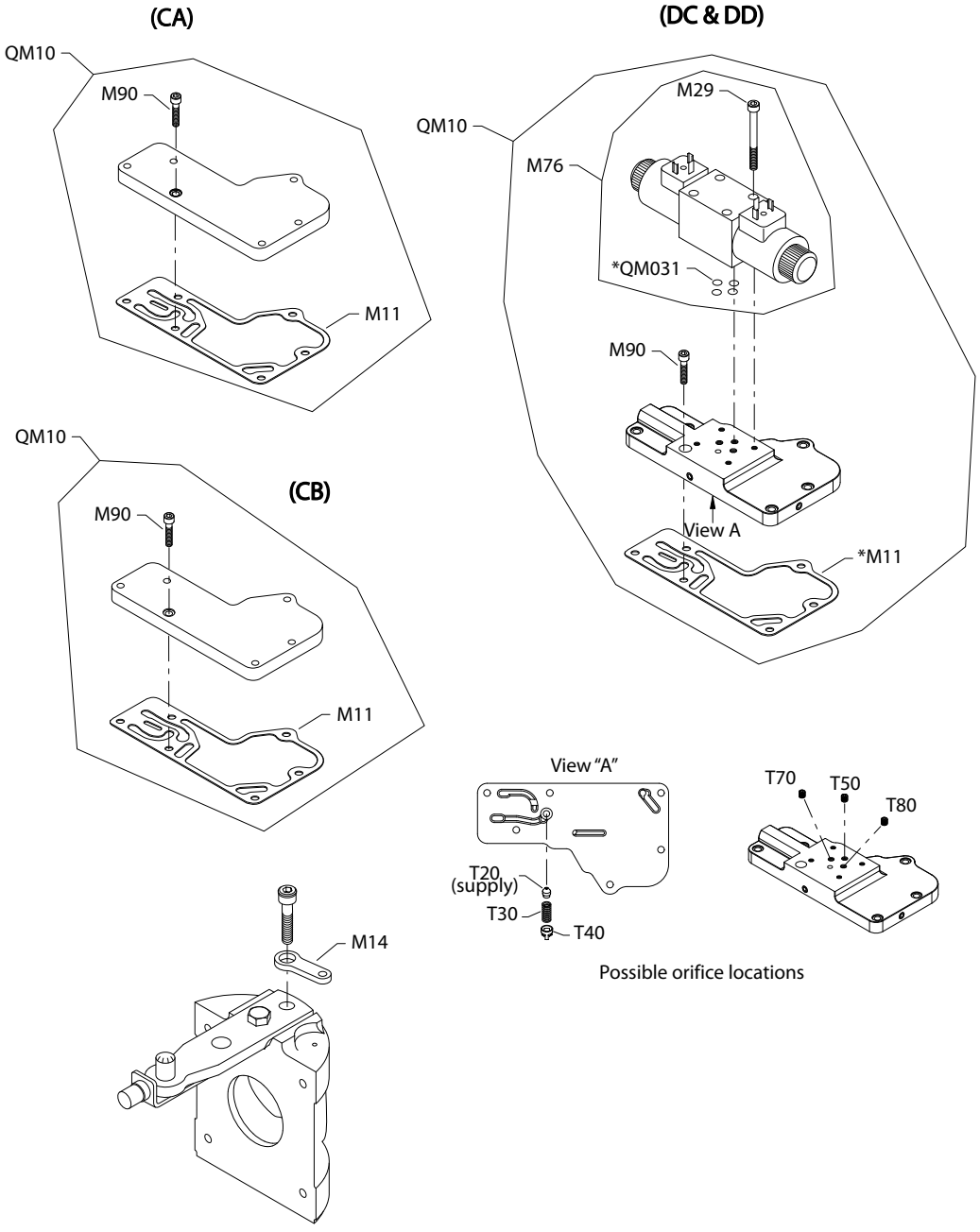
*Order code: TJ*

| | | | | | |
|---|---|---|---|---|---|
| L90 | 97-42 | | 504060 | Lock nut, M24 | 1 |
| L100 | 97-42 | | 511617 | Shaft, 1.5" tapered spline | 1 |
| L200 | 97-42 | | 511462 | Flange | 1 |
| L500 | 97-42 | | 511627 | Washer | 1 |

## Controls

### S90P control CA-DD

*Parts configuration*




All orifices present in the original control must be transferred to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

## Controls

*Order code: CA*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 87-02 | | 8800923 | Control gasket | 1 |
| M90 | 87-02 | | 693341 (9007314-0606) | Screw | 6 |
| QM10 | 87-02 | | 8102M0CA-A | Control cover plate kit | 1 |

*Order code: CB*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 87-02 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 294 & *SB-2013-011* on page 320) | 1 |
| M14 | 87-02 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 283) | 1 |
| M90 | 87-02 | | 693341 (9007314-0606) | Screw | 6 |
| QM10 | 87-02 | | 8102M0CA-A | Control cover plate kit | 1 |

*Order code: DC*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 87-02 | | 8800923 | Control gasket | 1 |
| M29 | 87-02 | | 035592 | Screw | 4 |
| M76 | 87-02 | | 687103 | Solenoid valve, 12v | 1 |
| M90 | 87-02 | | 693341 (9007314-0606) | Screw | 6 |
| QM10 | 87-02 | | 8102M0DC-A | Control kit, 12v | 1 |
| QM031 | 87-02 | | 11099647 | O-ring kit | 1 |
| QM210 | 87-02 | | 11096172 | Control seal kit | 1 |

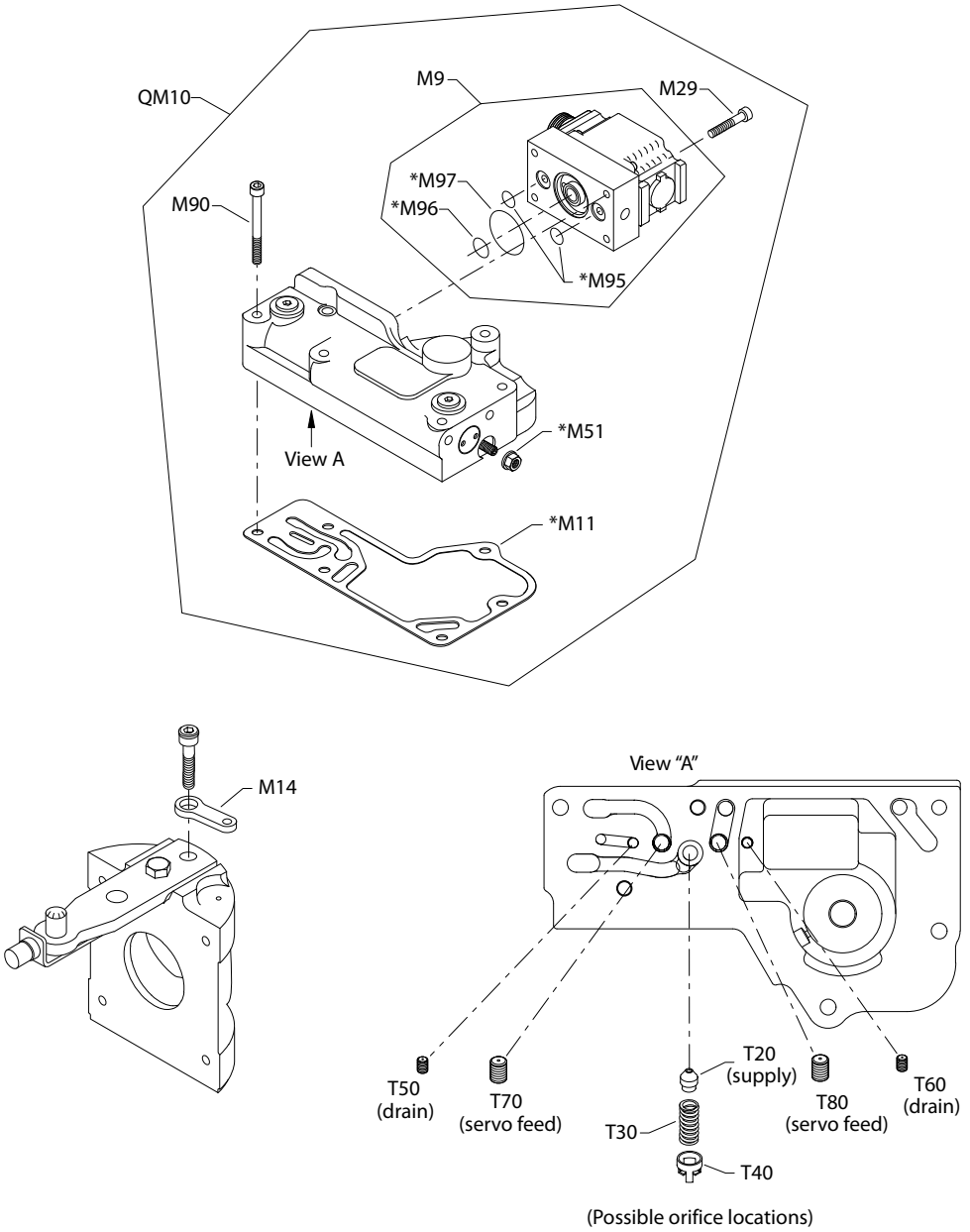
*Order code: DD*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 87-02 | | 8800923 | Control gasket | 1 |
| M29 | 87-02 | | 035592 | Screw | 4 |
| M76 | 87-02 | | 549907 | Solenoid valve, 24v | 1 |
| M90 | 87-02 | | 693341 (9007314-0606) | Screw | 6 |
| QM10 | 87-02 | | 8102M0DD-A | Control kit, 24v | 1 |
| QM031 | 87-02 | | 11099647 | O-ring kit | 1 |
| QM210 | 87-02 | | 11096172 | Control seal kit | 1 |

## Controls

### S90 100cc pump control EA-EP

*Parts configuration*




(Possible orifice locations)

All orifices present in the original control must be transferred to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

Generic PCP and swashplate used to show part location only.

* Included in control seal kit QM210

## Controls

*Order code: EA*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M9 | 91-16 | | MCV110A1017 | PCP, MS connector | 1 |
| M11 | 91-16 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 294 & *SB-2013-011* on page 320) | 1 |
| M14 | 91-16 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 283) | 1 |
| M29 | 91-16 | | K07067 | Screw | 4 |
| M51 | 91-16 | | 9003509-0008 | Seal nut | 1 |
| M90 | 91-16 | | 692889 (9007314-0611) | Screw | 6 |
| M95 | 91-16 | | 318337 (9004104-0120) | O-ring | 2 |
| M96 | 91-16 | | 011304 (9004104-0140) | O-ring | 1 |
| M97 | 91-16 | | 318345 (9004104-0240) | O-ring | 1 |
| QM10 | 91-16 | | 8202M0EA-B | EDC kit, MS connector | 1 |
| QM210 | 91-16 | | 11096174 | Control seal kit | 1 |

*Order code: EH*

| | | | | | |
|---|---|---|---|---|---|
| M9 | 99-05 | | MCV110A1058 | PCP, MS connector | 1 |
| M11 | 99-05 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 294 & *SB-2013-011* on page 320) | 1 |
| M29 | 99-05 | | K07067 | Screw | 4 |
| M51 | 99-05 | | 9003509-0008 | Seal nut | 1 |
| M90 | 99-05 | | 692889 (9007314-0611) | Screw | 6 |
| M95 | 99-05 | | 318337 (9004104-0120) | O-ring | 2 |
| M96 | 99-05 | | 011304 (9004104-0140) | O-ring | 1 |
| M97 | 99-05 | | 318345 (9004104-0240) | O-ring | 1 |
| QM10 | 99-05 | | 11013636 | EDC kit, MS connector | 1 |
| QM210 | 99-05 | | 11096174 | Control seal kit | 1 |

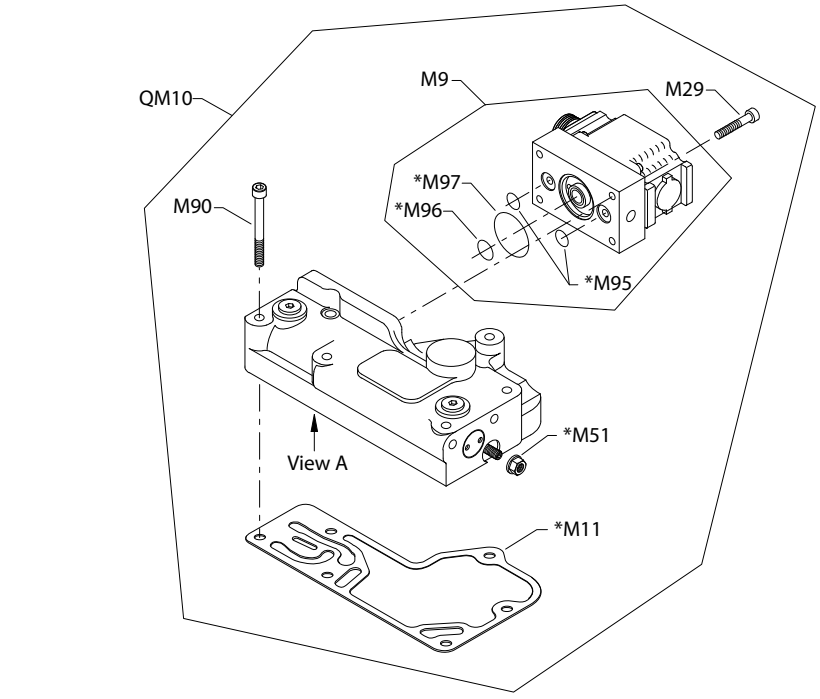
*Order code: EK*

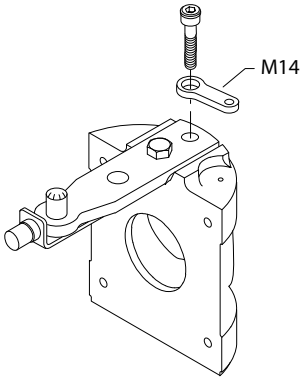
| | | | | | |
|---|---|---|---|---|---|
| M9 | 99-15 | | MCV110A1014 | PCP, DEUTSCH connector | 1 |
| M11 | 99-15 | | 8800923 | Control gasket | 1 |
| M14 | 99-15 | | 11070306 | Feedback link (*SB-1999-019* on page 294 & *SB-2013-011* on page 320) | 1 |
| M29 | 99-15 | | K07067 | Screw | 4 |
| M51 | 99-15 | | 9003509-0008 | Seal nut | 1 |
| M90 | 99-15 | | 692889 (9007314-0611) | Screw | 6 |
| M95 | 99-15 | | 318337 (9004104-0120) | O-ring | 2 |
| M96 | 99-15 | | 011304 (9004104-0140) | O-ring | 1 |
| M97 | 99-15 | | 318345 (9004104-0240) | O-ring | 1 |
| QM10 | 99-15 | | 11018282 | EDC kit, DEUTSCH connector | 1 |
| QM210 | 99-15 | | 11096174 | Control seal kit | 1 |

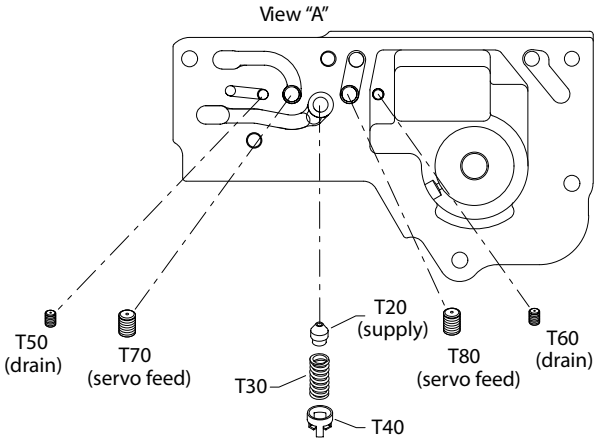
Parts continue to the next 2 pages.

## Controls

*Parts configuration*




(Possible orifice locations)

All orifices present in the original control must be transferred to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

Generic PCP and swashplate used to show part location only.

* Included in control seal kit QM210

## Controls

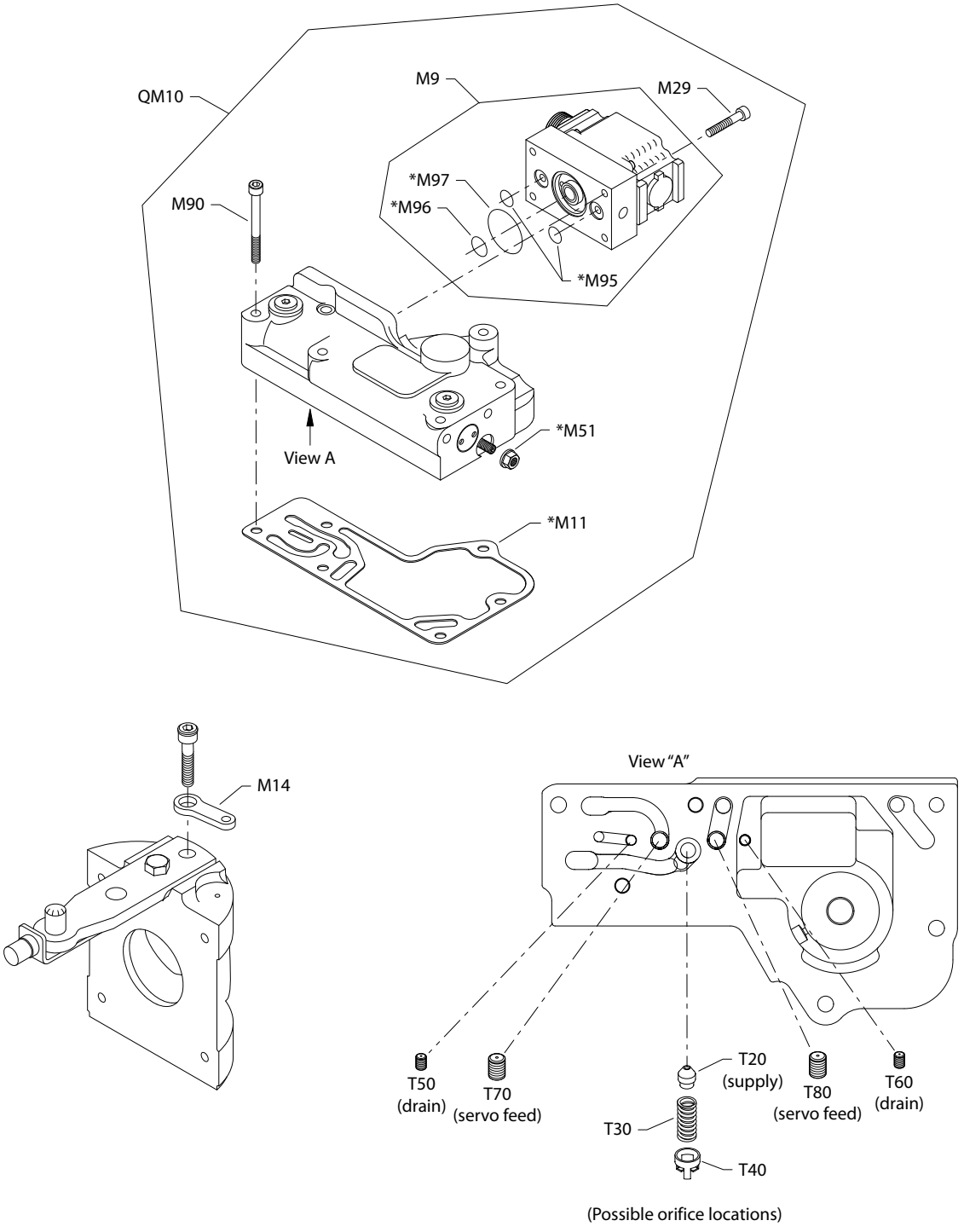
*Order code: EP*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M9 | 91-07 | | MCV110A1058 | PCP, Packard connector | 1 |
| M11 | 91-07 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 294 & *SB-2013-011* on page 320) | 1 |
| M14 | 91-07 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 283) | 1 |
| M29 | 91-07 | | K07067 | Screw | 4 |
| M51 | 91-07 | | 9003509-0008 | Seal nut | 1 |
| M90 | 91-07 | | 692889 (9007314-0611) | Screw | 6 |
| M95 | 91-07 | | 318337 (9004104-0120) | O-ring | 2 |
| M96 | 91-07 | | 011304 (9004104-0140) | O-ring | 1 |
| M97 | 91-07 | | 318345 (9004104-0240) | O-ring | 1 |
| QM10 | 91-07 | | 8202M0EP-B | EDC kit, Packard connector | 1 |
| QM210 | 91-07 | | 11096174 | Control seal kit | 1 |

## Controls

### S90 100cc pump control EV-EZ

*Parts configuration*




* Included in control seal kit QM210

## Controls

*Order code: EV*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M9 | 97-24 | | MCV110A1058 | PCP, Packard connector | 1 |
| M11 | 97-24 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 294 & *SB-2013-011* on page 320) | 1 |
| M14 | 97-24 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 283) | 1 |
| M29 | 97-24 | | K07067 | Screw | 4 |
| M51 | 97-24 | | 9003509-0008 | Seal nut | 1 |
| M90 | 97-24 | | 692889 (9007314-0611) | Screw | 6 |
| M95 | 97-24 | | 318337 (9004104-0120) | O-ring | 2 |
| M96 | 97-24 | | 011304 (9004104-0140) | O-ring | 1 |
| M97 | 97-24 | | 318345 (9004104-0240) | O-ring | 1 |
| QM10 | 97-24 | | 11013636 | EDC kit, Packard connector | 1 |
| QM210 | 97-24 | | 11096174 | Control seal kit | 1 |

*Order code: EX*

| | | | | | |
|---|---|---|---|---|---|
| M9 | 99-05 | | MCV110A1090 | PCP, Metripack connector | 1 |
| M11 | 99-05 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 294 & *SB-2013-011* on page 320) | 1 |
| M29 | 99-05 | | K07067 | Screw | 4 |
| M51 | 99-05 | | 9003509-0008 | Seal nut | 1 |
| M90 | 99-05 | | 692889 (9007314-0611) | Screw | 6 |
| M95 | 99-05 | | 318337 (9004104-0120) | O-ring | 2 |
| M96 | 99-05 | | 011304 (9004104-0140) | O-ring | 1 |
| M97 | 99-05 | | 318345 (9004104-0240) | O-ring | 1 |
| QM10 | 99-05 | | 11099895 | EDC kit, Metripack connector | 1 |
| QM210 | 99-05 | | 11096174 | Control seal kit | 1 |

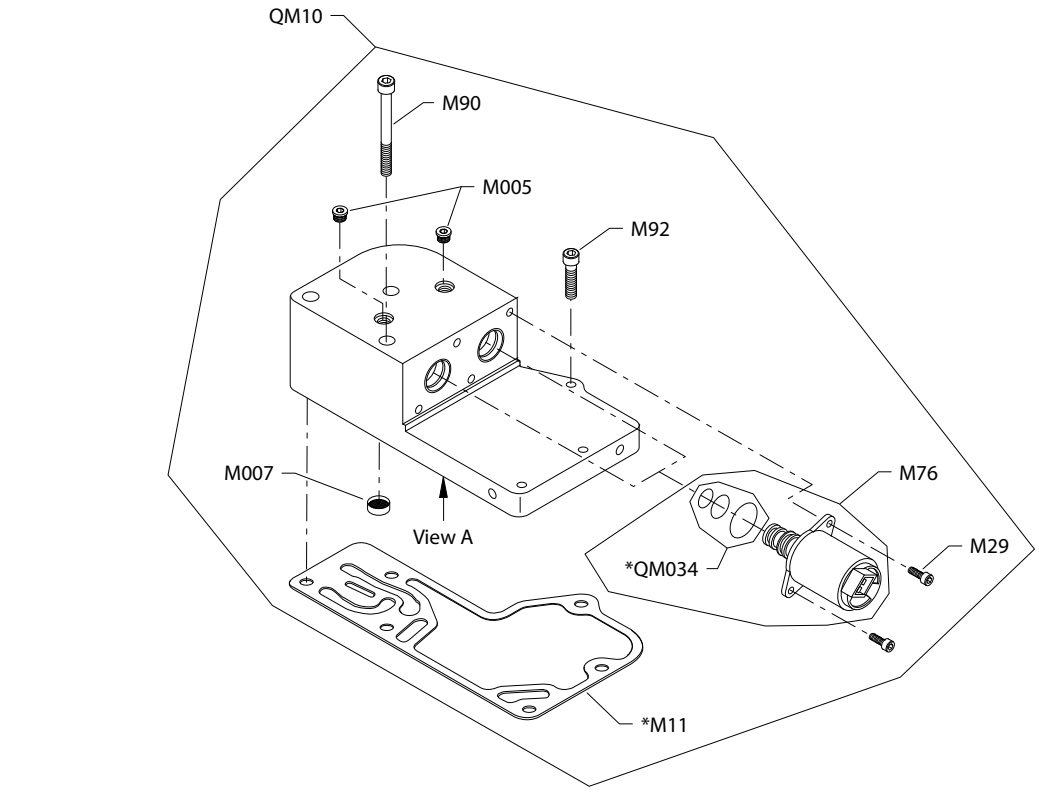
*Order code: EZ*

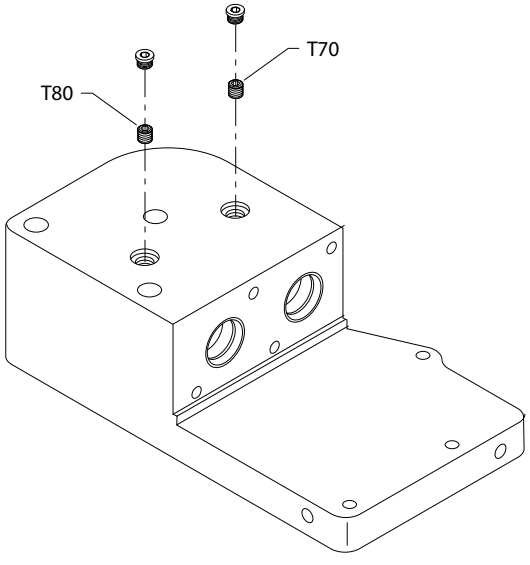
| | | | | | |
|---|---|---|---|---|---|
| M9 | 94-29 | | MCV110A1017 | PCP, MS connector | 1 |
| M11 | 94-29 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 294 & *SB-2013-011* on page 320) | 1 |
| M14 | 97-24 | 96-39 | 8200344 | Feedback link (SB-1996-009) | 1 |
| M29 | 94-29 | | K07067 | Screw | 4 |
| M51 | 94-29 | | 9003509-0008 | Seal nut | 1 |
| M90 | 94-29 | | 692889 (9007314-0611) | Screw | 6 |
| M95 | 94-29 | | 318337 (9004104-0120) | O-ring | 2 |
| M96 | 94-29 | | 011304 (9004104-0140) | O-ring | 1 |
| M97 | 94-29 | | 318345 (9004104-0240) | O-ring | 1 |
| QM10 | 94-29 | | 11099896 | EDC kit, MS connector | 1 |
| QM210 | 94-29 | | 11096174 | Control seal kit | 1 |

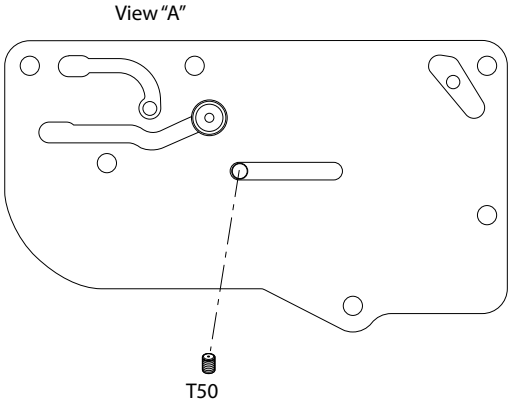
## Controls

### S90P control FA-FD

*Parts configuration*




(Possible orifice locations)

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Controls

*Order code: FA*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 98-14 | | 8800923 | Control gasket | 1 |
| M29 | 98-14 | | 067694 | Screw | 4 |
| M76 | 98-14 | | 518080 | Solenoid valve, 12 volt, 25 bar | 2 |
| M90 | 98-14 | | 9007314-0614 | Screw | 3 |
| M92 | 98-14 | | 693341 (9007314-0606) | Screw | 3 |
| M007 | 98-14 | | K00775 | Filter screen | 1 |
| QM10 | 98-14 | | 11015079 | NFPE control kit, 12 volt, 25 bar | 1 |
| QM034 | 98-14 | | 11099849 | Solenoid valve seal kit | 2 |
| QM210 | 98-14 | | 11100028 | Control seal kit | 1 |

*Order code: FB*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 98-14 | | 8800923 | Control gasket | 1 |
| M29 | 98-14 | | 067694 | Screw | 4 |
| M76 | 98-14 | | 518081 | Solenoid valve, 24 volt, 25 bar | 2 |
| M90 | 98-14 | | 9007314-0614 | Screw | 3 |
| M92 | 98-14 | | 693341 (9007314-0606) | Screw | 3 |
| M007 | 98-14 | | K00775 | Filter screen | 1 |
| QM10 | 98-14 | | 11015080 | NFPE control kit, 24 volt, 25 bar | 1 |
| QM034 | 98-14 | | 11099849 | Solenoid valve seal kit | 2 |
| QM210 | 98-14 | | 11100028 | Control seal kit | 1 |

*Order code: FC*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 98-14 | | 8800923 | Control gasket | 1 |
| M29 | 98-14 | | 067694 | Screw | 4 |
| M76 | 98-14 | | 521709 | Solenoid valve, 12 volt, 32 bar | 2 |
| M90 | 98-14 | | 9007314-0614 | Screw | 3 |
| M92 | 98-14 | | 693341 (9007314-0606) | Screw | 3 |
| M007 | 98-14 | | K00775 | Filter screen | 1 |
| QM10 | 98-14 | | 8510230 | NFPE control kit, 12 volt, 32 bar | 1 |
| QM034 | 98-14 | | 11099849 | Solenoid valve seal kit | 2 |
| QM210 | 98-14 | | 11100028 | Control seal kit | 1 |

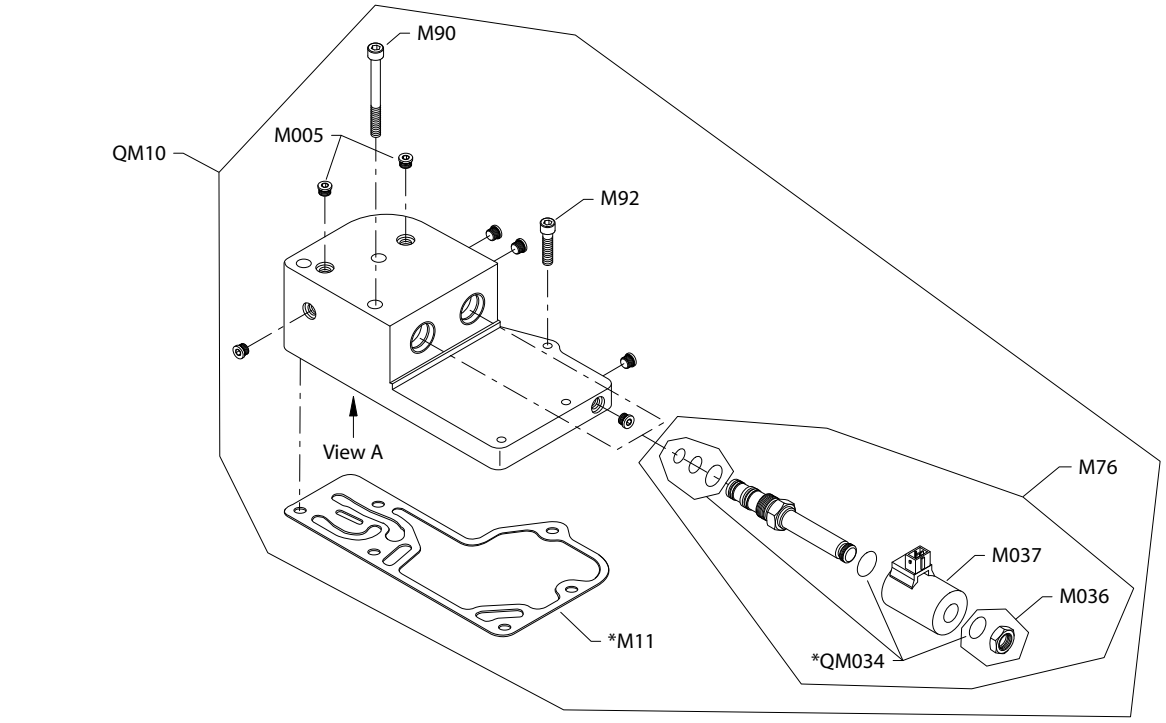
*Order code: FD*

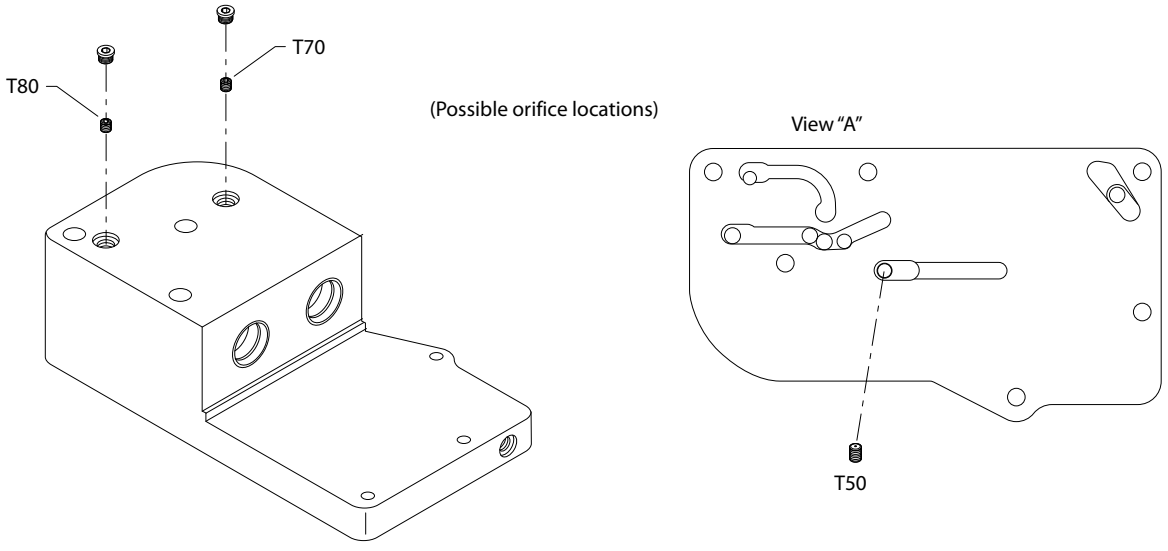
| | | | | | |
|---|---|---|---|---|---|
| M11 | 98-14 | | 8800923 | Control gasket | 1 |
| M29 | 98-14 | | 067694 | Screw | 4 |
| M76 | 98-14 | | 517214 | Solenoid valve, 24 volt, 32 bar | 2 |
| M90 | 98-14 | | 9007314-0614 | Screw | 3 |
| M92 | 98-14 | | 693341 (9007314-0606) | Screw | 3 |
| M007 | 98-14 | | K00775 | Filter screen | 1 |
| QM10 | 98-14 | | 11015081 | NFPE control kit, 24 volt, 32 bar | 1 |
| QM034 | 98-14 | | 11099849 | Solenoid valve seal kit | 2 |
| QM210 | 98-14 | | 11100028 | Control seal kit | 1 |

## Controls

### S90P control FG, FH

*Parts configuration*




All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Controls

*Order code: FG*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 00-30 | | 8800923 | Control gasket | 1 |
| M76 | 00-30 | | 516006 | Solenoid valve, 12 volt, 32 bar | 2 |
| M90 | 00-30 | | 9007314-0614 | Screw | 3 |
| M92 | 00-30 | | 693341 (9007314-0606) | Screw | 3 |
| M005 | 00-30 | | 11040532 | Plug assembly | 2 |
| QM10 | 00-30 | | 11026563 | NFPE control kit, 12 volt, 32 bar | 1 |
| QM034 | 00-30 | | 11100185 | Solenoid valve seal kit | 2 |
| QM036 | 00-30 | | 518088 | Coil nut kit | 2 |
| QM037 | 00-30 | | 516003 | Coil, 12v Jet connector | 2 |
| QM210 | 00-30 | | 11100001 | Control seal kit | 1 |

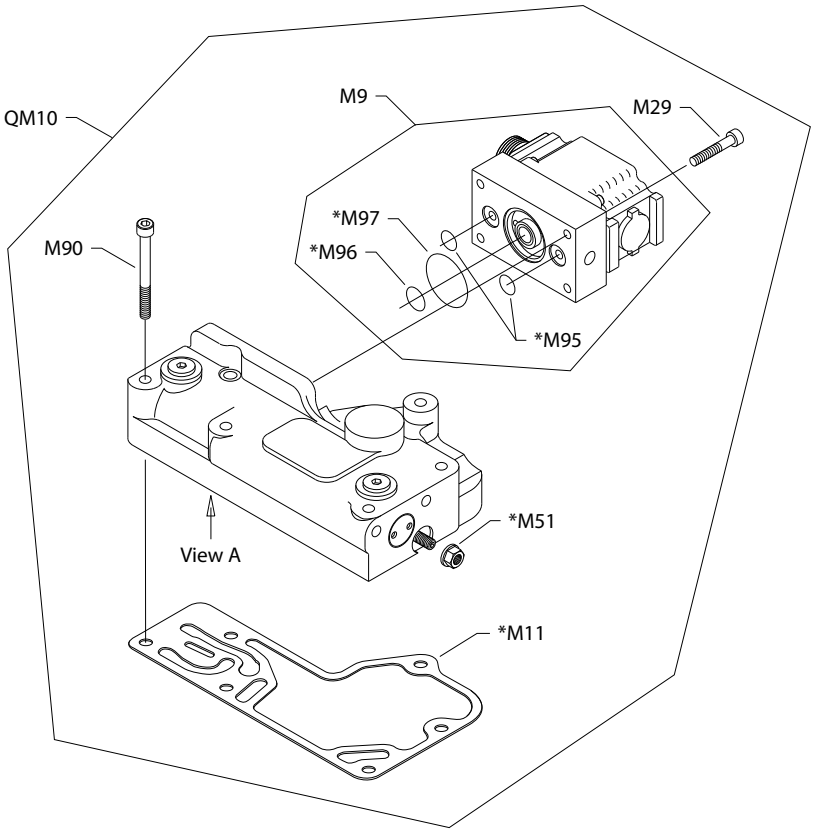
*Order code: FH*

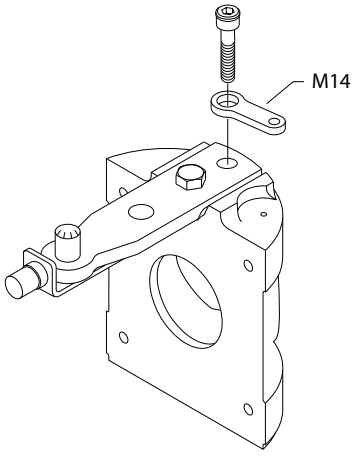
| | | | | | |
|---|---|---|---|---|---|
| M11 | 00-30 | | 8800923 | Control gasket | 1 |
| M76 | 00-30 | | 515617 | Solenoid valve, 24 volt, 32 bar | 2 |
| M90 | 00-30 | | 9007314-0614 | Screw | 3 |
| M92 | 00-30 | | 693341 (9007314-0606) | Screw | 3 |
| M005 | 00-30 | | 11040532 | Plug assembly | 2 |
| QM10 | 00-30 | | 11026569 | NFPE control kit, 24 volt, 32 bar | 1 |
| QM034 | 00-30 | | 11100185 | Solenoid valve seal kit | 2 |
| QM036 | 00-30 | | 518088 | Coil nut kit | 2 |
| QM037 | 00-30 | | 516004 | Coil, 24v Jet connector | 2 |
| QM210 | 00-30 | | 11100001 | Control seal kit | 1 |

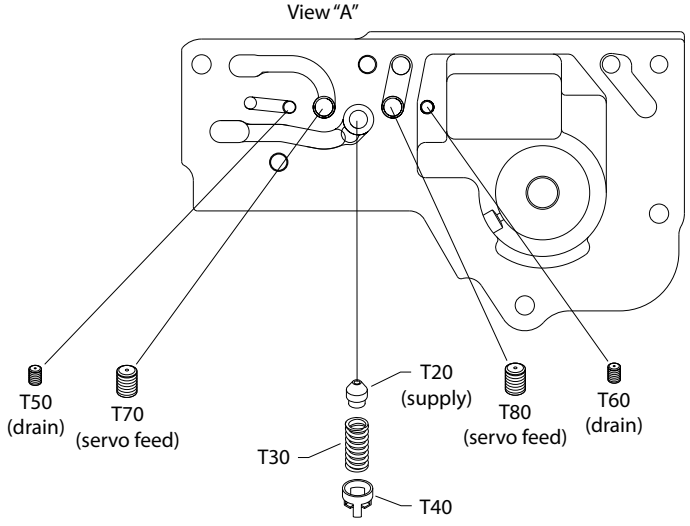
## Controls

### S90 100cc pump control GA

*Parts configuration*




(Possible orifice locations)

* Included in control seal kit QM210

## Controls

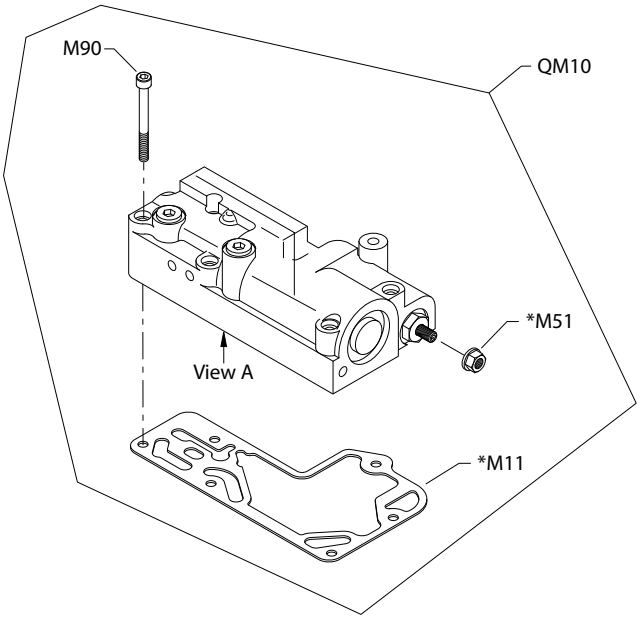
*Order code: GA*

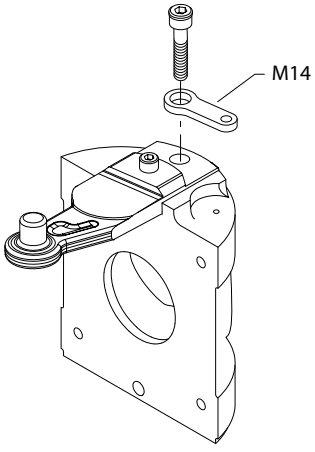
| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M9 | 01-28 | | MCV110A1059 | PCP, Packard connector | 1 |
| M11 | 01-28 | | 8800923 | Control gasket | 1 |
| M14 | 01-28 | | 11070306 | Feedback link (*SB-2013-011* on page 320) | 1 |
| M29 | 01-28 | | K07067 | Screw | 4 |
| M51 | 01-28 | | 9003509-0008 | Seal nut | 1 |
| M90 | 01-28 | | 692889 (9007314-0611) | Screw | 6 |
| M95 | 01-28 | | 318337 (9004104-0120) | O-ring | 2 |
| M96 | 01-28 | | 011304 (9004104-0140) | O-ring | 1 |
| M97 | 01-28 | | 318345 (9004104-0240) | O-ring | 1 |
| QM10 | 01-28 | | 8510302 | EDC kit, Packard connector | 1 |
| QM210 | 01-28 | | 11096174 | Control seal kit | 1 |

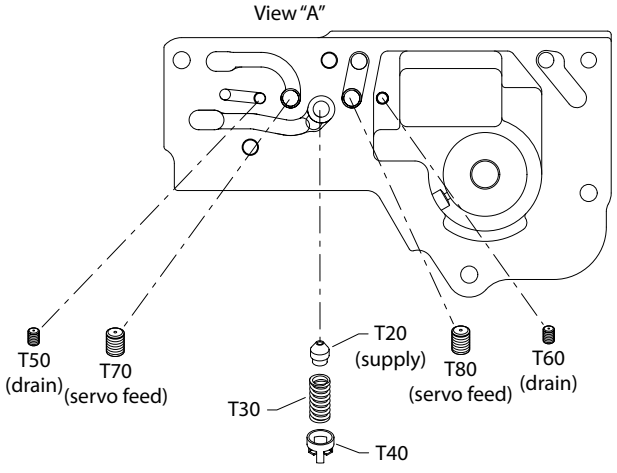
## Controls

### S90P control HF-HS

*Parts configuration*




(Possible orifice locations)

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Controls

*Order code: HF*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 92-15 | | 8801241 | Control gasket (*SB-1999-065* on page 298) | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 294 & *SB-2013-011* on page 320) | 1 |
| M14 | 92-15 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 283) | 1 |
| M51 | 92-15 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 92-15 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 92-15 | | 8202M0HF-A | HDC kit, 3-11 bar | 1 |
| QM210 | 92-15 | | 11096266 | Control seal kit | 1 |

*Order code: HK*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 92-15 | | 8801241 | Control gasket (*SB-1999-065* on page 298) | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 294 & *SB-2013-011* on page 320) | 1 |
| M14 | 92-15 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 283) | 1 |
| M51 | 92-15 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 92-15 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 92-15 | | 8202M0HK-A | HDC kit, 1-11 bar | 1 |
| QM210 | 92-15 | | 11096266 | Control seal kit | 1 |

*Order code: HM*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 92-15 | | 8801241 | Control gasket (SB-1999-065) | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 294 & *SB-2013-011* on page 320) | 1 |
| M14 | 92-15 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 283) | 1 |
| M51 | 92-15 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 92-15 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 92-15 | | 8202M0HM-A | HDC kit, 1.1 -6.7 bar | 1 |
| QM210 | 92-15 | | 11096266 | Control seal kit | 1 |

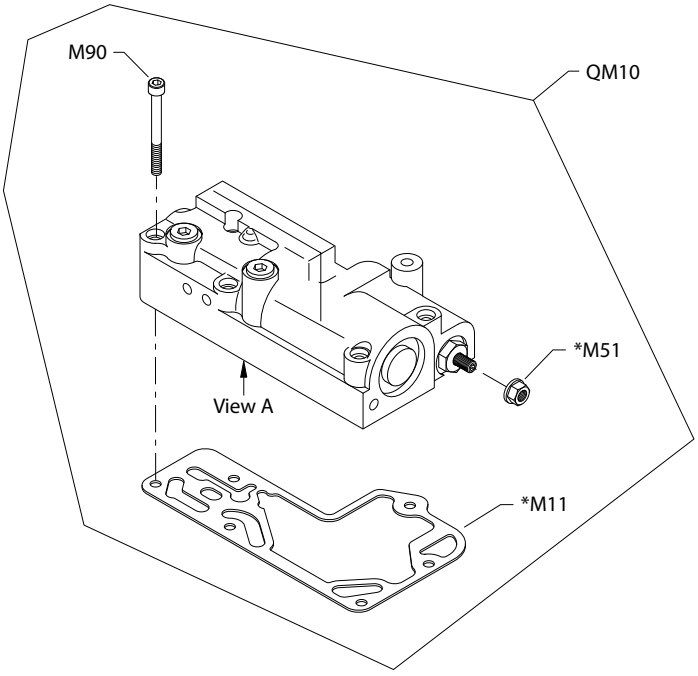
*Order code: HS*

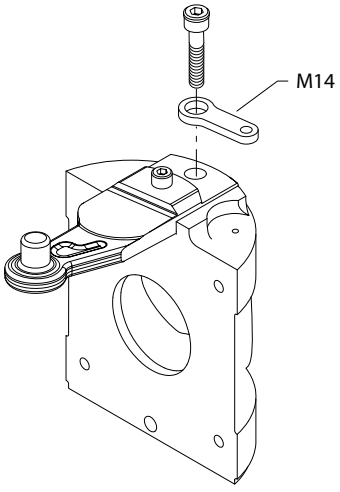
| | | | | | |
|---|---|---|---|---|---|
| M11 | 94-19 | | 8801241 | Control gasket (*SB-1999-065* on page 298) | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 294 & *SB-2013-011* on page 320) | 1 |
| M14 | 94-19 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 283) | 1 |
| M51 | 94-19 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 94-19 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 94-19 | | 8202M0HS-A | HDC kit, 6-18 bar | 1 |
| QM210 | 94-19 | | 11096266 | Control seal kit | 1 |

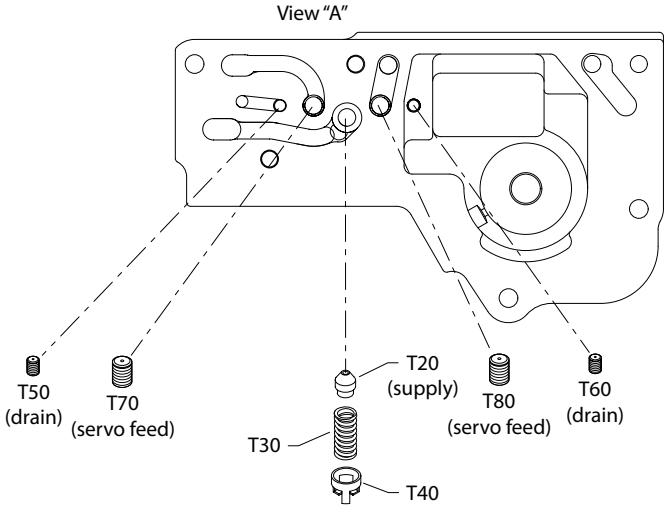
## Controls

### S90 100cc pump control HT-JC

*Parts configuration*




(Possible orifice locations)

* Included in control seal kit QM210

## Controls

*Order code: HT*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 94-36 | | 8801241 | Control gasket (*SB-1999-065* on page 298) | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 294 & *SB-2013-011* on page 320) | 1 |
| M14 | 94-36 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 283) | 1 |
| M51 | 94-36 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 94-36 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 94-36 | | 11020564 | HDC kit, high accuracy | 1 |
| QM210 | 94-36 | | 11096266 | Control seal kit | 1 |

*Order code: HV*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 94-36 | | 8801241 | Control gasket (*SB-1999-065* on page 298) | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 294 & *SB-2013-011* on page 320) | 1 |
| M14 | 94-36 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 283) | 1 |
| M51 | 94-36 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 94-36 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 94-36 | | 11013639 | HDC kit, 4-39 bar | 1 |
| QM210 | 94-36 | | 11096266 | Control seal kit | 1 |

*Order code: HW*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 98-13 | | 8801241 | Control gasket (*SB-1999-065* on page 298) | 1 |
| M14 | 98-13 | | 11070306 | Feedback link (*SB-1999-019* on page 294 & *SB-2013-011* on page 320) | 1 |
| M51 | 98-13 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 98-13 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 98-13 | | 11013639 | HDC kit, 4-14 bar | 1 |
| QM210 | 98-13 | | 11096266 | Control seal kit | 1 |

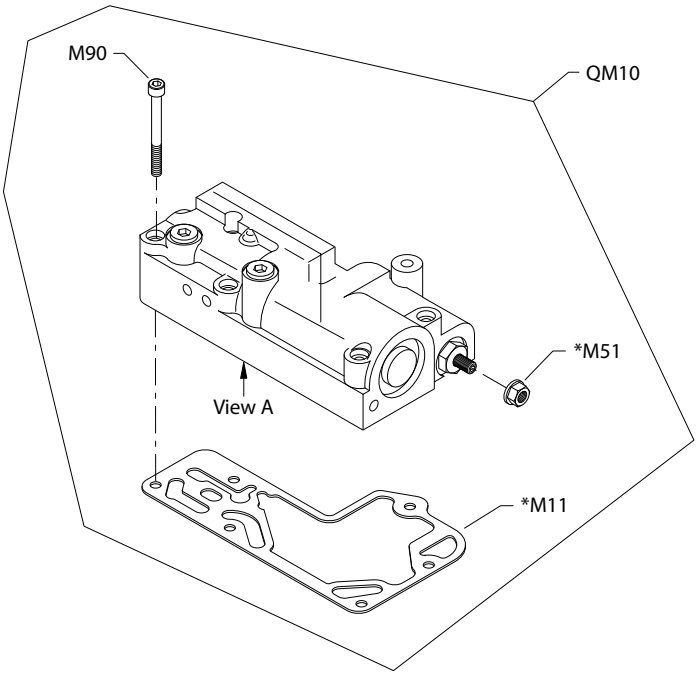
*Order code: HX*

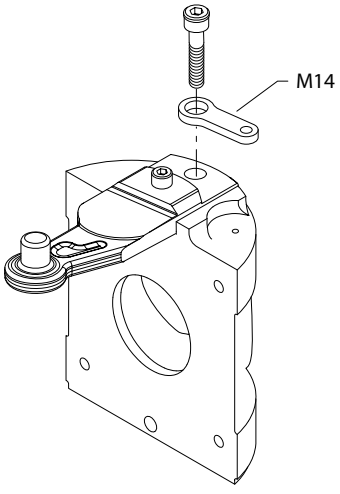
| | | | | | |
|---|---|---|---|---|---|
| M11 | 00-19 | | 8801241 | Control gasket | 1 |
| M14 | 00-19 | | 11070306 | Feedback link (*SB-2013-011* on page 320) | 1 |
| M51 | 00-19 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 00-19 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 00-19 | | 11019662 | HDC kit, 3-11 bar | 1 |
| QM210 | 00-19 | | 11096266 | Control seal kit | 1 |

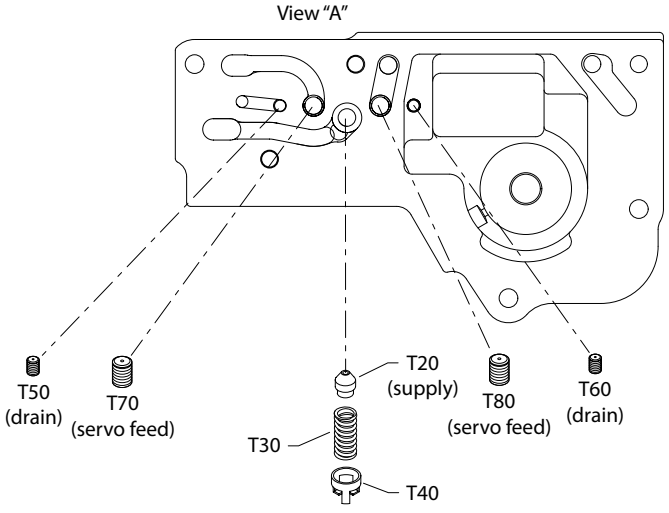
Parts continue to next 2 pages.

## Controls

*Parts configuration*




(Possible orifice locations)

* Included in control seal kit QM210

## Controls

*Order code: JA*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 00-24 | | 8801241 | Control gasket (*SB-1999-065* on page 298) | 1 |
| M14 | 00-24 | | 11070306 | Feedback link (*SB-2013-011* on page 320) | 1 |
| M51 | 00-24 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 00-24 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 00-24 | | 8202M0HS-A | HDC kit, 6-18 bar | 1 |
| QM210 | 00-24 | | 11096266 | Control seal kit | 1 |

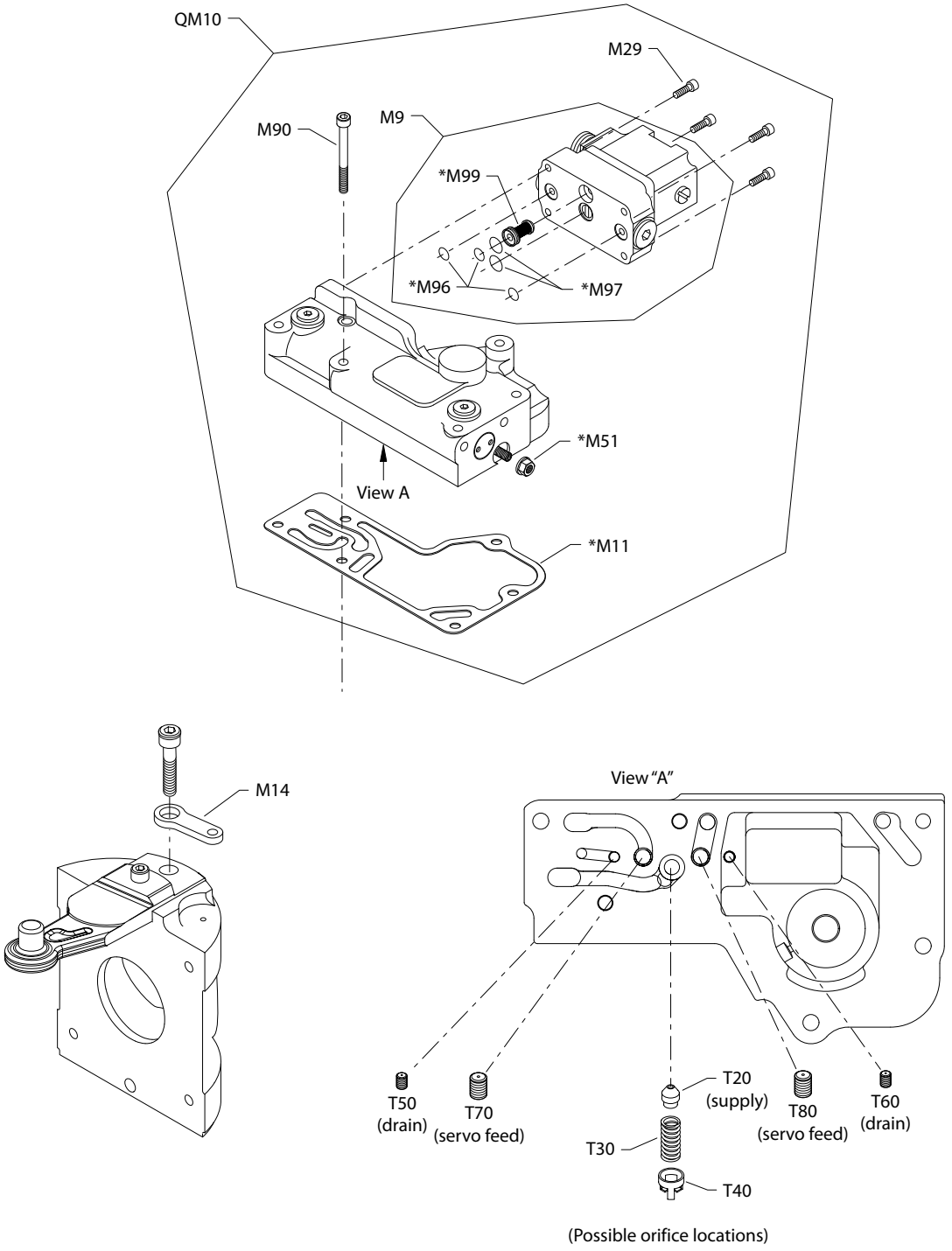
*Order code: JC*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 03-06 | | 8801241 | Control gasket | 1 |
| M14 | 03-06 | | 11070306 | Feedback link | 1 |
| M51 | 03-06 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 03-06 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 03-06 | | 11099898 | HDC kit, 6-18 bar, steel barrel | 1 |
| QM210 | 03-06 | | 11096266 | Control seal kit | 1 |

## Controls

### S90 100cc pump control K1-K9

*Parts configuration*




Generic PCP and swashplate shown.

* Included in control seal kit QM210

## Controls

*Order code: K1*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M9 | 12-36 | 14-37 | MCV116C3201 | PCP, DEUTSCH connector, dual coil | 1 |
| M11 | 12-36 | 14-37 | 8800923 | Control gasket | 1 |
| M14 | 12-36 | 14-37 | 11070306 | Feedback link (*SB-2013-011* on page 320) | 1 |
| M29 | 12-36 | 14-37 | K07067 | Screw | 4 |
| M51 | 12-36 | 14-37 | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 12-36 | 14-37 | 692889 (9007314-0611) | Screw | 6 |
| M96 | 12-36 | 14-37 | 011296 (9004105-0120) | O-ring | 3 |
| M97 | 12-36 | 14-37 | 9004105-0130 | O-ring | 2 |
| M99 | 12-36 | 14-37 | K08572 | Filter assembly | 1 |
| QM10 | 12-36 | 14-37 | 11121536 | EDC3 kit, DEUTSCH connector, dual coil | 1 |
| QM210 | 12-36 | 14-37 | 11095724 | Control seal kit | 1 |

*Order code: K7*

| | | | | | |
|---|---|---|---|---|---|
| M9 | 13-36 | | 11101116 | PCP, MS connector | 1 |
| M11 | 13-36 | | 8800923 | Control gasket | 1 |
| M14 | 13-36 | | 11070306 | Feedback link | 1 |
| M29 | 13-36 | | K07067 | Screw | 4 |
| M51 | 13-36 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 13-36 | | 692889 (9007314-0611) | Screw | 6 |
| M96 | 13-36 | | 011296 (9004105-0120) | O-ring | 3 |
| M97 | 13-36 | | 9004105-0130 | O-ring | 2 |
| M99 | 13-36 | | K08572 | Filter assembly | 1 |
| QM10 | 13-36 | | 11139994 | EDC3 kit, MS connector | 1 |
| QM210 | 13-36 | | 11095724 | Control seal kit | 1 |

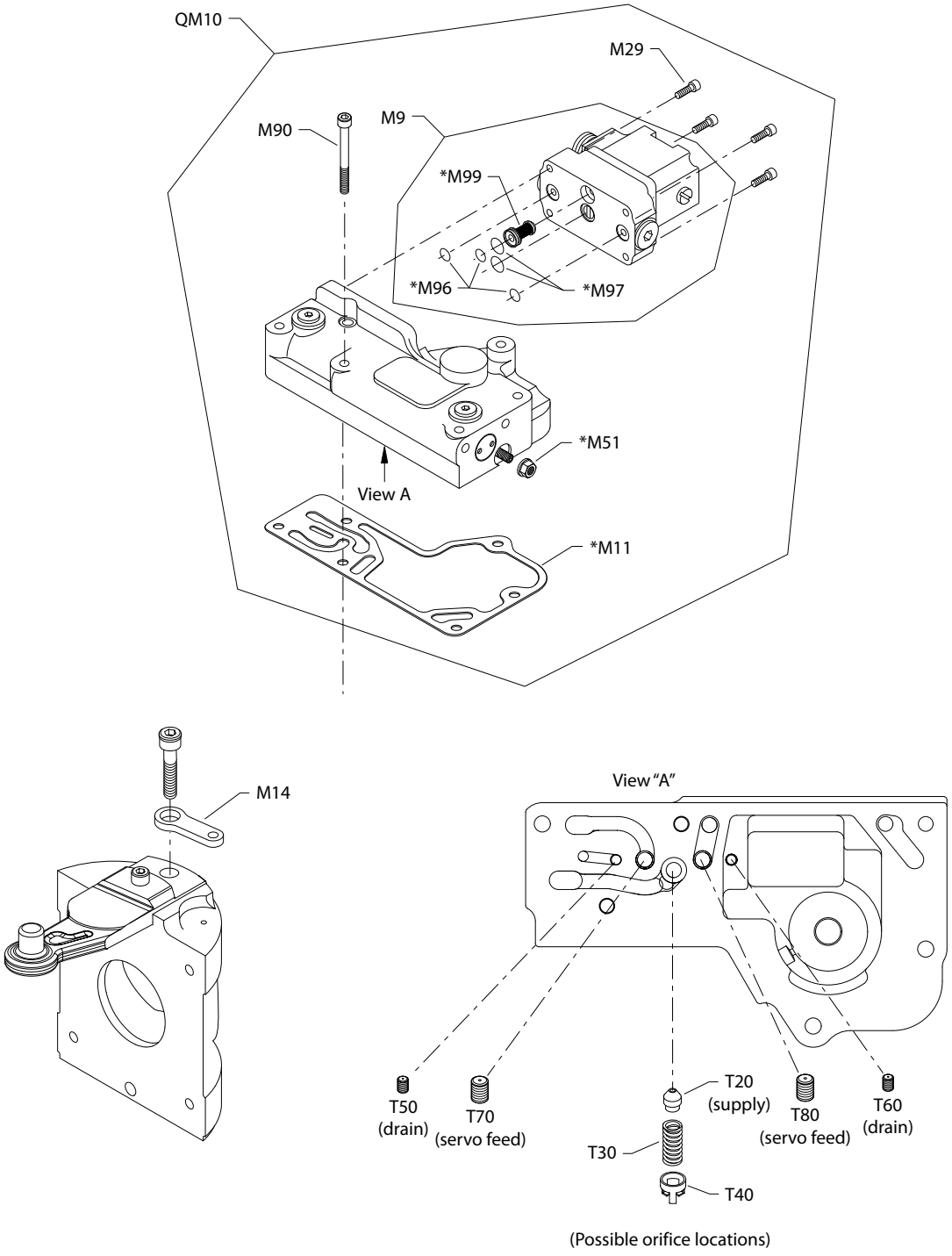
*Order code: K8*

| | | | | | |
|---|---|---|---|---|---|
| M9 | 14-15 | | 11101106 | PCP, MS connector | 1 |
| M11 | 14-15 | | 8800923 | Control gasket | 1 |
| M14 | 14-15 | | 11070306 | Feedback link | 1 |
| M29 | 14-15 | | K07067 | Screw | 4 |
| M51 | 14-15 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 14-15 | | 692889 (9007314-0611) | Screw | 6 |
| M96 | 14-15 | | 011296 (9004105-0120) | O-ring | 3 |
| M97 | 14-15 | | 9004105-0130 | O-ring | 2 |
| M99 | 14-15 | | K08572 | Filter assembly | 1 |
| QM10 | 14-15 | | 11140004 | EDC3 kit, MS connector | 1 |
| QM210 | 14-15 | | 11095724 | Control seal kit | 1 |

Parts continue to the next 2 pages.

## Controls

*Parts configuration*




Generic PCP and swashplate shown.

* Included in control seal kit QM210

## Controls

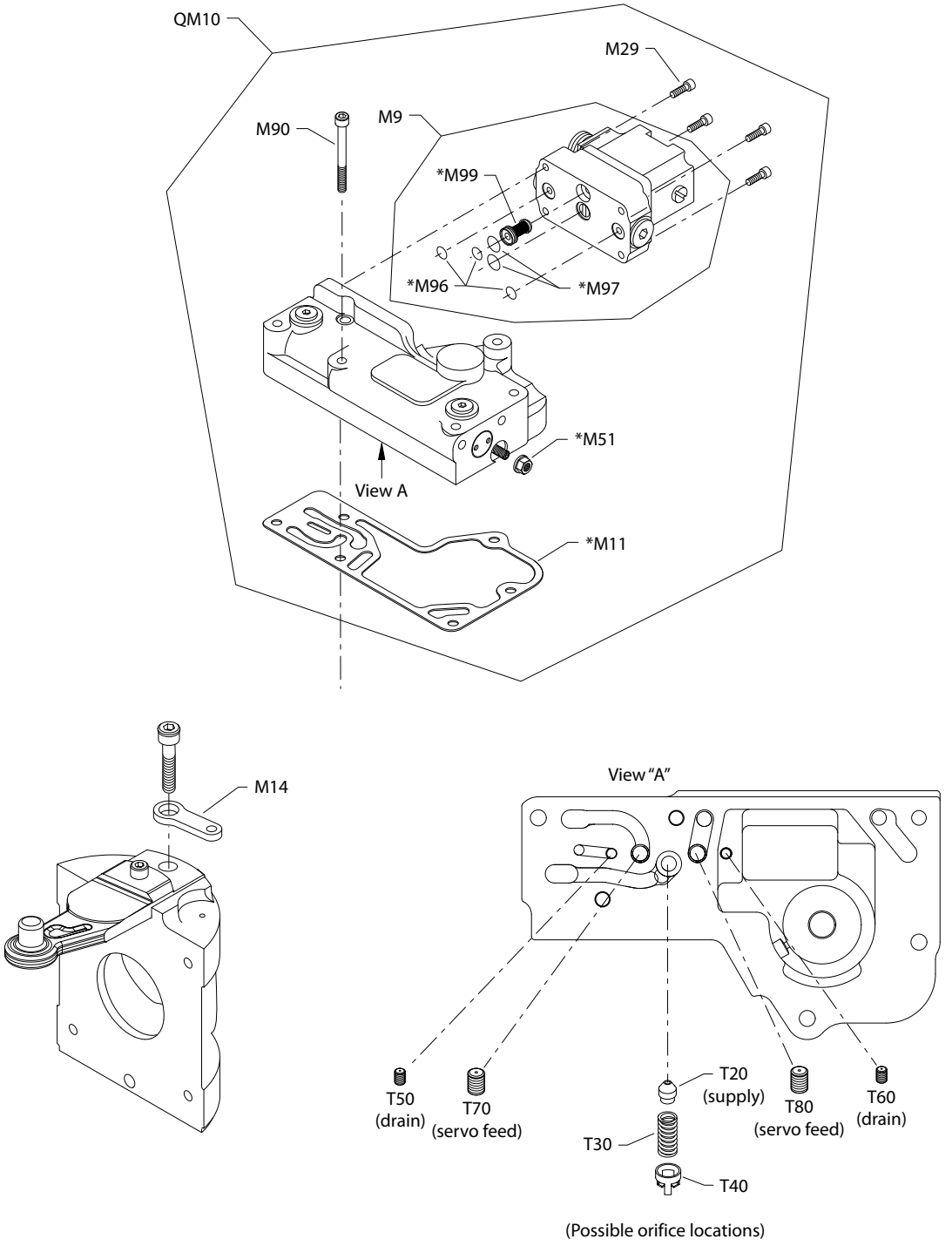
*Order code: K9*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M9 | 14-36 | | 11101118 | PCP, MS connector | 1 |
| M11 | 14-36 | | 8800923 | Control gasket | 1 |
| M14 | 14-36 | | 11070306 | Feedback link | 1 |
| M29 | 14-36 | | K07067 | Screw | 4 |
| M51 | 14-36 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 14-36 | | 692889 (9007314-0611) | Screw | 6 |
| M96 | 14-36 | | 011296 (9004105-0120) | O-ring | 3 |
| M97 | 14-36 | | 9004105-0130 | O-ring | 2 |
| M99 | 14-36 | | K08572 | Filter assembly | 1 |
| QM10 | 14-36 | | 11140000 | EDC3 kit, MS connector | 1 |
| QM210 | 14-36 | | 11095724 | Control seal kit | 1 |

## Controls

### S90 100cc pump control KA-KF

*Parts configuration*




Generic PCP and swashplate shown.

* Included in control seal kit QM210

## Controls

*Order code: KA*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M9 | 95-17 | | MCV116G4201 | PCP, MS connector, dual coil | 1 |
| M11 | 95-17 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 294 & *SB-2013-011* on page 320) | 1 |
| M14 | 95-17 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 283) | 1 |
| M29 | 95-17 | | K07067 | Screw | 4 |
| M51 | 95-17 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 95-17 | | 692889 (9007314-0611) | Screw | 6 |
| M96 | 95-17 | | 011296 (9004105-0120) | O-ring | 3 |
| M97 | 95-17 | | 9004105-0130 | O-ring | 2 |
| M99 | 95-17 | | K08572 | Filter assembly | 1 |
| QM10 | 95-17 | | 8510117 | EDC3 kit, MS connector, dual coil | 1 |
| QM210 | 95-17 | | 11095724 | Control seal kit | 1 |

*Order code: KB*

| | | | | | |
|---|---|---|---|---|---|
| M9 | 15-18 | | 11164284 | PCP, dual coil | 1 |
| M11 | 15-18 | | 8800923 | Control gasket | 1 |
| M14 | 15-18 | | 11070306 | Feedback link | 1 |
| M29 | 15-18 | | K07067 | Screw | 4 |
| M51 | 15-18 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 15-18 | | 692889 (9007314-0611) | Screw | 6 |
| M96 | 15-18 | | 011296 (9004105-0120) | O-ring | 3 |
| M97 | 15-18 | | 9004105-0130 | O-ring | 2 |
| M99 | 15-18 | | K08572 | Filter assembly | 1 |
| QM10 | 15-18 | | 11165456 | EDC3 kit, MS connector, dual coil | 1 |
| QM210 | 15-18 | | 11095724 | Control seal kit | 1 |

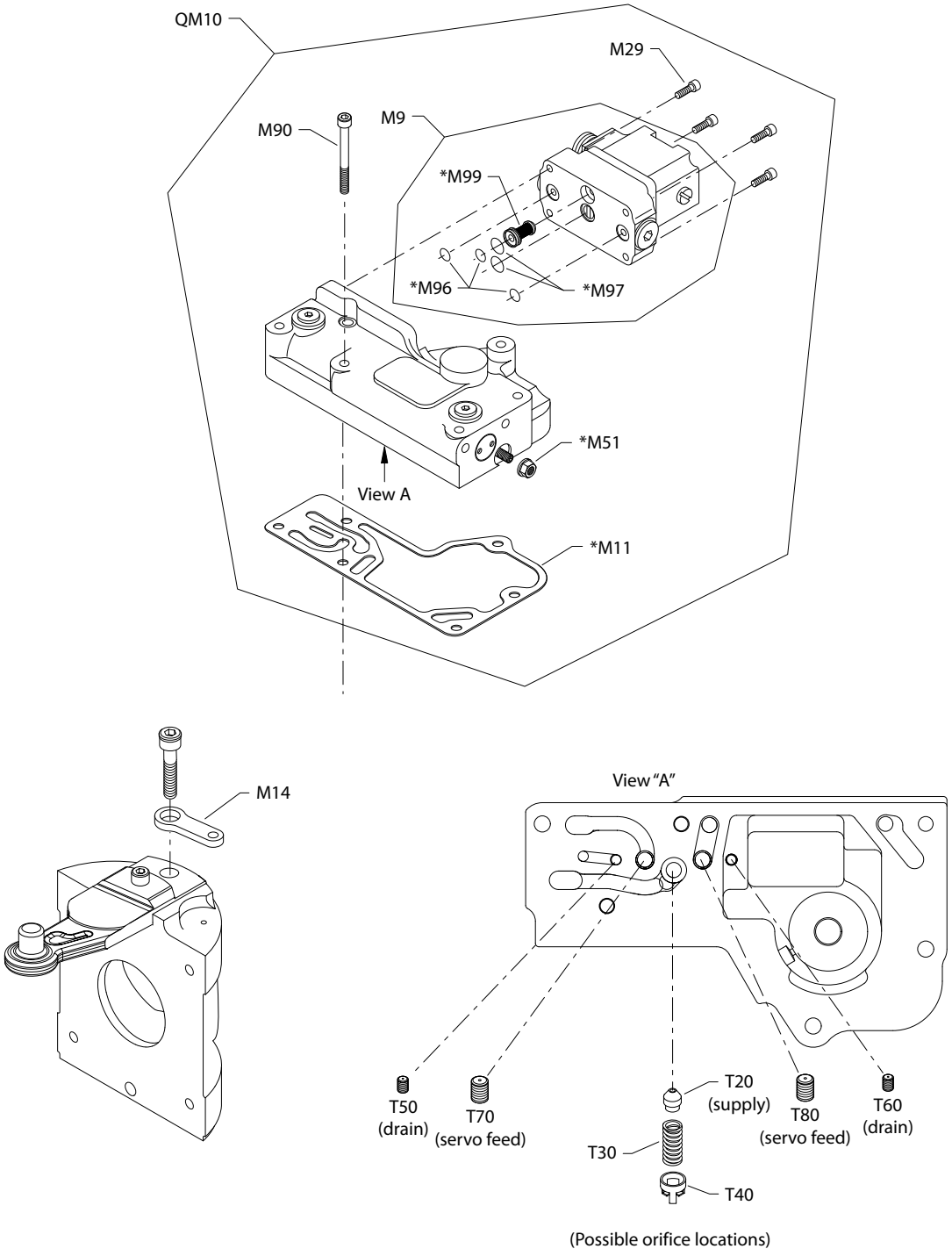
*Order code: KE*

| | | | | | |
|---|---|---|---|---|---|
| M9 | 03-27 | | MCV116F3118 | PCP, DEUTSCH connector | 1 |
| M11 | 03-27 | | 8800923 | Control gasket | 1 |
| M14 | 03-27 | | 11070306 | Feedback link (*SB-1999-019* on page 294 & *SB-2013-011* on page 320) | 1 |
| M29 | 03-27 | | K07067 | Screw | 4 |
| M51 | 03-27 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 03-27 | | 692889 (9007314-0611) | Screw | 6 |
| M96 | 03-27 | | 011296 (9004105-0120) | O-ring | 3 |
| M97 | 03-27 | | 9004105-0130 | O-ring | 1 |
| M99 | 02-22 | | K08572 | Filter assembly | 1 |
| QM10 | 03-27 | | 8510323 | EDC3 kit, DEUTSCH connector | 1 |
| QM210 | 03-27 | | 11095724 | Control seal kit | 1 |

Parts continue to the next 2 pages.

## Controls

*Parts configuration*




Generic PCP and swashplate shown.

* Included in control seal kit QM210

## Controls

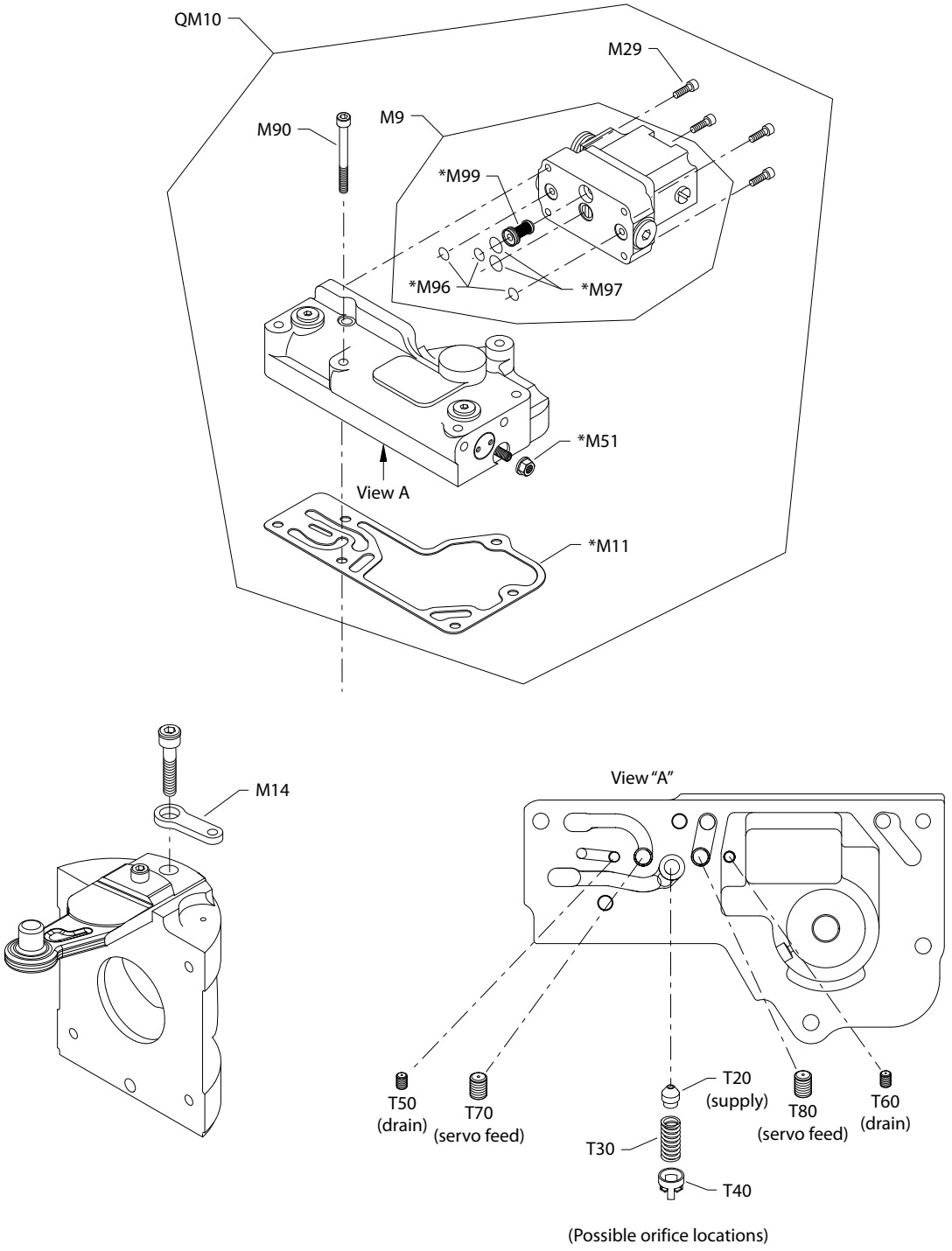
*Order code: KF*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M9 | 10-38 | | MCV116F3118 | PCP, DEUTSCH connector | 1 |
| M11 | 10-38 | | 8800923 | Control gasket | 1 |
| M14 | 10-38 | | 11070306 | Feedback link | 1 |
| M29 | 10-38 | | K07067 | Screw | 4 |
| M51 | 10-38 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 10-38 | | 692889 (9007314-0611) | Screw | 6 |
| M96 | 10-38 | | 011296 (9004105-0120) | O-ring | 3 |
| M97 | 10-38 | | 9004105-0130 | O-ring | 1 |
| M99 | 10-38 | | K08572 | Filter assembly | 1 |
| QM10 | 10-38 | | 11106690 | EDC3 kit, DEUTSCH connector | 1 |
| QM210 | 10-38 | | 11095724 | Control seal kit | 1 |

## Controls

### S90 100cc pump control KK-KP

*Parts configuration*




Generic PCP and swashplate shown.

* Included in control seal kit QM210

## Controls

*Order code: KK*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M9 | 98-37 | | MCV116G4211 | PCP, Packard connector | 1 |
| M11 | 98-37 | | 8800923 | Control gasket | 1 |
| M14 | 98-37 | | 11070306 | Feedback link (*SB-2013-011* on page 320) | 1 |
| M29 | 98-37 | | K07067 | Screw | 4 |
| M51 | 98-37 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 98-37 | | 692889 (9007314-0611) | Screw | 6 |
| M96 | 98-37 | | 011296 (9004105-0120) | O-ring | 3 |
| M97 | 98-37 | | 9004105-0130 | O-ring | 2 |
| M99 | 98-37 | | K08572 | Filter assembly | 1 |
| QM10 | 98-37 | | 11013633 | EDC3 kit, Packard connector | 1 |
| QM210 | 98-37 | | 11095724 | Control seal kit | 1 |

*Order code: KM*

| | | | | | |
|---|---|---|---|---|---|
| M9 | 98-49 | | MCV116G4213 | PCP, Metripak connector | 1 |
| M11 | 98-49 | | 8800923 | Control gasket | 1 |
| M14 | 98-49 | | 11070306 | Feedback link (*SB-2013-011* on page 320) | 1 |
| M29 | 98-49 | | K07067 | Screw | 4 |
| M51 | 98-49 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 98-49 | | 692889 (9007314-0611) | Screw | 6 |
| M96 | 98-49 | | 011296 (9004105-0120) | O-ring | 3 |
| M97 | 98-49 | | 9004105-0130 | O-ring | 2 |
| M99 | 98-49 | | K08572 | Filter assembly | 1 |
| QM10 | 98-49 | | 8510241 | EDC kit, Metripak connector | 1 |
| QM210 | 98-49 | | 11095724 | Control seal kit | 1 |

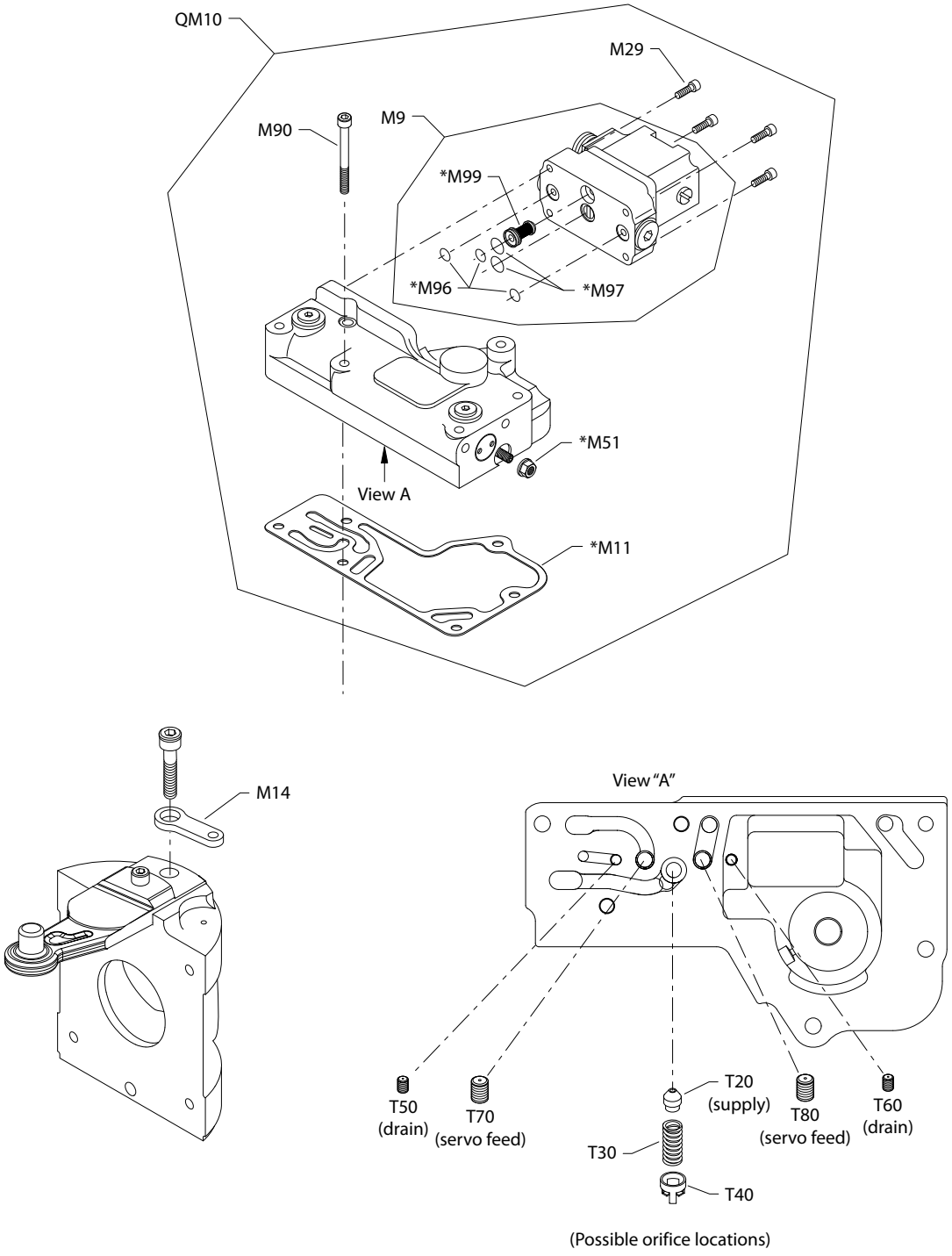
*Order code: KN*

| | | | | | |
|---|---|---|---|---|---|
| M9 | 95-51 | | MCV116A3501 | PCP, MS connector, single coil | 1 |
| M11 | 95-51 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 294 & *SB-2013-011* on page 320) | 1 |
| M14 | 95-51 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 283) | 1 |
| M29 | 95-51 | | K07067 | Screw | 4 |
| M51 | 95-51 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 95-51 | | 692889 (9007314-0611) | Screw | 6 |
| M96 | 95-51 | | 011296 (9004105-0120) | O-ring | 3 |
| M97 | 95-51 | | 9004105-0130 | O-ring | 2 |
| M99 | 95-51 | | K08572 | Filter assembly | 1 |
| QM10 | 95-51 | | 8510209 | EDC3 kit, MS connector, single coil | 1 |
| QM210 | 95-51 | | 11095724 | Control seal kit | 1 |

Parts continue to the next 2 pages.

## Controls

*Parts configuration*




Generic PCP and swashplate shown.

* Included in control seal kit QM210

## Controls

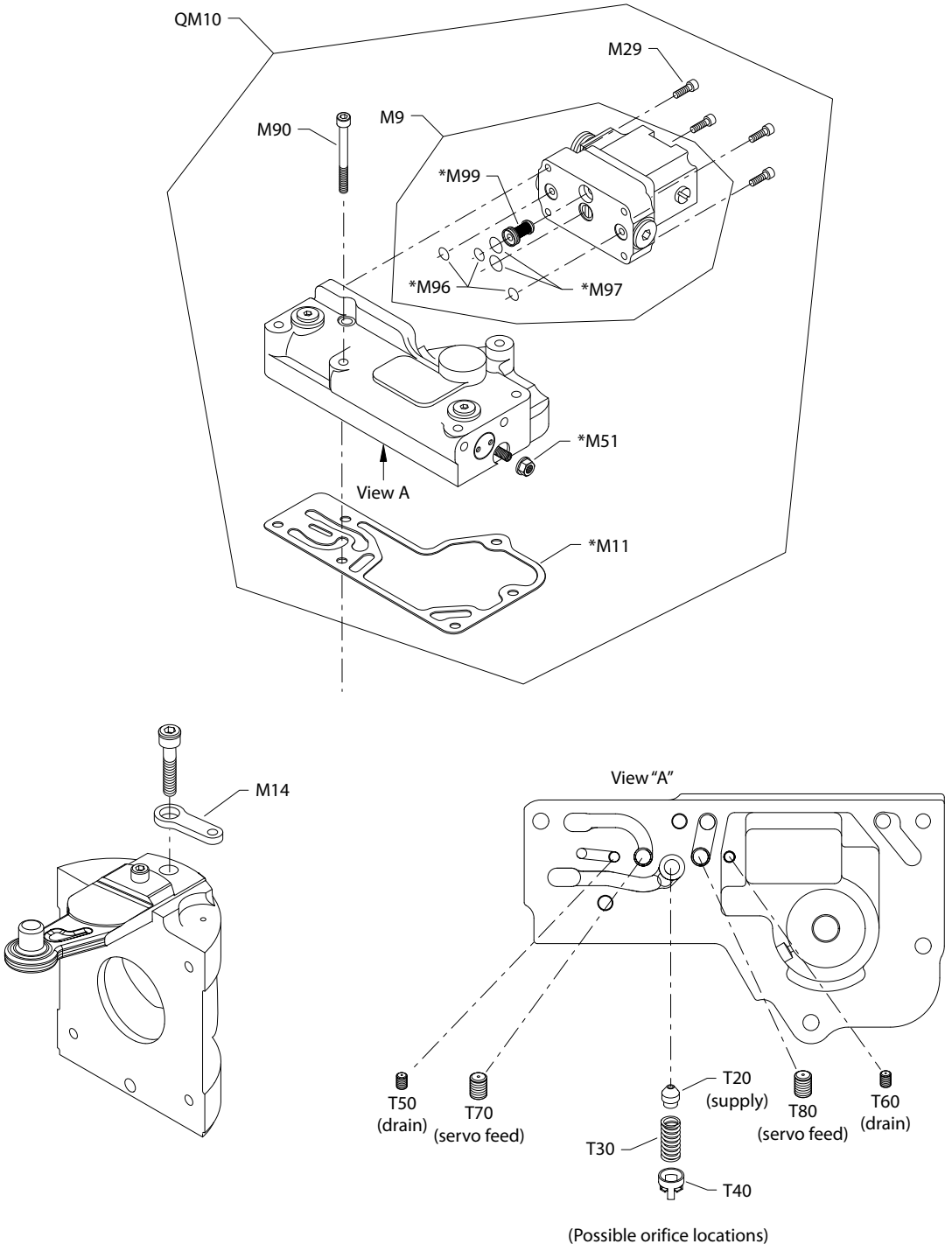
*Order code: KP*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M9 | 95-26 | | MCV116G4204 | PCP, Weather-pack connector, dual coil | 1 |
| M11 | 95-26 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 294 & *SB-2013-011* on page 320) | 1 |
| M14 | 95-26 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 283) | 1 |
| M29 | 95-26 | | K07067 | Screw | 4 |
| M51 | 95-26 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 95-26 | | 692889 (9007314-0611) | Screw | 6 |
| M96 | 95-26 | | 011296 (9004105-0120) | O-ring | 3 |
| M97 | 95-26 | | 9004105-0130 | O-ring | 2 |
| M99 | 95-26 | | K08572 | Filter assembly | 1 |
| QM10 | 95-26 | | 8510118 | EDC3 kit, Weather-pack connector, dual coil | 1 |
| QM210 | 95-26 | | 11095724 | Control seal kit | 1 |

## Controls

### S90 100cc pump control KT-KW

*Parts configuration*




Generic PCP and swashplate shown.

* Included in control seal kit QM210

## Controls

*Order code: KT*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M9 | 99-49 | | MCV116G4214 | PCP, DEUTSCH connector | 1 |
| M11 | 99-49 | | 8800923 | Control gasket | 1 |
| M14 | 99-49 | | 11070306 | Feedback link | 1 |
| M29 | 99-49 | | K07067 | Screw | 4 |
| M51 | 99-49 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 99-49 | | 692889 (9007314-0611) | Screw | 6 |
| M96 | 99-49 | | 011296 (9004105-0120) | O-ring | 3 |
| M97 | 99-49 | | 9004105-0130 | O-ring | 2 |
| M99 | 99-49 | | K08572 | Filter assembly | 1 |
| QM10 | 99-49 | | 8510321 | EDC3 kit, DEUTSCH connector | 1 |
| QM210 | 99-49 | | 11095724 | Control seal kit | 1 |

*Order code: KU*

| | | | | | |
|---|---|---|---|---|---|
| M9 | 97-50 | | MCV116G4204 | PCP, dual, Weather-Pack connector | 1 |
| M11 | 97-50 | | 8800923 | Control gasket | 1 |
| M14 | 97-50 | | 11070306 | Feedback link (*SB-2013-011* on page 320) | 1 |
| M29 | 97-50 | | K07067 | Screw | 4 |
| M51 | 97-50 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 97-50 | | 692889 (9007314-0611) | Screw | 6 |
| M96 | 97-50 | | 011296 (9004105-0120) | O-ring | 3 |
| M97 | 97-50 | | 9004105-0130 | O-ring | 2 |
| M99 | 97-50 | | K08572 | Filter assembly | 1 |
| QM10 | 97-50 | | 11020566 | EDC3 kit, dual, Weather-Pack connector | 1 |
| QM210 | 97-50 | | 11095724 | Control seal kit | 1 |

*Order code: KW*

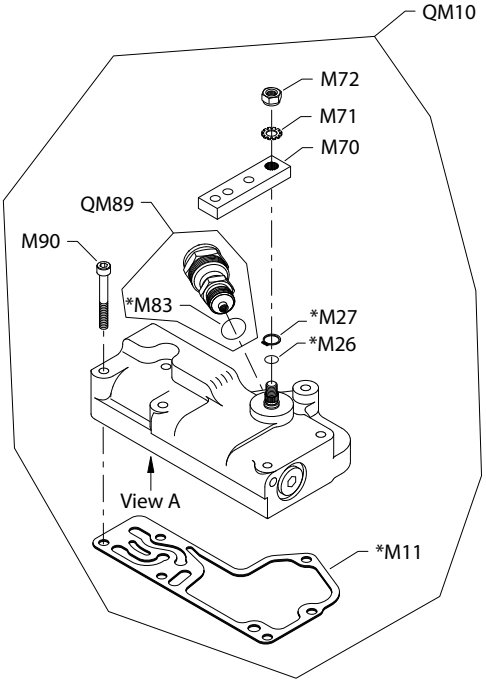
| | | | | | |
|---|---|---|---|---|---|
| M9 | 97-50 | | MCV116G4201 | PCP, MS connector | 1 |
| M11 | 97-50 | | 8800923 | Control gasket | 1 |
| M14 | 97-50 | | 11070306 | Feedback link (*SB-2013-011* on page 320) | 1 |
| M29 | 97-50 | | K07067 | Screw | 4 |
| M51 | 97-50 | | 505412 (9003509-0008) | Seal nut | 1 |
| M90 | 97-50 | | 692889 (9007314-0611) | Screw | 6 |
| M96 | 97-50 | | 011296 (9004105-0120) | O-ring | 3 |
| M97 | 97-50 | | 9004105-0130 | O-ring | 2 |
| M99 | 97-50 | | K08572 | Filter assembly | 1 |
| QM10 | 97-50 | | 11099899 | EDC3 kit, MS connector | 1 |
| QM210 | 97-50 | | 11095724 | Control seal kit | 1 |

## Controls

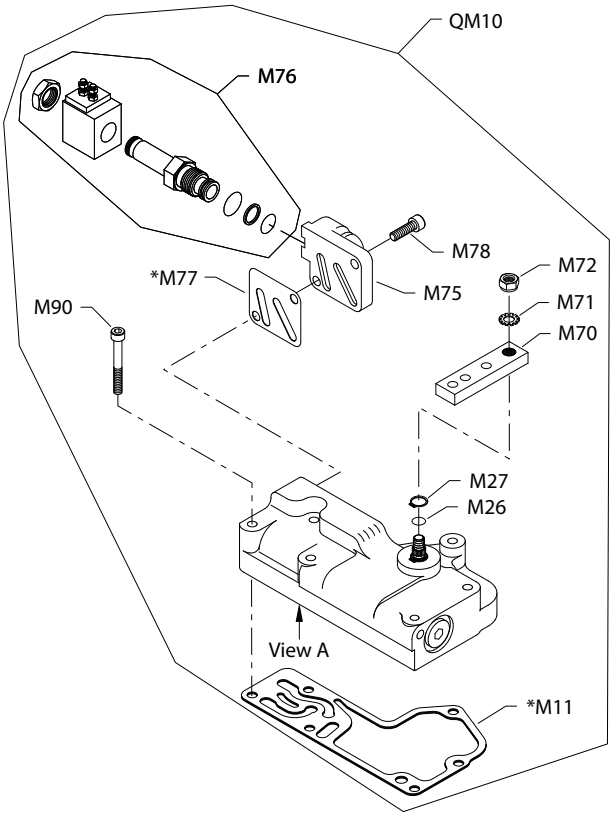
### S90 100cc pump control LE, LG

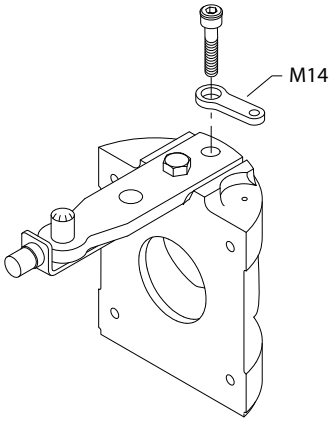
*Parts configuration*

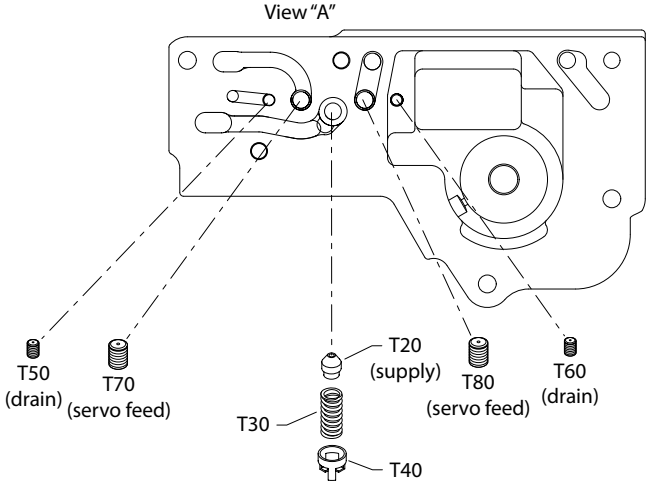
**(LE)**




**(LG)**




(Possible orifice locations)

* Included in control seal kit QM210

## Controls

*Order code: LE*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 01-07 | | 8800923 | Control gasket | 1 |
| M14 | 01-07 | | 11070306 | Feedback link | 1 |
| M26 | 01-07 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 01-07 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M70 | 01-07 | | 9800916 | Control handle | 1 |
| M71 | 01-07 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 01-07 | | 040642 (9003513-0800) | Nut | 1 |
| M83 | 01-07 | | 001131 (9004201-5000) | O-ring | 1 |
| M90 | 01-07 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 01-07 | | 8510291 | MDC kit, high force neutral start switch | 1 |
| QM89 | 01-07 | | 8510316 | Neutral start switch kit, high force | 1 |
| QM210 | 01-07 | | 11100031 | Control seal kit | 1 |

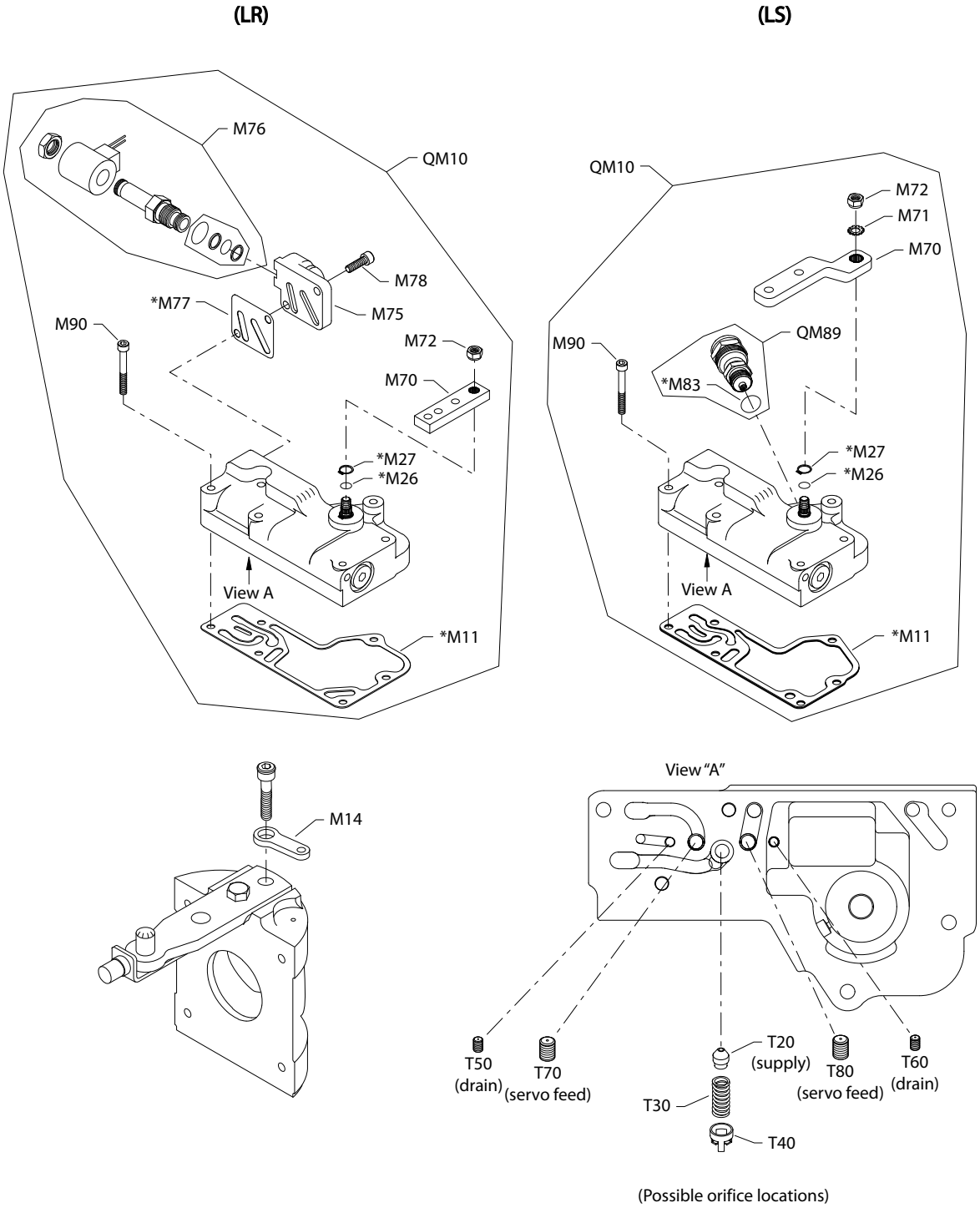
*Order code: LG*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 98-42 | | 8800923 | Control gasket | 1 |
| M14 | 98-42 | | 11070306 | Feedback link | 1 |
| M26 | 98-42 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 98-42 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M70 | 98-42 | | 9800916 | Control handle | 1 |
| M71 | 98-42 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 98-42 | | 040642 (9003513-0800) | Nut | 1 |
| M75 | 98-42 | | 505022 | Control manifold | 1 |
| M76 | 98-42 | | 11127986 | Solenoid valve assembly, 2-pole, 12 volt | 1 |
| M77 | 98-42 | | 8800882 | Manifold gasket | 1 |
| M78 | 98-42 | | 693341 (9007314-0606) | Screw | 2 |
| M90 | 98-42 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 98-42 | | 11015108 | MDC kit, 2-pole, 12 volt | 1 |
| QM210 | 98-42 | | 11100031 | Control seal kit | 1 |

## Controls

### S90 100cc pump control LR, LS

*Parts configuration*




(Possible orifice locations)

All orifices present in the original control must be transferred to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

## Controls

* Included in control seal kit QM210

*Order code: LR*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 04-50 | | 8800923 | Control gasket | 1 |
| M14 | 04-50 | | 11070306 | Feedback link | 1 |
| M26 | 04-50 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 04-50 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M70 | 04-50 | | 9800916 | Control handle | 1 |
| M72 | 04-50 | | 040642 (9003513-0800) | Nut | 1 |
| M75 | 04-50 | | 505022 | Control manifold | 1 |
| M76 | 04-50 | | 521242 | Solenoid valve, 12 volt, 2-pole | 1 |
| M77 | 04-50 | | 8800882 | Manifold gasket | 1 |
| M78 | 04-50 | | 693341 (9007314-0606) | Screw | 2 |
| M90 | 04-50 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 04-50 | | 8510376 | MDC kit, w/2-pole 12v solenoid | 1 |
| QM210 | 04-50 | | 11099998 | Control seal kit | 1 |

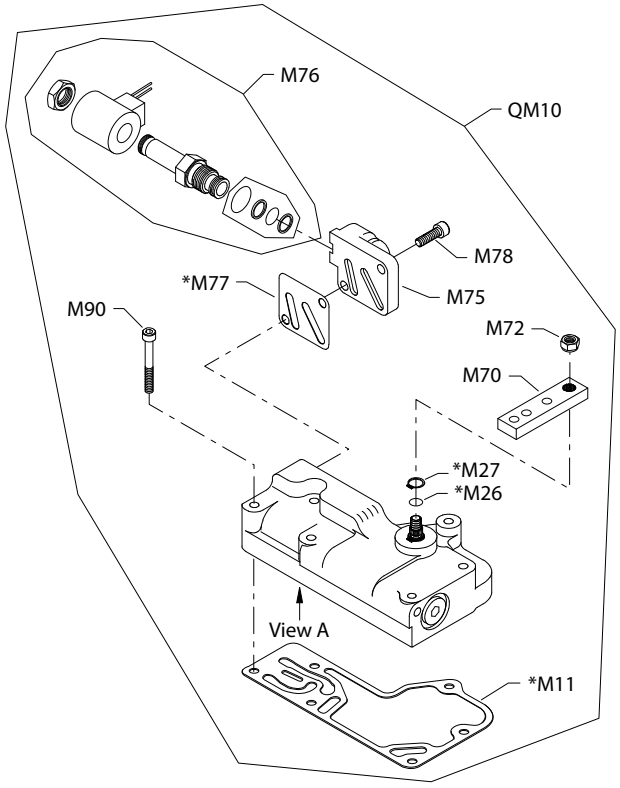
*Order code: LS*

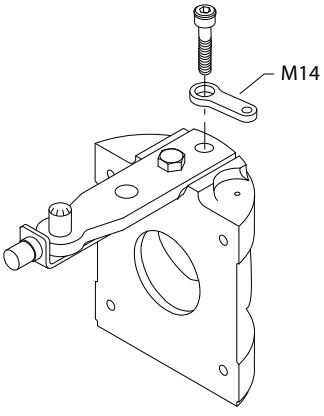
| | | | | | |
|---|---|---|---|---|---|
| M11 | 04-46 | | 8800923 | Control gasket | 1 |
| M14 | 04-46 | | 11070306 | Feedback link | 1 |
| M26 | 04-46 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 04-46 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M70 | 04-46 | | 8801339 | Control handle, offset | 1 |
| M71 | 04-46 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 04-46 | | 040642 (9003513-0800) | Nut | 1 |
| M83 | 04-46 | | 001131 (9004201-5000) | O-ring | 1 |
| M90 | 04-46 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 04-46 | | 8510360 | MDC kit, with high force neutral start switch | 1 |
| QM89 | 04-46 | | 8510316 | Neutral start switch kit, high force, Weather-pack | 1 |
| QM210 | 04-46 | | 11096274 | Control seal kit | 1 |

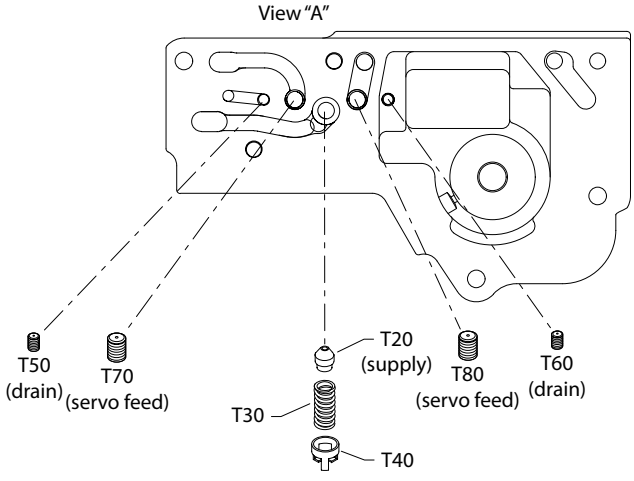
## Controls

### S90 100cc pump control LW

*Parts configuration*




(Possible orifice locations)

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

## Controls

* Included in control seal kit QM210

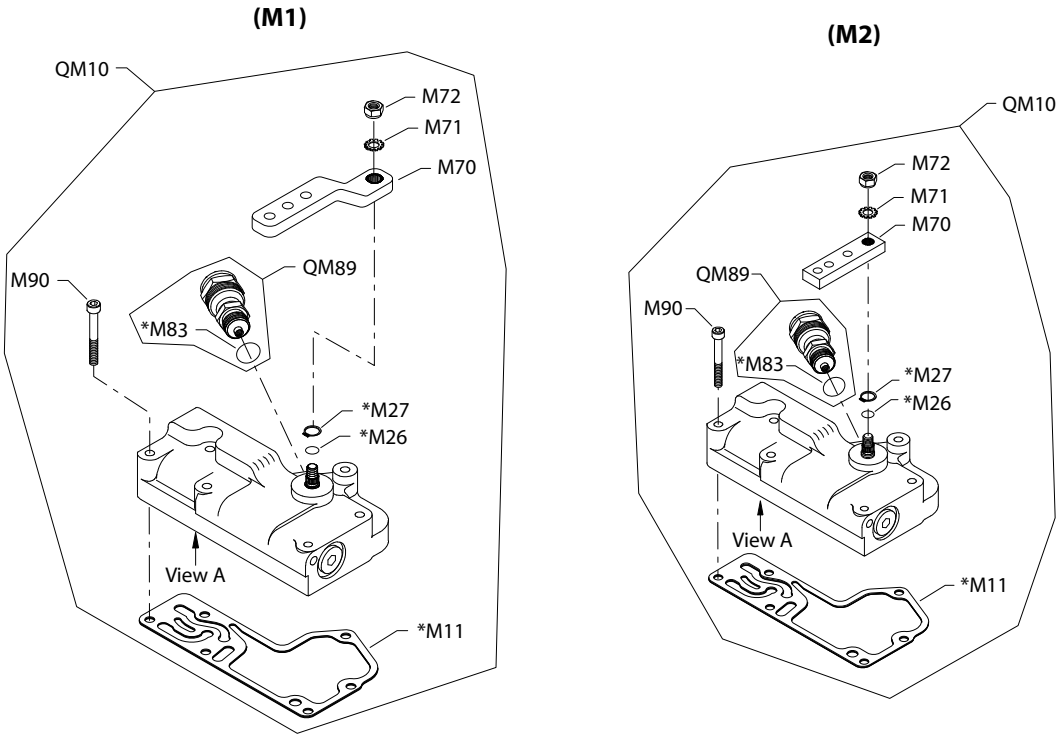
*Order code: LW*

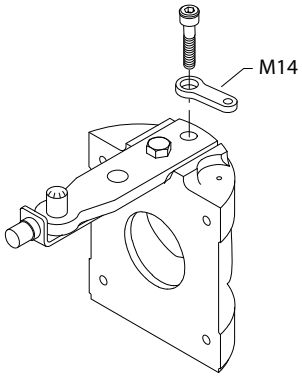
| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 12-03 | | 8800923 | Control gasket | 1 |
| M14 | 12-03 | | 11070306 | Feedback link (*SB-2013-011* on page 320) | 1 |
| M26 | 12-03 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 12-03 | | 042507 | Retaining ring | 1 |
| M28 | 12-03 | | 510690 | Seal | 1 |
| M70 | 12-03 | | 9800916 | Control handle | 1 |
| M72 | 12-03 | | 040642 (9003513-0800) | Nut | 1 |
| M90 | 12-03 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 12-03 | | 11107925 | MDC kit, 2-position solenoid valve, 24v | 1 |
| QM210 | 12-03 | | 11110668 | Control seal kit | 1 |

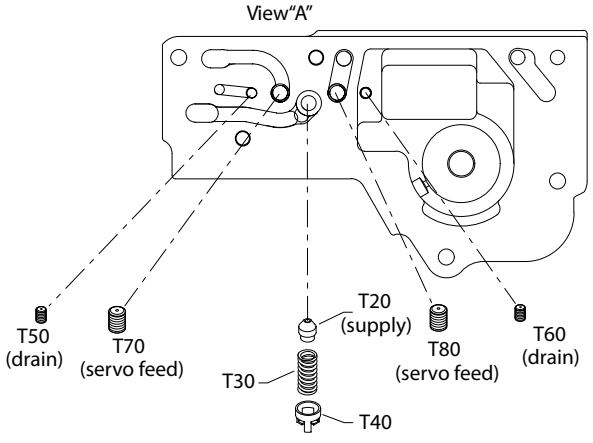
## Controls

### S90P control M1, M2

*Parts configuration*




(Possible orifice locations)

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Controls

*Order code: M1*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 95-37 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 294 & *SB-2013-011* on page 320) | 1 |
| M14 | 95-37 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 283) | 1 |
| M26 | 95-37 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 95-37 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M70 | 95-37 | | 9800916 | Control handle | 1 |
| M71 | 95-37 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 95-37 | | 040642 (9003513-0800) | Nut | 1 |
| M90 | 95-37 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 95-37 | | 11014378 | MDC kit, brass sleeve | 1 |
| QM210 | 95-37 | | 11096274 | Control seal kit | 1 |

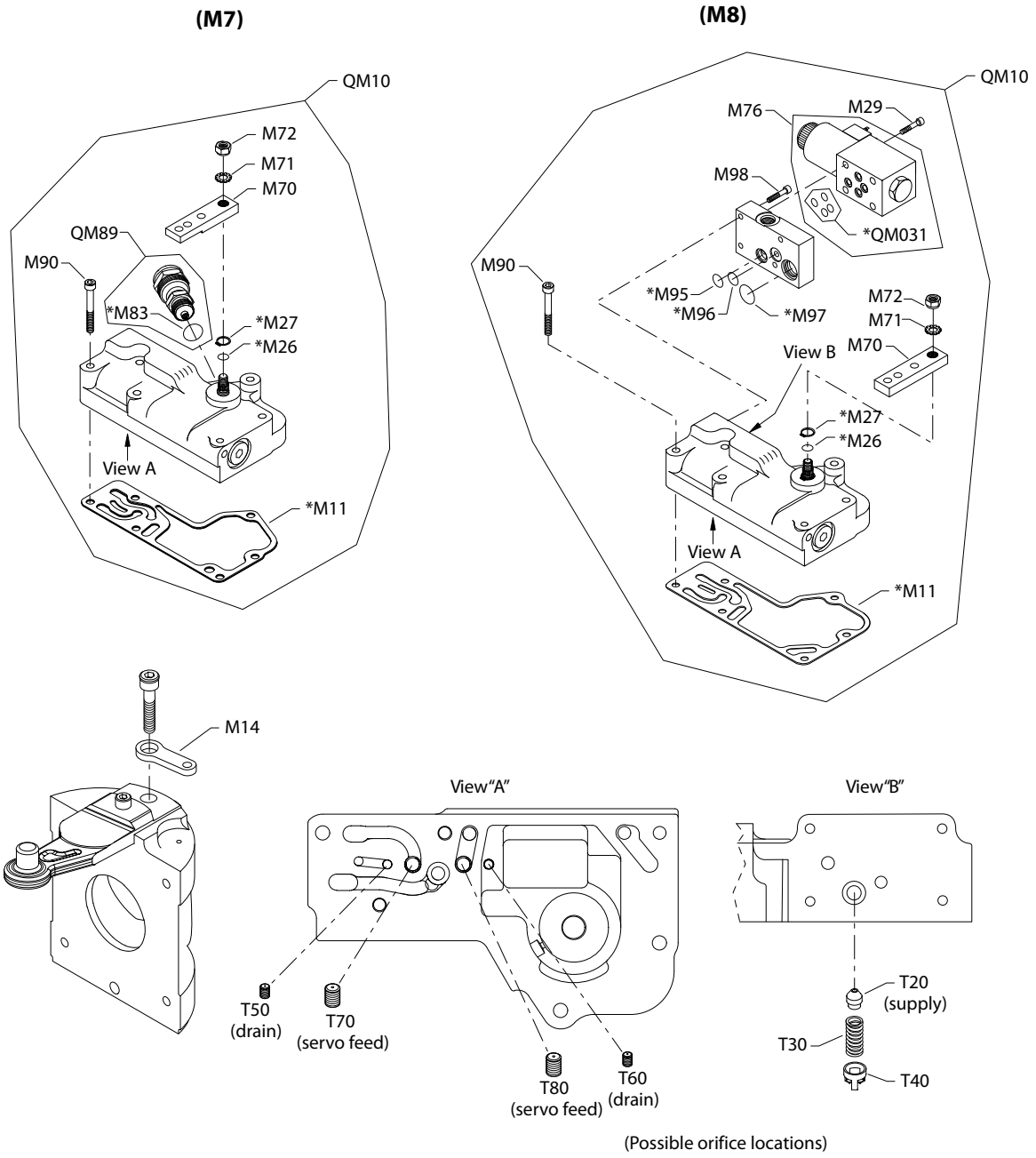
*Order code: M2*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 95-37 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 294 & *SB-2013-011* on page 320) | 1 |
| M14 | 95-37 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 283) | 1 |
| M26 | 95-37 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 95-37 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M70 | 95-37 | | 9800916 | Control handle | 1 |
| M71 | 95-37 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 95-37 | | 040642 (9003513-0800) | Nut | 1 |
| M83 | 95-37 | | 001131 (9004201-5000) | O-ring | 1 |
| M90 | 95-37 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 95-37 | | 8510112 | MDC kit, with neutral start switch, brass sleeve | 1 |
| QM89 | 95-37 | | 80020S40 | Neutral start switch kit | 1 |
| QM210 | 95-37 | | 11096274 | Control seal kit | 1 |

## Controls

### S90P control M7, M8

*Parts configuration*




(Possible orifice locations)

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Controls

*Order code: M7*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 11-04 | | 8800923 | Control gasket | 1 |
| M14 | 11-04 | | 11070306 | Feedback link (*SB-2013-011* on page 320) | 1 |
| M26 | 11-04 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 11-04 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M70 | 11-04 | | 8801260 | Control handle | 1 |
| M71 | 11-04 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 11-04 | | 040642 (9003513-0800) | Nut | 1 |
| M83 | 11-04 | | 001131 (9004201-5000) | O-ring | 1 |
| M90 | 11-04 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 11-04 | | 11099070 | MDC kit, with neutral start switch | 1 |
| QM89 | 11-04 | | 709014 (8510170) | Neutral start switch kit | 1 |
| QM210 | 11-04 | | 11096274 | Control seal kit | 1 |

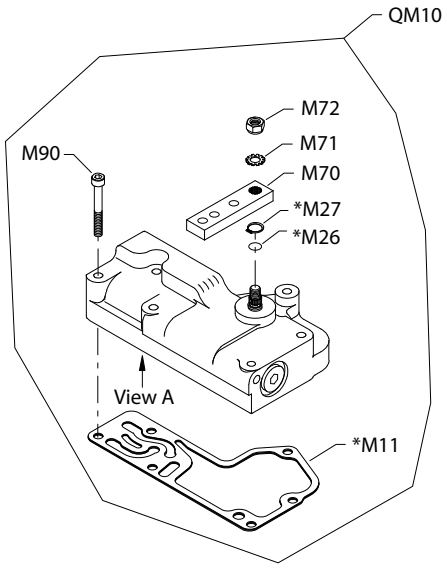
*Order code: M8*

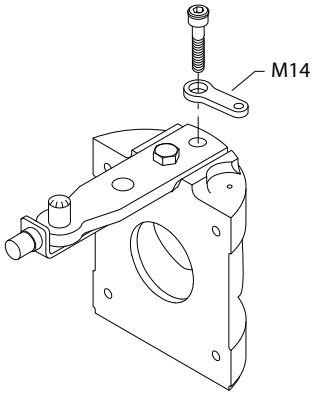
| | | | | | |
|---|---|---|---|---|---|
| M11 | 04-38 | | 8800923 | Control gasket | 1 |
| M14 | 04-38 | | 11070306 | Feedback link | 1 |
| M26 | 04-38 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 04-38 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M29 | 04-38 | | 9007315-0507 | Screw | 4 |
| M70 | 04-38 | | 9800916 | Control handle | 1 |
| M71 | 04-38 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 04-38 | | 040642 (9003513-0800) | Nut | 1 |
| M76 | 04-38 | | 508009 | Solenoid valve | 1 |
| M90 | 04-38 | | 692889 (9007314-0611) | Screw | 6 |
| M95 | 04-38 | | 9004105-0140 | O-ring | 1 |
| M96 | 04-38 | | 9004105-0140 | O-ring | 1 |
| M97 | 04-38 | | 9004105-0190 | O-ring | 1 |
| M98 | 04-38 | | 9007315-0505 | Screw | 4 |
| QM10 | 04-38 | | 11015110 | MDC kit, w/2-position solenoid valve | 1 |
| QM031 | 04-38 | | 11099647 | Solenoid seal kit | 1 |
| QM210 | 04-38 | | 11099978 | Control seal kit | 1 |

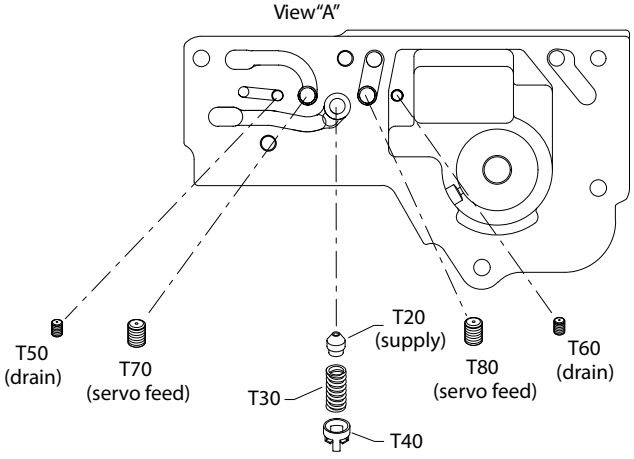
## Controls

### S90P control M9

*Parts configuration*




(Possible orifice locations)

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Controls

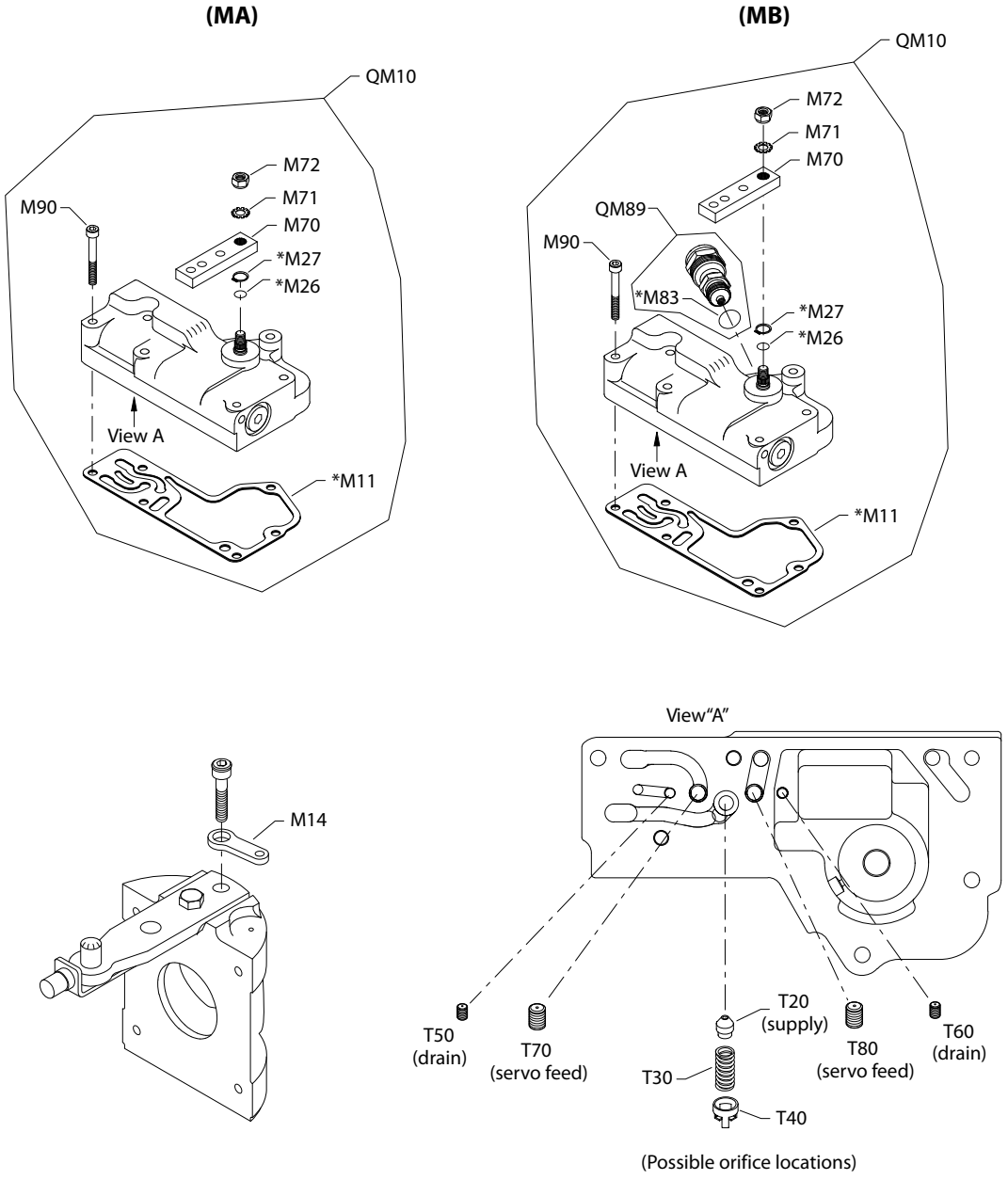
*Order code: M9*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 91-07 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 294 & *SB-2013-011* on page 320) | 1 |
| M14 | 91-07 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 283) | 1 |
| M26 | 91-07 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 91-07 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M70 | 91-07 | | 9800916 | Control handle | 1 |
| M71 | 91-07 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 91-07 | | 040642 (9003513-0800) | Nut | 1 |
| M90 | 91-07 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 91-07 | | 8510288 | MDC kit | 1 |
| QM210 | 91-07 | | 11096274 | Control seal kit | 1 |

## Controls

### S90P control MA, MB

*Parts configuration*




(Possible orifice locations)

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Controls

*Order code: MA*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 87-02 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 294 & *SB-2013-011* on page 320) | 1 |
| M14 | 87-02 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 283) | 1 |
| M26 | 87-02 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 87-02 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M70 | 87-02 | | 9800916 | Control handle | 1 |
| M71 | 87-02 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 87-02 | | 040642 (9003513-0800) | Nut | 1 |
| M90 | 87-02 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 87-02 | | 8102M0MA-A | MDC kit | 1 |
| QM210 | 87-02 | | 11096274 | Control seal kit | 1 |

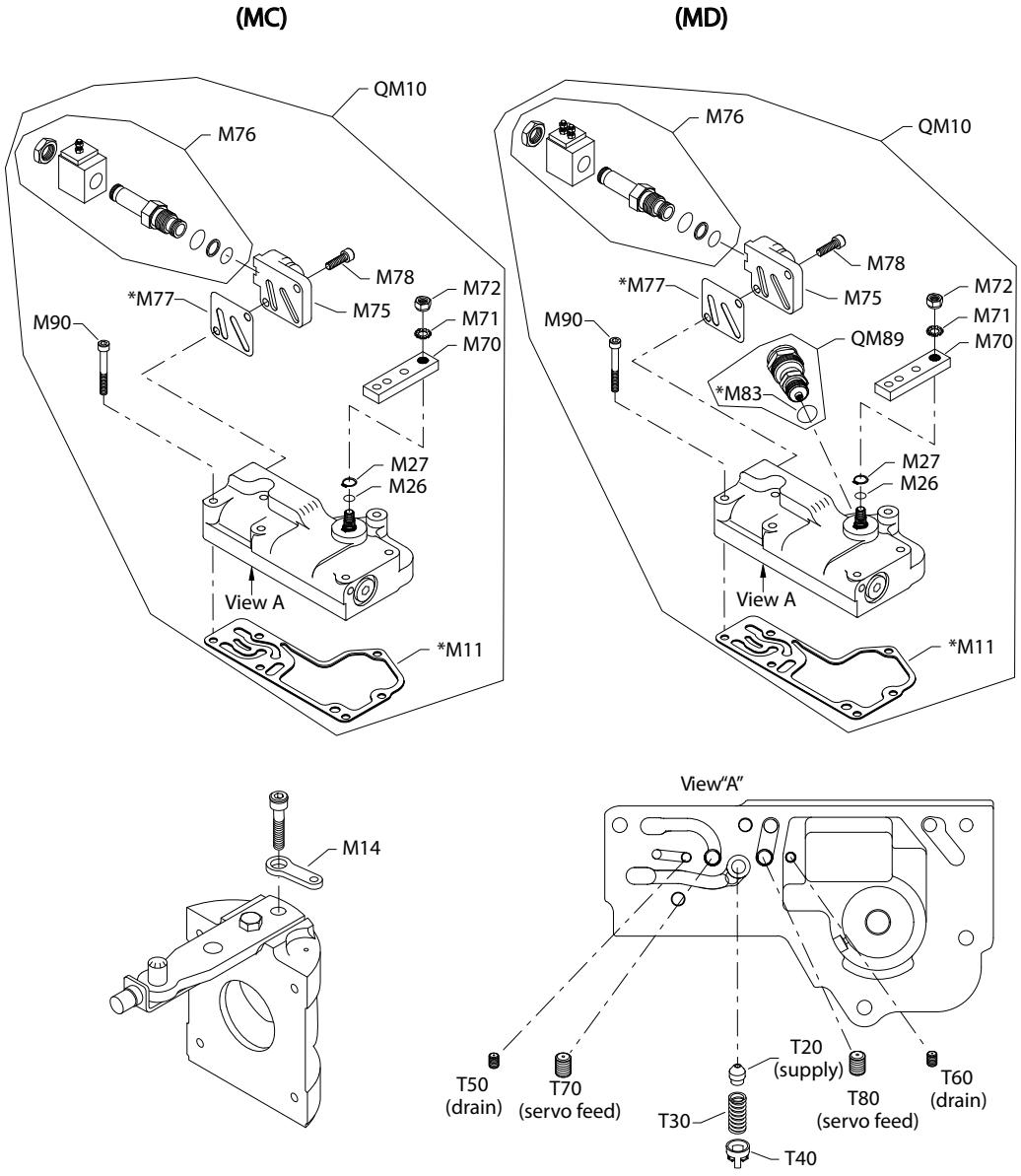
*Order code: MB*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 87-02 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 294 & *SB-2013-011* on page 320) | 1 |
| M14 | 87-02 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 283) | 1 |
| M26 | 87-02 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 87-02 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M70 | 87-02 | | 9800916 | Control handle | 1 |
| M71 | 87-02 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 87-02 | | 040642 (9003513-0800) | Nut | 1 |
| M83 | 87-02 | | 001131 (9004201-5000) | O-ring | 1 |
| M90 | 87-02 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 87-02 | | 8102M0MB-A | MDC kit with neutral start switch | 1 |
| QM89 | 87-02 | | 80020S40 | Neutral start switch kit | 1 |
| QM210 | 87-02 | | 11096274 | Control seal kit | 1 |

## Controls

### S90P control MC, MD

*Parts configuration*




(Possible orifice locations)

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Controls

*Order code: MC*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 87-02 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 294 & *SB-2013-011* on page 320) | 1 |
| M14 | 87-02 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 283) | 1 |
| M26 | 87-02 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 87-02 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M70 | 87-02 | | 9800916 | Control handle | 1 |
| M71 | 87-02 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 87-02 | | 040642 (9003513-0800) | Nut | 1 |
| M75 | 87-02 | | 505022 | Control manifold (*SB-1995-003* on page 280) | 1 |
| M76 | 87-02 | | 11127987 | Solenoid valve, 12 volt, single pole | 1 |
| M77 | 87-02 | | 8800882 | Manifold gasket | 1 |
| M78 | 95-10 | | 693341 (9007314-0606) | Screw (*SB-1995-003* on page 280) | 2 |
| M78 | 87-02 | 95-09 | 041160 (9007314-0605) | Screw | 2 |
| M90 | 87-02 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 87-02 | | 8102M0MC-A | MDC kit w/12 volt solenoid, single pole | 1 |
| QM210 | 87-02 | | 11100031 | Control seal kit | 1 |

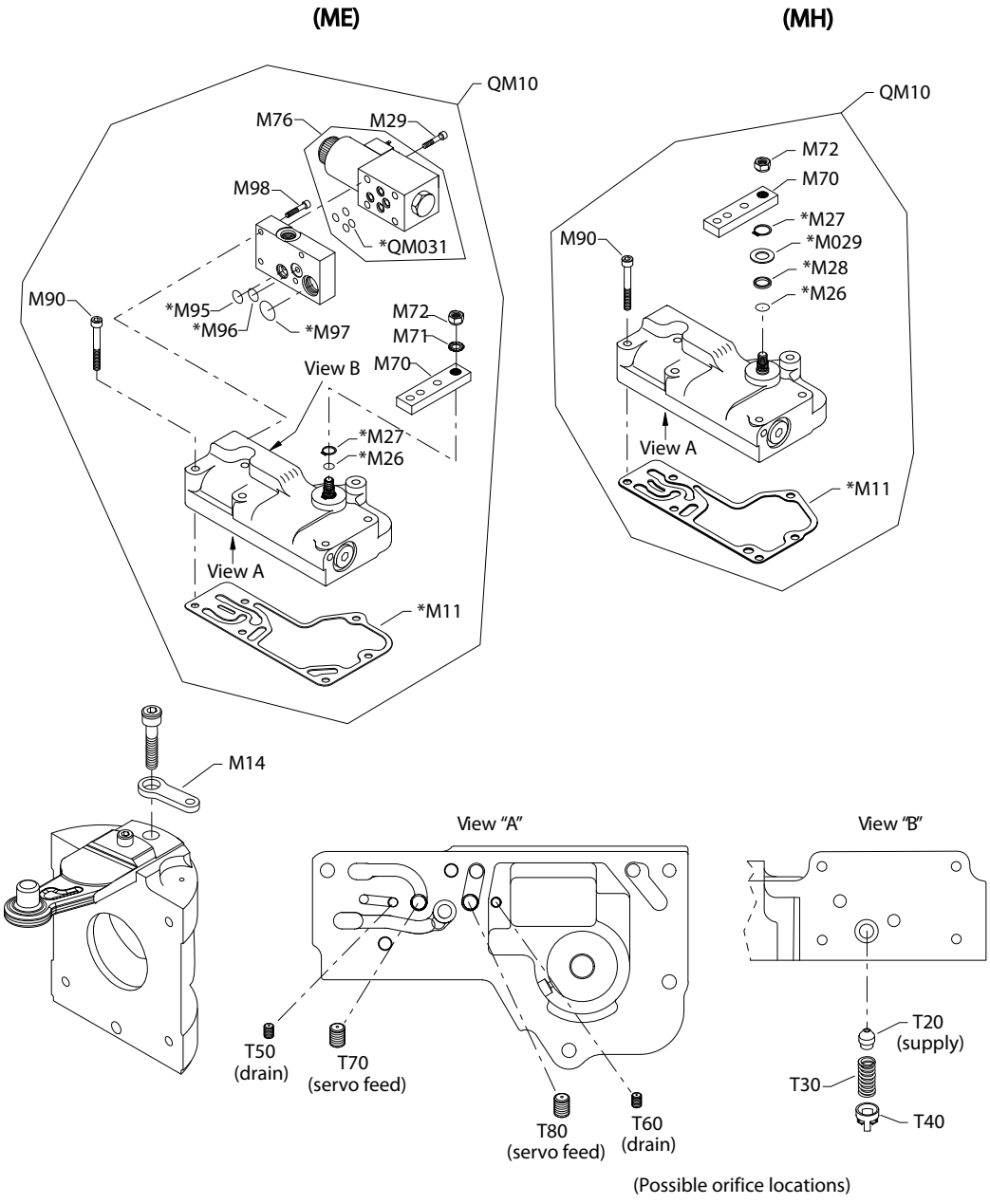
*Order code: MD*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 02-16 | | 8800923 | Control gasket | 1 |
| M14 | 02-16 | | 11070306 | Feedback link | 1 |
| M26 | 02-16 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 02-16 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M70 | 02-16 | | 9800916 | Control handle | 1 |
| M71 | 02-16 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 02-16 | | 040642 (9003513-0800) | Nut | 1 |
| M75 | 02-16 | | 505022 | Control manifold | 1 |
| M76 | 02-16 | | 11127986 | Solenoid valve, 12v, double pole | 1 |
| M77 | 02-16 | | 8800882 | Manifold gasket | 1 |
| M78 | 02-16 | | 693341 (9007314-0606) | Screw | 2 |
| M83 | 02-16 | | 001131 (9004201-5000) | O-ring | 1 |
| M90 | 02-16 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 02-16 | | 8102M0MD-A | MDC kit, w/double pole 12v solenoid | 1 |
| QM89 | 02-16 | | 8510027 | Neutral start switch kit, high force, Weather-pack | 1 |
| QM210 | 02-16 | | 11100031 | Control seal kit | 1 |

## Controls

### S90 100cc pump control ME, MH

*Parts configuration*




(Possible orifice locations)

All orifices present in the original control must be transferred to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

Generic swashplate shown.

* Included in control seal kit QM210

## Controls

*Order code: ME*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 87-02 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 294 & *SB-2013-011* on page 320) | 1 |
| M14 | 87-02 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 283) | 1 |
| M26 | 87-02 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 87-02 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M29 | 87-02 | | 9007315-0510 | Screw | 4 |
| M70 | 87-02 | | 9800916 | Control handle | 1 |
| M71 | 87-02 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 87-02 | | 040642 (9003513-0800) | Nut | 1 |
| M76 | 87-02 | | 519357 | Solenoid valve, 12 volt | 1 |
| M90 | 87-02 | | 692889 (9007314-0611) | Screw | 6 |
| M95 | 87-02 | | 056713 (9004105-0140) | O-ring | 1 |
| M96 | 87-02 | | 056713 (9004105-0140) | O-ring | 1 |
| M97 | 87-02 | | 544742 (9004105-0190) | O-ring | 1 |
| M98 | 87-02 | | 9007315-0505 | Screw | 4 |
| QM10 | 87-02 | | 8102M0ME-A | MDC kit w/2-position solenoid valve, 12 volt | 1 |
| QM031 | 87-02 | | 11099647 | Solenoid seal kit | 1 |
| QM210 | 87-02 | | 11099978 | Control seal kit | 1 |

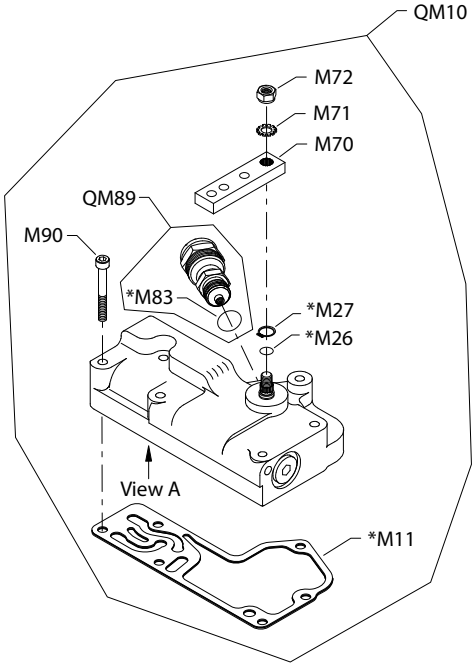
*Order code: MH*

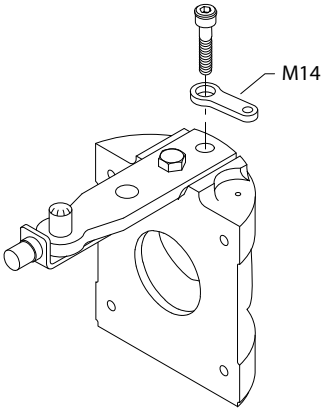
| | | | | | |
|---|---|---|---|---|---|
| M11 | 87-02 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 294 & *SB-2013-011* on page 320) | 1 |
| M14 | 87-02 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 283) | 1 |
| M26 | 87-02 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 87-02 | | 042507 | Retaining ring | 1 |
| M28 | 87-02 | | 510690 | Shaft seal | 1 |
| | | | | | |
| M70 | 87-02 | | 9800916 | Control handle | 1 |
| M72 | 87-02 | | 040642 (9003513-0800) | Nut | 1 |
| M90 | 87-02 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 87-02 | | 8510282 | MDC kit | 1 |
| QM210 | 87-02 | | 11096274 | Control seal kit | 1 |

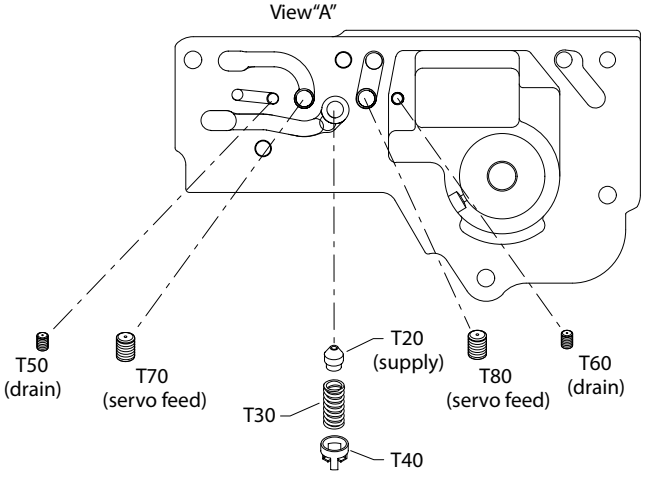
## Controls

### S90P control MK, ML

*Parts configuration*




(Possible orifice locations)

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Controls

*Order code: MK*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 87-02 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 294 & *SB-2013-011* on page 320) | 1 |
| M14 | 87-02 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 283) | 1 |
| M26 | 87-02 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 87-02 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M70 | 87-02 | | 9800916 | Control handle | 1 |
| M71 | 87-02 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 87-02 | | 040642 (9003513-0800) | Nut | 1 |
| M83 | 87-02 | | 001131 (9004201-5000) | O-ring | 1 |
| M90 | 87-02 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 87-02 | | 8102M0MK-A | MDC kit w/wide deadband, nss | 1 |
| QM89 | 87-02 | | 80020S40 | Neutral start switch kit | 1 |
| QM210 | 87-02 | | 11096274 | Control seal kit | 1 |

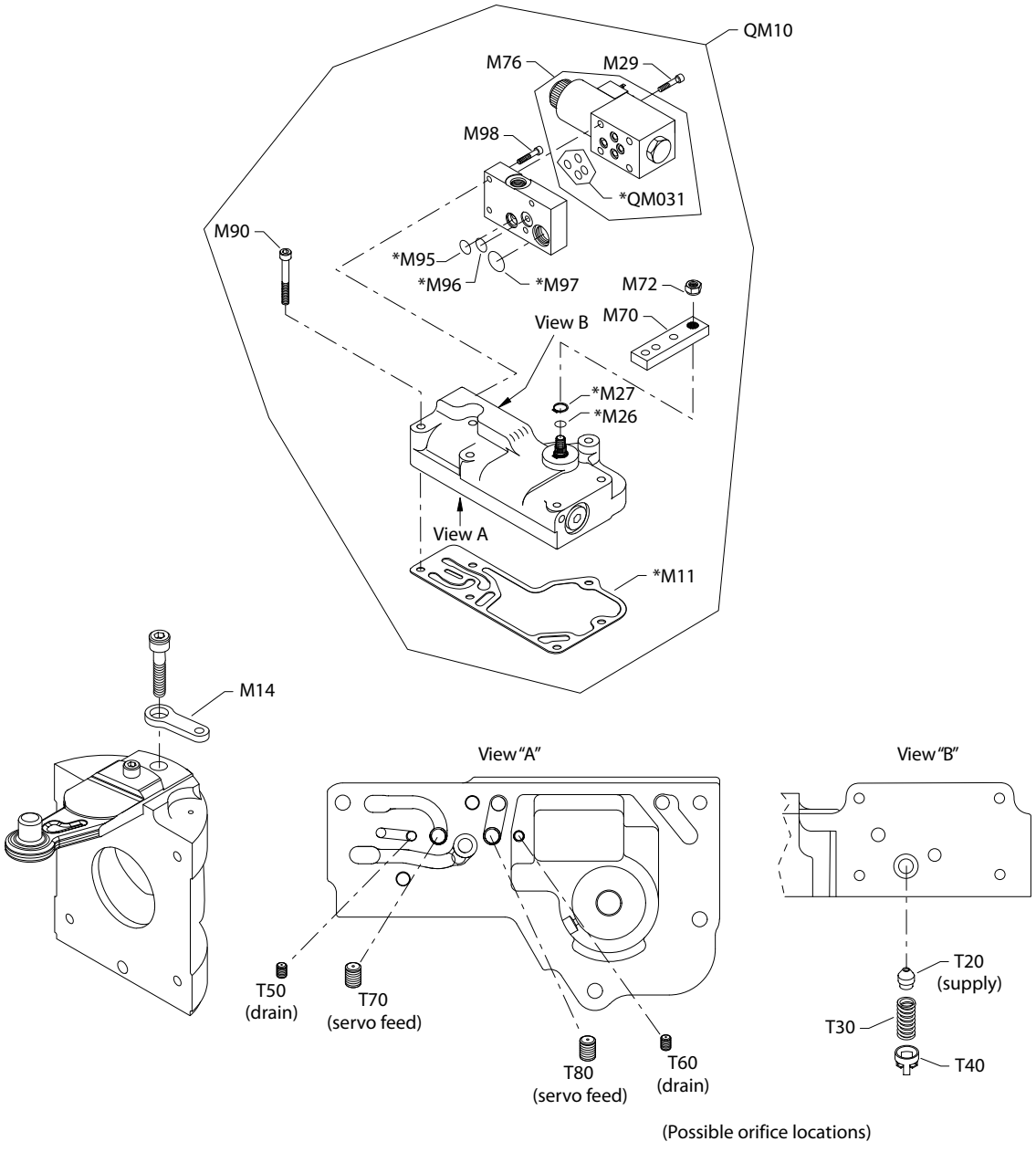
*Order code: ML*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 87-02 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 294 & *SB-2013-011* on page 320) | 1 |
| M14 | 87-02 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 283) | 1 |
| M26 | 87-02 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 87-02 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M70 | 87-02 | | 9800916 | Control handle | 1 |
| M71 | 87-02 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 87-02 | | 040642 (9003513-0800) | Nut | 1 |
| M83 | 87-02 | | 001131 (9004201-5000) | O-ring | 1 |
| M90 | 87-02 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 87-02 | | 11015112 | MDC kit w/wide deadband, high force nss | 1 |
| QM89 | 87-02 | | 8510027 | Neutral start switch kit, high force | 1 |
| QM210 | 87-02 | | 11096274 | Control seal kit | 1 |

## Controls

### S90P control MN

*Parts configuration*




(Possible orifice locations)

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Controls

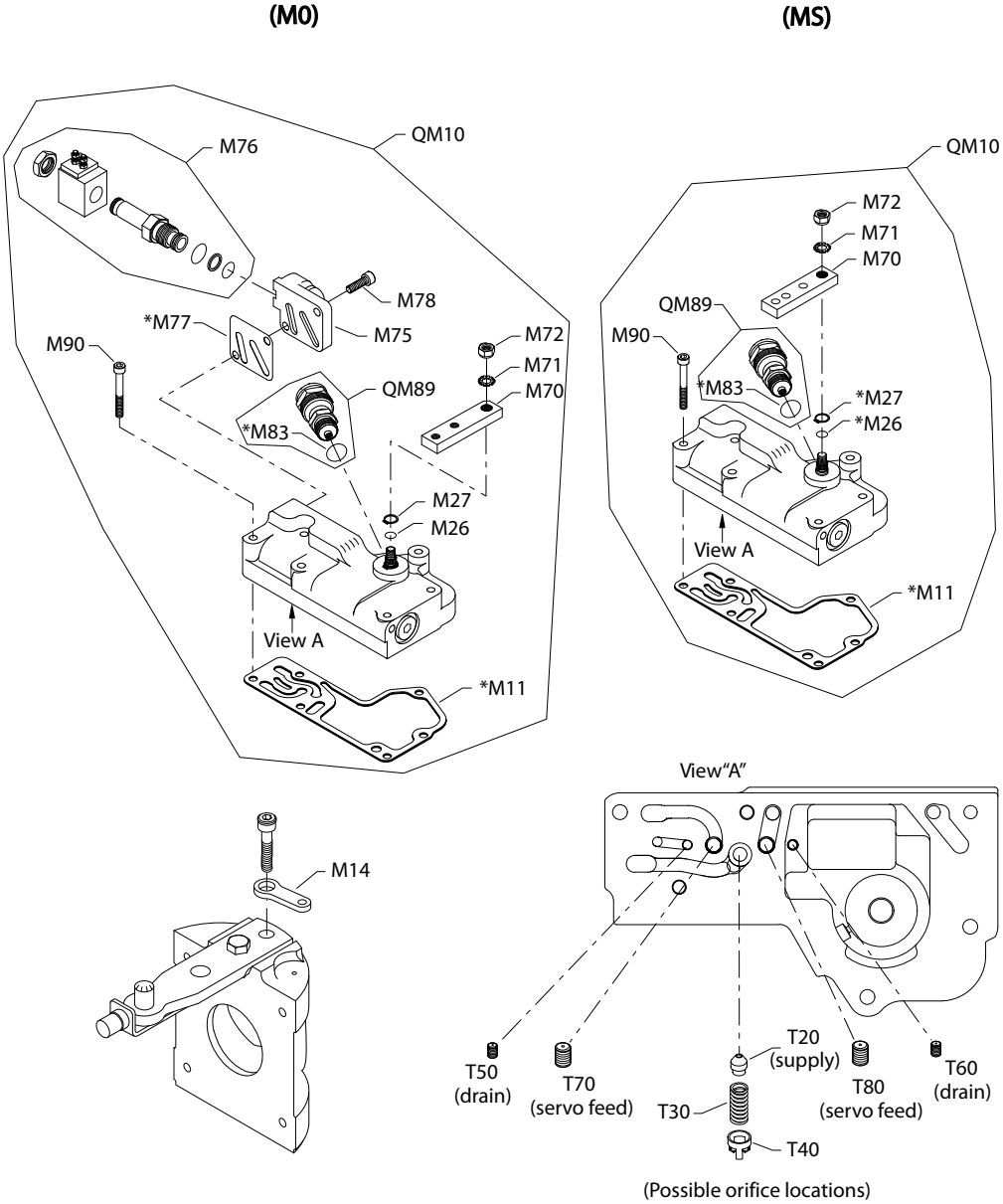
*Order code: MN*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 94-02 | | 8800923 | Control gasket | 1 |
| M14 | 94-02 | | 11070306 | Feedback link | 1 |
| M26 | 94-02 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 94-02 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M29 | 94-02 | | 035592 | Screw, M5 x 45 | 4 |
| M70 | 94-02 | | 9800916 | Control handle | 1 |
| M72 | 94-02 | | 040642 (9003513-0800) | Nut | 1 |
| M76 | 94-02 | | 519357 | Solenoid valve, 12 volt | 1 |
| M90 | 94-02 | | 692889 (9007314-0611) | Screw | 6 |
| M95 | 94-02 | | 056713 | O-ring | 1 |
| M96 | 94-02 | | 056713 | O-ring | 1 |
| M97 | 94-02 | | 544742 | O-ring | 1 |
| M98 | 94-02 | | 067686 | Screw, M5 x 20 | 4 |
| QM10 | 94-02 | | 11087557 | MDC kit w/2-position solenoid | 1 |
| QM031 | 94-02 | | 11099647 | Solenoid valve seal kit | 1 |
| QM210 | 94-02 | | 11099978 | Control seal kit | 1 |

## Controls

### S90 100cc pump control MO, MS

*Parts configuration*




(Possible orifice locations)

All orifices present in the original control must be transferred to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

Generic swashplate and neutral start switch shown.

## Controls

*Order code: MO*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 96-24 | | 8800923 | Control gasket | 1 |
| M14 | 96-24 | | 11070306 | Feedback link | 1 |
| M26 | 96-24 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 96-24 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M70 | 96-24 | | 9800916 | Control handle | 1 |
| M71 | 96-24 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 96-24 | | 040642 (9003513-0800) | Nut | 1 |
| M78 | 96-24 | | 090159 | Screw | 4 |
| M90 | 96-24 | | 692889 (9007314-0611) | Screw | 6 |
| M95 | 96-24 | | 011304 (9004104-0140) | O-ring | 3 |
| QM10 | 96-24 | | 11087558 | MDC kit, reduce valve | 1 |
| QM210 | 96-24 | | 11099981 | Control seal kit | 1 |

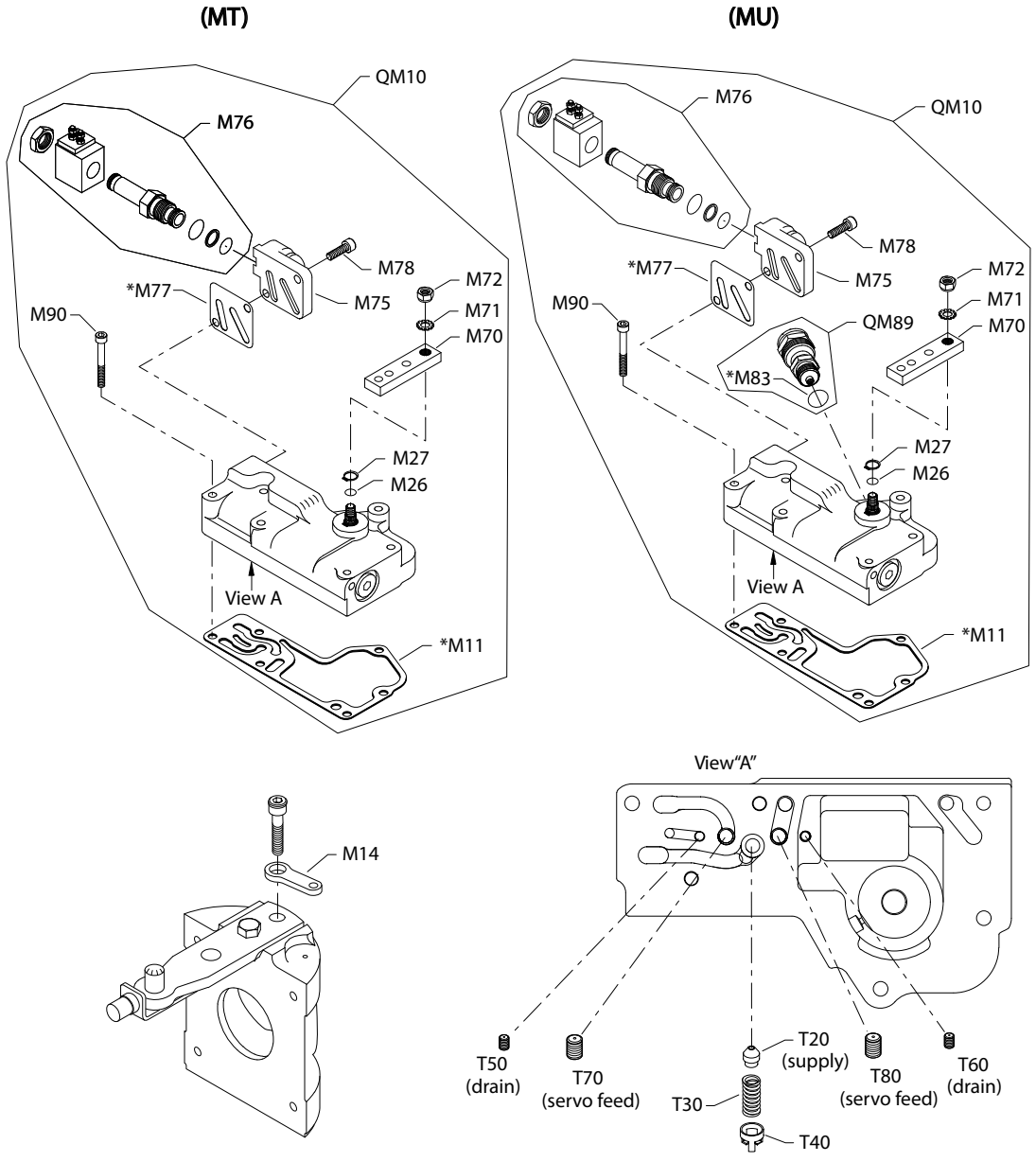
*Order code: MS*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 01-07 | | 8800923 | Control gasket | 1 |
| M14 | 01-07 | | 11070306 | Feedback link | 1 |
| M26 | 01-07 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 01-07 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M70 | 01-07 | | 9800916 | Control handle | 1 |
| M71 | 01-07 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 01-07 | | 040642 (9003513-0800) | Nut | 1 |
| M83 | 01-07 | | 001131 (9004201-5000) | O-ring | 1 |
| M90 | 01-07 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 01-07 | | 8510287 | MDC kit, high force neutral start switch | 1 |
| QM89 | 01-07 | | 8510027 | Neutral start switch kit, high force | 1 |
| QM210 | 01-07 | | 11096274 | Control seal kit | 1 |

## Controls

### S90 100cc pump control MT, MU

*Parts configuration*




(Possible orifice locations)

All orifices present in the original control must be transferred to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

Generic swashplate shown.

* Included in control seal kit QM210

## Controls

*Order code: MT*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 01-01 | | 8800923 | Control gasket | 1 |
| M14 | 01-01 | | 11070306 | Feedback link | 1 |
| M26 | 01-01 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 01-01 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M70 | 01-01 | | 9800916 | Control handle | 1 |
| M71 | 01-01 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 01-01 | | 040642 (9003513-0800) | Nut | 1 |
| M75 | 01-01 | | 505022 | Control manifold | 1 |
| M76 | 01-01 | | 11127986 | Solenoid valve, 12 volt, 2-pole | 1 |
| M77 | 01-01 | | 8800882 | Manifold gasket | 1 |
| M78 | 01-01 | | 693341 (9007314-0606) | Screw | 2 |
| M90 | 01-01 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 01-01 | | 8510320 | MDC kit, w/2-pole 12v solenoid | 1 |
| QM210 | 01-01 | | 11100031 | Control seal kit | 1 |

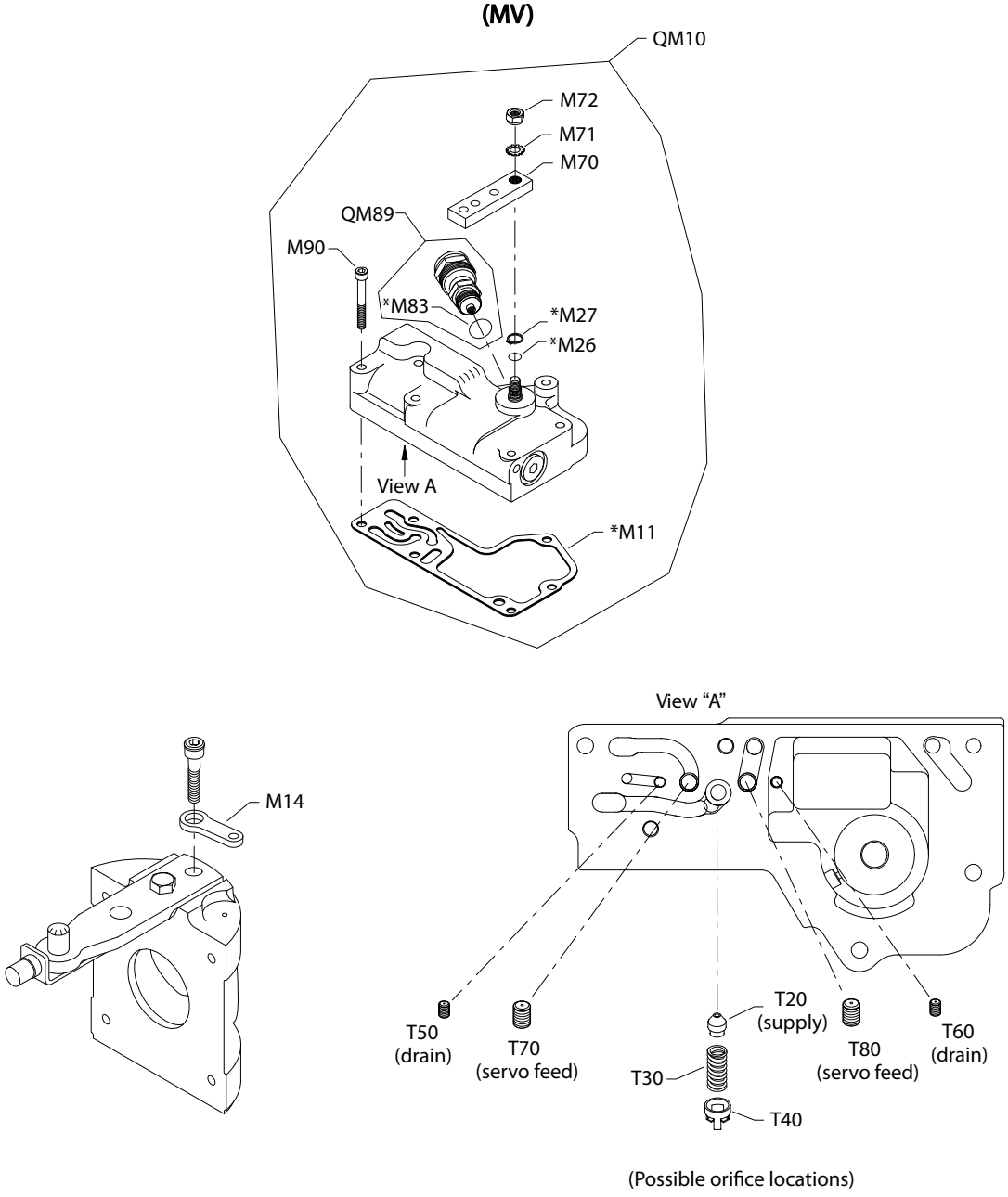
*Order code: MU*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 94-05 | 14-33 | 8800923 | Control gasket | 1 |
| M14 | 96-40 | 14-33 | 11070306 | Feedback link (*SB-1999-019* on page 294 & *SB-2013-011* on page 320) | 1 |
| M14 | 94-05 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 283) | 1 |
| M26 | 94-05 | 14-33 | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 94-05 | 14-33 | 042507 (9006300-0044) | Retaining ring | 1 |
| M70 | 94-05 | 14-33 | 9800916 | Control handle | 1 |
| M71 | 94-05 | 14-33 | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 94-05 | 14-33 | 040642 (9003513-0800) | Nut | 1 |
| M75 | 94-05 | 14-33 | 505022 | Control manifold | 1 |
| M76 | 94-05 | 14-33 | 11127986 | Solenoid valve, 12v, double pole | 1 |
| M77 | 94-05 | 14-33 | 8800882 | Manifold gasket | 1 |
| M78 | 94-05 | 14-33 | 693341 (9007314-0606) | Screw | 2 |
| M83 | 94-05 | 14-33 | 001131 (9004201-5000) | O-ring | 1 |
| M90 | 94-05 | 14-33 | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 94-05 | 14-33 | 11019664 | MDC kit, w/double pole 12v solenoid | 1 |
| QM89 | 94-05 | 14-33 | 8510170 | Neutral start switch kit | 1 |
| QM210 | 94-05 | 14-33 | 11100031 | Control seal kit | 1 |

## Controls

### S90 100cc pump control MV

*Parts configuration*




(Possible orifice locations)

All orifices present in the original control must be transferred to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

Generic swashplate shown.

* Included in control seal kit QM210

## Controls

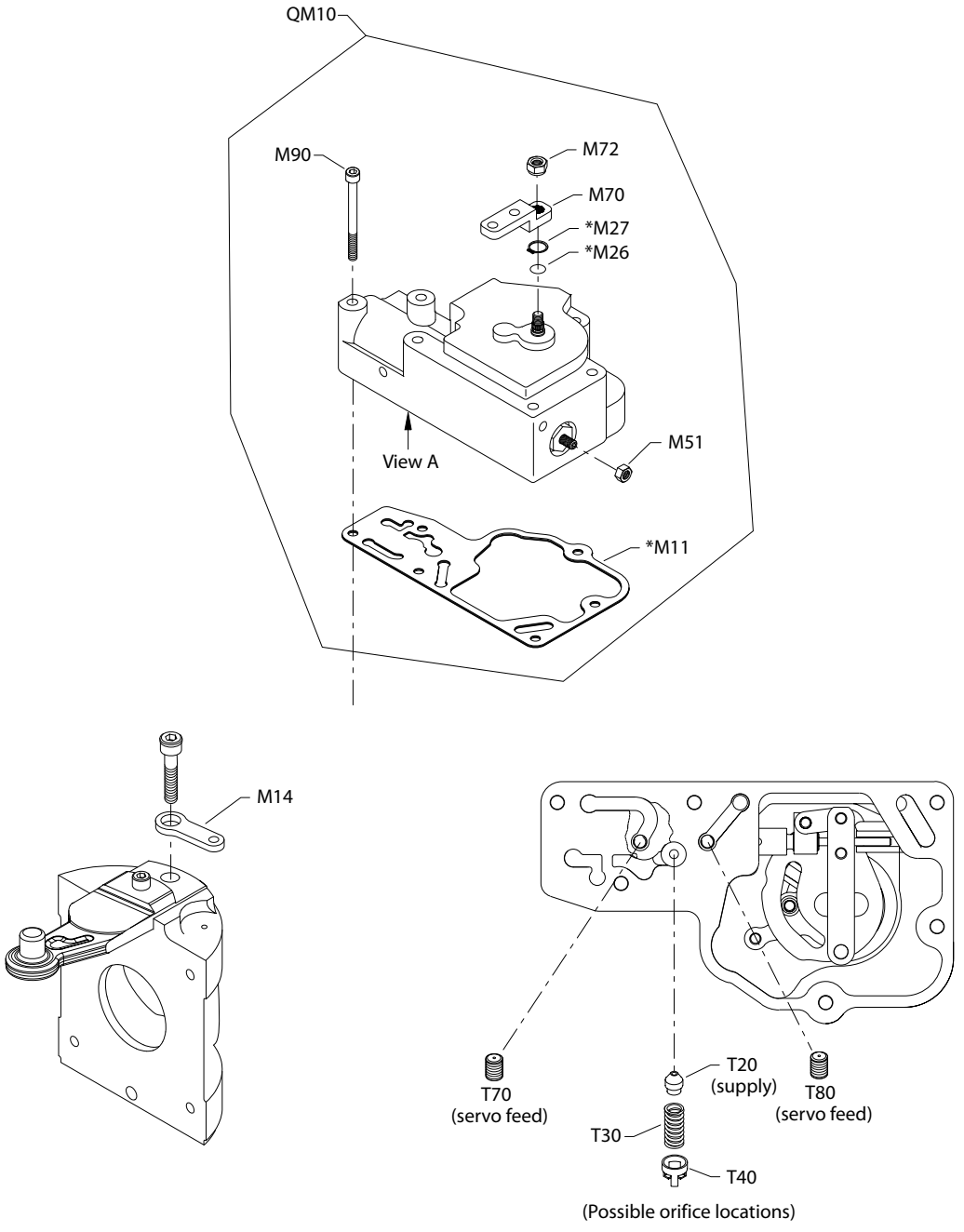
*Order code: MV*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 94-30 | | 8800923 | Control gasket | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 294 & *SB-2013-011* on page 320) | 1 |
| M14 | 94-30 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 283) | 1 |
| M70 | 94-30 | | 9800916 | Control handle | 1 |
| M71 | 94-30 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 94-30 | | 040642 (9003513-0800) | Nut | 1 |
| M83 | 94-30 | | 001131 (9004201-5000) | O-ring | 1 |
| M90 | 94-30 | | 692889 (9007314-0611) | Screw | 6 |
| QM10 | 94-30 | | 8510342 | MDC kit, nss w/weather pack connector, 2-way | 1 |
| QM89 | 94-30 | | 8510170 | Neutral start switch kit, weather pack connector, 2-way | 1 |
| QM210 | 94-30 | | 11096274 | Control seal kit | 1 |

## Controls

### S90 100cc pump control NA

*Parts configuration*




All orifices present in the original control must be transferred to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

Generic swashplate shown.

* Included in control seal kit QM210

## Controls

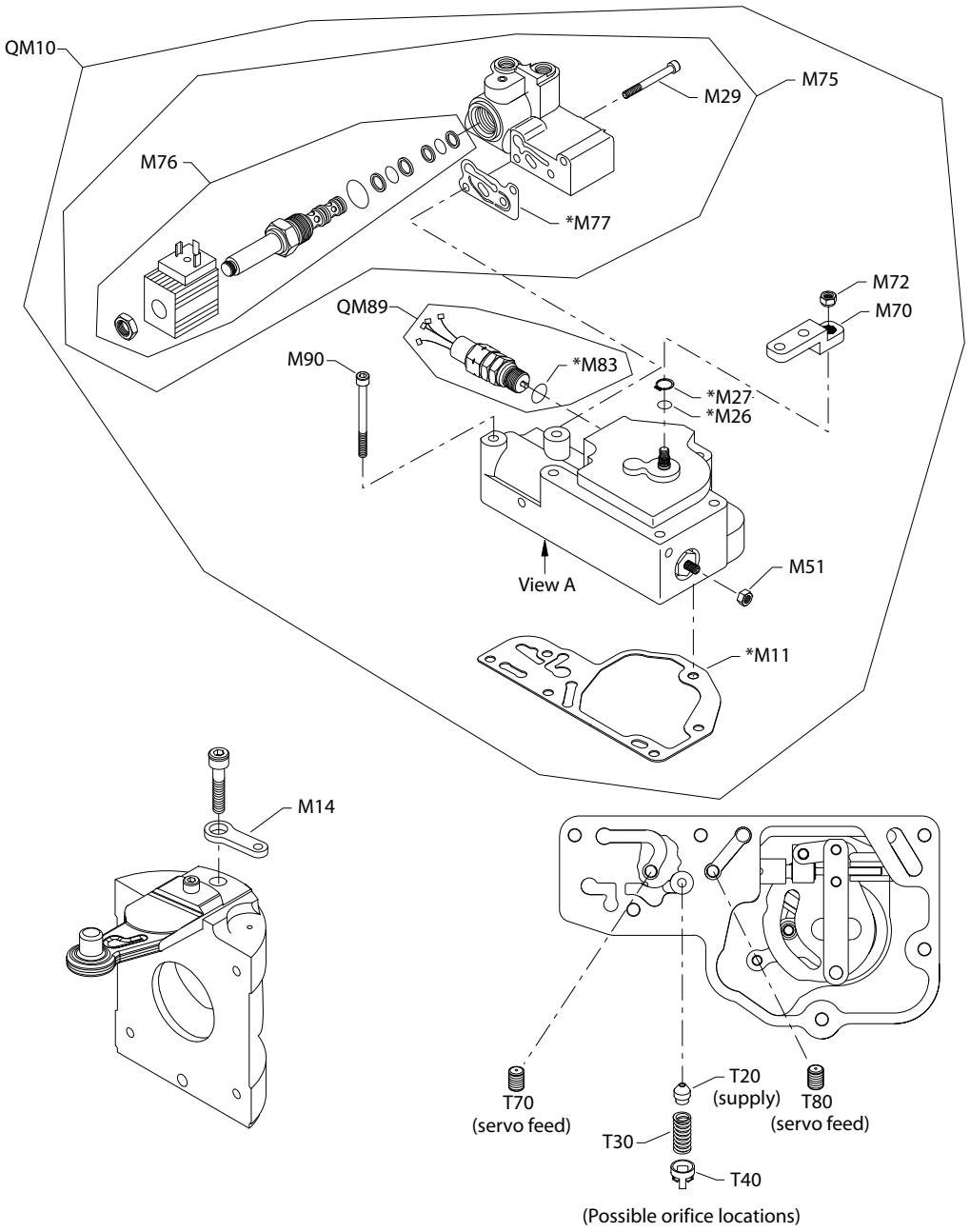
*Order code: NA*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 94-30 | | 504733 | Control gasket | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 294 & *SB-2013-011* on page 320) | 1 |
| M14 | 94-30 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 283) | 1 |
| M26 | 94-30 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 94-30 | | 9006300-0044 | Retaining ring | 1 |
| M51 | 94-30 | | 345462 | Nut | 1 |
| M70 | 94-30 | | 769075 | Control handle, sharp bend | 1 |
| M71 | 94-30 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | 94-30 | | 040642 (9003513-0800) | Nut | 1 |
| M90 | 94-30 | | 9007314-0614 | Screw | 6 |
| QM10 | 94-30 | | 8102M0NA-A | MDC kit, NL | 1 |
| QM210 | 94-30 | | 11096273 | Control seal kit | 1 |

## Controls

### S90P control NU

*Parts configuration*




(Possible orifice locations)

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Controls

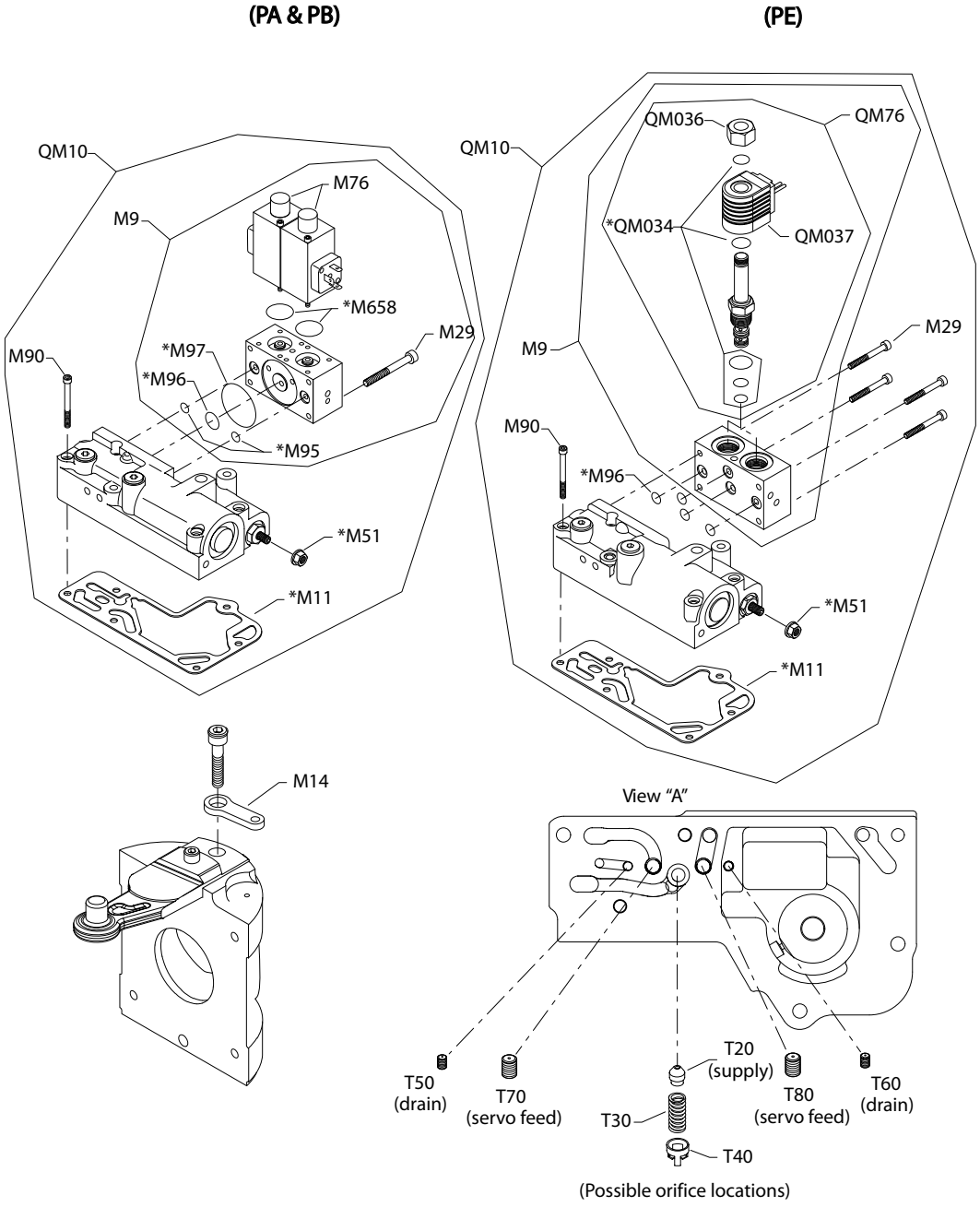
*Order code: NU*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 94-05 | | 504733 | Control gasket | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 294 & *SB-2013-011* on page 320) | 1 |
| M14 | 94-05 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 283) | 1 |
| M26 | 94-05 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 94-05 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M29 | 94-05 | | 692889 (9007314-0611) | Screw | 2 |
| M51 | 94-05 | | 345462 | Nut | 1 |
| M70 | 94-05 | | 769075 | Control handle, sharp bend | 1 |
| M72 | 94-05 | | 040642 (9003513-0800) | Nut | 1 |
| M75 | 94-05 | | 500147 | Control manifold assembly | 1 |
| M76 | 94-05 | | 8700100 | Solenoid valve | 1 |
| M77 | 94-05 | | 500260 | Manifold gasket | 1 |
| M83 | 94-05 | | 784686 (9004104-0130) | O-ring | 1 |
| M90 | 94-05 | | 9007314-0614 | Screw | 6 |
| QM10 | 94-05 | | 11015114 | MDC kit, NL w/nss | 1 |
| QM89 | 94-05 | | 11087773 | Back-up alarm switch kit | 1 |
| QM210 | 94-05 | | 11100415 | Control seal kit | 1 |

## Controls

### S90P 100cc control PA, PB

*Parts configuration*




All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Controls

*Order code: PA*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M9 | 94-07 | | 782037 | PDC, 12 volt | 1 |
| M11 | 94-07 | | 8801241 | Control gasket | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 294 & *SB-2013-011* on page 320) | 1 |
| M14 | 94-07 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 283) | 1 |
| M29 | 94-07 | | 035592 | Screw | 4 |
| M51 | 94-07 | | 9003509-0008 | Seal nut | 1 |
| M76 | 94-07 | | 11001795 | Solenoid, 12 volt, Din connector | 2 |
| M90 | 94-07 | | 692889 (9007314-0611) | Screw | 6 |
| M95 | 94-07 | | 011296 (9004105-0120) | O-ring | 2 |
| M96 | 94-07 | | 688721 (9004104-0170) | O-ring | 1 |
| M97 | 94-07 | | 314534 (9004104-0310) | O-ring | 1 |
| M658 | 94-07 | | 635938 (9004100-0210) | O-ring | 2 |
| QM10 | 94-07 | | 11087561 | HDC2, w/PDC | 1 |
| QM210 | 94-07 | | 11096251 | Control seal kit | 1 |

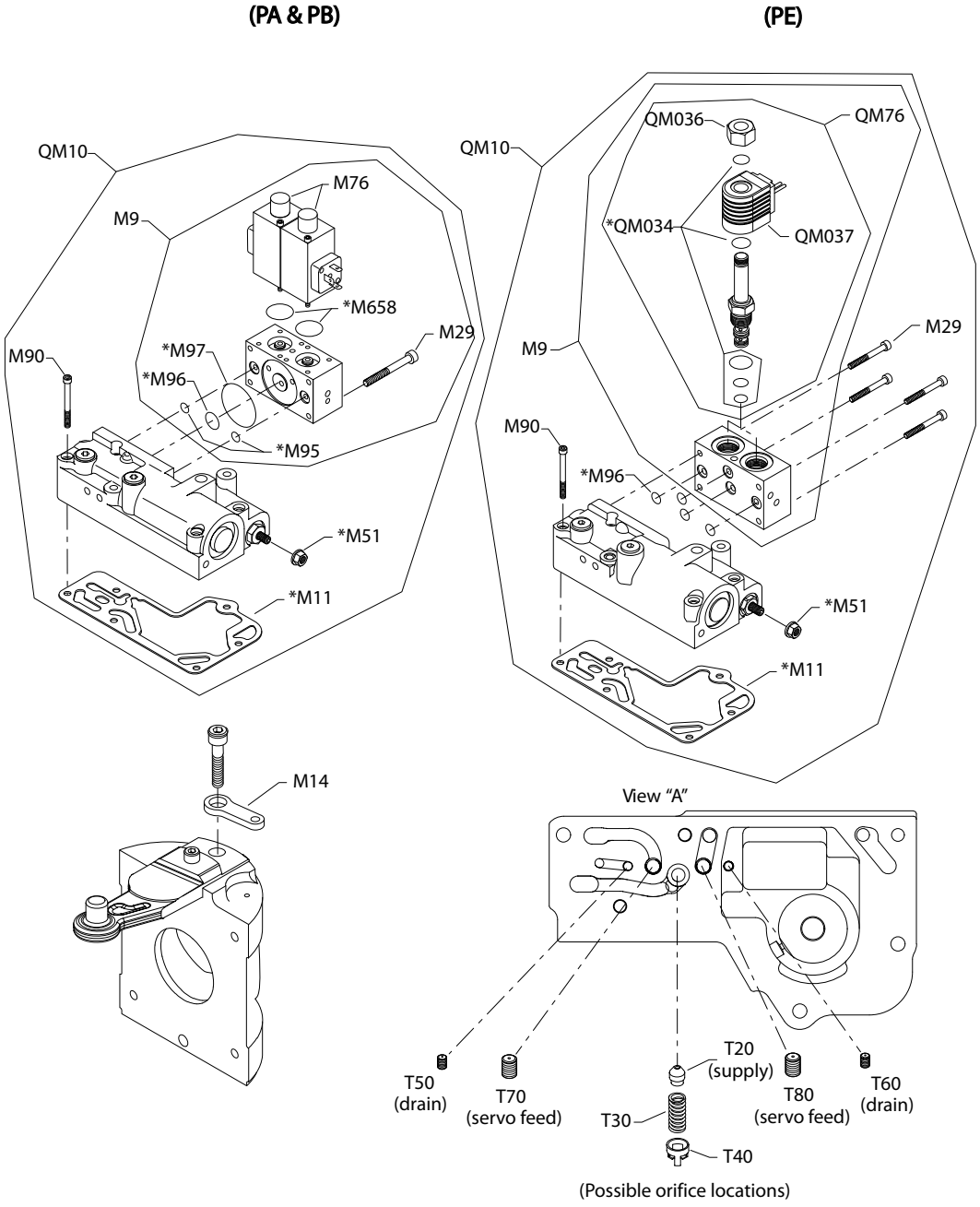
*Order code: PB*

| | | | | | |
|---|---|---|---|---|---|
| M9 | 94-15 | | 782045 | PDC, 24 volt | 1 |
| M11 | 94-15 | | 8801241 | Control gasket | 1 |
| M14 | 96-40 | | 11070306 | Feedback link (*SB-1999-019* on page 294 & *SB-2013-011* on page 320) | 1 |
| M14 | 94-15 | 96-39 | 8200344 | Feedback link (*SB-1996-009* on page 283) | 1 |
| M29 | 94-15 | | 035592 | Screw | 4 |
| M51 | 94-15 | | 9003509-0008 | Seal nut | 1 |
| M76 | 94-15 | | 11001794 | Solenoid, 24 volt, Din connector | 2 |
| M90 | 94-15 | | 692889 (9007314-0611) | Screw | 6 |
| M95 | 94-15 | | 011296 (9004105-0120) | O-ring | 2 |
| M96 | 94-15 | | 688721 (9004104-0170) | O-ring | 1 |
| M97 | 94-15 | | 314534 (9004104-0310) | O-ring | 1 |
| M658 | 94-15 | | 635938 (9004100-0210) | O-ring | 2 |
| QM10 | 94-15 | | 11034093 | Electro-hydraulic control kit | 1 |
| QM210 | 94-15 | | 11138468 | Control seal kit | 1 |

## Controls

### S90P control PE

*Parts configuration*




All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Controls

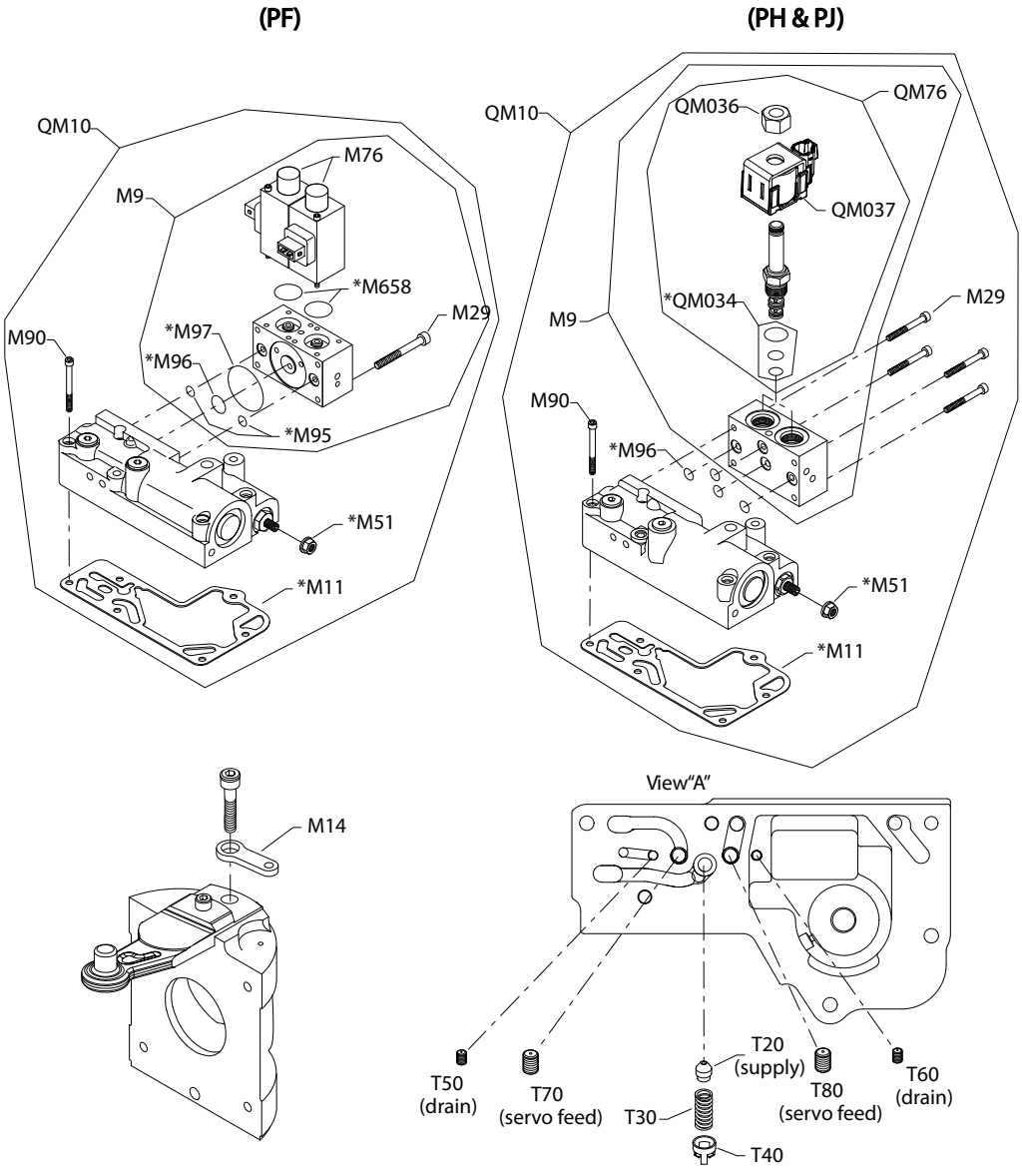
*Order code: PE*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M9 | 10-30 | | 11175053 | HIC, proportional reducing manifold assembly | 1 |
| M11 | 10-30 | | 8801241 | Control gasket | 1 |
| M14 | 10-30 | | 11070306 | Feedback link | 1 |
| M29 | 10-30 | | K28807 | Screw | 4 |
| M51 | 10-30 | | 9003509-0008 | Seal nut | 1 |
| M90 | 10-30 | | 692889 (9007314-0611) | Screw | 6 |
| M96 | 10-30 | | 9004105-0120 | O-ring | 4 |
| QM10 | 10-30 | | 8510286 | EDC, high current, 3-11 bar, 12 volt | 1 |
| QM034 | 10-30 | | 11100210 | Solenoid valve seal kit | 2 |
| QM036 | 10-30 | | 11175054 | Coil nut | 2 |
| QM037 | 10-30 | | 322466 | Coil, 12 volt | 2 |
| QM76 | 10-30 | | 138108 | Solenoid valve, 12 volt | 2 |
| QM210 | 10-30 | | 11100211 | Control seal kit | 1 |

## Controls

### S90 100cc pump control PF-PJ

*Parts configuration*




(Possible orifice locations)

All orifices present in the original control must be transferred to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

Generic swashplate shown.

* Included in control seal kit QM210

## Controls

*Order code: PF*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M9 | 03-32 | | 519719 | PDC, 12 volt | 1 |
| M11 | 03-32 | | 8801241 | Control gasket | 1 |
| M14 | 03-32 | | 11070306 | Feedback link (*SB-2013-011* on page 320) | 1 |
| M29 | 03-32 | | 035592 | Screw | 4 |
| M51 | 03-32 | | 9003509-0008 | Seal nut | 1 |
| M76 | 03-32 | | 11001793 | Solenoid, 12 volt, AMP connector | 2 |
| M90 | 03-32 | | 692889 (9007314-0611) | Screw | 6 |
| M95 | 03-32 | | 011296 (9004105-0120) | O-ring | 2 |
| M96 | 03-32 | | 688721 (9004104-0170) | O-ring | 1 |
| M97 | 03-32 | | 314534 (9004104-0310) | O-ring | 1 |
| M658 | 03-32 | | 635938 (9004100-0210) | O-ring | 2 |
| QM10 | 03-32 | | 11087592 | EDC2, 12 volt, AMP connector | 1 |
| QM210 | 03-32 | | 11096251 | Control seal kit | 1 |

*Order code: PH*

| | | | | | |
|---|---|---|---|---|---|
| M9 | 12-38 | | 11120541 | Reducing manifold | 1 |
| M11 | 12-38 | | 8801241 | Control gasket | 1 |
| M14 | 12-38 | | 11070306 | Feedback link (*SB-2013-011* on page 320) | 1 |
| M29 | 12-38 | | K28807 | Screw | 4 |
| M51 | 12-38 | | 9003509-0008 | Seal nut | 1 |
| M90 | 12-38 | | 692889 (9007314-0611) | Screw | 6 |
| M96 | 12-38 | | 011296 (9004105-0120) | O-ring | 4 |
| QM10 | 12-38 | | 11121734 | EDC2, 12 volt, AMP connector | 1 |
| QM034 | 12-38 | | 11175057 | Solenoid valve seal kit | 2 |
| QM036 | 12-38 | | 11117349 | Coil nut | 2 |
| QM037 | 12-38 | | 171180419 | Coil, 12 volt | 2 |
| QM76 | 12-38 | | 11120557 | Solenoid valve, 12 volt | 2 |
| QM210 | 12-38 | | 11138468 | Control seal kit | 1 |

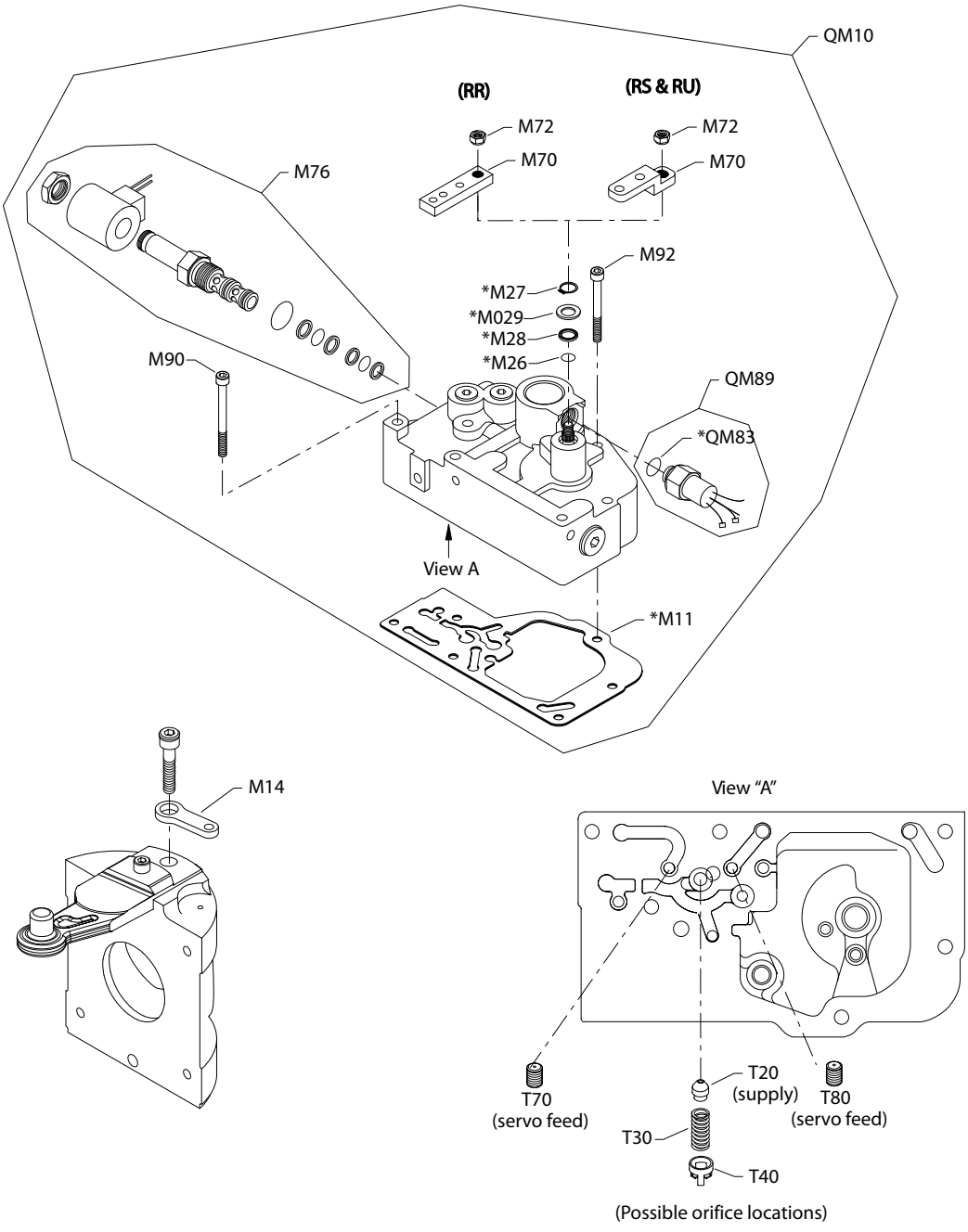
*Order code: PJ*

| | | | | | |
|---|---|---|---|---|---|
| M9 | 14-15 | | 11175061 | Reducing manifold | 1 |
| M11 | 14-15 | | 8801241 | Control gasket | 1 |
| M14 | 14-15 | | 11070306 | Feedback link (*SB-2013-011* on page 320) | 1 |
| M29 | 14-15 | | K28807 | Screw | 4 |
| M51 | 14-15 | | 9003509-0008 | Seal nut | 1 |
| M90 | 14-15 | | 692889 (9007314-0611) | Screw | 6 |
| M96 | 14-15 | | 011296 (9004105-0120) | O-ring | 4 |
| QM10 | 14-15 | | 11141118 | EDC2, 24 volt | 1 |
| QM034 | 14-15 | | 11175057 | Solenoid valve seal kit | 2 |
| QM036 | 14-15 | | 11175058 | Coil nut | 2 |
| QM037 | 14-15 | | 11175074 | Coil, 24 volt | 2 |
| QM76 | 14-15 | | 11136795 | Solenoid valve, 24 volt | 2 |
| QM210 | 14-15 | | 11100211 | Control seal kit | 1 |

## Controls

### S90P control RR, RS

*Parts configuration*




All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Controls

*Order code: RR*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 99-06 | | 510378 | Control gasket | 1 |
| M14 | 99-06 | | 11070306 | Feedback link (*SB-2013-011* on page 320) | 1 |
| M26 | 99-06 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 99-06 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M28 | 99-06 | | 510690 | Lip seal | 1 |
| M70 | 99-06 | | 9800916 | Control handle | 1 |
| M72 | 99-06 | | 040642 (9003513-0800) | Nut | 1 |
| M76 | 99-06 | | 513582 | Solenoid valve, 12 volt | 1 |
| M90 | 99-06 | | 354407 | Screw | 5 |
| M92 | 99-06 | | 510382 | Screw | 1 |
| QM10 | 99-06 | | 8510245 | MDC kit, roller | 1 |
| QM83 | 99-06 | | 001131 (9004201-5000) | O-ring | 1 |
| QM89 | 99-06 | | 11099847 | Neutral start switch, high force | 1 |
| QM210 | 99-06 | | 11100030 | Control seal kit | 1 |

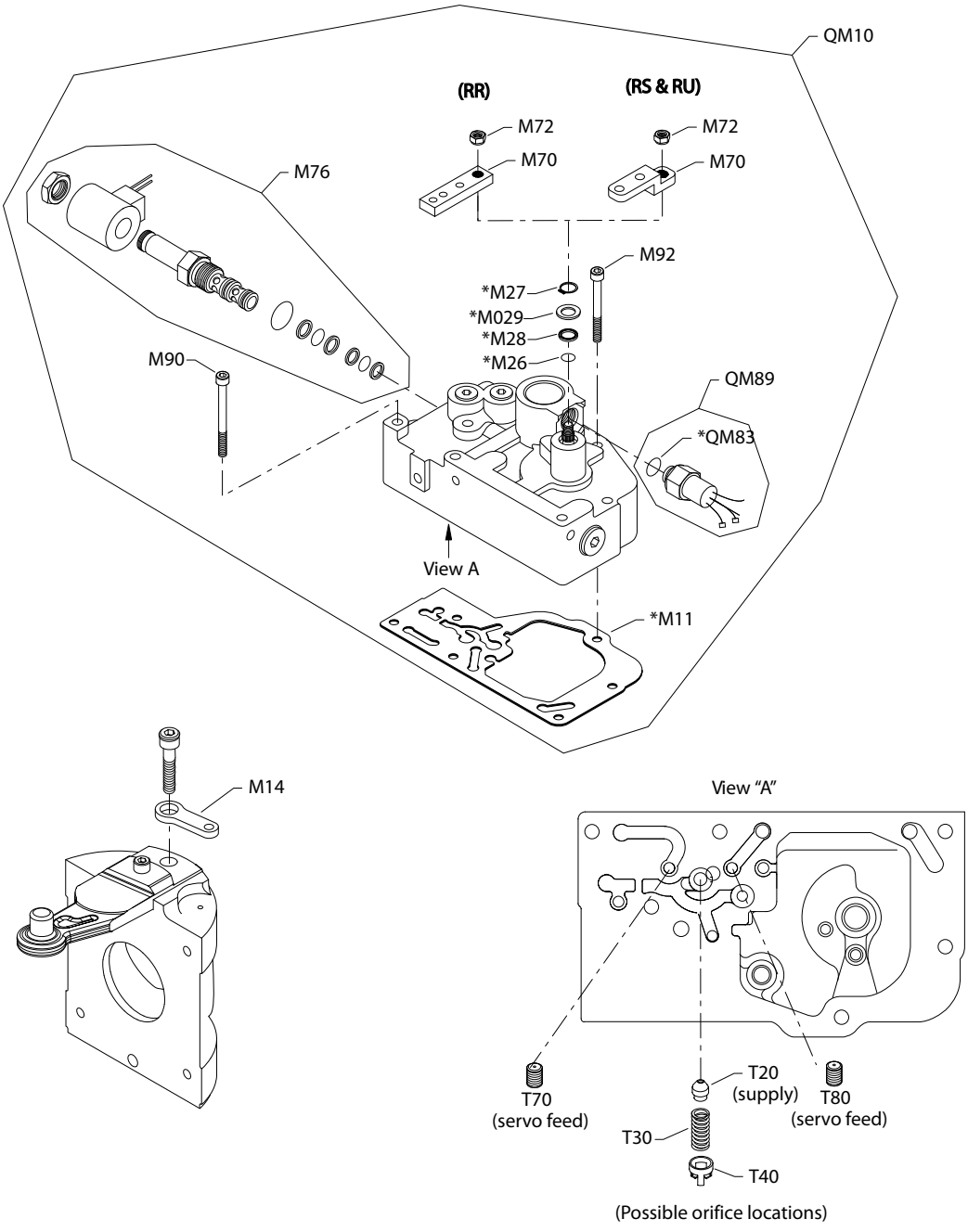
*Order code: RS*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 01-15 | | 510378 | Control gasket | 1 |
| M14 | 01-15 | | 11070306 | Feedback link (*SB-2013-011* on page 320) | 1 |
| M26 | 01-15 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 01-15 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M28 | 01-15 | | 510690 | Lip seal | 1 |
| M70 | 01-15 | | 769075 | Control handle, sharp bend | 1 |
| M72 | 01-15 | | 040642 (9003513-0800) | Nut | 1 |
| M76 | 01-15 | | 513018 | Solenoid valve, 24 volt | 1 |
| M90 | 01-15 | | 354407 | Screw | 5 |
| M92 | 99-06 | | 510382 | Screw | 1 |
| QM10 | 01-15 | | 11087610 | MDC kit, roller | 1 |
| QM83 | 01-15 | | 001131 (9004201-5000) | O-ring | 1 |
| QM89 | 01-15 | | 11099847 | Neutral start switch, high force | 1 |
| QM210 | 01-15 | | 11100030 | Control seal kit | 1 |

## Controls

### S90P control RU

*Parts configuration*




All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Controls

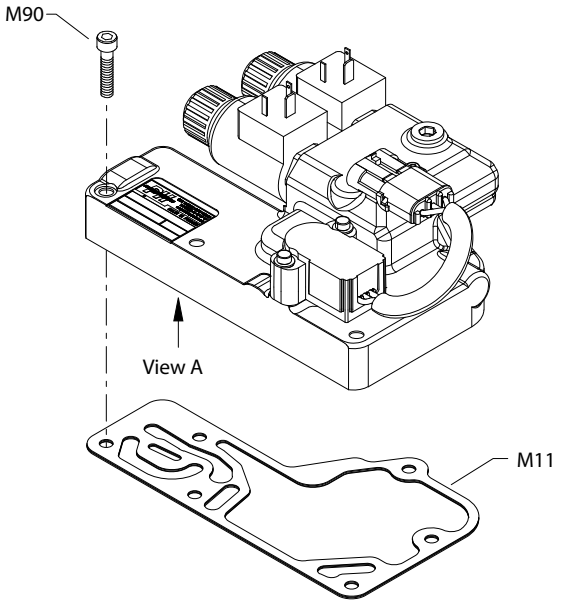
*Order code: RU*

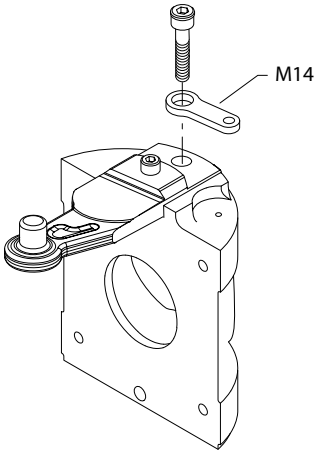
| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 97-30 | | 510378 | Control gasket | 1 |
| M14 | 97-30 | | 11070306 | Feedback link (*SB-2013-011* on page 320) | 1 |
| M26 | 97-30 | | 144725 (9004105-0110) | O-ring | 1 |
| M27 | 97-30 | | 042507 (9006300-0044) | Retaining ring | 1 |
| M28 | 97-30 | | 510690 | Lip seal | 1 |
| M70 | 97-30 | | 769075 | Control handle, sharp bend | 1 |
| M72 | 97-30 | | 040642 (9003513-0800) | Nut | 1 |
| M76 | 97-30 | | 11197563 | Solenoid valve, 12 volt | 1 |
| M90 | 97-30 | | 354407 | Screw | 5 |
| M92 | 99-06 | | 510382 | Screw | 1 |
| QM10 | 97-30 | | 11087609 | MDC kit, roller | 1 |
| QM83 | 97-30 | | 001131 (9004201-5000) | O-ring | 1 |
| QM89 | 97-30 | | 11099847 | Neutral start switch, high force | 1 |
| QM210 | 97-30 | | 11100030 | Control seal kit | 1 |

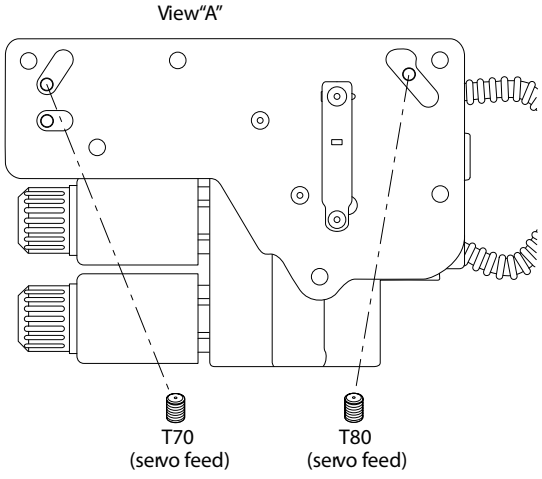
## Controls

### S90P control SA-SE

*Parts configuration*




Possible orifice locations

All orifices present in the original control must be transferred to the replacement control. If the replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to the new control.

* Included in control seal kit QM210

## Controls

*Order code: SA*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| M11 | 07-23 | | 8800923 | Gasket | 1 |
| M14 | 07-23 | | 11070306 | Feedback link | 1 |
| M90 | 07-23 | | 694356 (9007314-0608) | Screw | 6 |

*Order code: SB*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 07-23 | | 8800923 | Gasket | 1 |
| M14 | 07-23 | | 11070306 | Feedback link | 1 |
| M90 | 07-23 | | 694356 (9007314-0608) | Screw | 6 |

*Order code: SD*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 10-34 | | 8800923 | Gasket | 1 |
| M14 | 10-34 | | 11070306 | Feedback link | 1 |
| M90 | 10-34 | | 694356 (9007314-0608) | Screw | 6 |

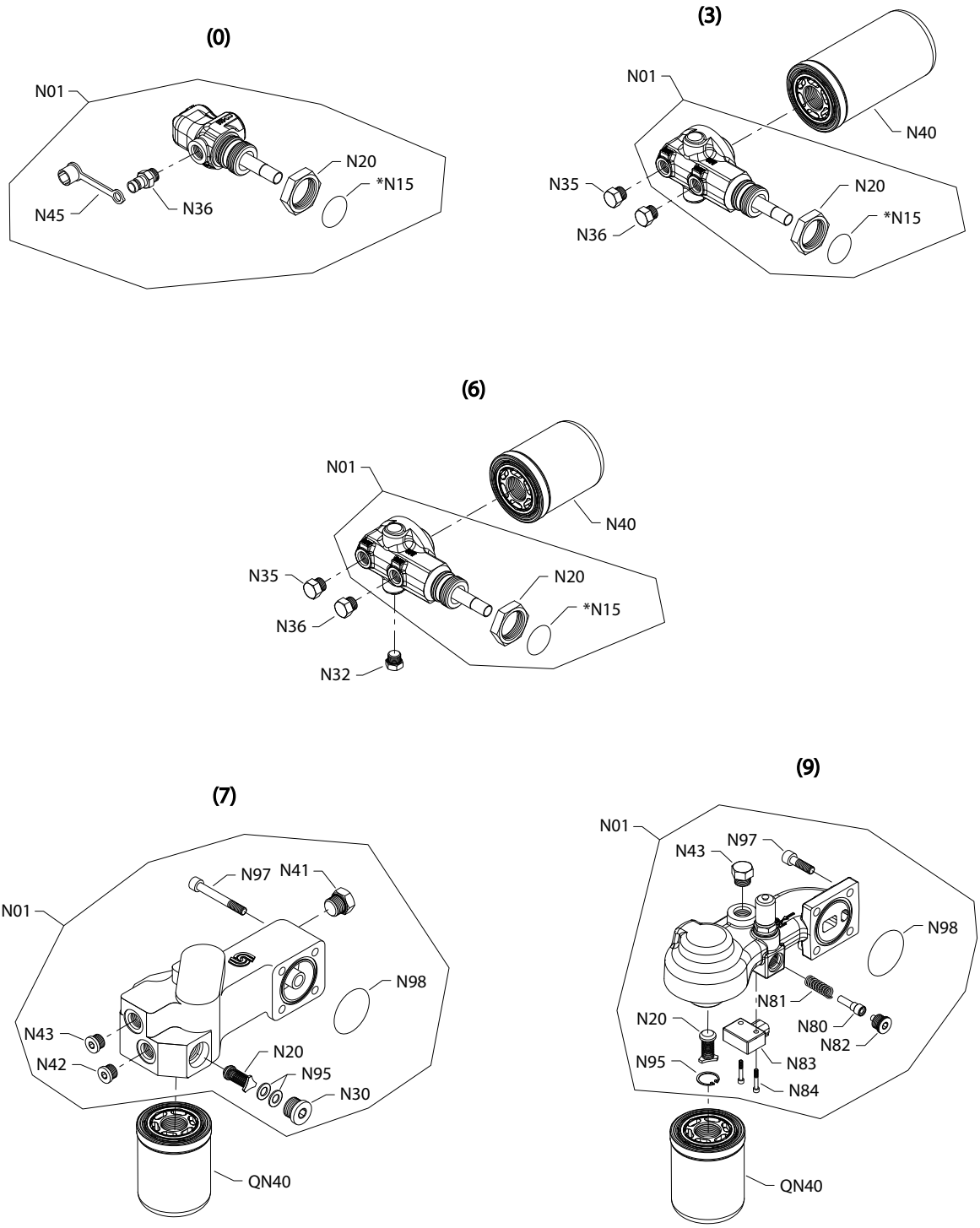
*Order code: SE*

| | | | | | |
|---|---|---|---|---|---|
| M11 | 10-34 | | 8800923 | Gasket | 1 |
| M14 | 10-34 | | 11070306 | Feedback link | 1 |
| M90 | 10-34 | | 694356 (9007314-0608) | Screw | 6 |

## Filtration

### S90 100cc pump filtration 0-9

*Parts configuration*




* Included in base pump seal kit Q210

## Filtration

*Order code: 0*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| N01 | 08-01 | | 11060431 | Filter manifold assembly | 1 |
| N15 | 08-01 | | 001172 (9004201-9000) | O-ring | 1 |
| N20 | 08-01 | | 11049997 | Nut | 1 |
| N36 | 08-01 | | 8700127 | Diagnostic receptacle | 1 |
| N45 | 08-01 | | 8700128 | Dust cover | 1 |

*Order code: 3*

| | | | | | |
|---|---|---|---|---|---|
| N01 | 99-18 | | 11060344 | Filter manifold assembly | 1 |
| N15 | 99-18 | | 001172 (9004201-9000) | O-ring | 1 |
| N20 | 99-18 | | 11049997 | Nut | 1 |
| N35 | 99-18 | | 140644 (9005100-5600) | Plug assembly | 1 |
| N36 | 99-18 | | 140644 (9005100-5600) | Plug assembly | 1 |
| QN40 | 99-18 | | 11004919 | Filter, long | 1 |

*Order code: 6*

| | | | | | |
|---|---|---|---|---|---|
| N01 | 00-01 | | 11060345 | Filter manifold assembly | 1 |
| N15 | 00-01 | | 001172 (9004201-9000) | O-ring | 1 |
| N20 | 00-01 | | 11049997 | Nut | 1 |
| N32 | 00-01 | | 140644 (9005100-5600) | Plug assembly | 1 |
| N35 | 00-01 | | 140644 (9005100-5600) | Plug assembly | 1 |
| N36 | 00-01 | | 140644 (9005100-5600) | Plug assembly | 1 |
| QN40 | 00-01 | | 11004917 | Filter, short | 1 |

*Order code: 7*

| | | | | | |
|---|---|---|---|---|---|
| N01 | 02-03 | | 501831 | Filter manifold assembly | 1 |
| N20 | 02-03 | | 360768 | Check valve | 1 |
| N30 | 02-03 | | 365965 | Plug assembly | 1 |
| N41 | 02-03 | | 9005100-8700 | Plug assembly | 1 |
| N42 | 02-03 | | 140644 | Plug assembly | 1 |
| N43 | 02-03 | | 140644 | Plug assembly | 1 |
| N95 | 02-03 | | 500115 | Washer | 2 |
| N97 | 02-03 | | 376269 | Screw | 4 |
| N98 | 02-03 | | 9004104-0320 | O-ring | 1 |
| QN40 | 02-03 | | 11004919 | Filter, long | 1 |

*Order code: 8*

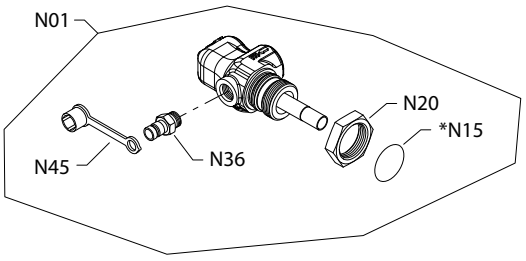
| |
|---|
| No parts |

Parts continue to the next 2 pages.

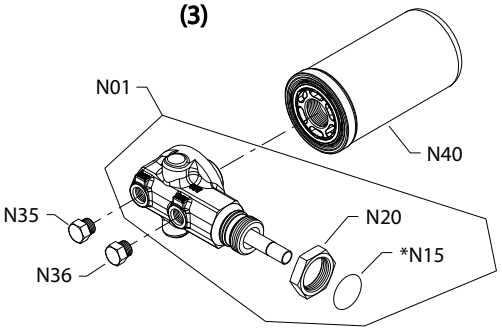
## Filtration

*Parts configuration*

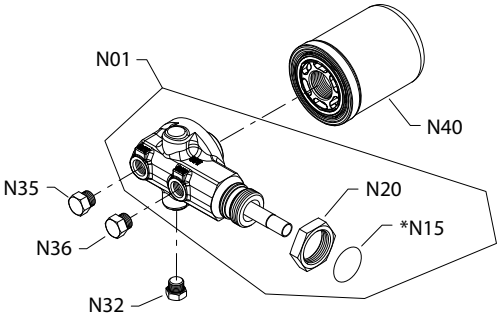
**(0)**



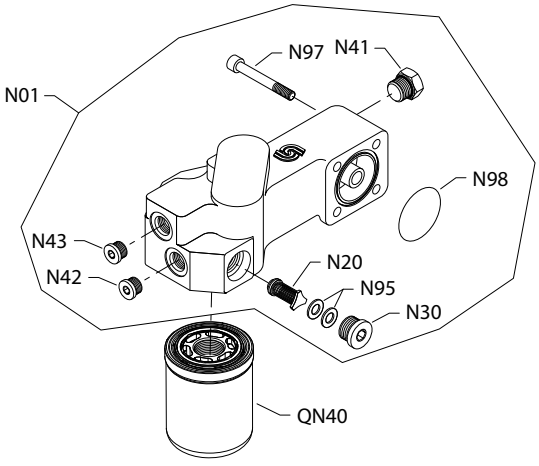

**(3)**



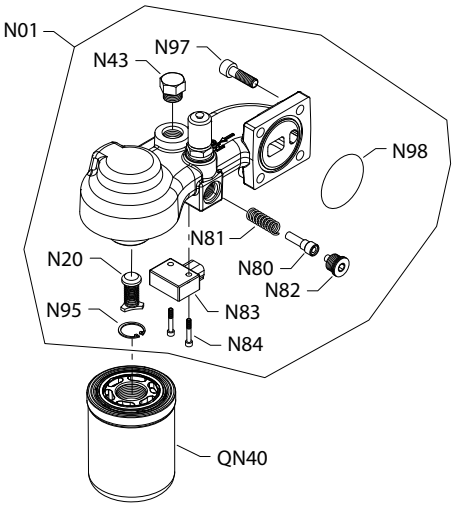

**(6)**




**(7)**




**(9)**




* Included in base pump seal kit Q210

## Filtration

*Order code: 9*

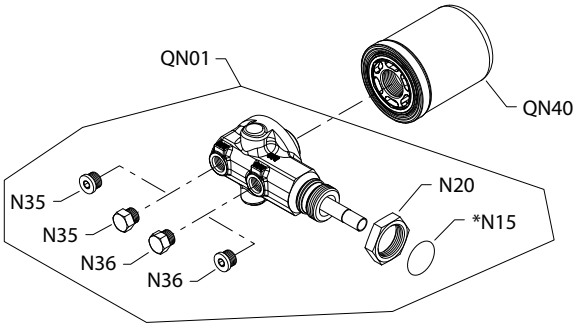
| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| N01 | 02-03 | | 518202 | Filter manifold assembly | 1 |
| N20 | 02-03 | | 520974 | Check valve | 1 |
| N43 | 02-03 | | 508497 | Plug assembly | 1 |
| N80 | 02-03 | | 518331 | Magnetic piston | 1 |
| N81 | 02-03 | | 519585 | Spring | 1 |
| N82 | 02-03 | | 518335 | Plug assembly | 1 |
| N83 | 02-03 | | 11031853 | Filtration sensor | 1 |
| N84 | 02-03 | | 519968 | Screw | 2 |
| N95 | 02-03 | | 042515 | Retaining ring | 1 |
| N97 | 02-03 | | 393603 | Screw | 4 |
| N98 | 02-03 | | 9004104-0320 | O-ring | 1 |
| QN40 | 02-03 | | 11004919 | Filter, long | 1 |

## Filtration

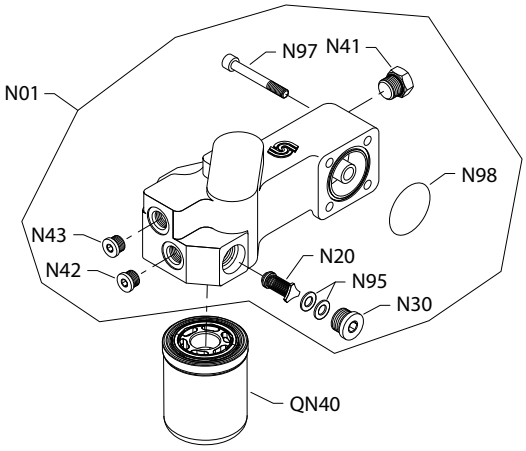
### S90 100cc pump filtration A-L

*Parts configuration*

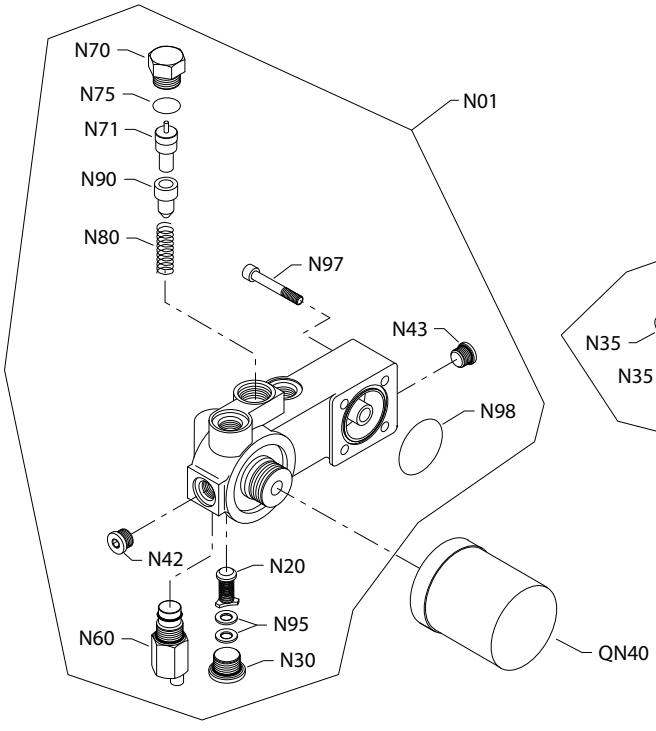
**(A & E)**



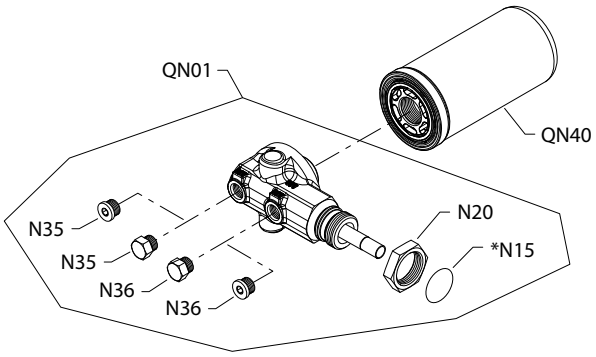

**(G)**




**(J)**




**(L)**




* Included in base pump seal kit Q210

## Filtration

*Order code: A*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| N15 | 02-41 | | 001172 (9004201-9000) | O-ring | 1 |
| N20 | 02-41 | | 11049997 | Nut | 1 |
| N35 | 02-41 | | 140644 (9005100-5600) | Plug assembly | 1 |
| N36 | 02-41 | | 140644 (9005100-5600) | Plug assembly | 1 |
| QN01 | 02-41 | | 11145249 | Filter manifold assembly | 1 |
| QN40 | 02-41 | | 11004917 | Filter, short | 1 |

*Order code: E*

| | | | | | |
|---|---|---|---|---|---|
| N15 | 96-46 | | 001172 (9004201-9000) | O-ring | 1 |
| N20 | 96-46 | | 11049997 | Nut | 1 |
| N35 | 96-46 | | 140644 (9005100-5600) | Plug assembly | 1 |
| N36 | 96-46 | | 140644 (9005100-5600) | Plug assembly | 1 |
| QN01 | 96-46 | | 11145249 | Filter manifold assembly | 1 |
| QN40 | 96-46 | | 11004917 | Filter, short | 1 |

*Order code: G*

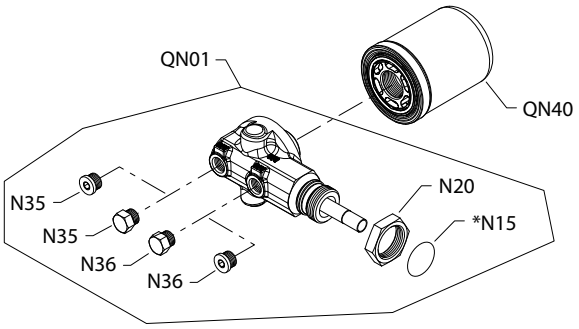
| | | | | | |
|---|---|---|---|---|---|
| N01 | 96-46 | | 501831 | Filter manifold assembly | 1 |
| N20 | 96-46 | | 360768 | Check valve | 1 |
| N30 | 96-46 | | 365965 | Plug assembly | 1 |
| N41 | 96-46 | | | Plug assembly | 1 |
| N42 | 96-46 | | 140644 (9005100-5600) | Plug assembly | 1 |
| N43 | 96-46 | | 140644 (9005100-5600) | Plug assembly | 1 |
| N95 | 96-46 | | 500115 | Waher | 2 |
| N97 | 96-46 | | 376269 | Screw | 4 |
| N98 | 96-46 | | 9004104-0320 | O-ring | 1 |
| QN40 | 96-46 | | 11004917 | Filter, short | 1 |

Parts continue to the next 2 pages.

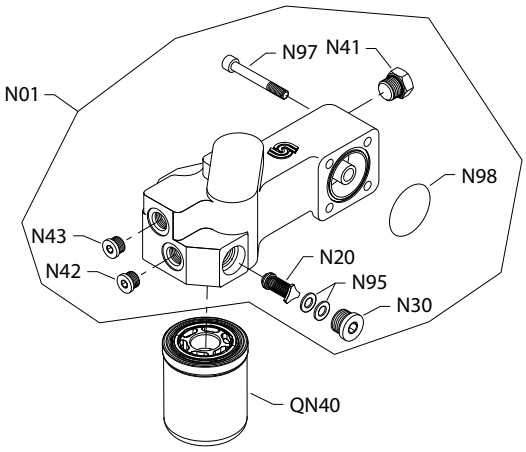
## Filtration

*Parts configuration*

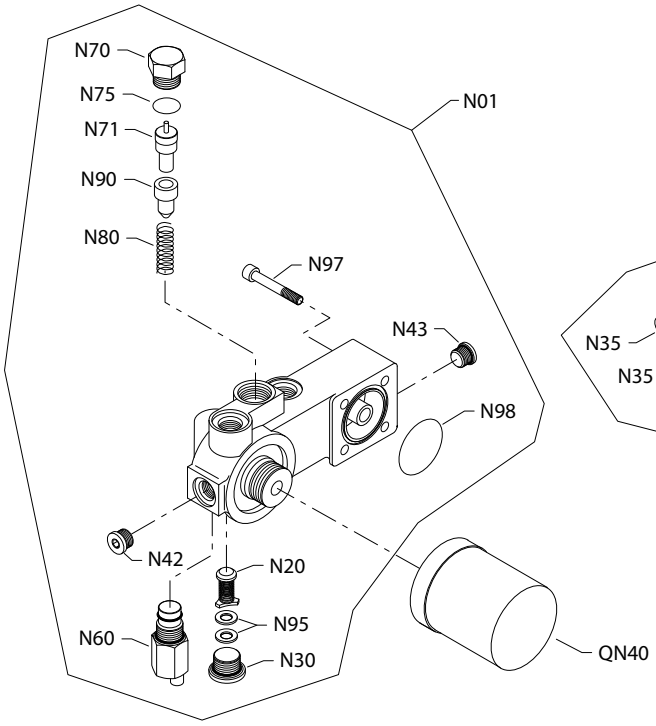
**(A & E)**



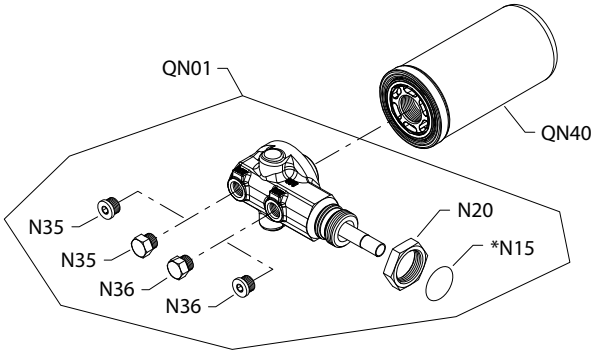

**(G)**




**(J)**




**(L)**




* Included in base pump seal kit Q210

## Filtration

*Order code: J*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| N01 | 96-46 | | 500120 | Filter manifold assembly | 1 |
| N20 | 96-46 | | 360768 | Check valve | 1 |
| N30 | 96-46 | | 365965 | Plug assembly | 1 |
| N42 | 96-46 | | 140644 (9005100-5600) | Plug assembly | 1 |
| N43 | 96-46 | | 140644 (9005100-5600) | Plug assembly | 1 |
| N60 | 96-46 | | 500114 | Dust indication | 1 |
| N70 | 96-46 | | 502184 | Plug assembly | 1 |
| N71 | 96-46 | | 347419 | Wax element | 1 |
| N75 | 96-46 | | 001149 (9004201-6200) | O-ring | 1 |
| N80 | 96-46 | | 502224 | Spring | 1 |
| N90 | 96-46 | | 502240 | Poppet | 1 |
| N95 | 96-46 | | 500115 | Washer | 2 |
| N97 | 96-46 | | 376269 | Screw | 4 |
| N98 | 96-46 | | 9004104-0320 | O-ring | 1 |
| QN40 | 96-46 | | 11004917 | Filter, short | 1 |

*Order code: L*

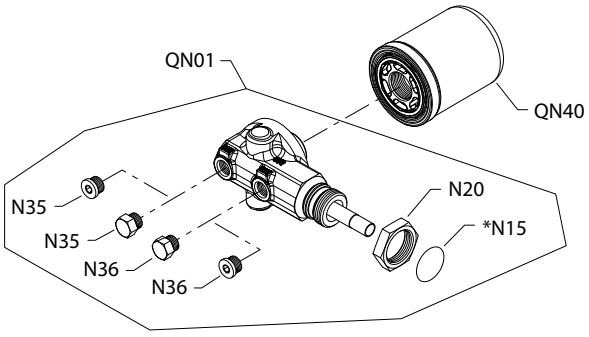
| | | | | | |
|---|---|---|---|---|---|
| N15 | 87-02 | | 001172 (9004201-9000) | O-ring | 1 |
| N20 | 95-18 | | 11049997 | Nut (SB-1994-036) | 1 |
| N20 | 87-02 | 95-17 | 700492 (9002863-1600) | Nut | 1 |
| N35 | 87-02 | | 140644 (9005100-5600) | Plug assembly | 1 |
| N36 | 87-02 | | 140644 (9005100-5600) | Plug assembly | 1 |
| QN01 | 87-02 | | 11145249 | Filter manifold assembly | 1 |
| QN40 | 87-02 | | 11004919 | Filter, long | 1 |

## Filtration

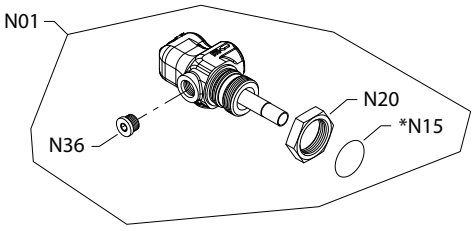
### S90 100cc pump filtration P-X

*Parts configuration*

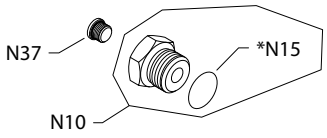
**(P)**



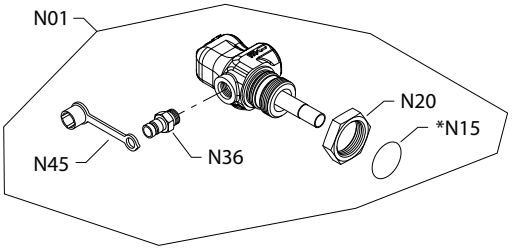

**(R)**



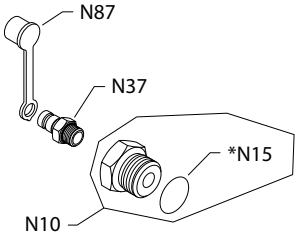

**(S)**



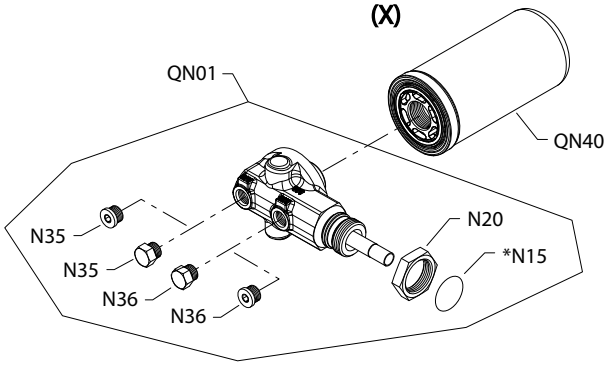

**(U)**




**(W)**




**(X)**




* Included in base pump seal kit Q210

## Filtration

*Order code: P*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| N15 | 87-02 | | 001172 (9004201-9000) | O-ring | 1 |
| N20 | 95-18 | | 11049997 | Nut (*SB-1994-36* on page 279) | 1 |
| N20 | 87-02 | 95-17 | 700492 (9002863-1600) | Nut | 1 |
| N35 | 87-02 | | 140644 (9005100-5600) | Plug assembly | 1 |
| N36 | 87-02 | | 140644 (9005100-5600) | Plug assembly | 1 |
| QN01 | 87-02 | | 11145249 | Filter manifold assembly | 1 |
| QN40 | 87-02 | | 11004917 | Filter, short | 1 |

*Order code: R*

| | | | | | |
|---|---|---|---|---|---|
| N01 | 87-02 | | 11060427 | Filter manifold assembly | 1 |
| N15 | 87-02 | | 001172 (9004201-9000) | O-ring | 1 |
| N20 | 95-18 | | 11049997 | Nut (*SB-1994-36* on page 279) | 1 |
| N20 | 87-02 | 95-17 | 700492 (9002863-1600) | Nut | 1 |
| N36 | 87-02 | | 140644 (9005100-5600) | Plug assembly | 1 |

*Order code: S*

| | | | | | |
|---|---|---|---|---|---|
| N10 | 87-02 | | 5000230 | Reducer assembly | 1 |
| N15 | 87-02 | | 001172 (9004201-9000) | O-ring | 1 |
| N37 | 87-02 | | 140644 (9005110-5600) | Plug assembly | 1 |

*Order code: U*

| | | | | | |
|---|---|---|---|---|---|
| N01 | 96-16 | | 11060428 | Filter manifold assembly | 1 |
| N15 | 96-16 | | 001172 (9004201-9000) | O-ring | 1 |
| N20 | 96-16 | | 11049997 | Nut | 1 |
| N36 | 96-16 | | 140644 | Plug assembly | 1 |
| N41 | 96-16 | | 8700127 | Diagnostic receptacle | 1 |
| N45 | 96-16 | | 8700128 | Dust cover | 1 |

*Order code: V*

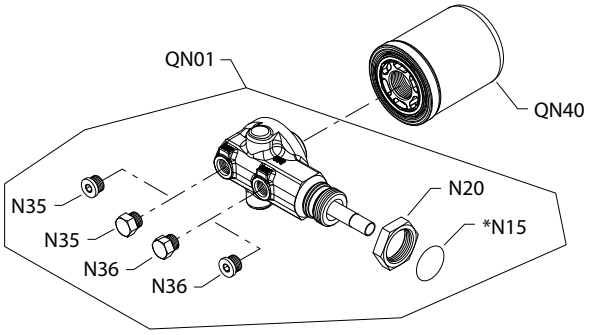
| |
|---|
| No parts |

Parts continue to the next 2 pages.

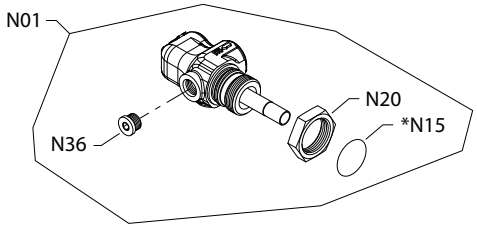
## Filtration

*Parts configuration*

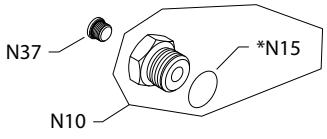
**(P)**



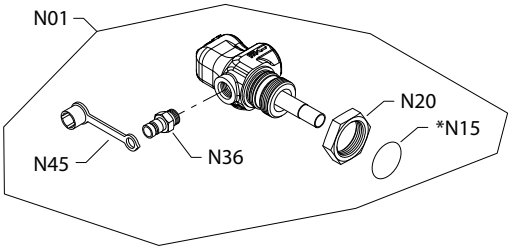

**(R)**



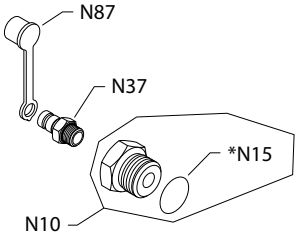

**(S)**



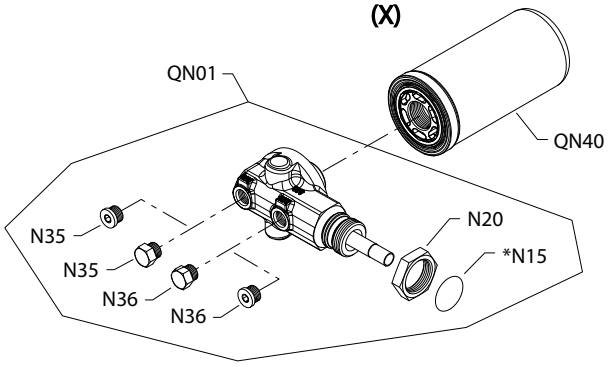

**(U)**




**(W)**




**(X)**




* Included in base pump seal kit Q210

## Filtration

*Order code: W*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| N10 | 87-02 | | 5000230 | Reducer assembly | 1 |
| N15 | 87-02 | | 001172 (9004201-9000) | O-ring | 1 |
| N37 | 08-01 | | 8700127 | Diagnostic receptacle | 1 |
| N87 | 08-01 | | 8700128 | Dust cover | 1 |

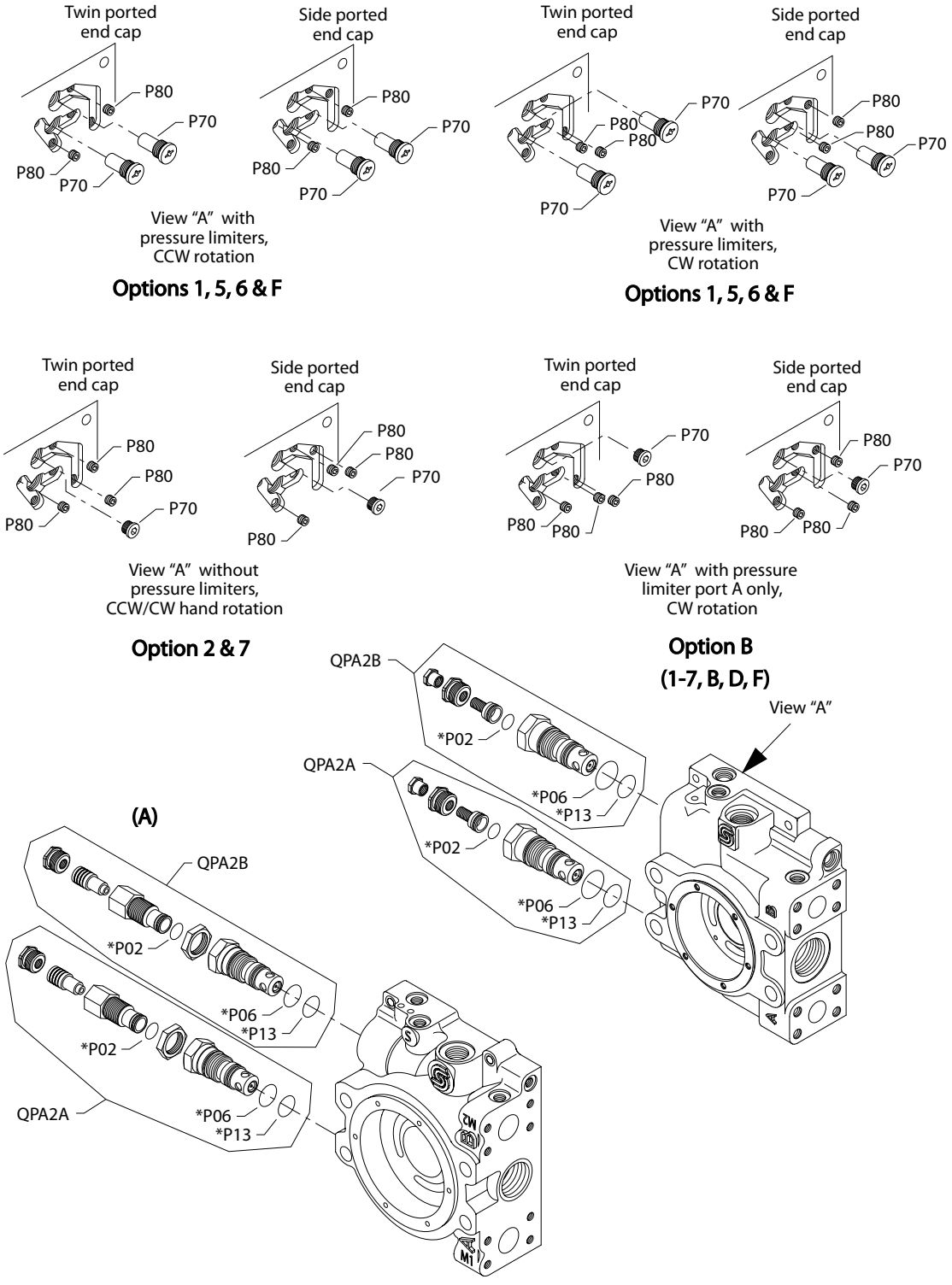
*Order code: X*

| | | | | | |
|---|---|---|---|---|---|
| N15 | 01-01 | | 001172 (9004201-9000) | O-ring | 1 |
| N20 | 01-01 | | 11049997 | Nut | 1 |
| N35 | 01-01 | | 9005100-5600 | Plug assembly | 1 |
| N36 | 01-01 | | 9005100-5600 | Plug assembly | 1 |
| QN01 | 01-01 | | 11145249 | Filter manifold assembly | 1 |
| QN40 | 01-01 | | 11004919 | Filter, long | 1 |

## High pressure protection

### S90 100cc pump high pressure protection 1-7, A-F

*Parts configuration*




Generic end cap used to show part location only.

* Included in base pump seal kit Q210

## High pressure protection

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| P02 | 87-02 | | 688721 (9004104-0170) | O-ring | 2 |
| P06 | 87-02 | | 071811 | O-ring | 2 |
| P13 | 87-02 | | 544742 (9004105-0190) | O-ring | 2 |

*Order code: 1*

| | | | | | |
|---|---|---|---|---|---|
| P70 | 87-02 | | 8800188 | Check valve | 2 |
| P80 | 87-02 | | 9005475-0004 | Special plug assembly | 2 |
| QPA2A | 87-02 | | 8510022-1 | Multi-function valve kit | 1 |
| QPA2B | 87-02 | | 8510022-1 | Multi-function valve kit | 1 |

*Order code: 2*

| | | | | | |
|---|---|---|---|---|---|
| P70 | 87-02 | | 9005110-4400 | Plug (*SB-1989-003* on page 260) | 1 |
| P80 | 87-02 | | 9005475-0004 | Special plug assembly | 3 |
| QPA2A | 87-02 | | 8510022-2 | Multi-function valve kit | 1 |
| QPA2B | 87-02 | | 8510022-2 | Multi-function valve kit | 1 |

*Order code: 4*

| | | | | | |
|---|---|---|---|---|---|
| QPA2A | 87-02 | | 8510022-7 | Multi-function valve kit | 1 |
| QPA2B | 87-02 | | 8510022-7 | Multi-function valve kit | 1 |

*Order code: 5*

| | | | | | |
|---|---|---|---|---|---|
| P70 | 87-02 | | 8800188 | Check valve | 2 |
| P80 | 87-02 | | 9005475-0004 | Special plug assembly | 2 |
| QPA2A | 87-02 | | 8510240 | Multi-function valve kit | 1 |
| QPA2B | 87-02 | | 8510240 | Multi-function valve kit | 1 |

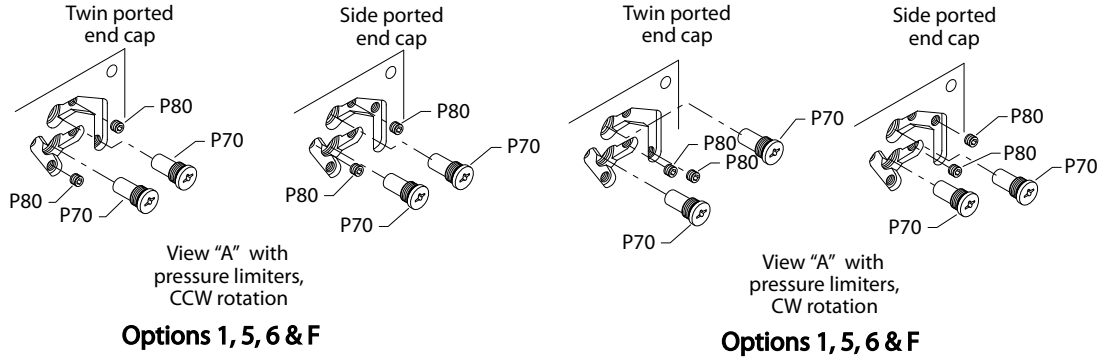
*Order code: 6*

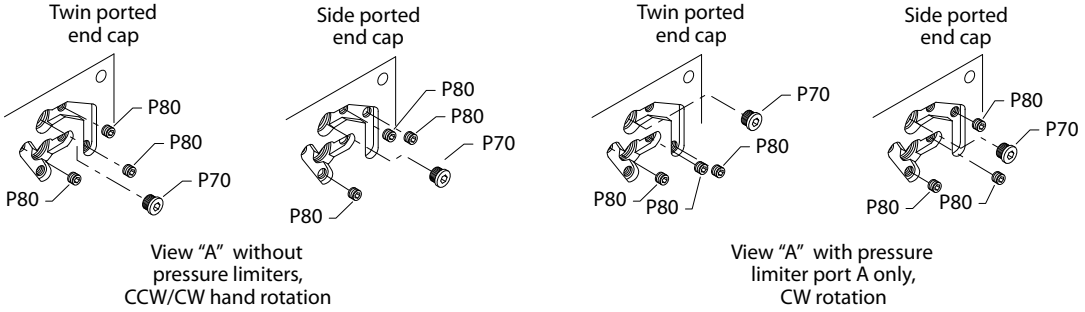
| | | | | | |
|---|---|---|---|---|---|
| P70 | 87-02 | | 8800188 | Check valve | 2 |
| P80 | 87-02 | | 9005475-0004 | Special plug assembly | 2 |
| QPA2A | 87-02 | | 8510022-6 | Multi-function valve kit | 1 |
| QPA2B | 87-02 | | 8510022-6 | Multi-function valve kit | 1 |

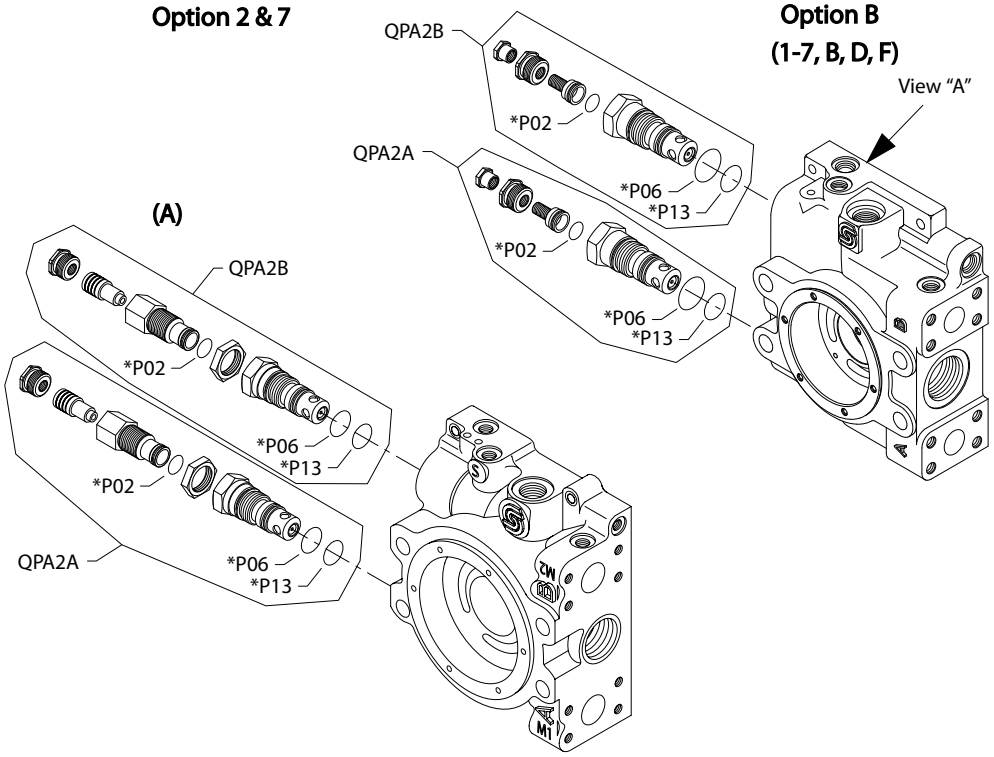
Parts continue to the next 2 pages.

## High pressure protection

*Parts configuration*




Generic end cap used to show part location only.

* Included in base pump seal kit Q210

## High pressure protection

*Order code: 7*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| P70 | 87-02 | | 9005110-4400 | Plug (*SB-1989-003* on page 260) | 1 |
| P80 | 87-02 | | 9005475-0004 | Special plug assembly | 3 |
| QPA2A | 87-02 | | 8510022-7 | Multi-function valve kit | 1 |
| QPA2B | 87-02 | | 8510022-7 | Multi-function valve kit | 1 |

*Order code: A*

| | | | | | |
|---|---|---|---|---|---|
| QPA2A | 87-02 | | 8510202 | Multi-function valve kit, 420 bar | 1 |
| QPA2B | 87-02 | | 8510202 | Multi-function valve kit, 420 bar | 1 |

*Order code: B*

| | | | | | |
|---|---|---|---|---|---|
| P70 | 95-22 | | 8800188 | Check valve | 1 |
| P80 | 95-22 | | 9005475-0004 | Special plug assembly | 3 |
| QPA2A | 95-22 | | 8510022-1 | Multi-function valve kit | 1 |
| QPA2B | 95-22 | | 8510022-7 | Multi-function valve kit | 1 |

*Order code: D*

| | | | | | |
|---|---|---|---|---|---|
| QPA2A | 92-39 | | 8510388 | Multi-function valve kit | 1 |
| QPA2B | 92-39 | | 8510388 | Multi-function valve kit | 1 |

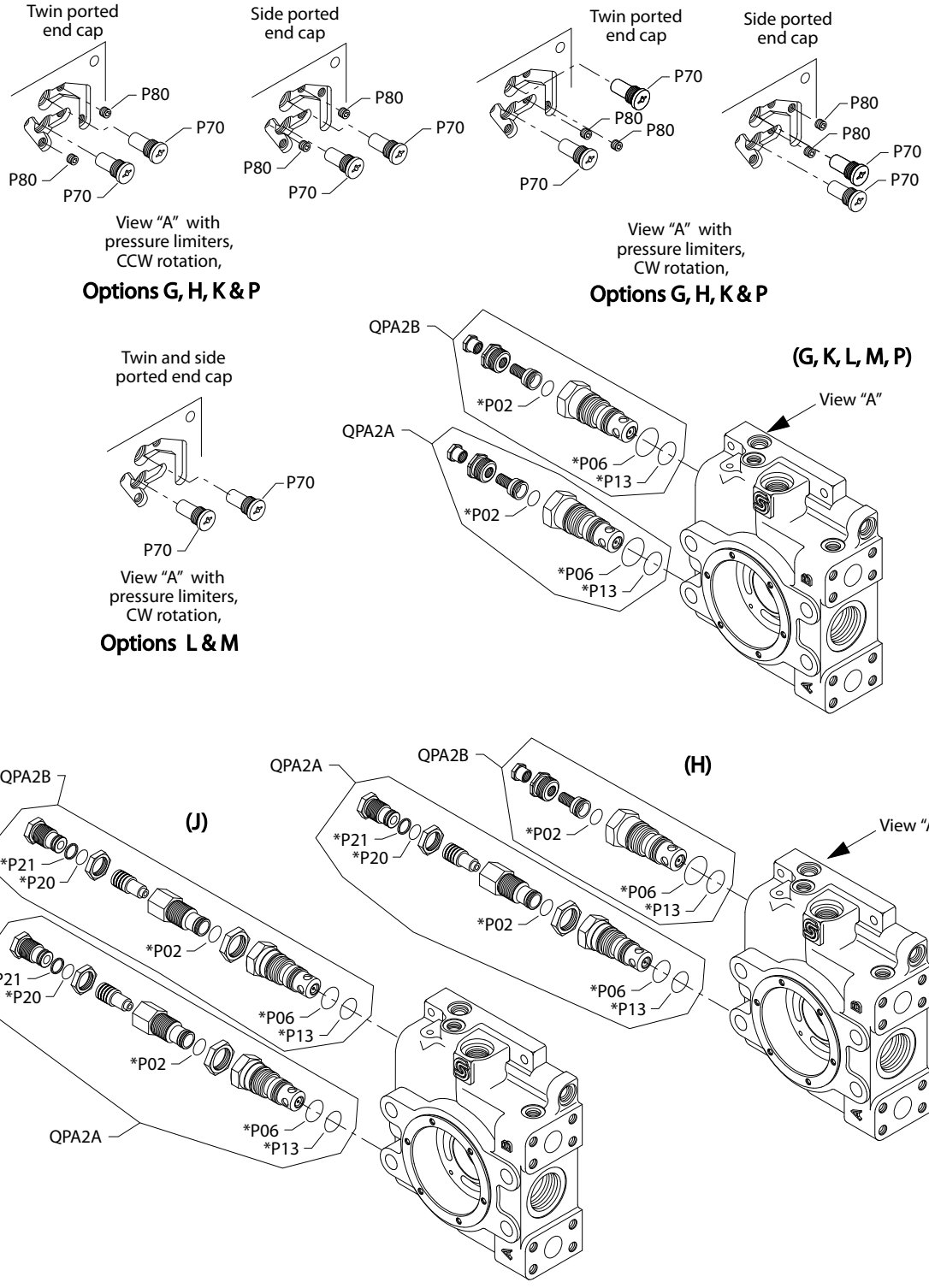
*Order code: F*

| | | | | | |
|---|---|---|---|---|---|
| P70 | 04-36 | | 8800188 | Check valve | 2 |
| P80 | 04-36 | | 9005475-0004 | Special plug assembly | 2 |
| QPA2A | 04-36 | | 8510022-2 | Multi-function valve kit | 1 |
| QPA2B | 04-36 | | 8510022-2 | Multi-function valve kit | 1 |

## High pressure protection

### S90 100cc pump high pressure protection G-P

*Parts configuration*




Generic end caps used to show valve locations only.

* Included in base pump seal kit Q210

## High pressure protection

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| P02 | 87-02 | | 688721 (9004104-0170) | O-ring | 2 |
| P06 | 87-02 | | 071811 | O-ring | 2 |
| P13 | 87-02 | | 544742 (9004105-0190) | O-ring | 2 |

*Order code: G*

| | | | | | |
|---|---|---|---|---|---|
| P70 | 97-06 | | 8800188 | Check valve | 2 |
| P80 | 97-06 | | 9005475-0004 | Special plug | 2 |
| QPA2A | 97-06 | | 8510196 | Multi-function valve kit | 1 |
| QPA2B | 97-06 | | 8510196 | Multi-function valve kit | 1 |

*Order code: H*

| | | | | | |
|---|---|---|---|---|---|
| P20 | 97-40 | | 9004105-0160 | O-ring | 1 |
| P21 | 97-40 | | 9006110-0160 | Back up ring | 1 |
| P70 | 97-40 | | 8800188 | Check valve | 2 |
| P80 | 97-40 | | 9005475-0004 | Special plug | 2 |
| QPA2A | 97-40 | | 8510275 | Multi-function valve kit | 1 |
| QPA2B | 97-40 | | 8510022-1 | Multi-function valve kit | 1 |

*Order code: J*

| | | | | | |
|---|---|---|---|---|---|
| P20 | 97-06 | | 9004105-0160 | O-ring | 2 |
| P21 | 97-06 | | 9006110-0160 | Back up ring | 2 |
| QPA2A | 97-40 | | 8510273 | Multi-function valve kit | 1 |
| QPA2B | 97-40 | | 8510273 | Multi-function valve kit | 1 |

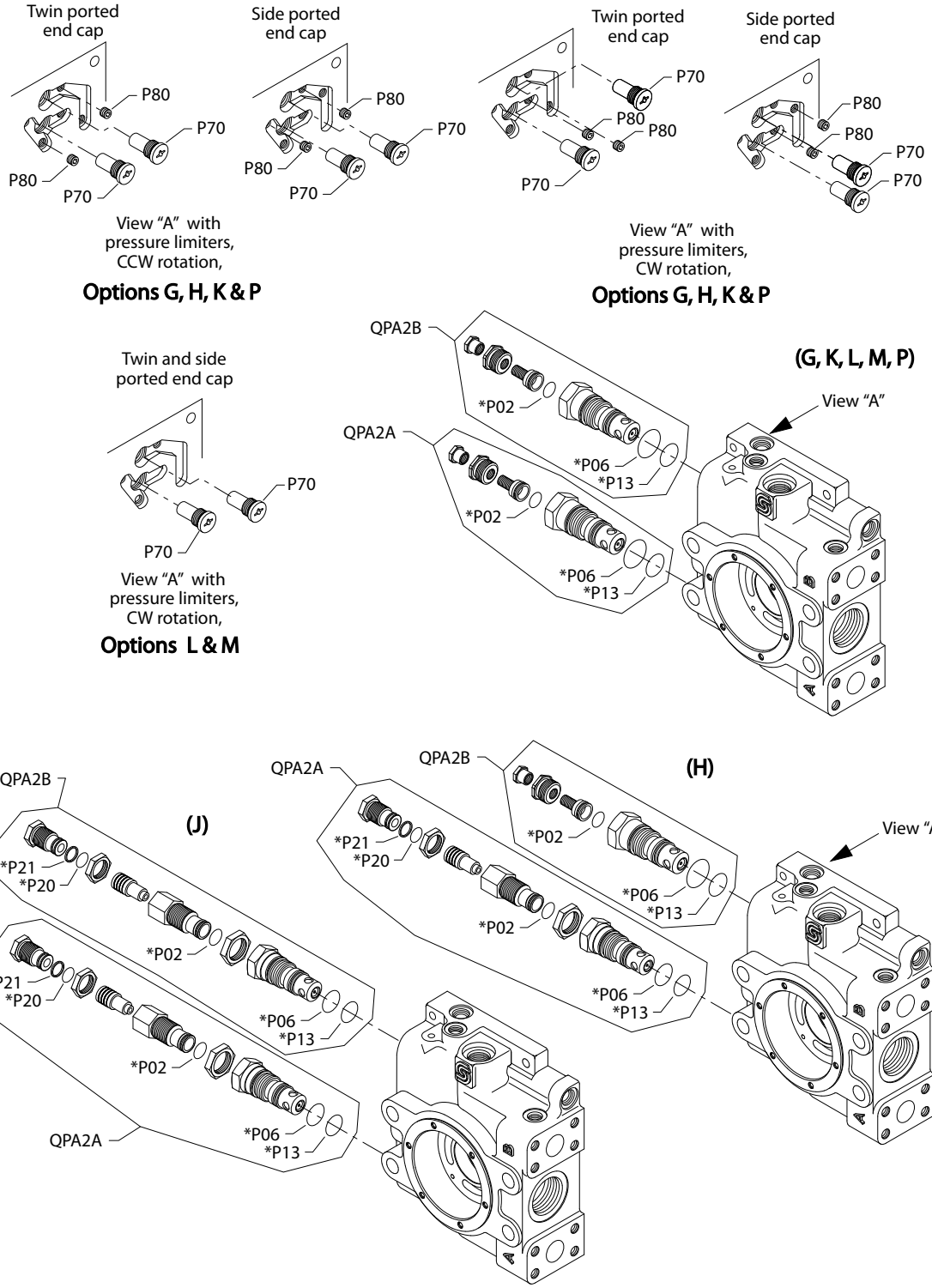
*Order code: K*

| | | | | | |
|---|---|---|---|---|---|
| P70 | 97-26 | | 8800188 | Check valve | 2 |
| P80 | 97-26 | | 9005475-0004 | Special plug | 2 |
| QPA2A | 97-26 | | 11079763 | Multi-function valve kit | 1 |
| QPA2B | 97-26 | | 11079763 | Multi-function valve kit | 1 |

Parts continue to the next 2 pages.

## High pressure protection

*Parts configuration*




Generic end caps used to show valve locations only.

* Included in base pump seal kit Q210

## High pressure protection

*Order code: L*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| P70 | 97-26 | | 8800188 | Check valve | 2 |
| QPA2A | 97-26 | | 8510022-6 | Multi-function valve kit | 1 |
| QPA2B | 97-26 | | 8510022-6 | Multi-function valve kit | 1 |

*Order code: M*

| | | | | | |
|---|---|---|---|---|---|
| P70 | 98-11 | | 8800188 | Check valve | 2 |
| QPA2A | 98-11 | | 8510022-1 | Multi-function valve kit | 1 |
| QPA2B | 98-11 | | 8510022-1 | Multi-function valve kit | 1 |

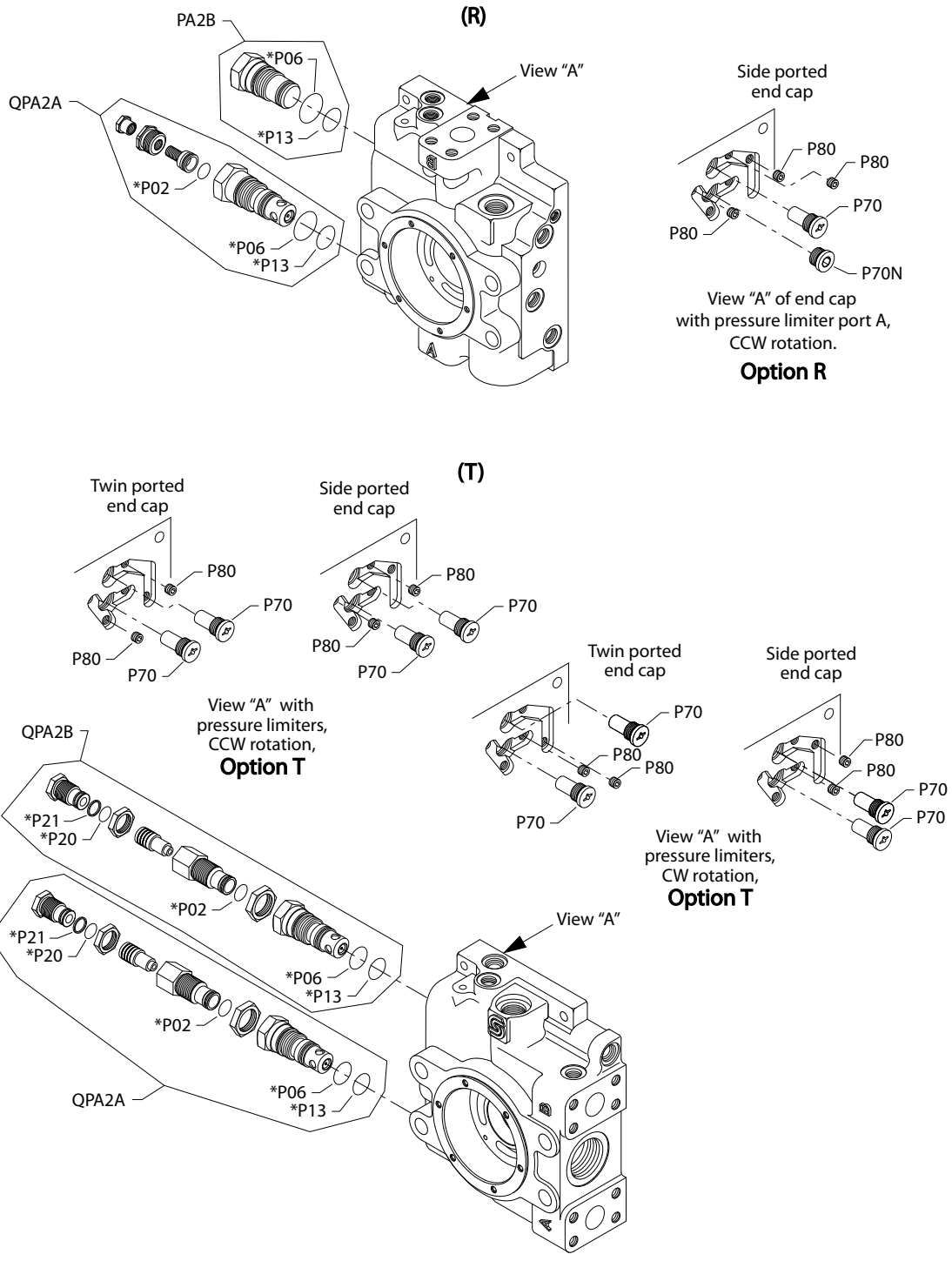
*Order code: P*

| | | | | | |
|---|---|---|---|---|---|
| P70 | 04-47 | | 8800188 | Check valve | 2 |
| P80 | 04-47 | | 9005475-0004 | Special plug | 2 |
| QPA2A | 04-47 | | 8510389 | Multi-function valve kit | 1 |
| QPA2B | 04-47 | | 8510389 | Multi-function valve kit | 1 |

## High pressure protection

### S90 100cc pump high pressure protection R, T

*Parts configuration*




Generic end caps used to show valve locations only.

* Included in base pump seal kit Q210

## High pressure protection

*Order code: R*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| P02 | 99-14 | | 141564 (9004100-0170) | O-ring | 1 |
| P06 | 99-14 | | 000836 (9004100-0200) | O-ring | 2 |
| P13 | 99-14 | | 544742 (9004105-0190) | O-ring | 2 |
| P70 | 99-14 | | 8800188 | Check valve | 1 |
| P70N | 99-14 | | 9005110-4400 | Plug assembly | 1 |
| P80 | 99-14 | | 9005475-0004 | Special plug | 3 |
| PA2B | 99-14 | | 781971 | Plug assembly | 1 |
| QPA2A | 99-14 | | 8510022-1 | Multi-function valve kit | 1 |

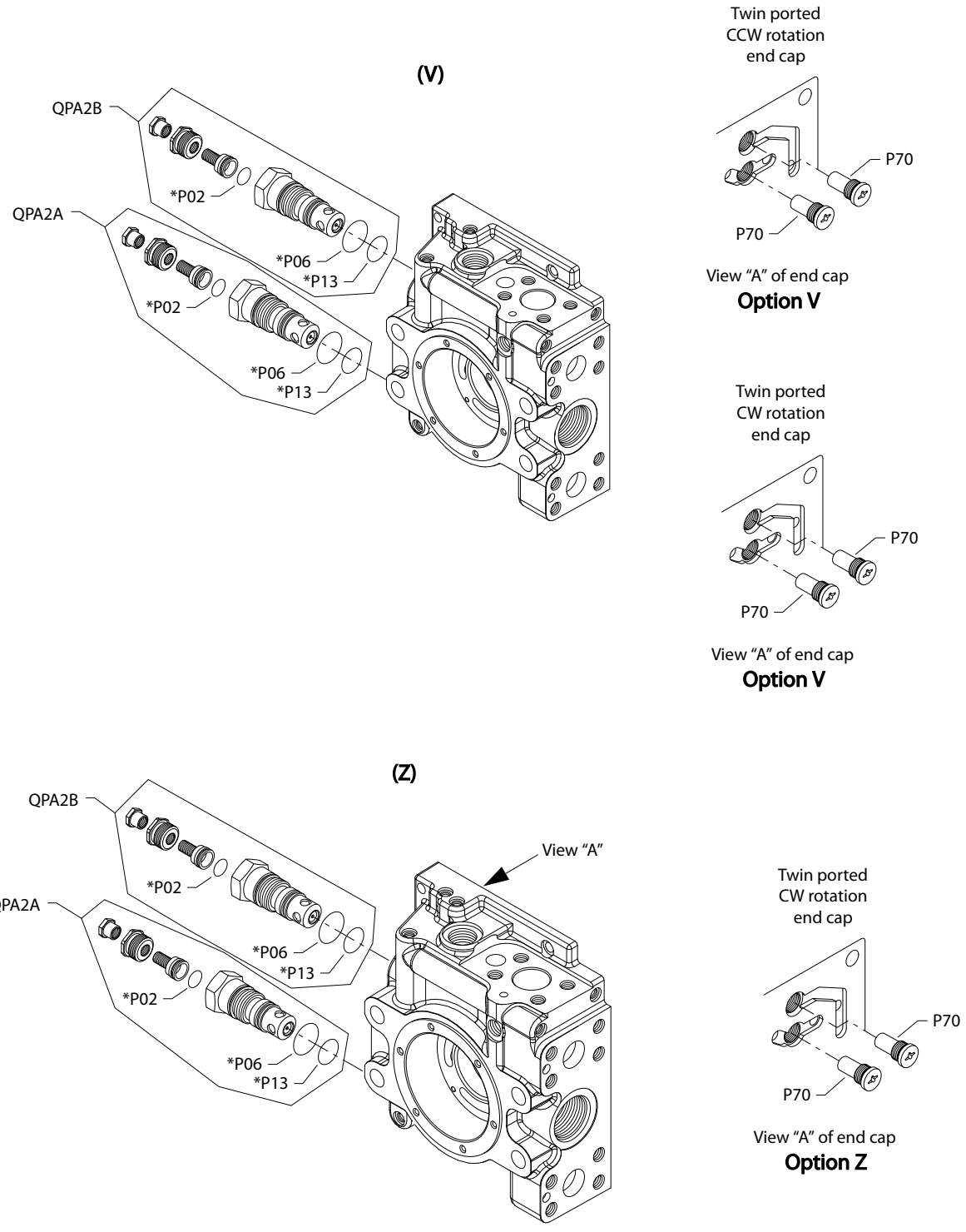
*Order code: T*

| | | | | | |
|---|---|---|---|---|---|
| P02 | 00-35 | | 141564 (9004100-0170) | O-ring | 2 |
| P06 | 00-35 | | 000836 (9004100-0200) | O-ring | 2 |
| P13 | 00-35 | | 544742 (9004105-0190) | O-ring | 2 |
| P20 | 00-35 | | 9004105-0160 | O-ring | 2 |
| P21 | 00-35 | | 9006110-0160 | Back up ring | 2 |
| P70 | 00-35 | | 8800188 | Check valve | 2 |
| P80 | 00-35 | | 9005475-0004 | Special plug | 2 |
| QPA2A | 00-35 | | 11079764 | Multi-function valve kit | 1 |
| QPA2B | 00-35 | | 11079764 | Multi-function valve kit | 1 |

## High pressure protection

### S90 100cc pump high pressure protection V, Z

*Parts configuration*




Generic end caps used to show valve locations only.

* Included in base pump seal kit Q210

## High pressure protection

*Common parts*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| P02 | 87-02 | | 141564 (9004100-0170) | O-ring | 2 |
| P06 | 87-02 | | 000836 (9004100-0200) | O-ring | 2 |
| P13 | 87-02 | | 544742 (9004105-0190) | O-ring | 2 |

*Order code: V*

| | | | | | |
|---|---|---|---|---|---|
| P70 | 08-30 | | 8800188 | Check valve | 2 |
| QPA2A | 08-30 | | 8510240 | Multi-function valve kit | 1 |
| QPA2B | 08-30 | | 8510240 | Multi-function valve kit | 1 |

*Order code: Z*

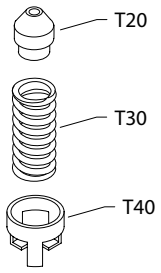
| | | | | | |
|---|---|---|---|---|---|
| P70 | 04-12 | | 8800188 | Check valve | 2 |
| QPA2A | 04-12 | | 8510022-1 | Multi-function valve kit | 1 |
| QPA2B | 04-12 | | 8510022-1 | Multi-function valve kit | 1 |

## Orifice

### S90 100cc pump orifice 01-26

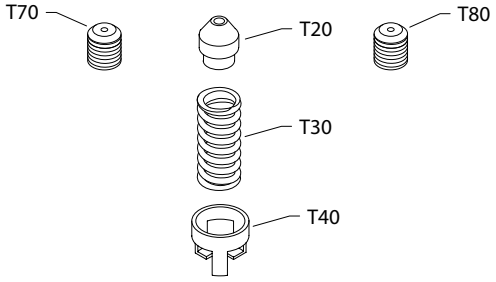
*Parts configuration*

**(01-06, 09, 022)**



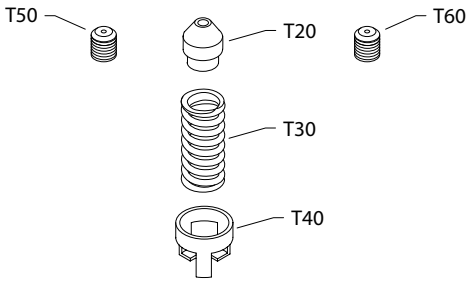

See control drawing
for orifice location

**(21, 26)**




See control drawing
for orifice location

**(23)**




See control drawing
for orifice location

## Orifice

*Order code: 01*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801136 | Orifice check valve, .018″ | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |

*Order code: 02*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801139 | Orifice check valve, .026″ | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |

*Order code: 03*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061958 | Orifice check valve, .032″ | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |

*Order code: 04*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061970 | Orifice check valve, .040″ | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |

*Order code: 05*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061981 | Orifice check valve, .054″ | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |

*Order code: 06*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061993 | Orifice check valve, .062″ | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |

*Order code: 09*

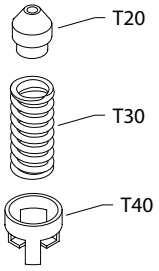
| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11062006 | Orifice check valve, .092″ | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |

Parts continue to the next 2 pages.

## Orifice

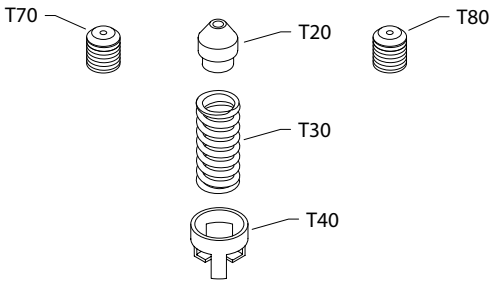
*Parts configuration*

**(01-06, 09, 022)**



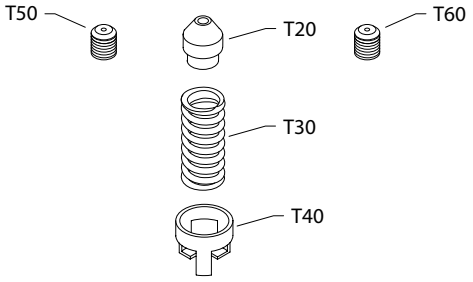

See control drawing
for orifice location

**(21, 26)**




See control drawing
for orifice location

**(23)**




See control drawing
for orifice location

## Orifice

*Order code: 21*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061970 | Orifice check valve, .040" | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T70 | 87-42 | | 714477 | Orifice plug, 0.8mm, M8 x 8 | 1 |
| T80 | 87-42 | | 714477 | Orifice plug, 0.8mm, M8 x 8 | 1 |

*Order code: 22*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801137 | Orifice check valve, .022" | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |

*Order code: 23*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061958 | Orifice check valve, .032" | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T50 | 87-42 | | 639153 | Orifice plug, 1.3mm, M5 x 6 | 1 |
| T60 | 87-42 | | 639153 | Orifice plug, 1.3mm, M5 x 6 | 1 |

*Order code: 26*

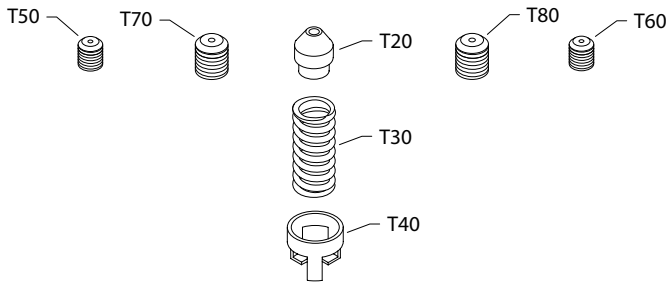
| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061958 | Orifice check valve, .032" | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T50 | 87-42 | | 598292 (11062004) | Orifice plug, 0.8mm, M5 x 6 | 1 |
| T60 | 87-42 | | 598292 (11062004) | Orifice plug, 0.8mm, M5 x 6 | 1 |

## Orifice

### S90 100cc pump orifice 28-44

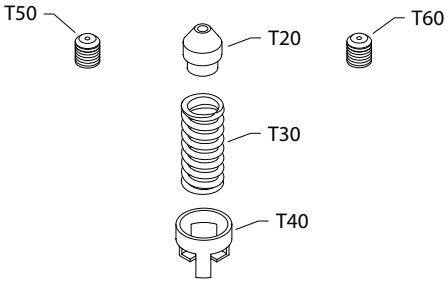
*Parts configuration*

**(28, 30)**




See control drawing for orifice location

**(29, 44)**

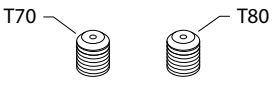



See control drawing for orifice location

**(32)**

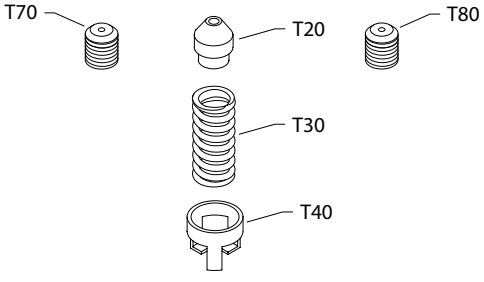
See control drawing for orifice location

**(34)**




See control drawing for orifice location

**(38, 40)**




See control drawing for orifice location

## Orifice

*Order code: 28*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801139 | Orifice check valve, .026″ | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T50 | 87-42 | | 639104 (11062012) | Orifice plug, 0.7mm, M5 x 6 | 1 |
| T60 | 87-42 | | 639104 (11062012) | Orifice plug, 0.7mm, M5 x 6 | 1 |
| T70 | 87-42 | | 704650 (11062018) | Orifice plug, 0.7mm, M8 x 8 | 1 |
| T80 | 87-42 | | 704650 (11062018) | Orifice plug, 0.7mm, M8 x 8 | 1 |

*Order code: 29*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061958 | Orifice check valve, .032″ | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T50 | 87-42 | | 639104 (11062012) | Orifice plug, 0.7mm, M5 x 6 | 1 |
| T60 | 87-42 | | 639104 (11062012) | Orifice plug, 0.7mm, M5 x 6 | 1 |

*Order code: 30*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801139 | Orifice check valve, .026″ | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T50 | 87-42 | | 639153 | Orifice plug, 1.3mm, M5 x 6 | 1 |
| T60 | 87-42 | | 639153 | Orifice plug, 1.3mm, M5 x 6 | 1 |
| T70 | 87-42 | | 704650 (11062018) | Orifice plug, 0.7mm, M8 x 8 | 1 |
| T80 | 87-42 | | 704650 (11062018) | Orifice plug, 0.7mm, M8 x 8 | 1 |

*Order code: 32*

| | | | | | |
|---|---|---|---|---|---|
| T50 | 87-42 | | 639120 | Orifice plug, 1.0mm, M5 x 6 | 1 |
| T60 | 87-42 | | 639120 | Orifice plug, 1.0mm, M5 x 6 | 1 |

*Order code 33*

| |
|---|
| No parts |

*Order code 34*

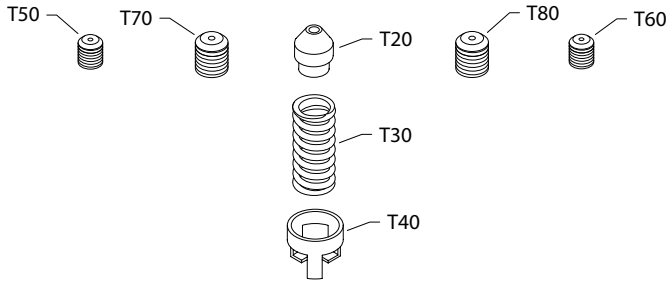
| | | | | | |
|---|---|---|---|---|---|
| T70 | 87-42 | | 755793 | Orifice plug, 1.0mm, M8 x 8 | 1 |
| T80 | 87-42 | | 755793 | Orifice plug, 1.0mm, M8 x 8 | 1 |

Parts continue to the next 2 pages.

## Orifice

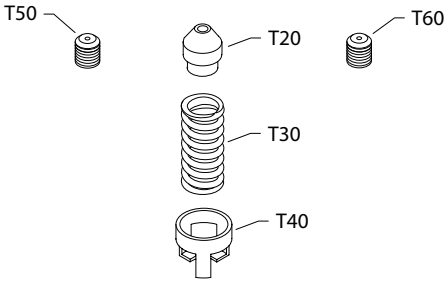
*Parts configuration*

**(28, 30)**




See control drawing
for orifice location

**(29, 44)**

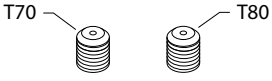



See control drawing
for orifice location

**(32)**

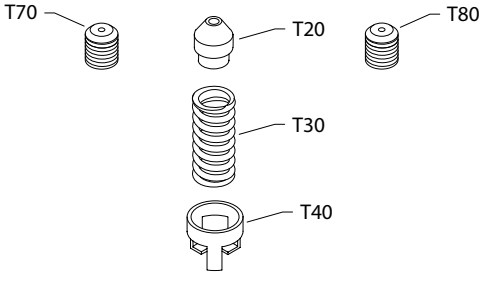
See control drawing
for orifice location

**(34)**




See control drawing
for orifice location

**(38, 40)**




See control drawing
for orifice location

## Orifice

*Order code: 38*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801139 | Orifice check valve, .026" | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T70 | 87-42 | | 716837 | Orifice plug, 0.6mm, M8 x 8 | 1 |
| T80 | 87-42 | | 716837 | Orifice plug, 0.6mm, M8 x 8 | 1 |

*Order code: 40*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061970 | Orifice check valve, 1.02mm | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T70 | 87-42 | | 755793 | Orifice plug, 1.0mm, M8 x 8 | 1 |
| T80 | 87-42 | | 755793 | Orifice plug, 1.0mm, M8 x 8 | 1 |

*Order code: 44*

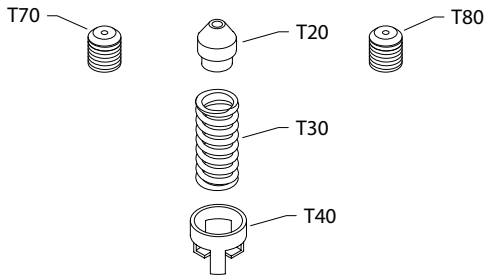
| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061981 | Orifice check valve, 1.37mm | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T50 | 87-42 | | 598292 (11062004) | Orifice plug, 0.8mm, M5 x 6 | 1 |
| T60 | 87-42 | | 598292 (11062004) | Orifice plug, 0.8mm, M5 x 6 | 1 |

## Orifice

### S90 100cc pump orifice 45-99

*Parts configuration*

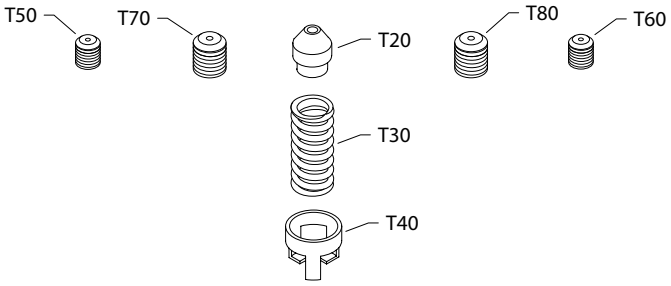
**(38, 42)**




See control drawing for orifice location

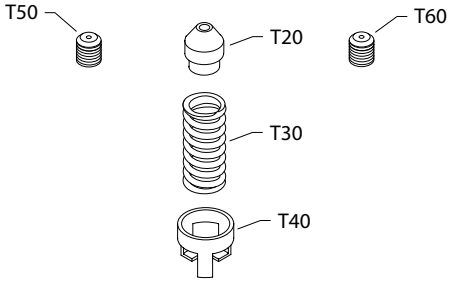
**(41)**

**(43)**




See control drawing for orifice location

**(45, 46, 49)**




See control drawing for orifice location

## Orifice

*Order code: 45*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061958 | Orifice check valve, .032" | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T50 | 87-42 | | 639153 | Orifice plug, 1.3mm, M5 x 6 | 1 |
| T60 | 87-42 | | 598292 (11062004) | Orifice plug, 0.8mm, M5 x 6 | 1 |

*Order code: 46*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801139 | Orifice check valve, .026" | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T50 | 87-42 | | 598292 (11062004) | Orifice plug, 0.8mm, M5 x 6 | 1 |
| T60 | 87-42 | | 598292 (11062004) | Orifice plug, 0.8mm, M5 x 6 | 1 |

*Order code: 49*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061958 | Orifice check valve, .032" | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T50 | 87-42 | | 598292 (11062004) | Orifice plug, 0.8mm, M5 x 6 | 1 |
| T60 | 87-42 | | 598292 (11062004) | Orifice plug, 0.8mm, M5 x 6 | 1 |

*Order code: 50*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801139 | Orifice check valve, .026" | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T50 | 87-42 | | 310771 | Orifice plug, 1.2mm, M6 x 6 | 1 |
| T70 | 87-42 | | 517571 | Orifice plug, 0.9mm, M6 x 6 | 1 |
| T80 | 87-42 | | 517571 | Orifice plug, 0.9mm, M6 x 6 | 1 |

*Order code: 64*

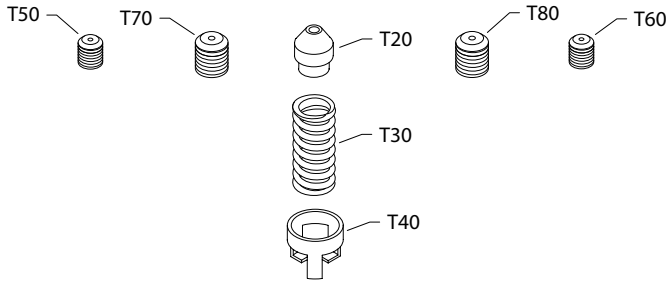
| | | | | | |
|---|---|---|---|---|---|
| T50 | 87-42 | | 617159 | Orifice plug, 1.8mm, M5 x 6 | 1 |
| T60 | 87-42 | | 617159 | Orifice plug, 1.8mm, M5 x 6 | 1 |

Parts continue to the next 2 pages.

## Orifice

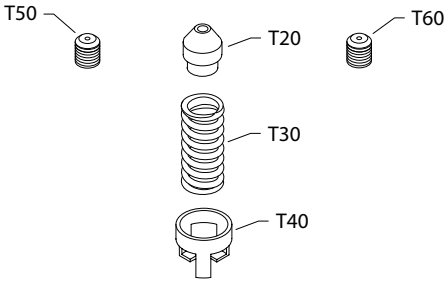
*Parts configuration*

**(28, 30)**




See control drawing
for orifice location

**(29, 44)**

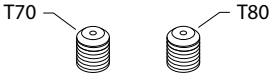



See control drawing
for orifice location

**(32)**

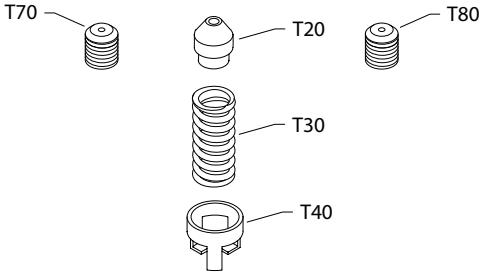
See control drawing
for orifice location

**(34)**




See control drawing
for orifice location

**(38, 40)**




See control drawing
for orifice location

## Orifice

*Order code: 76*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801139 | Orifice check valve, .026″ | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T70 | 87-42 | | 578542 | Orifice plug, 0.8mm, M6 x 8 | 1 |
| T80 | 87-42 | | 578542 | Orifice plug, 0.9mm, M6 x 8 | 1 |

*Order code: 77*

| No parts |
|---|

*Order code: 82*

| | | | | | |
|---|---|---|---|---|---|
| T50 | 87-42 | | 310771 | Orifice plug, 1.2mm, M6 x 6 | 1 |
| T70 | 87-42 | | 310771 | Orifice plug, 1.2mm, M6 x 6 | 1 |
| T80 | 87-42 | | 310771 | Orifice plug, 1.2mm, M6 x 6 | 1 |

*Order code: 84*

| | | | | | |
|---|---|---|---|---|---|
| T70 | 87-42 | | 310771 | Orifice plug, 1.2mm, M6 x 6 | 1 |
| T80 | 87-42 | | 310771 | Orifice plug, 1.2mm, M6 x 6 | 1 |

*Order code: 99*

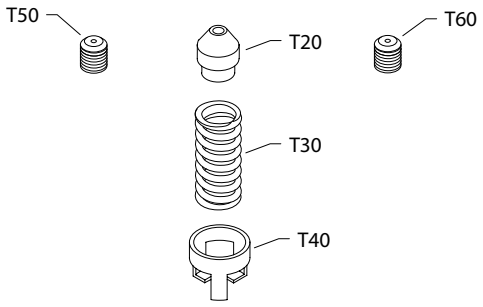
| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801301 | Orifice check valve, .047″ | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T70 | 87-42 | | 517572 | Orifice plug, 1.5mm, M6 x 6 | 1 |
| T80 | 87-42 | | 517572 | Orifice plug, 1.5mm, M6 x 6 | 1 |

## Orifice

### S90 100cc pump orifice A3-C1

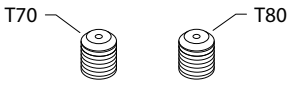
*Parts configuration*

**(A3)**



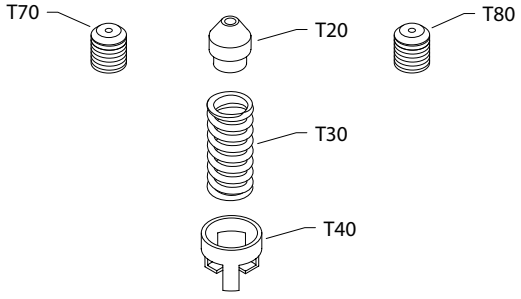

See control drawing
for orifice location

**(A4)**



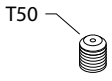

See control drawing
for orifice location

**(A5, A8, C1)**



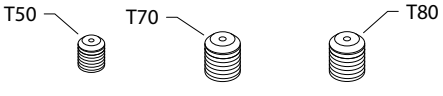

See control drawing
for orifice location

**(B1, B7, B8, B9)**




See control drawing
for orifice location

**(B3, BB)**




See control drawing
for orifice location

## Orifice

*Order code: A3*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061958 | Orifice check valve, .032″ | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T50 | 87-42 | | 704650 (11062018) | Orifice plug, 0.7mm, M8 x 8 | 1 |
| T60 | 87-42 | | 704650 (11062018) | Orifice plug, 0.7mm, M8 x 8 | 1 |

*Order code: A4*

| | | | | | |
|---|---|---|---|---|---|
| T70 | 87-42 | | 578542 | Orifice plug, 0.8mm, M6 x 8 | 1 |
| T80 | 87-42 | | 578542 | Orifice plug, 0.8mm, M6 x 8 | 1 |

*Order code: A5*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061970 | Orifice check valve, 0.40″ | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T70 | 87-42 | | 578542 | Orifice plug, 0.8mm, M6 x 8 | 1 |
| T80 | 87-42 | | 578542 | Orifice plug, 0.9mm, M6 x 8 | 1 |

*Order code: A8*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061970 | Orifice check valve, 0.40″ | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T70 | 87-42 | | 508014 | Orifice plug, 1.0mm, M6 x 8 | 1 |
| T80 | 87-42 | | 508014 | Orifice plug, 1.0mm, M6 x 8 | 1 |

*Order code: B1*

| | | | | | |
|---|---|---|---|---|---|
| T50 | 87-42 | | 507042 | Orifice plug, 1.5 mm, M6 x 8 | 1 |

*Order code: B2*

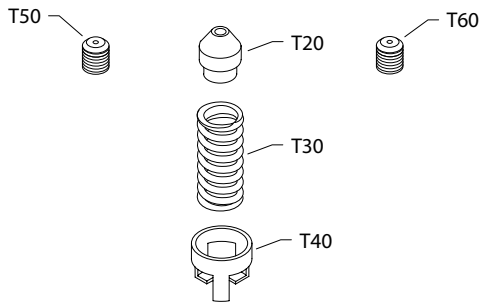
| | | | | | |
|---|---|---|---|---|---|
| T70 | 87-42 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |
| T80 | 87-42 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |

Parts continue to the next 2 pages.

## Orifice

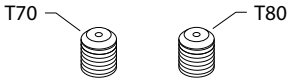
*Parts configuration*

**(A3)**



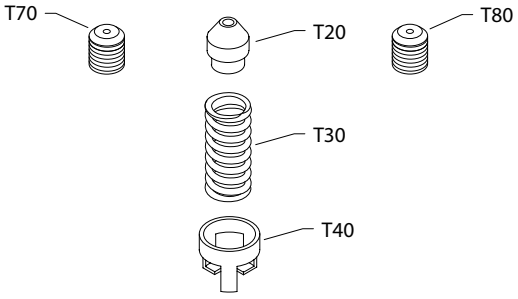

See control drawing for orifice location

**(A4)**



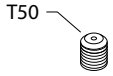

See control drawing for orifice location

**(A5, A8, C1)**



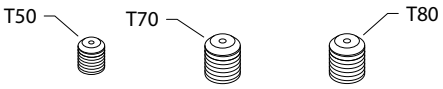

See control drawing for orifice location

**(B1, B7, B8, B9)**




See control drawing for orifice location

**(B3, BB)**




See control drawing for orifice location

## Orifice

*Order code: B3*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| T50 | 87-42 | | 507042 | Orifice plug, 1.5mm, M6 x 8 | 1 |
| T70 | 87-42 | | 739144 | Orifice plug, 0.8mm, M6 x 6 | 1 |
| T80 | 87-42 | | 739144 | Orifice plug, 0.8mm, M6 x 6 | 1 |

*Order code: B7*

| | | | | | |
|---|---|---|---|---|---|
| T50 | 87-42 | | 578542 | Orifice plug, 0.8mm, M6 x 8 | 1 |

*Order code: B8*

| | | | | | |
|---|---|---|---|---|---|
| T50 | 87-42 | | 508014 | Orifice plug, 1.0mm, M6 x 8 | 1 |

*Order code: B9*

| | | | | | |
|---|---|---|---|---|---|
| T50 | 87-42 | | 516598 | Orifice plug, 1.2mm, M6 x 8 | 1 |

*Order code: BB*

| | | | | | |
|---|---|---|---|---|---|
| T50 | 87-42 | | 507042 | Orifice plug, 1.5mm, M6 x 8 | 1 |
| T70 | 87-42 | | 507042 | Orifice plug, 1.5 mm, M6 x 8 | 1 |
| T80 | 87-42 | | 507042 | Orifice plug, 1.5 mm, M6 x 8 | 1 |

*Order code: C1*

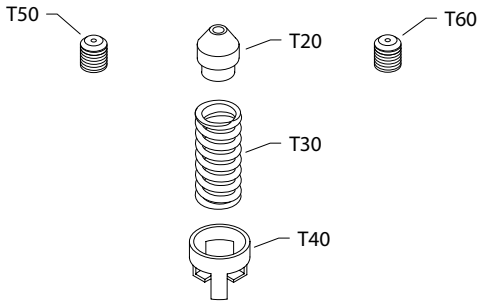
| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801139 | Orifice check valve, 0.26" | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T70 | 87-42 | | 714477 | Orifice plug, 0.8mm, M8 x 8 | 1 |
| T80 | 87-42 | | 714477 | Orifice plug, 0.8mm, M8 x 8 | 1 |

## Orifice

### S90 100cc pump orifice C3-GD

*Parts configuration*

**(C3, C5, C6, C7)**

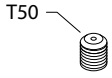



See control drawing
for orifice location

**(C4)**

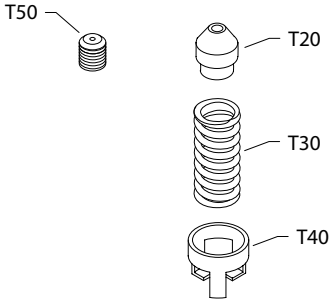
See control drawing
for orifice location

**(G1)**




See control drawing
for orifice location

**(G4, G8, GB, GD)**




See control drawing
for orifice location

## Orifice

*Order code: C3*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801139 | Orifice check valve, 0.26″ | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T50 | 87-42 | | 11061989 | Orifice plug, 1.3mm, M5 x 6 | 1 |
| T60 | 87-42 | | 11061989 | Orifice plug, 1.3mm, M5 x 6 | 1 |

*Order code: C4*

| | | | | | |
|---|---|---|---|---|---|
| T50 | 87-42 | | 639161 | Orifice plug, 1.4mm, M5 x 6 | 1 |
| T60 | 87-42 | | 639161 | Orifice plug, 1.4mm, M5 x 6 | 1 |

*Order code: C5*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061958 | Orifice check valve, .032″ | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T50 | 87-42 | | 639161 | Orifice plug, 1.4 mm, M5 x 6 | 1 |
| T60 | 87-42 | | 639161 | Orifice plug, 1.4 mm, M5 x 6 | 1 |

*Order code: C6*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061970 | Orifice check valve, 0.40″ | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T50 | 87-42 | | 639161 | Orifice plug, 1.4 mm, M5 x 6 | 1 |
| T60 | 87-42 | | 639161 | Orifice plug, 1.4 mm, M5 x 6 | 1 |

*Order code: C7*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061981 | Orifice check valve, 1.37 mm | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T50 | 87-42 | | 639161 | Orifice plug, 1.4 mm, M5 x 6 | 1 |
| T60 | 87-42 | | 639161 | Orifice plug, 1.4 mm, M5 x 6 | 1 |

*Order code: G1*

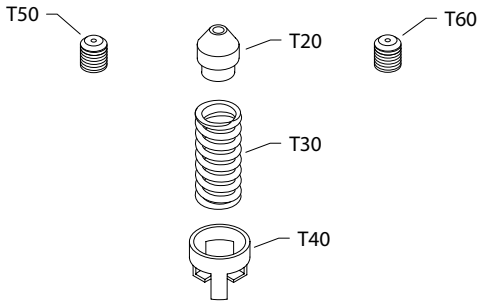
| | | | | | |
|---|---|---|---|---|---|
| T50 | 87-42 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |

Parts continue to the next 2 pages.

## Orifice

*Parts configuration*

**(C3, C5, C6, C7)**

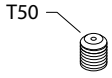



See control drawing
for orifice location

**(C4)**

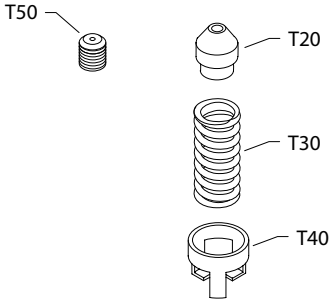
See control drawing
for orifice location

**(G1)**




See control drawing
for orifice location

**(G4, G8, GB, GD)**




See control drawing
for orifice location

## Orifice

*Order code: G4*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801136 | Orifice check valve, .018″ | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T50 | 87-42 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |

*Order code: G8*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 8801139 | Orifice check valve, .026″ | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T50 | 87-42 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |

*Order code: GB*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061958 | Orifice check valve, .032″ | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T50 | 87-42 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |

*Order code: GD*

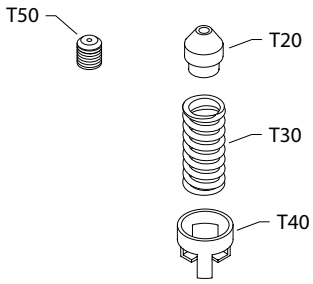
| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061993 | Control orifice kit, 1.57 mm | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T50 | 87-42 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |

## Orifice

### S90 100cc pump orifice GF-Z3

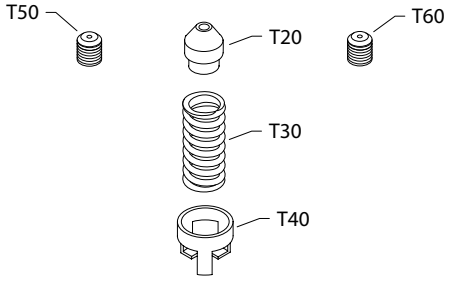
*Parts configuration*

**(GF, GJ)**



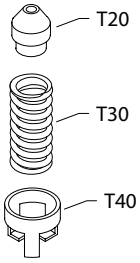

See control drawing for orifice location

**(H1, K2)**



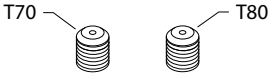

See control drawing for orifice location

**(K1)**



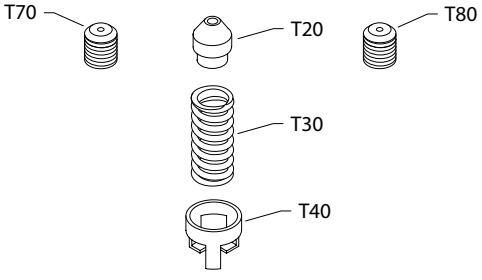

See control drawing for orifice location

**(P1)**




See control drawing for orifice location

**(Z3)**




See control drawing for orifice location

## Orifice

*Order code: GF*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061970 | Control orifice kit, 0.040" | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T50 | 87-42 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |

*Order code: GJ*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061981 | Control orifice kit, 1.37 mm | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T50 | 87-42 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |

*Order code: H1*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061958 | Orifice check valve, .032" | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T50 | 87-42 | | 714477 | Orifice plug, 0.8 mm, M8 x 8 | 1 |
| T60 | 87-42 | | 714477 | Orifice plug, 0.8 mm, M8 x 8 | 1 |

*Order code: K1*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061981 | Orifice check valve, 1.37 mm | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |

*Order code: K2*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061958 | Orifice check valve, .032" | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T50 | 87-42 | | 639104 | Orifice plug, 0.7mm, M5 x 6 | 1 |
| T60 | 87-42 | | 639104 | Orifice plug, 0.7mm, M5 x 6 | 1 |

*Order code: P1*

| | | | | | |
|---|---|---|---|---|---|
| T70 | 87-42 | | 508014 | Orifice plug, 1.0 mm, M6 x 8 | 1 |
| T80 | 87-42 | | 508014 | Orifice plug, 1.0 mm, M6 x 8 | 1 |

*Order code: Z3*

| | | | | | |
|---|---|---|---|---|---|
| T20 | 87-42 | | 11061970 | Orifice check valve, .040" | 1 |
| T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| T70 | 87-42 | | 519659 | Orifice plug, 1.0 mm, M6 x 6 | 1 |
| T80 | 87-42 | | 519659 | Orifice plug, 1.0 mm, M6 x 6 | 1 |

## Overhaul seal kit

### S90 100cc pump overhaul seal kit

*Overhaul seal kit*

| Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|
| Q210 | 87-42 | | 11095649 | Overhaul seal kit | 1 |
| B90 | 87-42 | | 9803390 | Control screen | 3 |
| C70 | 88-22 | | 314419 (9007276-0114) | Screw (*SB-1988-016* on page 255 & *SB-1998-041* on page 288) | 4 |
| E40 | 87-02 | | 505412 (9003509-0008) | Seal nut | 2 |
| E50 | 87-02 | | 517378 (9004104-1620) | O-ring | 1 |
| E60 | 87-02 | | 517228 (5000206) | Screw (*SB-1994-018* on page 275) | 6 |
| F11 | 87-02 | | 9004100-1310 | O-ring | 2 |
| F12 | 87-02 | | 507799 (8700067) | Piston ring | 2 |
| F40 | 87-02 | | 363754 (9004104-0350) | O-ring | 2 |
| F50 | 89-41 | | 9004104-0340 | O-ring | 2 |
| F112 | 87-02 | | 505412 (9003509-0008) | Seal nut | 1 |
| F124 | 87-02 | | 066159 | Seal nut | 1 |
| F212 | 87-02 | | 505412 (9003509-0008) | Seal nut | 1 |
| F224 | 87-02 | | 066159 | Seal nut | 1 |
| G30 | 89-46 | | 8200212 | End cap gasket (*SB-1992-003* on page 266) | 1 |
| J40 | 87-02 | | 680892 (9004104-0440) | O-ring | 1 |
| J50 | 87-02 | | 056739 (9004104-1580) | O-ring | 1 |
| K50 | 87-02 | | 001149 (9004201-6200) | O-ring | 1 |
| L25 | 87-02 | | 521722 | Seal carrier assembly (*SB-2007-018* on page 307) | 1 |
| N15 | 87-02 | | 001172 (9004201-9000) | O-ring | 1 |
| N98 | 87-02 | | 9004104-0320 | O-ring | 1 |
| P02 | 87-02 | | 688721 (9004104-0170) | O-ring | 2 |
| P06 | 87-02 | | 071811 | O-ring | 2 |
| P13 | 87-02 | | 544742 (9004105-0190) | O-ring | 2 |
| P20 | 87-02 | | 9004105-0160 | O-ring | 2 |
| P21 | 87-02 | | 9006110-0160 | O-ring | 2 |

## Service bulletin

**AN152886483362**

To improve efficiency and reliability, the number of parts in series 90 pumps is being reduced. The charge pump design on 55cc - 130cc frame sizes is being changed so that the outer port plate is an integral part of the charge pump cover and distance plates are eliminated. The change is taking effect at the following manufacturing dates:

- 55cc: 93-10
- 75cc: 93-10
- 100cc: 93-15
- 130 cc:93-34

For auxiliary pad options, the new charge pump cover is rotation dependent. The cover will be marked as either left hand (L) or right hand (R). The non-auxiliary pad cover is not rotation dependent.

The charge pump shaft also changes and must be replaced when using the new style hardware. The complete charge pump assembly can be interchanged with corresponding hardware from 89-17 and beyond. However, piece parts are not interchangeable. For units prior to 89-17, consult Danfoss.

The old design charge pump hardware is obsolete and is no longer available. Refer to the chart on the next page to determine the replacement kit.

## Service bulletin

### AN152886483362 charge pump replacements

The following information must be known to determine the correct charge pump replacement kit:

1. Unit size (055, 075, 100, or 130cc)
2. Charge pump displacement (11, 14, 17, 20, 26, or 34cc)
3. Auxiliary pad (Yes or No)
4. Rotation (LH or RH)

| Obsoleted Charge Pump Parts | | | Unit Size | Charge pump displacement | Auxiliary pad | Rotation | Replacement kit |
|---|---|---|---|---|---|---|---|
| Gear Set | Shaft | Cover | | | | | |
| 8000169 | 8000174 | 8800513 | 055 | 11 cc | No | LH or RH | 8510028 |
| | | 8800514 | | | Yes | LH | 8510029 |
| | | 8800514 | | | Yes | RH | 8510030 |
| 8000170 | 8000174 | 8800513 | 055 | 14 cc | No | LH or RH | 8510031 |
| | | 8800514 | | | Yes | LH | 8510032 |
| | | 8800514 | | | Yes | RH | 8510033 |
| 8000171 | 8000174 | 8800513 | 055 | 17 cc | No | LH or RH | 8510034 |
| | | 8800514 | | | Yes | LH | 8510035 |
| | | 8800514 | | | Yes | RH | 8510036 |
| 8100313 | 337956 | 8800513 | 075 | 14 cc | No | LH or RH | 8510037 |
| | | 8800514 | | | Yes | LH | 8510038 |
| | | 8800514 | | | Yes | RH | 8510039 |
| 8100314 | 337956 | 8800513 | 075 | 17 cc | No | LH or RH | 8510040 |
| | | 8800514 | | | Yes | LH | 8510041 |
| | | 8800514 | | | Yes | RH | 8510042 |
| 8100315 | 337956 | 8800513 | 075 | 20 cc | No | LH or RH | 8510043 |
| | | 8800514 | | | Yes | LH | 8510044 |
| | | 8800514 | | | Yes | RH | 8510045 |
| 8200158 | 337956 | 8800513 | 100 | 17 cc | No | LH or RH | 8510046 |
| | | 8800514 | | | Yes | LH | 8510047 |
| | | 8800514 | | | Yes | RH | 8510048 |
| 8200159 | 337956 | 8800513 | 100 | 20 cc | No | LH or RH | 8510049 |
| | | 8800514 | | | Yes | LH | 8510050 |
| | | 8800514 | | | Yes | RH | 8510051 |
| 8200160 | 337956 | 8800513 | 100 | 26 cc | No | LH or RH | 8510052 |
| | | 8800514 | | | Yes | LH | 8510053 |
| | | 8800514 | | | Yes | RH | 8510054 |
| 714444 | 303636 | 347518 | 130 | 20 cc | No | LH or RH | 8510064 |
| | | 347526 | | | Yes | LH | 8510065 |
| | | 347526 | | | Yes | RH | 8510066 |
| 714451 | 303636 | 347518 | 130 | 26 cc | No | LH or RH | 8510067 |
| | | 347526 | | | Yes | LH | 8510068 |
| | | 347526 | | | Yes | RH | 8510069 |
| 714469 | 303636 | 347518 | 130 | 34 cc | No | LH or RH | 8510070 |
| | | 347526 | | | Yes | LH | 8510071 |
| | | 347526 | | | Yes | RH | 8510072 |

## Service bulletin

**SB-1988-009**

### Products affected

Series 90 pumps

### Subject

Servo arm change

### Description

As a product improvement, Danfoss has changed the series 90 pump servo arm and swashplate (item D10 and D50). The old style servo arm and swashplate will become obsolete. Because this change creates non-interchangeability between new and old swashplates, servo arms, and possibly servo piston (item S10) and slider block (item F20), separate servo arms and swashplates will no longer be sold as service parts.

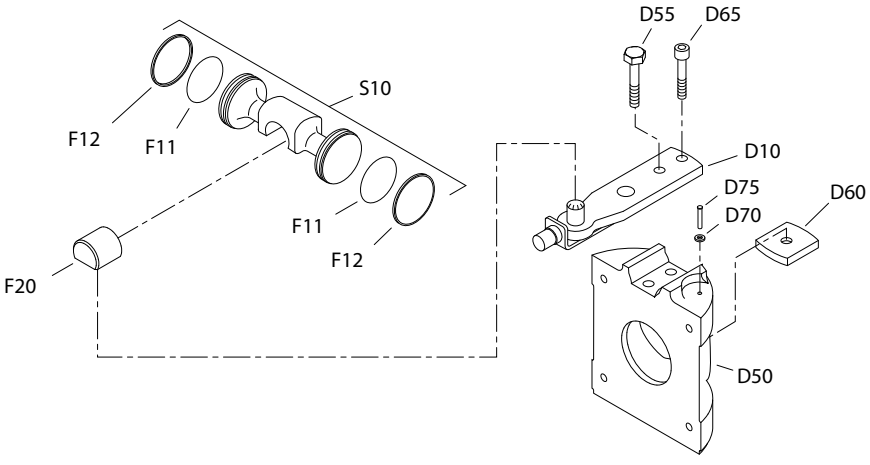
Also, the new servo arm is pressed into a groove in the new swashplate. This situation requires special tooling for assembly, therefore, pre-assembled kits will be created for 55, 75, and 100 cc pumps. The kits will work in any vintage pump.

The kit for 55 cc pumps will include all the items in the figure, except item S10

The kit for 75 cc pumps will include all items in the figure.

The kit for 100 cc pumps will include all items in the figure, except items S10 and F20.

The slider block (item F20) in 55 cc pumps and the slider block and the servo piston (item S10) in 75 cc pumps had to be changed slightly to allow clearance for the new servo arm. The new servo piston and slider block will work in any vintage pump.




### Models affected

All 94-2xxx (55 cc), 95-2xxx (75 cc), and 96-2xxx (100 cc) pumps

### Serial numbers

Change goes into effect with s/n 88-14-xxxxx on 55 cc pumps and with s/n 88-16-xxxxx for 75 cc and 100 cc pumps

## Service bulletin

### Part numbers affected

- New 55 cc slider block is p/n 8000189
- New 75 cc slider block is p/n 8100368
- New 100 cc slider block is p/n 8100369
- New 55 cc servo arm/swashplate kit is p/n 8000201
- New 75 cc servo arm/swashplate kit is p/n 8100377
- New 100 cc servo arm/swashplate kit is p/n 8200192

### Parts disposition

Non-interchangeable

## Service bulletin

**SB-1988-016**

### Products affected

Series 90 pumps

### Subject

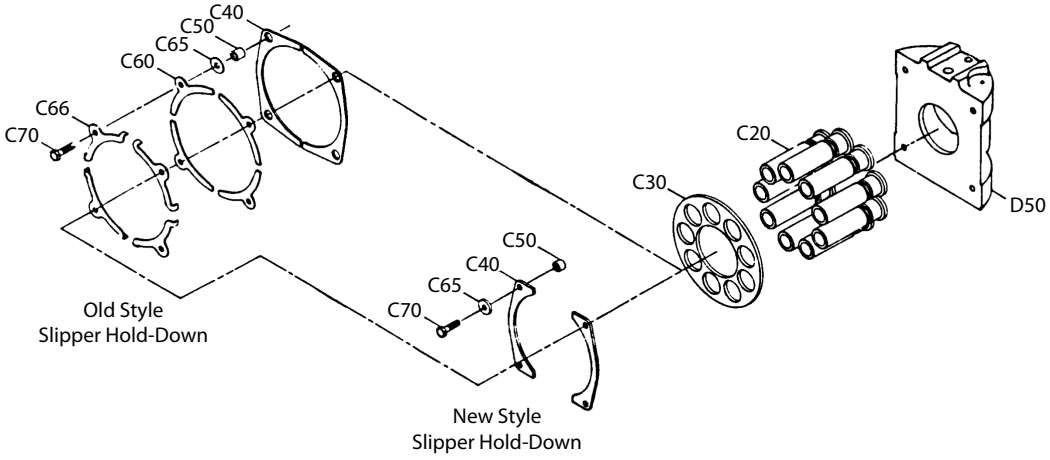
Change to fix clearance slipper hold down.

### Description

As a product improvement, Danfoss has simplified the design of the series 90 pump slipper hold down mechanism. The hold down changes from spring loaded with a fixed maximum clearance design.

The leaf spring (item C60) and spring aligner (item C66) will be eliminated and will not be available as service parts. The spacer (item C50), bearing (item C40), and washer (item C65) will change and the old part numbers will not be available as service parts. The swashplate (item D50), pistons (item C20), slipper retainer (item C30), and screws (item C70) will remain the same.

If any of the affected parts (item C66, C60, C65, C50, or C40) require replacement during repair of older style pumps, discard these parts and rebuild using new style parts (items C40, C50, and C65). As before, the screws (item C70) which are coated with locking compound MUST always be replaced after removal.




### Models affected

All 94-2xxx (55 cc), 95-2xxx (75 cc), and 96-2xxx (100 cc) pumps

### Serial numbers

- 55 cc pumps, 94-2xxx, changed at s/n 88-43-xxxxx
- 75 cc pumps, 95-2xxx, changed at s/n 88-22-xxxxx
- 100cc pumps, 96-2xxx, changed at s/n 88-20-xxxxx

### Part numbers affected

| Item | Qty/pump | 55cc | 75cc | 100cc |
|---|---|---|---|---|
| C40 | 2 | 8000137 | 8100294 | 8200144 |
| C50 | 4 | 8000138 | 8100295 | 8200145 |

## Service bulletin

| Item | Qty/pump | 55cc | 75cc | 100cc |
|---|---|---|---|---|
| C65 | 4 | 9009625-0159 | 9009625-0159 | 9009625-0159 |
| C70 | 4 | 314419<br>(9007276-0114) | 9007276-0099 | 9007276-0099 |

### Parts disposition

Non-interchangeable as individual parts, but new style C40, C50, and C65 can be used in any vintage pump, if all three are changed.

## Service bulletin

**SB-1988-023**

### Products affected

Series 90 pumps and motors

### Subject

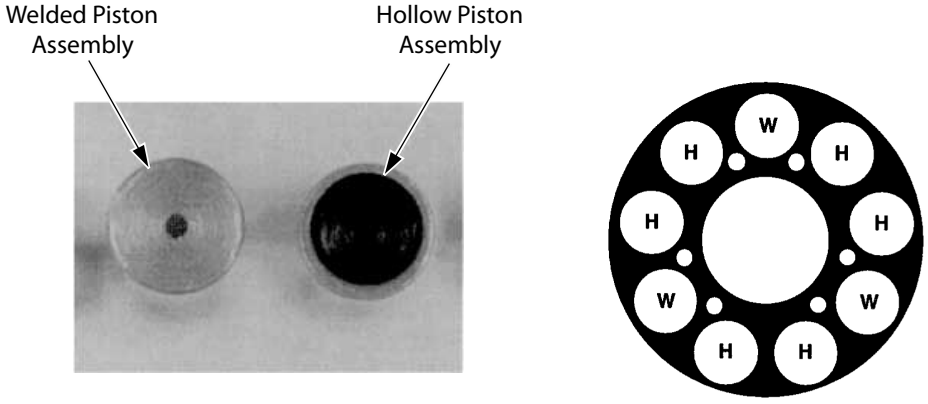
Piston improvement

### Description

Product Information Bulletin PIB-8801 (March, 1988) announced the incorporation of fabricated (welded) piston assemblies, replacing non-fabricated (hollow) piston assemblies, in the cylinder blocks of all Series 90 pumps and motors. This change increases the overall efficiency of the Series 90 product line.

To simplify service parts inventory for all Series 90 units, only individual welded piston assemblies will be available as spare parts. The hollow pistons will be obsoleted. Part numbers for individual welded piston assemblies are listed in this bulletin.

Since all Series 90 pumps and motors have nine (9) pistons, welded pistons being used to replace hollow pistons during repair MUST be install in the cylinder block symmetrically, in multiples of three (3).




When replacing hollow pistons with welded pistons, it is mandatory that the welded pistons be incorporated symmetrically in multiples of three.

### Models affected

All series 90 pumps and motors: 93-xxxx, 94-xxxx, 95-xxxx, and 96-xxxx pumps

### Serial numbers

Welded pistons will be incorporated into all series 90 pumps and motors by the end of the first quarter of 1998.

### Part numbers affected

| Part number | Description |
|---|---|
| 706101 | Piston assembly, welded - 42 cc |
| 367672 | Piston assembly, welded - 55 cc |
| 708230 | Piston assembly, welded - 75 cc |
| 364000 | Piston assembly, welded - 100 cc |

## Service bulletin

**Parts disposition**

Interchangeable

## Service bulletin

**SB-1989-002**

### Products affected

Series 90 pumps

### Subject

Incorporation of adjustable charge relief valve

### Description

As a product improvement Danfoss is incorporating an adjustable charge relief valve on all series 90 variable displacement pumps. This design replaces the previous shim adjustable charge relief valve. The new design valve provides a range of pressure adjustment which covers the available charge pressure options of 290, 348, and 406 psi [20, 24, and 28 bar].

This improvement changes the design of the charge relief valve poppet and plug. The new style charge relief may protrude from the pump end cap approximately 0.27 in [6.9 mm] farther than the adjustable relief valve.

To adjust the new design valve, first install a gauge to measure charge pressure as described in the series 90 service manual. Loosen the adjustment lock nut with a 1-1/16 in hex wrench. Operate the pump at an input speed of 1700 to 2000 rpm and turn the adjustment plug with a large screwdriver while observing the charge pressure. Clockwise rotation of the plug increases the setting, while counterclockwise rotation decreases the setting at a rate of approximately 50 psi [3.4 bar] per turn. Once the desired setting is achieved, torque the lock nut to 34-41 lbf·ft [46-55 Nm], and remove the charge pressure gauge.

Danfoss will offer an adjustable charge relief valve kit for sale as a service part. This kit can be used to service any vintage series 90 variable pump. Since the new and old style charge relief valves are interchangeable as an assembly, the old style parts will no longer be available as service parts.

### Models affected

All 93-2xxx, 94-2xxx, 95-2xxx, and 96-2xxx pumps

### Part numbers affected

| Part number | Description |
|---|---|
| 8002K000-A | Adjustable charge relief valve kit - new style (includes poppet, spring, plug, O-ring, and nut) |

### Parts disposition

Interchangeable (as an assembly)

## Service bulletin

**SB-1989-003**

### Products affected

Series 90 pumps

### Subject

Swashplate leveler spring seat change and servo pressure relief valve deletion

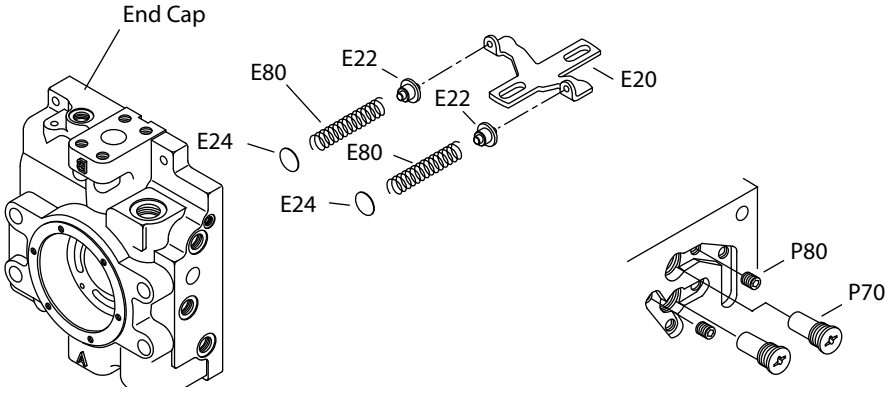
### Description

As a product improvement, Danfoss is adding hardened shims between the swashplate leveler springs and the end cap in series 90 variable pumps. In addition, the leveler spring seats have been hardened, and are now separate pieces from the leveler. Previously, the seats were peened to the leveler.

These improvements require some minor changes in the repair procedures for the series 90 pumps. When installing the lever springs (E80), take care that the spring seats (E22) are in position on the swashplate leveler (E20). Before installing the end cap, assemble the hardened shims (E24) into their pockets in the end cap and retain with petroleum jelly.

In an unrelated change, the servo pressure check relief valves installed in the pump end cap (or rotation valve housing) are no longer required. These valves (P70) will be replaced by standard socket head, straight thread O-ring plugs.

The swashplate leveler, plus the separate spring seats, are directly interchangeable with the old design part. When performing major repairs on any series 90 pump, the hardened shims should be installed between the leveler springs and the end cap. The plugs are also interchangeable with the servo pressure check relief valves.




### Models affected

All 93-2xxx (42 cc), 94-2xxx (55 cc), 95-2xxx (75 cc), and 96-2xxx (100 cc) pumps

### Serial numbers

The hardened swashplate leveler spring seats and hardened shims incorporated at serial number 89-09-xxxxx. Due to the interchangeability of the straight thread plugs with the servo pressure check relief valves, this change will be incorporated during the 1st quarter of 1989.

### Part numbers affected

| Item | Description | Qty | 42cc | 55cc | 75cc | 100cc |
|---|---|---|---|---|---|---|
| E20 | Leveler | 1 | 673897 | 8000094 | 8100130 | 8200007 |
| E22 | Spring seat | 2 | 358820 | 358838 | 358523 | 358846 |

## Service bulletin

| Item | Description | Qty | 42cc | 55cc | 75cc | 100cc |
|---|---|---|---|---|---|---|
| E24 | Shim | 2 | 359034 | 359042 | 359042 | 359059 |
| P70 | Plug | 2 | 9005110-4400 | 9005110-4400 | 9005110-4400 | 9005110-4400 |

### Parts disposition

Non-interchangeable

## Service bulletin

**SB-1989-006**

### Products affected

Series 90 pumps

### Subject

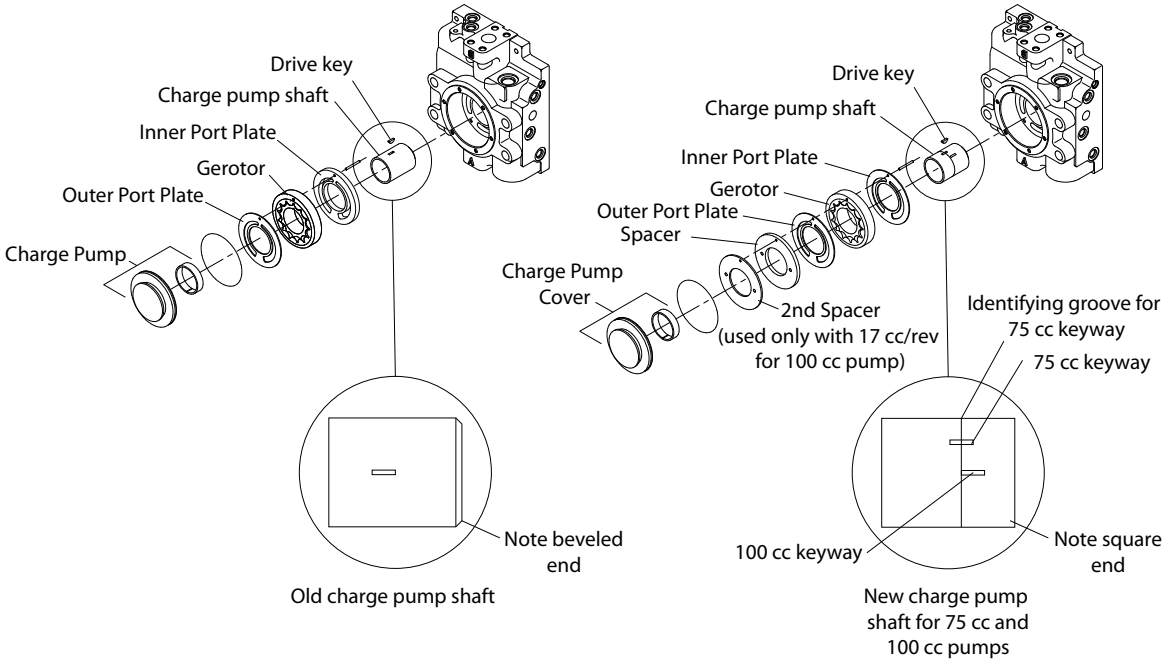
Charge pump design change

### Description

The original series 90 charge pump design included two (2) port plates, one (1) on each side of the gerotor. If the charge pump displacement was less than the maximum available for the pump's frame size, the inside port plate was thicker than the 0.050 in. (1.27 mm) outside port plate.

The new design charge pump will always have two (2) 0.050 in (1.27 mm) thickness port plates, one (1) on each side of the gerotor. Additionally, if the charge pump displacement is less than the maximum available for the pump's frame size, one (1) or two (2) spacers were install between the outside port plate and the charge pump cover.

In addition, the location of the keyway in the change pump shaft has been changed to ensure full engagement of the drive key in the gerotor. The new charge pump shaft used in 75 and 100 cc pumps has two (2) keyways. The rear keyway (farthest from the end cap and splined end of the shaft) is used for 75 cc pumps, while the front keyway is used for 100 cc pumps. The new style charge pump shafts for 55, 75, and 100 cc pumps also changed from having a beveled end to a square end on the end closest to the pump end cap.




### Models affected

All 94-2xxx (55 cc), 95-2xxx (75 cc), and 96-2xxx (100 cc) pumps

## Service bulletin

### Serial numbers

- A-89-17-xxxxx for all pumps manufactured in Ames, Iowa.
- N-89-07-xxxxx for all 95-2xxx (75 cc) pumps manufacture in Neumunster, West Germany.
- N-88-48-xxxxx for all 96-2xxx (100 cc) pumps manufacture in Neumunster, West Germany.

### Part numbers affected

Proper part number versus pump serial number information can be found in the series 90 Parts Manuals.

The thicker inside port plates (thicker than 0.050 in (1.27 mm) will be obsoleted and no longer available as service parts. If these parts require replacement, use the 0.050 in. 1.27 mm) port plate and appropriate spacer(s) as service parts. On 100 cc pumps only, the new charge pump shaft must be used if the new style spacer is used on 55 and 75 cc pumps, the change pump shaft clearance pocket in the end cap changed from a beveled to a straight corner to correspond with the change in the charge pump shaft. Old style charge pump shafts will remain available as service parts and must be used in the 55 and 75 cc beveled pocket end caps.

Old style (beveled pocket) end caps will be obsoleted and no longer available as service parts. If an old style end cap needs replacement, new style end caps can be used with any vintage charge pump hardware and charge pump shaft.

### Parts disposition

Non-interchangeable- must use correct charge pump shaft per serial number of pump

## Service bulletin

**SB-1989-023**

### Products affected

Series 90 100cc variable pumps

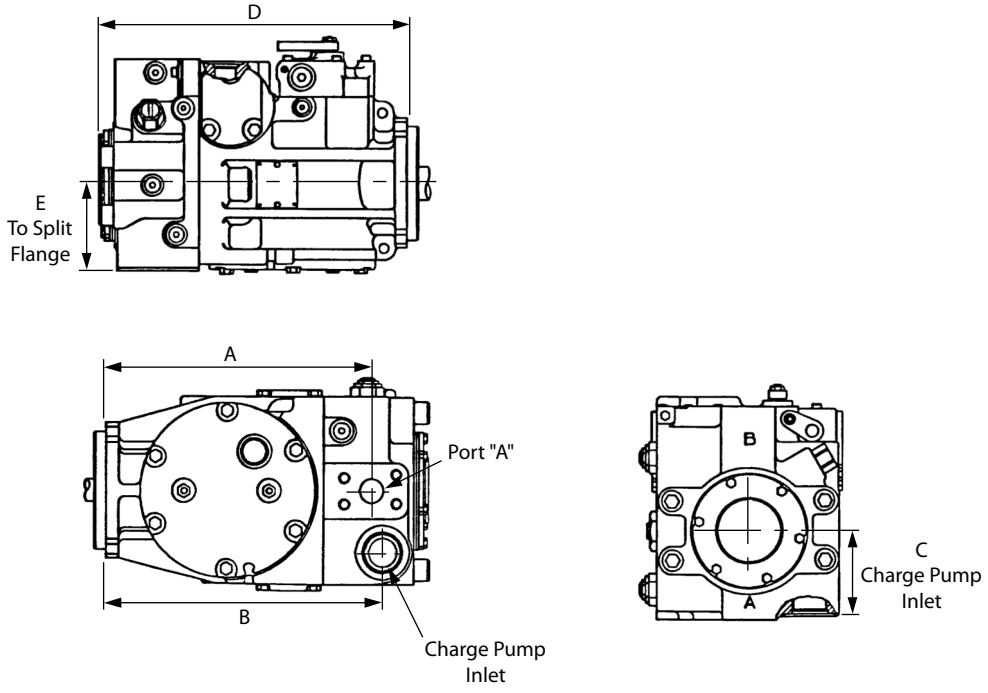
### Subject

Reduction in overall length

### Description

To improve application flexibility, the overall length of series 90 100 cc pumps will be reduced by .39" [10 mm]. Some port locations will also change.

Shown below are all dimensional differences between the current and new design pumps.




| Dim | Old | New |
|---|---|---|
| A | 11.22" [285 mm] | 10.94" [277.9 mm] |
| B | 11.73" [297.9 mm] | 11.34" [288 mm] |
| C | 3.64" [92.5 mm] | 3.53" [89.7 mm] |
| D* | 13.73" [348.7 mm] | 13.34" [338.8 mm] |
| E | 3.87" [98.3 mm] | 3.75" [95.3 mm] |

* All dimensions from the mounting face to an auxiliary pump will also be reduced by .39" [10 mm].

### Models affected

All 96-2xxx variable pumps

### Serial numbers

This change will take place at the serial number A-89-46-xxxxx

## Service bulletin

### Part numbers affected

Non-interchangeability will exist with drive shafts, which become shorter with this change,end caps, end cap gaskets, and the end cap to the variable housing retaining screws. Old style end caps will no longer be available as service parts. In the rare event that a new end cap is required, a new shaft, end cap gasket and screws will also be needed. The new part numbers are as follows:

| Item | Part number | Description | Quantity |
|---|---|---|---|
| G04 | 8200175 | End cap, side port | 1 |
| G30 | 8200166 | Gasket | 1 |
| G90 | 9007210-0608 | Screw | 1 |
| G95 | 9007210-0608 | Screw | 1 |
| J80 | 9007314-1623 | Screw | 4 |
| J80N | 9007210-1621 | Screw | 4 |
| L100 | 8200169 | Shaft, 23 tooth spline | 1 |
| L100 | 8200170 | Shaft, 13 tooth spline | 1 |
| L100 | 8200179 | Shaft, 14 tooth spline | 1 |
| L100 | 8200173 | Shaft, tapered | 1 |
| L100 | 8200176 | Shaft, straight key | 1 |

### Parts disposition

Non-interchangeable

## Service bulletin

**SB-1992-003**

### Products affected

Series 90: 55, 75,100.130 cc pumps

### Subject

Block point change: components redesign

### Description

As part of our overall series 90 product improvement program, numerous components are being redesigned. This redesign is referred to as a “block point” change. The objective of the block point change is to minimize the number of times we change the units while we convert to high volume tooling at various plant sites. These design improvements will provide increased reliability and more application flexibility. The nature of these changes makes customer re-qualification unnecessary. Old style (pre-block point) variable housings and end caps will no longer be available as spare parts.

### Models affected

All series 90 94-2xxx, 95-2xxx, 96-2xxx, and 97-2xxx variable pumps

### Serial numbers

Changes will take place at the serial number 92-12-xxxxx for 100 cc pumps

### Part numbers affected

**Housing** Thickness adjacent to the side cover has been increased

**Side cover** Thickness increased

**End cap** Match housing change; small end cap screws will be larger, orientation of charge relief valve on side port end caps has been changed from oblique to vertical.

| Item | Description | Old part number | New part number |
|---|---|---|---|
| B10 | Variable housing | 8200117 (O) | 726554 |
| E10 | Side cover | 8200011 | 748560 |
| F20 | Slider block | 8200016 (I)(O) | 8200225 (I) |
| G93 | Spacer | 8800404 | 8800564 |
| G94 | Lifting bracket | 8800401 | 8800565 |
| G95 | Washer | n/a | 9009610-3469 |
| B82 | Plug | n/a | 9005110-5600 |
| B83 | Plug | n/a | 9005110-5600 |
| G048 | End cap - twin ports | 8200157 (O) | 8200235 |
| G308 | End cap gasket | 8200166 | 8200212 |
| G908 | Screw | 9007210-0608 | 9007314-0810 |
| G958 | Screw | 9007314-0608 | 9007314-0810 |
| G968 | Screw | 9007314-0607 | 9007314-0808 |
| G046 | End cap - side ports | 8200175 (O) | 8200236 |
| G306 | End cap gasket | 8200166 | 8200212 |
| G906 | Screw | 9007314-0608 | 9007314-0810 |

## Service bulletin

| Item | Description | Old part number | New part number |
|---|---|---|---|
| G956 | Screw | 9007314-0608 | 9007314-0810 |
| G968 | Screw | 9007314-0607 | 9007314-080 |
| G172 | Plug | n/a | 9005110-4400 |
| G182 | Plug | n/a | 9005110-4400 |

### Parts disposition

Non-interchangeable

## Service bulletin

**SB-1992-011**

### Products affected

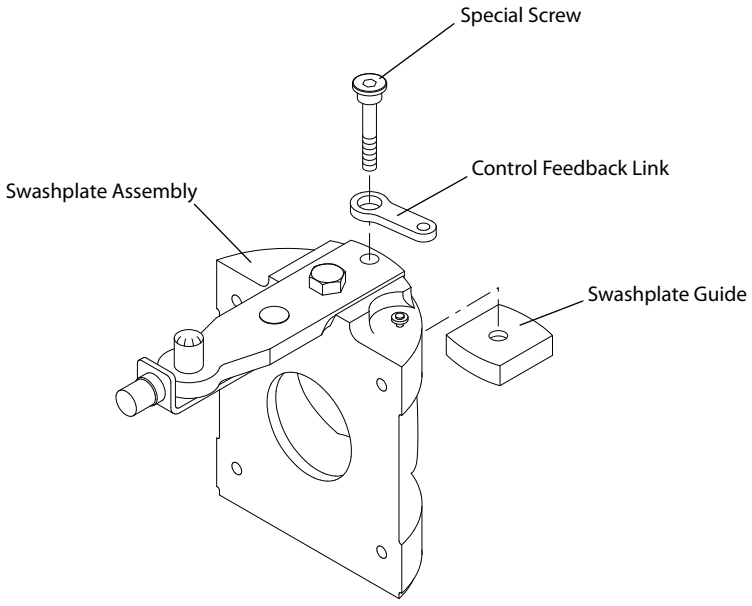
Series 90 - 055, 075, and 100 frame size pumps

### Subject

Feedback link retention

### Description

Effective in September of 1992, the feedback link in series 90 pumps will be mechanically retained to the swashplate. In the past, the link slipped over a specially ground socket head screw and could fall off the screw during assembly. The screw has changed to include a head to retain the link. The feedback link does not change.




### Models affected

All 94-2xxx (55 cc), 95-2xxx (75 cc), and 96-2xxx (100 cc) pumps

### Serial numbers

Pumps with serial number A-92-38-xxxx and beyond include the new feature.

### Part numbers affected

| Frame size | Old screw | New headed screw |
|---|---|---|
| 55 & 75 cc | 9007276-0109 | 9007375-0044 |
| 100 cc | 9007375-0030 | 9007375-0032 |

### Parts disposition

Interchangeable

## Service bulletin

**SB-1993-001**

### Products affected

Series90 - 55, 75, and 100 cc pumps

### Subject

Charge pump design change

### Description

The serial numbers mentioned apply only to Ames production units. Neumunster will incorporate the change in July or August of this year.

To improve efficiency and reliability, the number of parts in series 90 charge pumps is being reduced. The charge pump design on 55 cc through 100 cc frame sizes is being changed such that the outer port plate (H30) is an integral part of the charge pump cover (J15) and distance plates are eliminated.

For auxiliary pad options, the new charge pump cover is rotation dependent. The cover will be marked either left hand (L) or right hand (R). The non-auxiliary pad cover is not rotation dependent.

The charge pump shaft also changes and must be replaced when using the new style hardware. The complete charge pump assembly can be interchanged with corresponding hardware from 89-17 and beyond. However, piece parts are not interchangeable. For units prior to 89-17, consult Danfoss.

### Models affected Serial numbers

All 94-2xxx, 95-2xxx, and 96-2xxx pumps

### Serial numbers

- 55 cc: A-93-10 & beyond
- 75 cc: A-93-10 & beyond
- 100 cc: A93-15 & beyond

### Part numbers affected

| 55 cc | | 75 cc | | 100 cc | | Item number | Description |
|---|---|---|---|---|---|---|---|
| **Before 93-10** | **After 93-10** | **Before 93-10** | **After 93-10** | **Before 93-15** | **After 93-15** | | |
| 8000169 | 8000268 | N/A | N/A | N/A | N/A | H05 | 11 cc charge pump set |
| 8000170 | 8000269 | 8100313 | 8100479 | N/A | N/A | H05 | 14 cc charge pump set |
| 8000171 | 8000270 | 8100314 | 8100480 | 8200158 | 8200238 | H05 | 17 cc charge pump set |
| N/A | N/A | 8100315 | 8100481 | 8200159 | 8200239 | H05 | 20 cc charge pump set |
| N/A | N/A | N/A | N/A | 8200160 | 8200240 | H05 | 26 cc charge pump set |
| 8800314 | N/A | 8800314 | N/A | 8800314 | N/A | H30 | Port plate |
| N/A | Incl. in H05 | N/A | Incl. in H05 | 8800315 | Incl. in H05 | H31 | Port plate |
| 8000174 | 8000267 | 337956 | 8100476 | 337956 | 8100476 | H50 | Charge pump shaft |
| 8800513 | 8800834 | 8800513 | 8800834 | 8800513 | 8800834 | J15N | Charge pump cover assy. |
| 8800514 | See J15L/R | 8800514 | See J15L/R | 8800514 | See J15L/R | J15 | Aux. charge pump cover |

## Service bulletin

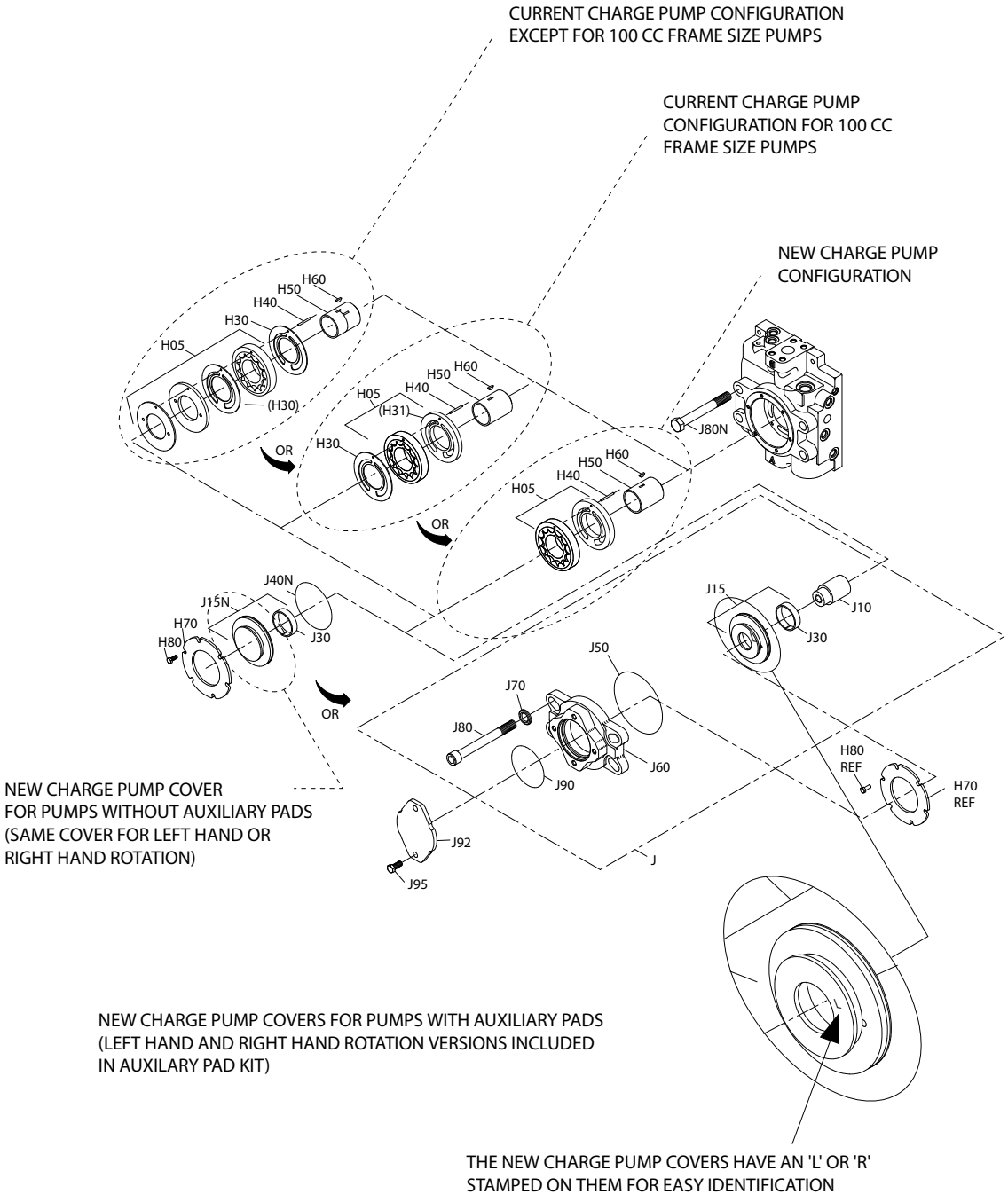
| 55 cc | | 75 cc | | 100 cc | | Item number | Description |
|---|---|---|---|---|---|---|---|
| Before 93-10 | After 93-10 | Before 93-10 | After 93-10 | Before 93-15 | After 93-15 | | |
| N/A | 8800833 | N/A | 8800833 | N/A | 8800833 | J15L | Aux. L.H. cover assy. |
| N/A | 8800832 | N/A | 8800832 | N/A | 8800832 | J15R | Aux. R.H. cover assy. |

Piece parts are not interchangeable

### Parts disposition

Interchangeable for s/n 89-17-xxxxx and beyond. Piece parts are not interchangeable.

## Service bulletin



## Service bulletin

**SB-1993-015**

### Products affected

Series 90 pump: all frame sizes

### Subject

Servo arm interference with speed sensor ring

### Description

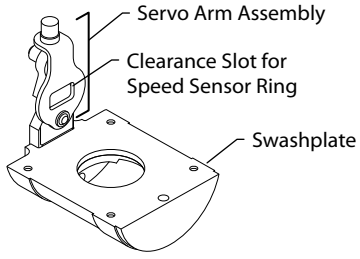
This service bulletin revision adds the 42 cc frame size and the incorporation date of 55 through 100 cc.

A potential interference problem has been identified in series 90 42, 55, 75, and 100 cc frame size pumps built since early 1992. Interference may occur between the swashplate hold down bracket on the servo arm and the speed sensor ring, which may be installed on the cylinder block as an option.

A new hold down bracket has been designed to provide clearance for the speed sensor ring.

If a cylinder block with speed ring must be installed in one of the subject pumps, a servo arm assembly with the new hold down will also be required.

Sometime during the first quarter of 1994, all 55, 75, and 100 cc pumps will be equipped with the new design hold down bracket. The 42 cc pumps will implement the new design hold down bracket in the second quarter of 1994.




### Models affected

All 93-2xxx, 94-2xxx, 95-2xxx, and 96-2xxx variable pumps

### Serial numbers

- 42 cc at serial number 92-16-xxxxx
- 55 cc at serial number 92-06-xxxxx
- 75 cc at serial number 92-17-xxxxx
- 1000 cc at serial number 92-12-xxxxx

### Part numbers affected

| Frame size | Old servo arm (no slot in bracket) | New servo arm (with slot in bracket) |
|---|---|---|
| 42 cc | 354282 | 502976 |
| 55 cc | 8000191 | 8000318 |
| 75 cc | 8100366 | 8100499 |
| 100 cc | 8200182 | 8200268 |

## Service bulletin

### Parts disposition

Non-interchangeable - Pumps with speed sensor ring must use the new servo arm.

## Service bulletin

**SB-1994-017**

### Products affected

Series 90 55-100cc variable pumps

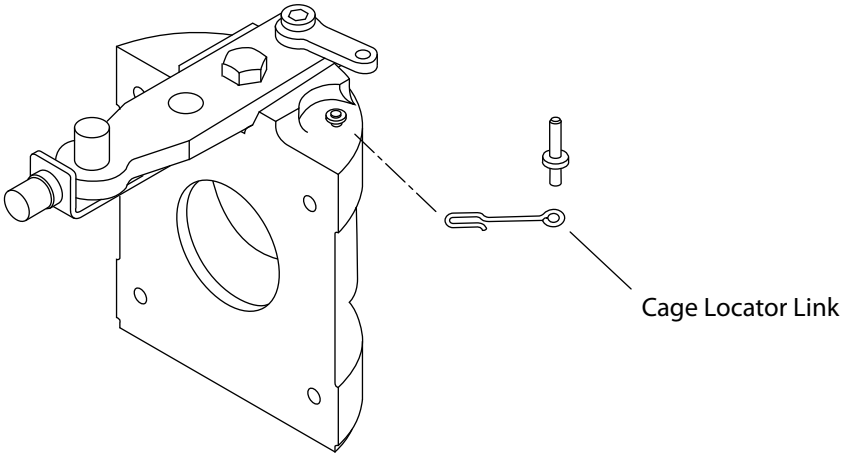
### Subject

Swashplate cage locator

### Description

As a product improvement, Danfoss has made a design change to the cage locator link used on the 55 thru 100 cc variable pumps.

The new link is made from square wire. In the past, the link was made from round wire, This is an interchangeable change.




### Models affected

All 94-2xxx + 942xxx, 95-2xxx, + 952xxx and 96-2xxx + 962xxx variable pumps

### Serial numbers

- 55and 75 cc pumps serial number 94-18-xxxxx
- 100 cc pumps will begin 4th quarter 1994

### Part numbers affected

| Size | Old link | New link |
|---|---|---|
| 55cc | 8100241 | 8100506 |
| 75cc | 8100241 | 8100506 |
| 100cc | 8200108 | 8200273 |

### Parts disposition

Interchangeable

## Service bulletin

**SB-1994-018**

### Products affected

Series 90 variable pumps

### Subject

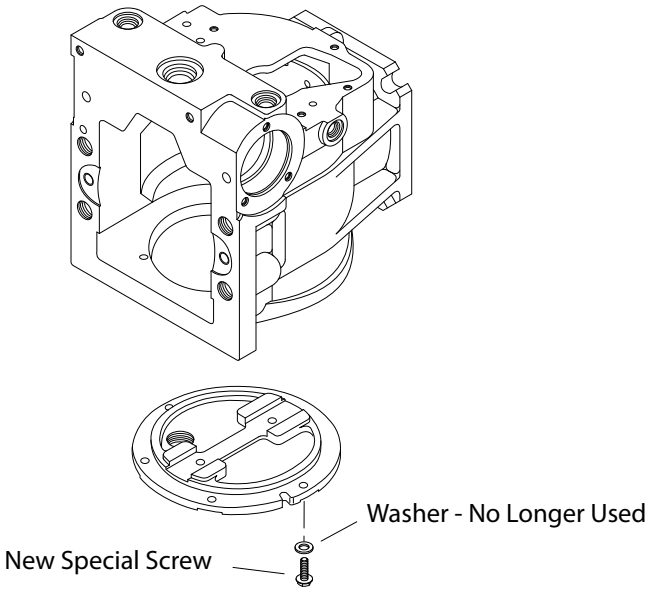
Side cover washer elimination

### Description

The washers located under the side cover screws have been removed on all series 90 42 through 130 cc variable pumps.

As before, the side cover screws must be replaced if they are removed for any reason. The special coating, which seals and retains the screws, wears off when the screws are removed.

The screw length changed on 55 through 100 cc pumps, so it is important that the washers are discarded during repair. The proper screw is included in the overhaul seal kits.




### Models affected

All 93-2xxx, 94-2xxx, 95-2xxx, 96-2xxx, and 97-2xxx variable pumps

### Serial numbers

Change took place during the quarter 2 and 3 of 1994

### Part numbers affected

| Pump size | Old screw | New screw |
|---|---|---|
| 42 cc | 648477 | Same part number |
| 55-100 cc | 9007276-0115 | 517228 (5000206) |
| 130 cc | 308700 | Same part number |

## Service bulletin

**Parts disposition**

Interchangeable

## Service bulletin

**SB-1994-035**

### Products affected

Series 90 100cc variable pumps

### Subject

Elimination of housing/end cap screw

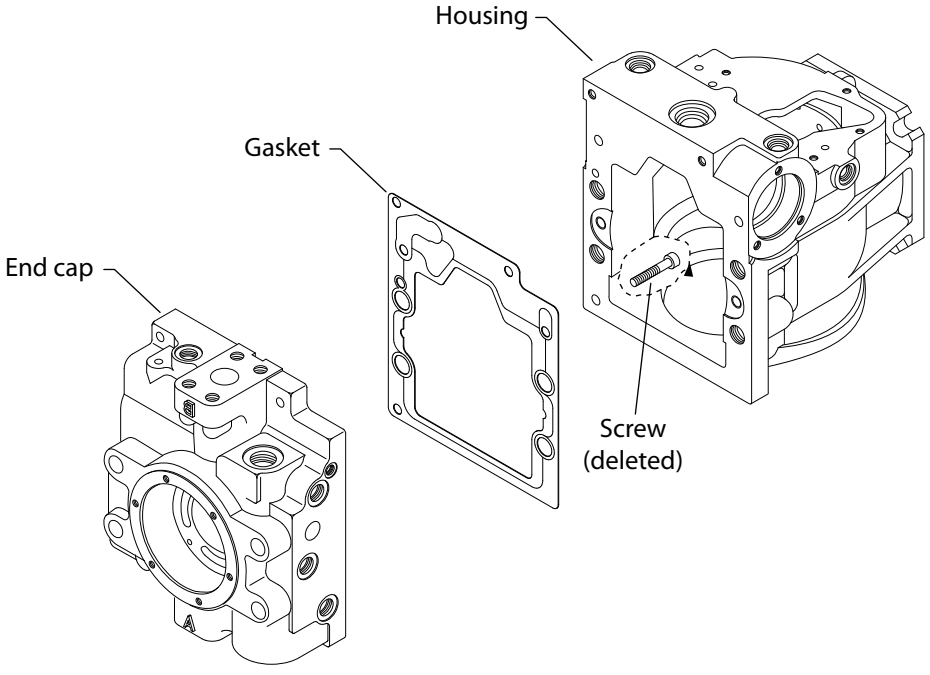
### Description

As a product improvement, Danfoss reinforced the 100 cc pump housing, eliminating the need for the screw shown below.

The hole was not removed from the end cap gasket so it can be used with any housing/ end cap combination.

The hole was removed from the end cap, but the part number did not change. The new end cap can be used with either housing.

The old housing was obsoleted and is no longer available as a service part.




### Models affected

All series 90 100cc variable pumps

### Serial numbers

Change occurred at serial number 95-07-xxxxx

## Service bulletin

### Part numbers affected

| Description | Part number (prior to 95-07) | Part number (95-07 & beyond) |
|---|---|---|
| Housing | 726554 | 8200305 |
| Screw | 9007314-0808 | no longer required |

### Parts disposition

Interchangeable

## Service bulletin

**SB-1994-36**

### Products affected

Series 90 55 thru 130 cc variable pumps

### Subject

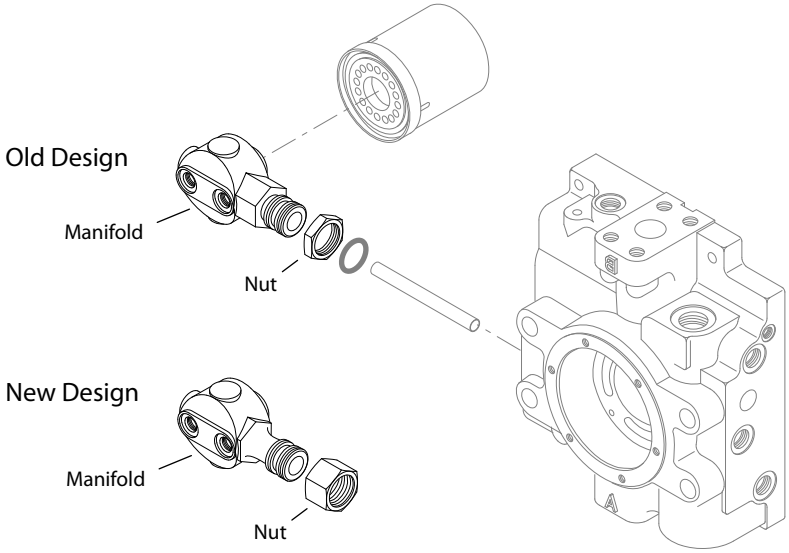
Integral filtration manifold

### Description

As a product improvement, Danfoss is changing the integral filter manifold and bulkhead nut to make it more easily indexed.

The old bulkhead nut may be used with either the old or new filter manifold. The new bulkhead nut can only be used with the new filter manifold.

The old bulkhead nut will remain available as a service part. The old filter manifold will be obsoleted and no longer available as a service part.




### Models affected

All series 90 55 thru 130 cc variable pumps with “L”, “M”, or “P” filtration option code

### Serial numbers

Change occurred at serial number95-18-xxxxx

### Part numbers affected

| Description | Part number (prior to 95-18) | Part number (after 95-18) |
|---|---|---|
| Filter manifold | 8800200 | 8800896 |
| Bulkhead nut | 9002863-1600 | 5000222 |

### Parts disposition

Interchangeable- new bulkhead nut can only be used with new filter manifold

## Service bulletin

**SB-1995-003**

### Products affected

Series 90 variable pumps, all frame sizes

### Subject

Manual displacement control (MDC) with DC electric solenoid override

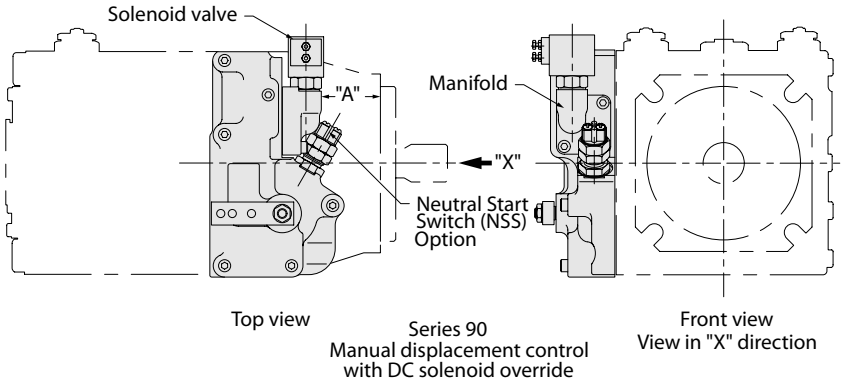
### Description

In order to accommodate our European customers, the manifold which attaches to the front of the manual displacement control (MDC) housing is being changed.

The European solenoid valve requires a thicker manifold to provide clearance between the solenoid and the front of the MDC housing. The revised manifold will protrude closer to the mounting flange of the pump, reducing dimension"A" shown in the accompanying drawing by approximately 5 mm [0.2 in]. Please see chart below for specific clearances.

The thicker manifold requires longer screws and may be used with either the U.S. or European sourced solenoid.

This change will become effective during March of 1995. The old manifold will be obsoleted and no longer available as a service part.




Series 90
Manual displacement control
with DC solenoid override

| Frame size | | 42 | 55 | 75 | 100 | 130 |
|---|---|---|---|---|---|---|
| Dimension "A" mm [in] | Old | 39.9 [1.57] | 55.9 [2.20] | 54.1 [2.31] | 60.2 [2.37] | 74.4 [2.93] |
| | New | 34.9 [1.39] | 50.9 [2.0] | 49.1 [1.93] | 55.2 [2.17] | 69.4 [2.73] |

### Models affected

All series 90 variable pumps using MDC with DC electric solenoid override.

### Part numbers affected

| Description | Current part number | New part number | Quantity |
|---|---|---|---|
| Manifold | 8800365 | 505022 | 1 |
| Screw | 9007314-0605 | 9007314-0606 | 2 |

### Parts disposition

Interchangeable (new manifold requires longer screws)

## Service bulletin

**SB-1995-025**

### Products affected

Series 90 55, 75, and 100 cc variable pumps

### Subject

Side cover design change

### Description

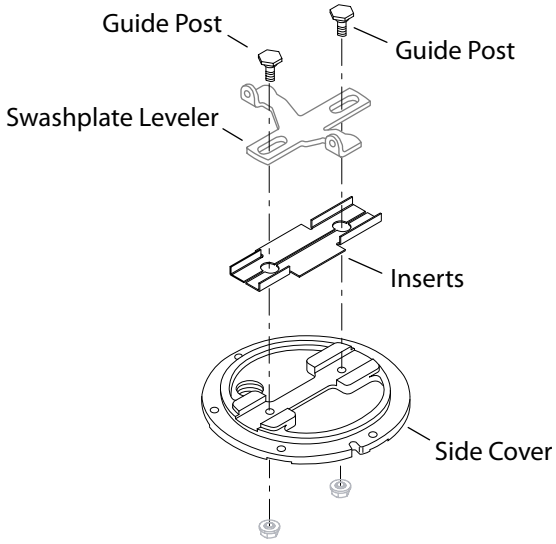
As a product improvement, Danfoss is changing the side cover and swashplate leveler ("T-bar") guide post design.

The new design side cover will have two hardened inserts in the machined slot, which serves as a guide for the swashplate leveler, and modified guide posts. The swashplate leveler does not change.

Old guide posts will remain available for service requirements of pumps with the old design side cover.

The old style side cover will be obsoleted and no longer available as a service part. A service kit has been created for replacing the old design side cover. The kit includes the new side cover, guide posts, and inserts.

Piece parts are not interchangeable.




### Models affected

All 55,75, & 100 cc variable pumps

### Serial numbers

This change became effective at serial number A-95-50-xxxxx.

## Service bulletin

### Part numbers affected

| Description | Old part numbers | | New part numbers | | |
|---|---|---|---|---|---|
| | Guide post | Side cover | Insert assy. | Guide post | Side cover kit |
| 55 cc | 8100353 | 8000157 | 8000406 | 8000379 | 8510097 |
| 75 cc | 8100353 | 8100226 | 8100562 | 8000379 | 8510098 |
| 100 cc | 8100353 | 746560 | 8200321 | 8000379 | 8510099* |

### Parts disposition

Interchangeable as a kit. Piece parts are not interchangeable.

## Service bulletin

**SB-1996-009**

### Products affected

Series 90 55, 75, and 100 cc variable pumps

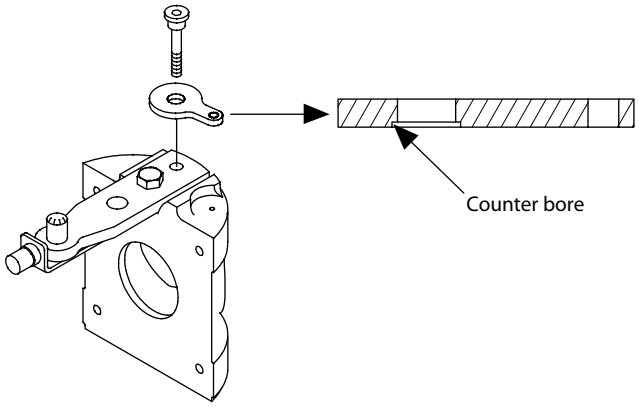
### Subject

Change swashplate feedback link

### Description

As a product improvement, Danfoss is changing the design of the swashplate feedback link used on the 55, 75, and 100 cc variable pumps.

The new swashplate link has a counter bore that allows for clearance between the feedback link and the servo arm screw. The counter bore side of the link must be installed such that the counter.




### Models affected

All 942xxx, 952xxxx, and 962xxx variable pumps

### Serial numbers

For 55and 75 cc pumps, the change became effective at serial number A-96-22-xxxxx. For 100 cc pumps, the change became effective at serial number A-96-12-xxxxx.

### Part numbers affected

| Frame size | Old part number | New part number |
|---|---|---|
| 55cc | 8000096 | 8000481 |
| 75cc | 8000096 | 8000481 |
| 100cc | 8200106 | 8200344 |

### Parts disposition

Interchangeable

## Service bulletin

**SB-1997-048**

### Products affected

Series 90 100 cc variable pumps

### Subject

Swashplate leveler assembly design change

### Description

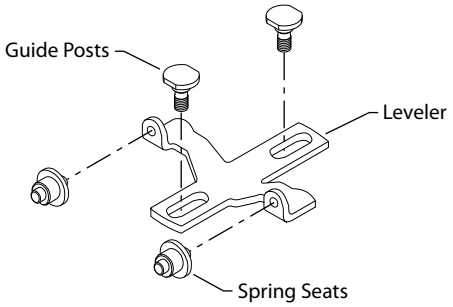
Danfoss has changed the design of the swashplate leveler, guide post, and spring seat assembly used on series 90 100 cc pumps. This change improves the serviceability of the pump by eliminating the potential for interference between the hall effect speed sensor and the swashplate leveling springs. The swashplate leveler, guide post, and spring seat designs have been optimized to produce predictable and uniform spring deflection during the assembly and operation of the pump. This change became effective on new production pumps in November of 1997.

The design optimization requires that all three parts (swashplate leveler, guide post, and spring seat) be utilized as an assembly. Danfosss recommends that all three parts be replaced when servicing any one of the parts individually. As an additional convenience Danfoss has created service kit 8510204 comprised of the side cover assembly, swashplate leveler, guide posts, and spring seats.

The previous spring seat has been obsoleted and is no longer available, therefore all three components or the service kit must be utilized when the servicing of a pump, with a serial date code prior to A-97-46-xxxxx, requires a new spring seat.

The previous leveler will remain available as a service item for a period of time, however Danfoss recommends that when servicing of the leveler is required, on pumps with a serial date code prior to A-97-46-xxxxx, all three components or the service kit be utilized.

The previous guide post will remain available as a service item indefinitely, due to usage within other series 90 products. Danfoss recommends that when servicing of the guide post is required, on pumps with a serial date code prior to A-97-46-xxxxx, all three components or the service kit be utilized.




### Models affected

All 96-2xxx and 962xxx variable pumps

### Serial numbers

This change became effective at serial number 97-46-xxxxx

## Service bulletin

### Part numbers affected

| Description | Prior to 97-46 | Service kit | Current production |
|---|---|---|---|
| Spring seat | 358846 | 8510204 | 8200392 |
| Swashplate leveler | 8200007 | 8510204 | 8200395 |
| Guide post | 8000510 | 8510204 | 8000575 |
| Side cover kit | 8510099* | 8510204 | - |

### Parts disposition

Non-interchangeable

## Service bulletin

**SB-1998-018**

### Products affected

Series90 55, 75, and 100 cc variable pumps

### Subject

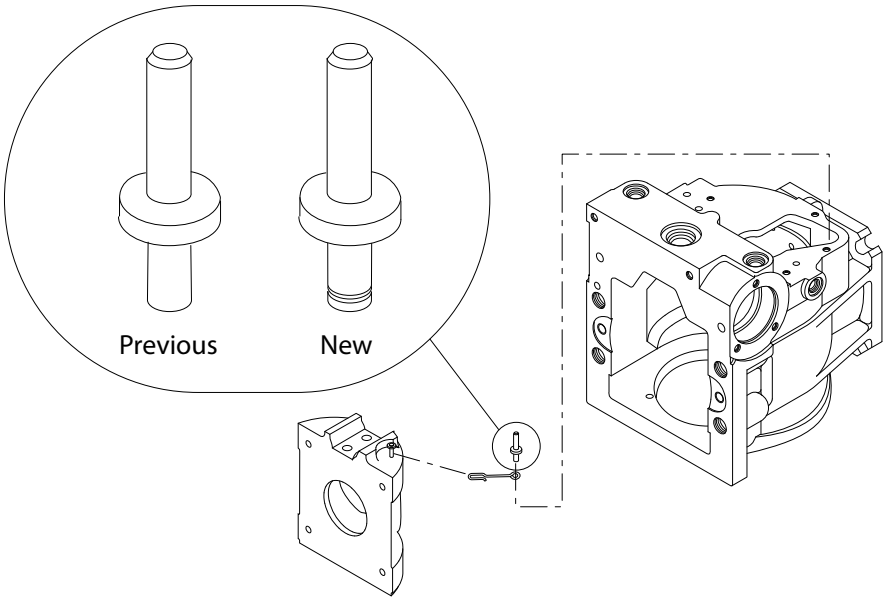
Swashplate bearing cage locator pin

### Description

Danfoss has modified the design of the swashplate bearing cage locator pin used in the series 90 55, 75, and 100 cc variable displacement pumps.

The improved design includes a rubber gripping element on the portion of the pin that is in the main pump housing. The rubber element aids in retaining the pin in the housing during normal pump assembly and servicing procedures, by increasing the interference fit between the pin and the pilot hole in the pump housing.

To aid in identifying this change, Danfoss has released a new part number for the updated pin design. The new pin is completely interchangeable with the previous pin part number. The previous pin has been obsoleted.




### Models affected

All 94-2xxx, 942xxx, 95-2xxx, 952xxx, 96-2xxx and 962xxx variable pumps

### Serial numbers

This change became effective at serial number 98-24-xxxxx

### Part numbers affected

*Pin part number*

| Prior to 98-24 | 98-24 and on |
|---|---|
| 8100235 | 8801135 |

## Service bulletin

**Parts disposition**

Interchangeable

## Service bulletin

**SB-1998-041**

### Products affected

Series 90 55, 75, and 100 cc variable pumps, Series 90 55 and 75 cc variable motors

### Subject

Piston hold down mechanism design change

### Description

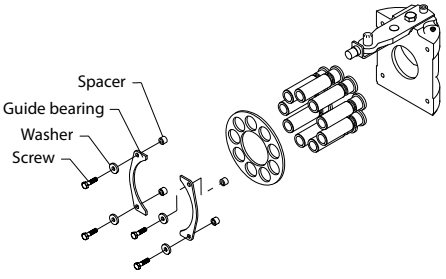
Danfoss has initiated a change to the piston hold down mechanism used on series 90 55, 75, and 100 cc variable displacement pump and the series 90 55 and 75 cc variable displacement motors.

Previously, the hold down assembly consisted of a spacer, slipper guide bearing, washer, and screw. The spacer provides a fixed amount of operational clearance for the slipper and slipper retainer. The guide bearing provides a wear surface for the slipper retainer, while the hold down screws and washers retain the assembly.

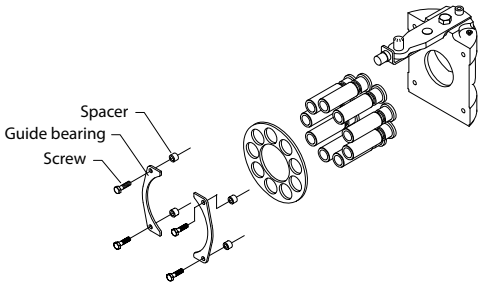
The change involved with the current design update is the removal of the washer from the assembly. This design was initially introduced on the series 90 42 and 130 cc pumps in 1994, and with this change a uniform product family is achieved.

With the removal of the washer, the required length of the assembly screw is reduced. The change in the assembly screw also affects the dimensions of the spacer. Therefore, with this change, the part numbers associated with the assembly screw and spacer have been changed. Some of the assembly screws are parts already maintained in the parts system.

Although the new spacer and assembly screw are directly interchangeable with the previous swashplate assembly components, we recommend that the components be serviced in combination. Since the new spacer may be serviced as a stand alone item, the previous spacer has been obsoleted and will no longer be available as a service part.




Previous hold down design




New hold down design

### Models affected

94-2xxx,942xxxx, 95-2xxx, 952xxxx, 96-2xxx, and 962xxxx variable pumps

94-2xxx,942xxxx, 95-2xxx, and 952xxxx variable motors

### Serial numbers

Danfoss Ames production - effective at serial number A-98-48-xxxxx

## Service bulletin

### Part numbers affected

| Component | Displacement | Prior to 98-48 | Current |
|---|---|---|---|
| Hold down screw | 55 cc | 314419 (9007276-0114) | 648477 |
| Spacer | 55 cc | 8000266 | 8000619 |
| Washer - pumps | 55 cc | 9009625-0159 | N/A |
| Washer - motors | 55 cc | 9009625-0129 | N/A |
| Hold down screw | 75 cc | 9007276-0099 | 9007276-0114 |
| Spacer | 75 cc | 8100450 | 8100777 |
| Washer - pumps | 75 cc | 9009625-0159 | N/A |
| Washer - motors | 75 cc | 9009625-0129 | N/A |
| Hold down screw | 100 cc | 9007276-0099 | 9007276-0114 |
| Spacer | 100 cc | 8200216 | 8200422 |
| Washer - pumps | 100 cc | 9009625-0159 | N/A |

### Parts disposition

Interchangeable

## Service bulletin

**SB-1998-066**

### Products affected

Series 90, 55, 75, and 100cc variable pumps

### Subject

Charge pump shaft part number change

### Description

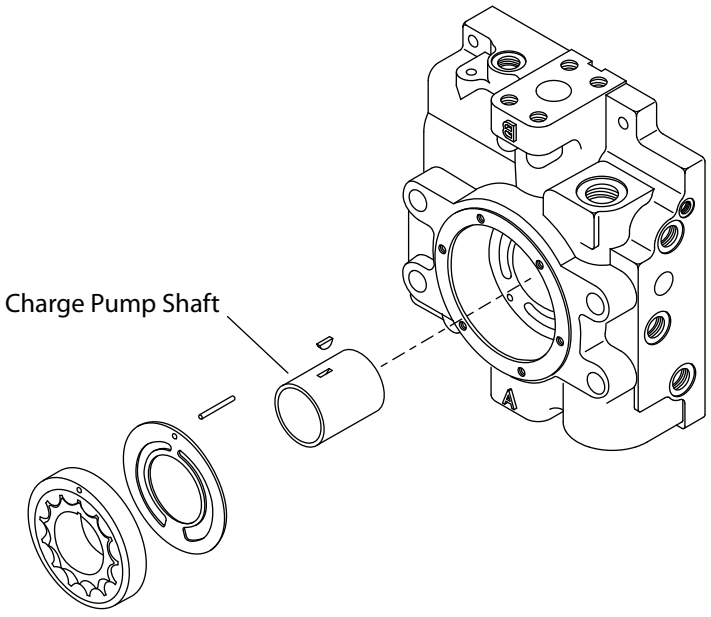
As a product improvement, Danfoss has modified the design of the charge pump shaft used in series 90 55, 75 and 100 cc pumps. This change affects all charge pump sizes (11, 14, 17, 20, 26, and 31 cc) available in the series 90 displacement range.

The series 90 55 cc variable displacement pump uses the same charge pump shaft, regardless of charge pump size (11, 14, or 17 cc). The series 90 75 and 100 cc variable displacement pumps, utilize a common charge pump shaft for the standard size charge pumps (75 cc standard equals 14, 17, and 20 cc and 100 cc standard equals 17, 20, and 26 cc).

A unique charge pump shaft is utilized by series 90 75 cc variable displacement pumps equipped with the 26 cc size charge pump., while the same unique shaft is used by series 90 100 cc variable displacement pumps equipped with 31 cc size charge pumps.

The design modification includes a surface finish change to the charge pump shaft which improves the wear characteristics between the charge pump shaft and the journal bearings in the charge pump cover and end cap.

To assist in identifying this change, Danfoss has released new charge pump shaft part numbers. The new shafts are completely interchangeable with the previous shafts. The new shaft has replaced the previous shaft in new pump assemblies and charge pump service kits. The previous shafts have been obsoleted and are no longer available as a service part. The chart on the next page will assist you in determining the part number changes.




### Models affected

94-2xxx, 942xxxx, 95-2xxx, 952xxxx, 96-2xxx, and 962xxxx variable pumps

## Service bulletin

Pump models 9621723 and 9622117 were released with a special charge pump option (code W-26 cc charge pump with special shaft). With this product modification, the charge pump option code for these two models has been changed from W to the standard option (code F-26 cc charge pump). The special shaft part number 8801176 has been obsoleted and replaced with shaft part number 8801178.

### Serial numbers

Danfoss Ames production - effective at serial number A-99-40-xxxxx

Danfoss Neumunster production - effective at serial number N-99-39-xxxxx

### Part numbers affected

| Series 90 Size | Charge pump | Previous shaft | New shaft | Charge kit | | |
|---|---|---|---|---|---|---|
| | | | | No aux. pad | LH w/aux. | RH w/aux. |
| 55 | 11 | 8000267 | 8801177 | 8510028 | 8510029 | 8510030 |
| 55 | 14 | 8000267 | 8801177 | 8510031 | 8510032 | 8510033 |
| 55 | 17 | 8000267 | 8801177 | 8510034 | 8510035 | 8510036 |
| 75 | 14 | 8100476 | 8801178 | 8510037 | 8510038 | 8510039 |
| 75 | 17 | 8100476 | 8801178 | 8510040 | 8510041 | 8510042 |
| 75 | 20 | 8100476 | 8801178 | 8510043 | 8510044 | 8510045 |
| 75 | 26* | 8100478 | 8801179 | N/A | N/A | N/A |
| 100 | 17 | 8100476 | 8801178 | 8510046 | 8510047 | 8510048 |
| 100 | 20 | 8100476 | 8801178 | 8510049 | 8510050 | 8510051 |
| 100 | 26 | 8100476 | 8801178 | 8510052 | 8510053 | 8510054 |
| 100 | 31* | 8100478 | 8801179 | N/A | N/A | N/A |

### Parts disposition

Interchangeable

## Service bulletin

**SB-1998-070**

### Products affected

Series 90 100cc variable pumps

### Subject

Swashplate leveler design change

### Description

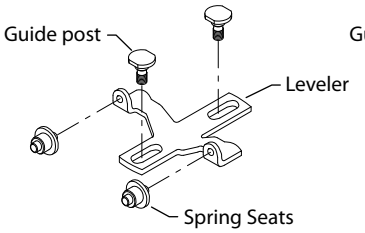
Danfoss has modified the design of the swashplate leveler and spring seat assembly used on Series 90 100 cc pumps. The assembly and serviceability of the pump has been improved by integrating the spring seat directly into the swashplate leveler.

The new design still provides the same predictable and uniform spring deflection during the operation of the pump, but eliminates the potential for the spring seats to separate from the leveler during assembly and servicing. Side cover service kit 8510204 has been updated to include the new integrated leveler, while maintaining the latest side cover assembly and guide posts.

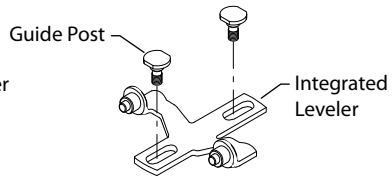
As communicated previously in Service Bulletin 9748, Danfoss recommends that the leveler, spring seat, and guide post parts be serviced as a group on Series 90 100cc pumps with serial dates between 92-12-xxxxx to 97-46-xxxxx. With the integrated leveler, this is represented as follows;

Swashplate levelers 8200007 and 8200395 and spring seat 8200392 have been obsoleted and will no longer be available as a service part. Guide post part number 8000575 will remain unchanged.

When servicing of the leveler is required on pumps with serial dates after A-97-46-xxxxx, the new integrated swashplate leveler/spring seat (8200393) can be used. When servicing pumps with serial dates between A-95-50-xxxxx and A-97-46-xxxxx, the new integrated swashplate leveler/spring seat (8200393) and guide post (8000575) or the side cover service kit must be utilized. When servicing pumps with serial date between A-92-12-xxxxx and A-95-49-xxxxx,the side cover service kit must be used. When servicing pumps with serial dates between A-87-02-xxxxx and A-92-11-xxxxx, the side cover service kit must be used.




Previous Design




New Design

### Models affected

All 96-2xxx and 962xxxx variable displacement pumps

### Serial numbers

Danfoss Ames production: A-99-01-xxxxx.

Danfoss Neumunster production: N-99-22-xxxxx.

## Service bulletin

### Part numbers affected

| Description | 87-02 to 92-11 | Replacement Parts |
|---|---|---|
| Spring Seat | 358846 | Order Kit# 8510132 |
| Swashplate leveler | 8200007 | Order Kit# 8510132 |
| Guide Post | 8100353 | Order Kit# 8510132 |
| Side Cover | 8200011 | Order Kit# 8510132 |
| Inserts | Not Applicable | Not Applicable |
| Side Cover Kit | Not Available | 8510132 |

| Description | 92-13 to 95-49 | Replacement Parts |
|---|---|---|
| Spring Seat | 358846 | Order Kit# 8510204 |
| Swashplate leveler | 8200007 | Order Kit# 8510204 |
| Guide Post | 8100353 | Order Kit# 8510204 |
| Side Cover | 746560 | Order Kit# 8510204 |
| Inserts | Not Applicable | Order Kit# 8510204 |
| Side Cover Kit | Not Available | 8510204 |

| Description | 95-50 to 97-46 | Replacement Parts |
|---|---|---|
| Spring Seat | 358846 | None** |
| Swashplate leveler | 8200007 | 8200393* |
| Guide Post | 8000510 | 8000575* |
| Side Cover | 501574 | 501574 |
| Inserts | 8200321 | 513889-S |
| Side Cover Kit | 8510204 | 8510204 |

** Use 8200393 leveler and 8000575 guide posts

* Must be replaced together

| Description | 97-47 to 98-52 | Replacement Parts |
|---|---|---|
| Spring Seat | 8200392 | None** |
| Swashplate leveler | 8200395 | 8200393 |
| Guide Post | 8000575 | 8000575 |
| Side Cover | 501574 | 501574 |
| Inserts | 8200321 | 513889-S |
| Side Cover Kit | 8510204 | 8510204 |

| Description | 99-01 to Current | Replacement Parts |
|---|---|---|
| Spring Seat | None | None |
| Swashplate leveler | 8200393 | 8200393 |
| Guide Post | 8000575 | 8000575 |
| Side Cover | 501574 | 501574 |
| Inserts | 8200321 | 513889-S |
| Side Cover Kit | 8510204 | 8510204 |

### Parts disposition

Interchangeable- recommend replacement as a group

## Service bulletin

**SB-1999-019**

### Products affected

Series90 55, 75, and 100 cc variable pumps

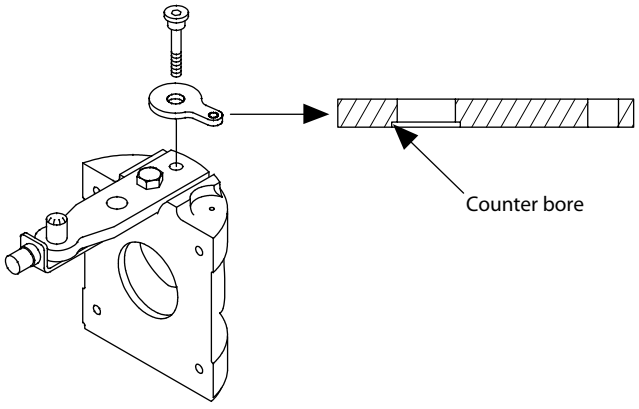
### Subject

Feedback link change

### Description

As a product improvement, Danfoss is changing the design of the swashplate feedback link used on the 55, 75, and 100 cc variable pumps.

In 1996, a counter bore was added to the design of our swashplate link to allow for a higher clamping load when assembled to the servo arm. This change was described in SB-1996-009. The counter bore is no longer required on most units due to a design change to the servo arm. Danfoss recommends the old feedback link be used when servicing pumps with dates codes prior to 96-40-xxxxx. The old feedback link will remain available as a service part.




### Models affected

All series 90 55, 75, and 100cc variable pumps

### Serial numbers

This change became effective at serial number A-96-40-xxxxx

### Part numbers affected

| Size | Old part number | New part number |
|---|---|---|
| 100 cc | 8200344 | 8200413 |
| 55 & 75 cc | 8000481 | 11070305 |

### Parts disposition

Non-interchangeable

## Service bulletin

**SB-1999-041**

### Products affected

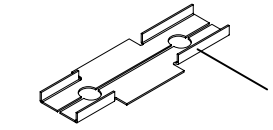
Series 90 variable pumps

### Subject

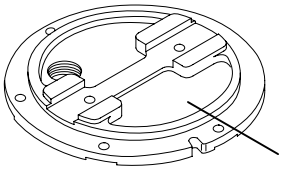
Change to side cover insert material

### Description

As a continuous product improvement, Danfoss has changed the side cover insert material to improve wear characteristics. The new material is more wear resistant than the previous material. In order to track this change, new part numbers have been created and the old part numbers will be obsolete.



Side Cover Insert Kit



Side Cover

### Models affected

93-2xxx, 94-2xxxx, 95-2xxx, 96-2xxxx, 97-2xxx, 98-2xxx, and 99-2xxx

### Serial numbers

| Frame size | NMS effective date | Ames effective date |
|---|---|---|
| 42 cc | N-99-36-xxxxx | N/A |
| 55 cc | N-00-18-xxxxx | A-00-18-xxxxx |
| 75 cc | N-99-26-xxxxx | A-00-38-xxxxx |
| 100 cc | N-99-31-xxxxx | A-00-38-xxxxx |
| 130 cc | N-99-33-xxxxx | N/A |
| 180 cc | N-99-36-xxxxx | N/A |
| 250 cc | N-99-36-xxxxx | N/A |

### Part numbers affected

| Frame size | Old part number | New part number |
|---|---|---|
| 42 cc | 506916 | 513885 |
| 55 cc | 8000406 | 513886-S |
| 75 cc | 8000562 | 513888 |
| 100 cc | 8200321 | 513889-S |
| 130 cc | 8300004 | 513890-S |
| 180 cc | 506914 | 513891 |
| 250 cc | 506914 | 513891 |

## Service bulletin

**Parts disposition**

Interchangeable

## Service bulletin

**SB-1999-057**

### Products affected

Series 90 100 cc variable pumps

### Subject

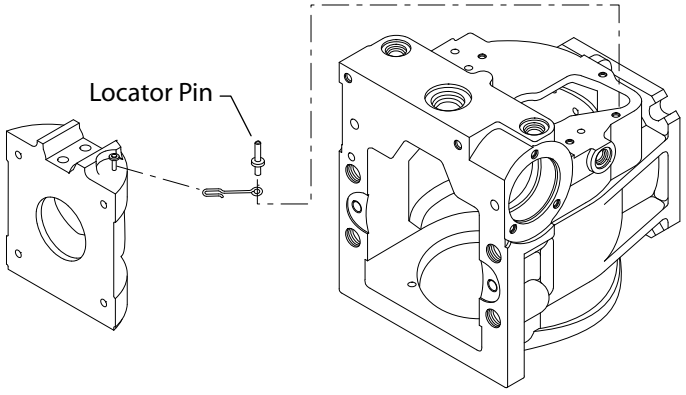
Cage pin change

### Description

Danfoss has discovered the possibility of a tolerance stack up issue with the bearing locator pin. The purpose of this pin is to keep the alignment of the bearing to the swashplate. If the pin were to come out of its position you may experience erratic pump control and/or loss of performance.

To address this issue we have lengthened the bearing locator pin by 2 mm to increase the minimum amount of engagement.

The new pin is interchangeable with the old pin. Danfoss recommends that the pin be replaced when servicing series 90 - 100 cc pumps. The old pin part number will remain available since it is still being used for the 55 cc and 75 cc pumps.




### Models affected

All series 90 100 cc variable pumps

### Serial numbers

This change became effective at serial number A-99-47-xxxxx and N-99-50-xxxxx.

### Part numbers affected

| Old part number | New part number |
|---|---|
| 8801135 | 8801235 |

### Parts disposition

Interchangeable

## Service bulletin

**SB-1999-065**

### Products affected

Series 90 75, 100, 130, 180, and 250cc variable displacement pumps

### Subject

Hydraulic displacement control gasket and swashplate bearing locator pin retention

### Description

The Series 90 75cc, 100cc, 130cc, 180cc, and 250cc variable displacement pumps utilize a common gasket to seal the joint between the displacement control housing and main pump housing.

In November 1998, Danfoss introduced a new gasket design for Hydraulic Displacement Controls (HDC - all options), version 2 Electrical Displacement Controls (EDC2- options EE and EN), and two amp current control (options PA and PB) equipped pumps (see SB-1998-038). The purpose of this gasket is primarily to seal the joint and aid in the retention of the bearing cage locator pin in the main pump housing. Danfoss has identified that the new gasket may not adequately aid in the retention of this pin in 75cc pump sizes due to casting and machining tolerances. Installations which are particularly sensitive to pin retention include those oriented with the control on the side or on the bottom when the pump is installed. In these types of installations, it is possible for the pin to come out of its position in the pump housing. This will result in a loss of alignment between the swashplate and swashplate bearing assembly and the potential for erratic pump control and/or system performance.

To address this situation, Danfoss has introduced a design modification to the control gasket. The modification will insure that the cage locator pin is retained in 75cc pumps in all circumstances, while still maintaining the desired gasket clamp load to avoid leaks.

The new gasket is completely interchangeable with the previous gasket. Danfoss recommends that the previous control gasket be replaced immediately on 75cc pump assemblies, with controls noted above, in which the control is on the side or on the bottom of the pump. The pump serial numbers involved are A-98-41-xxxxx through A-99-49-xxxxx.It is not required to replace the gasket in pumps with the control in the up position, until the initial servicing of the pump assembly.

The 100cc, 130cc, 180cc, and 250cc pumps are not dependent upon the gasket to maintain retention of the bearing cage locator pin and are not affected by the information above.

The new gasket has replaced the previous gasket in all new pump assemblies with Hydraulic Displacement Control (HDC), version 2 Electrical Displacement Control (EDC2-EE and EN), and two amp current (PA and PB) controls. The new gasket has also been placed in all appropriate control kits and overhaul seal kits. Page 3 of this bulletin will assist you in identifying the new gasket from the previous gasket.

### Models affected

95-2xxx,952xxxx, 96-2xxx, 962xxxx, 97-2xxx, 972xxxx, 98-2xxx, 982xxxx, 99-2xxx, and 992xxxx variable displacement pumps equipped with hydraulic displacement controls and specific option electronic displacement control. (EE, EN, PA, PB)

### Serial numbers

Danfoss Ames 75cc pump production:A-99-50-xxxxx.

Danfoss Ames 100cc pump production: A-00-25-xxxxx.

Danfoss Neumunster production: N-00-01-xxxxx.

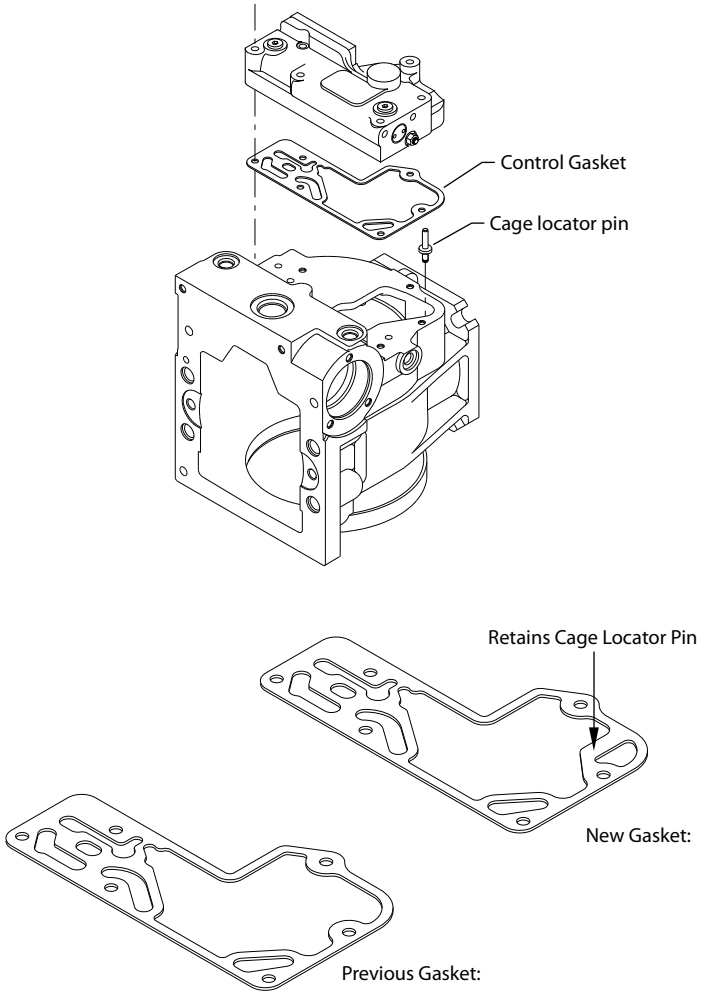
## Service bulletin

### Part numbers affected

| Previous gasket | New gasket |
|---|---|
| 511608 | 8801241 |

### Parts disposition

Interchangeable



## Service bulletin

**SB-2000-022**

### Products affected

Series 90 75, 100, and 130 cc variable displacement pumps

### Subject

Displacement limiter screw and servo piston change

### Description

Danfoss has identified a product issue affecting a limited number of Series 90 100cc variable displacement pumps built at the Ames, Iowa, USA facility in the time frame of June 2000 through August 2000 (serial date range A-00-23-xxxxx up to and including A-00-34- xxxxx). This same issue also affects a limited number of Series 90 75cc, 100cc, and 130cc variable displacement pumps built at the Neumunster, Germany facility in the time frame of June 2000 through September 2000 (serial date range N-00-23-xxxxx up to and including A-00-39-xxxxx).

These pumps, equipped with displacement limiters, may have a servo piston with large center drills. These large center drills may allow the displacement limiter screw to thread into the servo piston while turning the screw in against the servo piston while adjusting the pump's displacement. If this occurs, the pump will be mechanically held in stroke by the displacement limiter screw. This situation can only happen during adjustment; it will not occur during normal operation.

Danfoss has introduced a change to the servo piston and the displacement limiter screw to prevent the recurrence of this issue. We have made a change to the servo piston to limit the size of the center drill. We have also changed the design of the service displacement limiter screw from a "flat" point to a "dog nose" point. When servicing a pump that meets the above criteria, you must verify that the displacement limiter screw of the new "dog nose" version. If it is not, you must replace the displacement limiter screw with the new version. If the pump is not inside the date code ranges and displacements mentioned, you do not need to verify the version of the displacement limiter screws.

To assist in tracking this change, we have issued new part numbers for the servo pistons and displacement limiter screws. Even though this issue did not affect the 42cc or 55cc pumps, the service displacement limiter screw part number will change also to keep one common service part. We do this as the same displacement limiter screw is used on 42cc, 55cc, 75cc, and 100cc pumps.

Old
"flat point"
displacement limiter screw

New
"dog nose"
displacement limiter screw

### Models affected

All 95-2xxx, 952xxxx, 96-2xxx, 962xxxx, 97-2xxx, and 972xxxx variable displacement pumps with 1, 2, 4, or P displacement limitation option.

### Serial numbers

Danfoss Ames 100cc production with serial number A-00-23-xxxxx up to and including A-00-34-xxxxx.

Danfoss Neumunster, Germany production with serial number N-00-23-xxxxx up to and including A-00-39-xxxxx.

## Service bulletin

### Part numbers affected

| Frame size | Old servo piston | New servo piston | Old screw | New screw |
|---|---|---|---|---|
| 42 & 55cc | N/A | N/A | 9007712-0814 | 516677 |
| 75 cc | 509282 | 516683 | 9007712-0814 | 516677 |
| 100 cc | 509284 | 516684 | 9007712-0814 | 516677 |
| 130 cc | 510496 | 516685 | 572180 | 516678 |

### Parts disposition

Interchangeable

## Service bulletin

**SB-2000-041**

### Products affected

Series 90 55, 75, 1nd 100 cc variable displacement pumps

### Subject

Common leveler spring shim

### Description

The date code for the series 90 55cc should have been for a date code of A-92-06-xxxxx not A-02-06-xxxxx.

Danfoss has standardized the leveler spring shim used on all 55, 75, and 100 cc variable displacement pumps. Two different shims were used in the past. One size was for 55 and 75 cc pumps, and the other for the 100 cc pumps. The new shim can be used in all three frame sizes.

Danfoss has issued a new part number for the new shim. The new shim is interchangeable for 55 cc pumps built after A-92-06-xxxxx, 75 cc pumps built after A-96- 19-xxxxx,and 100 cc pumps. For pumps manufactured prior to these dates, you will need to reuse the old shims, as the new shim outer diameter is larger, and this will cause the new shim to not seat correctly in the bottom of the pocket in the end cap. The old shim part numbers are obsolete.

### Models affected

All 94-2xxx, 942xxxx, 95-2xxx, 952xxxx, 96-2xxx, and 962xxxx variable pumps.

### Serial numbers

Danfoss Ames, Iowa production change was effective at serial number A-00-40-xxxxx

Danfoss Neumunster, Germany production change was effective at serial number N-01-27-xxxxx

### Part numbers affected

| Frame size | Old part number | New part number |
|---|---|---|
| 55 cc | 359042 | 8801225* |
| 75 cc | 359042 | 8801225** |
| 100 cc | 359059 | 8801225 |

* can only be used in pumps manufactured after A-92-06-xxxxx

** can only be used in pumps manufactured after A-96-19-xxxxx

### Parts disposition

Interchangeable

## Service bulletin

**SB-2001-013**

### Products affected

Series 90 100 cc variable pumps

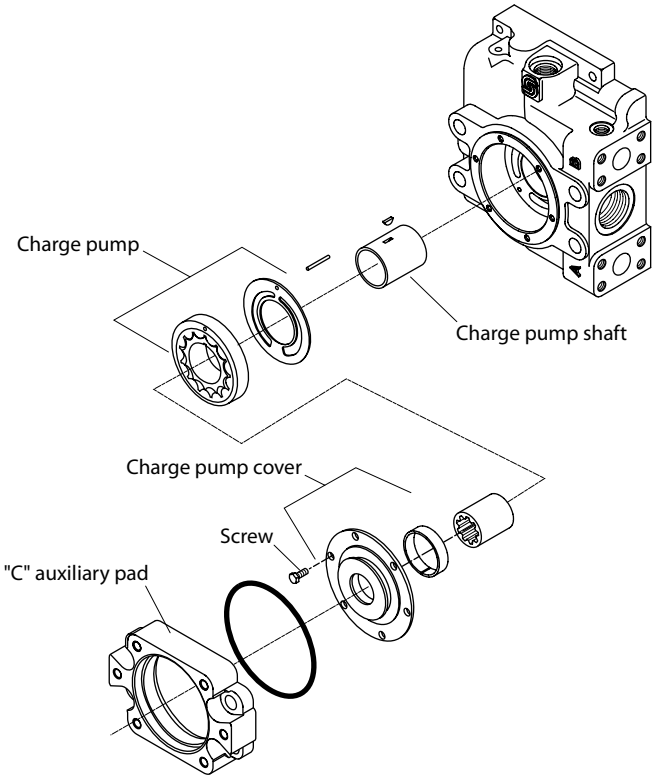
### Subject

31c charge pump improvements

### Description

To improve efficiency, the 31cc charge pump assembly has been redesigned.

This change is interchangeable for pumps manufactured after the date code of A-00-10-xxxx if all affected components are replaced. For pumps manufactured before this date, with the CE auxiliary pad option, the auxiliary pad must also be replaced with part number 8200472. The old charge pump components will remain available as service parts.




### Models affected

96-2xxx,and 962xxxx variable displacement pumps with the 'G' charge pump displacement option.

Change was effective at serial number A-01-20-xxxxx.

### Serial numbers

This change was effective at serial number A-01-20-xxxxx

## Service bulletin

### Part numbers affected

| Part description | Previous part number | New part number |
|---|---|---|
| Charge pump shaft | 8801179 | 8801210 |
| Charge pump set | 8200245 | 8200479 |
| Charge pump cover | 8800868 | 8801248 |
| Screw | 9007210-0604 | 9007314-0605 |

### Parts disposition

Interchangeable- see text in **Description**.

## Service bulletin

**SB-2002-050**

### Products affected

Series 90 55, 75, and 100 cc pumps

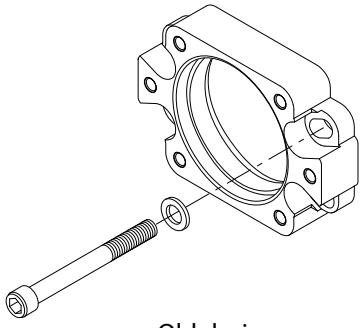
### Subject

Auxiliary mounting pad

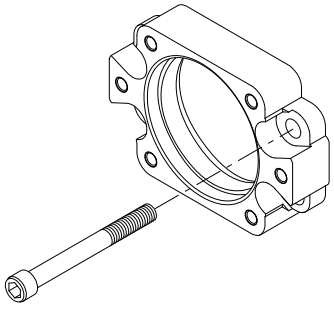
### Description

As a product improvement, Danfoss has changed the design of the SAE C auxiliary mounting pad to increase strength and reduce corrosion. The old auxiliary mounting pad and new auxiliary mounting pad are interchangeable. The new auxiliary mounting pads are frame size dependent, because they do not have slotted mounting holes. The auxiliary mounting pad screws remain the same, but they do not require washers.

The old auxiliary mounting pad is obsolete and no longer available as a service part. The washers will remain available.



Old design



New design

### Models affected

Series 90 55, 75, and 100 cc pumps with SAE C auxiliary mounting.

### Part numbers affected

The new auxiliary mounting pads are frame size dependent and do not use washers.

| Frame size | Old aux-pad part number | New aux-pad part number | Old washer part number |
|---|---|---|---|
| 55cc | 723205 | 8000643 | 5000602 |
| 75cc | 723205 | 8100848 | 9009625-0132 |
| 100cc | 723205 | 8200469 | 9009625-0132 |

### Parts disposition

Interchangeable

## Service bulletin

**SB-2005-011**

### Products affected

Series 90 42 through 100 cc pumps

### Subject

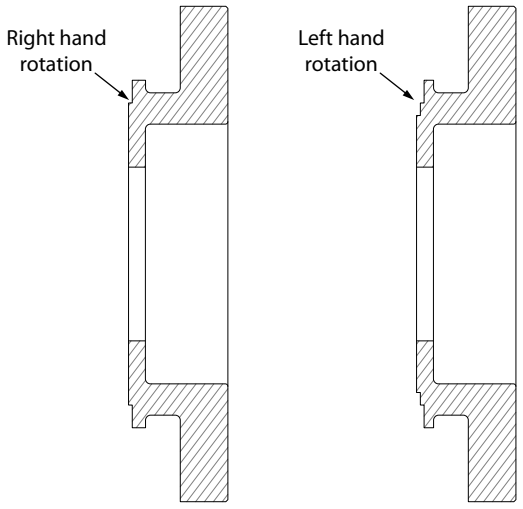
Auxiliary flange charge pump cover

### Description

Danfoss will no longer mark auxiliary flange charge pump cover with an “R” for right hand rotation or an “L” for left hand rotation.

The pilot surface has changed on the covers. The right hand rotation charge pump cover will have 1 step and the left hand rotation charge pump cover will have 2 steps. Refer to the drawings below for example.

The part numbers of the charge pump covers will not change.




### Models affected

Series 90 42 thru 100 cc pumps with auxiliary pad options.

### Serial numbers

This change became effective at serial number A-05-17-xxxxx

### Part numbers affected

None

### Parts disposition

Interchangeable

## Service bulletin

**SB-2007-018**

### Products affected

Series 90 100 cc pumps

### Subject

Pump redesign

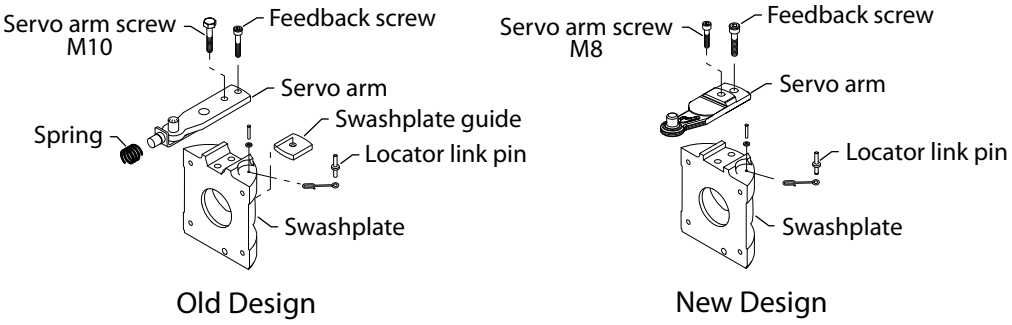
### Description

As a global improvement, the series 90 100cc pump has the redesigned the following components: servo arm, swashplate guide, pump housing, shaft seal assembly, cradle bearing, and servo arm screw.

All parts are non-interchangeable with the exception of the shaft seal assembly. Model numbers and order codes will not be changed.

| | |
|---|---|
| **Servo arm** | A“one piece” servo arm is introduced. The pin that engages the servo piston is now machined as part of the servo arm instead of pressed in. The old servo arm will remain available as a service part. |
| **Swashplate guide** | The swashplate position is now guided by the fit between the servo arm and the pump housing. A“shelf” on the servo arm fits under a boss in the housing to provide a fixed clearance swashplate hold-down. The swashplate was previously held down with a spring and bracket, which was riveted to the servo arm. The servo arm to housing clearance now limits lateral movement of the swashplate. The swashplate guide that was bolted to the bottom of the swashplate has been removed. The separate swashplate guide will remain available as a service part. |
| **Housing** | The housing is modified internally to provide the servo arm pivot. Also, the cradle and side cover radii are reduced. Some customers may notice cosmetic external changes. The old housing is obsolete and no longer available as a service part. |
| **Shaft seal assembly** | The shaft seal assembly is interchangeable, but the piece parts are not. The new lip seal has a smaller O.D. and the I.D. of the seal carrier changed accordingly. The old shaft lip seal will remain available as a service part. |
| **Overhaul seal kit** | A new overhaul seal kit has been created that will service both old and new design pumps. The new seal kit also has additional O-rings and seal nuts required for a more complete repair. The old seal kit is obsolete and no longer available for service. |
| **Cradle bearing** | The new design is cold formed with the positioning pin now integral with the bearing. The old cradle bearing will remain available as a service part for a period of time. |
| **Screws** | The screw that holds the servo arm to the swashplate has changed from a M10 to a M8 screw. The other screw is a feedback link screw which changed from 50mm long to 45mm long. See drawing for details. |

## Service bulletin




### Models affected

Series 90 100cc pumps

### Serial numbers

This change became effective at serial number A-07-28-xxxxx

### Part numbers affected

| Description | Old part number | New part number |
|---|---|---|
| Servo arm | 518629, 8200268 | 521607 |
| Servo arm screw | 536649, 9007276-0111 | 519150 |
| Seal carrier assembly | 510017, 8200309 | 521722 |
| Cradle bearing | 305839/P, 8200053 | 11131109 |
| Swashplate guide | 8800669 | No replacement needed |
| Compression spring | 673145, 8200058 | No replacement needed |
| Shaft seal | 9008000-0114 | 519021 |
| Feedback screw | 9007375-0032 | 9007375-0044 |
| Standard housing | 503424 | 521605 |
| PPU housing | 726554, 8200332 | 11002463 |
| Side cover | 501574 | 11000790 |
| Seal carrier assembly | 510017, 8200309 | 521722 |
| Swashplate assembly | 8200192 | 8200618 |
| Swashplate | 8200232 | 11002493 |
| Overhaul seal kit | 82020S30 | 11035669 |

### Parts disposition

Non-interchangeable

## Service bulletin

**SB-2007-027**

### Products affected

Series 90; 55, 75 , and 100 cc pumps

### Subject

SAE A auxiliary mounting flange

### Description

Danfoss is pleased to announce a design improvement on the SAE A auxiliary mounting flange adapter on all its series 90 pumps. All manufacturing locations producing these pumps will be changed to this configuration.

The improvement comes in the form of a more robust sealing geometry with a larger cross- section O-ring. The O-ring groove in the flange will now be sized to mate with a 2.62mm [0.103] cross section O-ring rather than the old 1.78mm [0.070] cross-section O-ring.

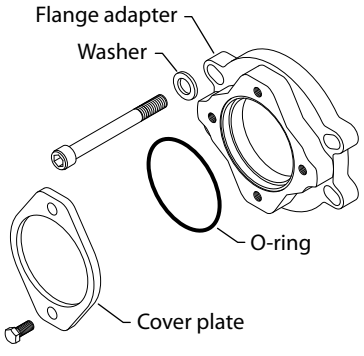
The Danfoss part number for the new O-ring is 9004104-1520 (2.62mm [0.103]. x 82.22mm [3.237]). The larger cross-section sealing geometry allows for the use of a donut style A pad seal and a new flat cover for improved assembly. This new configuration is qualified as a running cover. When installing an auxiliary pump, the donut style A pad seal must be discarded and the part number 9004104-1520 O-ring used.

Also, the flanges will no longer have a slotted interface with a washer for the end cap screws. The flanges will now have round through holes for the end cap screws and will use no washers. The end cap screws do not change. This eliminates the area where water or high pressure wash chemicals can be trapped around the end cap screws. There now are specific part numbers for the flanges used on each of the three displacement size pumps; 55, 75 and 100 cc.

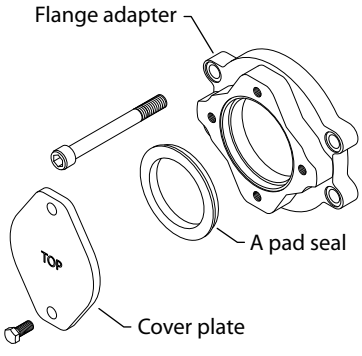
The pumps will now be supplied with the donut style A pad seal and new flat cover, instead of the small O-ring and cover plate (shown in the drawing below).

The overhaul seal kit will include the old O-ring, the new O-ring and the A pad seal.

Old Design




New Design




### Models affected

All series 90; 55, 75, and 100 cc pumps with SAE"A" auxiliary mounting flanges.

### Serial numbers

This change became effective at serial number A-07-05-xxxxx

## Service bulletin

### Part numbers affected

| Description | Old p/n | Used on | New p/n | Used on |
|---|---|---|---|---|
| Flange adapter | 8000262 | 55 cc | 8000641 | 55 cc |
| Flange adapter | 8800172 | 55, 75 & 100 cc | 8000641 | 55 cc |
| Flange adapter | 8800172 | 55, 75 & 100 cc | 8100846 | 75 cc |
| Flange adapter | 8800172 | 55, 75 & 100 cc | 8200467 | 100 cc |
| Washer | 9009625-0132 | 55, 75 & 100 cc | NA | NA |
| O-ring | 9004104-0420 | All sizes | 9004104-1520 | All sizes |
| A Pad seal | NA | All sizes | 4800482 | All sizes |
| Flange cover | 9802336 | All sizes | 4460586 | All sizes |

If the new auxiliary flange adapter is used, the new o-ring or A-pad seal and cover must also be used.

### Parts disposition

- Interchangeable- if new o-ring or A-pad seal and cover are replaced
- Use parts in stock
- Order replacement parts
- Revise existing part orders

## Service bulletin

**SB-2007-051**

### Products affected

Series 90; 55, 75 , and 100 cc pumps

### Subject

SAE C auxiliary mounting flange

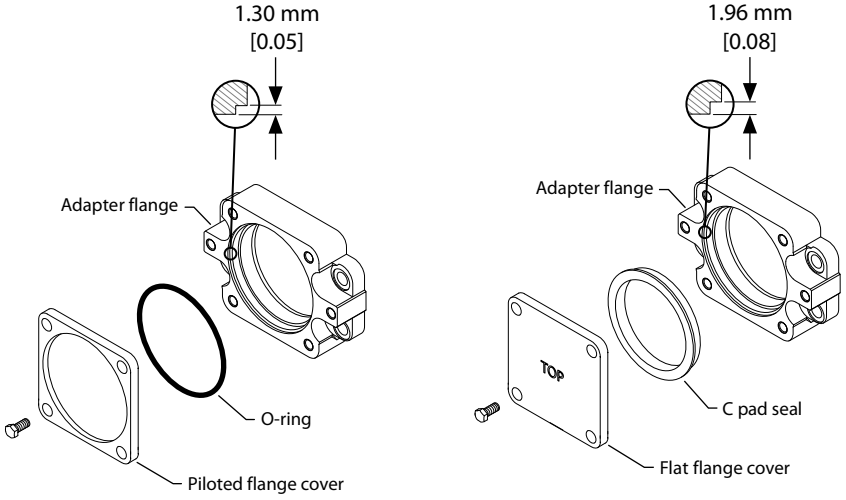
### Description

Danfoss is pleased to announce a design improvement on the SAE C auxiliary mounting flange adapter on its series 90 pumps. The frame sizes affected by this change are 55, 75, and 100cc. All manufacturing locations producing these pumps will be changed to this configuration.

The improvement comes in the form of a more robust sealing geometry with a larger cross-section O-ring. The O-ring groove in the flange will now be sized to mate with a 2.62mm [0.103] cross section O-ring rather than the old 1.78mm [0.070] cross-section O-ring. The Danfoss part number for the new O-ring is 9004104-1580 (2.62mm [0.103] x 120.32mm [4.737]). The larger cross-section sealing geometry allows for the use of a donut style C pad seal and a new flat cover for improved assembly. This new configuration is qualified as a running cover. When installing an auxiliary pump, the donut style C pad seal must be discarded and part number 9004104-1580 O-ring used.

The pumps will now be supplied with the donut style seal and new flat cover, instead of the small O-ring and cover plate (shown in the drawing below).

The overhaul seal kit will include the old O-ring, the new O-ring and the new C pad seal.




### Models affected

All series 90; 55, 75, and 100 cc pumps with SAE"C" auxiliary mounting flanges.

### Serial numbers

This change became effective at serial number A-08-19-xxxxx and N-09-30-xxxxx

## Service bulletin

### Part numbers affected

| Description | Old part number | Used on | New part number |
|---|---|---|---|
| SAE C flange | 8200469 | 100cc | 8200515 |
| SAE C flange | 8100848 | 75cc | 8100897 |
| SAE C flange | 8000643 | 55cc | 8000740 |
| O-ring | 9004100-0480 | 55, 75, 100cc | 9004104-1580 |
| C pad seal | N/A | 55, 75, 100cc | 8801062 |
| Flange cover | 8800406 | 55, 75, 100cc | 8801060 |

If the auxiliary flange adapter is used, the new o-ring or C pad seal and cover must also be used.

### Parts disposition

- Interchangeable- if new o-ring or C pad seal and cover are replaced
- Use parts in stock
- Order replacement parts
- Revise existing part orders

## Service bulletin

**SB-2007-055**

### Products affected

Series 90; 55, 75 , and 100 cc pumps

### Subject

SAE B auxiliary mounting flange

### Description

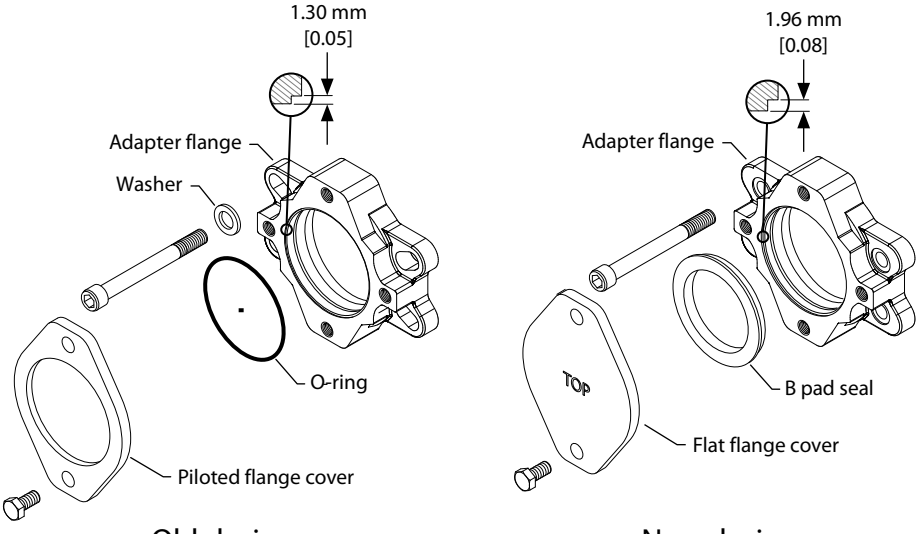
Danfoss is pleased to announce a design improvement on the SAE B auxiliary mounting flange adapter on its series 90 pumps. The frame sizes affected by this change are 55, 75, and 100cc. All manufacturing locations producing these pumps will be changed to this configuration.

The improvement comes in the form of a more robust sealing geometry with a larger cross-section O-ring. The O-ring groove in the flange will now be sized to mate with a 2.62mm [0.103] cross section O-ring rather than the old 1.78mm [0.070] cross-section O-ring. The Danfoss part number for the new O-ring is 9004104-1540 (2.62mm [0.103] x 94.92mm [3.737]). The larger cross-section sealing geometry allows for the use of a donut style B pad seal and a new flat cover for improved assembly. This new configuration is qualified as a running cover. When installing an auxiliary pump, the donut style B pad seal must be discarded and part number 9004104-1540 O-ring used.

Also, the flanges will no longer have a slotted interface with a washer for the end cap screws. The flanges will now have round through holes for the end cap screws and will use no washers. The end cap screws do not change. This eliminates the area where water or high pressure wash chemicals can be trapped around the end cap screws. There now are specific part numbers for the flanges used on each of the three displacement size pumps; 55, 75 and 100 cc.

The pumps will now be supplied with the donut style seal and new flat cover, instead of the small O-ring and cover plate (shown in the drawing below).

The overhaul seal kit will include the old O-ring, the new O-ring and the new B pad seal.




Old design

New design

### Models affected

All series 90; 55, 75, and 100 cc pumps with SAE"B" auxiliary mounting flanges.

## Service bulletin

### Serial numbers

This change became effective at serial number A-08-19-xxxxx

### Part numbers affected

| Description | Old part number | Used on | New part number | Used on |
|---|---|---|---|---|
| Metric B flange | 8800983 | 55, 75 & 100 cc | 8200540 | 100 cc |
| SAE B flange | 8800173 | 55, 75 & 100 cc | 8200468 | 100 cc |
| SAE B flange | 8800173 | 55, 75 & 100 cc | 8100847 | 75 cc |
| Metric B flange | 8800983 | 55, 75 & 100 cc | 8100938 | 75 cc |
| SAE B flange | 8800173 | 55, 75 & 100 cc | 8000642 | 55 cc |
| SAE B flange | 8000263 | 55, 75 & 100 cc | 8000642 | 55 cc |
| Washer | 9009625-0132 | 55, 75 & 100 cc | N/A | N/A |
| O-ring | 9004104-0450 | 55, 75 & 100 cc | 9004104-1540 | 55, 75 & 100 cc |
| B Pad seal | N/A | 55, 75 & 100 cc | 8801061 | 55, 75 & 100 cc |
| Flange cover | 4460370 | 55, 75 & 100 cc | 8801059 | 55, 75 & 100 cc |

If the new auxiliary flange adapter is used, the new o-ring or B pad seal and cover must also be used.

### Parts disposition

- Interchangeable- if new o-ring or C pad seal and cover are replaced
- Use parts in stock
- Order replacement parts
- Revise existing part orders

## Service bulletin

**SB-2009-035**

### Products affected

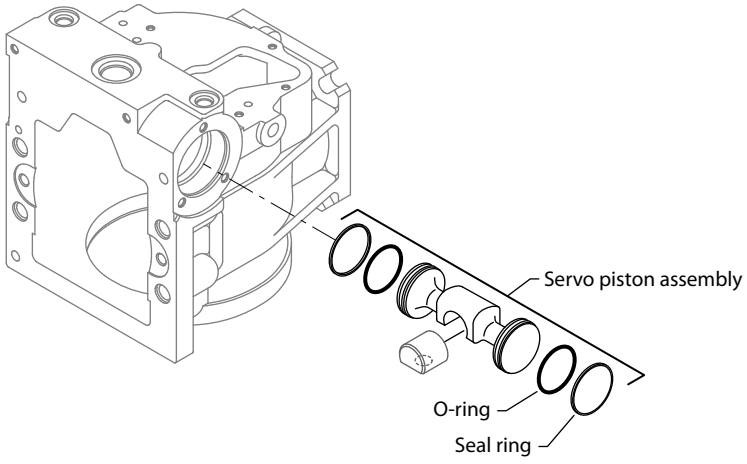
Series 90 75 and 100 cc pumps

### Subject

Change supplier of servo piston assemblies

### Description

The supplier has changed for servo piston assemblies used in Series 90 pumps, size 75 and 100 cc. These assemblies include the servo piston, O-rings and seal rings. The part number of the servo piston assemblies has changed to better track this change. The new servo piston assemblies are completely interchangeable with the old servo piston assemblies. The old part numbers will become obsolete and not available for service.




### Models affected

Series 90 75 and 100cc pumps.

### Serial numbers

This change went into effect at serial number A-09-25-xxxxx

### Part numbers affected

| Description | Old part number | New part number |
|---|---|---|
| Servo piston assembly, 75cc | 516683 | 11041752 |
| Servo piston assembly, 100cc | 516684 | 11044943 |

### Parts disposition

- Interchangeable
- Use parts in stock
- Order replacement parts
- Revise existing part orders

## Service bulletin

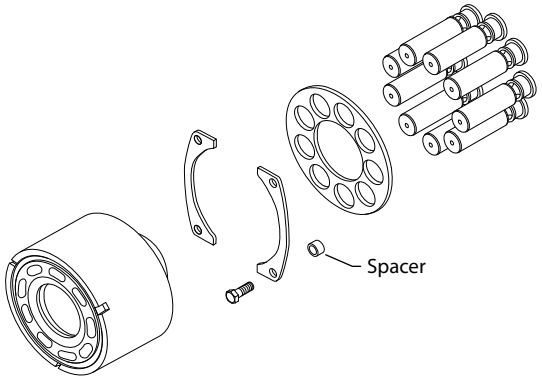
**SB-2009-038**

### Products affected

Series 90 55, 75 and 100 cc pumps

### Subject

The supplier for the spacers, used for slipper hold down spacing in series 90 pumps, has changed. The new part is physically and functionally interchangeable in all applications. The part numbers have changed to better track this change. The old part numbers will become obsolete and not available for service.




### Models affected

Series 90 55, 75 and 100 cc pumps

### Serial numbers

This change became effective at the following serial numbers:

- A09-38-XXXXX for 55cc (14-Sep-2009)
- A10-04-XXXXX for 75cc (22-Jan-2010)
- A09-38-XXXXX for 100cc (12-Aug-2009)

### Part numbers affected

| Spacer | Old part number | New part number |
|---|---|---|
| 55cc | 8000619 | 11065864 |
| 75cc | 8100777 | 11065865 |
| 100cc | 8200422 | 11065866 |

### Parts disposition

Non-interchangeable

## Service bulletin

**SB-2009-049**

### Products affected

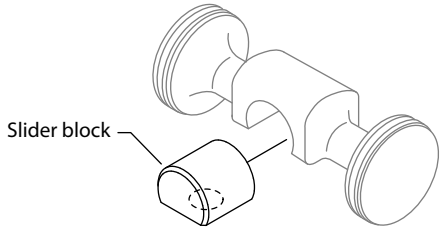
Series 90 100cc pumps

### Subject

Slider block supplier change

### Description

The supplier for the slider block used in series 90 100 cc pumps has changed. The new slider block is physically and functionally interchangeable in all applications. The part number of the slider block has changed to better track this change. The old part number will become obsolete and not available for service.




### Models affected

All series 90 100cc variable displacement pumps

### Serial numbers

This change became effective at serial number A09-35-XXXXX. (28 August 2009)

### Part numbers affected

| Description | Old part number | New part number |
|---|---|---|
| Slider block | 8200225 | 11061908 |

### Parts disposition

- Interchangeable
- Use parts in stock

## Service bulletin

**SB-2009-073**

### Products affected

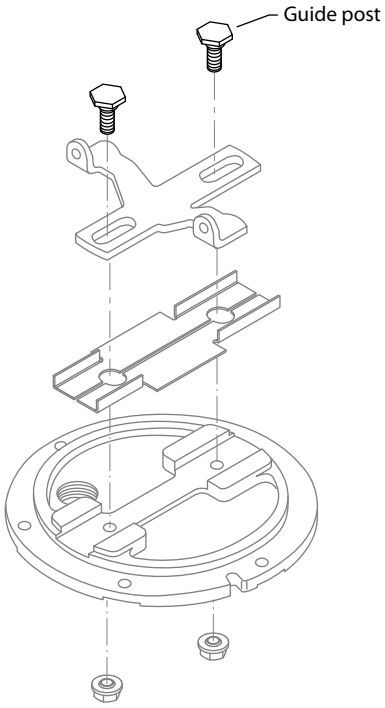
Series 90: 75 and 100 cc pumps

### Subject

Supplier change for guide posts

### Description

The supplier has changed, for the guide posts used in series 90: 75 and 100 cc pumps. The new guide posts are interchangeable with the old guide posts. A new part number has been assigned to the new guide post to better track this change. The old part number has become obsolete and not available for service.




### Models affected

Series 90: 75 and 100cc pumps

### Serial numbers

This change became effective at serial number A-09-50-xxxxx (21 December 2009)

### Part numbers affected

| Description | Old part number | New part number |
|---|---|---|
| Guide post | 8000575 | 11056531 |

## Service bulletin

**Part numbers affected**

Interchangeable

## Service bulletin

**SB-2013-011**

### Products affected

Series 90: 42-250cc pumps

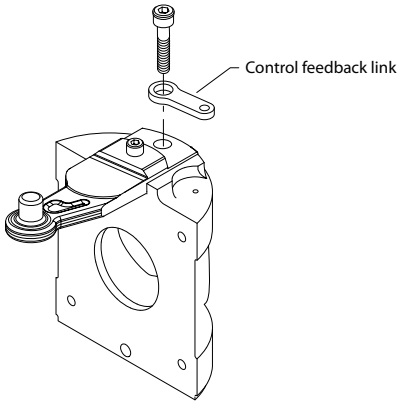
### Subject

Feedback link - control

### Description

Danfoss has changed to a global supplier for the control feedback links used in Series 90 42-250cc pumps.

Old parts and new parts are completely interchangeable. Part numbers will be changing for tracking purposes. Old parts will become obsolete and no longer available as a service part.




### Models affected

Series 90: 42-250cc pumps

### Part numbers affected

| Control feedback link | Old part number | New part number |
|---|---|---|
| 42cc pumps | 648600 | 11070304 |
| 55 & 75cc pumps | 8000602 | 11070305 |
| 100cc pumps | 8200413 | 11070306 |
| 130cc pumps | 340091 | 11070307 |
| 180 & 250cc pumps | 747451 | 11070308 |

### Parts disposition

- Interchangeable
- Use parts in stock

## Service bulletin

**SB-2015-005**

### Products affected

Series 90: 42-250cc pumps

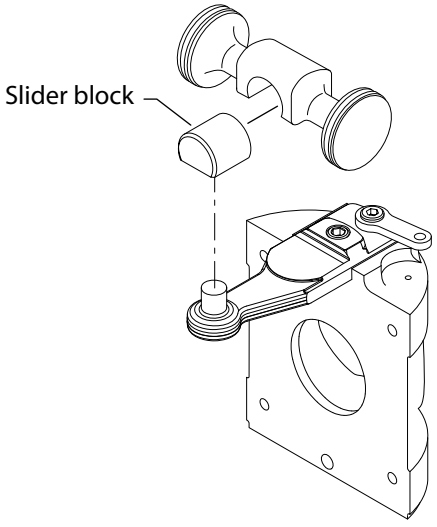
### Subject

Slider block supplier change

### Description

The supplier has changed for Series 90 pump slider blocks. Parts are completely interchangeable.

Part numbers have been changed for tracking purposes. As a result old part numbers will become obsolete and no longer available as service parts.




### Models affected

Series 90 42-250cc pumps

### Part numbers affected

| Description | Old Part Number | New Part Number | Effective Date |
|---|---|---|---|
| Slider block 42 NMS | 648303 | 11116314 | N/A |
| Slider block 55-75 NMS | 8800750 | 11116313 | 6-Aug-2014 |
| Slider block 55-75 AMS | 11061964 | 11116313 | 6-Sept-2014 |
| Slider block100 AMS | 11061908 | 11116312 | 10-Mar-2014 |
| Slider block 100 NMS | 756197 | 11116312 | 20-Feb-2015 |
| Slider block 130 NMS | 11000317 | 11116309 | 9-Dec-2014 |
| Slider block 180-250 NMS | 746479 | 11116308 | 24-Oct-2014 |

### Parts disposition

- Interchangeable
- Use parts in stock

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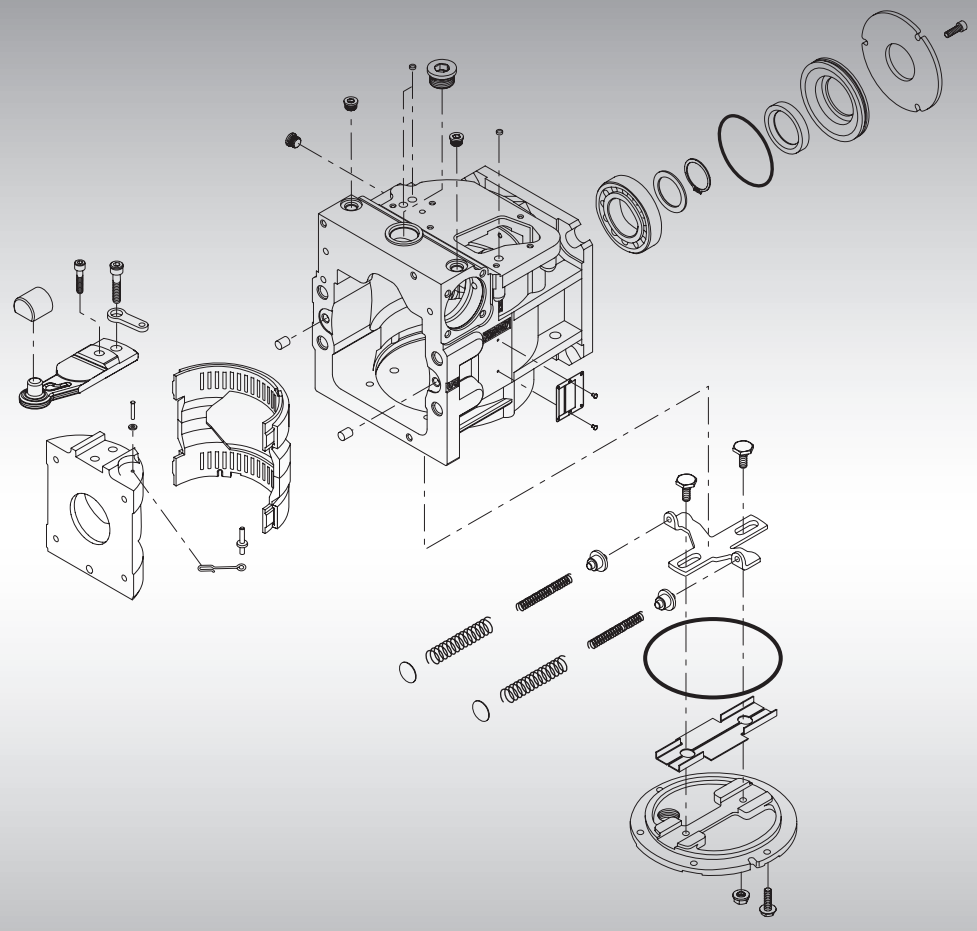
Parts Manual

# Series 90

# 130cc Axial Piston Pump



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## Contents

**General information**

Service parts identification ..... 4
Nameplate ..... 4
Date code ..... 5
Service bulletins ..... 5
Procedure to identify a part ..... 5
Order code ..... 7

**Variable displacement pump**

Common parts ..... 8-9
Special hardware ..... 10-57
Displacement limitation ..... 58-71
End cap ..... 72-91
Charging system ..... 92-95
Auxiliary mounting ..... 96-111
Charge pressure relief ..... 110-111
Shaft ..... 112-113
Control ..... 114-149
Filtration ..... 150-155
High pressure protection ..... 156-161
Orifice ..... 162-173
Overhaul seal kit ..... 174

## Contents

**Service bulletin**

BLN-10107 (charge pumpdesign change) ..... 176-177
SB-1991-014 (multi-function valve installation torque) ..... 178
SB-1992-003 (pump redesign) ..... 179-181
SB-1994-025 (change pump design change) ..... 182-183
SB-1994-036 (intergal filtration manifold) ..... 184
SB-1995-003 (MDC w/electric override manifold) ..... 185
SB-1996-004 (side cover redesign) ..... 186
SB-1997-018 (swashplate leveler spring and spring seats) ..... 187
SB-1999-010 (swashplate leveler design change) ..... 188
SB-1999-041 (side cover insert material change) ..... 189
SB-1999-065 (HDC gasket change) ..... 190-191
SB-2000-022 (displacement limiter screw) ..... 192-193
SB-2002-014 (side cover screw change) ..... 194
SB-2007-008A (redesign block point change) ..... 195-196
SB-2009-074 (A pad flange/seal) ..... 197
SB-2009-075 (B pad flange/seal) ..... 198
SB-2009-076 (C pad flange/seal) ..... 199

## General information

### Service parts indentification

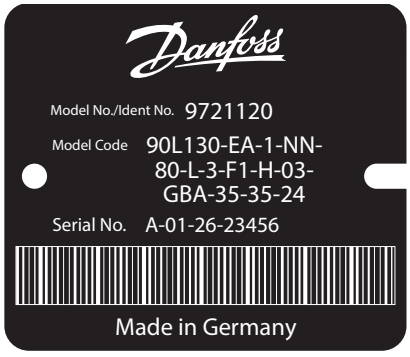
The following information and procedure is used to identify the module group, item number, manufacture date, part number, and part name of the parts included in the Series 90, 130 cc variable displacement pumps.

The parts listed include all parts which may be used when performing either "Minor Repairs", "Major Repairs" or "Conversions" on the Series 90, 130 cc pump.

### Nameplate

Each unit will have a nameplate affixed to the housing. The nameplate will include the following information.

**Model Number**
The Sauer-Danfoss model number is used by the factory in manufacturing. On repeat orders, a complete unit can be ordered by the model number.




**Model Code**
The Sauer-Danfoss model code completely defines the specific unit and must be used when ordering parts to service this product.

**Serial Number**
The Sauer-Danfoss serial number is used to identify the manufacture date and the unit sequence in the build. The serial number is also used to identify the units warranty time period.

The letter code indicates the location of original manufacture (assembly). "A" indicates the unit was originally assembled in Ames, Iowa, USA. "N" indicates the unit was originally assembled in Neumunster, Germany.

The first number (2 digits) indicates the year of manufacture. ("01" would indicate the unit was manufactured in 2001)

The second number (2 digits) indicates the calendar week of manufacture.

The third number (5 digits) is a sequential number used to identify a specific unit.

## General information

### Date code

The date code is defined as the year and week of manufacture. The same item number may list more than one part number. This indicates that there is more than one configuration for that item number. You will see that there are different date codes for the different part numbers. Find the date code of your unit from the nameplate to determine which service part number you need to order.

EXAMPLE: The service part desired is Item E10

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 80 | E10 | 92-19 | | 746107 | Side cover | 1 |
| | G30 | 89-41 | 92-18 | 340133 | Side cover (SB-1992-003) | 1 |

All units using this order code with a date code of 89-41 and up to and including 92-18, must use part number "340133". All units with a date code of 92-19 and newer must use part number "746107."

### Service bulletins

A Service Bulletin Number (SB-_ _ _ _ - _ _ _) may follow the "Part Name" of the part you desire. You must read that Service Bulletin prior to ordering that part. The information contained in these Service Bulletins, as of the print date of this bulletin, are included at the end of this manual. Service Bulletins contain more detailed information such as interchangeability, what additional parts are involved, etc. It is suggested that you add additional Service Bulletins to this manual as you recieve them.

### Procedure to identify a part

**General**

The modular design of Series 90 units results in a simplified service parts list and part number identification procedure.

The same item numbers are used for same part names on all units within a product type. (Example: The lip seal - Item L40 has the same item number on all pumps.)

A part number that has another number following it in parentheses is done to make this a world wide manual. The first number is sold in Germany. The number in parentheses is sold in the United States. (Example: 001149 (9004201-6200), customers would order 9004201-6200 if ordering the part in the United States.)

**Example of a Part Identification**

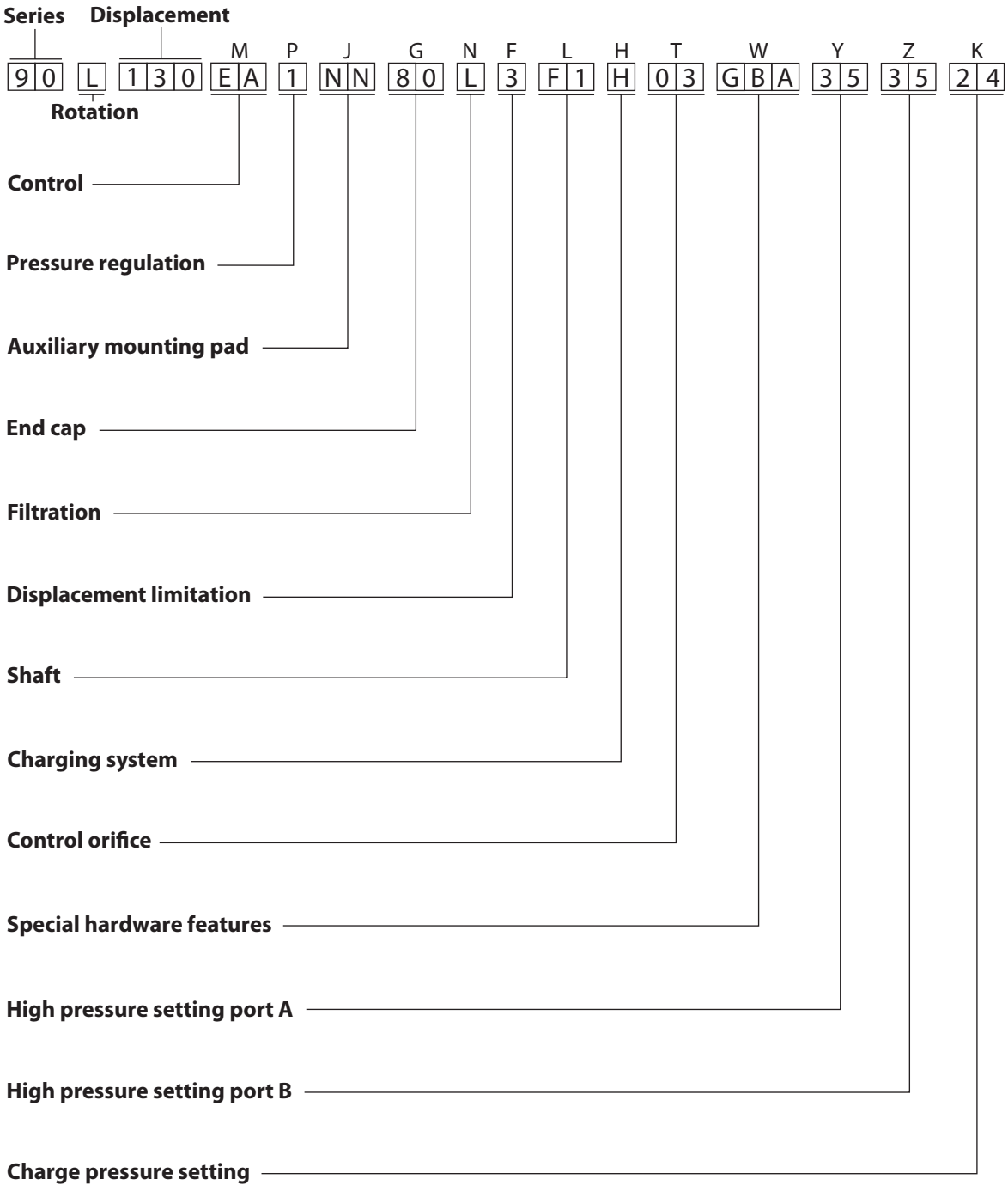
The nameplate on a Series 90 pump has an Order Code of 90L130 EA 1 NN 80 L 3 F1 H 03 GBA 35 35 24. Use the following procedures to determine the part number of the drive shaft used on this pump.

1) Referring to the input shaft module in the Order Code (see page 7), the input shaft option for this pump is identified by the code "F1. (90L130 EA 1 NN 80 L 3 **F1** H 03 GBA 35 35 24)

2) Referring to the Service Parts List, find the shaft group. Next find the order code that relates to this unit, which is "F1". The shaft is found to be item L100 and part number 335695.

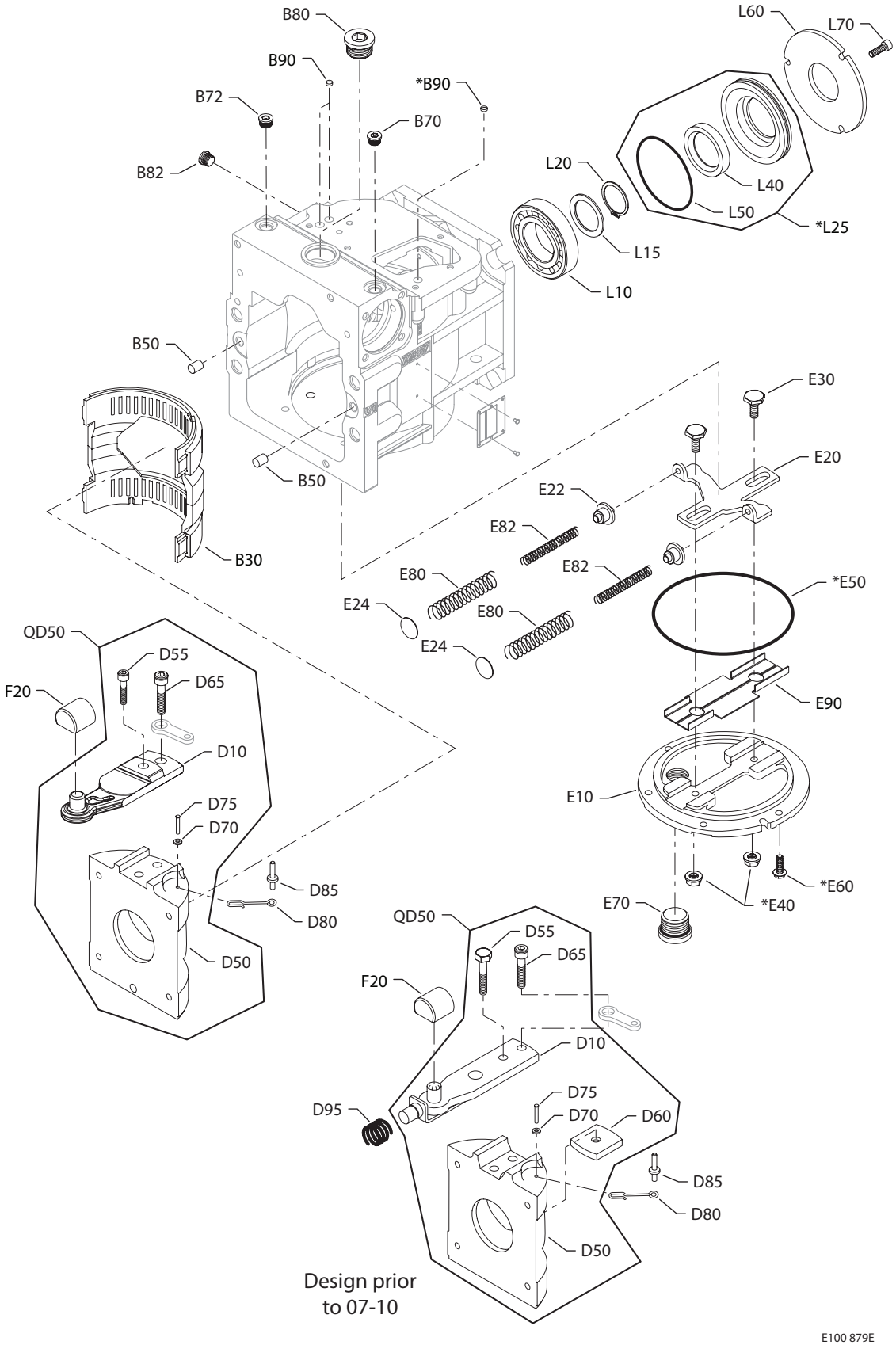
## Notes

## Order Code




P100 713E

## Variable displacement pump




* = included in overhaul seal kit Q210

## Variable displacement pump

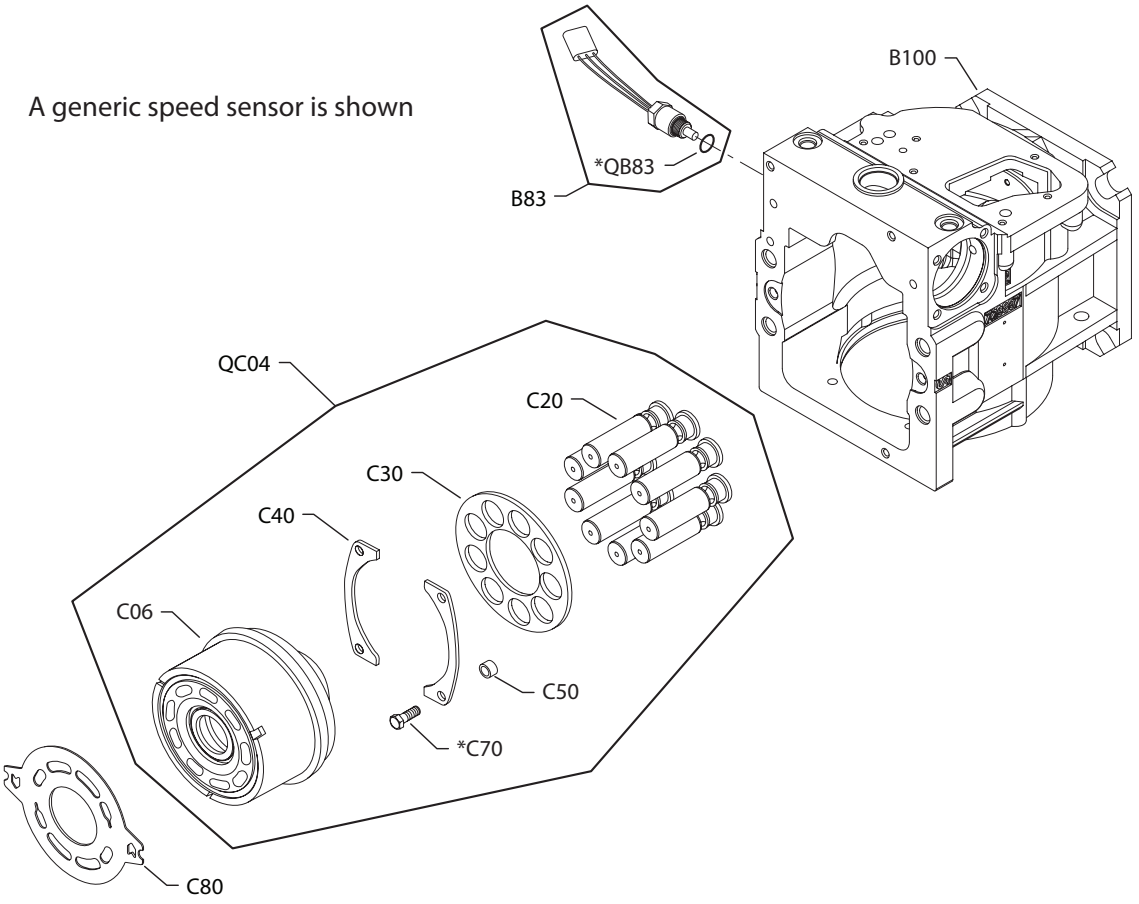
### Common parts

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| | B50 | 89-41 | | 9004800-3708 | Pin | 2 |
| | B70 | 89-41 | | 140644 | Plug assembly | 1 |
| | B72 | 89-41 | | 140644 | Plug assembly | 1 |
| | B80 | 89-41 | | 320002 (9005110-9200) | Plug assembly | 1 |
| | B82 | 92-19 | | 140644 | Plug assembly (SB-1992-003) | 1 |
| | B90 | 89-41 | | 9803390 | Control filter screen | 3 |
| | D10 | 07-10 | | 11000397 | Servo arm (SB-2007-008A) | 1 |
| | D10 | 05-49 | 07-09 | 303214 | Servo arm assembly | 1 |
| | D50 | 07-10 | | 11001678 | Swashplate (SB-2007-008A) | 1 |
| | D50 | 88-16 | 07-09 | 516204 | Swashplate | 1 |
| | D55 | 07-10 | | 519150 | Screw (SB-2007-008A) | 1 |
| | D55 | 89-41 | 07-09 | 9007276-0111 | Screw | 1 |
| | D60 | 89-41 | 07-09 | 766022 | Swashplate guide (SB-2007-008A) | 1 |
| | D65 | 89-41 | | 504493 | Screw | 1 |
| | D70 | 89-41 | | 127464 | Washer | 1 |
| | D75 | 89-41 | | 333369 | Spiral head pin | 1 |
| | D80 | 89-41 | | 700948 | Cage locator link | 1 |
| | D85 | 89-41 | | 11003805 | Pin (SB-2007-008A) | 1 |
| | D95 | 89-41 | 07-09 | 303420 | Spring (SB-2007-008A) | 1 |
| | E10 | 07-10 | | 11001326 | Side cover (SB-2007-008A) | 1 |
| | E10 | 92-19 | 07-09 | 11027814 | Side cover assembly (SB-1992-003 & SB-1996-004) | 1 |
| | E20 | 99-50 | | 11047979 | Leveler (SB-1999-010 & SB-2007-008A) | 1 |
| | E22 | 99-50 | | 11139634 | Spring seat (SB-2007-008A) | 2 |
| | E24 | 92-19 | | 359067 | Shim | 2 |
| | E30 | 96-03 | | 11056592 | Guide post (SB-1996-004) | 2 |
| | E30 | 92-19 | 96-02 | 503205 | Guide post (SB-1992-003) | 2 |
| | E40 | 89-41 | | 042432 | Seal nut | 2 |
| | E50 | 89-41 | | 517379 | O-ring | 1 |
| | E60 | 89-41 | | 517230 | Screw (SB-2002-014) | 6 |
| | E70 | 89-41 | | 320002 (9005110-9200) | Plug assembly | 1 |
| | E80 | 89-41 | | 517160 | Spring (SB-1997-018) | 2 |
| | E82 | 89-41 | | 517161 | Spring (SB-1997-018) | 2 |
| | E90 | 96-03 | | 513890 | Insert assembly (SB-1996-004 & SB-1999-041) | 1 |
| | F20 | 88-16 | | 11116309 | Slider block | 1 |
| | L10 | 89-41 | | 11018484 | Roller bearing | 1 |
| | L20 | 89-41 | | 392209 | Retaining ring | 1 |
| | L25 | 92-19 | | 519732 | Seal carrier assembly (SB-2007-008A) | 1 |
| | L40 | 07-10 | | 519021 | Lip seal (SB-2007-008A) | 1 |
| | L40 | 89-41 | 07-09 | 9008000-0114 | Lip seal | 1 |
| | L50 | 89-41 | | 509353 | O-ring | 1 |
| | L60 | 89-41 | | 516769 | Retainer plate | 1 |
| | L70 | 89-41 | | 009159 | Screw | 4 |
| | QB30 | 07-10 | | 11000866 | Cradle bearing assembly (SB-2007-008A) | 1 |
| | QB30 | 89-41 | 07-09 | 324657 | Cradle bearing assembly | 1 |
| | QD50 | 07-10 | | 11031840 | Swashplate kit | 1 |
| | QD50 | 88-16 | 07-09 | 521382 | Swashplate kit (SB-2007-008A) | 1 |

## Variable displacement pump

### (EAT, EBA, EDB & EDD)

A generic speed sensor is shown

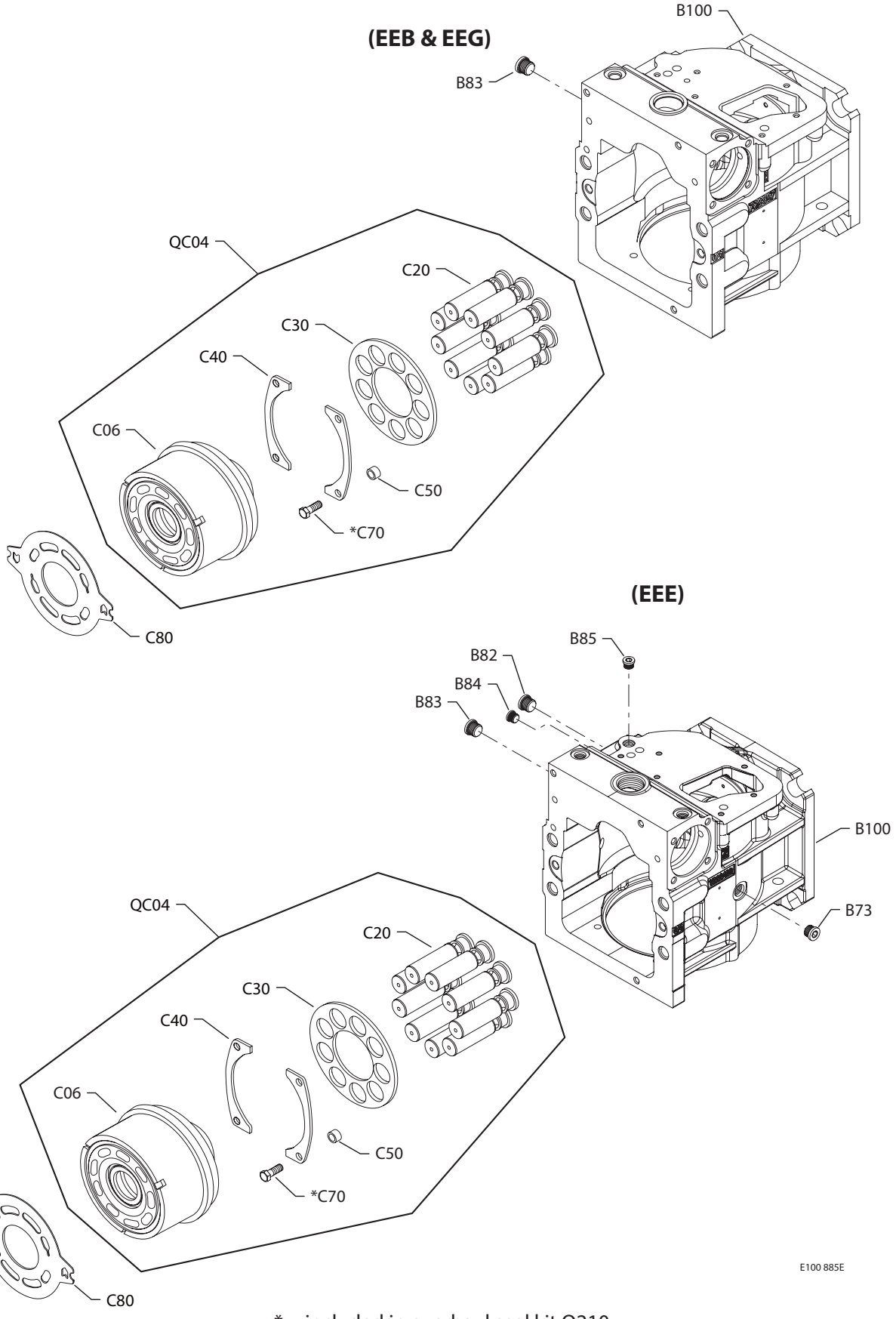


## Variable displacement pump

### Special hardware

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| EAT | B83 | 99-50 | | 11046858 | Speed sensor | 1 |
| | B100 | 07-10 | | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 99-50 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C06 | 99-50 | | 519259 | Cylinder block assy., with speed ring) | 1 |
| | C20 | 99-50 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 99-50 | | 11067352 | Slipper retainer | 1 |
| | C40 | 99-50 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 99-50 | | 509015 | Spacer | 4 |
| | C70 | 99-50 | | 308643 | Screw | 4 |
| | C80 | 99-50 | | 518807 | Valve plate | 1 |
| | QB83 | 99-50 | | 9004201-3700 | O-ring | 1 |
| | QC04 | 99-50 | | 519275 | Cylinder block kit, with speed ring | 1 |
| EBA | B83 | 92-19 | | KPPG13408 | Speed sensor | 1 |
| | B100 | 07-10 | | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 92-19 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C06 | 92-19 | | 519259 | Cylinder block assy., with speed ring | 1 |
| | C20 | 92-19 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 92-19 | | 11067352 | Slipper retainer | 1 |
| | C40 | 92-19 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 92-19 | | 509015 | Spacer | 4 |
| | C70 | 92-19 | | 308643 | Screw | 4 |
| | C80 | 92-19 | | 518807 | Valve plate | 1 |
| | QB83 | 92-19 | | 9004201-3700 | O-ring | 1 |
| | QC04 | 92-19 | | 519275 | Cylinder block kit, with speed ring | 1 |
| EDB | B83 | 92-19 | 08-03 | KPPG15408 | Speed sensor | 1 |
| | B100 | 07-10 | 08-03 | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 92-19 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C06 | 92-19 | 08-03 | 519259 | Cylinder block assy., with speed ring | 1 |
| | C20 | 92-19 | 08-03 | 727750 | Piston assembly, welded | 9 |
| | C30 | 92-19 | 08-03 | 11067352 | Slipper retainer | 1 |
| | C40 | 92-19 | 08-03 | 700963 | Slipper guide bearing | 2 |
| | C50 | 92-19 | 08-03 | 509015 | Spacer | 4 |
| | C70 | 92-19 | 08-03 | 308643 | Screw | 4 |
| | C80 | 92-19 | 08-03 | 518807 | Valve plate | 1 |
| | QB83 | 92-19 | 08-03 | 9004201-3700 | O-ring | 1 |
| | QC04 | 92-19 | 08-03 | 519275 | Cylinder block kit, with speed ring | 1 |
| EDD | B83 | 92-19 | 12-36 | KPPG12408 | Speed sensor | 1 |
| | B100 | 07-10 | 12-36 | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 92-19 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C06 | 92-19 | 12-36 | 519259 | Cylinder block assy., with speed ring | 1 |
| | C20 | 92-19 | 12-36 | 727750 | Piston assembly, welded | 9 |
| | C30 | 92-19 | 12-36 | 11067352 | Slipper retainer | 1 |
| | C40 | 92-19 | 12-36 | 700963 | Slipper guide bearing | 2 |
| | C50 | 92-19 | 12-36 | 509015 | Spacer | 4 |
| | C70 | 92-19 | 12-36 | 308643 | Screw | 4 |
| | C80 | 92-19 | 12-36 | 518808 | Valve plate | 1 |
| | QB83 | 92-19 | 12-36 | 9004201-3700 | O-ring | 1 |
| | QC04 | 92-19 | 12-36 | 519275 | Cylinder block kit, with speed ring | 1 |

## Variable displacement pump




* = included in overhaul seal kit Q210

## Variable displacement pump

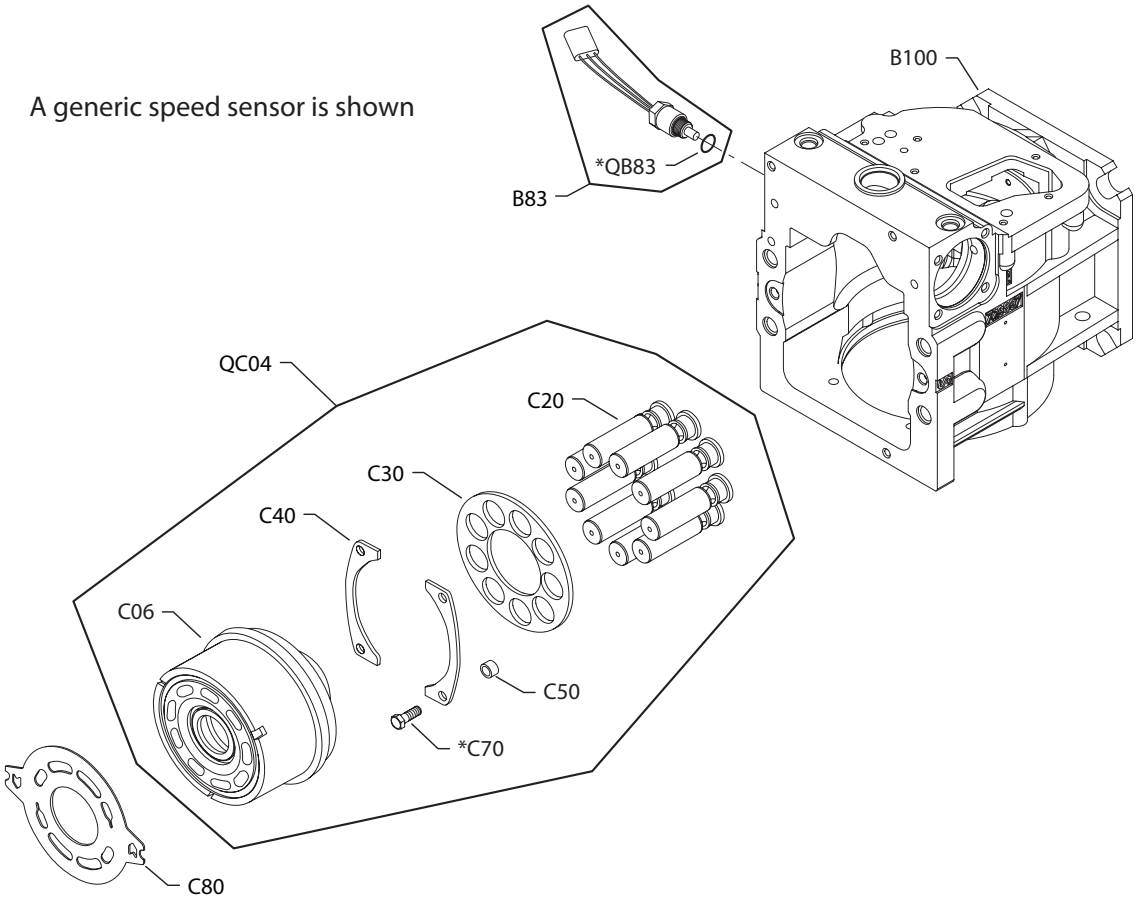
### Special hardware

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| EEB | B83 | 92-19 | | 140644 | Plug assembly | 1 |
| | B100 | 07-10 | | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 92-19 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C06 | 92-19 | | 519259 | Cylinder block assy., with speed ring | 1 |
| | C20 | 92-19 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 92-19 | | 11067352 | Slipper retainer | 1 |
| | C40 | 92-19 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 92-19 | | 509015 | Spacer | 4 |
| | C70 | 92-19 | | 308643 | Screw | 4 |
| | C80 | 92-19 | | 518807 | Valve plate | 1 |
| | QC04 | 92-19 | | 519275 | Cylinder block kit, with speed ring | 1 |
| EEE | B73 | 00-13 | 12-36 | 140644 | Plug assembly | 1 |
| | B83 | 00-13 | 12-36 | 140644 | Plug assembly | 1 |
| | B84 | 00-13 | 12-36 | 509603 | Plug assembly, M10 x 1 | 1 |
| | B85 | 00-13 | 12-36 | 509603 | Plug assembly, M10 x 1 | 1 |
| | B100 | 07-10 | 12-36 | 11006984 | Housing (SB-2007-008A) | 1 |
| | C06 | 00-13 | 12-36 | 519259 | Cylinder block assy., with speed ring | 1 |
| | C20 | 00-13 | 12-36 | 727750 | Piston assembly, welded | 9 |
| | C30 | 00-13 | 12-36 | 11067352 | Slipper retainer | 1 |
| | C40 | 00-13 | 12-36 | 700963 | Slipper guide bearing | 2 |
| | C50 | 00-13 | 12-36 | 509015 | Spacer | 4 |
| | C70 | 00-13 | 12-36 | 308643 | Screw | 4 |
| | C80 | 00-13 | 12-36 | 518937 | Valve plate, CW, lapped | 1 |
| | QC04 | 00-13 | 12-36 | 519275 | Cylinder block kit, with speed ring | 1 |
| EEG | B83 | 00-13 | | 140644 | Plug assembly | 1 |
| | B100 | 07-10 | | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 00-13 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C06 | 00-13 | | 519259 | Cylinder block assy., with speed ring | 1 |
| | C20 | 00-13 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 00-13 | | 11067352 | Slipper retainer | 1 |
| | C40 | 00-13 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 00-13 | | 509015 | Spacer | 4 |
| | C70 | 00-13 | | 308643 | Screw | 4 |
| | C80 | 00-13 | | 518938 | Valve plate, CCW, lapped | 1 |
| | C80 | 00-13 | | 518937 | Valve plate, CW, lapped | 1 |
| | QC04 | 00-13 | | 519275 | Cylinder block kit, with speed ring | 1 |

## Variable displacement pump

### (EFC, EFI, EFM & EGA)

A generic speed sensor is shown



## Variable displacement pump

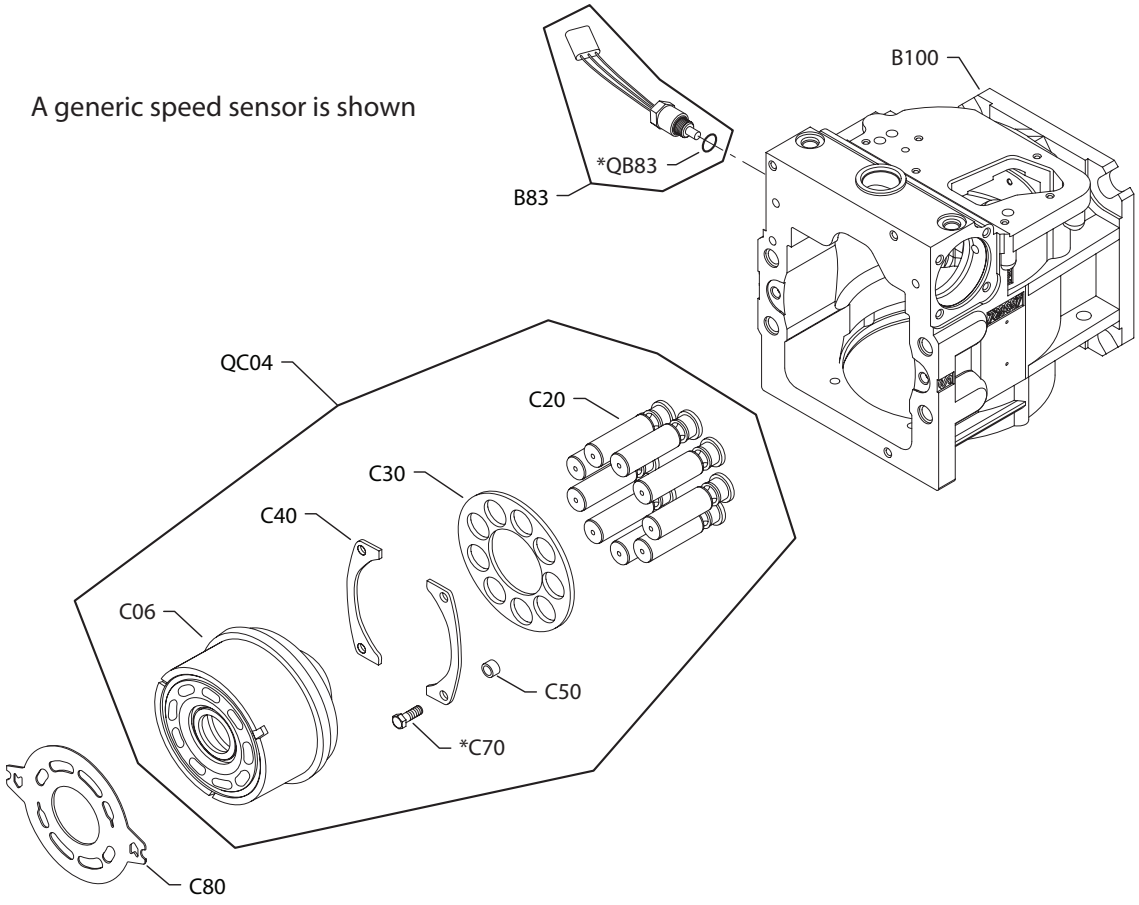
### Special hardware

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| EFC | B83 | 92-19 | | KPPG156 | Speed sensor | 1 |
| | B100 | 07-10 | | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 92-19 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C06 | 92-19 | | 519259 | Cylinder block assy., with speed ring | 1 |
| | C20 | 92-19 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 92-19 | | 11067352 | Slipper retainer | 1 |
| | C40 | 92-19 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 92-19 | | 509015 | Spacer | 4 |
| | C70 | 92-19 | | 308643 | Screw | 4 |
| | C80 | 92-19 | | 518807 | Valve plate | 1 |
| | QB83 | 99-50 | | 9004201-3700 | O-ring | 1 |
| | QC04 | 92-19 | | 519275 | Cylinder block kit, with speed ring | 1 |
| EFI | B83 | 98-12 | | KPPG156 | Speed sensor | 1 |
| | B100 | 07-10 | | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 98-12 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C06 | 98-12 | | 519259 | Cylinder block assy., with speed ring | 1 |
| | C20 | 98-12 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 98-12 | | 11067352 | Slipper retainer | 1 |
| | C40 | 98-12 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 98-12 | | 509015 | Spacer | 4 |
| | C70 | 98-12 | | 308643 | Screw | 4 |
| | C80 | 98-12 | | 518937 | Valve plate, CW, lapped | 1 |
| | C80 | 98-12 | | 518938 | Valve plate, CCW, lapped | 1 |
| | QC04 | 98-12 | | 519275 | Cylinder block kit, with speed ring | 1 |
| EFM | B83 | 98-31 | 12-36 | KPPG156 | Speed sensor | 1 |
| | B100 | 07-10 | 12-36 | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 98-31 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C06 | 98-31 | 12-36 | 519259 | Cylinder block assy., with speed ring | 1 |
| | C20 | 98-31 | 12-36 | 727750 | Piston assembly, welded | 9 |
| | C30 | 98-31 | 12-36 | 11067352 | Slipper retainer | 1 |
| | C40 | 98-31 | 12-36 | 700963 | Slipper guide bearing | 2 |
| | C50 | 98-31 | 12-36 | 509015 | Spacer | 4 |
| | C70 | 98-31 | 12-36 | 308643 | Screw | 4 |
| | C80 | 98-31 | 12-36 | 518808 | Valve plate | 1 |
| | QC04 | 98-31 | 12-36 | 519275 | Cylinder block kit, with speed ring | 1 |
| EGA | B83 | 98-49 | | 11046858 | Speed sensor | 1 |
| | B100 | 07-10 | | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 98-49 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C06 | 98-49 | | 519259 | Cylinder block assy., with speed ring | 1 |
| | C20 | 98-49 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 98-49 | | 11067352 | Slipper retainer | 1 |
| | C40 | 98-49 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 98-49 | | 509015 | Spacer | 4 |
| | C70 | 98-49 | | 308643 | Screw | 4 |
| | C80 | 98-49 | | 518807 | Valve plate | 1 |
| | QC04 | 98-49 | | 519275 | Cylinder block kit, with speed ring | 1 |

## Variable displacement pump

### (EHA & EHB)

A generic speed sensor is shown

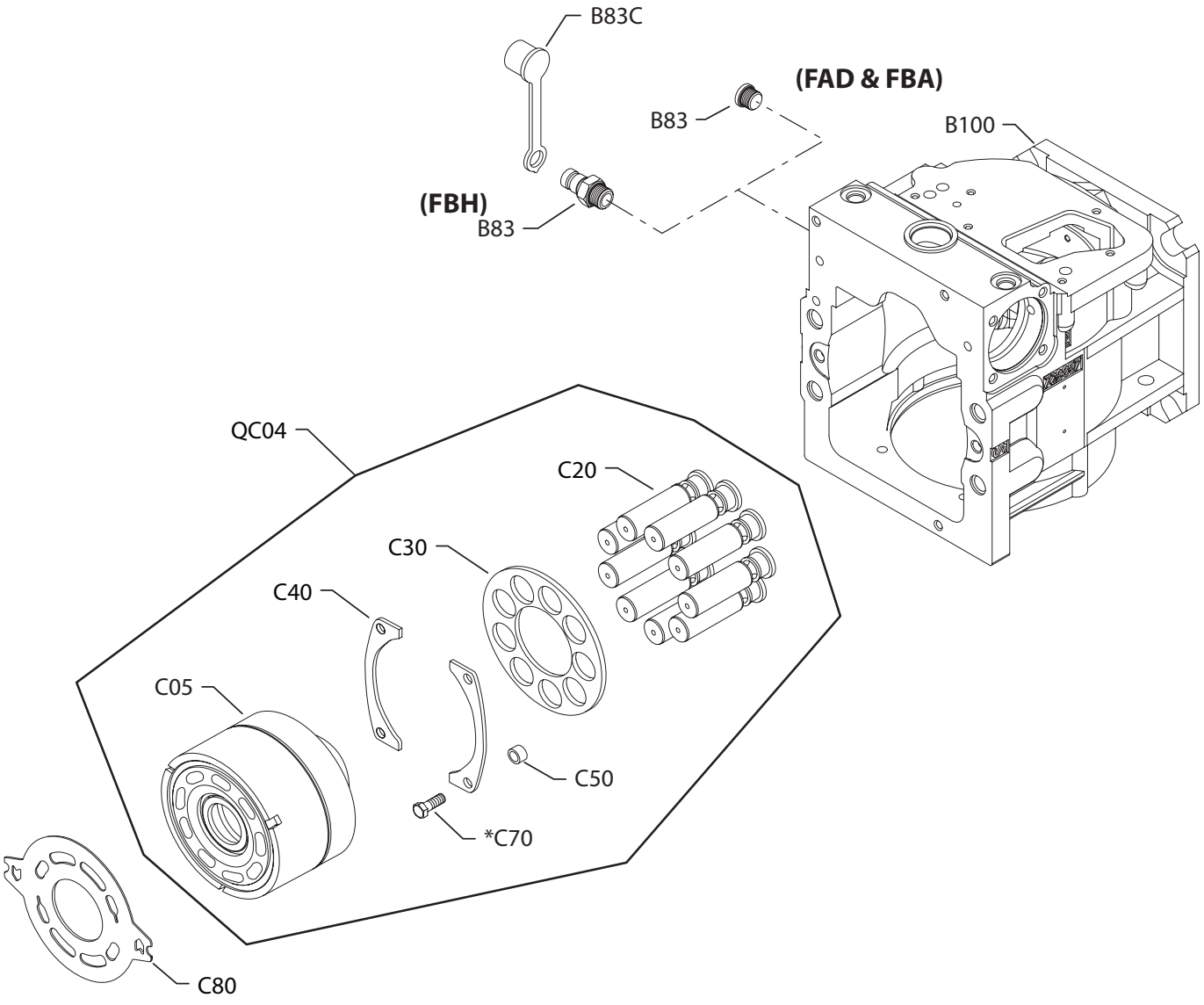


## Variable displacement pump

### Special hardware

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| EHA | B83 | 00-44 | | KPPG16408 | Speed sensor | 1 |
| | B100 | 07-10 | | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 00-44 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C06 | 00-44 | | 519259 | Cylinder block assy., with speed ring | 1 |
| | C20 | 00-44 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 00-44 | | 11067352 | Slipper retainer | 1 |
| | C40 | 00-44 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 00-44 | | 509015 | Spacer | 4 |
| | C70 | 00-44 | | 308643 | Screw | 4 |
| | C80 | 00-44 | | 518807 | Valve plate | 1 |
| | QC04 | 00-44 | | 519275 | Cylinder block kit, with speed ring | 1 |
| | | | | | | |
| EHB | B83 | 02-47 | 12-36 | KPPG16408 | Speed sensor | 1 |
| | B100 | 07-10 | 12-36 | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 02-47 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C06 | 02-47 | 12-36 | 519259 | Cylinder block assy., with speed ring | 1 |
| | C20 | 02-47 | 12-36 | 727750 | Piston assembly, welded | 9 |
| | C30 | 02-47 | 12-36 | 11067352 | Slipper retainer | 1 |
| | C40 | 02-47 | 12-36 | 700963 | Slipper guide bearing | 2 |
| | C50 | 02-47 | 12-36 | 509015 | Spacer | 4 |
| | C70 | 02-47 | 12-36 | 308643 | Screw | 4 |
| | C80 | 02-47 | 12-36 | 518808 | Valve plate | 1 |
| | QC04 | 02-47 | 12-36 | 519275 | Cylinder block kit, with speed ring | 1 |

## Variable displacement pump

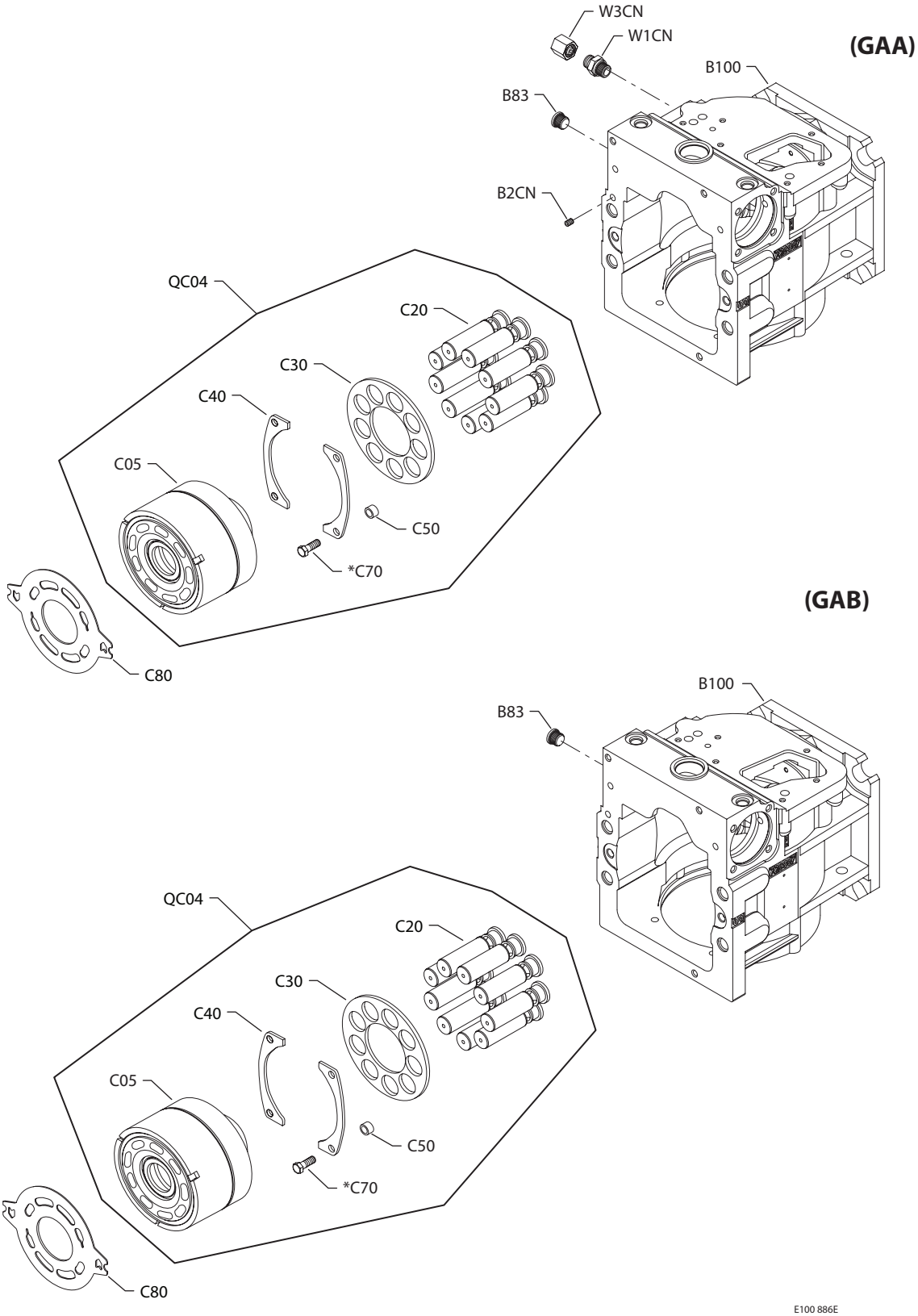


## Variable displacement pump

### Special hardware

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| FAD | B83 | 92-19 | | 140644 | Plug assembly | 1 |
| | B100 | 07-10 | | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 92-19 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C05 | 13-49 | | 11033869 | Cylinder block assembly | 1 |
| | C05 | 92-19 | 13-49 | 519258 | Cylinder block assembly | 1 |
| | C20 | 92-19 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 92-19 | | 11067352 | Slipper retainer | 1 |
| | C40 | 92-19 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 92-19 | | 509015 | Spacer | 4 |
| | C70 | 92-19 | | 308643 | Screw | 4 |
| | C80 | 92-19 | | 518807 | Valve plate | 1 |
| | QC04 | 92-19 | | 519274 | Cylinder block kit | 1 |
| FBA | B83 | 08-44 | | 140644 | Plug assembly | 1 |
| | B100 | 08-44 | | 11026913 | Housing assembly | 1 |
| | C05 | 13-49 | | 11033869 | Cylinder block assembly | 1 |
| | C05 | 08-44 | 13-49 | 519258 | Cylinder block assembly | 1 |
| | C20 | 08-44 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 08-44 | | 11067352 | Slipper retainer | 1 |
| | C40 | 08-44 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 08-44 | | 509015 | Spacer | 4 |
| | C70 | 08-44 | | 308643 | Screw | 4 |
| | C80 | 08-44 | | 518808 | Valve plate | 1 |
| | QC04 | 08-44 | | 519274 | Cylinder block kit | 1 |
| FBH | B83 | 10-06 | | 8700127 | Diagnostic receptical assembly | 1 |
| | B83C | 10-06 | | 8700128 | Dust cover | 1 |
| | B100 | 10-06 | | 11026913 | Housing assembly | 1 |
| | C05 | 13-49 | | 11033869 | Cylinder block assembly | 1 |
| | C05 | 10-06 | 13-49 | 519258 | Cylinder block assembly | 1 |
| | C20 | 10-06 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 10-06 | | 11067352 | Slipper retainer | 1 |
| | C40 | 10-06 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 10-06 | | 509015 | Spacer | 4 |
| | C70 | 10-06 | | 308643 | Screw | 4 |
| | C80 | 10-06 | | 518808 | Valve plate | 1 |
| | QC04 | 10-06 | | 519274 | Cylinder block kit | 1 |

## Variable displacement pump



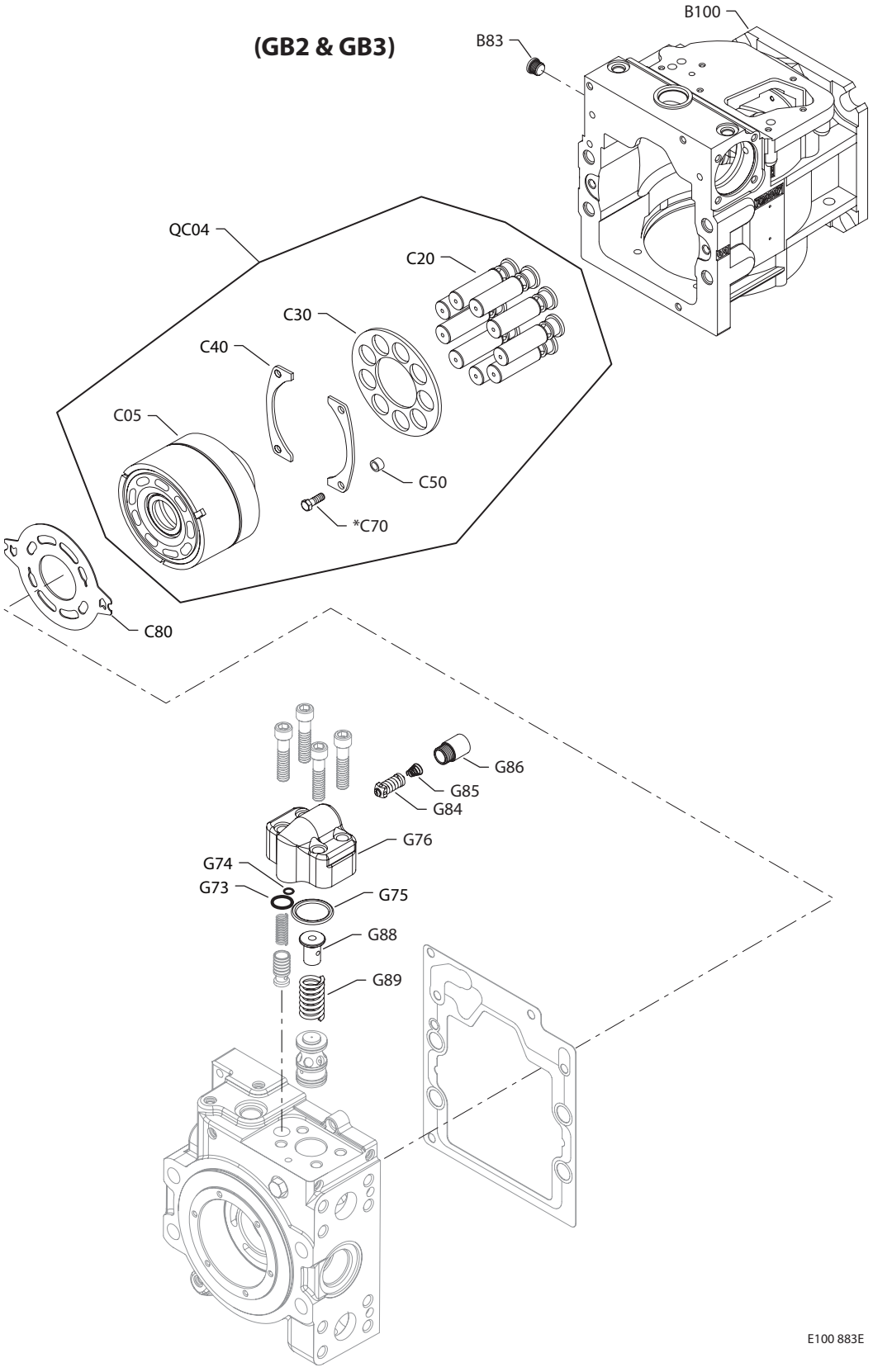

* = included in overhaul seal kit Q210

## Variable displacement pump

### Special hardware

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| GAA | B83 | 92-19 | | 140644 | Plug assembly | 1 |
| | B100 | 07-10 | | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 92-19 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C05 | 92-19 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 92-19 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 92-19 | | 11067352 | Slipper retainer | 1 |
| | C40 | 92-19 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 92-19 | | 509015 | Spacer | 4 |
| | C70 | 92-19 | | 308643 | Screw | 4 |
| | C80 | 92-19 | | 518934 | Valve plate | 1 |
| | QC04 | 92-19 | | 519274 | Cylinder block kit | 1 |
| | | | | | | |
| GAB | B2CN | 92-19 | 08-03 | 775312 | Set screw | 1 |
| | B83 | 92-19 | 08-03 | 140644 | Plug assembly | 1 |
| | B100 | 07-10 | 08-03 | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 92-19 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C05 | 92-19 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 92-19 | 08-03 | 727750 | Piston assembly, welded | 9 |
| | C30 | 92-19 | 08-03 | 11067352 | Slipper retainer | 1 |
| | C40 | 92-19 | 08-03 | 700963 | Slipper guide bearing | 2 |
| | C50 | 92-19 | 08-03 | 509015 | Spacer | 4 |
| | C70 | 92-19 | 08-03 | 308643 | Screw | 4 |
| | C80 | 92-19 | 08-03 | 518934 | Valve plate | 1 |
| | QC04 | 92-19 | 08-03 | 519274 | Cylinder block kit | 1 |
| | W1CN | 92-19 | 08-03 | 723726 | Connector | 1 |
| | W3CN | 92-19 | 08-03 | 574095 | Cap | 1 |

## Variable displacement pump



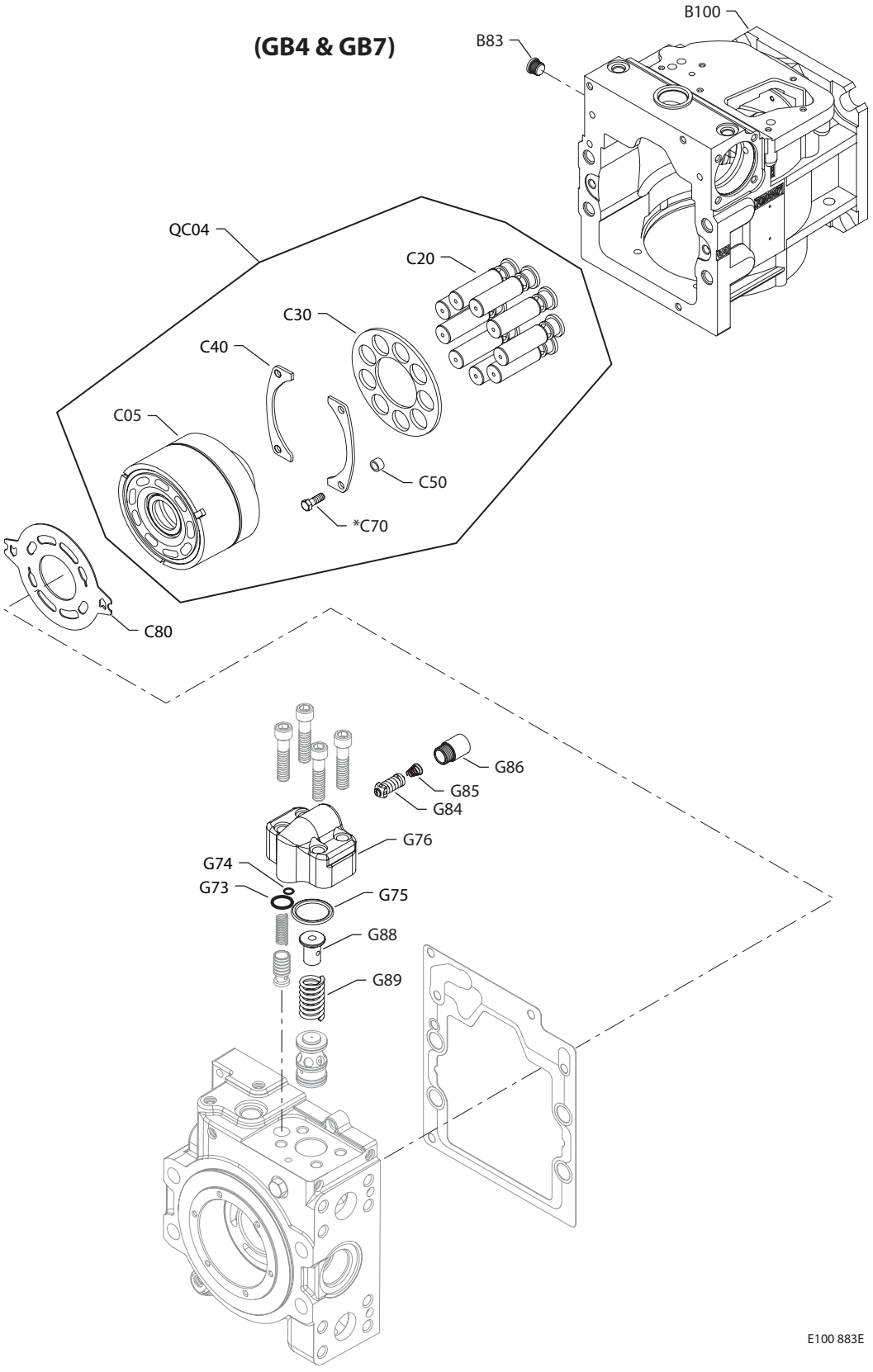

* = included in overhaul seal kit Q210

## Variable displacement pump

### Special hardware

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| GB2 | B83 | 02-30 | | 140644 | Plug assembly | 1 |
| | B100 | 07-10 | | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 02-30 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C05 | 02-30 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 02-30 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 02-30 | | 11067352 | Slipper retainer | 1 |
| | C40 | 02-30 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 02-30 | | 509015 | Spacer | 4 |
| | C70 | 02-30 | | 308643 | Screw | 4 |
| | C80 | 02-30 | | 518807 | Valve plate | 1 |
| | G73 | 02-30 | | 519873 | Seal | 1 |
| | G74 | 02-30 | | 144725 (9004105-0110) | O-ring | 1 |
| | G75 | 02-30 | | 518329 | O-ring | 1 |
| | G76 | 02-30 | | 517828 | Valve housing | 1 |
| | G84 | 02-30 | | 3103375-0250 | SCR valve, 250 bar [3625 psi] | 1 |
| | G85 | 02-30 | | 4800780 | Conial spring | 1 |
| | G86 | 02-30 | | 11126727 | Plug assembly | 1 |
| | G88 | 02-30 | | 517829 | Spring guide | 1 |
| | G89 | 02-30 | | 517831 | Spring | 1 |
| | QC04 | 02-30 | | 519274 | Cylinder block kit | 1 |
| | | | | | | |
| GB3 | B83 | 02-30 | | 140644 | Plug assembly | 1 |
| | B100 | 07-10 | | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 02-30 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C05 | 02-30 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 02-30 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 02-30 | | 11067352 | Slipper retainer | 1 |
| | C40 | 02-30 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 02-30 | | 509015 | Spacer | 4 |
| | C70 | 02-30 | | 308643 | Screw | 4 |
| | C80 | 02-30 | | 518807 | Valve plate | 1 |
| | G73 | 02-30 | | 519873 | Seal | 1 |
| | G74 | 02-30 | | 144725 (9004105-0110) | O-ring | 1 |
| | G75 | 02-30 | | 518329 | O-ring | 1 |
| | G76 | 02-30 | | 517828 | Valve housing | 1 |
| | G84 | 02-30 | | 3103375-0175 | SCR valve, 175 bar [2538 psi] | 1 |
| | G85 | 02-30 | | 4800780 | Conial spring | 1 |
| | G86 | 02-30 | | 11126727 | Plug assembly | 1 |
| | G88 | 02-30 | | 517829 | Spring guide | 1 |
| | G89 | 02-30 | | 517831 | Spring | 1 |
| | QC04 | 02-30 | | 519274 | Cylinder block kit | 1 |

## Variable displacement pump



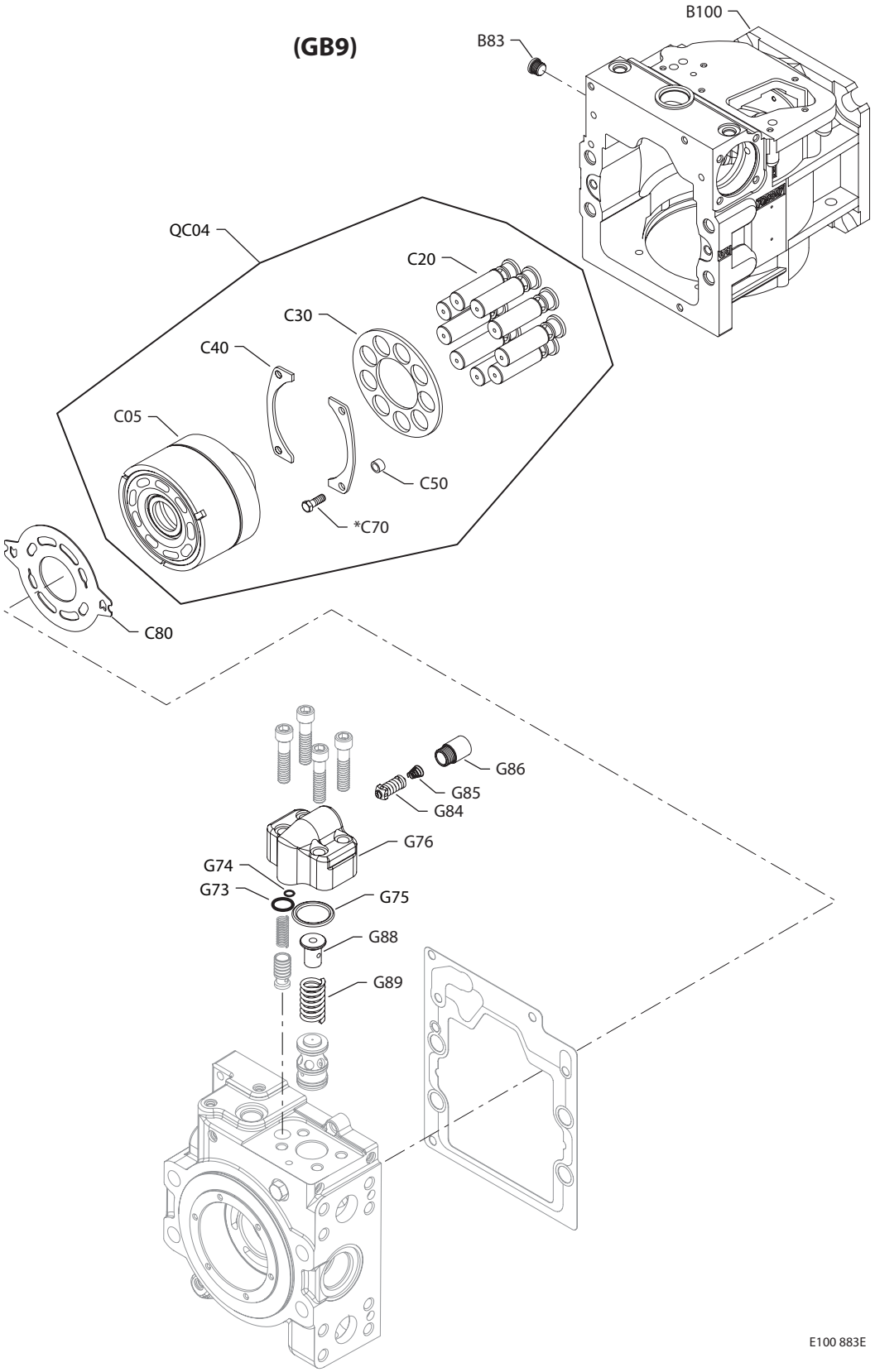

* = included in overhaul seal kit Q210

## Variable displacement pump

### Special hardware

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| GB4 | B83 | 92-19 | | 140644 | Plug assembly | 1 |
| | B100 | 07-10 | | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 92-19 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C05 | 92-19 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 92-19 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 92-19 | | 11067352 | Slipper retainer | 1 |
| | C40 | 92-19 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 92-19 | | 509015 | Spacer | 4 |
| | C70 | 92-19 | | 308643 | Screw | 4 |
| | C80 | 92-19 | | 518807 | Valve plate | 1 |
| | G73 | 92-19 | | 519873 | Seal | 1 |
| | G74 | 92-19 | | 144725 (9004105-0110) | O-ring | 1 |
| | G75 | 92-19 | | 518329 | O-ring | 1 |
| | G76 | 92-19 | | 517828 | Valve housing | 1 |
| | G84 | 92-19 | | 3103375-0140 | SCR valve, 140 bar [2030 psi] | 1 |
| | G85 | 92-19 | | 4800780 | Conial spring | 1 |
| | G86 | 92-19 | | 11126727 | Plug assembly | 1 |
| | G88 | 92-19 | | 517829 | Spring guide | 1 |
| | G89 | 92-19 | | 517831 | Spring | 1 |
| | QC04 | 92-19 | | 519274 | Cylinder block kit | 1 |
| | | | | | | |
| GB7 | B83 | 05-34 | | 140644 | Plug assembly | 1 |
| | B100 | 07-10 | | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 05-34 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C05 | 05-34 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 05-34 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 05-34 | | 11067352 | Slipper retainer | 1 |
| | C40 | 05-34 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 05-34 | | 509015 | Spacer | 4 |
| | C70 | 05-34 | | 308643 | Screw | 4 |
| | C80 | 05-34 | | 518937 | Valve plate, CW, lapped | 1 |
| | C80 | 05-34 | | 518938 | Valve plate, CCW, lapped | 1 |
| | G73 | 05-34 | | 519873 | Seal | 1 |
| | G74 | 05-34 | | 144725 (9004105-0110) | O-ring | 1 |
| | G75 | 05-34 | | 518329 | O-ring | 1 |
| | G76 | 05-34 | | 517828 | Valve housing | 1 |
| | G84 | 05-34 | | 3103375-0175 | SCR valve, 175 bar [2030 psi] | 1 |
| | G85 | 05-34 | | 4800780 | Conial spring | 1 |
| | G86 | 05-34 | | 11126727 | Plug assembly | 1 |
| | G88 | 05-34 | | 517829 | Spring guide | 1 |
| | G89 | 05-34 | | 517831 | Spring | 1 |
| | QC04 | 05-34 | | 519274 | Cylinder block kit | 1 |

## Variable displacement pump




* = included in overhaul seal kit Q210

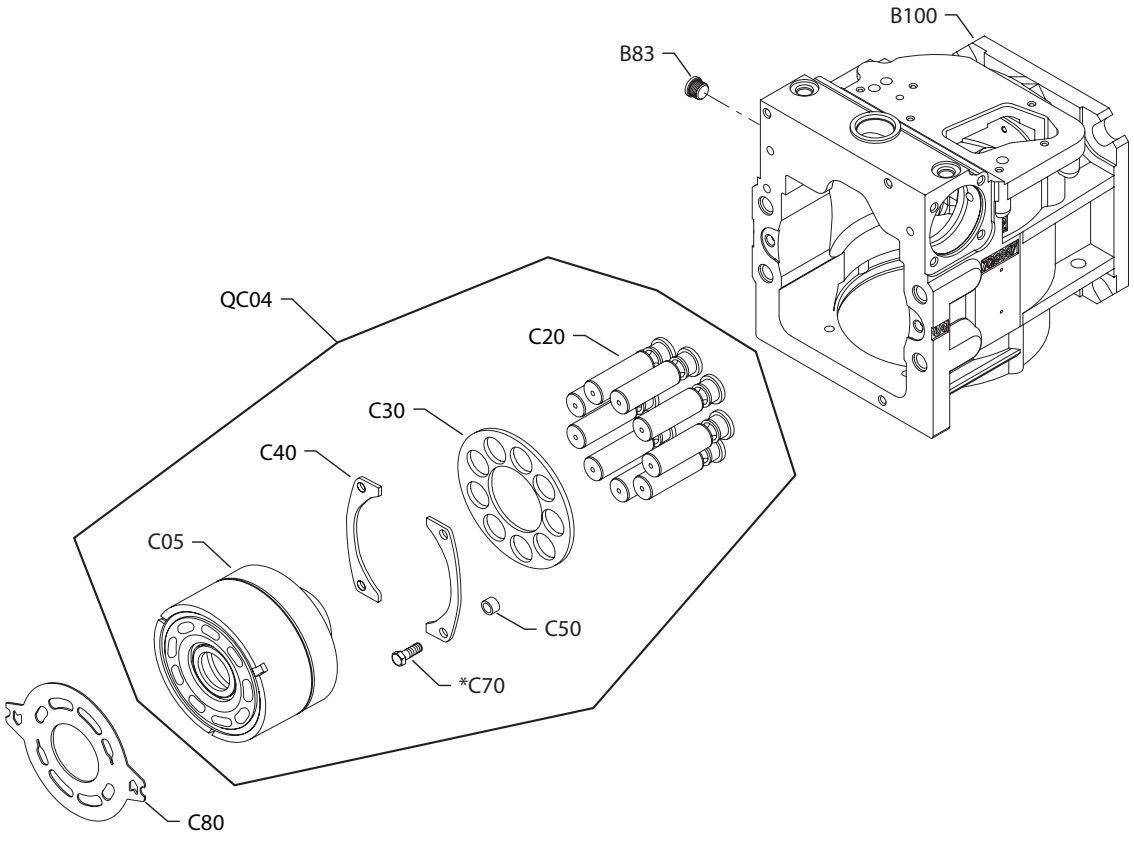
## Variable displacement pump

### Special hardware

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| GB9 | B83 | 06-34 | | 140644 | Plug assembly | 1 |
| | B100 | 07-10 | | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 06-34 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C05 | 06-34 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 06-34 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 06-34 | | 11067352 | Slipper retainer | 1 |
| | C40 | 06-34 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 06-34 | | 509015 | Spacer | 4 |
| | C70 | 06-34 | | 308643 | Screw | 4 |
| | C80 | 06-34 | | 518807 | Valve plate | 1 |
| | G73 | 06-34 | | 519873 | Seal | 1 |
| | G74 | 06-34 | | 144725 (9004105-0110) | O-ring | 1 |
| | G75 | 06-34 | | 518329 | O-ring | 1 |
| | G76 | 06-34 | | 517828 | Valve housing | 1 |
| | G84 | 06-34 | | 3103375-0140 | SCR valve, 140 bar [2030 psi] | 1 |
| | G85 | 06-34 | | 4800780 | Conial spring | 1 |
| | G86 | 06-34 | | 11126727 | Plug assembly | 1 |
| | G88 | 06-34 | | 517829 | Spring guide | 1 |
| | G89 | 06-34 | | 517831 | Spring | 1 |
| | QC04 | 06-34 | | 519274 | Cylinder block kit | 1 |

## Variable displacement pump

### (GBA, GBE & GBK)

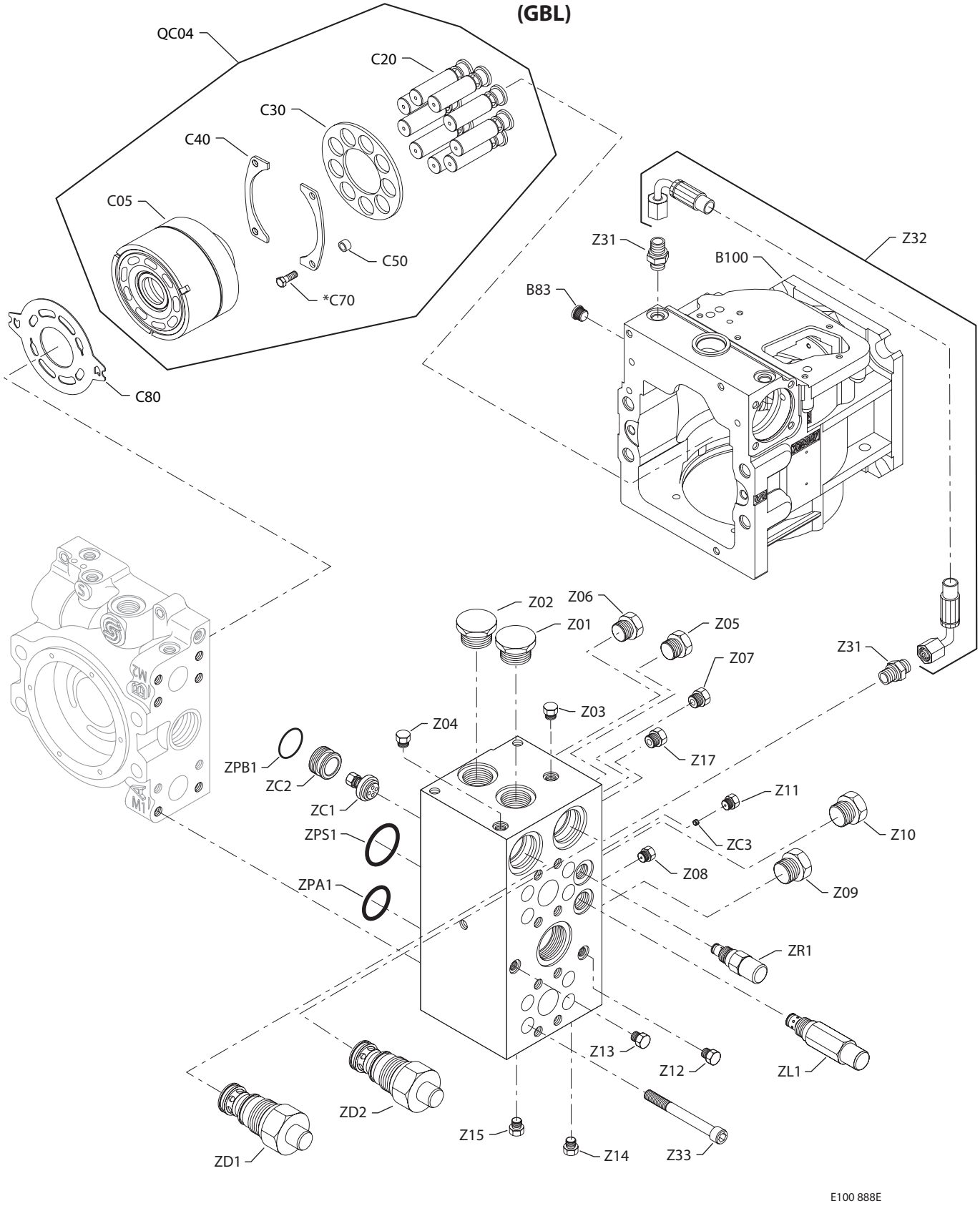


## Variable displacement pump

### Special hardware

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| GBA | B83 | 89-41 | | 140644 | Plug assembly | 1 |
| | B100 | 07-10 | | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 89-41 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C05 | 89-41 | | 11033869 | Cylinder block assembly, without speed ring | 1 |
| | C20 | 89-41 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 89-41 | | 11067352 | Slipper retainer | 1 |
| | C40 | 89-41 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 89-41 | | 509015 | Spacer | 4 |
| | C70 | 89-41 | | 308643 | Screw | 4 |
| | C80 | 89-41 | | 518807 | Valve plate | 1 |
| | QC04 | 89-41 | | 519274 | Cylinder block kit, without speed ring, welded piston | 1 |
| GBE | B83 | 89-41 | | 140644 | Plug assembly | 1 |
| | B100 | 07-10 | | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 89-41 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C05 | 89-41 | | 11033869 | Cylinder block assembly, without speed ring | 1 |
| | C20 | 89-41 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 89-41 | | 11067352 | Slipper retainer | 1 |
| | C40 | 89-41 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 89-41 | | 509015 | Spacer | 4 |
| | C70 | 89-41 | | 308643 | Screw | 4 |
| | C80 | 89-41 | | 518807 | Valve plate | 1 |
| | QC04 | 89-41 | | 519274 | Cylinder block kit, without speed ring, welded piston | 1 |
| GBK | B83 | 08-04 | | 140644 | Plug assembly | 1 |
| | B100 | 08-04 | | 11026913 | Housing assembly | 1 |
| | C05 | 89-41 | | 11033869 | Cylinder block assembly, without speed ring | 1 |
| | C20 | 89-41 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 89-41 | | 11067352 | Slipper retainer | 1 |
| | C40 | 89-41 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 89-41 | | 509015 | Spacer | 4 |
| | C70 | 89-41 | | 308643 | Screw | 4 |
| | C80 | 89-41 | | 518807 | Valve plate | 1 |
| | QC04 | 89-41 | | 519274 | Cylinder block kit, without speed ring, welded piston | 1 |

## Variable displacement pump




* = included in overhaul seal kit Q210

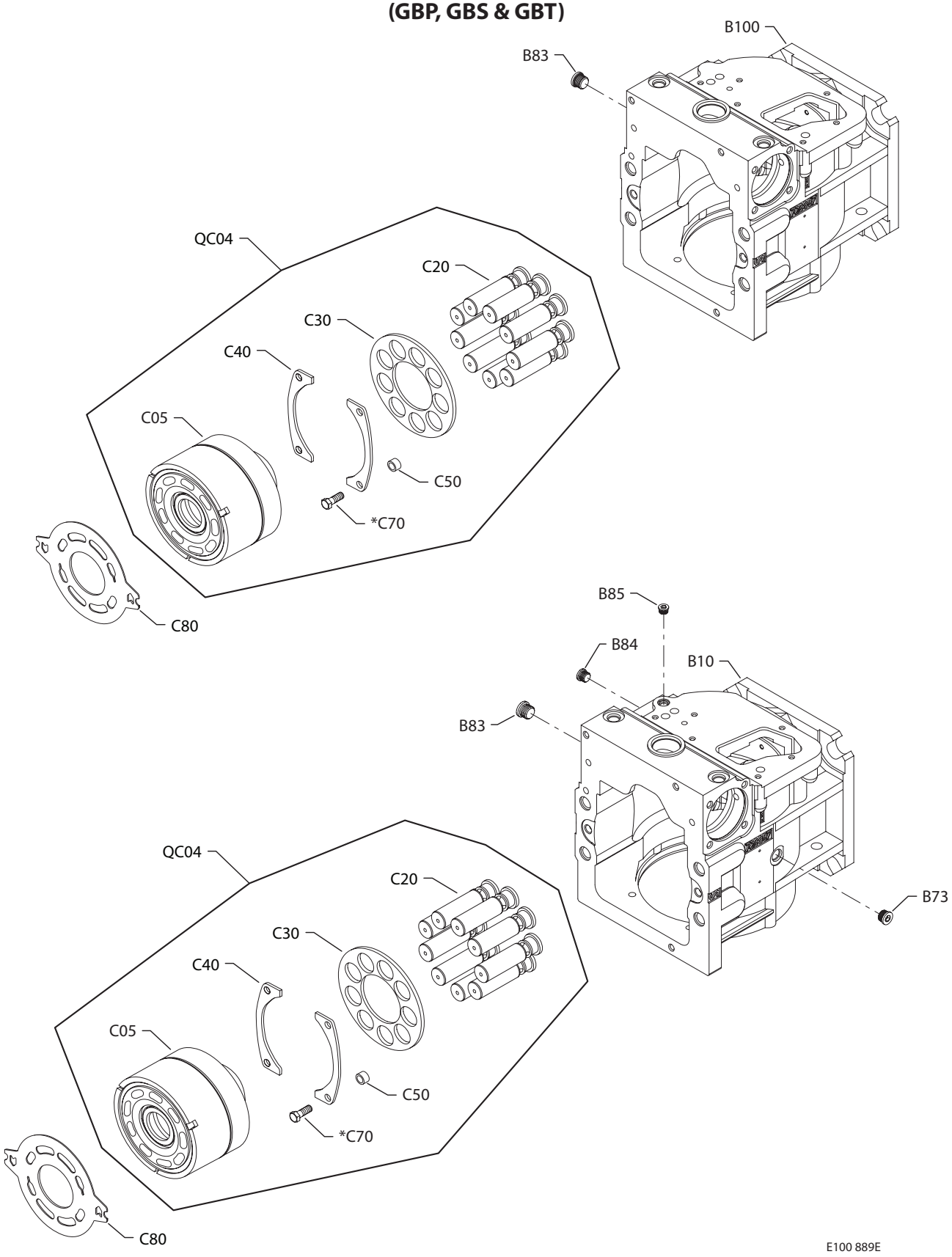
## Variable displacement pump

### Special hardware

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| GBL | B83 | 00-25 | 10-49 | 140644 | Plug assembly | 1 |
| | B100 | 07-10 | 10-49 | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 00.25 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C05 | 00-25 | 10-49 | 11033869 | Cylinder block assembly, without speed ring | 1 |
| | C20 | 00-25 | 10-49 | 727750 | Piston assembly, welded | 9 |
| | C30 | 00-25 | 10-49 | 11067352 | Slipper retainer | 1 |
| | C40 | 00-25 | 10-49 | 700963 | Slipper guide bearing | 2 |
| | C50 | 00-25 | 10-49 | 509015 | Spacer | 4 |
| | C70 | 00-25 | 10-49 | 308643 | Screw | 4 |
| | C80 | 00-25 | 10-49 | 518807 | Valve plate | 1 |
| | QC04 | 00-25 | 10-49 | 519274 | Cylinder block kit | 1 |
| | Z01 | 00-25 | 10-49 | 516748 | Plug assembly | 1 |
| | Z02 | 00-25 | 10-49 | 516748 | Plug assembly | 1 |
| | Z03 | 00-25 | 10-49 | 516742 | Plug assembly | 1 |
| | Z04 | 00-25 | 10-49 | 516742 | Plug assembly | 1 |
| | Z05 | 00-25 | 10-49 | 516744 | Plug assembly | 1 |
| | Z06 | 00-25 | 10-49 | 516744 | Plug assembly | 1 |
| | Z07 | 00-25 | 10-49 | 516745 | Plug assembly | 1 |
| | Z08 | 00-25 | 10-49 | 516742 | Plug assembly | 1 |
| | Z09 | 00-25 | 10-49 | 516748 | Plug assembly | 1 |
| | Z10 | 00-25 | 10-49 | 516748 | Plug assembly | 1 |
| | Z11 | 00-25 | 10-49 | 516742 | Plug assembly | 1 |
| | Z12 | 00-25 | 10-49 | 516750 | Plug assembly | 1 |
| | Z13 | 00-25 | 10-49 | 516750 | Plug assembly | 1 |
| | Z14 | 00-25 | 10-49 | 516750 | Plug assembly | 1 |
| | Z15 | 00-25 | 10-49 | 516750 | Plug assembly | 1 |
| | Z17 | 00-25 | 10-49 | 516745 | Plug assembly | 1 |
| | Z31 | 00-25 | 10-49 | 516137 | Connector | 2 |
| | Z32 | 00-25 | 10-49 | 516134 | Hydraulic hose | 1 |
| | Z33 | 00-25 | 10-49 | 019471 | Screw | 8 |
| | ZC1 | 00-25 | 10-49 | 516720 | Check valve | 1 |
| | ZC2 | 00-25 | 10-49 | 516721 | Retainer | 1 |
| | ZC3 | 00-25 | 10-49 | 516747 | Headless screw | 1 |
| | ZD1 | 00-25 | 10-49 | 516754 | Pressure regulator | 1 |
| | ZD2 | 00-25 | 10-49 | 516754 | Pressure regulator | 1 |
| | ZL1 | 00-25 | 10-49 | 516729 | Relief valve | 1 |
| | ZR1 | 00-25 | 10-49 | 516733 | Relief valve | 1 |

## Variable displacement pump

### (GBP, GBS & GBT)



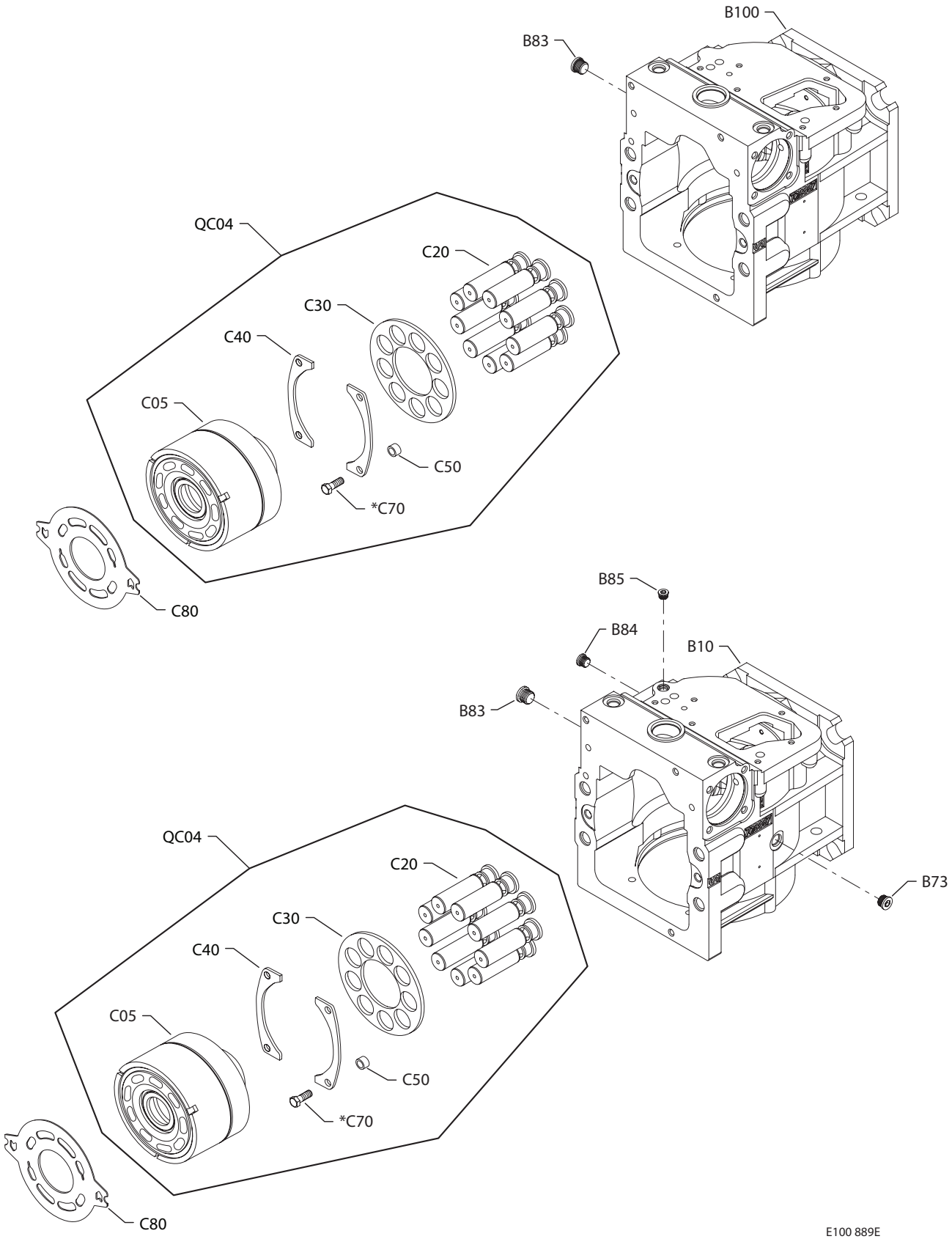
## Variable displacement pump

### Special hardware

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| GBP | B83 | 06-17 | | 140644 | Plug assembly | 1 |
| | B100 | 07-10 | | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 06-17 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C05 | 06-17 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 06-17 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 06-17 | | 11067352 | Slipper retainer | 1 |
| | C40 | 06-17 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 06-17 | | 509015 | Spacer | 4 |
| | C70 | 06-17 | | 308643 | Screw | 4 |
| | C80 | 06-17 | | 518807 | Valve plate | 1 |
| | QC04 | 06-17 | | 519274 | Cylinder block kit | 1 |
| GBS | B83 | 92-19 | | 140644 | Plug assembly | 1 |
| | B100 | 07-10 | | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 92-19 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C05 | 92-19 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 92-19 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 92-19 | | 11067352 | Slipper retainer | 1 |
| | C40 | 92-19 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 92-19 | | 509015 | Spacer | 4 |
| | C70 | 92-19 | | 308643 | Screw | 4 |
| | C80 | 92-19 | | 518807 | Valve plate | 1 |
| | QC04 | 92-19 | | 519274 | Cylinder block kit | 1 |
| GBT | B10 | 07-10 | | 11006984 | Housing | 1 |
| | B73 | 92-19 | | 140644 | Plug assembly | 1 |
| | B83 | 92-19 | | 140644 | Plug assembly | 1 |
| | B84 | 92-19 | | 509603 | Plug assembly, M10 x 1 | 1 |
| | B85 | 92-19 | | 509603 | Plug assembly, M10 x 1 | 1 |
| | C05 | 92-19 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 92-19 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 92-19 | | 11067352 | Slipper retainer | 1 |
| | C40 | 92-19 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 92-19 | | 509015 | Spacer | 4 |
| | C70 | 92-19 | | 308643 | Screw | 4 |
| | C80 | 92-19 | | 518807 | Valve plate | 1 |
| | QC04 | 92-19 | | 519274 | Cylinder block kit | 1 |

## Variable displacement pump

### (GBV, GBW & GBY)



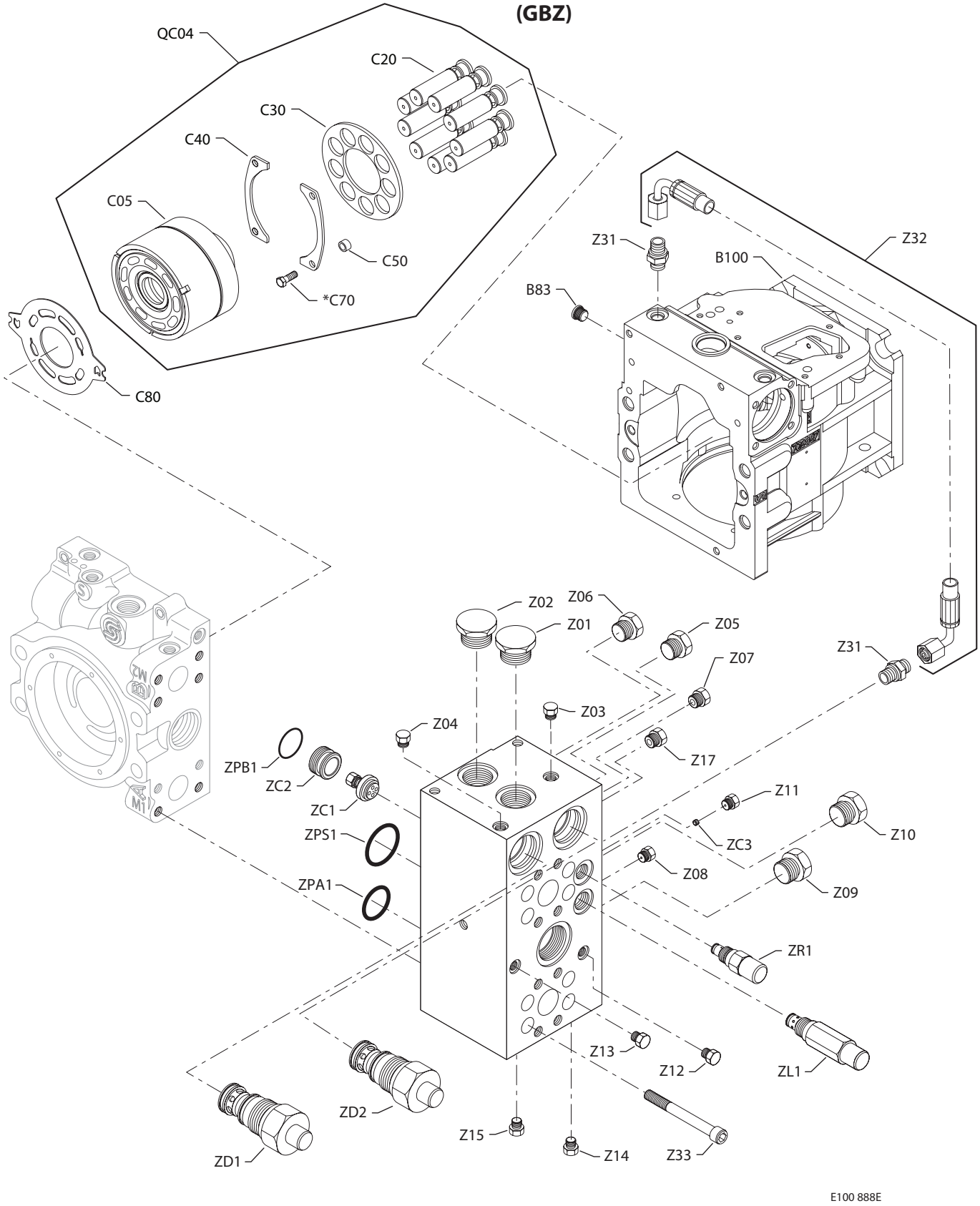

E100 889E

## Variable displacement pump

### Special hardware

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| GBV | B83 | 00-05 | | 140644 | Plug assembly | 1 |
| | B100 | 07-10 | | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 00-05 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C05 | 00-05 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 00-05 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 00-05 | | 11067352 | Slipper retainer | 1 |
| | C40 | 00-05 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 00-05 | | 509015 | Spacer | 4 |
| | C70 | 00-05 | | 308643 | Screw | 4 |
| | C80 | 00-05 | | 518807 | Valve plate | 1 |
| | QC04 | 00-05 | | 519274 | Cylinder block kit | 1 |
| GBW | B83 | 99-50 | | 140644 | Plug assembly | 1 |
| | B100 | 07-10 | | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 99-50 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C05 | 99-50 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 99-50 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 99-50 | | 11067352 | Slipper retainer | 1 |
| | C40 | 99-50 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 99-50 | | 509015 | Spacer | 4 |
| | C70 | 99-50 | | 308643 | Screw | 4 |
| | C80 | 99-50 | | 518807 | Valve plate | 1 |
| | QC04 | 99-50 | | 519274 | Cylinder block kit | 1 |
| GBY | B83 | 99-52 | | 140644 | Plug assembly | 1 |
| | B100 | 07-10 | | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 99-52 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C05 | 99-52 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 99-52 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 99-52 | | 11067352 | Slipper retainer | 1 |
| | C40 | 99-52 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 99-52 | | 509015 | Spacer | 4 |
| | C70 | 99-52 | | 308643 | Screw | 4 |
| | C80 | 99-52 | | 518934 | Valve plate | 1 |
| | QC04 | 99-52 | | 519274 | Cylinder block kit | 1 |

## Variable displacement pump



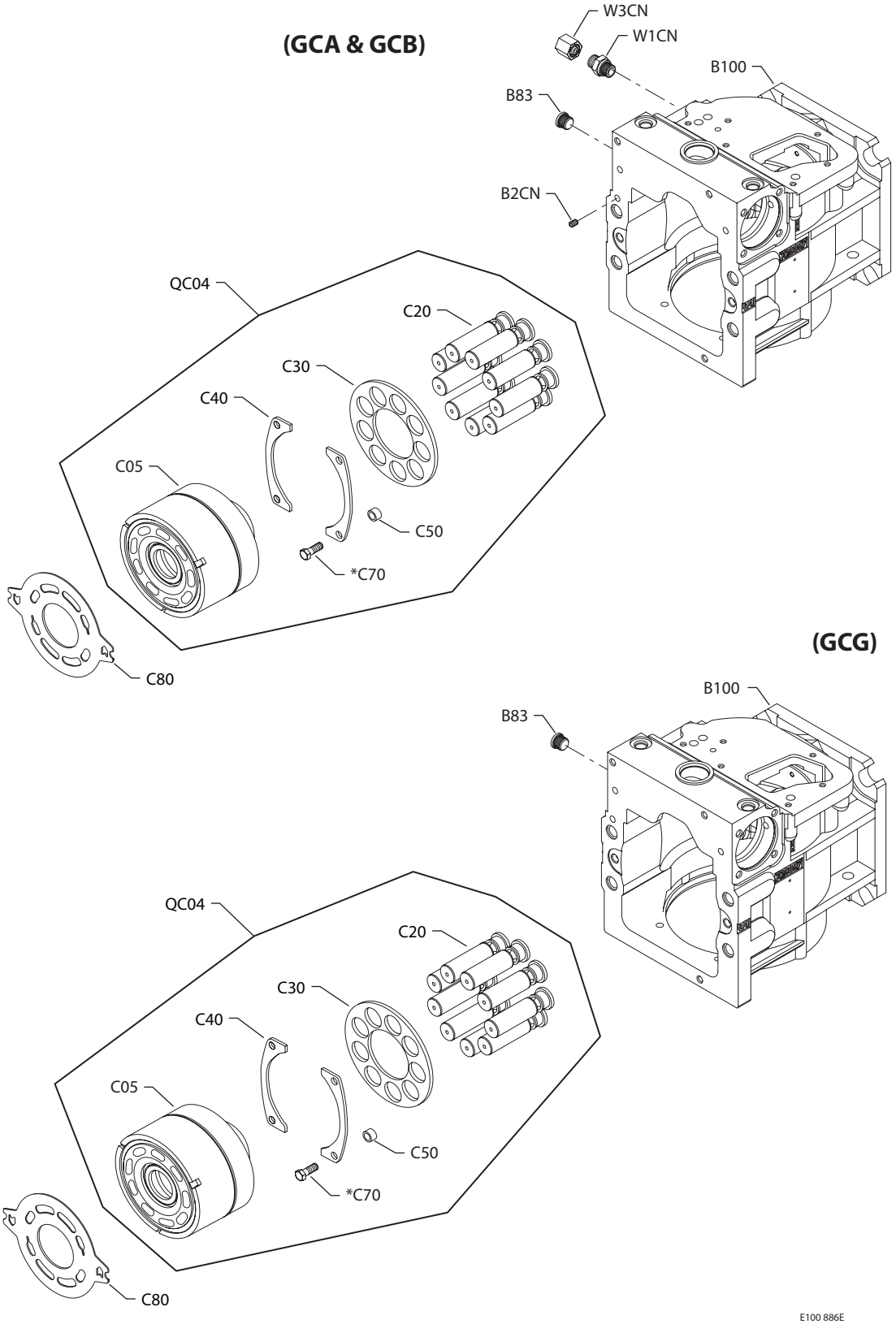

* = included in overhaul seal kit Q210

## Variable displacement pump

### Special hardware

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| GBZ | B83 | 99-52 | 15-40 | 140644 | Plug assembly | 1 |
| | B100 | 07-10 | 15-40 | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 99-52 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C05 | 99-52 | 15-40 | 11033869 | Cylinder block assembly | 1 |
| | C20 | 99-52 | 15-40 | 727750 | Piston assembly, welded | 9 |
| | C30 | 99-52 | 15-40 | 11067352 | Slipper retainer | 1 |
| | C40 | 99-52 | 15-40 | 700963 | Slipper guide bearing | 2 |
| | C50 | 99-52 | 15-40 | 509015 | Spacer | 4 |
| | C70 | 99-52 | 15-40 | 308643 | Screw | 4 |
| | C80 | 99-52 | 15-40 | 518807 | Valve plate | 1 |
| | QC04 | 99-52 | 15-40 | 519274 | Cylinder block kit | 1 |
| | Z01 | 99-52 | 15-40 | 516748 | Plug assembly | 1 |
| | Z02 | 99-52 | 15-40 | 516748 | Plug assembly | 1 |
| | Z03 | 99-52 | 15-40 | 516742 | Plug assembly | 1 |
| | Z04 | 99-52 | 15-40 | 516742 | Plug assembly | 1 |
| | Z05 | 99-52 | 15-40 | 516744 | Plug assembly | 1 |
| | Z06 | 99-52 | 15-40 | 516744 | Plug assembly | 1 |
| | Z07 | 99-52 | 15-40 | 516745 | Plug assembly | 1 |
| | Z08 | 99-52 | 15-40 | 516742 | Plug assembly | 1 |
| | Z09 | 99-52 | 15-40 | 516748 | Plug assembly | 1 |
| | Z10 | 99-52 | 15-40 | 516748 | Plug assembly | 1 |
| | Z11 | 99-52 | 15-40 | 516742 | Plug assembly | 1 |
| | Z12 | 99-52 | 15-40 | 516750 | Plug assembly | 1 |
| | Z13 | 99-52 | 15-40 | 516750 | Plug assembly | 1 |
| | Z14 | 99-52 | 15-40 | 516750 | Plug assembly | 1 |
| | Z15 | 99-52 | 15-40 | 516750 | Plug assembly | 1 |
| | Z17 | 99-52 | 15-40 | 516745 | Plug assembly | 1 |
| | Z31 | 99-52 | 15-40 | 516137 | Connector | 2 |
| | Z32 | 99-52 | 15-40 | 516134 | Hydraulic hose | 1 |
| | Z33 | 99-52 | 15-40 | 019471 | Screw | 8 |
| | ZC1 | 99-52 | 15-40 | 516720 | Check valve | 1 |
| | ZC2 | 99-52 | 15-40 | 516721 | Retainer | 1 |
| | ZC3 | 99-52 | 15-40 | 516747 | Headless screw | 1 |
| | ZD1 | 99-52 | 15-40 | 516722 | Pressure regulator | 1 |
| | ZD2 | 99-52 | 15-40 | 516722 | Pressure regulator | 1 |
| | ZL1 | 99-52 | 15-40 | 516729 | Relief valve | 1 |
| | ZR1 | 99-52 | 15-40 | 516733 | Relief valve | 1 |

## Variable displacement pump



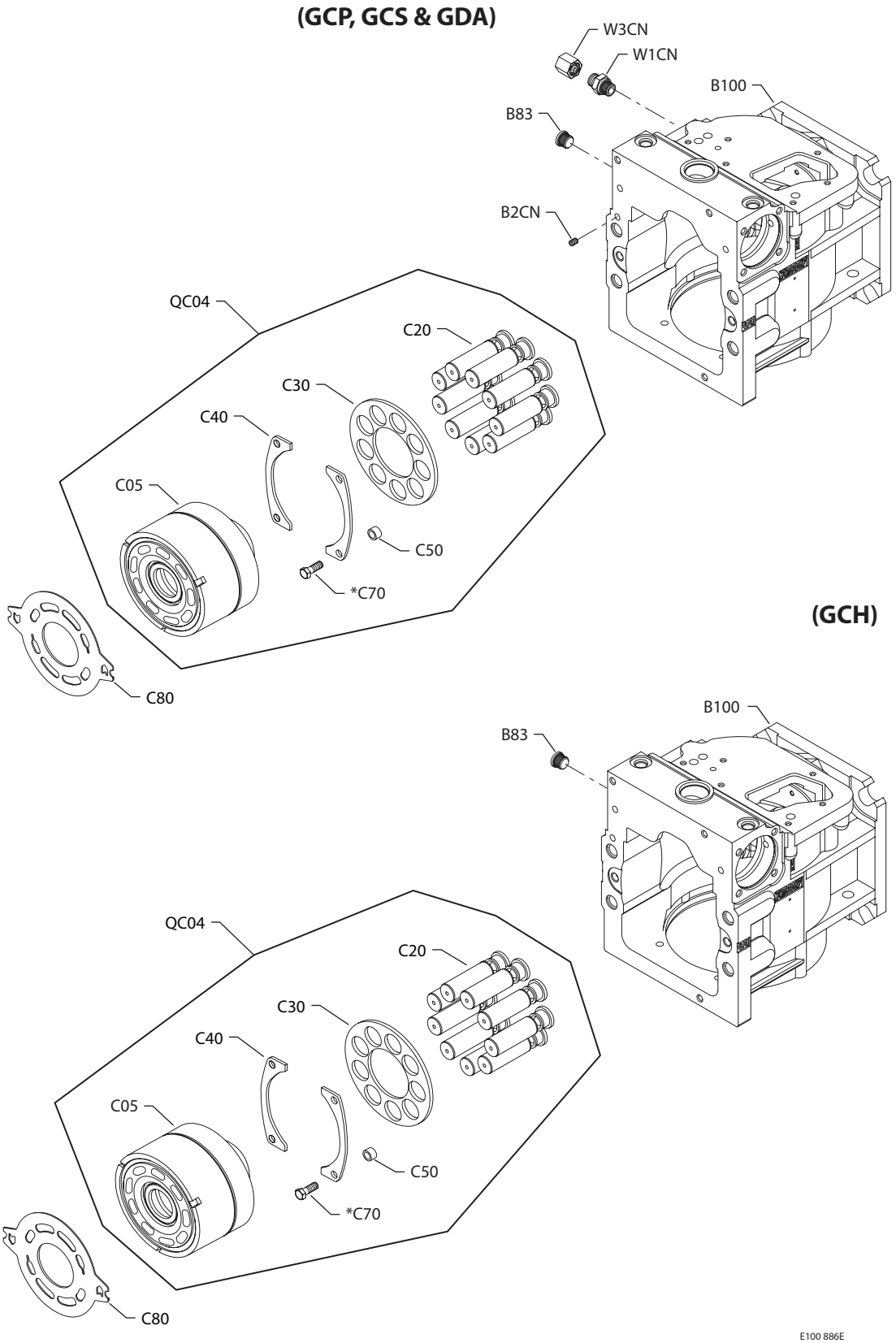

* = included in overhaul seal kit Q210

## Variable displacement pump

### Special hardware

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| GCA | B83 | 92-19 | | 140644 | Plug assembly | 1 |
| | B100 | 07-10 | | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 92-19 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C05 | 92-19 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 92-19 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 92-19 | | 11067352 | Slipper retainer | 1 |
| | C40 | 92-19 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 92-19 | | 509015 | Spacer | 4 |
| | C70 | 92-19 | | 308643 | Screw | 4 |
| | C80 | 92-19 | | 518808 | Valve plate | 1 |
| | QC04 | 92-19 | | 519274 | Cylinder block kit | 1 |
| GCB | B83 | 92-19 | | 140644 | Plug assembly | 1 |
| | B100 | 07-10 | | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 92-19 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C05 | 92-19 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 92-19 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 92-19 | | 11067352 | Slipper retainer | 1 |
| | C40 | 92-19 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 92-19 | | 509015 | Spacer | 4 |
| | C70 | 92-19 | | 308643 | Screw | 4 |
| | C80 | 92-19 | | 518808 | Valve plate | 1 |
| | QC04 | 92-19 | | 519274 | Cylinder block kit | 1 |
| GCG | B2CN | 92-19 | | 775312 | Set screw, M8 x 8 | 1 |
| | B83 | 92-19 | | 140644 | Plug assembly | 1 |
| | B100 | 07-10 | | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 92-19 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C05 | 92-19 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 92-19 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 92-19 | | 11067352 | Slipper retainer | 1 |
| | C40 | 92-19 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 92-19 | | 509015 | Spacer | 4 |
| | C70 | 92-19 | | 308643 | Screw | 4 |
| | C80 | 92-19 | | 518808 | Valve plate | 1 |
| | QC04 | 92-19 | | 519274 | Cylinder block kit | 1 |
| | W1CN | 92-19 | | 723726 | Connector | 1 |
| | W3CN | 92-19 | | 574095 | Cap | 1 |

## Variable displacement pump



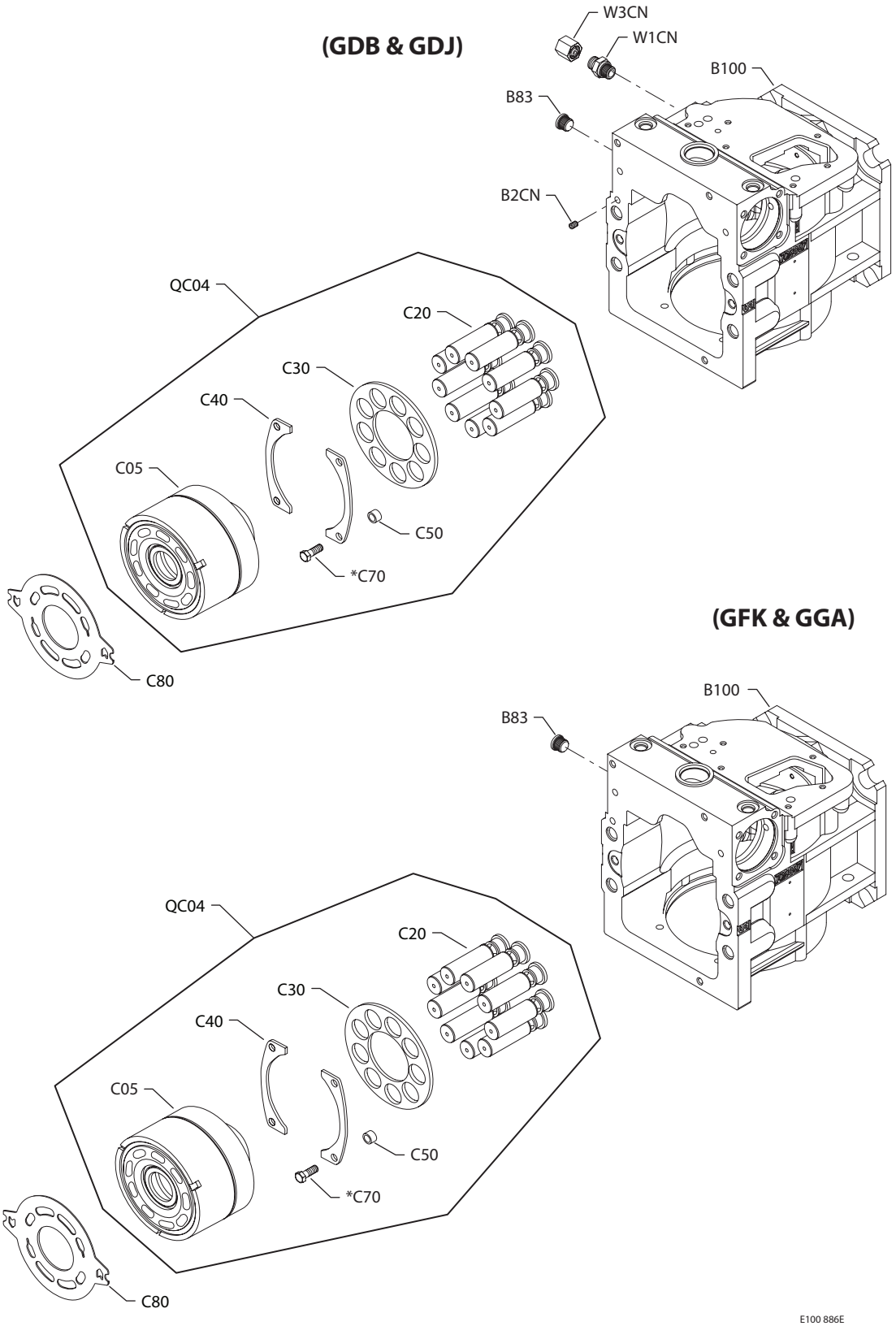

* = included in overhaul seal kit Q210

## Variable displacement pump

### Special hardware

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| GCH | B2CN | 13-02 | | 775312 | Set screw, M8 x 8 | 1 |
| | B83 | 13-02 | | 140644 | Plug assembly | 1 |
| | B100 | 13-02 | | 11026913 | Housing assembly | 1 |
| | C05 | 13-02 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 13-02 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 13-02 | | 11067352 | Slipper retainer | 1 |
| | C40 | 13-02 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 13-02 | | 509015 | Spacer | 4 |
| | C70 | 13-02 | | 308643 | Screw | 4 |
| | C80 | 13-02 | | 518808 | Valve plate | 1 |
| | QC04 | 13-02 | | 519274 | Cylinder block kit | 1 |
| | W1CN | 13-02 | | 723726 | Connector | 1 |
| | W3CN | 13-02 | | 574095 | Cap | 1 |
| GCP | B83 | 92-19 | | 140644 | Plug assembly | 1 |
| | B100 | 07-10 | | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 92-19 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C05 | 92-19 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 92-19 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 92-19 | | 11067352 | Slipper retainer | 1 |
| | C40 | 92-19 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 92-19 | | 509015 | Spacer | 4 |
| | C70 | 92-19 | | 308643 | Screw | 4 |
| | C80 | 92-19 | | 518808 | Valve plate | 1 |
| | QC04 | 92-19 | | 519274 | Cylinder block kit | 1 |
| GCS | B83 | 98-06 | | 140644 | Plug assembly | 1 |
| | B100 | 07-10 | | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 92-19 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C05 | 92-19 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 98-06 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 98-06 | | 11067352 | Slipper retainer | 1 |
| | C40 | 98-06 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 98-06 | | 509015 | Spacer | 4 |
| | C70 | 98-06 | | 308643 | Screw | 4 |
| | C80 | 98-06 | | 518808 | Valve plate | 1 |
| | QC04 | 98-06 | | 519274 | Cylinder block kit | 1 |
| GDA | B83 | 92-19 | | 140644 | Plug assembly | 1 |
| | B100 | 07-10 | | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 92-19 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C05 | 92-19 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 92-19 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 92-19 | | 11067352 | Slipper retainer | 1 |
| | C40 | 92-19 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 92-19 | | 509015 | Spacer | 4 |
| | C70 | 92-19 | | 308643 | Screw | 4 |
| | C80 | 92-19 | | 518932 | Valve plate | 1 |
| | QC04 | 92-19 | | 519274 | Cylinder block kit | 1 |

## Variable displacement pump



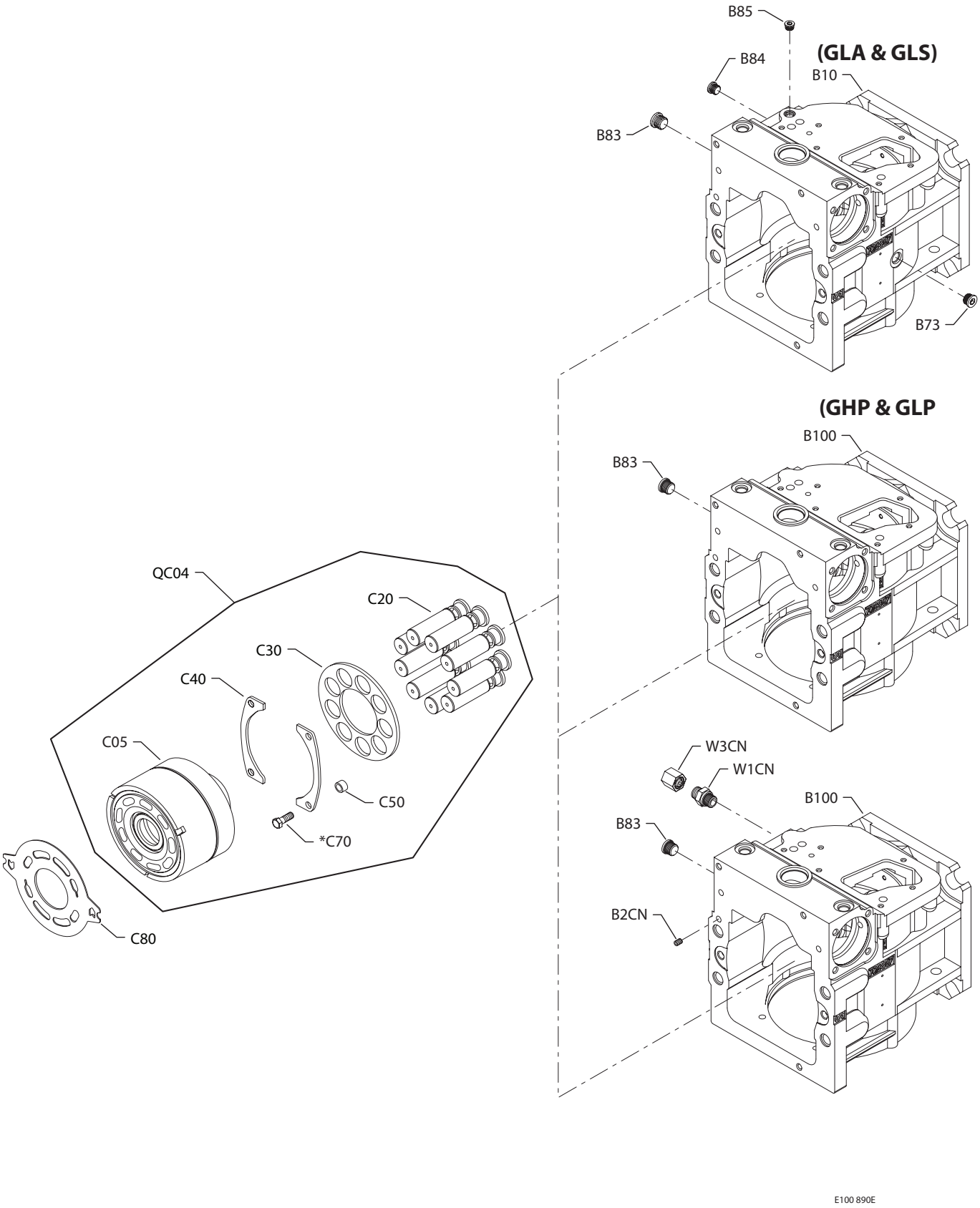

* = included in overhaul seal kit Q210

## Variable displacement pump

### Special hardware

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| GDB | B2CN | 92-19 | 08-03 | 775312 | Set screw, M8 x 8 | 1 |
| | B83 | 92-19 | 08-03 | 140644 | Plug assembly | 1 |
| | B100 | 07-10 | 08-03 | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 92-19 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C05 | 92-19 | 08-03 | 11033869 | Cylinder block assembly | 1 |
| | C20 | 92-19 | 08-03 | 727750 | Piston assembly, welded | 9 |
| | C30 | 92-19 | 08-03 | 11067352 | Slipper retainer | 1 |
| | C40 | 92-19 | 08-03 | 700963 | Slipper guide bearing | 2 |
| | C50 | 92-19 | 08-03 | 509015 | Spacer | 4 |
| | C70 | 92-19 | 08-03 | 308643 | Screw | 4 |
| | C80 | 92-19 | 08-03 | 518932 | Valve plate | 1 |
| | QC04 | 92-19 | 08-03 | 519274 | Cylinder block kit | 1 |
| | W1CN | 92-19 | 08-03 | 723726 | Connector | 1 |
| | W3CN | 92-19 | 08-03 | 574095 | Cap | 1 |
| GDJ | B83 | 17-47 | | 140644 | Plug assembly | 1 |
| | B100 | 17-47 | | 11026913 | Housing assembly | 1 |
| | C05 | 17-47 | | 11033869 | Cylinder block assembly, without speed ring | 1 |
| | C20 | 17-47 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 17-47 | | 11067352 | Slipper retainer | 1 |
| | C40 | 17-47 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 17-47 | | 509015 | Spacer | 4 |
| | C70 | 17-47 | | 308643 | Screw | 4 |
| | C80 | 17-47 | | 518807 | Valve plate | 1 |
| | QC04 | 17-47 | | 519274 | Cylinder block kit, without speed ring, welded piston | 1 |
| GFK | B83 | 08-51 | | 140644 | Plug assembly | 1 |
| | B100 | 08-51 | | 11026913 | Housing assembly | 1 |
| | C05 | 08-51 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 08-51 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 08-51 | | 11067352 | Slipper retainer | 1 |
| | C40 | 08-51 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 08-51 | | 509015 | Spacer | 4 |
| | C70 | 08-51 | | 308643 | Screw | 4 |
| | C80 | 08-51 | | 518807 | Valve plate | 1 |
| | QC04 | 08-51 | | 519274 | Cylinder block kit | 1 |
| GGA | B83 | 12-39 | | 140644 | Plug assembly | 1 |
| | B100 | 12-39 | | 11026913 | Housing assembly | 1 |
| | C05 | 12-39 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 12-39 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 12-39 | | 11067352 | Slipper retainer | 1 |
| | C40 | 12-39 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 12-39 | | 509015 | Spacer | 4 |
| | C70 | 12-39 | | 308643 | Screw | 4 |
| | C80 | 12-39 | | 518935 | Valve plate | 1 |
| | QC04 | 12-39 | | 519274 | Cylinder block kit | 1 |

## Variable displacement pump



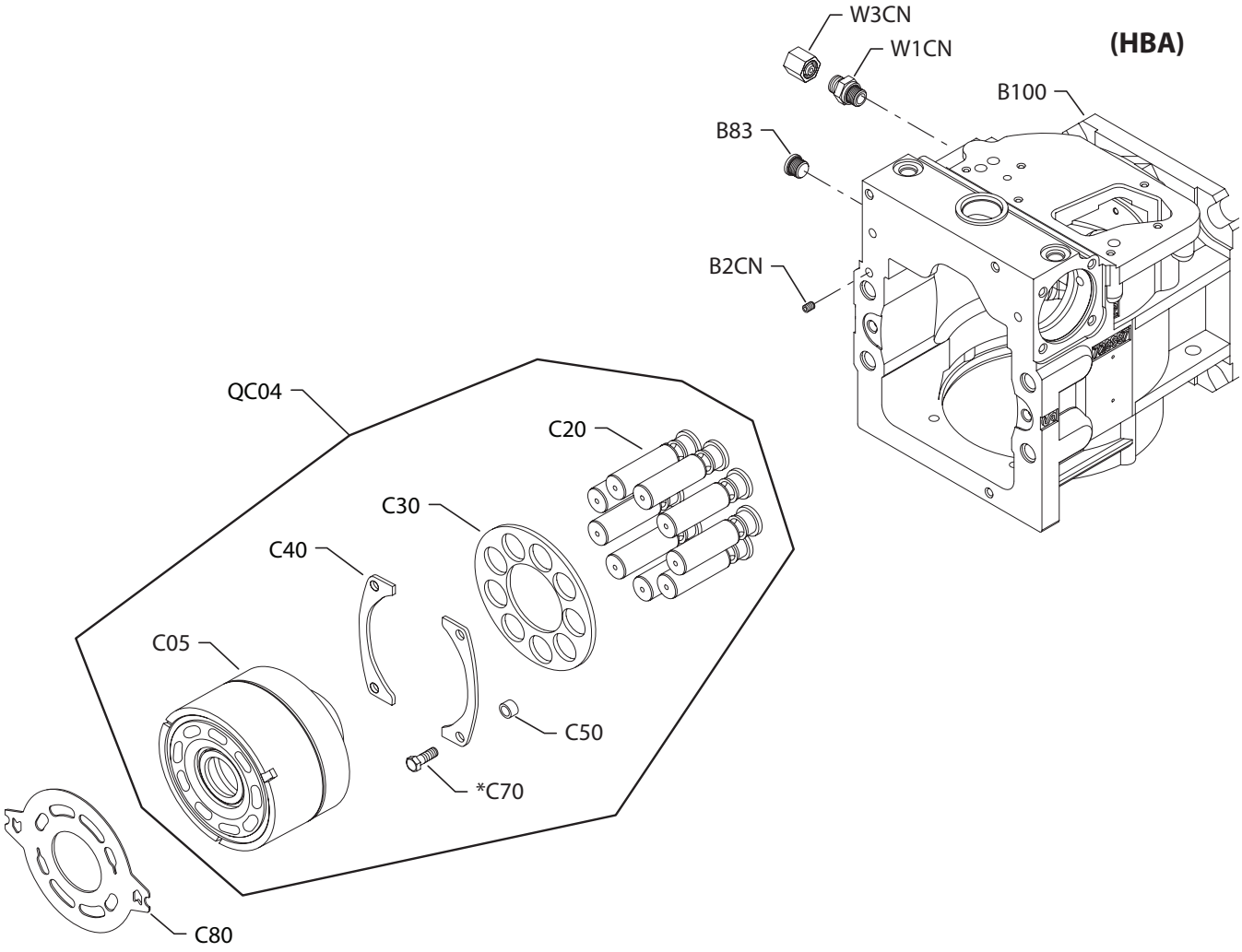

* = included in overhaul seal kit Q210

## Variable displacement pump

### Special hardware

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| GHP | B83 | 12-39 | | 140644 | Plug assembly | 1 |
| | B100 | 12-39 | | 11117179 | Housing assembly | 1 |
| | C05 | 12-39 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 12-39 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 12-39 | | 11067352 | Slipper retainer | 1 |
| | C40 | 12-39 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 12-39 | | 509015 | Spacer | 4 |
| | C70 | 12-39 | | 308643 | Screw | 4 |
| | C80 | 12-39 | | 518807 | Valve plate | 1 |
| | QC04 | 12-39 | | 519274 | Cylinder block kit | 1 |
| | | | | | | |
| GLA | B83 | 00-13 | | 140644 | Plug assembly | 1 |
| | B100 | 07-10 | | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 00-13 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C05 | 00-13 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 00-13 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 00-13 | | 11067352 | Slipper retainer | 1 |
| | C40 | 00-13 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 00-13 | | 509015 | Spacer | 4 |
| | C70 | 00-13 | | 308643 | Screw | 4 |
| | C80 | 00-13 | | 518937 | Valve plate, CW, lapped | 1 |
| | C80 | 00-13 | | 518938 | Valve plate, CCW, lapped | 1 |
| | QC04 | 00-13 | | 519274 | Cylinder block kit | 1 |
| | | | | | | |
| GLP | B73 | 98-02 | | 140644 | Plug assembly | 1 |
| | B83 | 98-02 | | 140644 | Plug assembly | 1 |
| | B84 | 98-02 | | 509603 | Plug assembly, M10 x 1 | 1 |
| | B85 | 98-02 | | 509603 | Plug assembly, M10 x 1 | 1 |
| | B10 | 07-10 | | 11006984 | Housing (SB-2007-008A) | 1 |
| | C05 | 98-02 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 98-02 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 98-02 | | 11067352 | Slipper retainer | 1 |
| | C40 | 98-02 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 98-02 | | 509015 | Spacer | 4 |
| | C70 | 98-02 | | 308643 | Screw | 4 |
| | C80 | 98-02 | | 518937 | Valve plate, CW, lapped | 1 |
| | C80 | 98-02 | | 518938 | Valve plate, CCW, lapped | 1 |
| | QC04 | 98-02 | | 519274 | Cylinder block kit | 1 |
| | | | | | | |
| GLS | B83 | 98-18 | | 140644 | Plug assembly | 1 |
| | B100 | 07-10 | | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 98-18 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C05 | 98-18 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 98-18 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 98-18 | | 11067352 | Slipper retainer | 1 |
| | C40 | 98-18 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 98-18 | | 509015 | Spacer | 4 |
| | C70 | 98-18 | | 308643 | Screw | 4 |
| | C80 | 98-18 | | 518937 | Valve plate, CW, lapped | 1 |
| | C80 | 98-18 | | 518938 | Valve plate, CCW, lapped | 1 |
| | QC04 | 98-18 | | 519274 | Cylinder block kit | 1 |

## Variable displacement pump



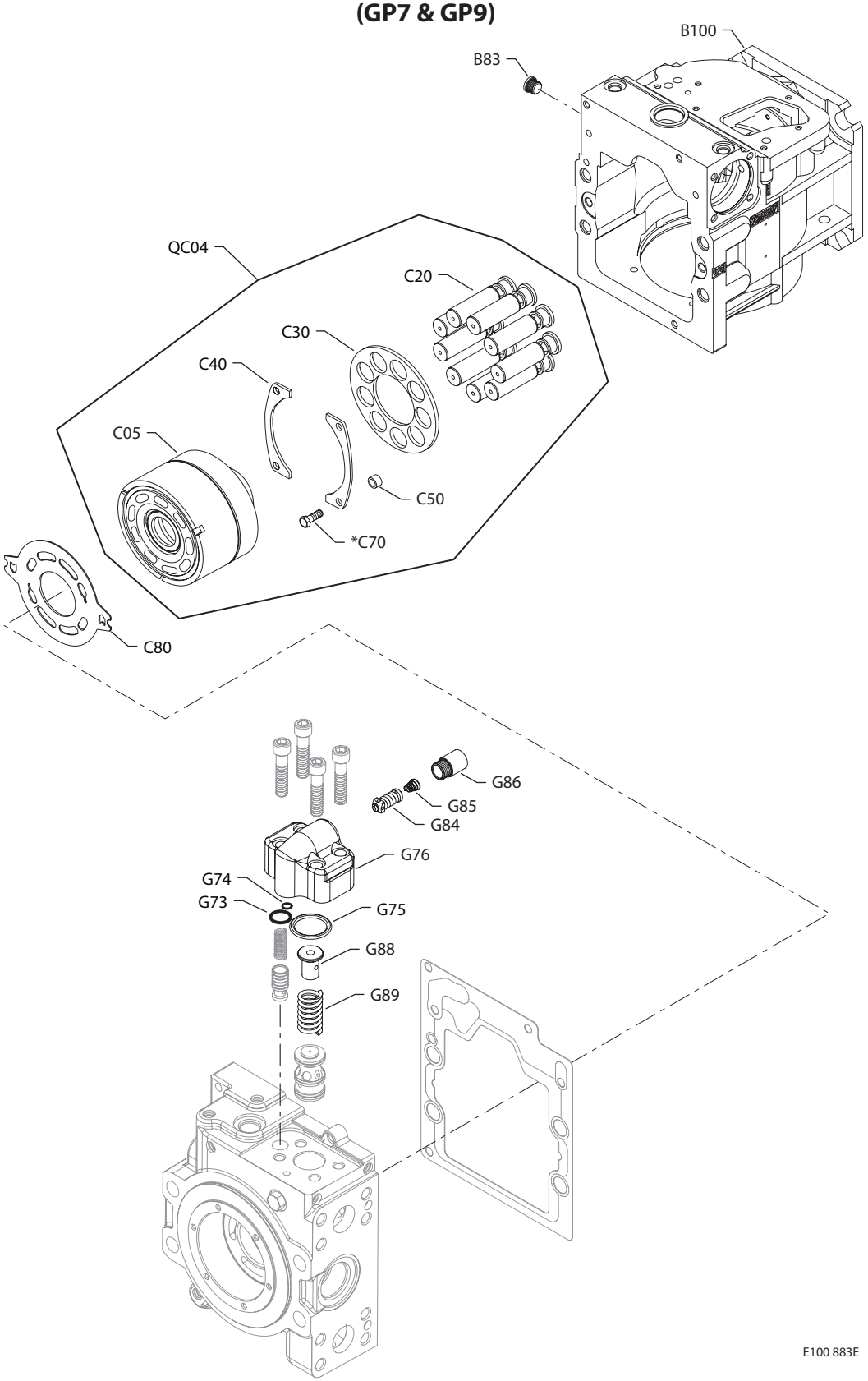
## Variable displacement pump

### Special hardware

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| HBA | B2CN | 94-14 | | 775312 | Set screw, M8 x 8 | 1 |
| | B83 | 94-14 | | 140644 | Plug assembly | 1 |
| | B100 | 07-10 | | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 94-14 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C05 | 94-14 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 94-14 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 94-14 | | 11067352 | Slipper retainer | 1 |
| | C40 | 94-14 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 94-14 | | 509015 | Spacer | 4 |
| | C70 | 94-14 | | 308643 | Screw | 4 |
| | C80 | 94-14 | | 518933 | Valve plate | 1 |
| | QC04 | 94-14 | | 519274 | Cylinder block kit | 1 |
| | W1CN | 94-14 | | 723726 | Connector | 1 |
| | W3CN | 94-14 | | 574095 | Cap | 1 |

## Variable displacement pump

### (GP7 & GP9)



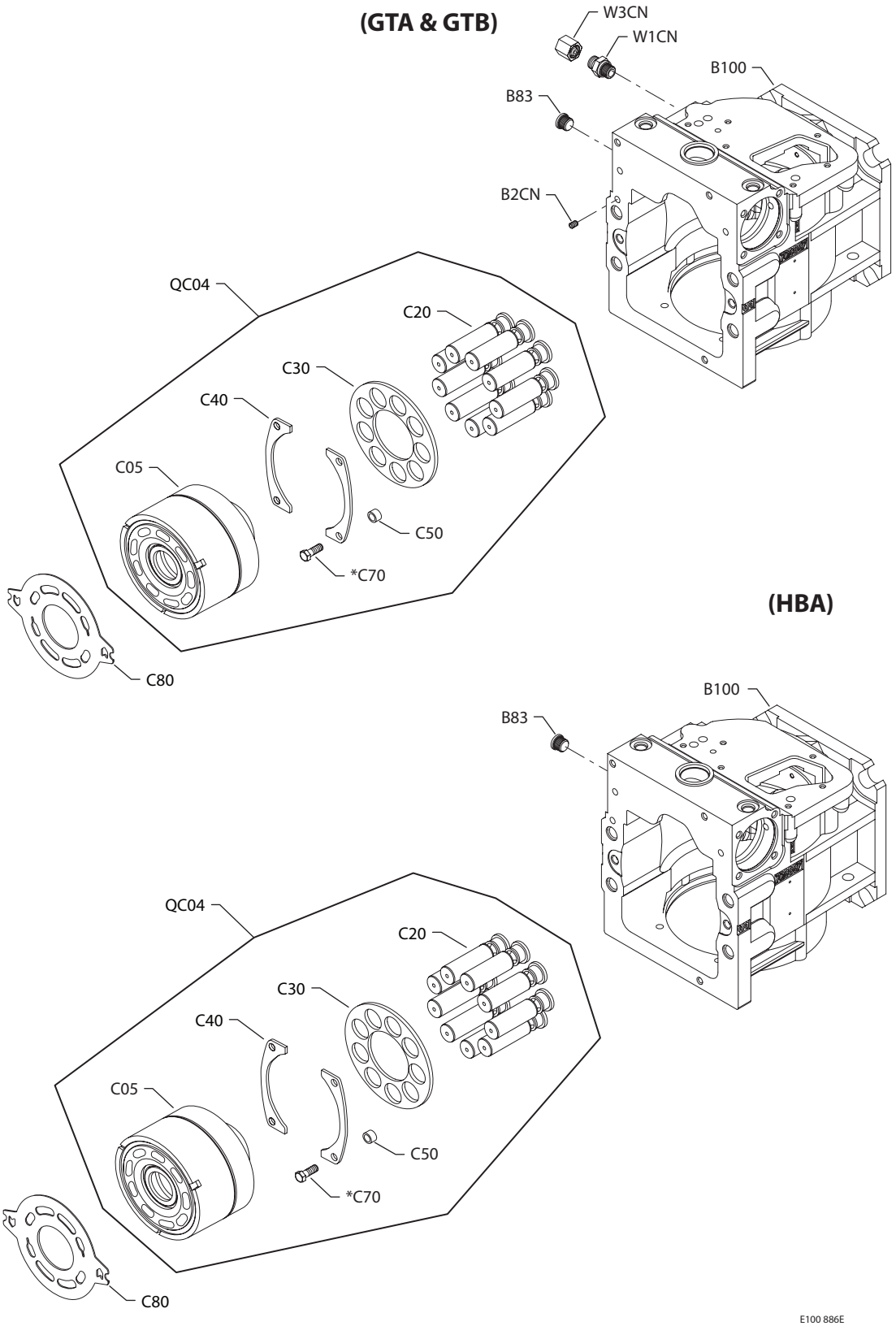

* = included in overhaul seal kit Q210

## Variable displacement pump

### Special hardware

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| GP7 | B83 | 15-24 | | 140644 | Plug assembly | 1 |
| | B100 | 15-24 | | 11026913 | Housing assembly | 1 |
| | C05 | 15-24 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 15-24 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 15-24 | | 11067352 | Slipper retainer | 1 |
| | C40 | 15-24 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 15-24 | | 509015 | Spacer | 4 |
| | C70 | 15-24 | | 308643 | Screw | 4 |
| | C80 | 15-24 | | 518937 | Valve plate, CW | 1 |
| | C80 | 15-24 | | 518938 | Valve plate, CCW | 1 |
| | G73 | 15-24 | | 519873 | Seal | 1 |
| | G74 | 15-24 | | 144725 (9004105-0110) | O-ring | 1 |
| | G75 | 15-24 | | 518329 | O-ring | 1 |
| | G76 | 15-24 | | 517828 | Valve housing | 1 |
| | G84 | 15-24 | | 3103375-0280 | SCR valve, 280 bar [4060 psi] | 1 |
| | G85 | 15-24 | | 4800780 | Conial spring | 1 |
| | G86 | 15-24 | | 11126727 | Plug assembly | 1 |
| | G88 | 15-24 | | 517829 | Spring guide | 1 |
| | G89 | 15-24 | | 517831 | Spring | 1 |
| | QC04 | 15-24 | | 519274 | Cylinder block kit | 1 |
| | | | | | | |
| GP9 | B83 | 02-30 | | 140644 | Plug assembly | 1 |
| | B100 | 07-10 | | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 02-30 | 07-09 | 8510060 | Housing assembly | 1 |
| | C05 | 02-30 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 02-30 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 02-30 | | 11067352 | Slipper retainer | 1 |
| | C40 | 02-30 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 02-30 | | 509015 | Spacer | 4 |
| | C70 | 02-30 | | 308643 | Screw | 4 |
| | C80 | 02-30 | | 518807 | Valve plate | 1 |
| | G73 | 02-30 | | 519873 | Seal | 1 |
| | G74 | 02-30 | | 144725 (9004105-0110) | O-ring | 1 |
| | G75 | 02-30 | | 518329 | O-ring | 1 |
| | G76 | 02-30 | | 517828 | Valve housing | 1 |
| | G84 | 02-30 | | 3103375-0140 | SCR valve, 140 bar [2030 psi] | 1 |
| | G85 | 02-30 | | 4800780 | Conial spring | 1 |
| | G86 | 02-30 | | 11126727 | Plug assembly | 1 |
| | G88 | 02-30 | | 517829 | Spring guide | 1 |
| | G89 | 02-30 | | 517831 | Spring | 1 |
| | QC04 | 02-30 | | 519274 | Cylinder block kit | 1 |

## Variable displacement pump




* = included in overhaul seal kit Q210

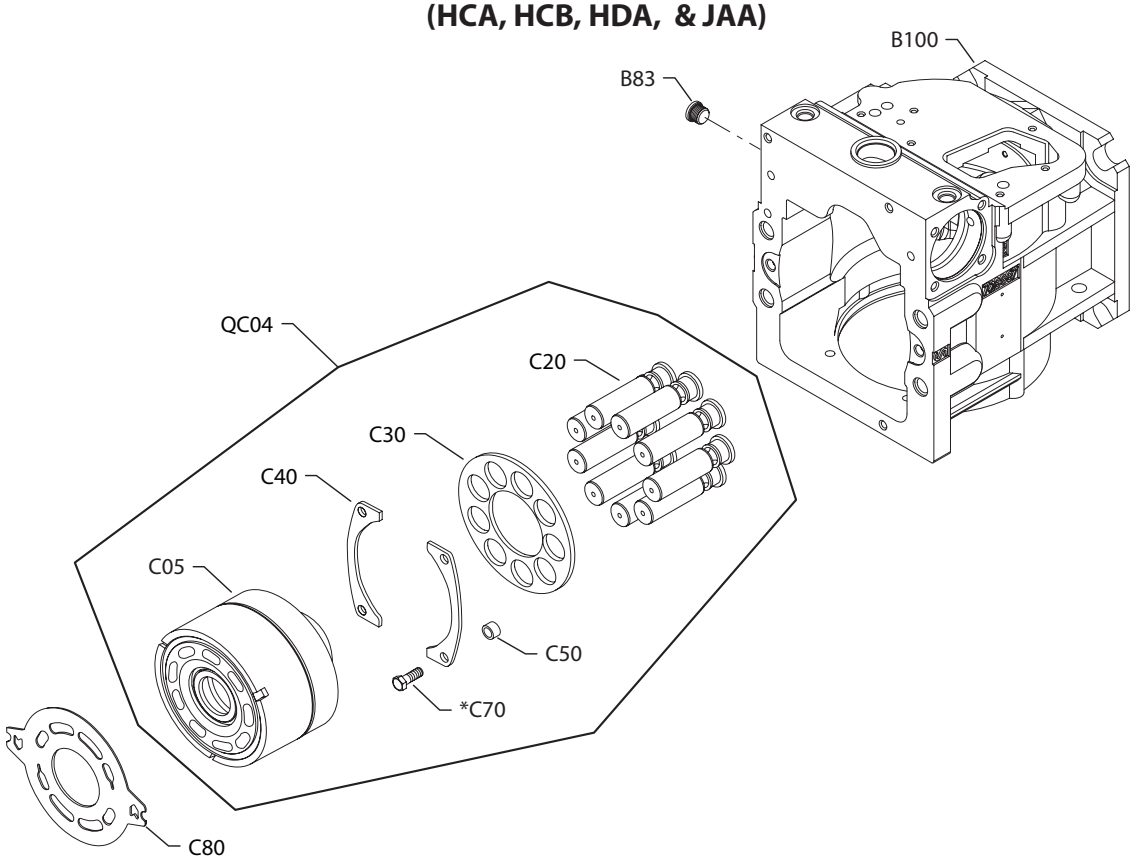
## Variable displacement pump

### Special hardware

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| GTA | B83 | 14-02 | | 140644 | Plug assembly | 1 |
| | B100 | 14-02 | | 11026913 | Housing assembly | 1 |
| | C05 | 14-02 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 14-02 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 14-02 | | 11067352 | Slipper retainer | 1 |
| | C40 | 14-02 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 14-02 | | 509015 | Spacer | 4 |
| | C70 | 14-02 | | 308643 | Screw | 4 |
| | C80 | 14-02 | | 518807 | Valve plate | 1 |
| | QC04 | 14-02 | | 519274 | Cylinder block kit | 1 |
| GTB | B83 | 15-14 | | 140644 | Plug assembly | 1 |
| | B100 | 15-14 | | 11026913 | Housing assembly | 1 |
| | C05 | 15-14 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 15-14 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 15-14 | | 11067352 | Slipper retainer | 1 |
| | C40 | 15-14 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 15-14 | | 509015 | Spacer | 4 |
| | C70 | 15-14 | | 308643 | Screw | 4 |
| | C80 | 15-14 | | 518807 | Valve plate | 1 |
| | QC04 | 15-14 | | 519274 | Cylinder block kit | 1 |
| HBA | B2CN | 08-04 | 08-03 | 775312 | Set screw | 1 |
| | B83 | 08-04 | 08-03 | 140644 | Plug assembly | 1 |
| | B100 | 08-04 | 08-03 | 11026913 | Housing assembly | 1 |
| | C05 | 08-04 | 08-03 | 519258 | Cylinder block assembly | 1 |
| | C20 | 08-04 | 08-03 | 727750 | Piston assembly, welded | 9 |
| | C30 | 08-04 | 08-03 | 11067352 | Slipper retainer | 1 |
| | C40 | 08-04 | 08-03 | 700963 | Slipper guide bearing | 2 |
| | C50 | 08-04 | 08-03 | 509015 | Spacer | 4 |
| | C70 | 08-04 | 08-03 | 308643 | Screw | 4 |
| | C80 | 08-04 | 08-03 | 518934 | Valve plate | 1 |
| | QC04 | 08-04 | 08-03 | 519274 | Cylinder block kit | 1 |
| | W1CN | 08-04 | 08-03 | 723726 | Connector | 1 |
| | W3CN | 08-04 | 08-03 | 574095 | Cap | 1 |

## Variable displacement pump

### (HCA, HCB, HDA, & JAA)




E100 887E

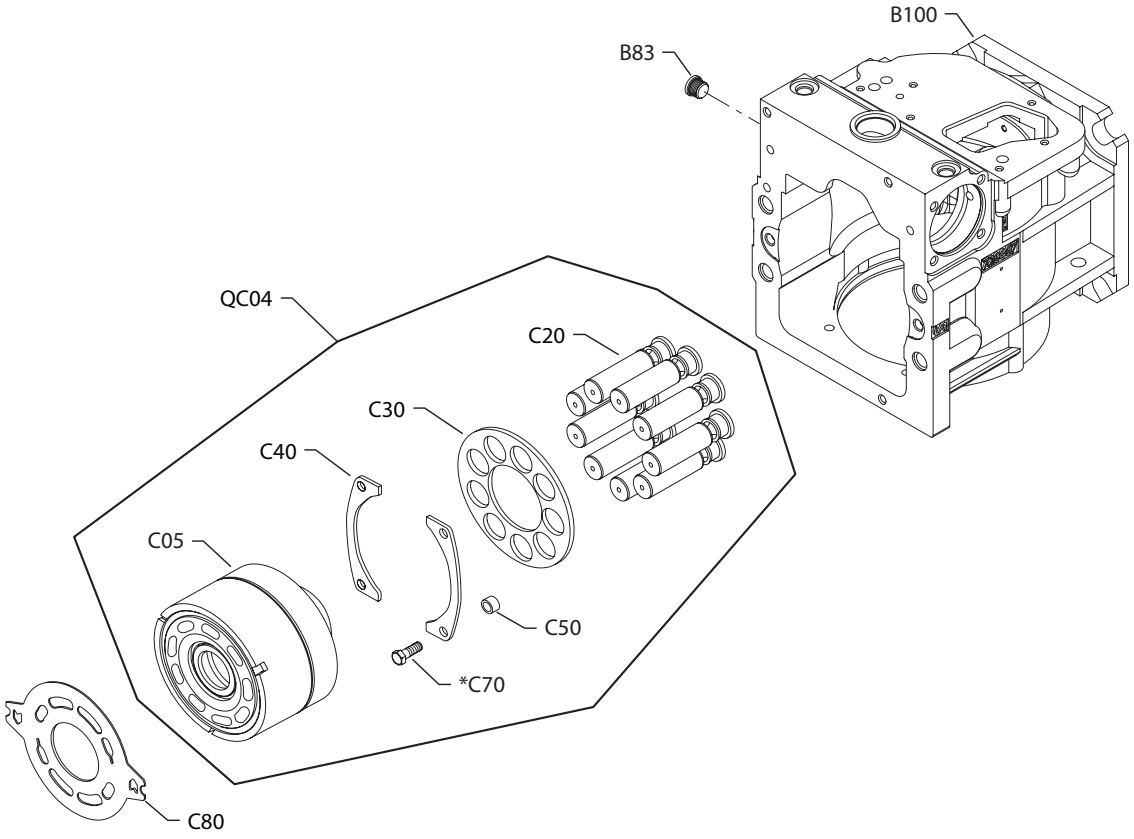
## Variable displacement pump

### Special hardware

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| HCA | B83 | 92-19 | | 140644 | Plug assembly | 1 |
| | B100 | 07-10 | | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 92-19 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C05 | 92-19 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 92-19 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 92-19 | | 11067352 | Slipper retainer | 1 |
| | C40 | 92-19 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 92-19 | | 509015 | Spacer | 4 |
| | C70 | 92-19 | | 308643 | Screw | 4 |
| | C80 | 92-19 | | 518933 | Valve plate | 1 |
| | QC04 | 92-19 | | 519274 | Cylinder block kit | 1 |
| HCB | B83 | 13-41 | | 140644 | Plug assembly | 1 |
| | B100 | 13-41 | | 11026913 | Housing assembly | 1 |
| | C05 | 13-41 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 13-41 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 13-41 | | 11067352 | Slipper retainer | 1 |
| | C40 | 13-41 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 13-41 | | 509015 | Spacer | 4 |
| | C70 | 13-41 | | 308643 | Screw | 4 |
| | C80 | 13-41 | | 518933 | Valve plate | 1 |
| | QC04 | 13-41 | | 519274 | Cylinder block kit | 1 |
| HDA | B83 | 00-22 | | 140644 | Plug assembly | 1 |
| | B100 | 07-10 | | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 00-22 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C05 | 00-22 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 00-22 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 00-22 | | 11067352 | Slipper retainer | 1 |
| | C40 | 00-22 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 00-22 | | 509015 | Spacer | 4 |
| | C70 | 00-22 | | 308643 | Screw | 4 |
| | C80 | 00-22 | | 518807 | Valve plate | 1 |
| | QC04 | 00-22 | | 519274 | Cylinder block kit | 1 |
| JAA | B83 | 94-50 | | 140644 | Plug assembly | 1 |
| | B100 | 07-10 | | 11026913 | Housing assembly (SB-2007-008A) | 1 |
| | B100 | 94-50 | 07-09 | 8510060 | Housing assembly (SB-1992-003) | 1 |
| | C05 | 94-50 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 94-50 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 94-50 | | 11067352 | Slipper retainer | 1 |
| | C40 | 94-50 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 94-50 | | 509015 | Spacer | 4 |
| | C70 | 94-50 | | 308643 | Screw | 4 |
| | C80 | 94-50 | | 518933 | Valve plate | 1 |
| | QC04 | 94-50 | | 519274 | Cylinder block kit | 1 |

## Variable displacement pump

### (JCA, JCB, JCE, & JCF)




E100 887E

## Variable displacement pump

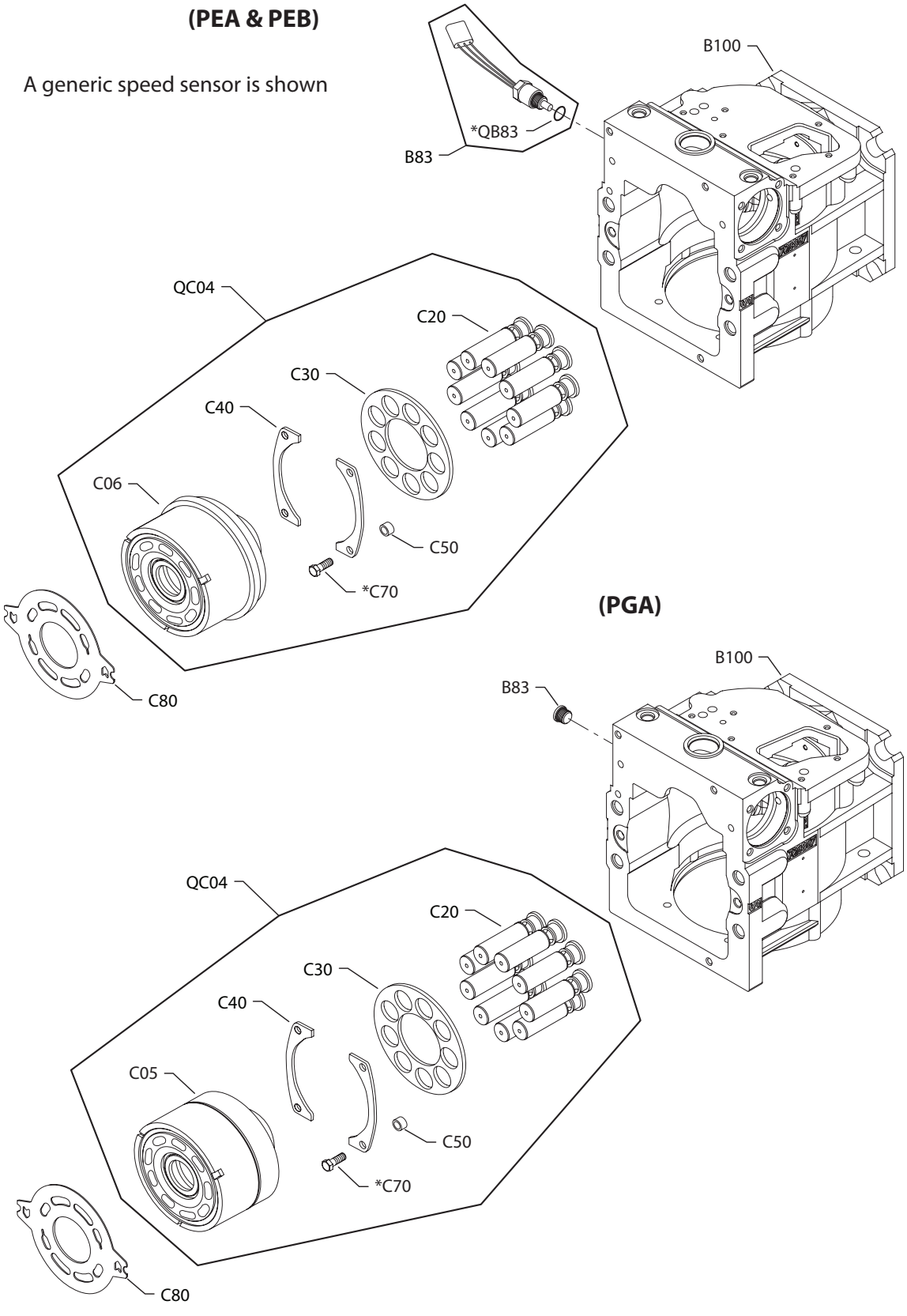
### Special hardware

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| JCA | B83 | 08-12 | | 140644 | Plug assembly | 1 |
| | B100 | 08-12 | | 11026913 | Housing assembly | 1 |
| | C05 | 08-12 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 08-12 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 08-12 | | 11067352 | Slipper retainer | 1 |
| | C40 | 08-12 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 08-12 | | 509015 | Spacer | 4 |
| | C70 | 08-12 | | 308643 | Screw | 4 |
| | C80 | 08-12 | | 518807 | Valve plate | 1 |
| | QC04 | 08-12 | | 519274 | Cylinder block kit | 1 |
| JCB | B83 | 09-14 | | 140644 | Plug assembly | 1 |
| | B100 | 09-14 | | 11026913 | Housing assembly | 1 |
| | C05 | 09-14 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 09-14 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 09-14 | | 11067352 | Slipper retainer | 1 |
| | C40 | 09-14 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 09-14 | | 509015 | Spacer | 4 |
| | C70 | 09-14 | | 308643 | Screw | 4 |
| | C80 | 09-14 | | 518807 | Valve plate | 1 |
| | QC04 | 09-14 | | 519274 | Cylinder block kit | 1 |
| JCE | B83 | 09-39 | | 140644 | Plug assembly | 1 |
| | B100 | 09-39 | | 11026913 | Housing assembly | 1 |
| | C05 | 09-39 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 09-39 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 09-39 | | 11067352 | Slipper retainer | 1 |
| | C40 | 09-39 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 09-39 | | 509015 | Spacer | 4 |
| | C70 | 09-39 | | 308643 | Screw | 4 |
| | C80 | 09-39 | | 518807 | Valve plate | 1 |
| | QC04 | 09-39 | | 519274 | Cylinder block kit | 1 |
| JCF | B83 | 10-15 | | 140644 | Plug assembly | 1 |
| | B100 | 10-15 | | 11026913 | Housing assembly | 1 |
| | C05 | 10-15 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 10-15 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 10-15 | | 11067352 | Slipper retainer | 1 |
| | C40 | 10-15 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 10-15 | | 509015 | Spacer | 4 |
| | C70 | 10-15 | | 308643 | Screw | 4 |
| | C80 | 10-15 | | 518808 | Valve plate | 1 |
| | QC04 | 10-15 | | 519274 | Cylinder block kit | 1 |

## Variable displacement pump

### (PEA & PEB)

A generic speed sensor is shown




E101 818E

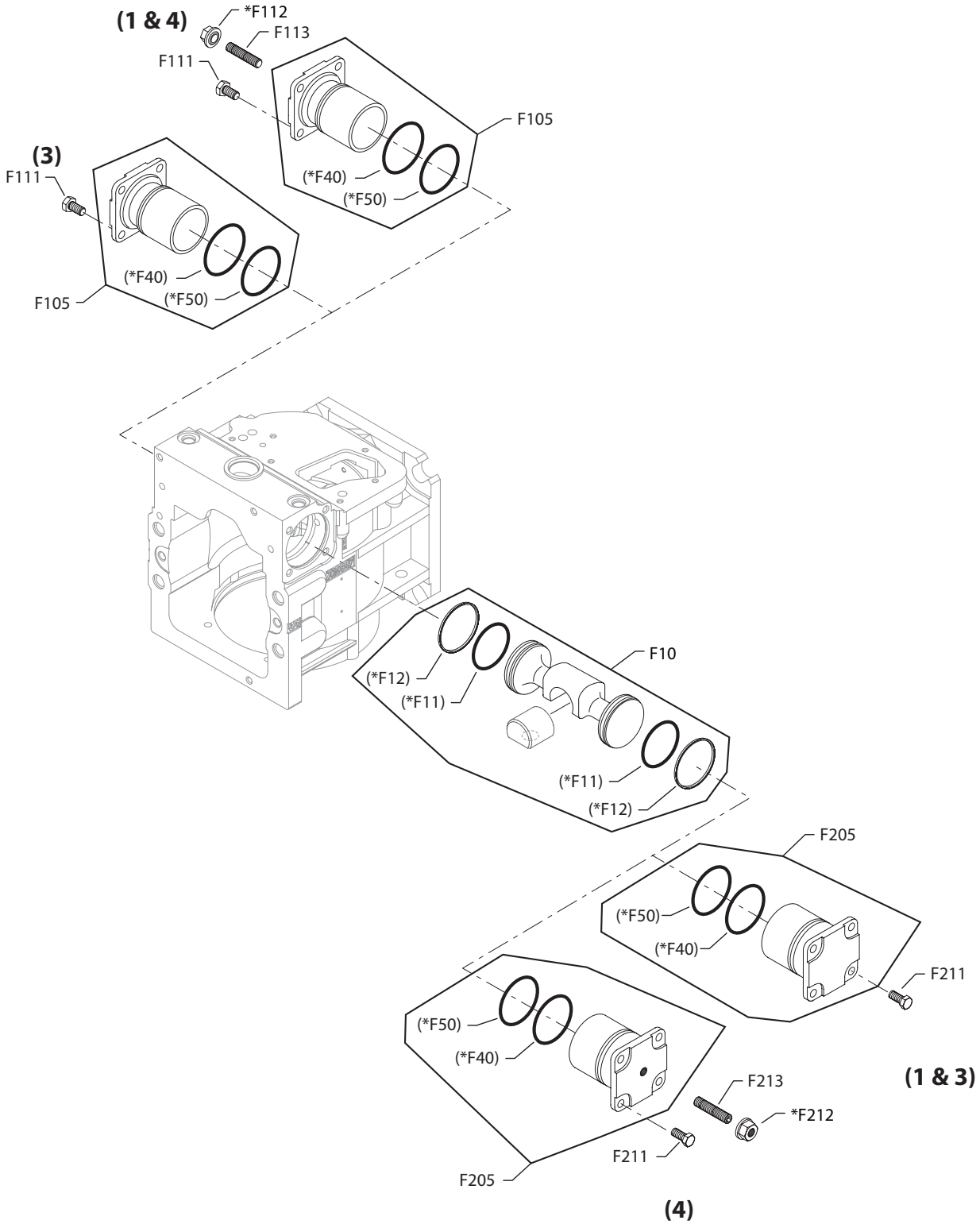
* = included in overhaul seal kit Q210

## Variable displacement pump

### Special hardware

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| PEA | B83 | 07-32 | | KPPG156 | Speed sensor assembly | 1 |
| | B100 | 07-10 | | 11026913 | Housing assembly | 1 |
| | C06 | 08-12 | | 519259 | Cylinder block assembly with speed ring | 1 |
| | C20 | 08-12 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 08-12 | | 11067352 | Slipper retainer | 1 |
| | C40 | 08-12 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 08-12 | | 509015 | Spacer | 4 |
| | C70 | 08-12 | | 308643 | Screw | 4 |
| | C80 | 08-12 | | 518807 | Valve plate | 1 |
| | QC04 | 08-12 | | 519275 | Cylinder block kit with speed ring | 1 |
| PEB | B83 | 14-40 | | KPPG156 | Speed sensor assembly | 1 |
| | B100 | 14-40 | | 11026913 | Housing assembly | 1 |
| | C06 | 14-40 | | 519259 | Cylinder block assembly with speed ring | 1 |
| | C20 | 14-40 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 14-40 | | 11067352 | Slipper retainer | 1 |
| | C40 | 14-40 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 14-40 | | 509015 | Spacer | 4 |
| | C70 | 14-40 | | 308643 | Screw | 4 |
| | C80 | 14-40 | | 518937 | Valve plate, CW | 1 |
| | C80 | 14-40 | | 518938 | Valve plate, CCW | 1 |
| | QC04 | 14-40 | | 519275 | Cylinder block kit with speed ring | 1 |
| PGA | B83 | 07-13 | | 140644 | Plug assembly | 1 |
| | B100 | 07-13 | | 11026913 | Housing assembly | 1 |
| | C05 | 07-13 | | 11033869 | Cylinder block assembly | 1 |
| | C20 | 07-13 | | 727750 | Piston assembly, welded | 9 |
| | C30 | 07-13 | | 11067352 | Slipper retainer | 1 |
| | C40 | 07-13 | | 700963 | Slipper guide bearing | 2 |
| | C50 | 07-13 | | 509015 | Spacer | 4 |
| | C70 | 07-13 | | 308643 | Screw | 4 |
| | C80 | 07-13 | | 518807 | Valve plate | 1 |
| | QC04 | 07-13 | | 519274 | Cylinder block kit | 1 |

## Variable displacement pump




E100 892E

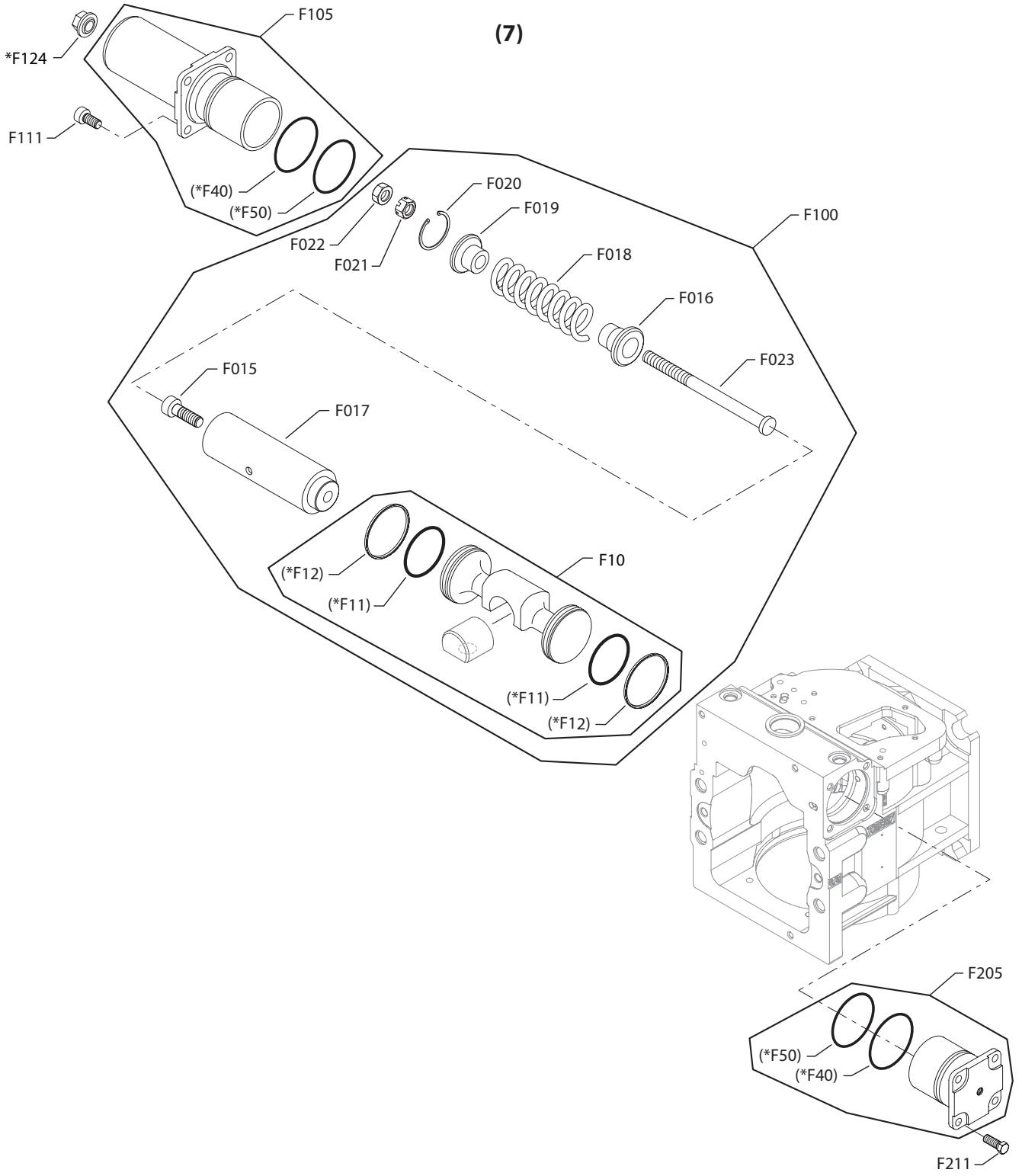
* = included in overhaul seal kit
( ) = not available individually

## Variable displacement pump

### Displacement limitation

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 1 | F10 | 03-21 | | 11046630 | Servo piston assembly | 1 |
| | F105 | 03-21 | | 11060160 | Servo cylinder assembly, adjustable | 1 |
| | F111 | 03-21 | | 378083 (9007210-0804) | Screw | 4 |
| | F112 | 03-21 | | 042432 | Seal nut, M10 | 1 |
| | F113 | 03-21 | | 11085626 | Set screw, M10 x50 | 1 |
| | F205 | 03-21 | | 11060158 | Servo cylinder assembly, non-adjustable | 1 |
| | F211 | 03-21 | | 378083 (9007210-0804) | Screw | 4 |
| 3 | F10 | 89-41 | | 11046630 | Servo piston assembly | 1 |
| | F105 | 89-41 | | 11060158 | Servo cylinder assembly, non-adjustable | 1 |
| | F111 | 89-41 | | 378083 (9007210-0804) | Screw | 4 |
| | F205 | 89-41 | | 11060158 | Servo cylinder assembly, non-adjustable | 1 |
| | F211 | 89-41 | | 378083 (9007210-0804) | Screw | 4 |
| 4 | F10 | 89-41 | | 11046630 | Servo piston assembly | 1 |
| | F105 | 89-41 | | 11060160 | Servo cylinder assembly, adjustable | 1 |
| | F111 | 89-41 | | 378083 (9007210-0804) | Screw | 4 |
| | F112 | 89-41 | | 042432 | Seal nut, M10 | 1 |
| | F113 | 89-41 | | 11085626 | Set screw M10 x50 | 1 |
| | F205 | 89-41 | | 11060160 | Servo cylinder assembly, adjustable | 1 |
| | F211 | 89-41 | | 378083 (9007210-0804) | Screw | 4 |
| | F212 | 89-41 | | 042432 | Seal nut, M10 | 1 |
| | F213 | 89-41 | | 11085626 | Set screw M10 x50 | 1 |

## Variable displacement pump




E100 893E

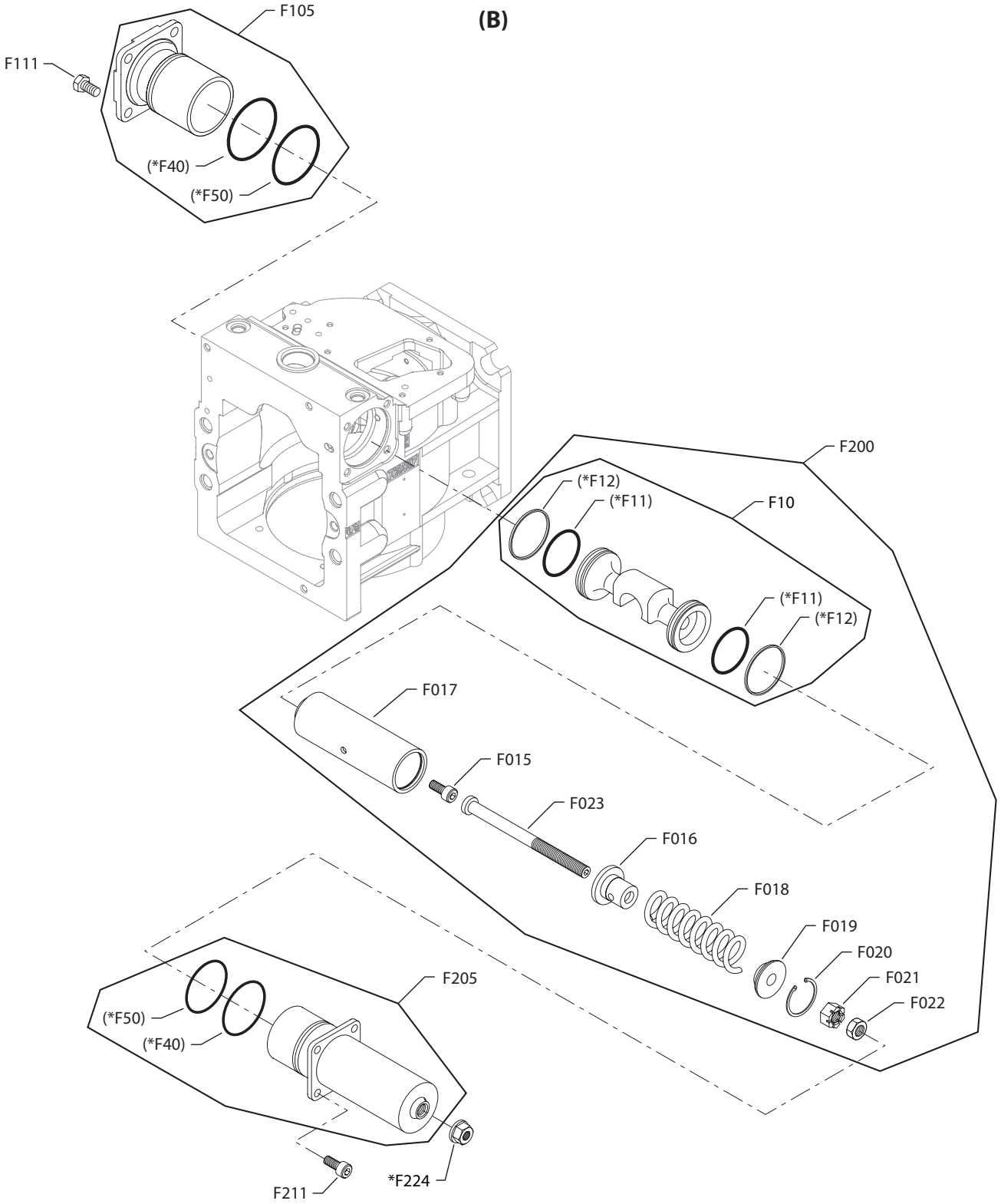
* = included in overhaul seal kit
( ) = not available individually

## Variable displacement pump

### Displacement limitation

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 7 | F10 | 98-14 | | 11046631 | Servo piston assembly | 1 |
| | F015 | 98-14 | | 346031 | Screw | 1 |
| | F016 | 98-14 | | 507096 | Spring guide | 1 |
| | F017 | 98-14 | | 345967 | Spring housing | 1 |
| | F018 | 98-14 | | 351742 | Spring | 1 |
| | F019 | 98-14 | | 507094 | Spring guide | 1 |
| | F020 | 98-14 | | 505826 | Retaining ring | 1 |
| | F021 | 98-14 | | 507045 | Castle nut | 1 |
| | F022 | 98-14 | | 346015 | Hex nut | 1 |
| | F023 | 98-14 | | 11140221 | Adjust screw | 1 |
| | F100 | 98-14 | | 515836 | Servo assembly | 1 |
| | F105 | 98-14 | | 11060161 | Servo cylinder assembly, NFPE | 1 |
| | F111 | 98-14 | | 746651 | Screw | 4 |
| | F124 | 98-14 | | 066159 | Seal nut, M12 | 1 |
| | F205 | 98-14 | | 11060158 | Servo cylinder assembly, non-adjustable | 1 |
| | F211 | 98-14 | | 378083 (9007210-0804) | Screw | 4 |

## Variable displacement pump




E100 894E

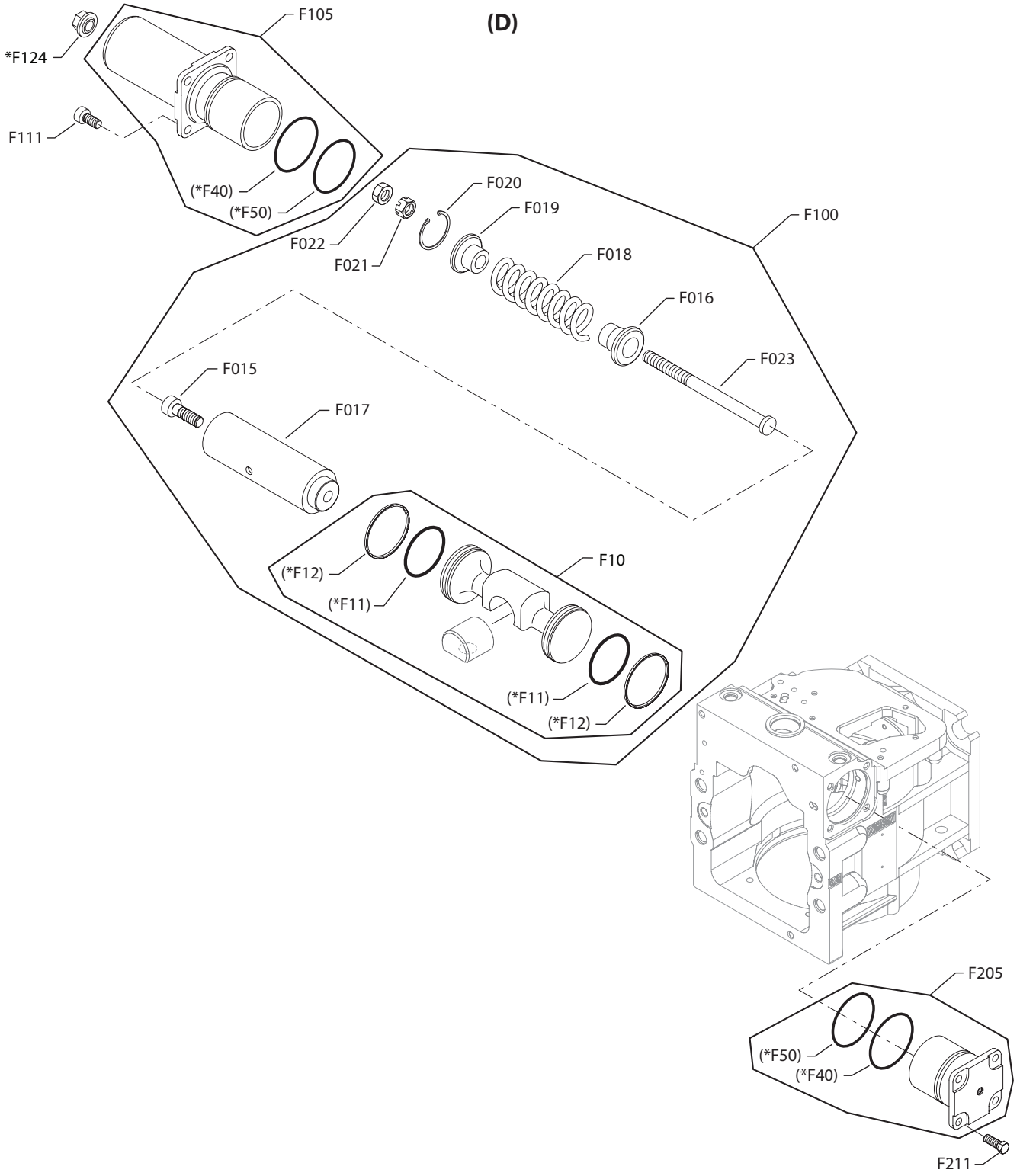
* = included in overhaul seal kit
( ) = not available individually

## Variable displacement pump

### Displacement limitation

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| B | F10 | 98-14 | | 11046631 | Servo piston assembly | 1 |
| | F015 | 98-14 | | 346031 | Screw | 1 |
| | F016 | 98-14 | | 507096 | Spring guide | 1 |
| | F017 | 98-14 | | 345967 | Spring housing | 1 |
| | F018 | 98-14 | | 351742 | Spring | 1 |
| | F019 | 98-14 | | 507094 | Spring guide | 1 |
| | F020 | 98-14 | | 505826 | Retaining ring | 1 |
| | F021 | 98-14 | | 507045 | Castle nut | 1 |
| | F022 | 98-14 | | 346015 | Hex nut | 1 |
| | F023 | 98-14 | | 11140221 | Adjust screw | 1 |
| | F105 | 98-14 | | 11060158 | Servo cylinder assembly, non-adjustable | 1 |
| | F111 | 98-14 | | 378083 (9007210-0804) | Screw | 4 |
| | F200 | 98-14 | | 515836 | Servo assembly | 1 |
| | F205 | 98-14 | | 11060161 | Servo cylinder assembly, NFPE | 1 |
| | F211 | 98-14 | | 746651 | Screw | 4 |
| | F224 | 98-14 | | 066159 | Seal nut, M12 | 1 |

## Variable displacement pump




E100 893E

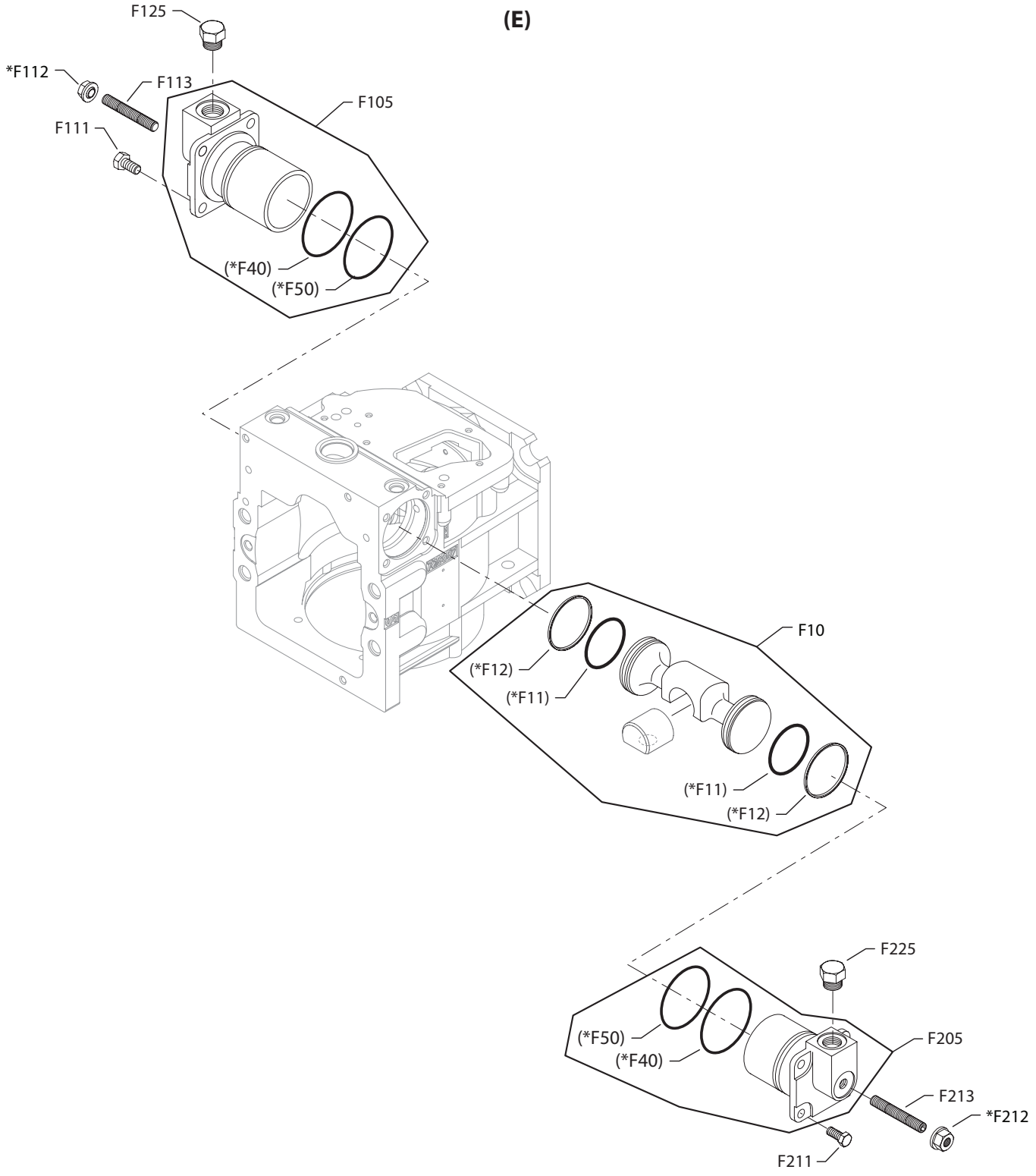
* = included in overhaul seal kit
( ) = not available individually

## Variable displacement pump

### Displacement limitation

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| D | F10 | 98-18 | | 11046631 | Servo piston assembly | 1 |
| | F015 | 98-18 | | 346031 | Screw | 1 |
| | F016 | 98-18 | | 507096 | Spring guide | 1 |
| | F017 | 98-18 | | 345967 | Spring housing | 1 |
| | F018 | 98-18 | | 351742 | Spring | 1 |
| | F019 | 98-18 | | 507094 | Spring guide | 1 |
| | F020 | 98-18 | | 505826 | Retaining ring | 1 |
| | F021 | 98-18 | | 507045 | Castle nut | 1 |
| | F022 | 98-18 | | 346015 | Hex nut | 1 |
| | F023 | 98-18 | | 11140221 | Adjust screw | 1 |
| | F100 | 98-18 | | 515836 | Servo assembly | 1 |
| | F105 | 98-18 | | 11060161 | Servo cylinder assembly, NFPE | 1 |
| | F111 | 98-18 | | 746651 | Screw | 4 |
| | F124 | 98-18 | | 066159 | Seal nut, M12 | 1 |
| | F205 | 89-41 | | 11060160 | Servo cylinder assembly, adjustable | 1 |
| | F211 | 89-41 | | 378083 (9007210-0804) | Screw | 4 |
| | F212 | 98-18 | | 042432 | Seal nut, M10 | 1 |
| | F213 | 98-18 | | 11085626 | Set screw M10 x50 | 1 |

## Variable displacement pump



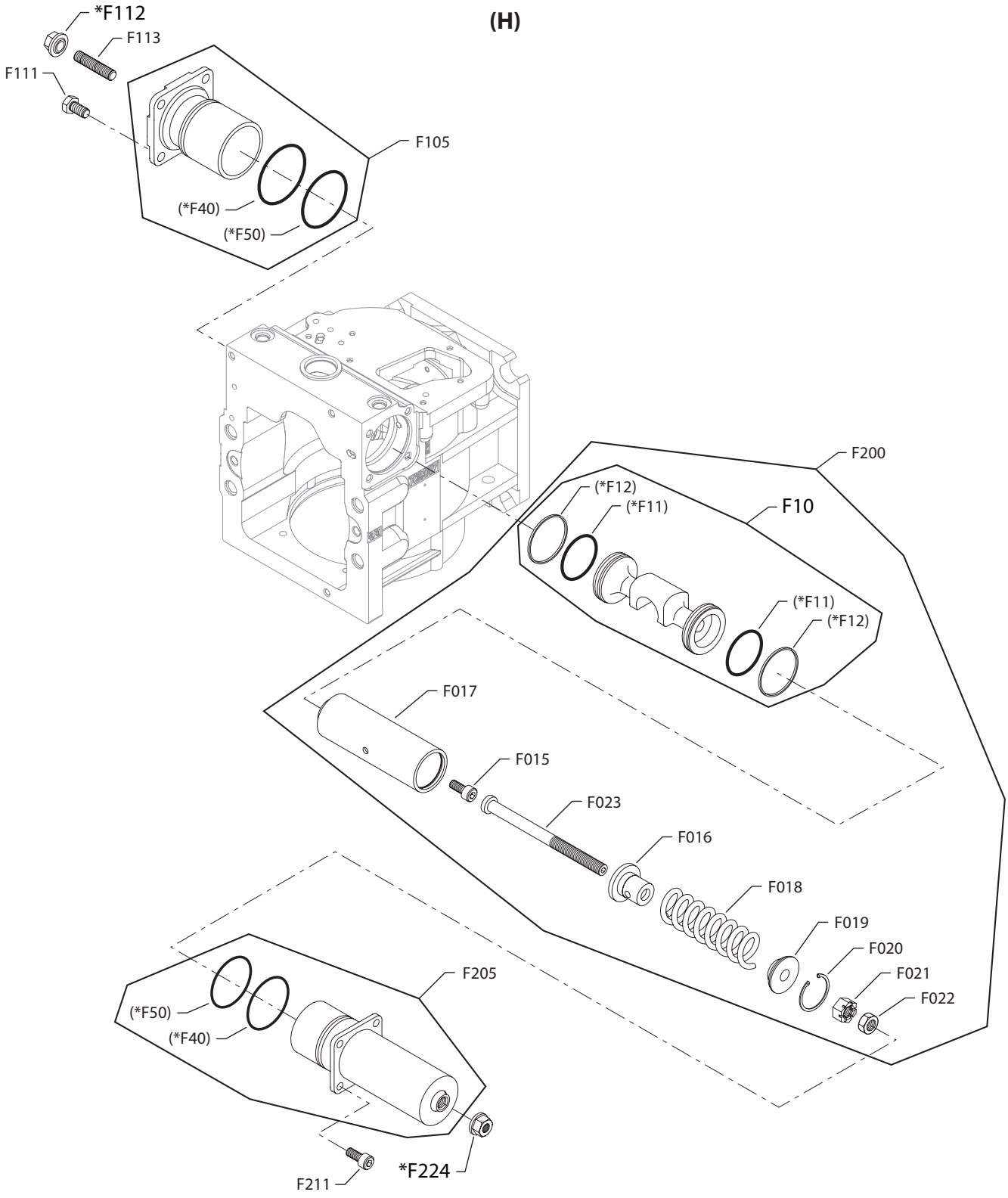

* = included in overhaul seal kit
( ) = not available individually

## Variable displacement pump

### Displacement limitation

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| E | F10 | 91-30 | | 11046664 | Servo piston assembly | 1 |
| | F105 | 91-30 | | 11060182 | Servo cylinder assembly, adjustable with gauge port | 1 |
| | F111 | 91-30 | | 676189 | Screw | 4 |
| | F112 | 91-30 | | 076042 (9003509-0012) | Seal nut, M12 | 1 |
| | F113 | 91-30 | | 350090 | Set screw, M12 x 70 | 1 |
| | F125 | 91-30 | | 731943 | Plug assembly | 1 |
| | F205 | 91-30 | | 11060182 | Servo cylinder assembly, adjustable with gauge port | 1 |
| | F211 | 91-30 | | 676189 | Screw | 4 |
| | F212 | 91-30 | | 076042 (9003509-0012) | Seal nut, M12 | 1 |
| | F213 | 91-30 | | 350090 | Set screw, M12 x 70 | 1 |
| | F225 | 91-30 | | 731943 | Plug assembly | 1 |

## Variable displacement pump




E101 820E

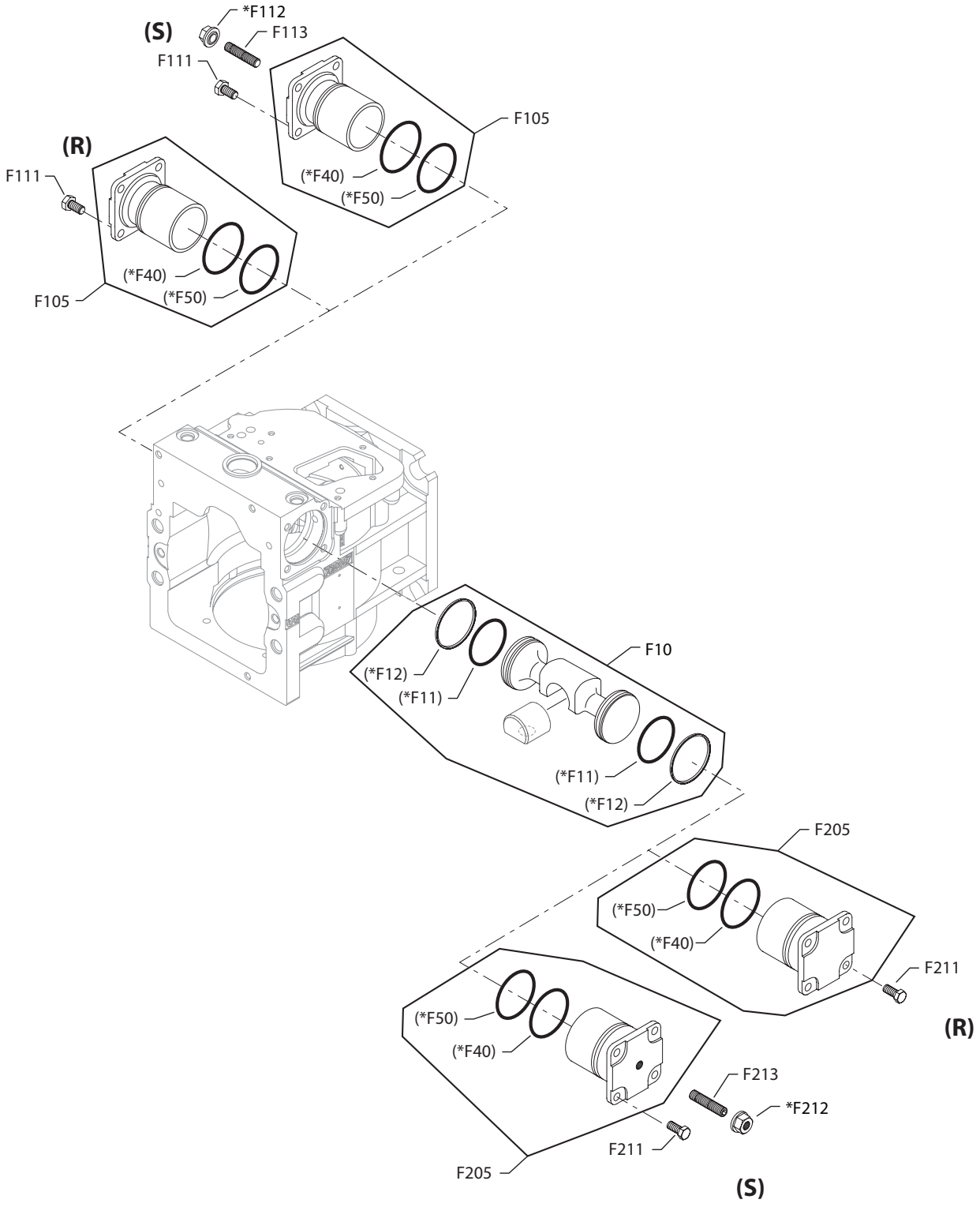
* = included in overhaul seal kit
( ) = not available individually

## Variable displacement pump

### Displacement limitation

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| H | F10 | 98-18 | | 11046631 | Servo piston assembly | 1 |
| | F113 | 98-18 | | 11085626 | Set screw, M10 x50 | 1 |
| | F015 | 98-18 | | 346031 | Screw | 1 |
| | F016 | 98-18 | | 507096 | Spring guide | 1 |
| | F017 | 98-18 | | 345967 | Spring housing | 1 |
| | F018 | 98-18 | | 351742 | Spring | 1 |
| | F019 | 98-18 | | 507094 | Spring guide | 1 |
| | F020 | 98-18 | | 505826 | Retaining ring | 1 |
| | F021 | 98-18 | | 507045 | Castle nut | 1 |
| | F022 | 98-18 | | 346015 | Hex nut | 1 |
| | F023 | 98-18 | | 11140221 | Adjust screw | 1 |
| | F105 | 98-18 | | 11060160 | Servo cylinder assembly | 1 |
| | F111 | 98-18 | | 378083 (9007210-0804) | Screw | 4 |
| | F112 | 98-18 | | 042432 | Seal nut, M10 | 1 |
| | F113 | 98-18 | | 11085626 | Set screw, M10 x50 | 1 |
| | F200 | 98-18 | | 515836 | Servo assembly | 1 |
| | F205 | 98-18 | | 11060161 | Servo cylinder assembly, NFPE | 1 |
| | F211 | 98-18 | | 746651 | Screw | 4 |
| | F224 | 98-18 | | 066159 | Seal nut, M12 | 1 |

## Variable displacement pump




E100 892E

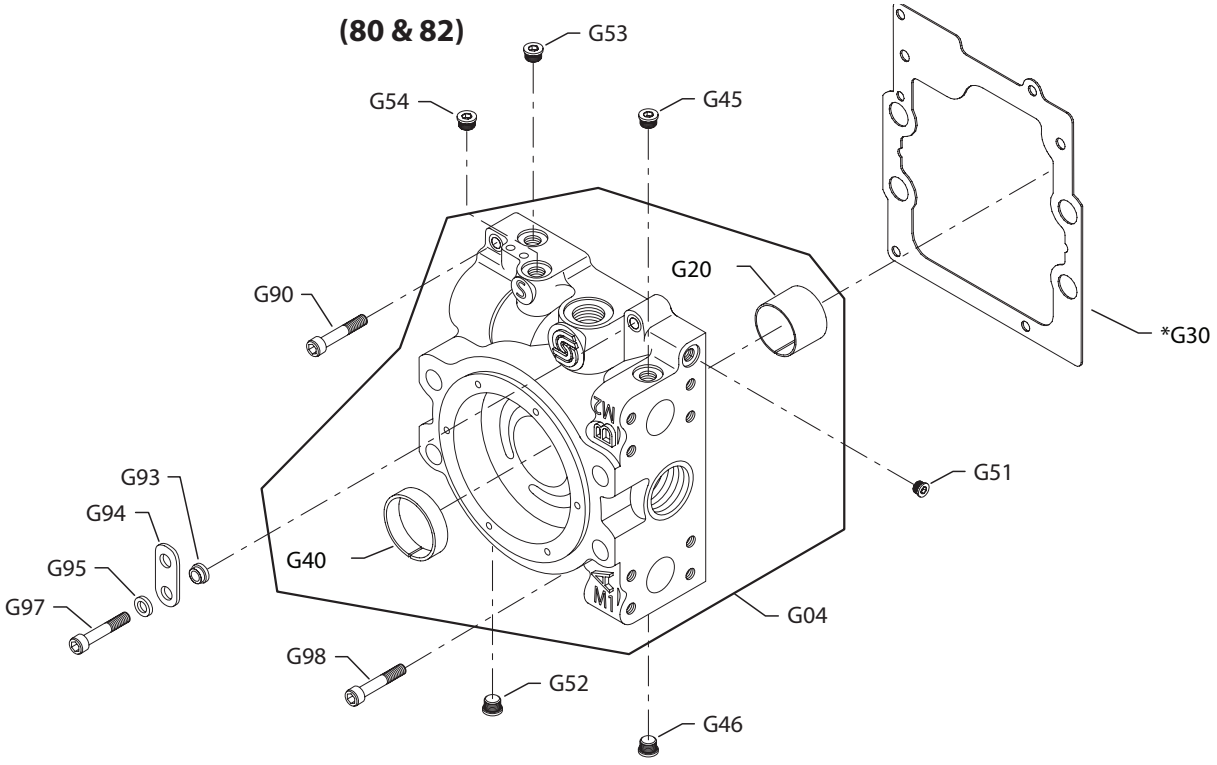
* = included in overhaul seal kit
( ) = not available individually

## Variable displacement pump

### Displacement limitation

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| R | F10 | 91-30 | | 11046630 | Servo piston assembly | 1 |
| | F105 | 91-30 | | 11060159 | Servo cylinder assembly, non-adjustable, 110cc | 1 |
| | F111 | 91-30 | | 378083 (9007210-0804) | Screw | 4 |
| | F205 | 91-30 | | 11060159 | Servo cylinder assembly, non-adjustable, 110cc | 1 |
| | F211 | 91-30 | | 378083 (9007210-0804) | Screw | 4 |
| S | F10 | 05-37 | | 11046630 | Servo piston assembly | 1 |
| | F105 | 05-37 | | 11060160 | Servo cylinder assembly, adjustable | 1 |
| | F111 | 05-37 | | 378083 (9007210-0804) | Screw | 4 |
| | F112 | 05-37 | | 042432 | Seal nut, M10 | 1 |
| | F113 | 05-37 | | 11002555 | Set screw M10 x30 | 1 |
| | F205 | 05-37 | | 11060160 | Servo cylinder assembly, adjustable | 1 |
| | F211 | 05-37 | | 378083 (9007210-0804) | Screw | 4 |
| | F212 | 05-37 | | 042432 | Seal nut, M10 | 1 |
| | F213 | 05-37 | | 11002555 | Set screw M10 x30 | 1 |

## Variable displacement pump




E100 897 E

* = included in overhaul seal kit

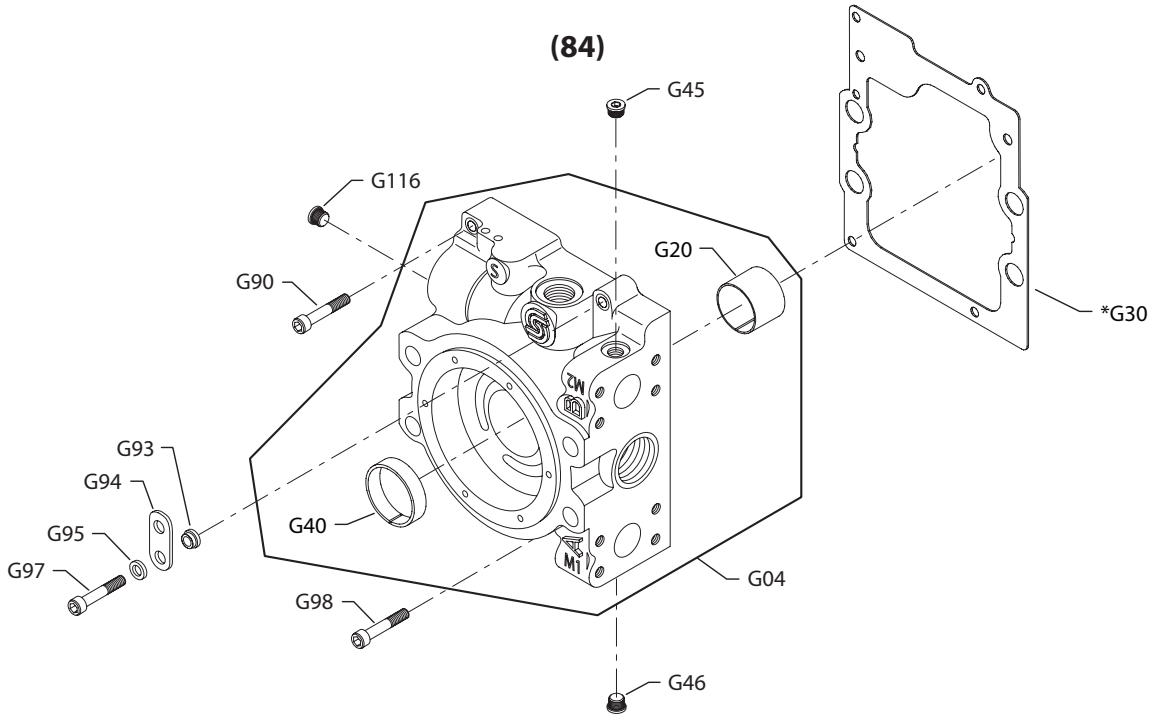
## Variable displacement pump

### End cap

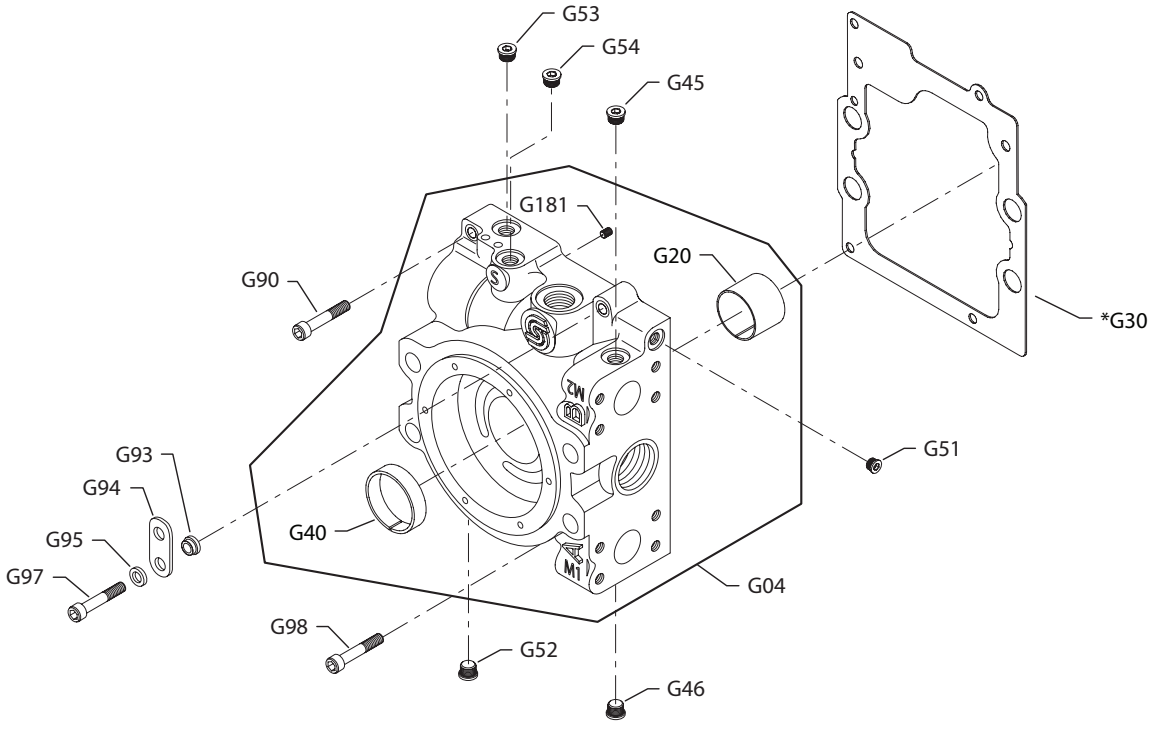
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 80 | G04 | 01-48 | | 516600 | End cap assembly, twin ports | 1 |
| | G20 | 89-41 | | 303693 | Journal bearing | 1 |
| | G30 | 89-41 | | 730895 | End cap gasket (SB-1992-003) | 1 |
| | G40 | 89-41 | | 303651 | Bushing | 1 |
| | G45 | 89-41 | | 140644 | Plug assembly | 1 |
| | G46 | 89-41 | | 140644 | Plug assembly | 1 |
| | G51 | 89-41 | | 327007 (9005110-4400) | Plug assembly | 1 |
| | G52 | 89-41 | | 140644 | Plug assembly | 1 |
| | G53 | 89-41 | | 140644 | Plug assembly | 1 |
| | G54 | 89-41 | | 140644 | Plug assembly | 1 |
| | G90 | 01-48 | | 713768 (9007314-0812) | Screw, M8 x 55 | 1 |
| | G90 | 89-41 | 01-47 | 746644 (9007314-0810) | Screw, M8 x 45 | 1 |
| | G93 | 89-41 | | 713800 (8800564) | Spacer | 1 |
| | G94 | 89-41 | | 8800565 | Lifting bracket | 1 |
| | G95 | 89-41 | | 502195 | Washer | 1 |
| | G97 | 01-48 | | 713768 (9007314-0812) | Screw, M8 x 55 | 1 |
| | G97 | 89-41 | 01-47 | 748954 (9007314-0811) | Screw, M8 x 50 | 1 |
| | G98 | 01-48 | | 713768 (9007314-0812) | Screw, M8 x 55 | 1 |
| | G98 | 89-41 | 01-47 | 746644 (9007314-0810) | Screw, M8 x 45 | 1 |
| | | | | | | |
| 82 | G04 | 08-44 | | 11054538 | End cap assembly, twin metric ports | 1 |
| | G20 | 08-44 | | 303693 | Journal bearing | 1 |
| | G30 | 08-44 | | 730895 | End cap gasket (SB-1992-003) | 1 |
| | G40 | 08-44 | | 303651 | Bushing | 1 |
| | G45 | 08-44 | | 140644 | Plug assembly | 1 |
| | G46 | 08-44 | | 140644 | Plug assembly | 1 |
| | G51 | 08-44 | | 327007 (9005110-4400) | Plug assembly | 1 |
| | G52 | 08-44 | | 140644 | Plug assembly | 1 |
| | G53 | 08-44 | | 140644 | Plug assembly | 1 |
| | G54 | 08-44 | | 140644 | Plug assembly | 1 |
| | G90 | 08-44 | | 713768 (9007314-0812) | Screw, M8 x 55 | 1 |
| | G93 | 08-44 | | 713800 (8800564) | Spacer | 1 |
| | G94 | 08-44 | | 8800565 | Lifting bracket | 1 |
| | G95 | 08-44 | | 502195 | Washer | 1 |
| | G97 | 08-44 | | 713768 (9007314-0812) | Screw, M8 x 55 | 1 |
| | G98 | 08-44 | | 713768 (9007314-0812) | Screw, M8 x 55 | 1 |

## Variable displacement pump

**(84)**




**(85)**




E100 896 E

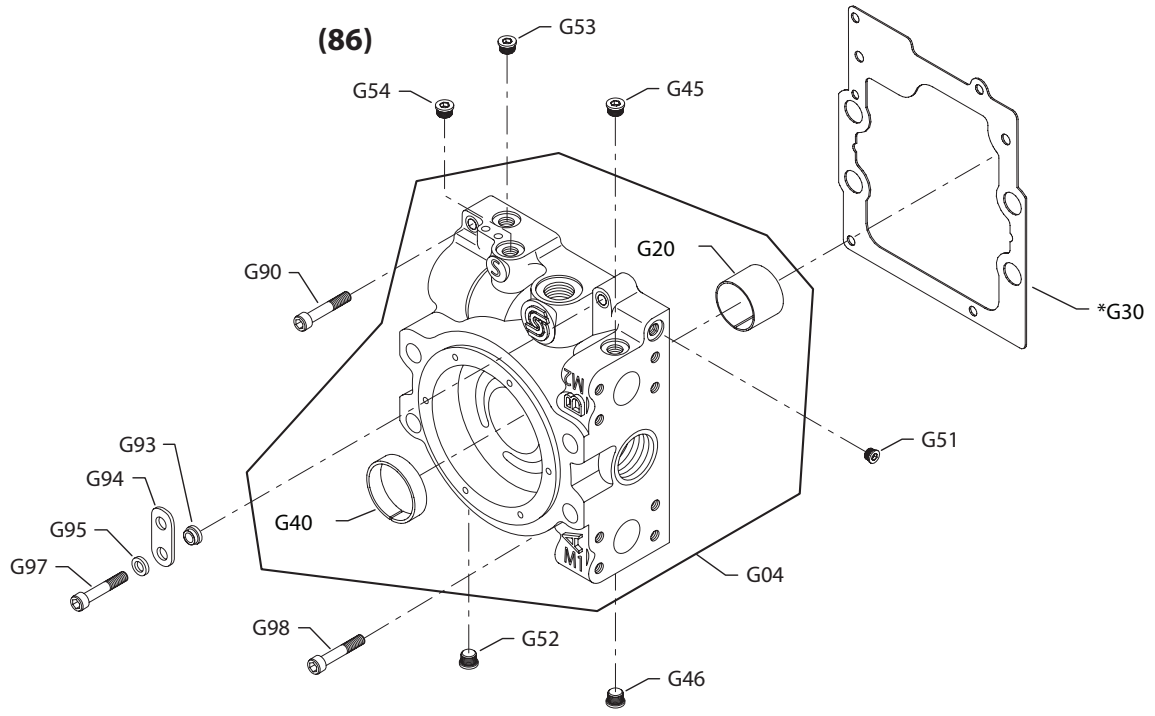
* = included in overhaul seal kit

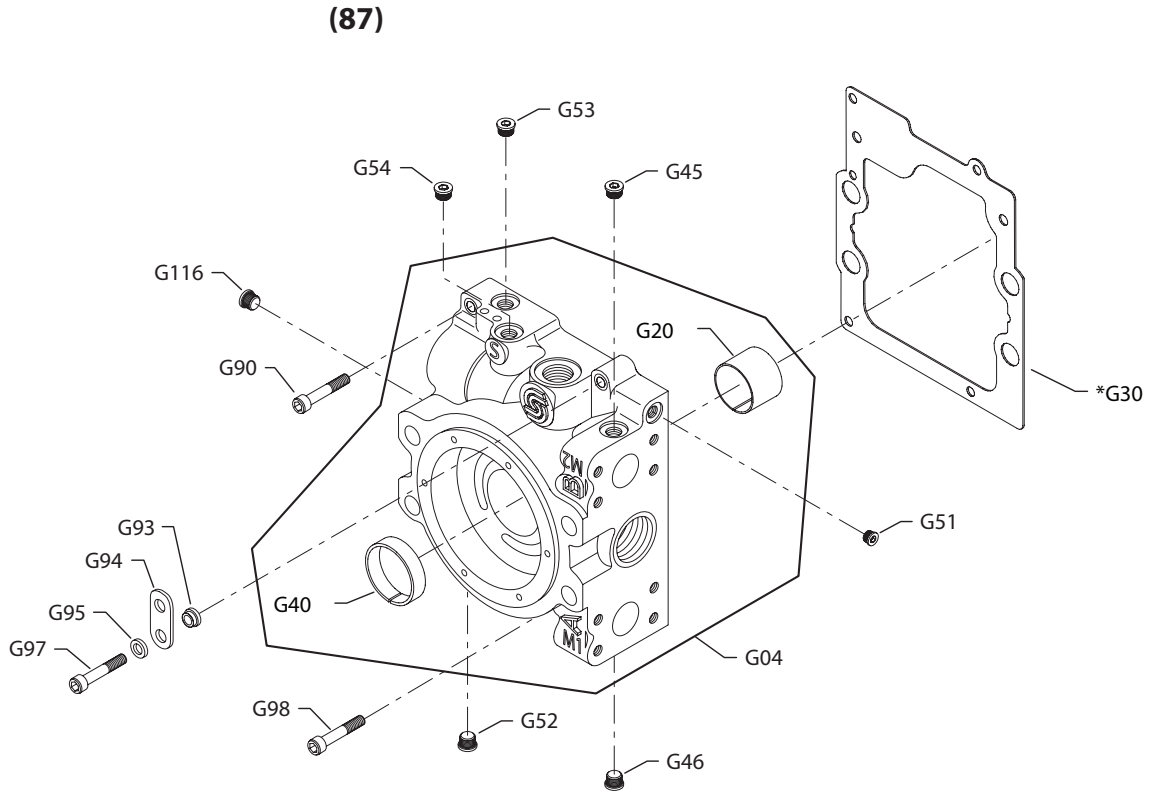
## Variable displacement pump

### End cap

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 84 | G04 | 02-03 | | 516603 | End cap assembly, twin ports | 1 |
| | G20 | 94-48 | | 303693 | Journal bearing | 1 |
| | G30 | 94-48 | | 730895 | End cap gasket | 1 |
| | G40 | 94-48 | | 303651 | Bushing | 1 |
| | G45 | 94-48 | | 140644 | Plug assembly | 1 |
| | G46 | 94-48 | | 140644 | Plug assembly | 1 |
| | G90 | 02-03 | | 713768 (9007314-0812) | Screw, M8 x 55 | 1 |
| | G90 | 89-41 | 02-03 | 746644 (9007314-0810) | Screw, M8 x 45 | 1 |
| | G93 | 94-48 | | 713800 (8800564) | Spacer | 1 |
| | G94 | 94-48 | | 8800565 | Lifting bracket | 1 |
| | G95 | 94-48 | | 502195 | Washer | 1 |
| | G97 | 02-03 | | 713768 (9007314-0812) | Screw, M8 x 55 | 1 |
| | G97 | 89-41 | 02-03 | 748954 (9007314-0811) | Screw, M8 x 50 | 1 |
| | G98 | 02-03 | | 713768 (9007314-0812) | Screw, M8 x 55 | 1 |
| | G98 | 89-41 | 02-03 | 746644 (9007314-0810) | Screw, M8 x 45 | 1 |
| | G116 | 94-48 | | 140644 | Plug assembly | 1 |
| | | | | | | |
| 85 | G04 | 01-38 | | 517973 | End cap assembly, twin ports | 1 |
| | G20 | 01-38 | | 303693 | Journal bearing | 1 |
| | G30 | 01-38 | | 730895 | End cap gasket | 1 |
| | G40 | 01-38 | | 303651 | Bushing | 1 |
| | G45 | 01-38 | | 140644 | Plug assembly | 1 |
| | G46 | 01-38 | | 140644 | Plug assembly | 1 |
| | G51 | 01-38 | | 327007 (9005110-4400) | Plug assembly | 1 |
| | G52 | 01-38 | | 140644 | Plug assembly | 1 |
| | G53 | 01-38 | | 140644 | Plug assembly | 1 |
| | G54 | 01-38 | | 140644 | Plug assembly | 1 |
| | G90 | 01-38 | | 713768 (9007314-0812) | Screw, M8 x 55 | 1 |
| | G93 | 01-38 | | 713800 (8800564) | Spacer | 1 |
| | G94 | 01-38 | | 8800565 | Lifting bracket | 1 |
| | G95 | 01-38 | | 502195 | Washer | 1 |
| | G97 | 01-38 | | 713768 (9007314-0812) | Screw, M8 x 55 | 1 |
| | G98 | 01-38 | | 713768 (9007314-0812) | Screw, M8 x 55 | 1 |
| | G181 | 01-38 | | 759423 | Orifice plug, 2.5mm | 1 |

## Variable displacement pump




E101 826E

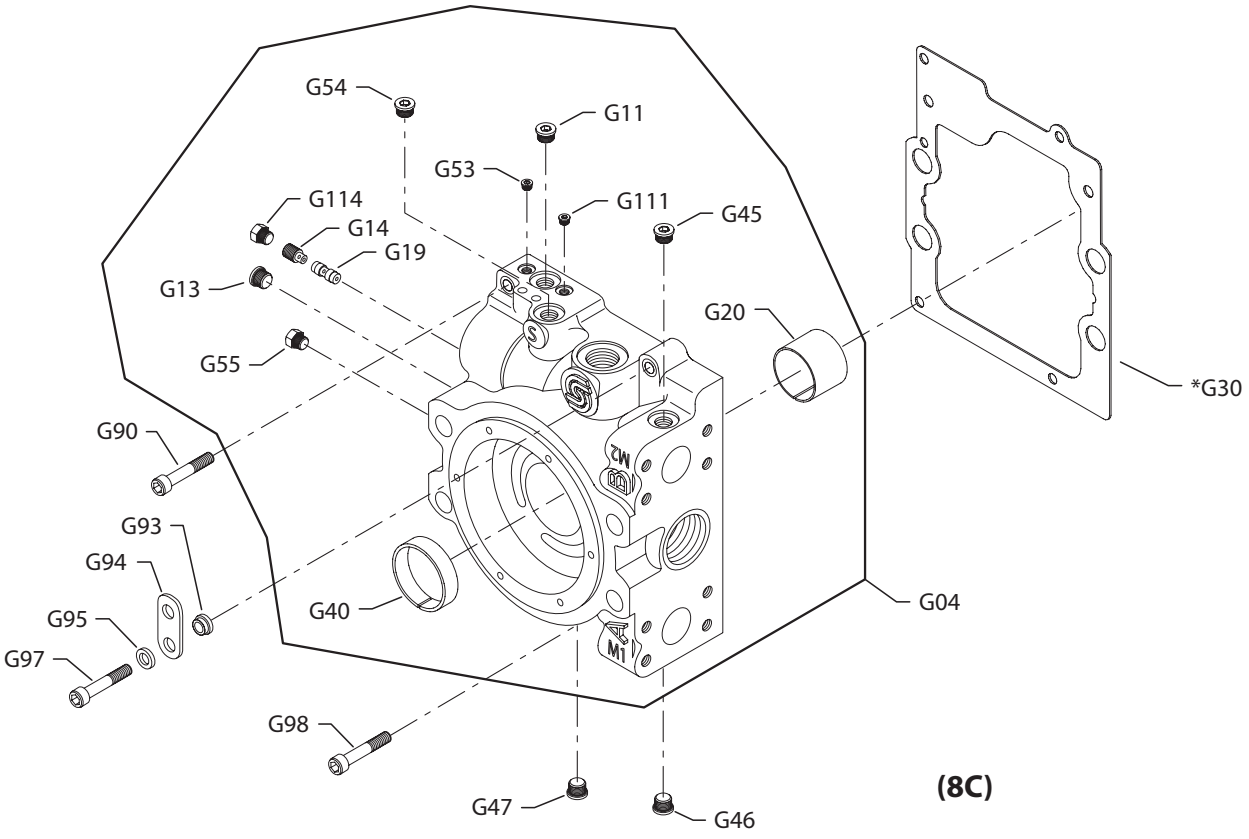
* = included in overhaul seal kit

## Variable displacement pump

### End cap

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 86 | G04 | 02-03 | 11-34 | 516602 | End cap assembly, twin ports | 1 |
| | G20 | 93-35 | 11-34 | 303693 | Journal bearing | 1 |
| | G30 | 93-35 | 11-34 | 730895 | End cap gasket | 1 |
| | G40 | 93-35 | 11-34 | 303651 | Bushing | 1 |
| | G45 | 93-35 | 11-34 | 140644 | Plug assembly | 1 |
| | G46 | 93-35 | 11-34 | 140644 | Plug assembly | 1 |
| | G51 | 93-35 | 11-34 | 327007 (9005110-4400) | Plug assembly | 1 |
| | G52 | 93-35 | 11-34 | 140644 | Plug assembly | 1 |
| | G53 | 93-35 | 11-34 | 140644 | Plug assembly | 1 |
| | G54 | 93-35 | 11-34 | 140644 | Plug assembly | 1 |
| | G90 | 02-03 | 11-34 | 713768 (9007314-0812) | Screw, M8 x 55 | 1 |
| | G90 | 93-35 | 02-02 | 746644 (9007314-0810) | Screw, M8 x 45 | 1 |
| | G93 | 93-35 | 11-34 | 713800 (8800564) | Spacer | 1 |
| | G94 | 93-35 | 11-34 | 8800565 | Lifting bracket | 1 |
| | G95 | 93-35 | 11-34 | 502195 | Washer | 1 |
| | G97 | 02-03 | 11-34 | 713768 (9007314-0812) | Screw, M8 x 55 | 1 |
| | G97 | 93-35 | 02-02 | 748954 (9007314-0811) | Screw, M8 x 50 | 1 |
| | G98 | 02-03 | 11-34 | 713768 (9007314-0812) | Screw, M8 x 55 | 1 |
| | G98 | 93-35 | 02-02 | 746644 (9007314-0810) | Screw, M8 x 45 | 1 |
| | | | | | | |
| 87 | G04 | 01-47 | | 516604 | End cap assembly, twin ports | 1 |
| | G20 | 92-51 | | 303693 | Journal bearing | 1 |
| | G30 | 92-51 | | 730895 | End cap gasket | 1 |
| | G40 | 92-51 | | 303651 | Bushing | 1 |
| | G45 | 92-51 | | 140644 | Plug assembly | 1 |
| | G46 | 92-51 | | 140644 | Plug assembly | 1 |
| | G51 | 92-51 | | 327007 (9005110-4400) | Plug assembly | 1 |
| | G52 | 92-51 | | 140644 | Plug assembly | 1 |
| | G53 | 92-51 | | 140644 | Plug assembly | 1 |
| | G54 | 92-51 | | 140644 | Plug assembly | 1 |
| | G90 | 01-47 | | 713768 (9007314-0812) | Screw, M8 x 55 | 1 |
| | G90 | 92-51 | 01-46 | 746644 (9007314-0810) | Screw, M8 x 45 | 1 |
| | G93 | 92-51 | | 713800 (8800564) | Spacer | 1 |
| | G94 | 92-51 | | 8800565 | Lifting bracket | 1 |
| | G95 | 92-51 | | 502195 | Washer | 1 |
| | G97 | 01-47 | | 713768 (9007314-0812) | Screw, M8 x 55 | 1 |
| | G97 | 92-51 | 01-46 | 748954 (9007314-0811) | Screw, M8 x 50 | 1 |
| | G98 | 01-47 | | 713768 (9007314-0812) | Screw, M8 x 55 | 1 |
| | G98 | 92-51 | 01-46 | 746644 (9007314-0810) | Screw, M8 x 45 | 1 |
| | G116 | 92-51 | | 140644 | Plug assembly | 1 |

## Variable displacement pump




* = included in overhaul seal kit

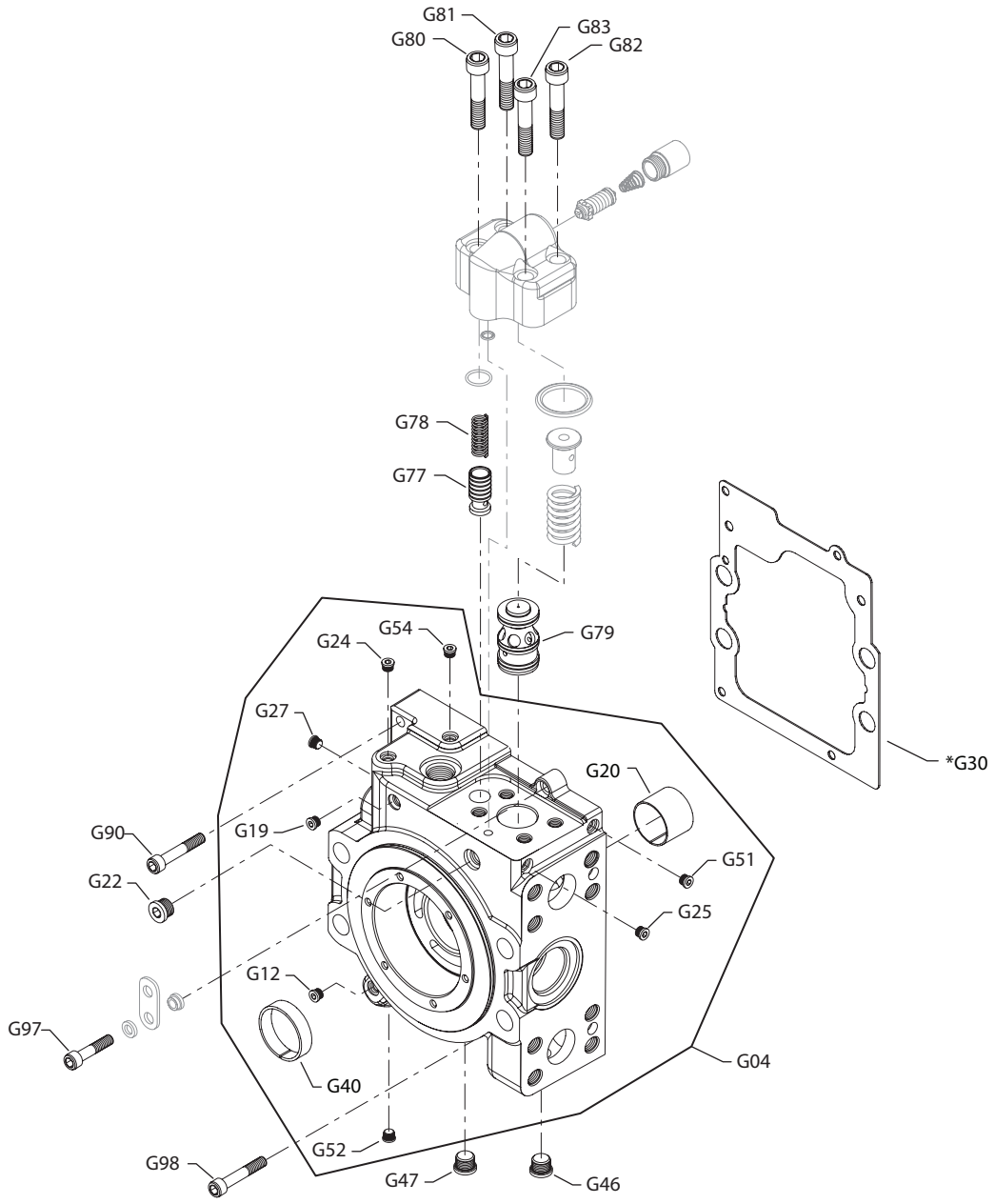
## Variable displacement pump

### End cap

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 8C | G04 | 01-50 | | 516601 | End cap assembly, twin ports | 1 |
| | G11 | 91-26 | | 140644 | Plug assembly | 1 |
| | G13 | 91-26 | | 327007 (9005110-4400) | Plug assembly | 1 |
| | G14 | 91-26 | | 765750 | Orifice plug | 1 |
| | G19 | 91-26 | | 759415 | Spool | 1 |
| | G20 | 91-26 | | 303693 | Journal bearing | 1 |
| | G30 | 91-26 | | 730895 | End cap gasket | 1 |
| | G40 | 91-26 | | 303651 | Journal bearing | 1 |
| | G45 | 91-26 | | 140644 | Plug assembly | 1 |
| | G46 | 91-26 | | 140644 | Plug assembly | 1 |
| | G47 | 91-26 | | 140644 | Plug assembly | 1 |
| | G53 | 91-26 | | 11040532 | Plug assembly | 1 |
| | G54 | 91-26 | | 140644 | Plug assembly | 1 |
| | G55 | 91-26 | | 9005100-3700 | Plug assembly | 1 |
| | G90 | 01-50 | | 713768 (9007314-0812) | Screw, M8 x 55 | 1 |
| | G90 | 91-26 | 01-49 | 746644 (9007314-0810) | Screw, M8 x 45 | 1 |
| | G93 | 91-26 | | 713800 (8800564) | Spacer | 1 |
| | G94 | 91-26 | | 8800565 | Lifting bracket | 1 |
| | G95 | 91-26 | | 502195 | Washer | 1 |
| | G97 | 01-50 | | 713768 (9007314-0812) | Screw, M8 x 55 | 1 |
| | G97 | 92-51 | 01-49 | 748954 (9007314-0811) | Screw, M8 x 50 | 1 |
| | G98 | 01-50 | | 713768 (9007314-0812) | Screw, M8 x 55 | 1 |
| | G98 | 91-26 | 01-49 | 746644 (9007314-0810) | Screw, M8 x 45 | 1 |
| | G111 | 91-26 | | 11040532 | Plug assembly | 1 |
| | G114 | 91-26 | | 9005100-3700 | Plug assembly | 1 |

## Variable displacement pump

### (8E)




* = included in overhaul seal kit

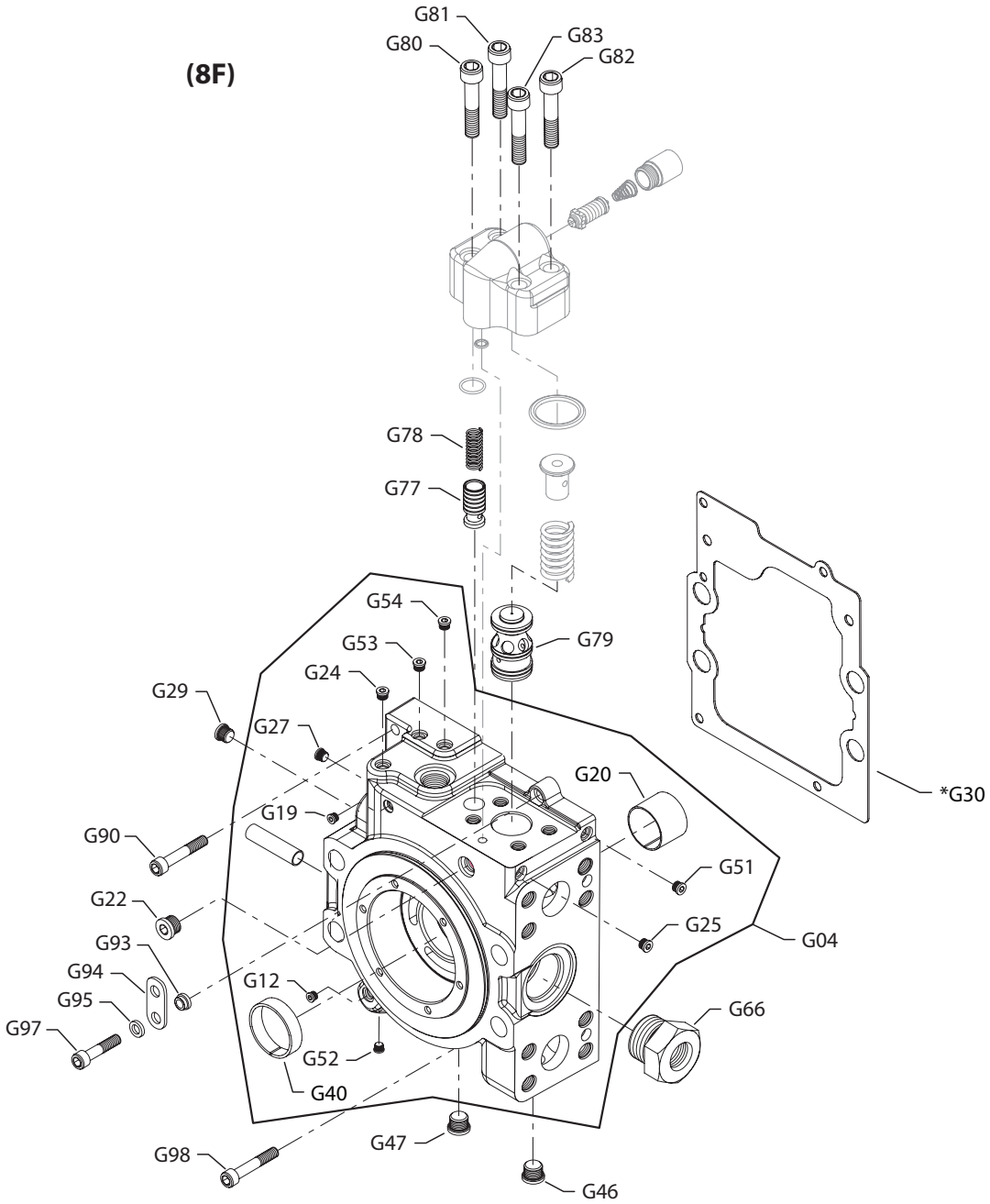
## Variable displacement pump

### End cap

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 8E | G04 | 02-15 | | 11093592 | End cap assembly | 1 |
| | G12 | 02-15 | | 11040532 | Plug assembly | 1 |
| | G19 | 02-15 | | 11040532 | Plug assembly | 1 |
| | G20 | 02-15 | | 303693 | Journal bearing | 1 |
| | G22 | 02-15 | | 140644 | Plug assembly | 1 |
| | G24 | 02-15 | | 11040532 | Plug assembly | 1 |
| | G25 | 02-15 | | 11040532 | Plug assembly | 1 |
| | G27 | 02-15 | | 11040532 | Plug assembly | 1 |
| | G30 | 02-15 | | 730895 | End cap gasket | 1 |
| | G40 | 02-15 | | 664771 | Bushing | 1 |
| | G46 | 02-15 | | 140644 | Plug assembly | 1 |
| | G47 | 02-15 | | 140644 | Plug assembly | 1 |
| | G51 | 02-15 | | 11040532 | Plug assembly | 1 |
| | G52 | 02-15 | | 11040532 | Plug assembly | 1 |
| | G54 | 02-15 | | 11040532 | Plug assembly | 1 |
| | G77 | 02-15 | | 517830 | Piston | 1 |
| | G78 | 02-15 | | 517832 | Spring | 1 |
| | G79 | 02-15 | | 517827 | Piston | 1 |
| | G80 | 02-15 | | 504681 | Screw, M12 x 55 | 1 |
| | G81 | 02-15 | | 504681 | Screw, M12 x 55 | 1 |
| | G82 | 02-15 | | 504681 | Screw, M12 x 55 | 1 |
| | G83 | 02-15 | | 504681 | Screw, M12 x 55 | 1 |
| | G90 | 02-15 | | 713768 (9007314-0812) | Screw, M8 x 55 | 1 |
| | G93 | 02-15 | | 713800 (8800564) | Spacer | 1 |
| | G94 | 02-15 | | 8800565 | Lifting bracket | 1 |
| | G95 | 02-15 | | 502195 | Washer | 1 |
| | G97 | 02-15 | | 506969 | Screw, M8 x 25 | 1 |
| | G98 | 02-15 | | 713768 (9007314-0812) | Screw, M8 x 55 | 1 |

## Variable displacement pump

**(8F)**




E100 901 E

* = included in overhaul seal kit

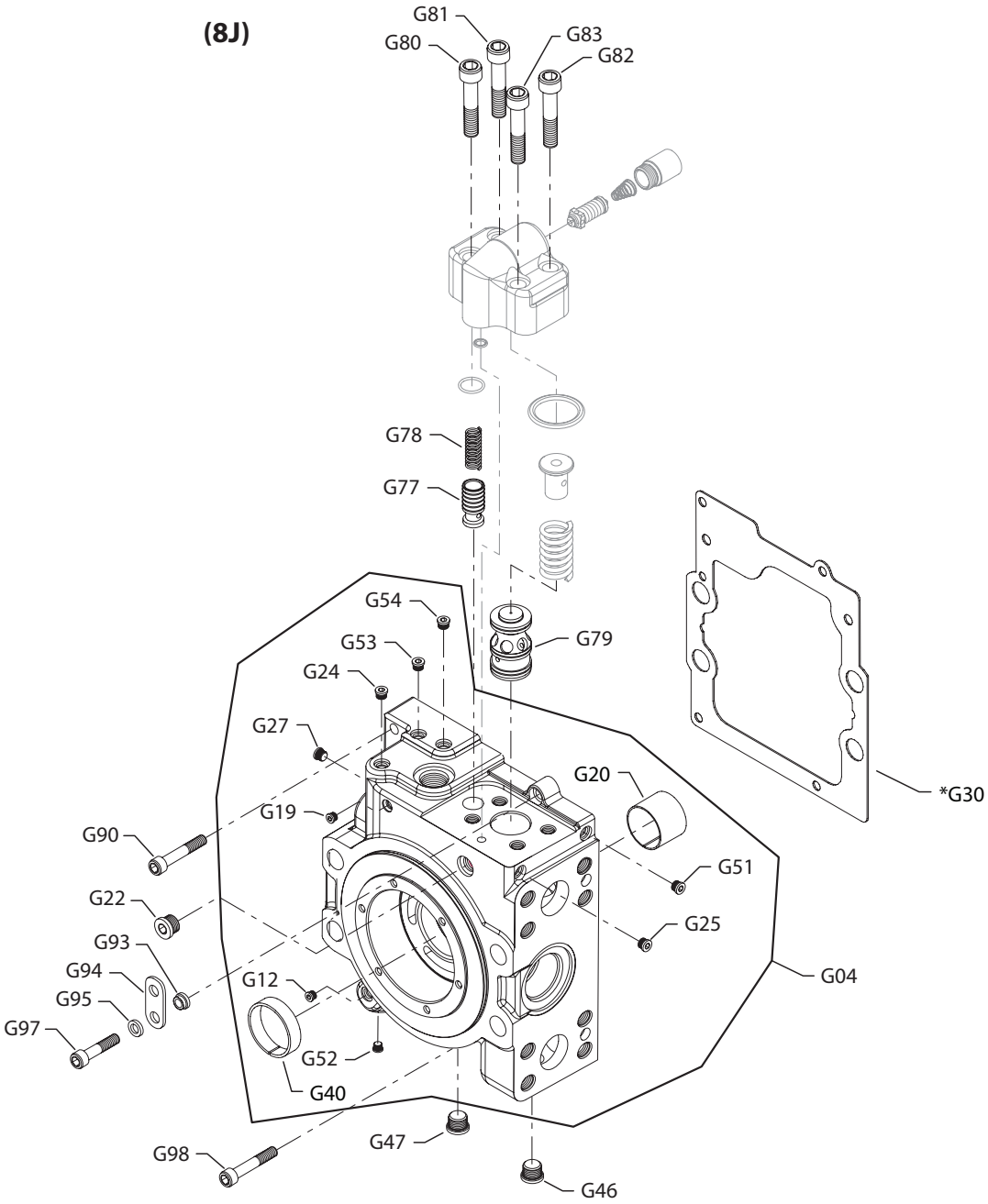
## Variable displacement pump

### End cap

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 8F | G04 | 02-15 | | 11093576 | End cap assembly | 1 |
| | G12 | 02-15 | | 11040532 | Plug assembly | 1 |
| | G19 | 02-15 | | 11040532 | Plug assembly | 1 |
| | G20 | 02-15 | | 303693 | Journal bearing | 1 |
| | G22 | 02-15 | | 140644 | Plug assembly | 1 |
| | G24 | 02-15 | | 11040532 | Plug assembly | 1 |
| | G25 | 02-15 | | 11040532 | Plug assembly | 1 |
| | G27 | 02-15 | | 11040532 | Plug assembly | 1 |
| | G29 | 02-15 | | 140644 | Plug assembly | 1 |
| | G30 | 02-15 | | 730895 | End cap gasket | 1 |
| | G40 | 02-15 | | 664771 | Bushing | 1 |
| | G46 | 02-15 | | 140644 | Plug assembly | 1 |
| | G47 | 02-15 | | 140644 | Plug assembly | 1 |
| | G51 | 02-15 | | 11040532 | Plug assembly | 1 |
| | G52 | 02-15 | | 11040532 | Plug assembly | 1 |
| | G53 | 02-15 | | 11040532 | Plug assembly | 1 |
| | G54 | 02-15 | | 11040532 | Plug assembly | 1 |
| | G66 | 02-15 | | 521318 | Adapter plug assembly | 1 |
| | G77 | 02-15 | | 517830 | Piston | 1 |
| | G78 | 02-15 | | 517832 | Spring | 1 |
| | G79 | 02-15 | | 517827 | Piston | 1 |
| | G80 | 02-15 | | 504681 | Screw, M12 x 55 | 1 |
| | G81 | 02-15 | | 504681 | Screw, M12 x 55 | 1 |
| | G82 | 02-15 | | 504681 | Screw, M12 x 55 | 1 |
| | G83 | 02-15 | | 504681 | Screw, M12 x 55 | 1 |
| | G90 | 02-15 | | 713768 (9007314-0812) | Screw, M8 x 55 | 1 |
| | G93 | 02-15 | | 713800 (8800564) | Spacer | 1 |
| | G94 | 02-15 | | 8800565 | Lifting bracket | 1 |
| | G95 | 02-15 | | 502195 | Washer | 1 |
| | G97 | 02-15 | | 506969 | Screw, M8 x 25 | 1 |
| | G98 | 02-15 | | 713768 (9007314-0812) | Screw, M8 x 55 | 1 |

## Variable displacement pump

**(8J)**




E100 902E

* = included in overhaul seal kit

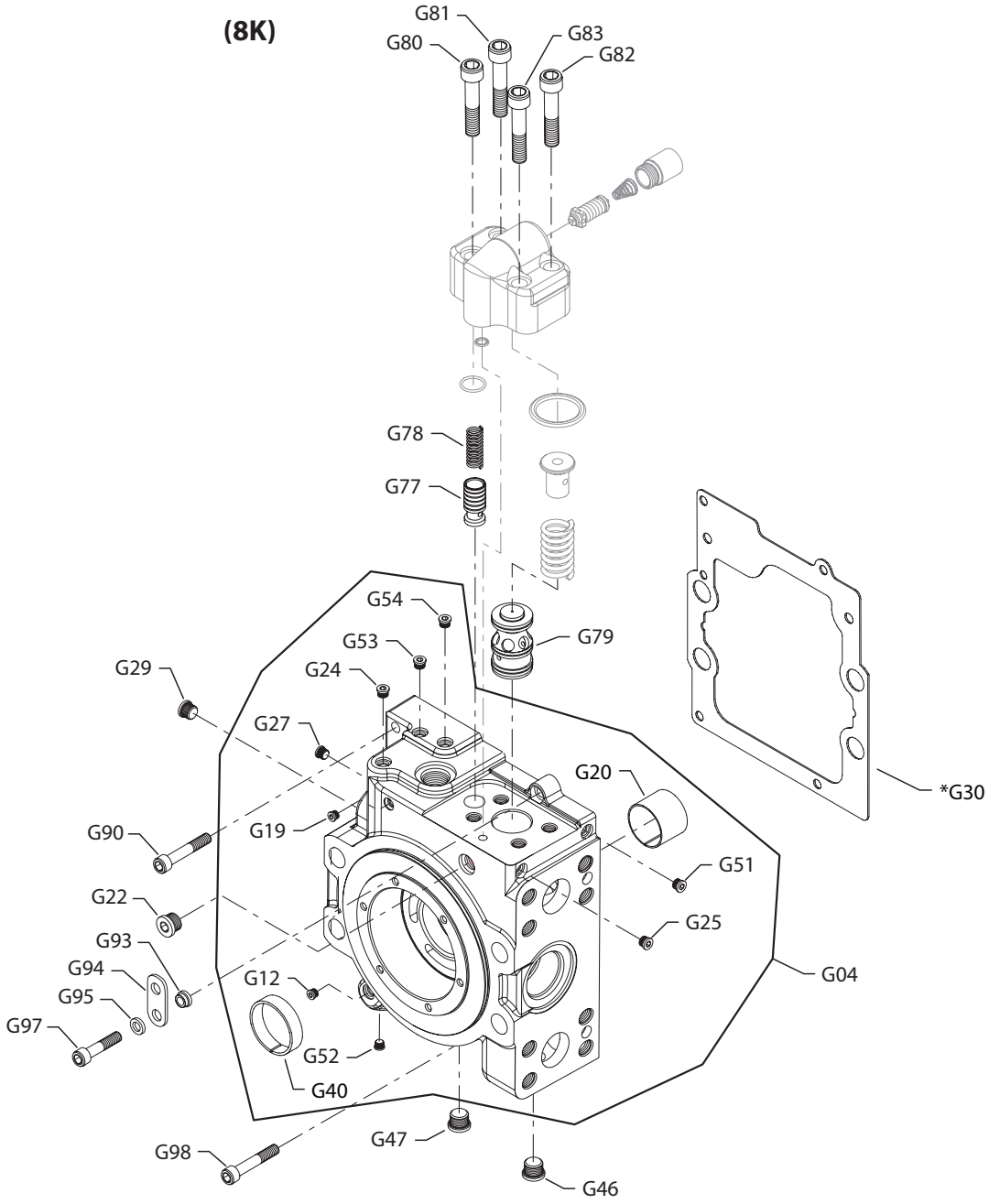
## Variable displacement pump

### End cap

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 8J | G04 | 06-28 | | 11093596 | End cap assembly | 1 |
| | G12 | 06-28 | | 11040532 | Plug assembly | 1 |
| | G19 | 06-28 | | 11040532 | Plug assembly | 1 |
| | G20 | 06-28 | | 303693 | Journal bearing | 1 |
| | G22 | 06-28 | | 140644 | Plug assembly | 1 |
| | G24 | 06-28 | | 11040532 | Plug assembly | 1 |
| | G25 | 06-28 | | 11040532 | Plug assembly | 1 |
| | G27 | 06-28 | | 11040532 | Plug assembly | 1 |
| | G30 | 06-28 | | 730895 | End cap gasket | 1 |
| | G40 | 06-28 | | 664771 | Bushing | 1 |
| | G46 | 06-28 | | 140644 | Plug assembly | 1 |
| | G47 | 06-28 | | 140644 | Plug assembly | 1 |
| | G51 | 06-28 | | 11040532 | Plug assembly | 1 |
| | G52 | 06-28 | | 11040532 | Plug assembly | 1 |
| | G53 | 06-28 | | 11040532 | Plug assembly | 1 |
| | G54 | 06-28 | | 11040532 | Plug assembly | 1 |
| | G77 | 06-28 | | 517830 | Piston | 1 |
| | G78 | 06-28 | | 517832 | Spring | 1 |
| | G79 | 06-28 | | 517827 | Piston | 1 |
| | G80 | 06-28 | | 504681 | Screw, M12 x 55 | 1 |
| | G81 | 06-28 | | 504681 | Screw, M12 x 55 | 1 |
| | G82 | 06-28 | | 504681 | Screw, M12 x 55 | 1 |
| | G83 | 06-28 | | 504681 | Screw, M12 x 55 | 1 |
| | G90 | 06-28 | | 713768 (9007314-0812) | Screw, M8 x 55 | 1 |
| | G93 | 06-28 | | 713800 (8800564) | Spacer | 1 |
| | G94 | 06-28 | | 8800565 | Lifting bracket | 1 |
| | G95 | 06-28 | | 502195 | Washer | 1 |
| | G97 | 06-28 | | 506969 | Screw, M8 x 25 | 1 |
| | G98 | 06-28 | | 713768 (9007314-0812) | Screw, M8 x 55 | 1 |

## Variable displacement pump

**(8K)**




E101 827E

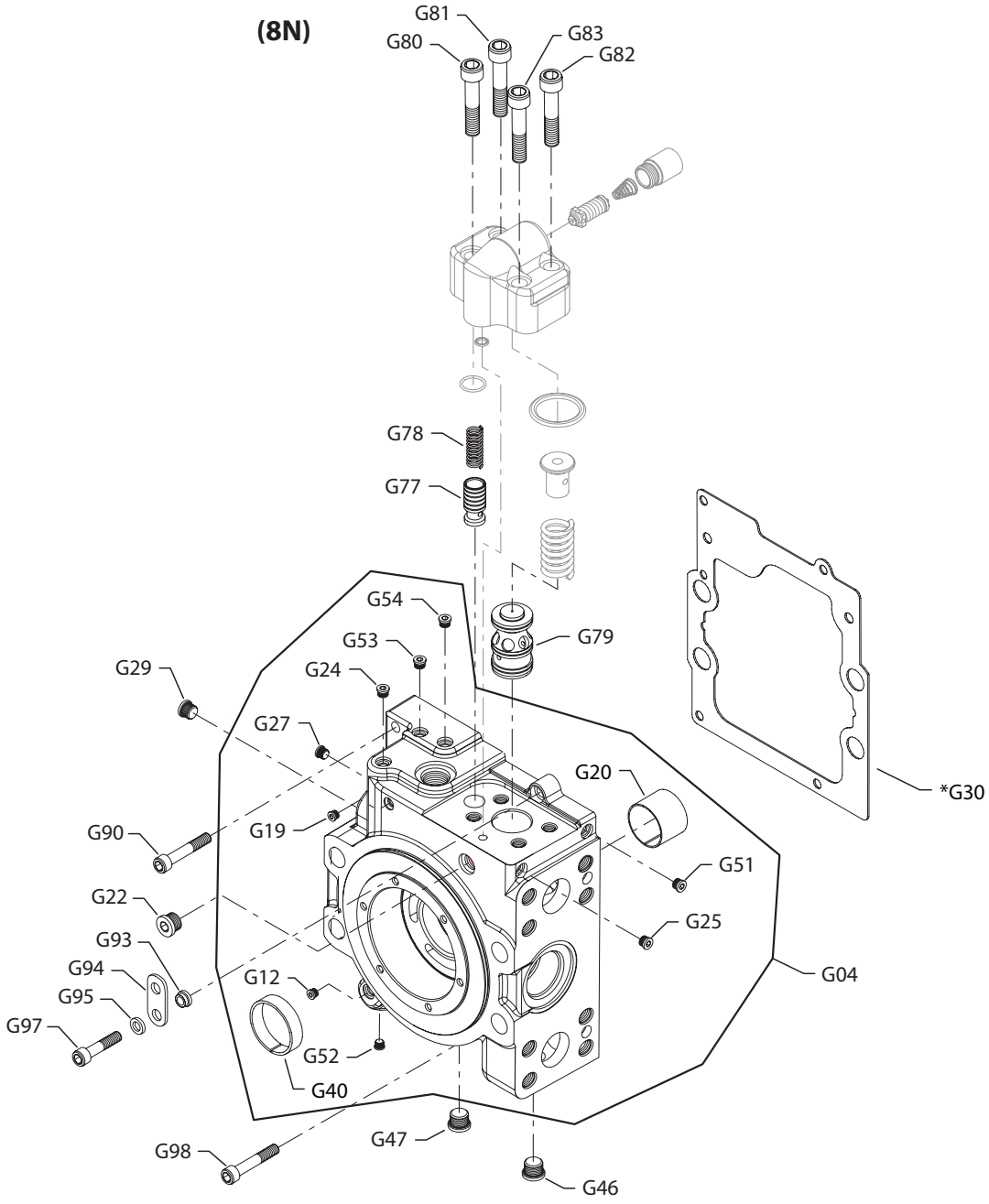
* = included in overhaul seal kit

## Variable displacement pump

### End cap

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 8K | G04 | 07-45 | | 11093575 | End cap assembly | 1 |
| | G12 | 07-45 | | 11040532 | Plug assembly | 1 |
| | G19 | 07-45 | | 11040532 | Plug assembly | 1 |
| | G20 | 07-45 | | 303693 | Journal bearing | 1 |
| | G22 | 07-45 | | 140644 | Plug assembly | 1 |
| | G24 | 07-45 | | 11040532 | Plug assembly | 1 |
| | G25 | 07-45 | | 11040532 | Plug assembly | 1 |
| | G27 | 07-45 | | 11040532 | Plug assembly | 1 |
| | G29 | 07-45 | | 140644 | Plug assembly | 1 |
| | G30 | 07-45 | | 730895 | End cap gasket | 1 |
| | G40 | 07-45 | | 664771 | Bushing | 1 |
| | G46 | 07-45 | | 140644 | Plug assembly | 1 |
| | G47 | 07-45 | | 140644 | Plug assembly | 1 |
| | G51 | 07-45 | | 11040532 | Plug assembly | 1 |
| | G52 | 07-45 | | 11040532 | Plug assembly | 1 |
| | G53 | 07-45 | | 11040532 | Plug assembly | 1 |
| | G54 | 07-45 | | 11040532 | Plug assembly | 1 |
| | G77 | 07-45 | | 517830 | Piston | 1 |
| | G78 | 07-45 | | 517832 | Spring | 1 |
| | G79 | 07-45 | | 517827 | Piston | 1 |
| | G80 | 07-45 | | 504681 | Screw, M12 x 55 | 1 |
| | G81 | 07-45 | | 504681 | Screw, M12 x 55 | 1 |
| | G82 | 07-45 | | 504681 | Screw, M12 x 55 | 1 |
| | G83 | 07-45 | | 504681 | Screw, M12 x 55 | 1 |
| | G90 | 07-45 | | 713768 (9007314-0812) | Screw, M8 x 55 | 1 |
| | G93 | 07-45 | | 713800 (8800564) | Spacer | 1 |
| | G94 | 07-45 | | 8800565 | Lifting bracket | 1 |
| | G95 | 07-45 | | 502195 | Washer | 1 |
| | G97 | 07-45 | | 506969 | Screw, M8 x 25 | 1 |
| | G98 | 07-45 | | 713768 (9007314-0812) | Screw, M8 x 55 | 1 |

## Variable displacement pump




E101 827E

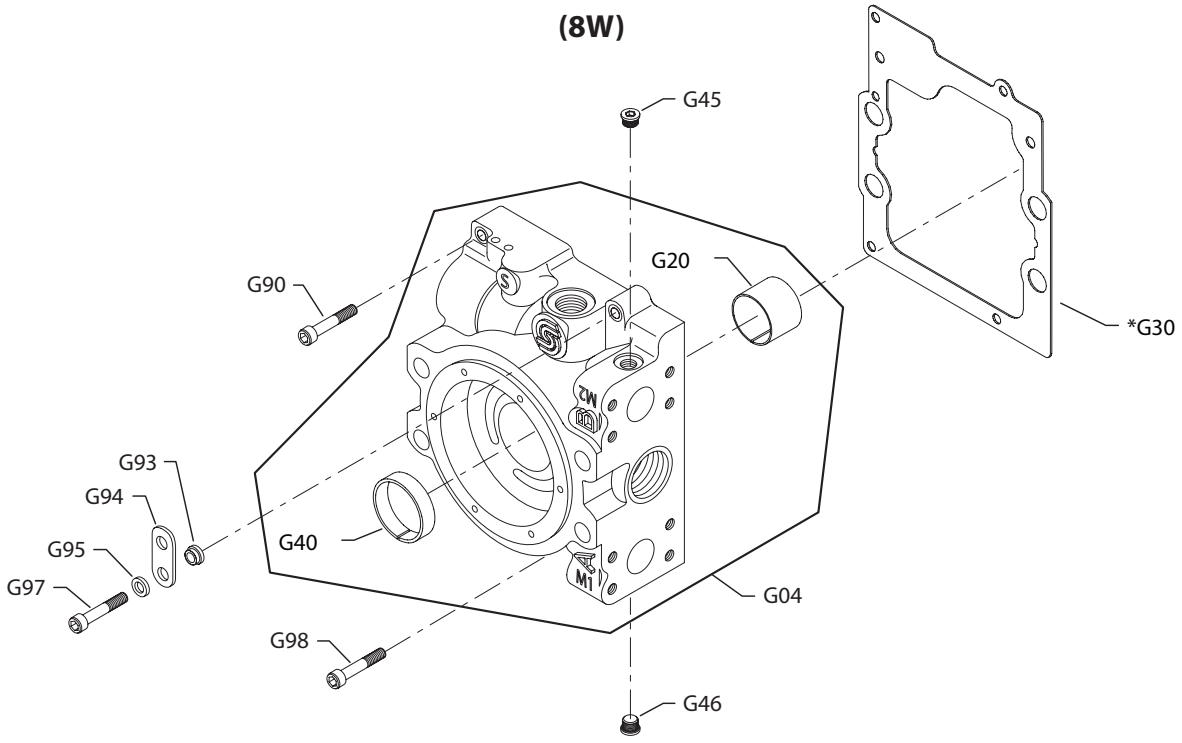
* = included in overhaul seal kit

## Variable displacement pump

### End cap

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 8N | G04 | 10-42 | | 11093806 | End cap assembly | 1 |
| | G12 | 10-42 | | 11040532 | Plug assembly | 1 |
| | G19 | 10-42 | | 11040532 | Plug assembly | 1 |
| | G20 | 10-42 | | 303693 | Journal bearing | 1 |
| | G22 | 10-42 | | 140644 | Plug assembly | 1 |
| | G24 | 10-42 | | 11040532 | Plug assembly | 1 |
| | G25 | 10-42 | | 11040532 | Plug assembly | 1 |
| | G27 | 10-42 | | 11040532 | Plug assembly | 1 |
| | G29 | 10-42 | | 140644 | Plug assembly | 1 |
| | G30 | 10-42 | | 730895 | End cap gasket | 1 |
| | G40 | 10-42 | | 664771 | Bushing | 1 |
| | G46 | 10-42 | | 140644 | Plug assembly | 1 |
| | G47 | 10-42 | | 140644 | Plug assembly | 1 |
| | G51 | 10-42 | | 11040532 | Plug assembly | 1 |
| | G52 | 10-42 | | 11040532 | Plug assembly | 1 |
| | G53 | 10-42 | | 11040532 | Plug assembly | 1 |
| | G54 | 10-42 | | 11040532 | Plug assembly | 1 |
| | G77 | 10-42 | | 517830 | Piston | 1 |
| | G78 | 10-42 | | 517832 | Spring | 1 |
| | G79 | 10-42 | | 517827 | Piston | 1 |
| | G80 | 10-42 | | 504681 | Screw, M12 x 55 | 1 |
| | G81 | 10-42 | | 504681 | Screw, M12 x 55 | 1 |
| | G82 | 10-42 | | 504681 | Screw, M12 x 55 | 1 |
| | G83 | 10-42 | | 504681 | Screw, M12 x 55 | 1 |
| | G90 | 10-42 | | 713768 (9007314-0812) | Screw, M8 x 55 | 1 |
| | G93 | 10-42 | | 713800 (8800564) | Spacer | 1 |
| | G94 | 10-42 | | 8800565 | Lifting bracket | 1 |
| | G95 | 10-42 | | 502195 | Washer | 1 |
| | G97 | 10-42 | | 506969 | Screw, M8 x 25 | 1 |
| | G98 | 10-42 | | 713768 (9007314-0812) | Screw, M8 x 55 | 1 |

## Variable displacement pump




* = included in overhaul seal kit

E100 903 E

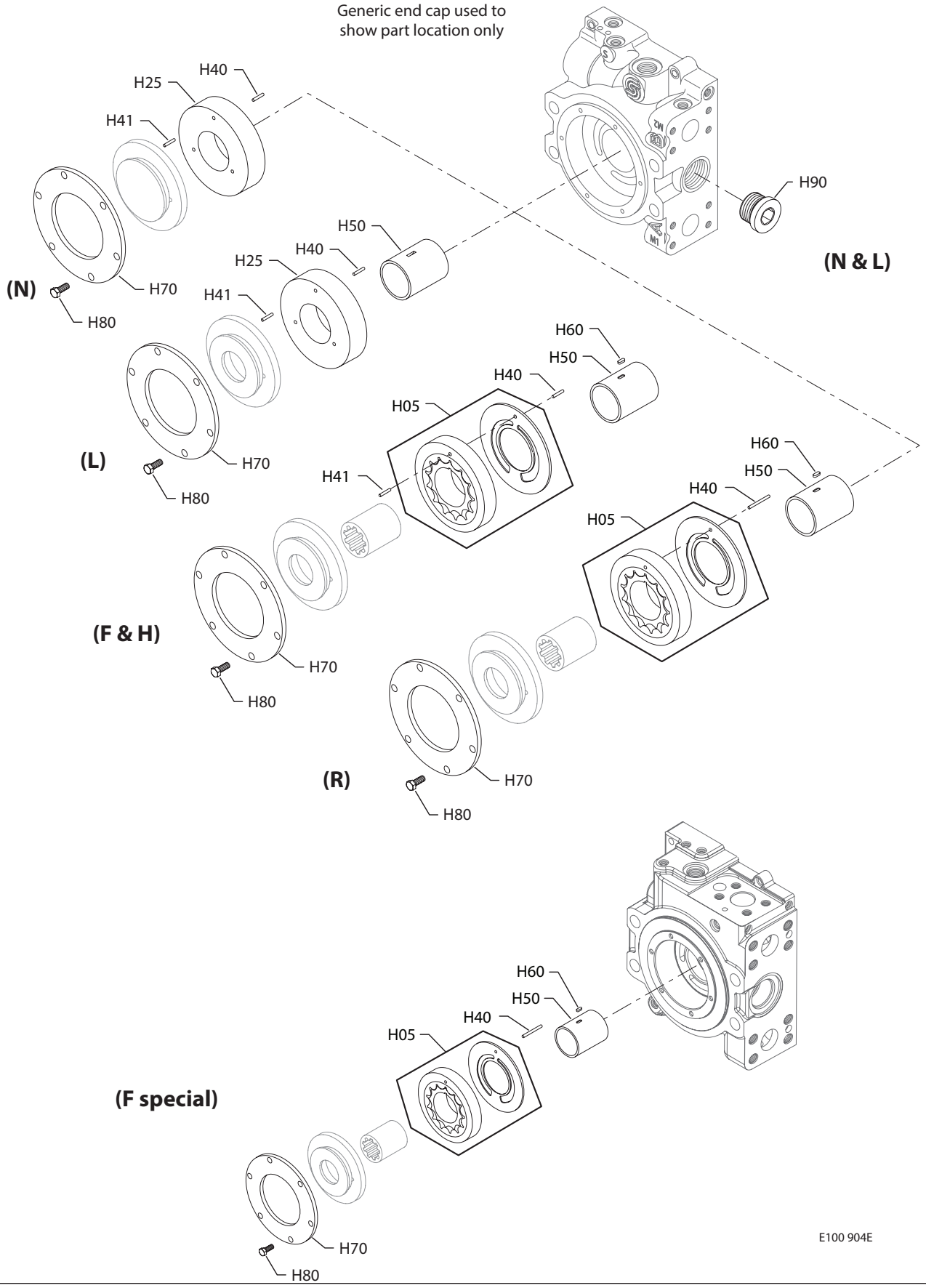
* = included in overhaul seal kit

## Variable displacement pump

### End cap

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 8W | G04 | 02-25 | | 518631 | End cap assembly, twin ports | 1 |
| | G20 | 02-25 | | 303693 | Journal bearing | 1 |
| | G30 | 02-25 | | 730895 | End cap gasket | 1 |
| | G40 | 02-25 | | 303651 | Bushing | 1 |
| | G45 | 02-25 | | 140644 | Plug assembly | 1 |
| | G46 | 02-25 | | 140644 | Plug assembly | 1 |
| | G90 | 02-25 | | 713768 (9007314-0812) | Screw, M8 x 55 | 1 |
| | G93 | 02-25 | | 713800 (8800564) | Spacer | 1 |
| | G94 | 02-25 | | 8800565 | Lifting bracket | 1 |
| | G95 | 02-25 | | 502195 | Washer | 1 |
| | G97 | 02-25 | | 713768 (9007314-0812) | Screw, M8 x 55 | 1 |
| | G98 | 02-25 | | 713768 (9007314-0812) | Screw, M8 x 55 | 1 |

## Variable displacement pump



## Variable displacement pump

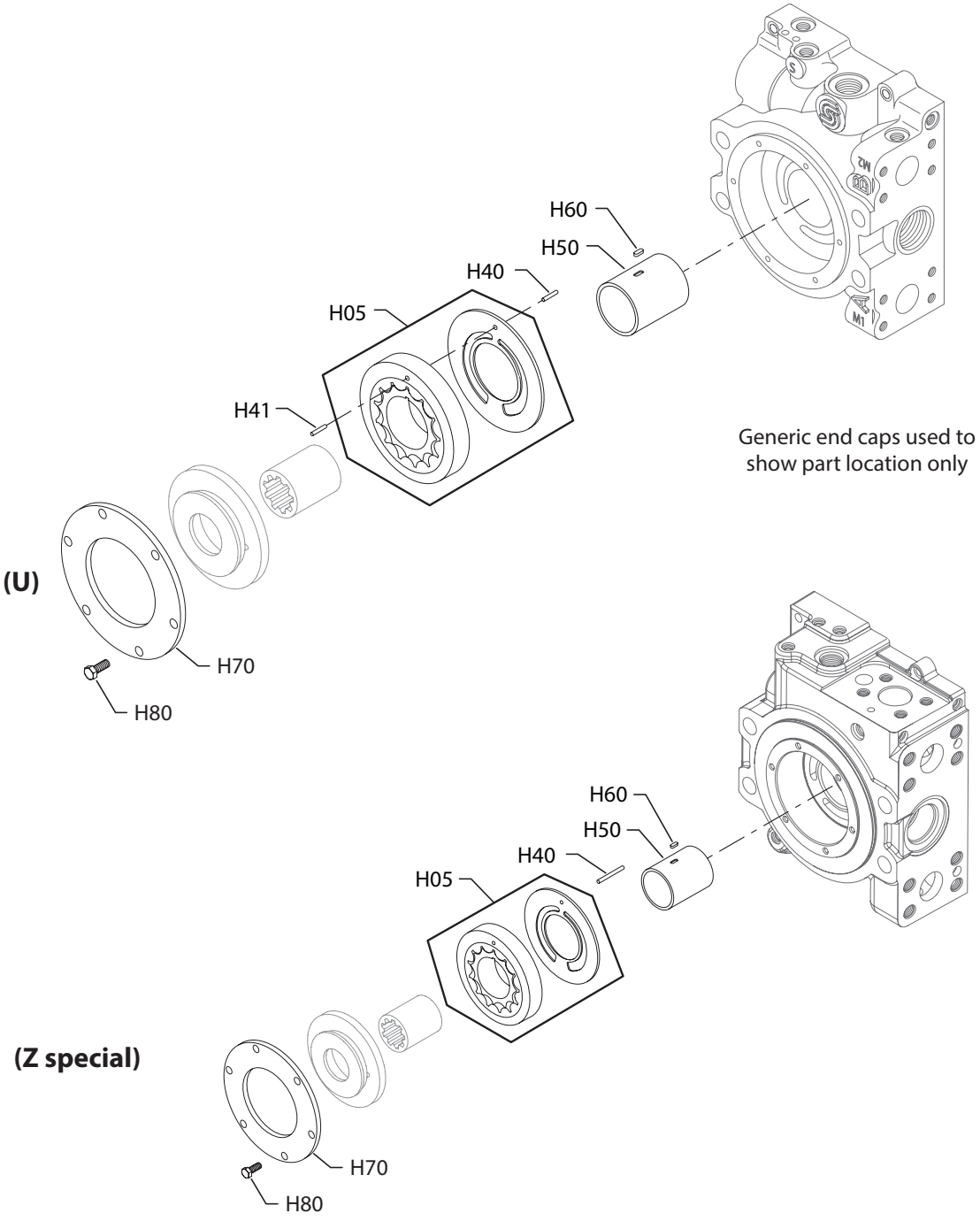
### Charging system

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| F | H05 | 04-49 | | 8200240 | Charge pump set, 26 cc | 1 |
| (special*) | H40 | 04-49 | | 9004800-1224 | Pin | 1 |
| | H50 | 04-49 | | 8801178 | Charge pump shaft | 1 |
| | H60 | 04-49 | | 9003310-1208 | Key | 1 |
| | H70 | 04-49 | | 516761 | Retaining plate | 1 |
| | H80 | 04-49 | | 648451 | Screw | 6 |

* Used with 8E, 8F, 8J, 8K or 8N end cap option only.

| | | | | | | |
|---|---|---|---|---|---|---|
| F | H05 | 93-34 | | 501405 | Charge pump set, 26 cc (SB-1994-025) | 1 |
| | H40 | 89-41 | | 11152774 | Pin | 1 |
| | H41 | 89-41 | | 11152774 | Pin | 1 |
| | H50 | 93-34 | | 11138379 | Charge pump shaft (SB-1994-025) | 1 |
| | H60 | 89-41 | | 734608 | Key | 1 |
| | H70 | 89-41 | | 509361 | Retaining plate | 1 |
| | H80 | 89-41 | | 378083 (9007210-0804) | Screw | 6 |
| H | H05 | 93-34 | | 501406 | Charge pump, set 34 cc | 1 |
| | H40 | 89-41 | | 11152774 | Pin | 1 |
| | H41 | 89-41 | | 11152774 | Pin | 1 |
| | H50 | 93-34 | | 11138379 | Charge pump shaft (SB-1994-025) | 1 |
| | H60 | 89-41 | | 734608 | Key | 1 |
| | H70 | 89-41 | | 509361 | Retaining plate | 1 |
| | H80 | 89-41 | | 378083 (9007210-0804) | Screw | 6 |
| L | H25 | 89-41 | | 11077719 | Charge pump spacer | 1 |
| | H40 | 89-41 | | 11152774 | Pin | 1 |
| | H41 | 89-41 | | 11152774 | Pin | 1 |
| | H50 | 93-34 | | 11138379 | Charge pump shaft | 1 |
| | H70 | 89-41 | | 509361 | Retaining plate | 1 |
| | H80 | 89-41 | | 378083 (9007210-0804) | Screw | 6 |
| | H90 | 89-41 | | 676734 (9005110-9500) | Plug assembly | 1 |
| N | H25 | 93-29 | | 11077719 | Charge pump spacer | 1 |
| | H40 | 89-41 | | 11152774 | Pin | 1 |
| | H41 | 89-41 | | 11152774 | Pin | 1 |
| | H70 | 93-29 | | 509361 | Retaining plate | 1 |
| | H80 | 93-29 | | 378083 (9007210-0804) | Screw | 6 |
| | H90 | 93-29 | | 676734 (9005110-9500) | Plug assembly | 1 |
| R | H05 | 95-03 | | 503758 | Charge pump, set 41 cc | 1 |
| | H40 | 95-03 | | 504558 | Pin | 1 |
| | H50 | 95-03 | | 11138378 | Charge pump shaft | 1 |
| | H60 | 95-03 | | 734608 | Key | 1 |
| | H70 | 95-03 | | 509361 | Retaining plate | 1 |
| | H80 | 95-03 | | 378083 (9007210-0804) | Screw | 6 |

## Variable displacement pump




E103 434E

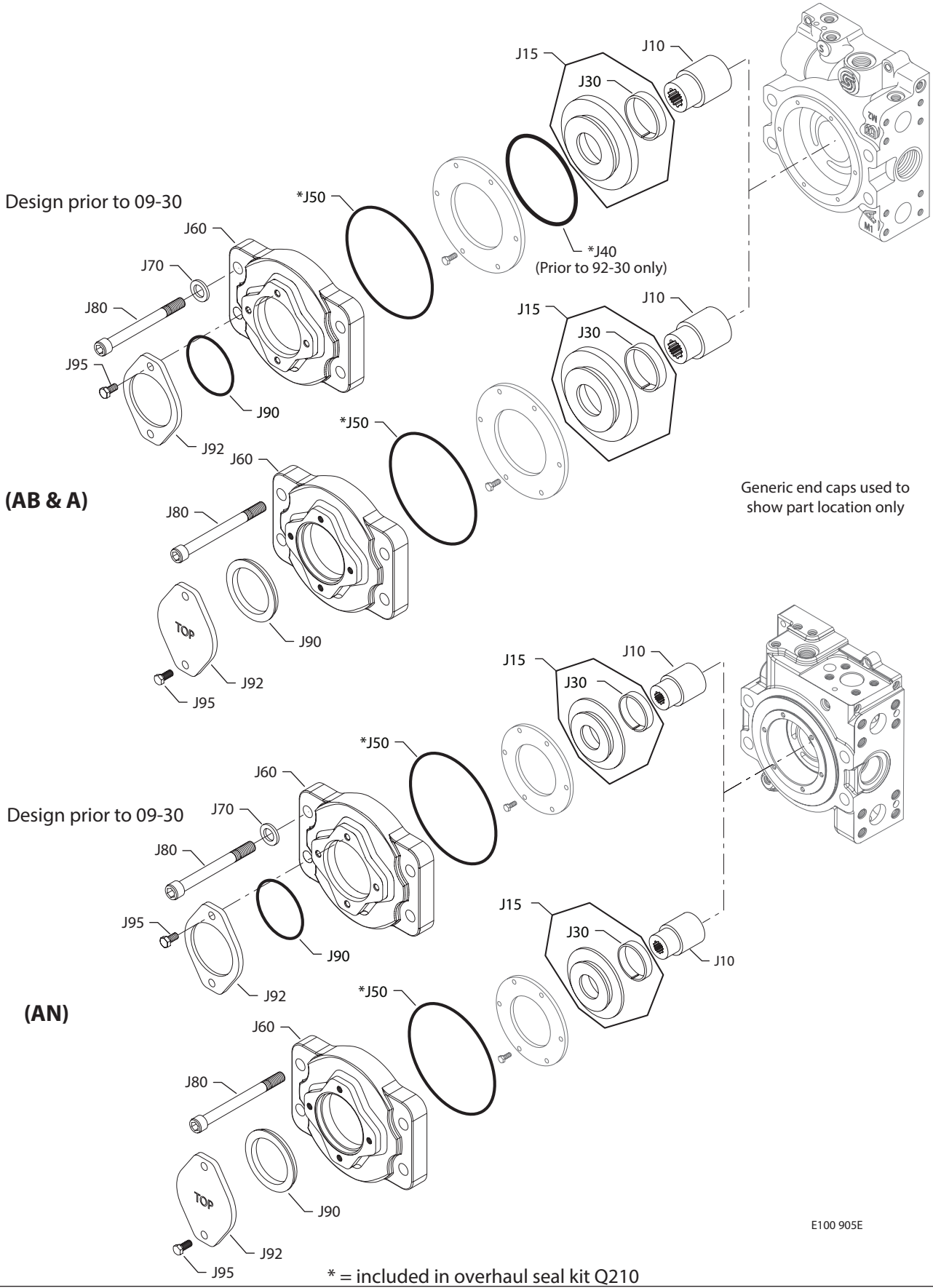
## Variable displacement pump

### Charging system

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| U | H05 | 96-02 | | 509579 | Charge pump, set 30 cc | 1 |
| | H40 | 89-41 | | 11152774 | Pin | 1 |
| | H41 | 89-41 | | 11152774 | Pin | 1 |
| | H50 | 96-02 | | 11138379 | Charge pump shaft | 1 |
| | H60 | 96-02 | | 734608 | Key | 1 |
| | H70 | 96-02 | | 509361 | Retaining plate | 1 |
| | H80 | 96-02 | | 378083 (9007210-0804) | Screw | 6 |
| | | | | | | |
| Z | H05 | 04-49 | | 8200240 | Charge pump set, 26 cc | 1 |
| (special*) | H40 | 04-49 | | 9004800-1224 | Pin | 1 |
| | H50 | 04-49 | | 8801178 | Charge pump shaft | 1 |
| | H60 | 04-49 | | 9003310-1208 | Key | 1 |
| | H70 | 04-49 | | 516761 | Retaining plate | 1 |
| | H80 | 04-49 | | 648451 | Screw | 6 |

* Used with 8E, 8F, 8J, 8K or 8N end cap option only.

## Variable displacement pump




E100 905E

* = included in overhaul seal kit Q210

## Variable displacement pump

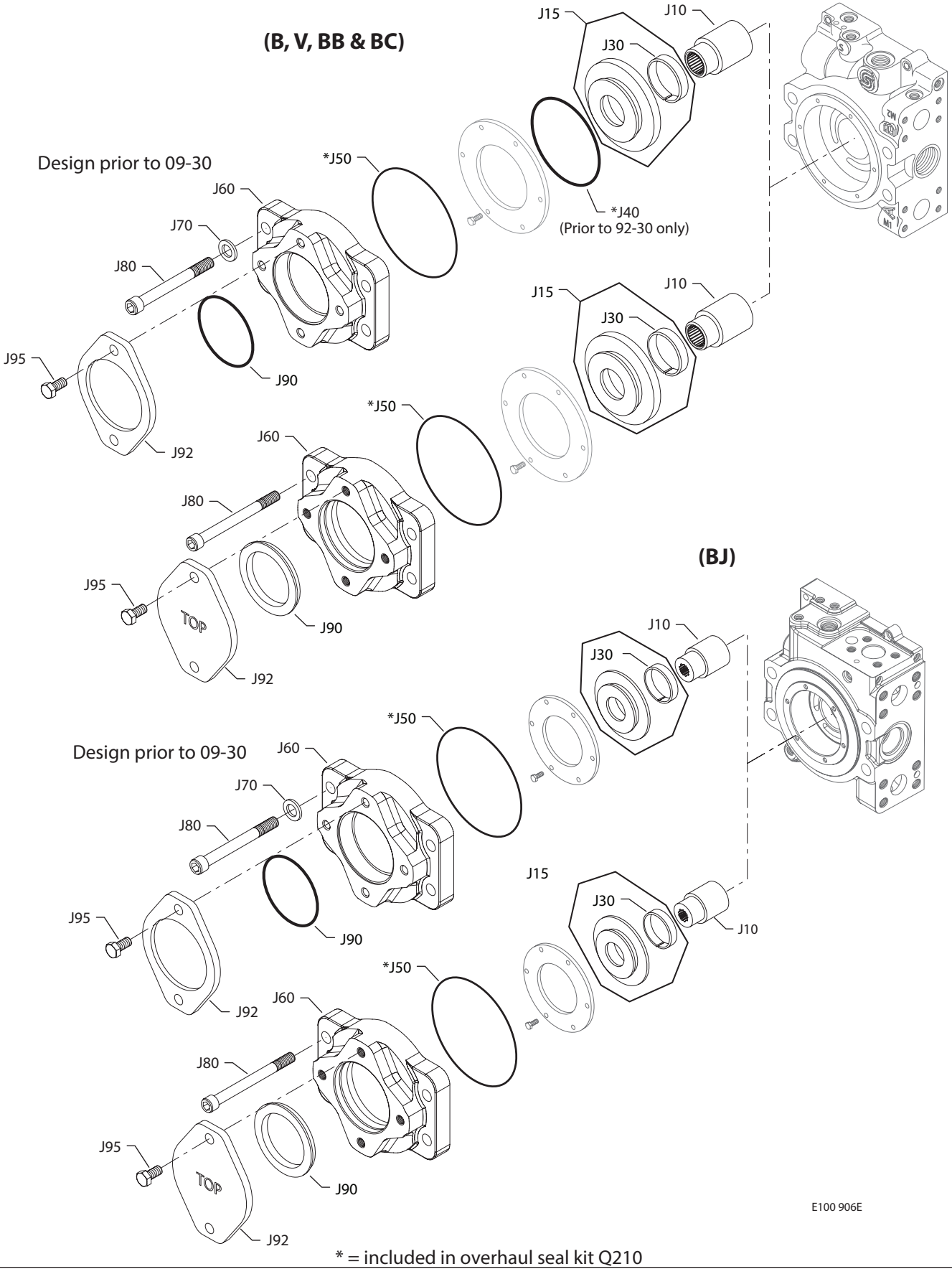
### Auxiliary mounting

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| AB & A | J10 | 89-41 | | 11053288 | Coupling, 9 tooth | 1 |
| | J15 | 89-41 | | 501402 | Cover assembly, CW (SB-1994-025*) | 1 |
| | J15 | 89-41 | | 501401 | Cover assembly, CCW (SB-1994-025*) | 1 |
| | J30 | 89-41 | | 303651 | Bushing | 1 |
| | J40 | 89-41 | 92-29 | 354324 | O-ring | 1 |
| | J50 | 89-41 | | 505068 | O-ring | 1 |
| | J60 | 09-30 | | 520946 | Flange adaptor, SAE A | 1 |
| | J60 | 89-41 | 09-29 | 505113 | Flange adaptor, SAE A (SB-2009-074) | 1 |
| | J70 | 89-41 | 09-29 | 664920 (9009625-0132) | Washer (SB-2009-074) | 4 |
| | J80 | 89-41 | | 338798 (9007314-1625) | Screw, M16 x 160 | 4 |
| | J90 | 09-30 | | 4800482 | A pad seal | 1 |
| | J90 | 89-41 | 09-29 | 726950 (9004104-0420) | O-ring (SB-2009-074) | 1 |
| | J92 | 09-30 | | 4460586 | Cover plate | 1 |
| | J92 | 89-41 | 09-29 | 9802336 | Cover plate (SB-2009-074) | 1 |
| | J95 | 89-41 | | 9007200-3714 | Screw | 2 |

* New style covers are interchangeable with either charge pump design

| | | | | | | |
|---|---|---|---|---|---|---|
| AN | J10 | 03-07 | | 8100147 | Coupling, 9 tooth | 1 |
| | J15 | 03-07 | | 8800832 | Cover assembly, CW | 1 |
| | J30 | 03-07 | | 664771 (8700008) | Bushing | 1 |
| | J50 | 03-07 | | 505068 | O-ring | 1 |
| | J60 | 09-30 | | 520946 | Flange adaptor, SAE A | 1 |
| | J60 | 89-41 | 09-29 | 505113 | Flange adaptor, SAE A (SB-2009-074) | 1 |
| | J70 | 89-41 | 09-29 | 664920 (9009625-0132) | Washer (SB-2009-074) | 4 |
| | J80 | 03-07 | | 338798 (9007314-1625) | Screw, M16 x 160 | 4 |
| | J90 | 09-30 | | 4800482 | A pad seal | 1 |
| | J90 | 89-41 | 09-29 | 726950 (9004104-0420) | O-ring (SB-2009-074) | 1 |
| | J92 | 09-30 | | 4460586 | Cover plate | 1 |
| | J92 | 89-41 | 09-29 | 9802336 | Cover plate (SB-2009-074) | 1 |
| | J95 | 89-41 | | 9007200-3714 | Screw | 2 |

## Variable displacement pump




* = included in overhaul seal kit Q210

## Variable displacement pump

### Auxiliary mounting

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| BB & V | J10 | 89-41 | | 11053285 | Coupling, 15 tooth | 1 |
| | J15 | 89-41 | | 501402 | Cover assembly, CW (SB-1994-025*) | 1 |
| | J15 | 89-41 | | 501401 | Cover assembly, CCW (SB-1994-025*) | 1 |
| | J30 | 89-41 | | 303651 | Bushing | 1 |
| | J40 | 89-41 | 92-29 | 354324 | O-ring | 1 |
| | J50 | 89-41 | | 505068 | O-ring | 1 |
| | J60 | 09-30 | | 520947 | Flange adaptor, SAE B | 1 |
| | J60 | 89-41 | 09-29 | 503230 | Flange adaptor, SAE B (SB-2009-075) | 1 |
| | J70 | 89-41 | 09-29 | 664920 (9009625-0132) | Washer (SB-2009-075) | 4 |
| | J80 | 89-41 | | 338798 (9007314-1625) | Screw, M16 x 160 | 4 |
| | J90 | 09-30 | | 8801061 | B pad seal | 1 |
| | J90 | 89-41 | 09-29 | 726935 (9004104-0450) | O-ring (SB-2009-075) | 1 |
| | J92 | 09-30 | | 8801059 | Cover plate | 1 |
| | J92 | 89-41 | 09-29 | 4460370 | Cover plate (SB-2009-075) | 1 |
| | J95 | 89-41 | | 9007200-5021 | Screw | 2 |

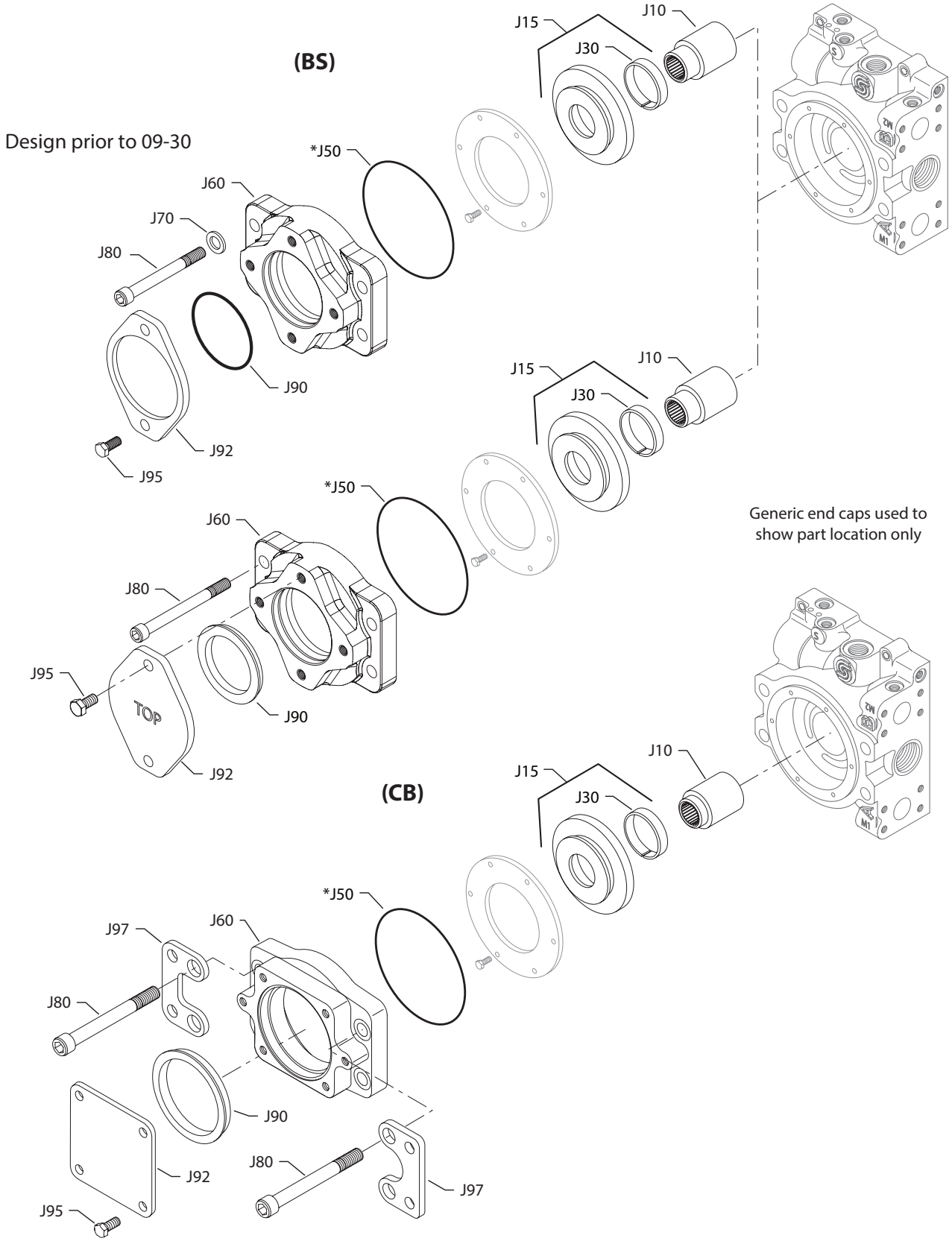
* New style covers are interchangeable with either charge pump design

| | | | | | | |
|---|---|---|---|---|---|---|
| BC & B | J10 | 89-41 | | 11053282 | Coupling, 13 tooth | 1 |
| | J15 | 89-41 | | 501402 | Cover assembly, CW (SB-1994-025*) | 1 |
| | J15 | 89-41 | | 501401 | Cover assembly, CCW (SB-1994-025*) | 1 |
| | J30 | 89-41 | | 303651 | Bushing | 1 |
| | J40 | 89-41 | 92-29 | 354324 | O-ring | 1 |
| | J50 | 89-41 | | 505068 | O-ring | 1 |
| | J60 | 09-30 | | 520947 | Flange adaptor, SAE B | 1 |
| | J60 | 89-41 | 09-29 | 503230 | Flange adaptor, SAE B (SB-2009-075) | 1 |
| | J70 | 89-41 | 09-29 | 664920 (9009625-0132) | Washer (SB-2009-075) | 4 |
| | J80 | 89-41 | | 338798 (9007314-1625) | Screw, M16 x 160 | 4 |
| | J90 | 09-30 | | 8801061 | B pad seal | 1 |
| | J90 | 89-41 | 09-29 | 726935 (9004104-0450) | O-ring (SB-2009-075) | 1 |
| | J92 | 09-30 | | 8801059 | Cover plate | 1 |
| | J92 | 89-41 | 09-29 | 4460370 | Cover plate (SB-2009-075) | 1 |
| | J95 | 89-41 | | 9007200-5021 | Screw | 2 |

* New style covers are interchangeable with either charge pump design

| | | | | | | |
|---|---|---|---|---|---|---|
| BJ | J10 | 05-01 | | 8100148 | Coupling, 13 tooth | 1 |
| | J15 | 05-01 | | 8800832 | Cover assembly, CW | 1 |
| | J15 | 05-01 | | 8800833 | Cover assembly, CCW | 1 |
| | J30 | 05-01 | | 664771 (8700008) | Bushing | 1 |
| | J50 | 05-01 | | 505068 | O-ring | 1 |
| | J60 | 09-29 | | 11039180 | Flange adaptor, SAE B | 1 |
| | J60 | 05-01 | 09-29 | 503230 | Flange adaptor, SAE B (SB-2009-075) | 1 |
| | J70 | 05-01 | 09-29 | 664920 (9009625-0132) | Washer (SB-2009-075) | 4 |
| | J80 | 05-01 | | 338798 (9007314-1625) | Screw, M16 x 160 | 4 |
| | J90 | 09-30 | | 8801061 | B pad seal | 1 |
| | J90 | 89-41 | 09-29 | 726935 (9004104-0450) | O-ring (SB-2009-075) | 1 |
| | J92 | 09-30 | | 8801059 | Cover plate | 1 |
| | J92 | 05-01 | 09-29 | 4460370 | Cover plate (SB-2009-075) | 1 |
| | J95 | 05-01 | | 544478 (9007200-5016) | Screw | 2 |

## Variable displacement pump




E101 830E

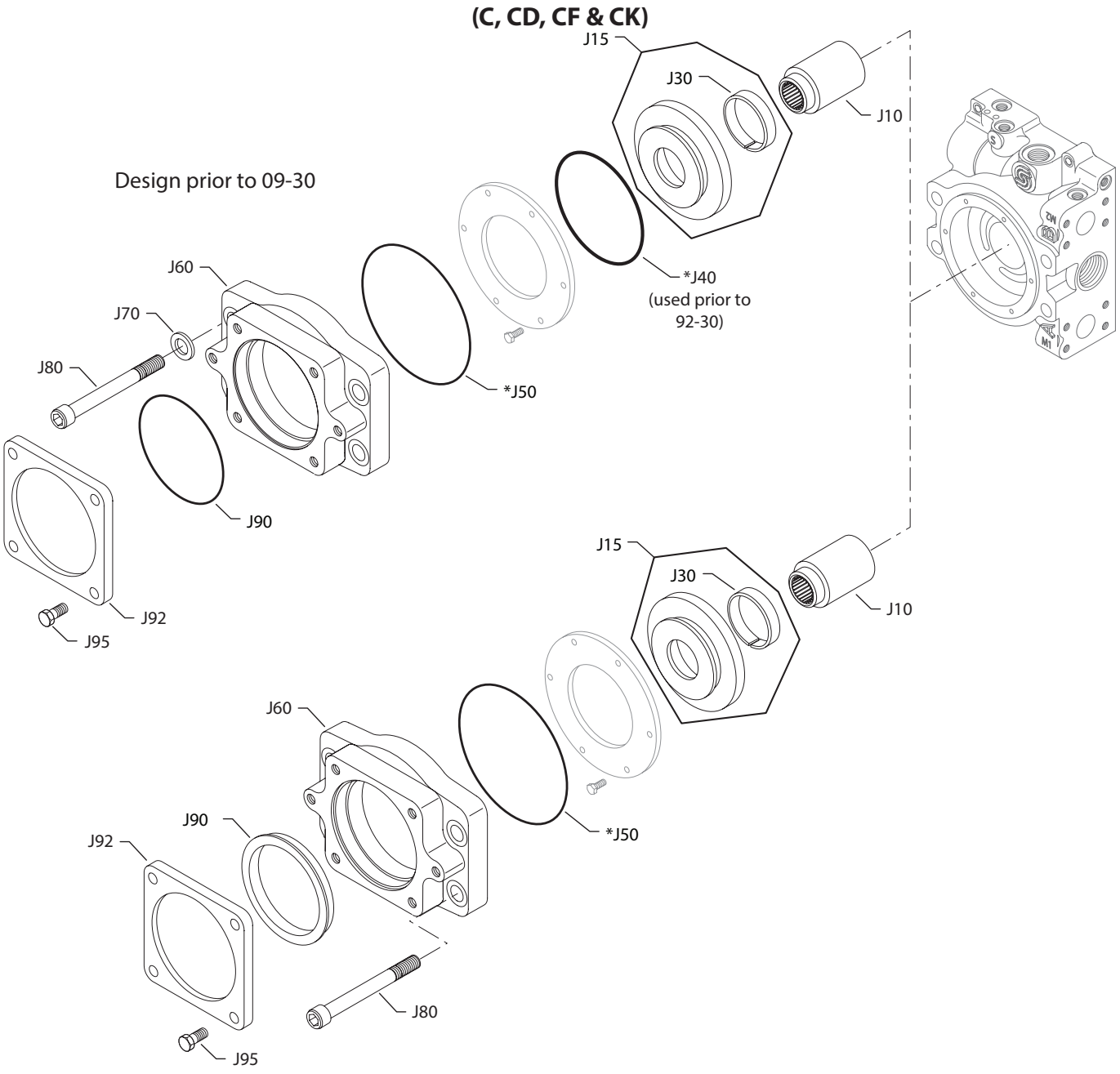
* = included in overhaul seal kit Q210

## Variable displacement pump

### Auxiliary mounting

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| BS | J10 | 06-13 | | 11053282 | Coupling, 13 tooth | 1 |
| | J15 | 06-13 | | 11002217 | Cover assembly, CCW | 1 |
| | J30 | 06-13 | | 303651 | Bushing | 1 |
| | J50 | 06-13 | | 505068 | O-ring | 1 |
| | J60 | 09-30 | | 520947 | Flange adaptor, SAE B | 1 |
| | J60 | 06-13 | 09-29 | 503230 | Flange adaptor, SAE B (SB-2009-075) | 1 |
| | J70 | 06-13 | 09-29 | 664920 (9009625-0132) | Washer (SB-2009-075) | 4 |
| | J80 | 06-13 | | 338798 (9007314-1625) | Screw, M16 x 160 | 4 |
| | J90 | 09-30 | | 8801061 | B pad seal | 1 |
| | J90 | 06-13 | 09-29 | 726935 (9004104-0450) | O-ring (SB-2009-075) | 1 |
| | J92 | 09-30 | | 8801059 | Cover plate | 1 |
| | J92 | 06-13 | 09-29 | 4460370 | Cover plate (SB-2009-075) | 1 |
| | J95 | 06-13 | | 9007200-5021 | Screw | 2 |
| | | | | | | |
| CB | J10 | 03-38 | | 11053284 | Coupling, 14 tooth | 1 |
| | J15 | 03-38 | | 513832 | Cover assembly, CW | 1 |
| | J30 | 03-38 | | 303651 | Bushing | 1 |
| | J50 | 03-38 | | 505068 | O-ring | 1 |
| | J60 | 03-38 | | 513617 | Flange adaptor, SAE C | 1 |
| | J80 | 03-38 | | 338798 (9007314-1625) | Screw, M16 x 160 | 4 |
| | J90 | 03-38 | | 11081805 | C pad seal | 1 |
| | J92 | 03-38 | | 8801060 | Cover plate | 1 |
| | J95 | 03-38 | | 9007200-5021 | Screw | 4 |
| | J97 | 03-38 | | 519663 | Auxiliary mounting bracket | 2 |

## Variable displacement pump




E100 907E

* = included in overhaul seal kit Q210

## Variable displacement pump

### Auxiliary mounting

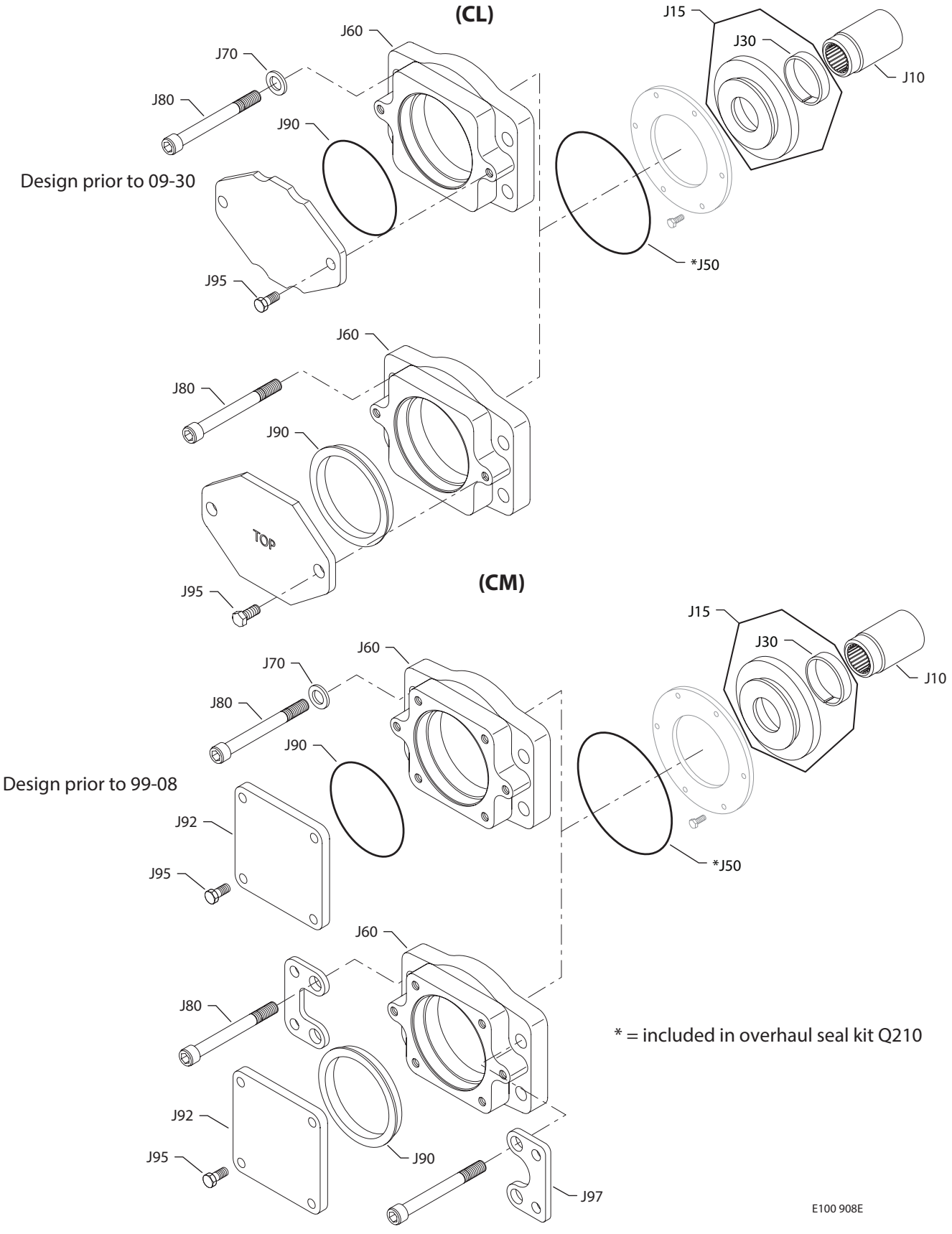
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| CD & C | J10 | 89-41 | | 11053284 | Coupling, 14 tooth | 1 |
| | J15 | 89-41 | | 501402 | Cover assembly, CW (SB-1994-025*) | 1 |
| | J15 | 89-41 | | 501401 | Cover assembly, CCW (SB-1994-025*) | 1 |
| | J30 | 89-41 | | 303651 | Bushing | 1 |
| | J40 | 89-41 | 92-29 | 354324 | O-ring | 1 |
| | J50 | 89-41 | | 505068 | O-ring | 1 |
| | J60 | 09-30 | | 513617 | Flange adaptor, SAE C | 1 |
| | J60 | 89-41 | 09-29 | 505116 | Flange adaptor, SAE C (SB-2009-076) | 1 |
| | J70 | 89-41 | 09-29 | 664920 (9009625-0132) | Washer (SB-2009-076) | 4 |
| | J80 | 89-41 | | 338798 (9007314-1625) | Screw, M16 x 160 | 4 |
| | J90 | 09-30 | | 11081805 | C pad seal | 1 |
| | J90 | 89-41 | 09-29 | 726943 (9004104-0490) | O-ring (SB-2009-076) | 1 |
| | J92 | 09-30 | | 8801060 | Cover plate | 1 |
| | J92 | 89-41 | 09-29 | 307363 | Cover plate (SB-2009-076) | 1 |
| | J95 | 89-41 | | 9007200-5021 | Screw | 4 |

* New style covers are interchangeable with either charge pump design

| | | | | | | |
|---|---|---|---|---|---|---|
| CF | J10 | 96-18 | | 705954 | Coupling, 21 tooth | 1 |
| | J15 | 96-18 | | 501402 | Cover assembly, CW | 1 |
| | J15 | 96-18 | | 501401 | Cover assembly, CCW | 1 |
| | J30 | 96-18 | | 303651 | Bushing | 1 |
| | J50 | 96-18 | | 505068 | O-ring | 1 |
| | J60 | 09-30 | | 513617 | Flange adaptor, SAE C | 1 |
| | J60 | 96-18 | 09-29 | 505116 | Flange adaptor, SAE C (SB-2009-076) | 1 |
| | J70 | 96-18 | 09-29 | 664920 (9009625-0132) | Washer (SB-2009-076) | 4 |
| | J80 | 96-18 | | 338798 (9007314-1625) | Screw, M16 x 160 | 4 |
| | J90 | 09-30 | | 11081805 | C pad seal | 1 |
| | J90 | 96-18 | 09-29 | 726943 (9004104-0490) | O-ring (SB-2009-076) | 1 |
| | J92 | 09-30 | | 8801060 | Cover plate | 1 |
| | J92 | 96-18 | 09-29 | 307363 | Cover plate (SB-2009-076) | 1 |
| | J95 | 96-18 | | 9007200-5021 | Screw | 4 |

| | | | | | | |
|---|---|---|---|---|---|---|
| CK | J10 | 96-18 | | 11053338 | Coupling, 25 tooth | 1 |
| | J15 | 96-18 | | 501402 | Cover assembly, CW | 1 |
| | J15 | 96-18 | | 501401 | Cover assembly, CCW | 1 |
| | J30 | 96-18 | | 303651 | Bushing | 1 |
| | J50 | 96-18 | | 505068 | O-ring | 1 |
| | J60 | 09-30 | | 513617 | Flange adaptor, SAE C | 1 |
| | J60 | 96-18 | 09-29 | 505116 | Flange adaptor, SAE C (SB-2009-076) | 1 |
| | J70 | 96-18 | 09-29 | 664920 (9009625-0132) | Washer (SB-2009-076) | 4 |
| | J80 | 96-18 | | 338798 (9007314-1625) | Screw, M16 x 160 | 4 |
| | J90 | 09-30 | | 11081805 | C pad seal | 1 |
| | J90 | 96-18 | 09-29 | 726943 (9004104-0490) | O-ring (SB-2009-076) | 1 |
| | J92 | 09-30 | | 8801060 | Cover plate | 1 |
| | J92 | 96-18 | 09-29 | 8800406 | Cover plate (SB-2009-076) | 1 |
| | J95 | 96-18 | | 9007200-5021 | Screw | 4 |

## Variable displacement pump




* = included in overhaul seal kit Q210

* = included in overhaul seal kit Q210

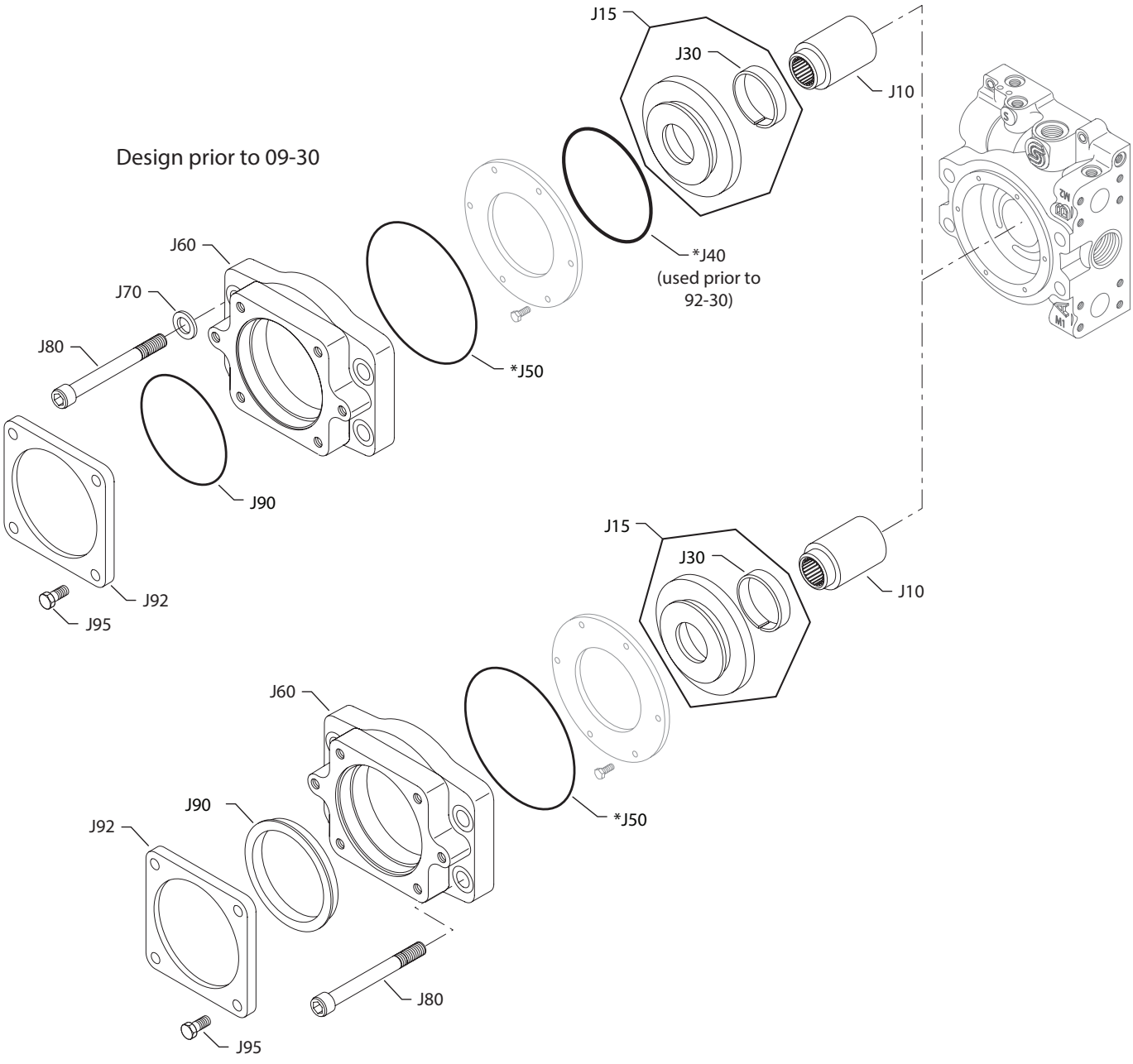
## Variable displacement pump

### Auxiliary mounting

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| CL | J10 | 96-18 | | 11053286 | Coupling, 17 tooth | 1 |
| | J15 | 96-18 | | 503399 | Cover assembly, CW | 1 |
| | J15 | 96-18 | | 503397 | Cover assembly, CCW | 1 |
| | J30 | 96-18 | | 303651 | Bushing | 1 |
| | J50 | 96-18 | | 505068 | O-ring | 1 |
| | J60 | 09-30 | | 11039184 | Flange adaptor, SAE C | 1 |
| | J60 | 96-18 | 09-29 | 508407 | Flange adaptor, SAE C (SB-2009-076) | 1 |
| | J70 | 96-18 | 09-29 | 664920 (9009625-0132) | Washer (SB-2009-076) | 4 |
| | J80 | 96-18 | | 338798 (9007314-1625) | Screw, M16 x 160 | 4 |
| | J90 | 09-30 | | 11081805 | C pad seal | 1 |
| | J90 | 96-18 | 09-29 | 726943 (9004104-0490) | O-ring (SB-2009-076) | 1 |
| | J92 | 09-30 | | 11048554 | Cover plate | 1 |
| | J92 | 96-18 | 09-29 | 350678 | Cover plate | 1 |
| | J95 | 96-18 | | 9007200-6222 | Screw | 2 |
| CM | J10 | 89-41 | | 705954 | Coupling, 21 tooth | 1 |
| | J15 | 89-41 | | 513832 | Cover assembly, CW | 1 |
| | J30 | 89-41 | | 303651 | Bushing | 1 |
| | J50 | 89-41 | | 505068 | O-ring | 1 |
| | J60 | 99-08 | | 513617 | Flange adaptor, SAE C | 1 |
| | J60 | 89-41 | 99-07 | 505116 | Flange adaptor, SAE C (SB-2009-076) | 1 |
| | J70 | 89-41 | 09-29 | 664920 (9009625-0132) | Washer (SB-2009-076) | 8 |
| | J80 | 94-49 | | 506389 | Screw, M16 x 170 | 4 |
| | J80 | 89-41 | 94-48 | 338798 (9007314-1625) | Screw, M16 x 160 | 4 |
| | J90 | 99-08 | | 11081805 | C pad seal | 1 |
| | J90 | 89-41 | 99-07 | 726943 (9004104-0490) | O-ring (SB-2009-076) | 1 |
| | J92 | 99-08 | | 8801060 | Cover plate | 1 |
| | J92 | 89-41 | 99-07 | 307363 | Cover plate | 1 |
| | J95 | 89-41 | | 9007200-5021 | Screw | 4 |
| | J97 | 94-49 | | 519663 | Auxiliary mounting bracket | 2 |

## Variable displacement pump

### (CS & CY)




E100 907E

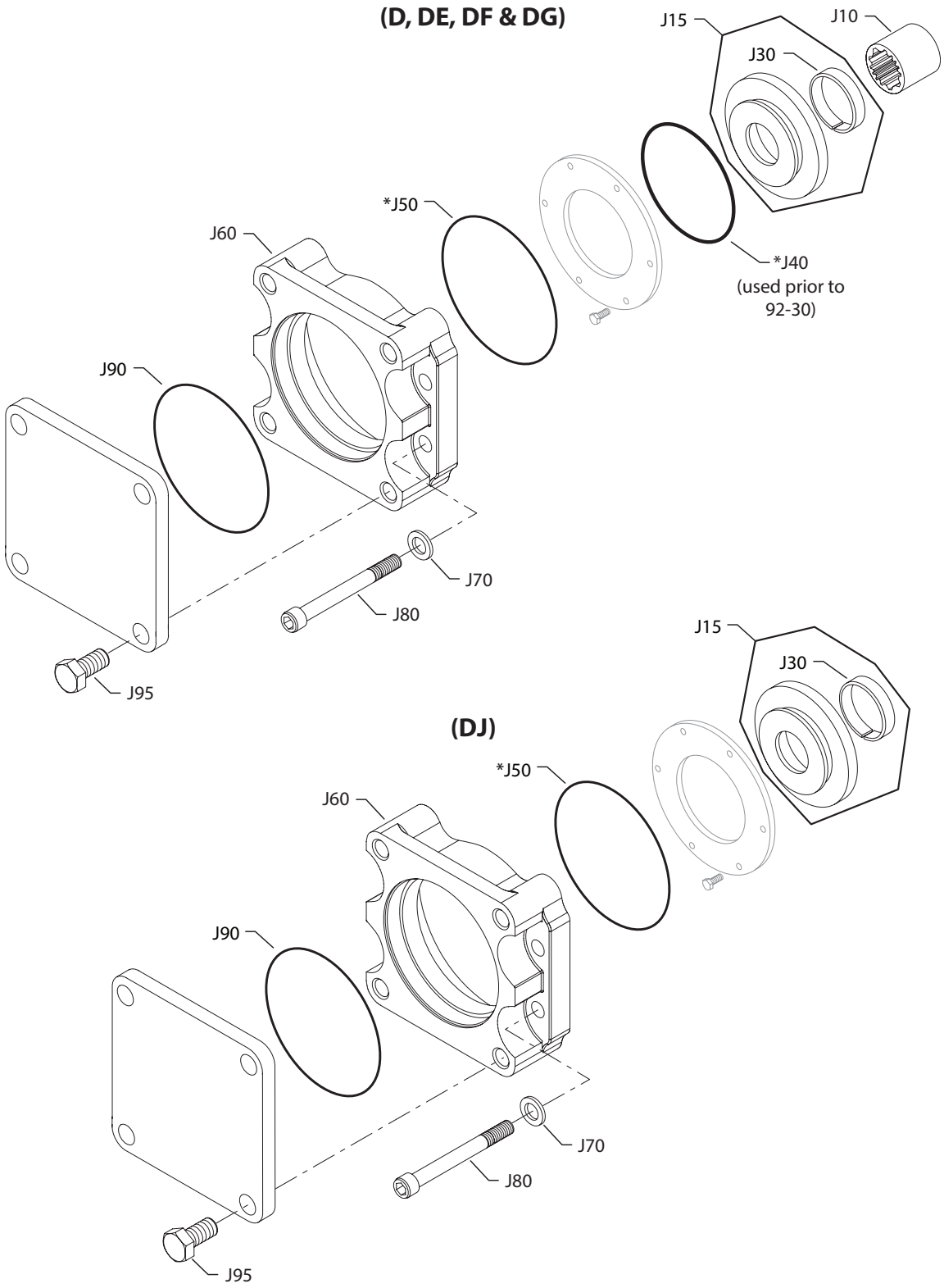
* = included in overhaul seal kit Q210

## Variable displacement pump

### Auxiliary mounting

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| CS | J10 | 96-18 | | 11053286 | Coupling, 17 tooth | 1 |
| | J15 | 96-18 | | 503399 | Cover assembly, CW | 1 |
| | J15 | 96-18 | | 503397 | Cover assembly, CCW | 1 |
| | J30 | 96-18 | | 303651 | Bushing | 1 |
| | J50 | 96-18 | | 505068 | O-ring | 1 |
| | J60 | 99-08 | | 513617 | Flange adaptor, SAE C | 1 |
| | J60 | 96-18 | 99-07 | 505116 | Flange adaptor, SAE C (SB-2009-076) | 1 |
| | J70 | 96-18 | 09-29 | 664920 (9009625-0132) | Washer (SB-2009-076) | 4 |
| | J80 | 96-18 | | 338798 (9007314-1625) | Screw, M16 x 160 | 4 |
| | J90 | 09-30 | | 11081805 | C pad seal | 1 |
| | J90 | 96-18 | 09-29 | 726943 (9004104-0490) | O-ring (SB-2009-076) | 1 |
| | J92 | 09-30 | | 8801060 | Cover plate | 1 |
| | J92 | 96-18 | 09-29 | 8800406 | Cover plate | 1 |
| | J95 | 96-18 | | 9007200-5021 | Screw | 4 |
| CY | J10 | 05-46 | | 11053286 | Coupling, 17 tooth | 1 |
| | J15 | 05-46 | | 11002215 | Cover assembly, CCW | 1 |
| | J30 | 05-46 | | 303651 | Bushing | 1 |
| | J50 | 05-46 | | 505068 | O-ring | 1 |
| | J60 | 05-46 | | 513617 | Flange adaptor, SAE C | 1 |
| | J70 | 05-46 | 09-29 | 664920 (9009625-0132) | Washer | 4 |
| | J80 | 05-46 | | 338798 (9007314-1625) | Screw, M16 x 160 | 4 |
| | J90 | 05-46 | | 11081805 | C pad seal | 1 |
| | J92 | 05-46 | | 8801060 | Cover plate | 1 |
| | J95 | 05-46 | | 9007200-5021 | Screw | 4 |

## Variable displacement pump




E100 909E

* = included in overhaul seal kit Q210

## Variable displacement pump

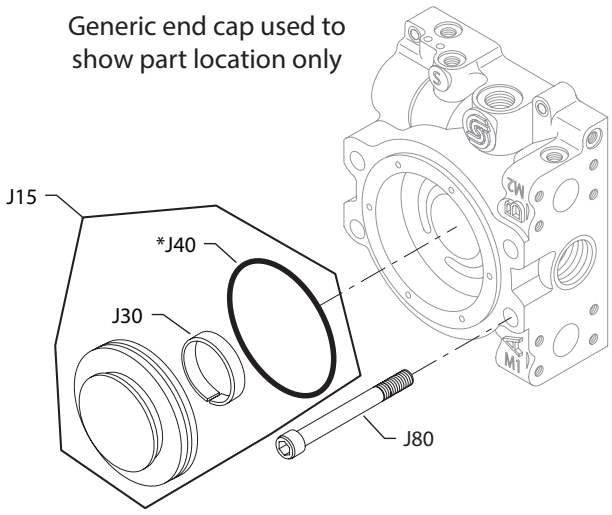
### Auxiliary mounting

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| D & DE | J10 | 89-41 | | 11053283 | Coupling, 13 tooth | 1 |
| | J15 | 89-41 | | 501402 | Cover assembly, CW | 1 |
| | J15 | 89-41 | | 501401 | Cover assembly, CCW | 1 |
| | J30 | 89-41 | | 303651 | Bushing | 1 |
| | J40 | 89-41 | 92-29 | 354324 | O-ring | 1 |
| | J50 | 89-41 | | 505068 | O-ring | 1 |
| | J60 | 89-41 | | 505118 | Flange adaptor, SAE D | 1 |
| | J70 | 89-41 | 12-39 | 664920 (9009625-0132) | Washer | 4 |
| | J80 | 89-41 | | 338798 (9007314-1625) | Screw, M16 x 160 | 4 |
| | J90 | 89-41 | | 726927 | O-ring | 1 |
| | J92 | 89-41 | | 338400 | Cover plate | 1 |
| | J95 | 89-41 | | 9007200-7524 | Screw | 4 |
| DF | J10 | 96-18 | | 11053283 | Coupling, 13 tooth | 1 |
| | J15 | 96-18 | | 513832 | Cover assembly, CW | 1 |
| | J15 | 96-18 | | 11002217 | Cover assembly, CCW | 1 |
| | J30 | 96-18 | | 303651 | Bushing | 1 |
| | J50 | 96-18 | | 505068 | O-ring | 1 |
| | J60 | 96-18 | | 505118 | Flange adaptor, SAE D | 1 |
| | J70 | 96-18 | 12-39 | 664920 (9009625-0132) | Washer | 4 |
| | J80 | 96-18 | | 338798 (9007314-1625) | Screw, M16 x 160 | 4 |
| | J90 | 96-18 | | 726927 | O-ring | 1 |
| | J92 | 96-18 | | 338400 | Cover plate | 1 |
| | J95 | 96-18 | | 9007200-7524 | Screw | 4 |
| DG | J10 | 96-18 | | 11053339 | Coupling, 27 tooth | 1 |
| | J15 | 96-18 | | 501402 | Cover assembly, CW | 1 |
| | J15 | 96-18 | | 501401 | Cover assembly, CCW | 1 |
| | J30 | 96-18 | | 303651 | Bushing | 1 |
| | J50 | 96-18 | | 505068 | O-ring | 1 |
| | J60 | 96-18 | | 505118 | Flange adaptor, SAE D | 1 |
| | J70 | 96-18 | 12-39 | 664920 (9009625-0132) | Washer | 4 |
| | J80 | 96-18 | | 338798 (9007314-1625) | Screw, M16 x 160 | 4 |
| | J90 | 96-18 | | 726927 | O-ring | 1 |
| | J92 | 96-18 | | 338400 | Cover plate | 1 |
| | J95 | 96-18 | | 9007200-7524 | Screw | 4 |
| DJ | J15 | 10-42 | | 503663 | Cover assembly, CW | 1 |
| | J15 | 10-42 | | 503666 | Cover assembly, CCW | 1 |
| | J30 | 10-42 | | 303651 | Bushing | 1 |
| | J50 | 10-42 | | 505068 | O-ring | 1 |
| | J60 | 10-42 | | 505118 | Flange adaptor, SAE D | 1 |
| | J70 | 10-42 | 12-39 | 664920 (9009625-0132) | Washer | 4 |
| | J80 | 10-42 | | 338798 (9007314-1625) | Screw, M16 x 160 | 4 |
| | J90 | 10-42 | | 726927 | O-ring | 1 |
| | J92 | 10-42 | | 338400 | Cover plate | 1 |
| | J95 | 10-42 | | 9007200-7524 | Screw | 4 |

## Variable displacement pump

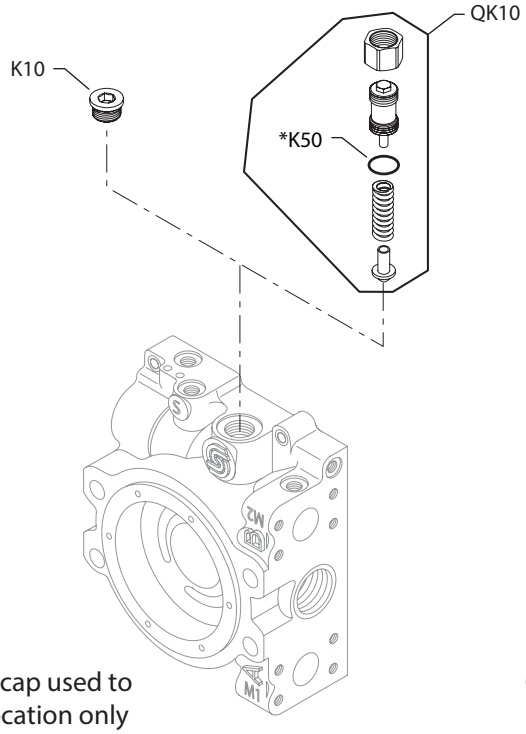
### (NN, NT & NV)

Generic end cap used to show part location only



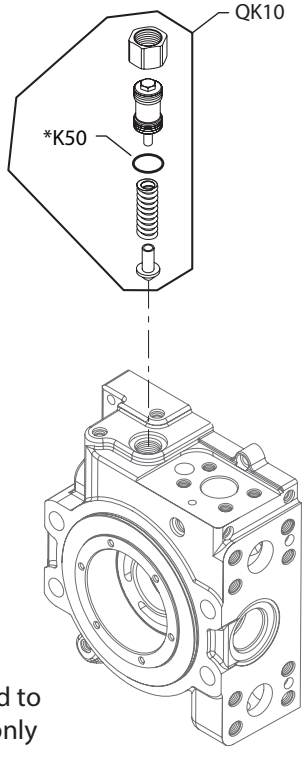

### (JD)

### (14-42)




Generic end cap used to show part location only

### (36 special)




Generic end cap used to show part location only

E100 910E

* = included in overhaul seal kit Q210

## Variable displacement pump

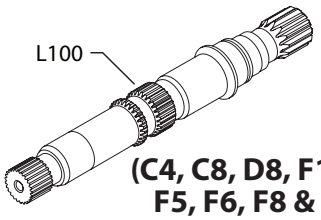
### Auxiliary mounting

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| NN | J15 | 89-41 | | 501400 | Cover assembly | 1 |
| | J30 | 89-41 | | 303651 | Bushing | 1 |
| | J40 | 89-41 | | 11147582 | O-ring | 1 |
| | J80 | 89-41 | | 518721 | Screw | 4 |
| NT | J15 | 96-18 | | 517450 | Cover assembly | 1 |
| | J30 | 96-18 | | 303651 | Bushing | 1 |
| | J40 | 96-18 | | 11147582 | O-ring | 1 |
| | J80 | 96-18 | | 518721 | Screw | 4 |
| NV | J15 | 03-08 | | 8800834 | Cover assembly | 1 |
| | J30 | 03-08 | | 664771 (8700008) | Bushing | 1 |
| | J40 | 03-08 | | 680892 (9004104-0440) | O-ring | 1 |
| | J80 | 03-08 | | 518721 | Screw | 4 |

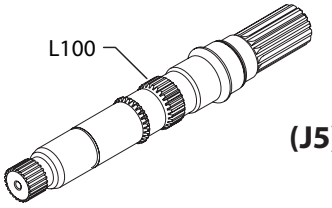
### Charge pressure relief

| | | | | | | |
|---|---|---|---|---|---|---|
| 14-32 | QK10 | 89-41 | | 8510272 | Charge relief valve kit, 14-32 bar | 1 |
| | K50 | 89-41 | | 001156 (9004201-7500) | O-ring | 1 |
| 34-42 | QK10 | 96-13 | | 8510390 | Charge relief valve kit, 34-42 bar | 1 |
| | K50 | 96-13 | | 001156 (9004201-7500) | O-ring | 1 |
| 36 special | QK10 | 96-13 | | 8510269 | Charge relief valve kit, 34-42 bar | 1 |
| | K50 | 96-13 | | 001149 (9004201-6200) | O-ring | 1 |
| JD | K10 | 96-13 | | 664524 (9005110-9000) | Plug assembly | 1 |
| XX | QK10 | 89-41 | | 8510272 | Charge relief valve kit, 18-32 bar | 1 |
| | K50 | 89-41 | | 001156 (9004201-7500) | O-ring | 1 |

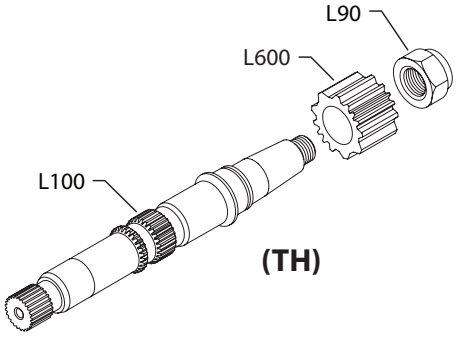
## Variable displacement pump



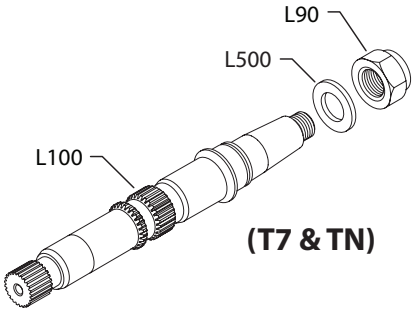

**(C4, C8, D8, F1, F4, F5, F6, F8 & S1)**



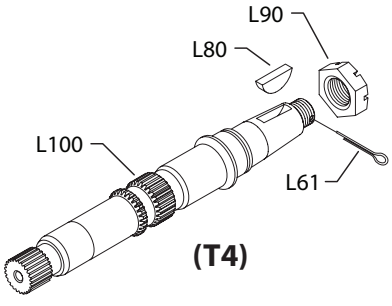

**(J5)**



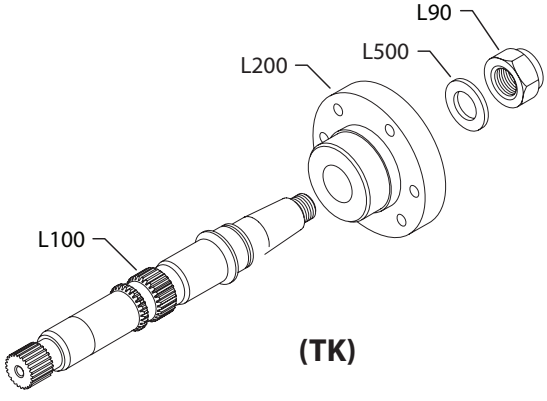

**(TH)**




**(T7 & TN)**




**(T4)**




**(TK)**

E100 924E

* = included in overhaul seal kit Q210

## Variable displacement pump

### Shaft

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| C4 | L100 | 03-08 | | 11031204 | Shaft, 27 tooth spline, 16/32, special* | 1 |

* Used with 8E, 8F, 8J, 8K or 8N end cap option only.

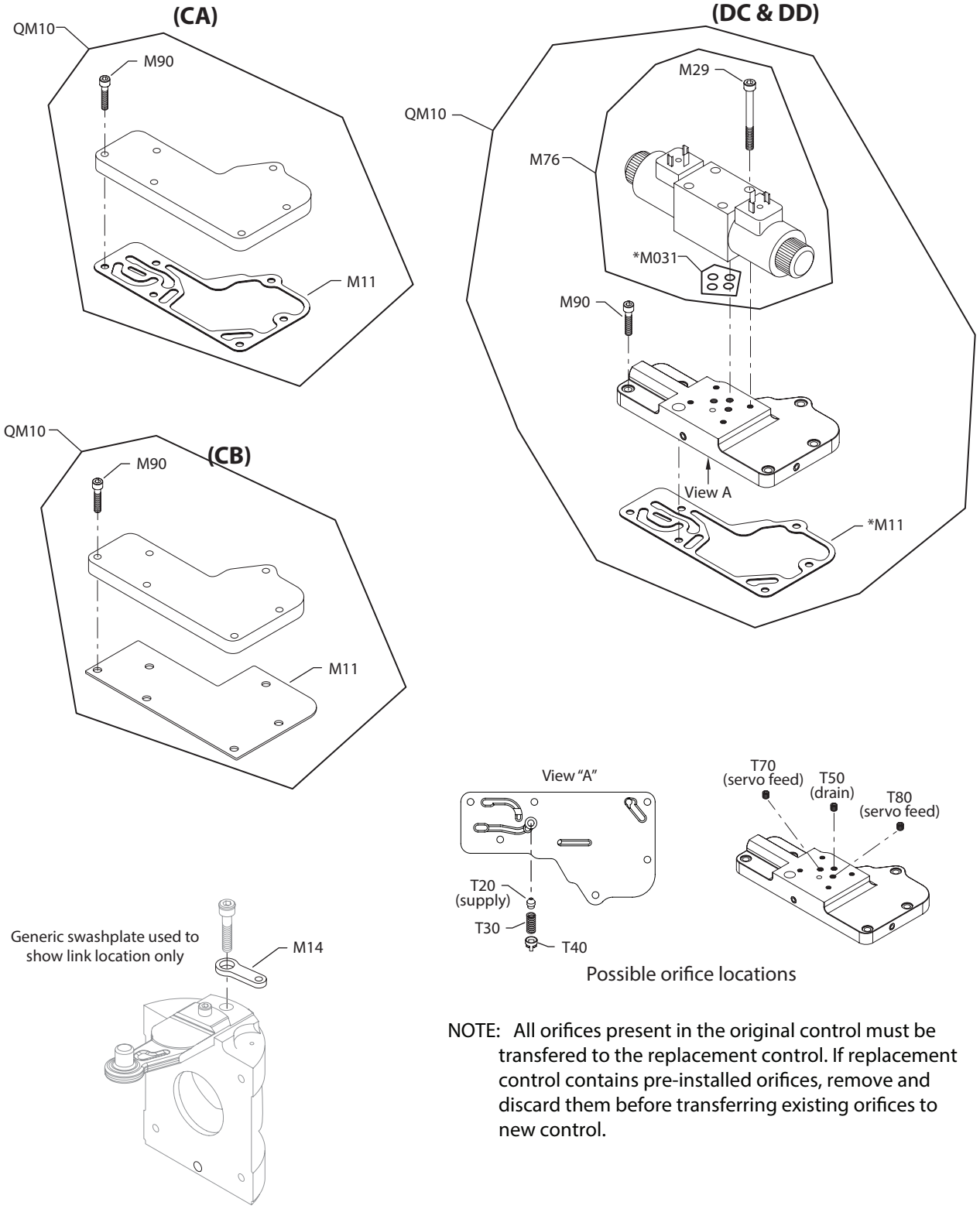
| | | | | | | |
|---|---|---|---|---|---|---|
| C8 | L100 | 89-46 | | 303495 | Shaft, 27 tooth spline, 16/32 | 1 |
| D8 | L100 | 89-46 | | 503443 | Shaft, 27 tooth spline, 16/32, M10 tapped thread | 1 |
| F1 | L100 | 89-46 | | 335695 | Shaft, 13 tooth spline, 8/16 | 1 |
| F4 | L100 | 96-45 | | 518465 | Shaft, 13 tooth spline, 8/16, special* | 1 |

* Used with 8E, 8F or 8J end cap option only.

| | | | | | | |
|---|---|---|---|---|---|---|
| F5 | L100 | 89-46 | | 518828 | Shaft, 13 tooth spline, 8/16, 5/8-11 tapped thread | 1 |
| F6 | L100 | 89-46 | | 11002449 | Shaft, 13 tooth spline, 8/16, special length | 1 |
| F8 | L100 | 89-46 | | 11031204 | Shaft, 27 tooth spline, 16/32 | 1 |
| J5 | L100 | 92-16 | | 506911 | Shaft, 13 tooth spline, 8/16, no relief | 1 |
| S1 | L100 | 14-25 | | 11153398 | Shaft, 14 tooth spline, 12/24 | 1 |
| T4 | L61 | 89-46 | | 551424 | Cotter pin | 1 |
| | L80 | 89-46 | | 9003326-0005 | Key | 1 |
| | L90 | 89-46 | | 9700189 | Slotted nut, 1.25-18 | 1 |
| | L100 | 89-46 | | 346601 | Shaft, 1.75" tapered | 1 |
| T7 | L90 | 98-19 | | 508784 | Self locking nut, M30 | 1 |
| | L100 | 98-19 | | 511619 | Shaft, 1.75" tapered, no keyway | 1 |
| | L500 | 98-19 | | 511628 | Washer | 1 |
| TH | L90 | 89-46 | | 508784 | Self locking nut, M30 | 1 |
| | L100 | 89-46 | | 508592 | Shaft, 1.75 tapered, no keyway | 1 |
| | L600 | 89-46 | | 510969 | Coupling | 1 |
| TK | L90 | 06-13 | | 508784 | Self locking nut, M30 | 1 |
| | L100 | 06-13 | | 511619 | Shaft, 1.75 tapered, no keyway | 1 |
| | L200 | 06-13 | | 511463 | Tapered flange | 1 |
| | L500 | 06-13 | | 511628 | Washer | 1 |
| TN | L90 | 06-29 | | 508784 | Self locking nut, M30 | 1 |
| | L100 | 06-29 | | 11010697 | Shaft, 1.75 tapered, no keyway, special* | 1 |
| | L500 | 06-29 | | 511628 | Washer | 1 |

* Used with 8E, 8F or 8J end cap option only.

## Variable displacement pump




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E100 716E

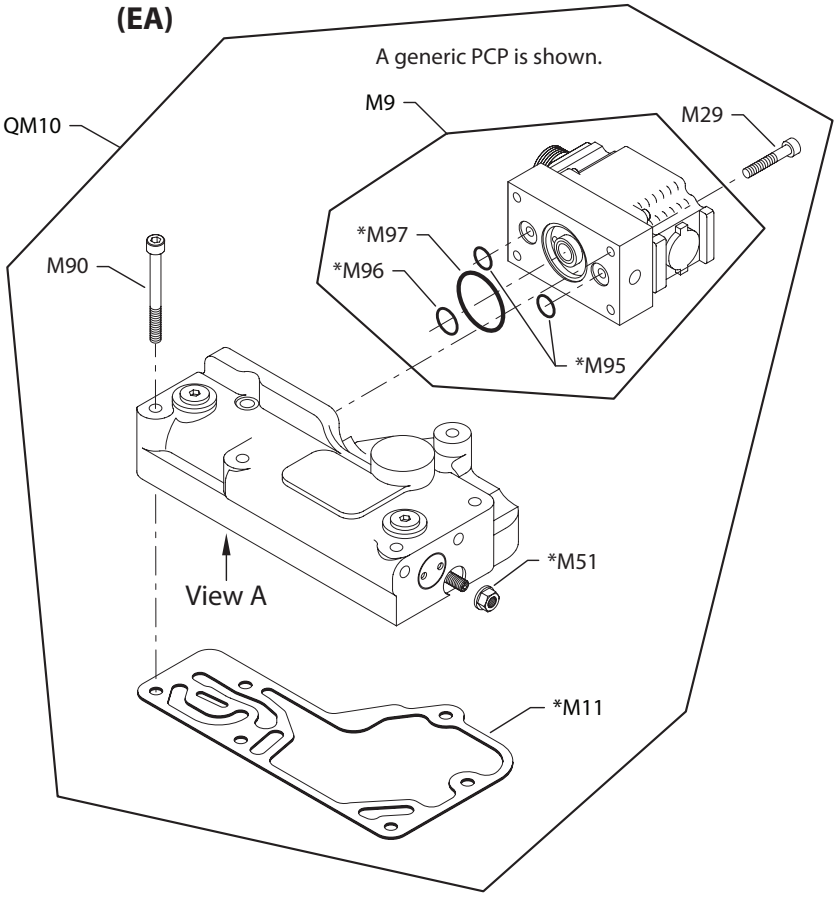
* = included in control seal kit QM210

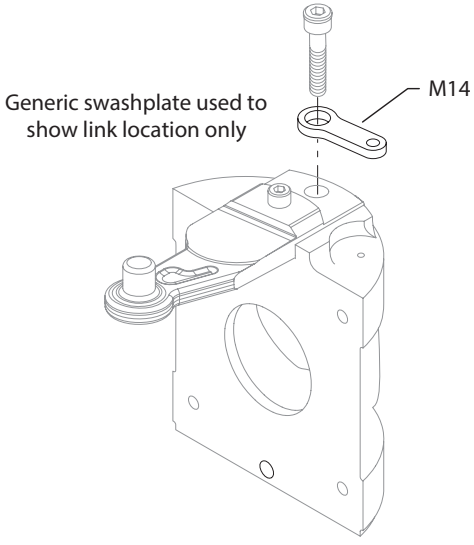
## Variable displacement pump

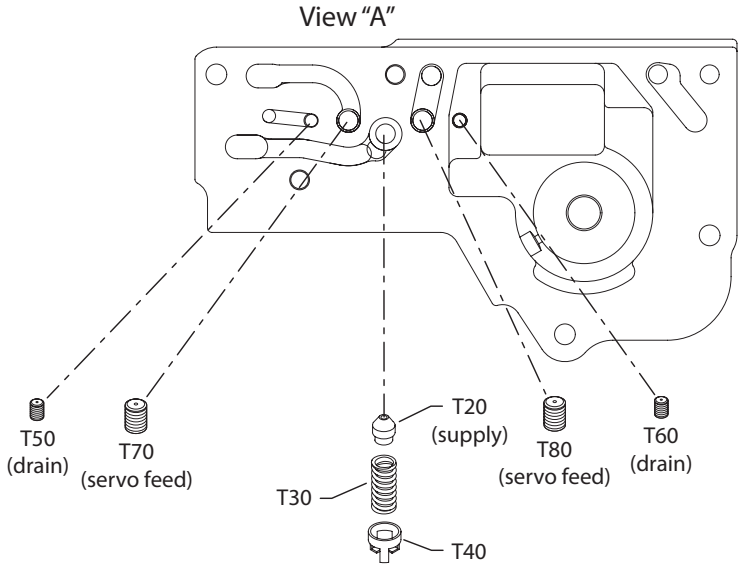
### Control

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| CA | M11 | 89-41 | | 8800923 | Control gasket | 1 |
| | M90 | 89-41 | | 693341 (9007314-0606) | Screw | 6 |
| | QM10 | 89-41 | | 8102M0CA-A | Control cover plate kit | 1 |
| CB | M11 | 89-41 | | 8800923 | Control gasket | 1 |
| | M14 | 89-41 | | 11070307 | Feedback link | 1 |
| | M90 | 89-41 | | 693341 (9007314-0606) | Screw | 6 |
| | QM10 | 89-41 | | 8102M0CA-A | Control cover plate kit | 1 |
| CF | M11 | 89-41 | | 509718 | Control gasket | 1 |
| | M14 | 89-41 | | 11070307 | Feedback link | 1 |
| | M90 | 89-41 | | 693341 (9007314-0606) | Screw | 6 |
| | QM10 | 89-41 | | 11097111 | Control cover plate kit | 1 |
| DC | M11 | 89-41 | | 8800923 | Control gasket | 1 |
| | M29 | 89-41 | | 035592 | Screw | 4 |
| | M76 | 89-41 | | 687103 | Valve assembly, 12 volt | 1 |
| | M90 | 89-41 | | 693341 (9007314-0606) | Screw | 6 |
| | QM031 | 89-41 | | 11099647 | Valve seal kit | 1 |
| | QM10 | 89-41 | | 8102M0DC-A | 3-position FNR control kit, 12 volt | 1 |
| | QM210 | 89-41 | | 11096172 | FNR control seal kit | 1 |
| DD | M11 | 89-41 | | 8800923 | Control gasket | 1 |
| | M29 | 89-41 | | 035592 | Screw | 4 |
| | M76 | 89-41 | | 549907/P | Valve assembly, 24 volt | 1 |
| | M90 | 89-41 | | 693341 (9007314-0606) | Screw | 6 |
| | QM031 | 89-41 | | 11099647 | Valve seal kit | 1 |
| | QM10 | 89-41 | | 8102M0DD-A | 3-position FNR control kit, 24 volt | 1 |
| | QM210 | 89-41 | | 11096172 | FNR control seal kit | 1 |

## Variable displacement pump




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E101 835E

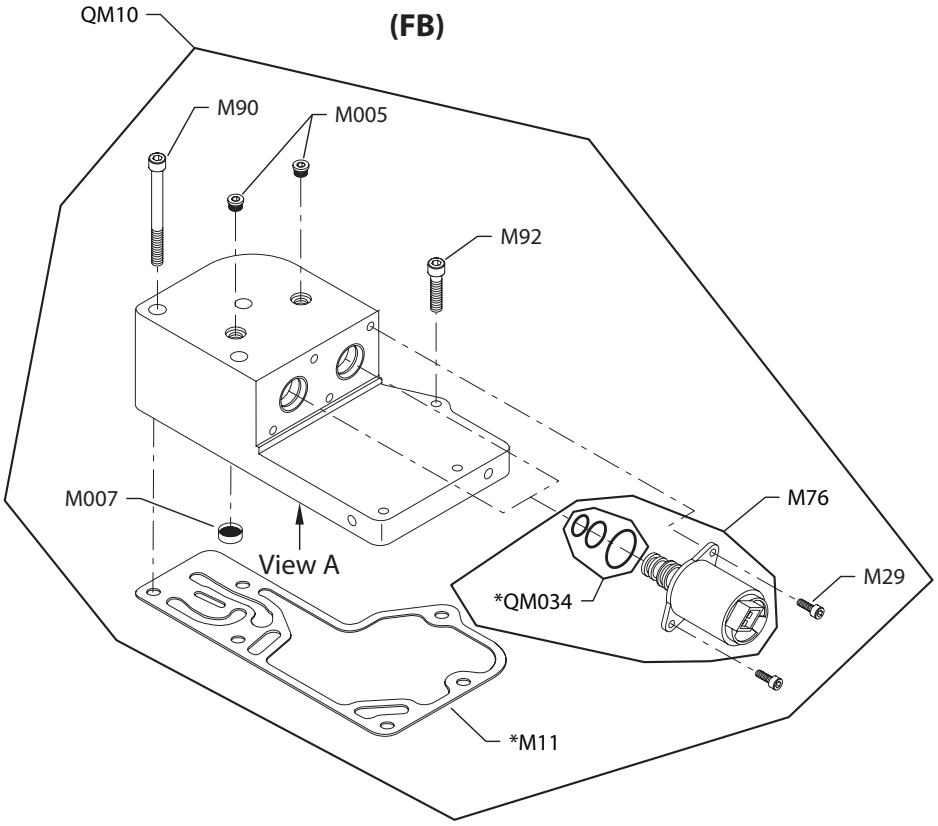
* = included in control seal kit QM210

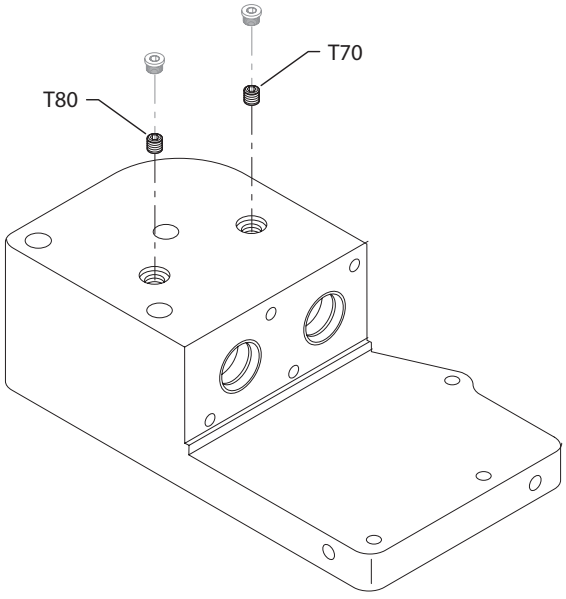
## Variable displacement pump

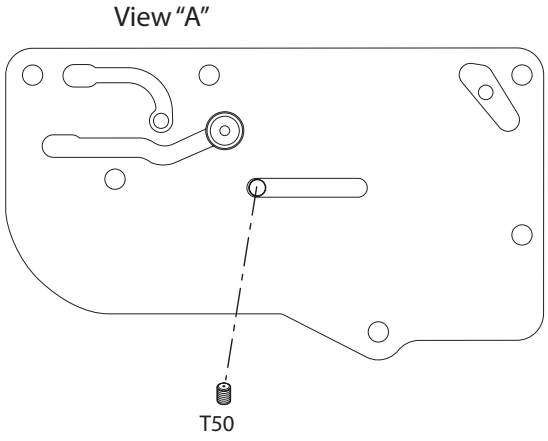
### Control

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| EA | M9 | 92-19 | | MCV110A1017 | PCP, MS connector | 1 |
| | M11 | 92-19 | | 8800923 | Control gasket | 1 |
| | M14 | 92-19 | | 11070307 | Feedback link | 1 |
| | M29 | 92-19 | | K07067 | Screw | 4 |
| | M51 | 92-19 | | 9003509-0008 | Seal nut | 1 |
| | M90 | 92-19 | | 692889 (9007314-0611) | Screw | 6 |
| | M95 | 92-19 | | 318337 (9004104-0120) | O-ring | 2 |
| | M96 | 92-19 | | 011304 (9004104-0140) | O-ring | 1 |
| | M97 | 92-19 | | 318345 (9004104-0240) | O-ring | 1 |
| | QM10 | 92-19 | | 8202M0EA-B | EDC1 kit, MS connector | 1 |
| | QM210 | 92-19 | | 11096174 | EDC1 seal kit | 1 |

## Variable displacement pump




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E101 836E

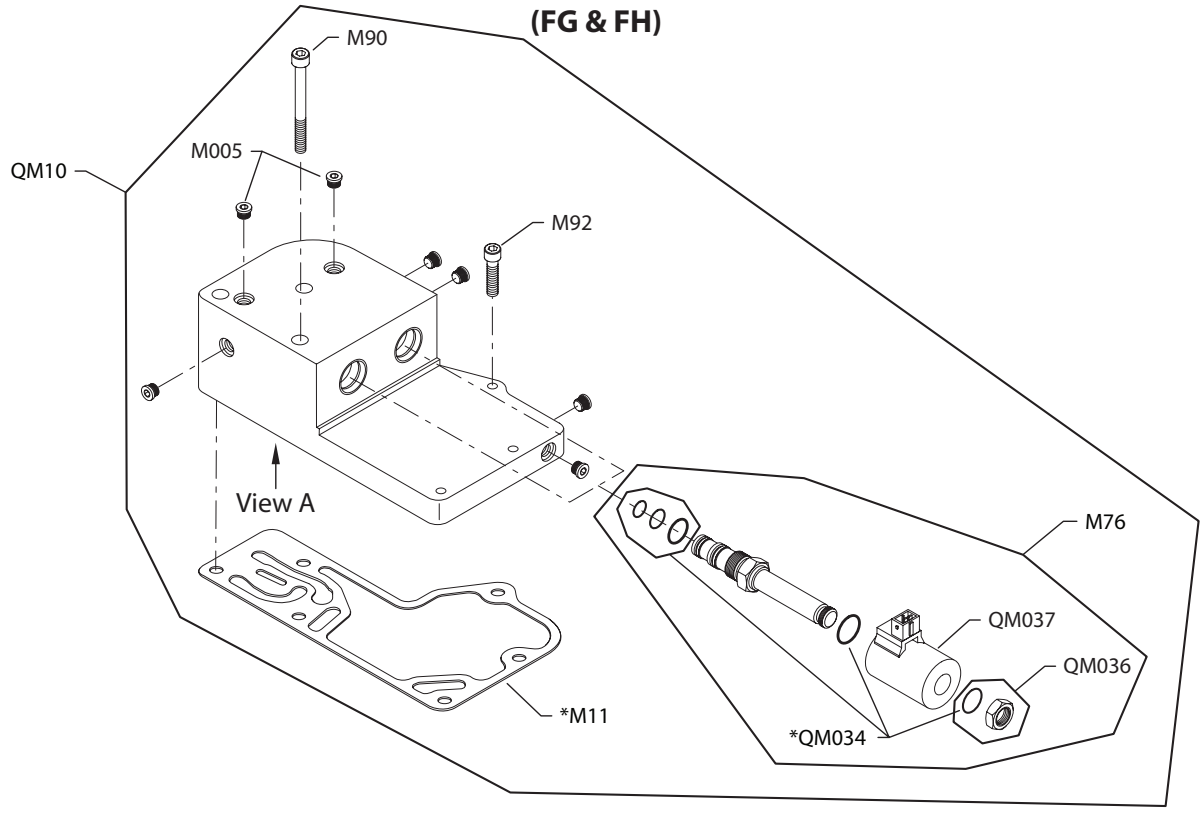
* = included in control seal kit QM210

## Variable displacement pump

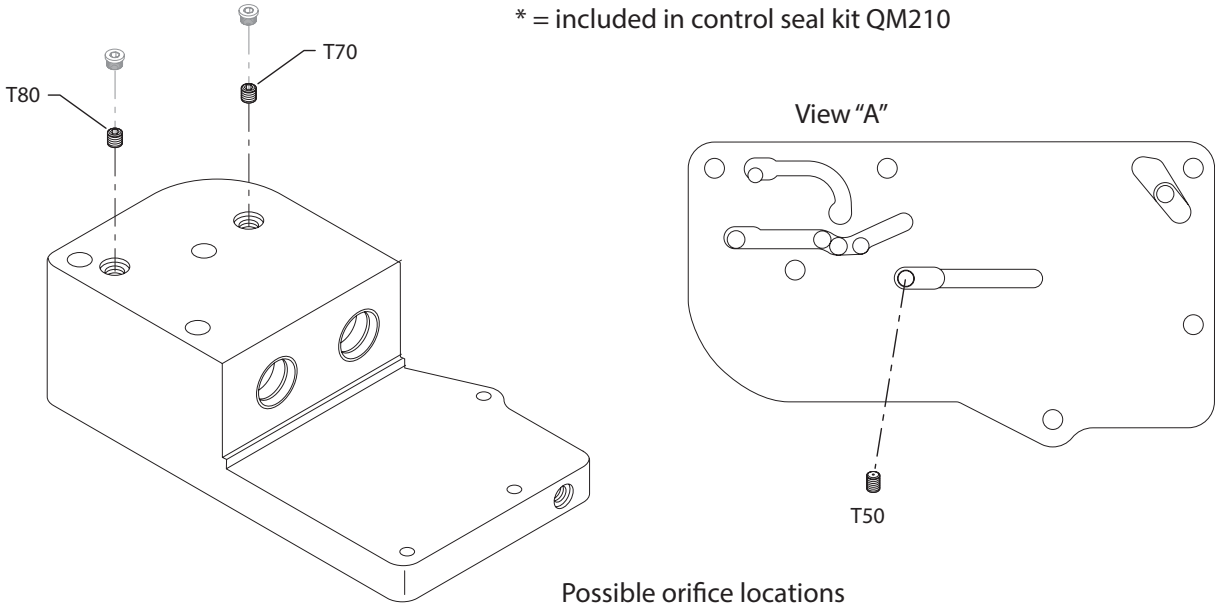
### Control

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| FB | M11 | 96-41 | | 8800923 | Control gasket | 1 |
| | M29 | 96-41 | | 067694 | Screw | 4 |
| | M76 | 96-41 | | 518081 | Solenoid valve, 24 volt, 25 bar | 2 |
| | M90 | 96-41 | | 9007314-0614 | Screw | 3 |
| | M92 | 96-41 | | 693341 (9007314-0606) | Screw | 3 |
| | M005 | 96-41 | | 11040532 | Plug assembly | 2 |
| | M007 | 96-41 | | K00775 | Filter screen | 1 |
| | QM10 | 92-19 | | 11015080 | NFPE control kit | 1 |
| | QM034 | 96-41 | | 11099849 | Valve seal kit | 2 |
| | QM210 | 92-19 | | 11100028 | NFPE control seal kit | 1 |

## Variable displacement pump




* = included in control seal kit QM210




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E100 925E

* = included in control seal kit QM210

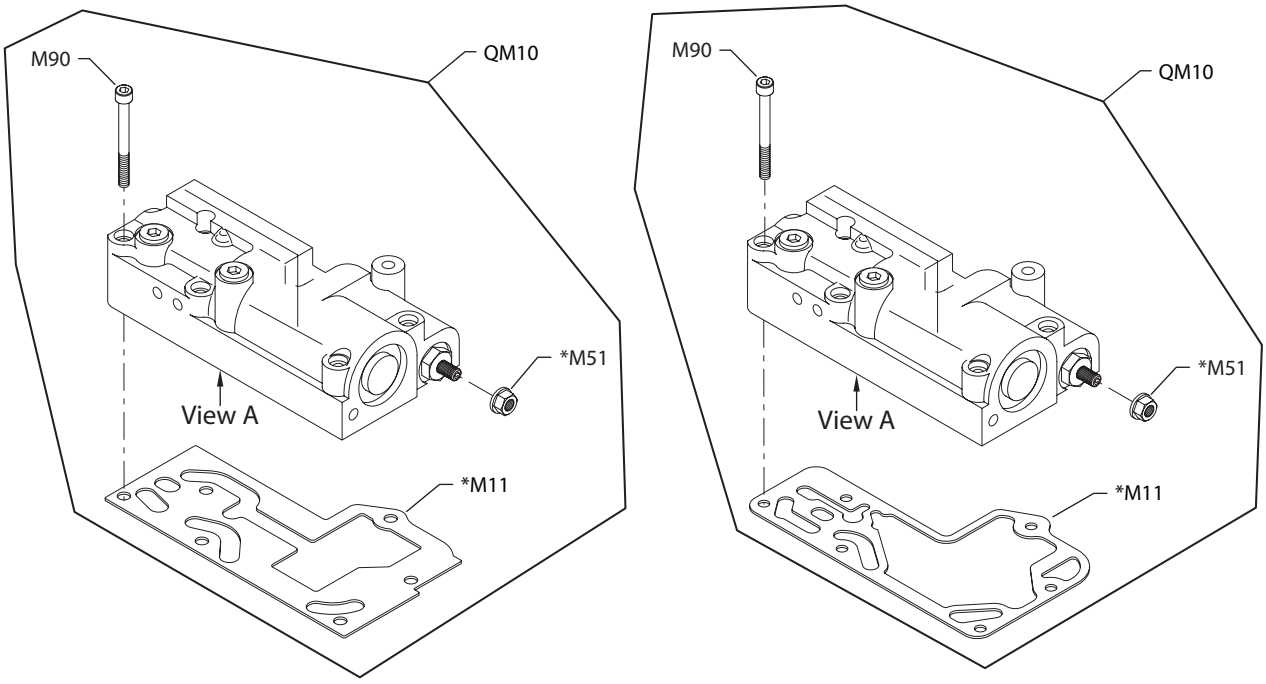
## Variable displacement pump

### Control

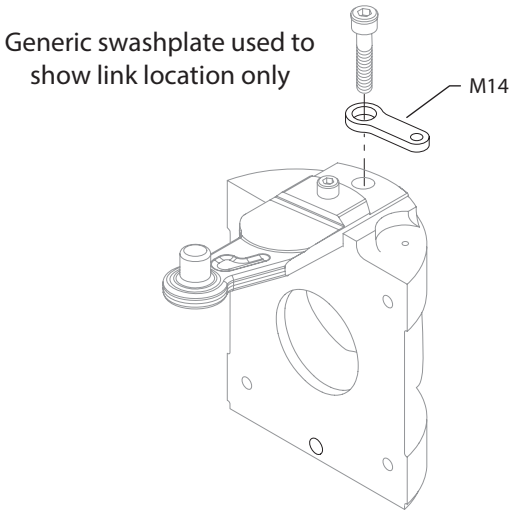
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| FG | M11 | 00-30 | | 8800923 | Control gasket | 1 |
| | M76 | 00-30 | | 516006 | Pressure reducing valve, 32 bar | 2 |
| | M90 | 00-30 | | 9007314-0614 | Screw | 3 |
| | M92 | 00-30 | | 693341 (9007314-0606) | Screw | 3 |
| | M005 | 00-30 | | 11040532 | Plug assembly | 2 |
| | QM10 | 00-30 | | 11026563 | NFPE control kit, 12 volt, 32 bar | 1 |
| | QM034 | 00-30 | | 11100185 | Valve seal kit | 2 |
| | QM036 | 00-30 | | 518088 | Nut with O-ring | 2 |
| | QM037 | 00-30 | | 516003 | Coil, 12 volt, Jet connector | 2 |
| | QM210 | 00-30 | | 11100001 | NFPE control seal kit | 1 |
| FH | M11 | 00-30 | | 8800923 | Control gasket | 1 |
| | M76 | 00-30 | | 515617 | Pressure reducing valve, 24 volt, 32 bar | 2 |
| | M90 | 00-30 | | 9007314-0614 | Screw | 3 |
| | M92 | 00-30 | | 693341 (9007314-0606) | Screw | 3 |
| | M005 | 00-30 | | 11040532 | Plug assembly | 2 |
| | QM10 | 00-30 | | 11026569 | NFPE control kit, 24 volt, 32 bar | 1 |
| | QM034 | 00-30 | | 11100185 | Valve seal kit | 2 |
| | QM036 | 00-30 | | 518088 | Nut with O-ring | 2 |
| | QM037 | 00-30 | | 516004 | Coil, 24 volt, Jet connector | 2 |
| | QM210 | 00-30 | | 11100001 | NFPE control seal kit | 1 |

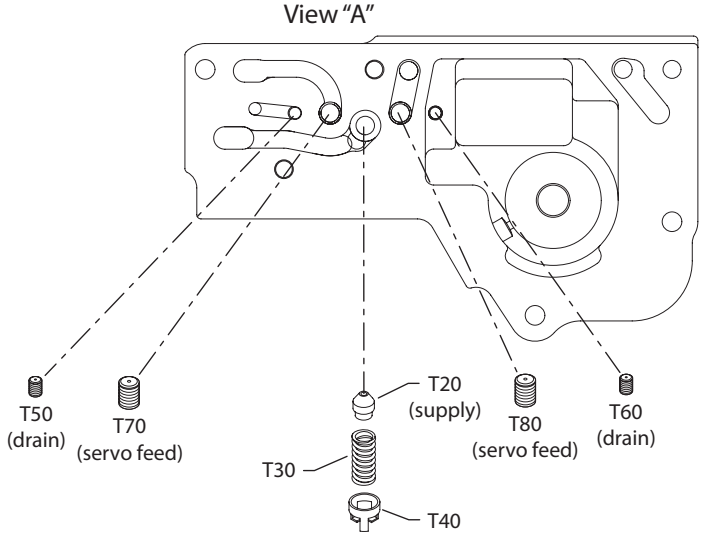
## Variable displacement pump

### (HF, HK, HM & HS)




* = included in control seal kit QM210




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E101 837E

* = included in control seal kit QM210

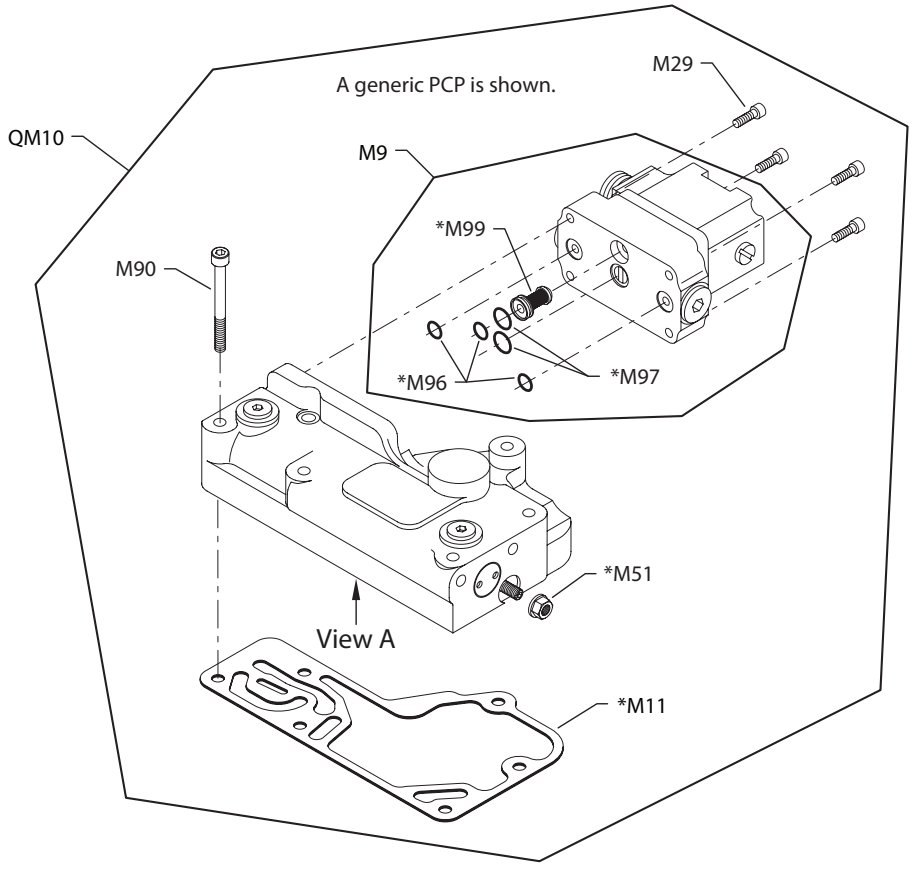
## Variable displacement pump

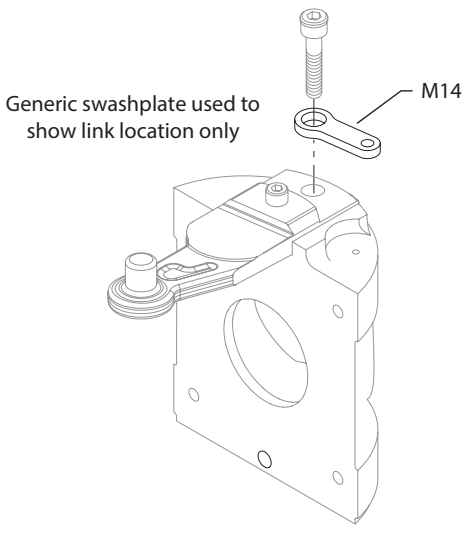
### Control

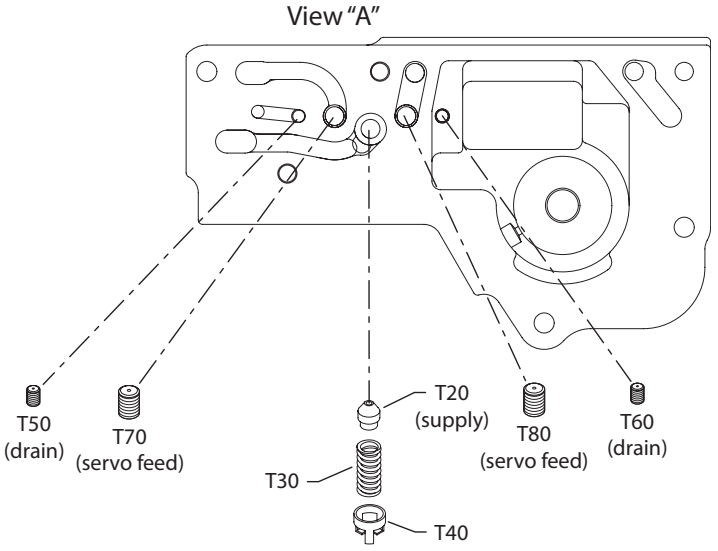
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| HD | M11 | 96-17 | | 501665 | Control gasket | 1 |
| | M14 | 96-17 | | 11070307 | Feedback link | 1 |
| | M51 | 96-17 | | 9003509-0008 | Seal nut | 1 |
| | M90 | 96-17 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 96-17 | | 8510164 | HDC2 kit, 6-18 bar | 1 |
| | QM210 | 96-17 | | 11096265 | Control seal kit | 1 |
| HF | M11 | 96-17 | | 8801241 | Control gasket (SB-1999-065) | 1 |
| | M14 | 96-17 | | 11070307 | Feedback link | 1 |
| | M51 | 96-17 | | 9003509-0008 | Seal nut | 1 |
| | M90 | 96-17 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 96-17 | | 8302M0HF-A | HDC2 kit, 3-11 bar | 1 |
| | QM210 | 96-17 | | 11096266 | Control seal kit | 1 |
| HK | M11 | 04-49 | | 8801241 | Control gasket (SB-1999-065) | 1 |
| | M14 | 04-49 | | 11070307 | Feedback link | 1 |
| | M51 | 04-49 | | 9003509-0008 | Seal nut | 1 |
| | M90 | 04-49 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 04-49 | | 8302M0HK-A | HDC2 kit, 1-11 bar | 1 |
| | QM210 | 04-49 | | 11096266 | Control seal kit | 1 |
| HM | M11 | 98-27 | | 8801241 | Control gasket (SB-1999-065) | 1 |
| | M14 | 98-27 | | 11070307 | Feedback link | 1 |
| | M51 | 98-27 | | 9003509-0008 | Seal nut | 1 |
| | M90 | 98-27 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 98-27 | | 8302M0HM-A | HDC kit, 1.1 -6.7 bar | 1 |
| | QM210 | 98-27 | | 11096266 | Control seal kit | 1 |
| HS | M11 | 98-27 | | 8801241 | Control gasket (SB-1999-065) | 1 |
| | M14 | 98-27 | | 11070307 | Feedback link | 1 |
| | M51 | 98-27 | | 9003509-0008 | Seal nut | 1 |
| | M90 | 98-27 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 98-27 | | 11013640 | HDC kit | 1 |
| | QM210 | 98-27 | | 11096266 | Control seal kit | 1 |

## Variable displacement pump

### (K7, K8, KA & KB)




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E100 926E

* = included in control seal kit QM210

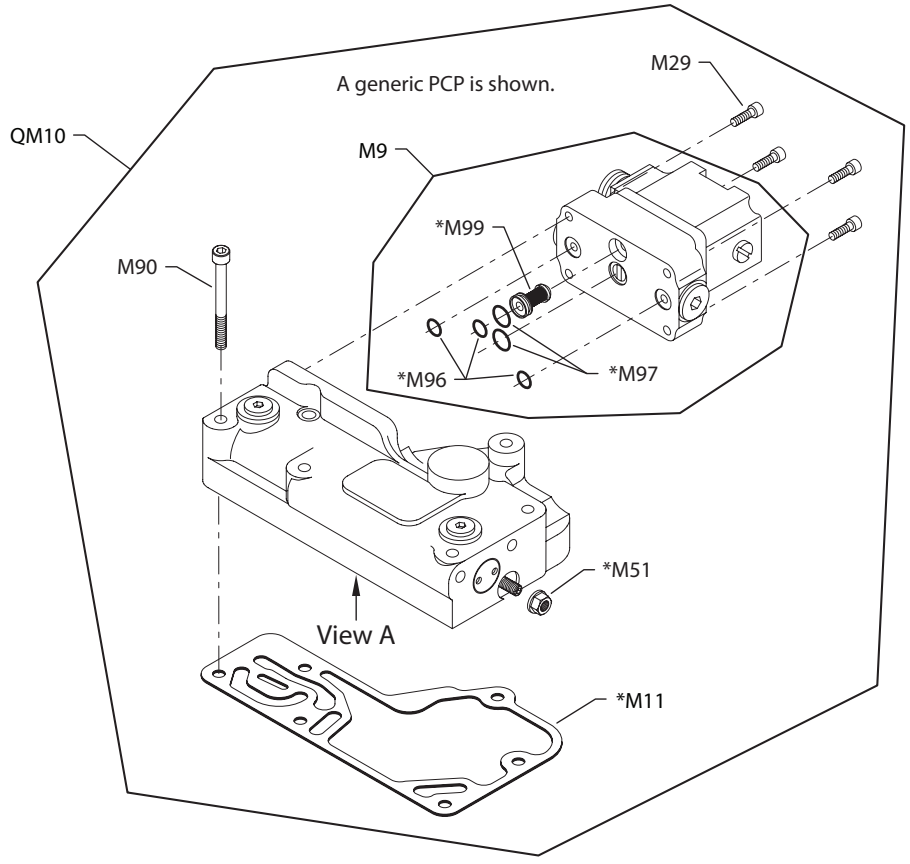
## Variable displacement pump

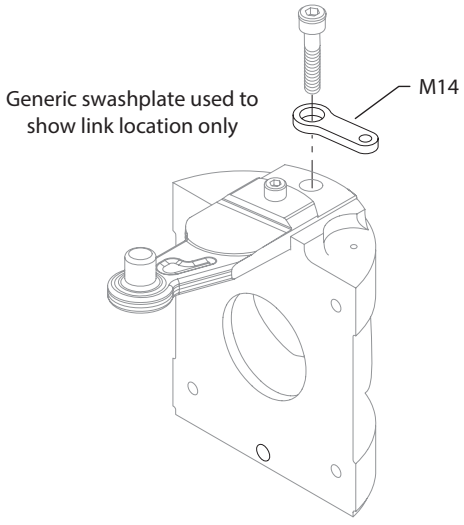
### Control

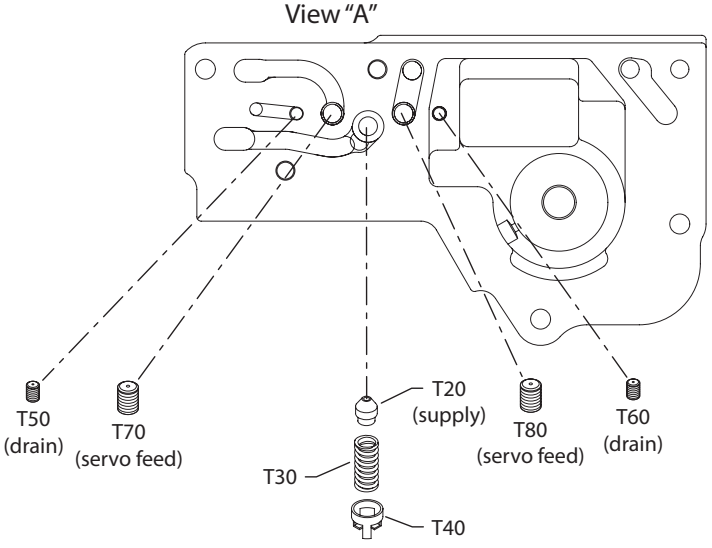
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| K7 | M9 | 13-36 | | 11101116 | PCP, MS connector, single coil | 1 |
| | M11 | 13-36 | | 8800923 | Control gasket | 1 |
| | M14 | 13-36 | | 11070307 | Feedback link | 1 |
| | M29 | 13-36 | | K07067 | Screw | 4 |
| | M51 | 13-36 | | 9003509-0008 | Seal nut | 1 |
| | M90 | 13-36 | | 692889 (9007314-0611) | Screw | 6 |
| | M96 | 13-36 | | 011296 (9004105-0120) | O-ring | 3 |
| | M97 | 13-36 | | 784686 (9004105-0130) | O-ring | 1 |
| | M99 | 13-36 | | K08572 | Filter assembly | 1 |
| | QM10 | 13-36 | | 11139996 | EDC3 kit, MS connector, single coil | 1 |
| | QM210 | 13-36 | | 11095724 | EDCS seal kit | 1 |
| K8 | M9 | 14-14 | | 11101106 | PCP, MS connector, dual coil | 1 |
| | M11 | 14-14 | | 8800923 | Control gasket | 1 |
| | M14 | 14-14 | | 11070307 | Feedback link | 1 |
| | M29 | 14-14 | | K07067 | Screw | 4 |
| | M51 | 14-14 | | 9003509-0008 | Seal nut | 1 |
| | M90 | 14-14 | | 692889 (9007314-0611) | Screw | 6 |
| | M96 | 14-14 | | 011296 (9004105-0120) | O-ring | 3 |
| | M97 | 14-14 | | 784686 (9004105-0130) | O-ring | 1 |
| | M99 | 14-14 | | K08572 | Filter assembly | 1 |
| | QM10 | 14-14 | | 11140005 | EDC kit, MS connector | 1 |
| | QM210 | 14-14 | | 11095724 | EDCS seal kit | 1 |
| KA | M9 | 98-42 | | MCV116G4201 | PCP, MS connector, dual coil | 1 |
| | M11 | 98-42 | | 8800923 | Control gasket | 1 |
| | M14 | 98-42 | | 11070307 | Feedback link | 1 |
| | M29 | 98-42 | | K07067 | Screw | 4 |
| | M51 | 98-42 | | 9003509-0008 | Seal nut | 1 |
| | M90 | 98-42 | | 692889 (9007314-0611) | Screw | 6 |
| | M96 | 98-42 | | 011296 (9004105-0120) | O-ring | 3 |
| | M97 | 98-42 | | 784686 (9004105-0130) | O-ring | 1 |
| | M99 | 98-42 | | K08572 | Filter assembly | 1 |
| | QM10 | 98-42 | | 8510119 | EDC3 kit, MS connector, dual coil | 1 |
| | QM210 | 98-42 | | 11095724 | EDCS seal kit | 1 |
| KB | M9 | 15-23 | | 11164284 | PCP, dual coil | 1 |
| | M11 | 15-23 | | 8800923 | Control gasket | 1 |
| | M14 | 15-23 | | 11070307 | Feedback link | 1 |
| | M29 | 15-23 | | K07067 | Screw | 4 |
| | M51 | 15-23 | | 9003509-0008 | Seal nut | 1 |
| | M90 | 15-23 | | 692889 (9007314-0611) | Screw | 6 |
| | M96 | 15-23 | | 011296 (9004105-0120) | O-ring | 3 |
| | M97 | 15-23 | | 784686 (9004105-0130) | O-ring | 1 |
| | M99 | 15-23 | | K08572 | Filter assembly | 1 |
| | QM10 | 15-23 | | 11165650 | EDC kit, Deusch connector | 1 |
| | QM210 | 15-23 | | 11095724 | EDCS seal kit | 1 |

## Variable displacement pump

### (KC, KE, KK & KM)




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E100 926E

* = included in control seal kit QM210

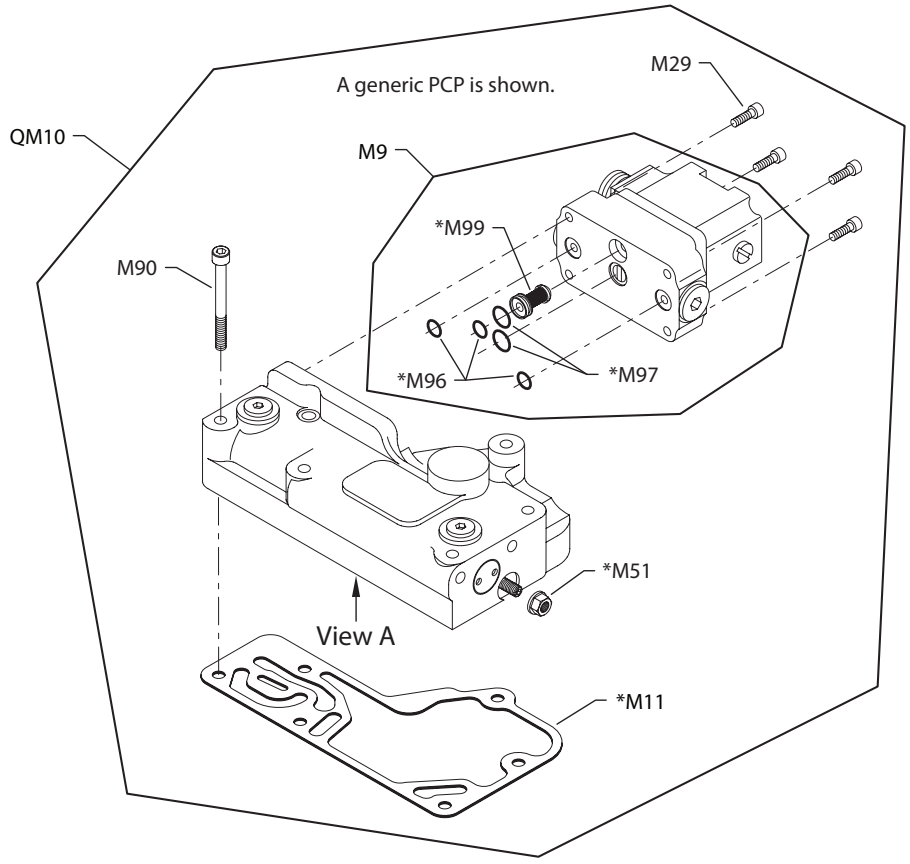
## Variable displacement pump

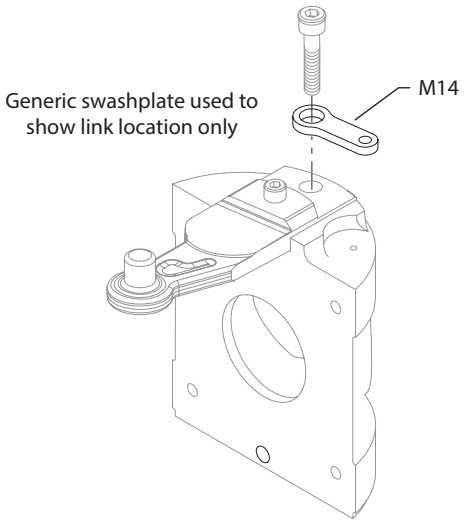
### Control

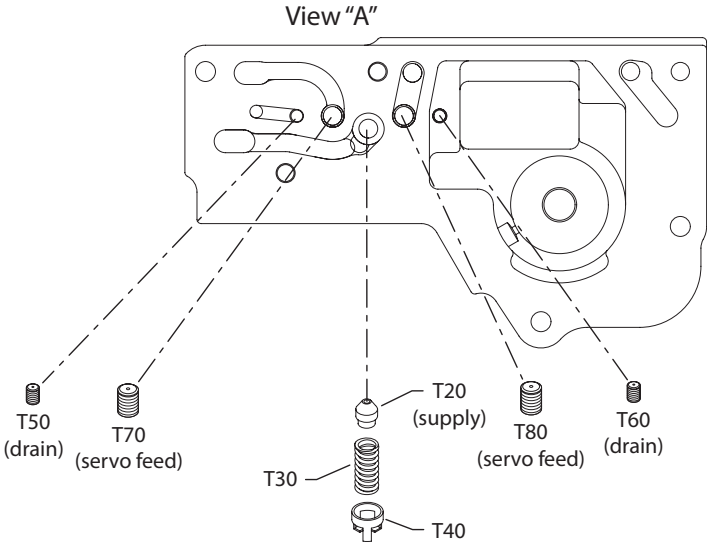
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| KC | M9 | 00-44 | 14-38 | MCV116C1401 | PCP, MS connector, dual coil | 1 |
| | M11 | 00-44 | 14-38 | 8800923 | Control gasket | 1 |
| | M14 | 00-44 | 14-38 | 11070307 | Feedback link | 1 |
| | M29 | 00-44 | 14-38 | K07067 | Screw | 4 |
| | M51 | 00-44 | 14-38 | 9003509-0008 | Seal nut | 1 |
| | M90 | 00-44 | 14-38 | 692889 (9007314-0611) | Screw | 6 |
| | M96 | 00-44 | 14-38 | 011296 (9004105-0120) | O-ring | 3 |
| | M97 | 00-44 | 14-38 | 784686 (9004105-0130) | O-ring | 1 |
| | M99 | 00-44 | 14-38 | K08572 | Filter assembly | 1 |
| | QM10 | 00-44 | 14-38 | 11018293 | EDC kit, MS connector | 1 |
| | QM210 | 00-44 | 14-38 | 11095724 | EDCS seal kit | 1 |
| KE | M9 | 03-27 | | MCV116F3118 | PCP, Deutsch connector | 1 |
| | M11 | 03-27 | | 8800923 | Control gasket | 1 |
| | M14 | 03-27 | | 11070307 | Feedback link | 1 |
| | M29 | 03-27 | | K07067 | Screw | 4 |
| | M51 | 03-27 | | 9003509-0008 | Seal nut | 1 |
| | M90 | 03-27 | | 692889 (9007314-0611) | Screw | 6 |
| | M96 | 03-27 | | 011296 (9004105-0120) | O-ring | 3 |
| | M97 | 03-27 | | 784686 (9004105-0130) | O-ring | 1 |
| | M99 | 03-27 | | K08572 | Filter assembly | 1 |
| | QM10 | 03-27 | | 8510324 | EDC kit, Deutsch connector | 1 |
| | QM210 | 03-27 | | 11095724 | EDCS seal kit | 1 |
| KK | M9 | 03-27 | | MCV116G4211 | PCP, Deutsch connector | 1 |
| | M11 | 03-27 | | 8800923 | Control gasket | 1 |
| | M14 | 03-27 | | 11070307 | Feedback link | 1 |
| | M29 | 03-27 | | K07067 | Screw | 4 |
| | M51 | 03-27 | | 9003509-0008 | Seal nut | 1 |
| | M90 | 03-27 | | 692889 (9007314-0611) | Screw | 6 |
| | M96 | 03-27 | | 011296 (9004105-0120) | O-ring | 3 |
| | M97 | 03-27 | | 784686 (9004105-0130) | O-ring | 1 |
| | M99 | 00-44 | | K08572 | Filter assembly | 1 |
| | QM10 | 03-27 | | 11072974 | EDC kit, Deutsch connector | 1 |
| | QM210 | 03-27 | | 11095724 | EDCS seal kit | 1 |
| KM | M9 | 98-42 | | MCV116G4213 | PCP, 4-wire Metripak connector | 1 |
| | M11 | 98-42 | | 8800923 | Control gasket | 1 |
| | M14 | 98-42 | | 11070307 | Feedback link | 1 |
| | M29 | 98-42 | | K07067 | Screw | 4 |
| | M51 | 98-42 | | 9003509-0008 | Seal nut | 1 |
| | M90 | 98-42 | | 692889 (9007314-0611) | Screw | 6 |
| | M96 | 98-42 | | 011296 (9004105-0120) | O-ring | 3 |
| | M97 | 98-42 | | 784686 (9004105-0130) | O-ring | 1 |
| | M99 | 98-42 | | K08572 | Filter assembly | 1 |
| | QM10 | 98-42 | | 8510242 | EDC kit, 4-wire Metripak connector | 1 |
| | QM210 | 98-42 | | 11095724 | EDCS seal kit | 1 |

## Variable displacement pump

### (KN, KP & KT)




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E100 926E

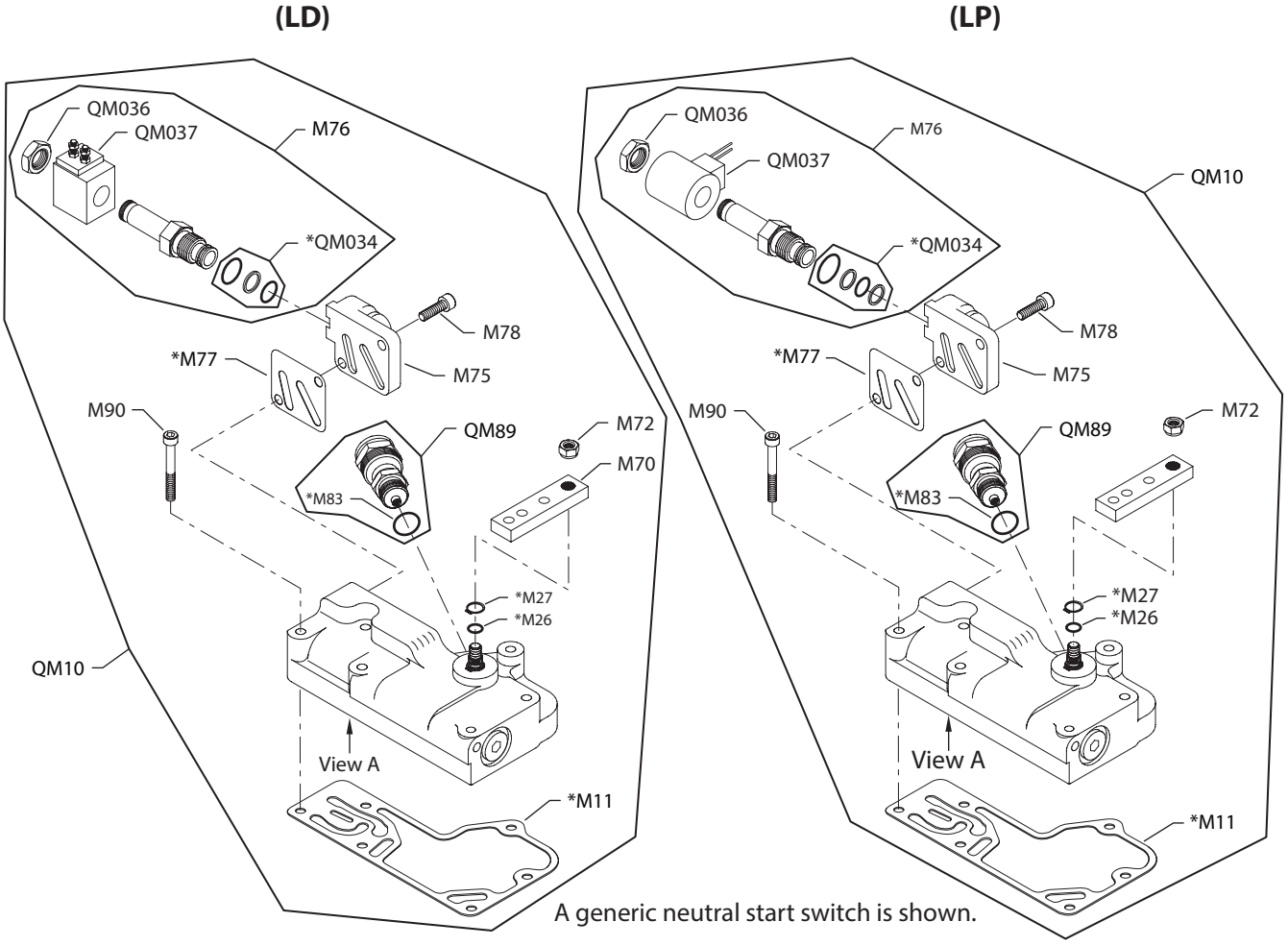
* = included in control seal kit QM210

## Variable displacement pump

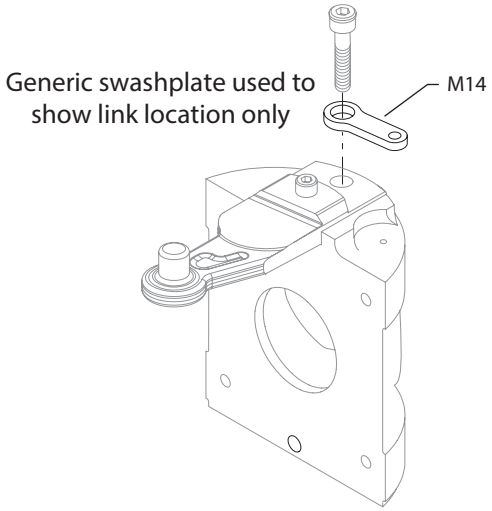
### Control

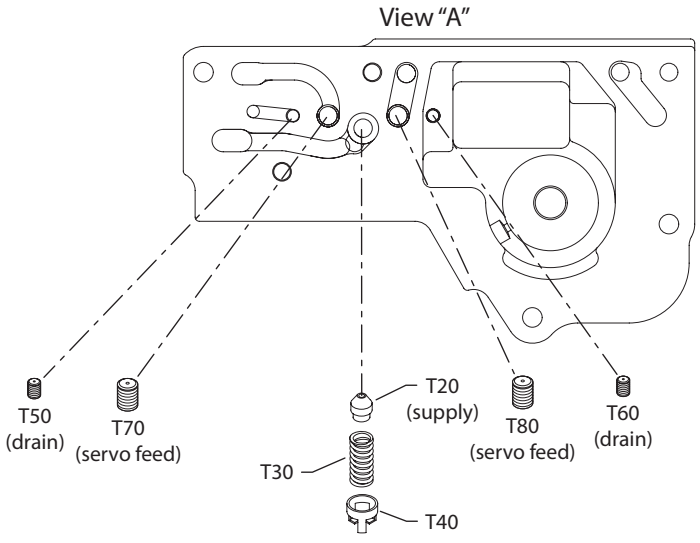
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| KN | M9 | 06-13 | | MCV116A3501 | PCP, MS connector | 1 |
| | M11 | 06-13 | | 8800923 | Control gasket | 1 |
| | M14 | 06-13 | | 11070307 | Feedback link | 1 |
| | M29 | 06-13 | | K07067 | Screw | 4 |
| | M51 | 06-13 | | 9003509-0008 | Seal nut | 1 |
| | M90 | 06-13 | | 692889 (9007314-0611) | Screw | 6 |
| | M96 | 06-13 | | 011296 (9004105-0120) | O-ring | 3 |
| | M97 | 06-13 | | 784686 (9004105-0130) | O-ring | 1 |
| | M99 | 06-13 | | K08572 | Filter assembly | 1 |
| | QM10 | 06-13 | | 11013631 | EDC kit, MS connector | 1 |
| | QM210 | 06-13 | | 11095724 | EDCS seal kit | 1 |
| KP | M9 | 95-26 | | MCV116G4204 | PCP, Weather-pak connector, dual | 1 |
| | M11 | 95-26 | | 8800923 | Control gasket | 1 |
| | M14 | 95-26 | | 11070307 | Feedback link | 1 |
| | M29 | 95-26 | | K07067 | Screw | 4 |
| | M51 | 95-26 | | 9003509-0008 | Seal nut | 1 |
| | M90 | 95-26 | | 692889 (9007314-0611) | Screw | 6 |
| | M96 | 95-26 | | 011296 (9004105-0120) | O-ring | 3 |
| | M97 | 95-26 | | 784686 (9004105-0130) | O-ring | 1 |
| | M99 | 95-26 | | K08572 | Filter assembly | 1 |
| | QM10 | 95-26 | | 8510120 | EDC kit, Weather-pak connector, dual | 1 |
| | QM210 | 95-26 | | 11095724 | EDCS seal kit | 1 |
| KT | M9 | 06-19 | | MCV116G4214 | PCP, Duetsch connector, dual, 4-pin | 1 |
| | M11 | 06-19 | | 8800923 | Control gasket | 1 |
| | M14 | 06-19 | | 11070307 | Feedback link | 1 |
| | M29 | 06-19 | | K07067 | Screw | 4 |
| | M51 | 06-19 | | 9003509-0008 | Seal nut | 1 |
| | M90 | 06-19 | | 692889 (9007314-0611) | Screw | 6 |
| | M96 | 06-19 | | 011296 (9004105-0120) | O-ring | 3 |
| | M97 | 06-19 | | 784686 (9004105-0130) | O-ring | 1 |
| | M99 | 06-19 | | K08572 | Filter assembly | 1 |
| | QM10 | 06-19 | | 11051111 | EDC kit, Duetsch connector, dual, 4-pin | 1 |
| | QM210 | 06-19 | | 11095724 | EDCS seal kit | 1 |

## Variable displacement pump




A generic neutral start switch is shown.




Possible orifice locations

E100 927E

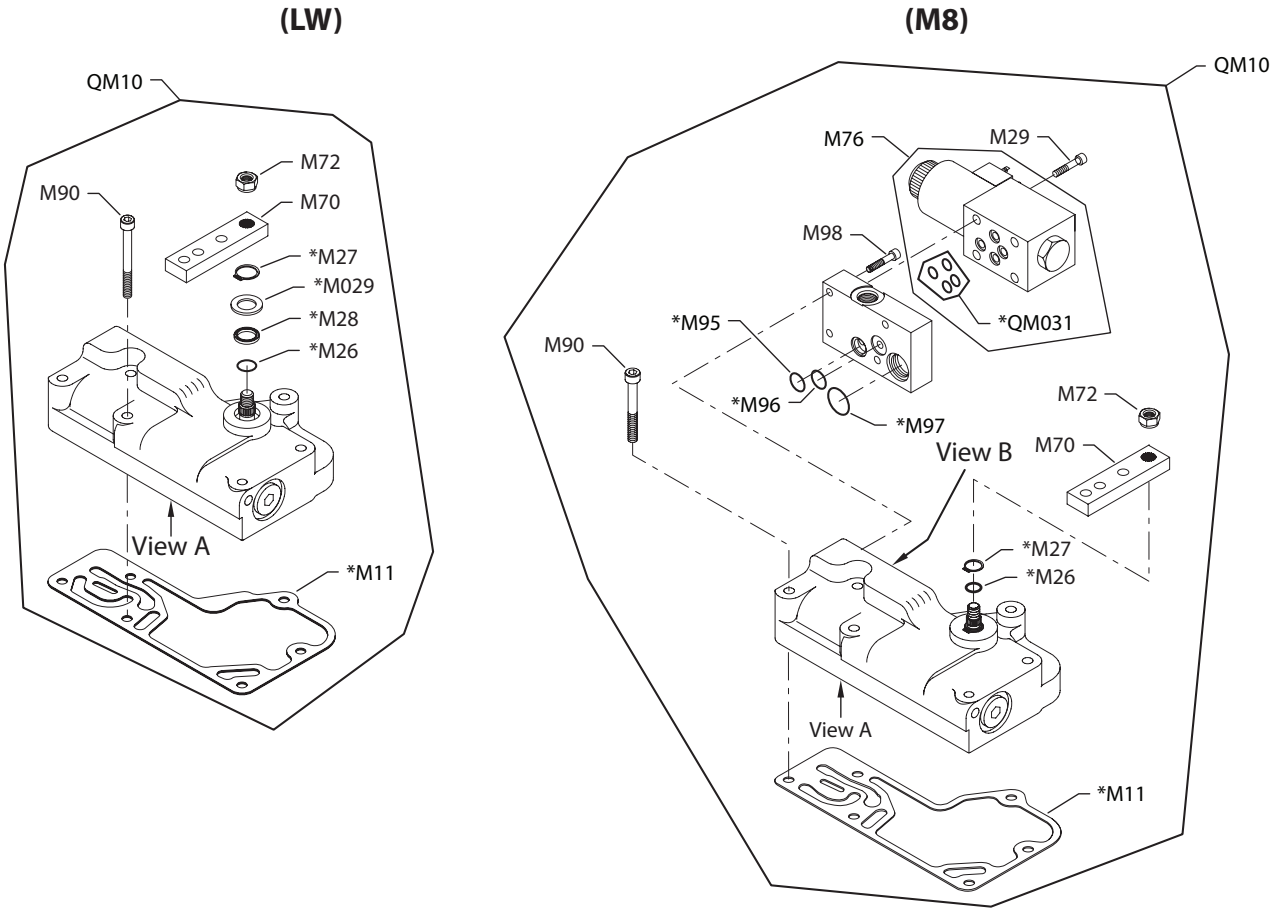
* = included in control seal kit QM210

## Variable displacement pump

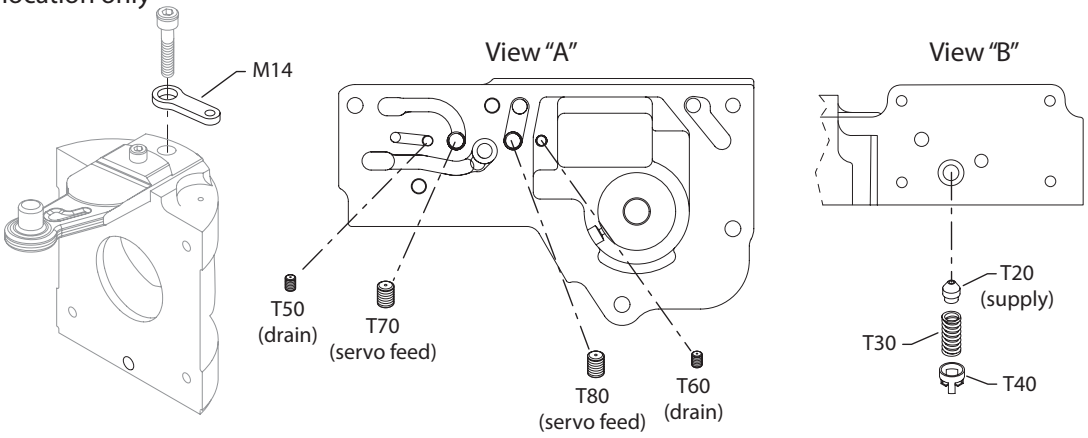
### Control

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| LD | M11 | 98-49 | 12-50 | 8800923 | Control gasket | 1 |
| | M14 | 98-49 | 12-50 | 11070307 | Feedback link | 1 |
| | M26 | 98-49 | 12-50 | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 98-49 | 12-50 | 9006300-0044 | Retaining ring | 1 |
| | M70 | 98-49 | 12-50 | 9800916 | Control handle | 1 |
| | M72 | 98-49 | 12-50 | 040642 (9003513-0800) | Nut | 1 |
| | M75 | 98-49 | 12-50 | 505022 | Control manifold | 1 |
| | M76 | 98-49 | 12-50 | 326108 (9700886) | Solenoid valve, 12 volt, 2-pole | 1 |
| | M77 | 98-49 | 12-50 | 8800882 | Manifold gasket | 1 |
| | M78 | 98-49 | 12-50 | 693341 (9007314-0606) | Screw | 2 |
| | M83 | 98-49 | 12-50 | 009670 (9004201-5000) | O-ring | 1 |
| | M90 | 98-49 | 12-50 | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 98-49 | 12-50 | 8510231 | MDC kit, w/neutral start switch, 2-pole 12v solenoid | 1 |
| | QM89 | 98-49 | 12-50 | 8510027 | Neutral start switch kit, high force | 1 |
| | QM034 | 98-49 | 12-50 | 11099649 | Valve seal kit | 1 |
| | QM036 | 98-49 | 12-50 | 11100383 | Nut | 1 |
| | QM037 | 98-49 | 12-50 | 11100385 | Coil, 12 volt | 1 |
| | QM210 | 98-49 | 12-50 | 11100031 | Control seal kit | 1 |
| | | | | | | |
| LP | M11 | 04-50 | | 8800923 | Control gasket | 1 |
| | M14 | 04-50 | | 11070307 | Feedback link | 1 |
| | M26 | 04-50 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 04-50 | | 9006300-0044 | Retaining ring | 1 |
| | M70 | 04-50 | | 9800916 | Control handle | 1 |
| | M72 | 04-50 | | 040642 (9003513-0800) | Nut | 1 |
| | M75 | 04-50 | | 505022 | Control manifold | 1 |
| | M76 | 04-50 | | 521242 | Solenoid valve, 12 volt, 2-pole | 1 |
| | M77 | 04-50 | | 8800882 | Manifold gasket | 1 |
| | M78 | 04-50 | | 693341 (9007314-0606) | Screw | 2 |
| | M83 | 98-49 | | 001131 (9004201-5000) | O-ring | 1 |
| | M90 | 04-50 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 04-50 | | 8510375 | MDC kit, w/neutral start switch, 2-pole 12v solenoid | 1 |
| | QM89 | 04-50 | | 8510316 | Neutral start switch kit, high force, Weather-pack | 1 |
| | QM034 | 04-50 | | 11099649 | Valve seal kit | 1 |
| | QM036 | 04-50 | | 11100383 | Nut | 1 |
| | QM037 | 04-50 | | 11100386 | Coil, 12 volt, Weather-pack | 1 |
| | QM210 | 04-50 | | 11099998 | Control seal kit | 1 |

## Variable displacement pump




Generic swashplate used to show link location only




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E101 838E

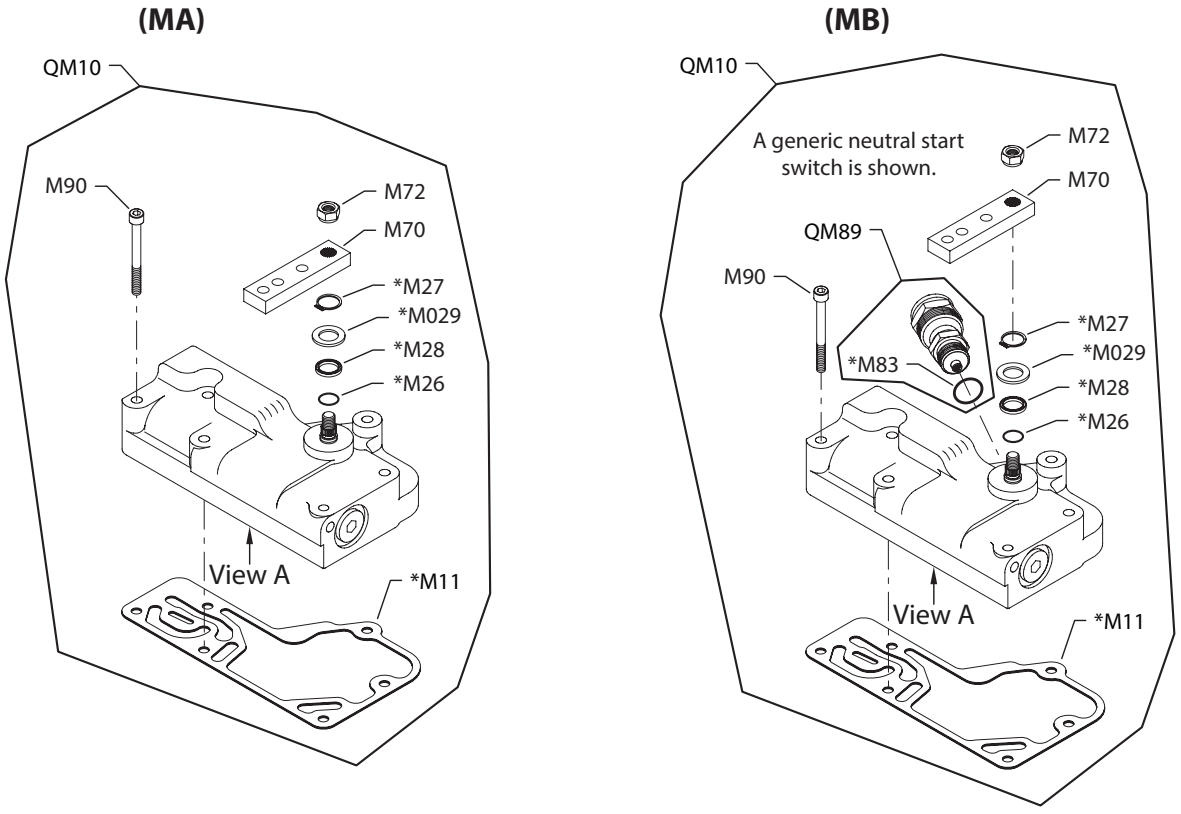
* = included in control seal kit QM210

## Variable displacement pump

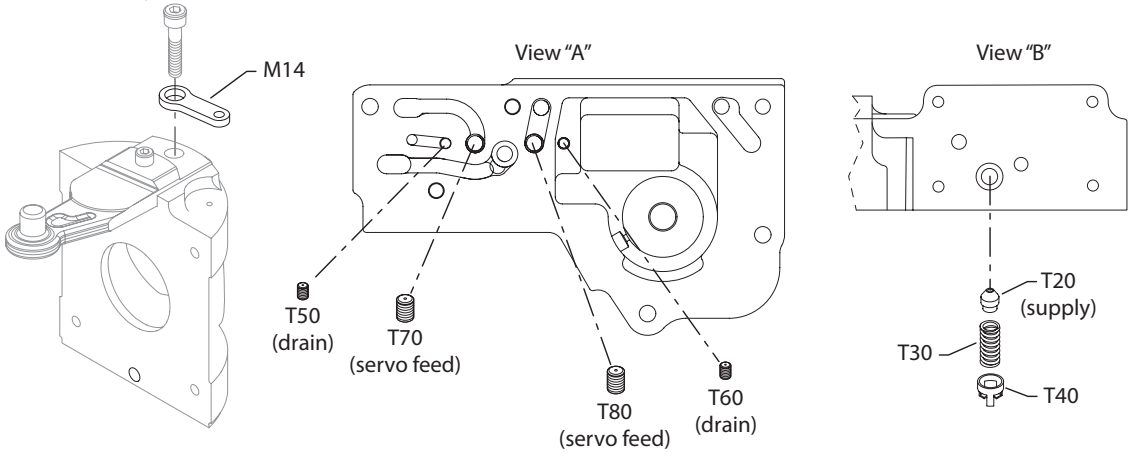
### Control

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| LW | M11 | 12-07 | | 8800923 | Control gasket | 1 |
| | M14 | 12-07 | | 11070307 | Feedback link | 1 |
| | M26 | 12-07 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 12-07 | | 042507 | Retaining ring | 1 |
| | M28 | 12-07 | | 510690 | Seal | 1 |
| | M029 | 12-07 | | 512047 | Washer | 1 |
| | M70 | 12-07 | | 9800916 | Control handle | 1 |
| | M72 | 12-07 | | 040642 (9003513-0800) | Nut | 1 |
| | M90 | 12-07 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 12-07 | | 11110671 | MDC kit | 1 |
| | QM210 | 12-07 | | 11110668 | Control seal kit | 1 |
| | | | | | | |
| M8 | M11 | 97-24 | | 8800923 | Control gasket | 1 |
| | M14 | 97-24 | | 11070307 | Feedback link | 1 |
| | M26 | 97-24 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 97-24 | | 9006300-0044 | Retaining ring | 1 |
| | M29 | 97-24 | | 035592 | Screw | 4 |
| | M70 | 97-24 | | 9800916 | Control handle | 1 |
| | M72 | 97-24 | | 040642 (9003513-0800) | Nut | 1 |
| | M76 | 97-24 | | 519369 | Solenoid valve | 1 |
| | M90 | 97-24 | | 692889 (9007314-0611) | Screw | 6 |
| | M95 | 97-24 | | 056713 (9004105-0140) | O-ring | 1 |
| | M96 | 97-24 | | 056713 (9004105-0140) | O-ring | 1 |
| | M97 | 97-24 | | 544742 (9004105-0190) | O-ring | 1 |
| | M98 | 97-24 | | 067686 | Screw | 4 |
| | QM10 | 97-24 | | 11086407 | Control kit, 2-position solenoid, 24 volt | 1 |
| | QM031 | 97-24 | | 11099647 | Seal kit | 1 |
| | QM210 | 97-24 | | 11099978 | Control seal kit | 1 |

## Variable displacement pump




Generic swashplate used to show link location only




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E101 839E

* = included in control seal kit QM210

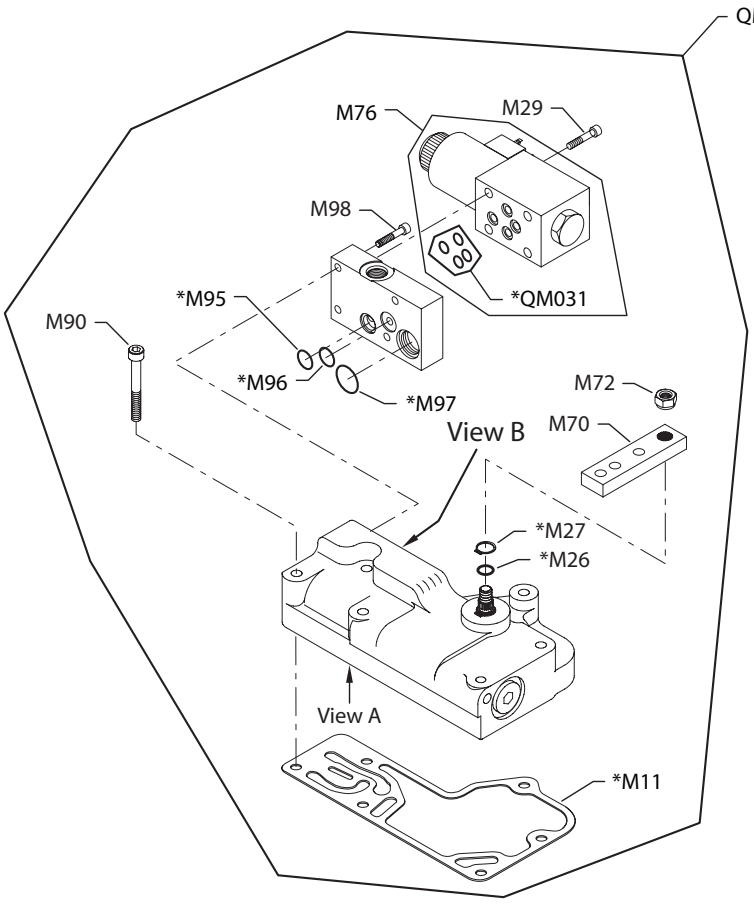
## Variable displacement pump

### Control

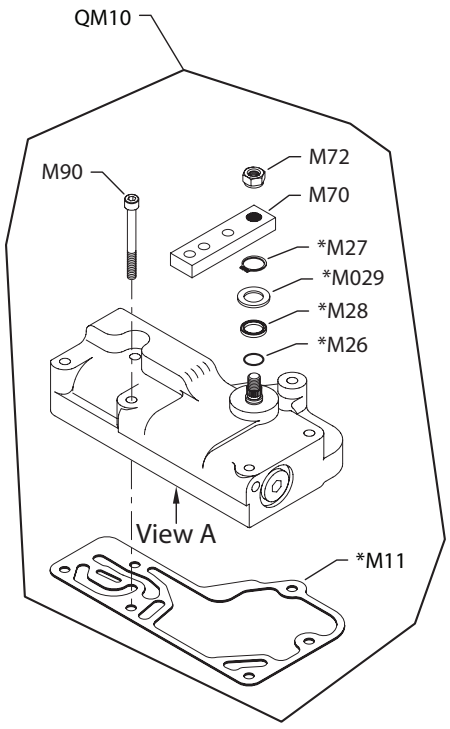
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| MA | M11 | 92-19 | | 8800923 | Control gasket | 1 |
| | M14 | 92-19 | | 11070307 | Feedback link | 1 |
| | M26 | 92-19 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 14-44 | | 042507 | Retaining ring | 1 |
| | M27 | 92-19 | 14-43 | 9006300-0044 | Retaining ring | 1 |
| | M28 | 14-44 | | 510690 | Shaft seal | 1 |
| | M029 | 14-44 | | 512047 | Washer | 1 |
| | M70 | 92-19 | | 9800916 | Control handle | 1 |
| | M72 | 92-19 | | 040642 (9003513-0800) | Nut | 1 |
| | M90 | 92-19 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 92-19 | | 8302M0MA-B | MDC kit | 1 |
| | QM210 | 92-19 | | 11096274 | Control seal kit | 1 |
| MB | M11 | 92-19 | | 8800923 | Control gasket | 1 |
| | M14 | 92-19 | | 11070307 | Feedback link | 1 |
| | M26 | 92-19 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 14-44 | | 042507 | Retaining ring | 1 |
| | M27 | 92-19 | 14-43 | 9006300-0044 | Retaining ring | 1 |
| | M28 | 14-44 | | 510690 | Shaft seal | 1 |
| | M029 | 14-44 | | 512047 | Washer | 1 |
| | M70 | 92-19 | | 9800916 | Control handle | 1 |
| | M71 | 92-19 | | 9009660-3100 | Toothlock washer | 1 |
| | M72 | 92-19 | | 040642 (9003513-0800) | Nut | 1 |
| | M83 | 92-19 | | 001131 (9004201-5000) | O-ring | 1 |
| | M90 | 92-19 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 92-19 | | 8302M0MB-B | MDC kit with neutral start switch | 1 |
| | QM89 | 92-19 | | 80020S40 | Neutral start switch, high force | 1 |
| | QM210 | 92-19 | | 11096274 | Control seal kit | 1 |

## Variable displacement pump

**(ME)**

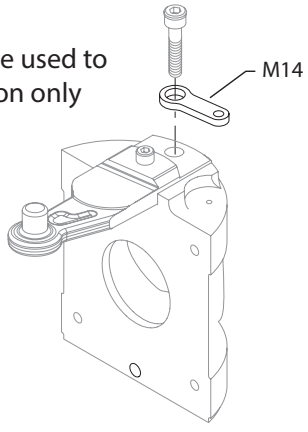



**(MH)**

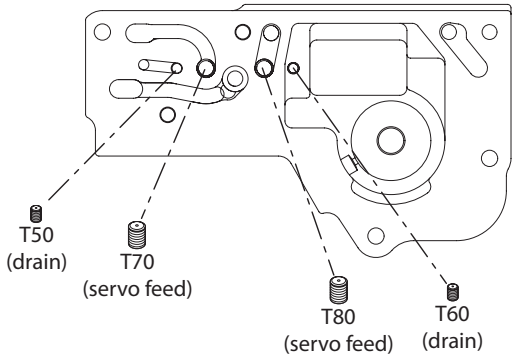



* = included in control seal kit QM210

Generic swashplate used to show link location only




View "A"




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E101 840E

* = included in control seal kit QM210

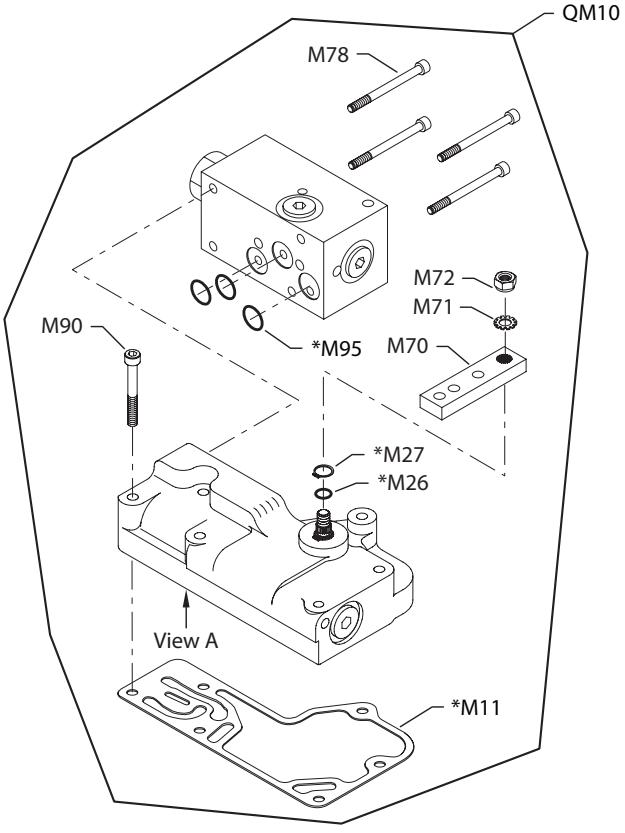
## Variable displacement pump

### Control

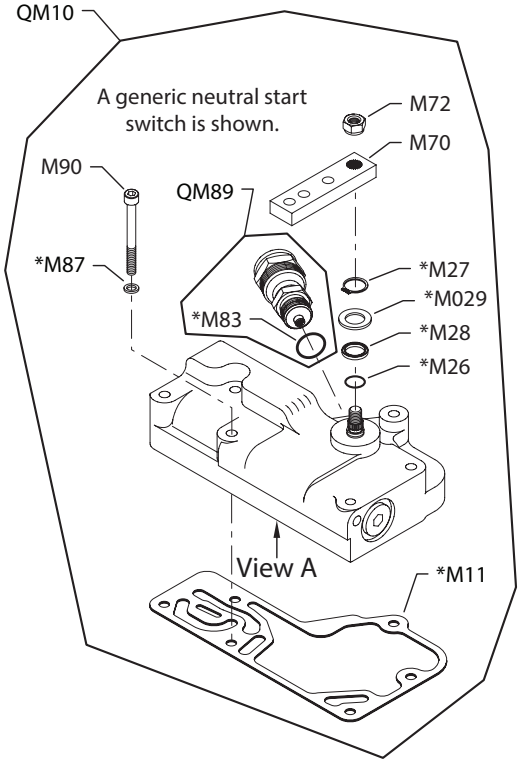
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| ME | M11 | 96-39 | | 8800923 | Control gasket | 1 |
| | M14 | 96-39 | | 11070307 | Feedback link | 1 |
| | M26 | 96-39 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 96-39 | | 9006300-0044 | Retaining ring | 1 |
| | M29 | 96-39 | | 035592 | Screw | 4 |
| | M70 | 96-39 | | 9800916 | Control handle | 1 |
| | M72 | 96-39 | | 040642 (9003513-0800) | Nut | 1 |
| | M76 | 96-39 | | 519357 | Solenoid valve, 12 volt | 1 |
| | M90 | 96-39 | | 692889 (9007314-0611) | Screw | 6 |
| | M95 | 96-39 | | 144725 (9004105-0110) | O-ring | 1 |
| | M96 | 96-39 | | 056713 (9004105-0140) | O-ring | 1 |
| | M97 | 96-39 | | 544742 (9004105-0190) | O-ring | 1 |
| | M98 | 96-39 | | 067686 | Screw | 4 |
| | QM10 | 96-39 | | 11086406 | Control kit, 2-position solenoid, 12 volt | 1 |
| | QM031 | 96-39 | | 11099647 | Seal kit | 1 |
| | QM210 | 96-39 | | 11099978 | Control seal kit | 1 |
| | | | | | | |
| MH | M11 | 04-49 | | 8800923 | Control gasket | 1 |
| | M14 | 04-49 | | 11070307 | Feedback link | 1 |
| | M26 | 04-49 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 14-44 | | 042507 | Retaining ring | 1 |
| | M27 | 04-49 | 14-43 | 9006300-0044 | Retaining ring | 1 |
| | M28 | 14-44 | | 510690 | Shaft seal | 1 |
| | M029 | 14-44 | | 512047 | Washer | 1 |
| | M70 | 04-49 | | 9800916 | Control handle | 1 |
| | M72 | 04-49 | | 040642 (9003513-0800) | Nut | 1 |
| | M90 | 04-49 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 04-49 | | 11086361 | MDC kit | 1 |
| | QM210 | 04-49 | | 11096274 | Control seal kit | 1 |

## Variable displacement pump

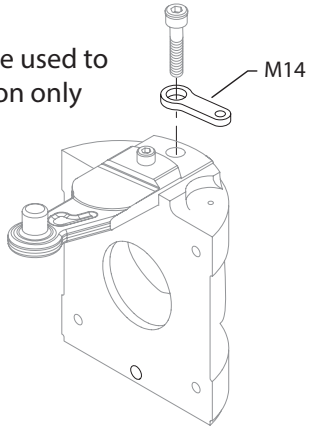
### (M0)



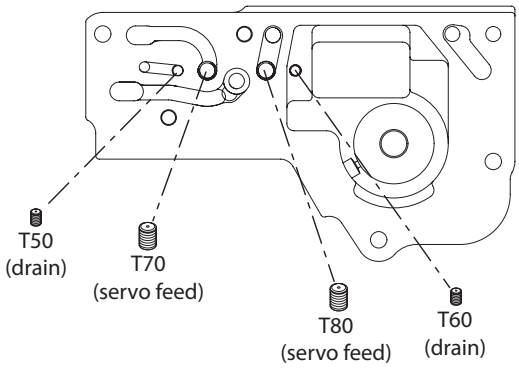

### (MS & MV)




Generic swashplate used to show link location only




View "A"




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E101 816E

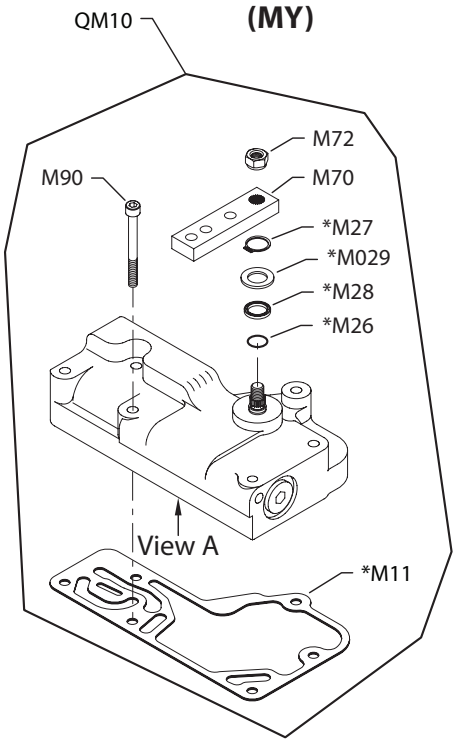
* = included in control seal kit QM210

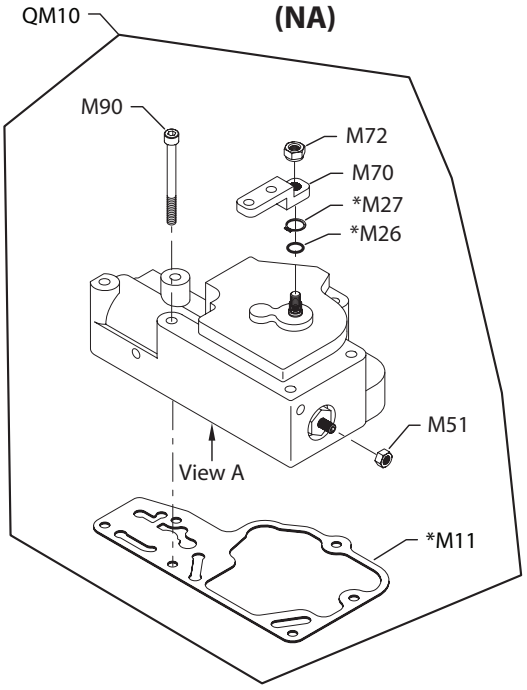
## Variable displacement pump

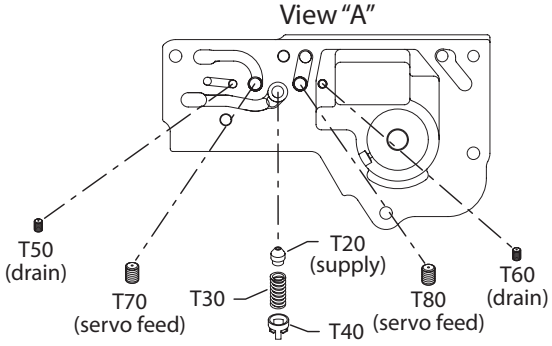
### Control

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| M0 | M11 | 96-24 | | 8800923 | Control gasket | 1 |
| | M14 | 96-24 | | 11070307 | Feedback link | 1 |
| | M26 | 96-24 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 96-24 | | 9006300-0044 | Retaining ring | 1 |
| | M70 | 96-24 | | 9800916 | Control handle | 1 |
| | M72 | 96-24 | | 040642 (9003513-0800) | Nut | 1 |
| | M78 | 96-24 | | 090159 | Screw | 4 |
| | M90 | 96-24 | | 692889 (9007314-0611) | Screw | 6 |
| | M95 | 96-24 | | 011304 (9004104-0140) | O-ring | 3 |
| | QM10 | 96-24 | | 11086426 | MDC kit | 1 |
| | QM210 | 96-24 | | 11099981 | Control seal kit | 1 |
| MS | M11 | 00-01 | | 8800923 | Control gasket | 1 |
| | M14 | 00-01 | | 11070307 | Feedback link | 1 |
| | M26 | 00-01 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 14-44 | | 042507 | Retaining ring | 1 |
| | M27 | 00-01 | 14-43 | 9006300-0044 | Retaining ring | 1 |
| | M28 | 14-44 | | 510690 | Shaft seal | 1 |
| | M029 | 14-44 | | 512047 | Washer | 1 |
| | M70 | 00-01 | | 9800916 | Control handle | 1 |
| | M72 | 00-01 | | 040642 (9003513-0800) | Nut | 1 |
| | M83 | 00-01 | | 001131 (9004201-5000) | O-ring | 1 |
| | M90 | 00-01 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 00-01 | | 11086409 | MDC kit, with neutral start switch | 1 |
| | QM89 | 00-01 | | 8510027 | Neutral start switch, high force | 1 |
| | QM210 | 00-01 | | 11096274 | Control seal kit | 1 |
| MV | M11 | 94-24 | | 8800923 | Control gasket | 1 |
| | M14 | 94-24 | | 11070307 | Feedback link | 1 |
| | M26 | 94-24 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 14-44 | | 042507 | Retaining ring | 1 |
| | M27 | 94-24 | 14-43 | 9006300-0044 | Retaining ring | 1 |
| | M28 | 14-44 | | 510690 | Shaft seal | 1 |
| | M029 | 14-44 | | 512047 | Washer | 1 |
| | M70 | 94-24 | | 9800916 | Control handle | 1 |
| | M72 | 94-24 | | 040642 (9003513-0800) | Nut | 1 |
| | M83 | 94-24 | | 001131 (9004201-5000) | O-ring | 1 |
| | M90 | 94-24 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 94-24 | | 8510267 | MDC kit, with neutral start switch | 1 |
| | QM89 | 94-24 | | 8510170 | Neutral start switch kit, high force | 1 |
| | QM210 | 94-24 | | 11096274 | Control seal kit | 1 |

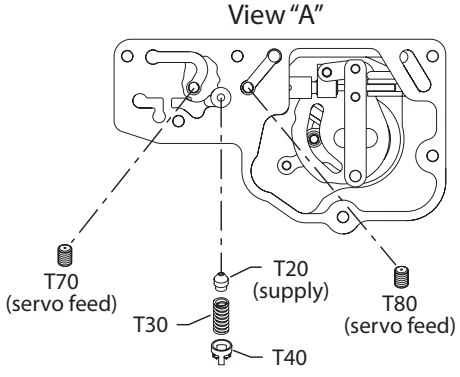
## Variable displacement pump



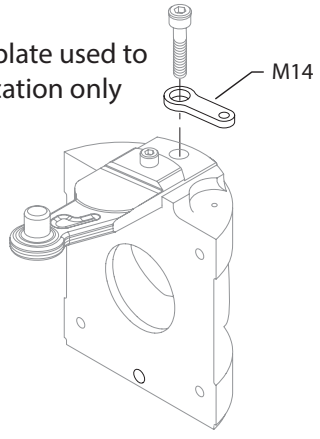




Possible orifice locations




Possible orifice locations

Generic swashplate used to show link location only




NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E100 928E

* = included in control seal kit QM210

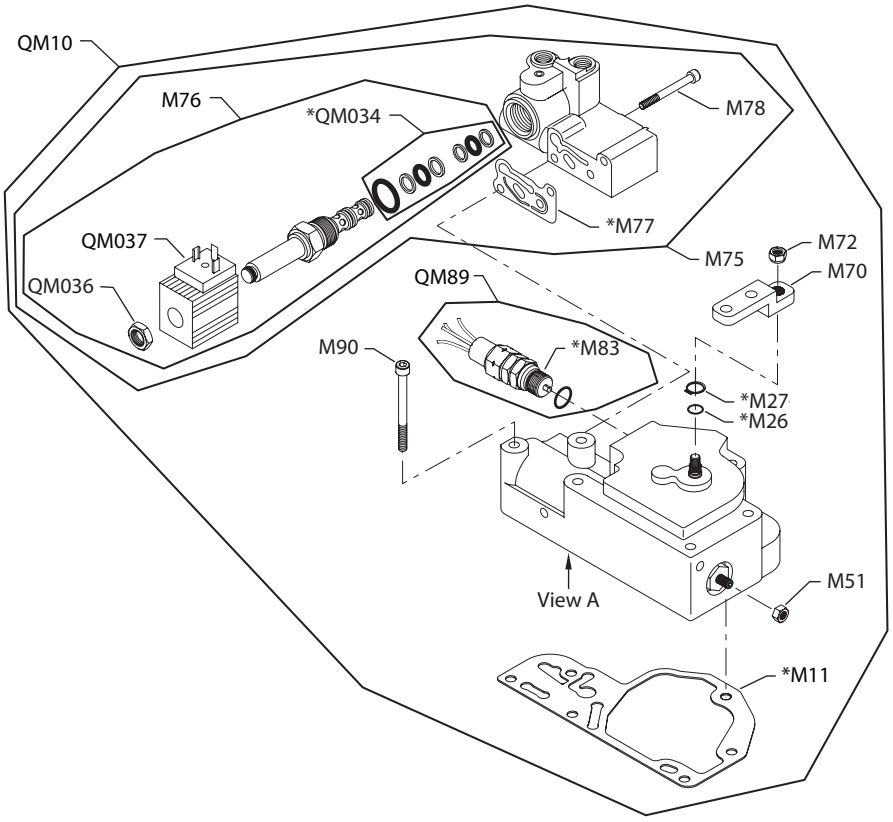
## Variable displacement pump

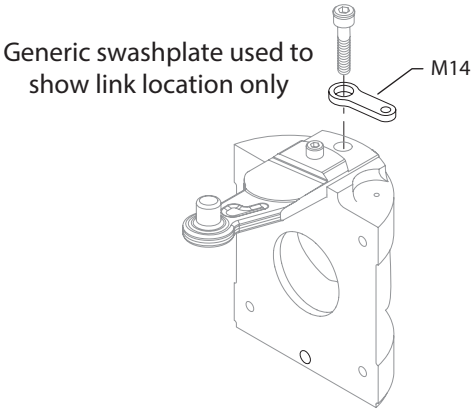
### Control

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| MY | M11 | 94-24 | | 8800923 | Control gasket | 1 |
| | M14 | 94-24 | | 11070307 | Feedback link | 1 |
| | M26 | 94-24 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 15-05 | | 042507 | Retaining ring | 1 |
| | M27 | 94-24 | 15-04 | 9006300-0044 | Retaining ring | 1 |
| | M28 | 15-05 | | 510690 | Shaft seal | 1 |
| | M029 | 15-05 | | 512047 | Washer | 1 |
| | M70 | 94-24 | | 9800916 | Control handle | 1 |
| | M72 | 94-24 | | 040642 (9003513-0800) | Nut | 1 |
| | M90 | 94-24 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 94-24 | | 11086408 | MDC kit | 1 |
| | QM210 | 94-24 | | 11096274 | Control seal kit | 1 |
| NA | M11 | 91-37 | | 504733 | Control gasket | 1 |
| | M14 | 91-37 | | 11070307 | Feedback link | 1 |
| | M26 | 91-37 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 91-37 | | 9006300-0044 | Retaining ring | 1 |
| | M51 | 91-37 | | 345462 | Nut | 1 |
| | M70 | 91-37 | | 769075 (8800691) | Control handle | 1 |
| | M72 | 91-37 | | 040642 (9003513-0800) | Nut | 1 |
| | M90 | 91-37 | | 9007314-0614 | Screw | 6 |
| | QM10 | 91-37 | | 8302M0NA-A | MDC kit | 1 |
| | QM210 | 91-37 | | 11096273 | Control seal kit | 1 |

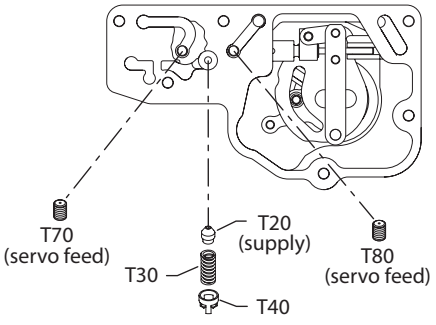
## Variable displacement pump

**(NU)**




View "A"




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E101 849E

* = included in control seal kit QM210

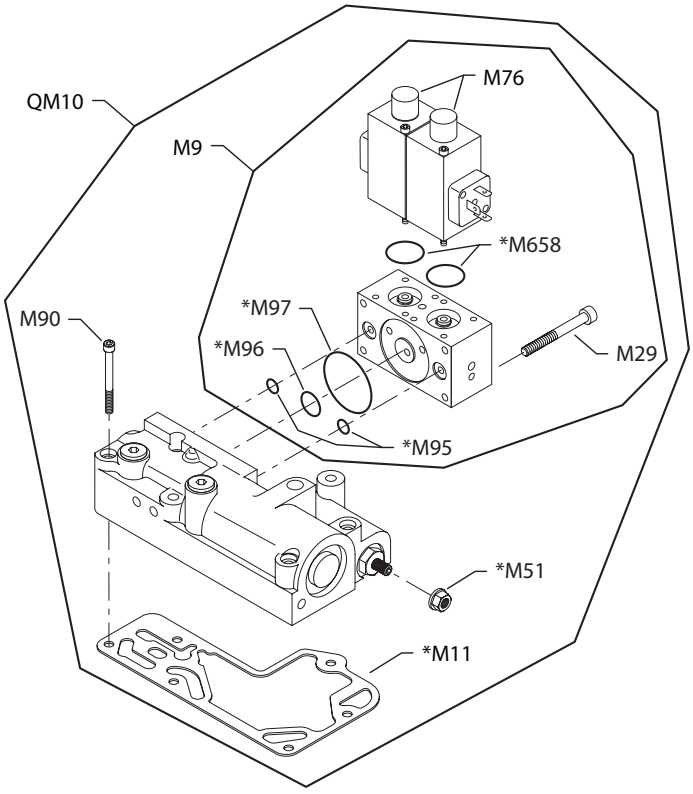
## Variable displacement pump

### Control

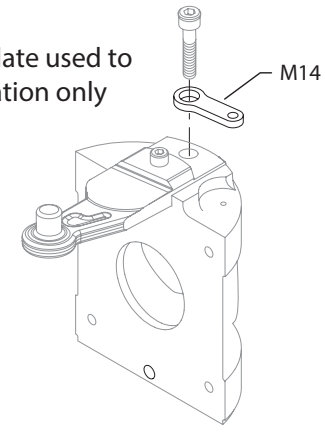
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| NU | M11 | 96-19 | | 504733 | Control gasket | 1 |
| | M14 | 96-19 | | 11070307 | Feedback link | 1 |
| | M26 | 96-19 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 96-19 | | 9006300-0044 | Retaining ring | 1 |
| | M51 | 96-19 | | 345462 | Nut | 1 |
| | M70 | 96-19 | | 769075 (8800691) | Control handle | 1 |
| | M71 | 96-19 | | 9009660-3100 | Toothlock washer | 1 |
| | M72 | 96-19 | | 040642 (9003513-0800) | Nut | 1 |
| | M75 | 96-19 | | 500147 | Manifold assembly | 1 |
| | M76 | 96-19 | | 8700100 | Solenoid valve | 1 |
| | M77 | 96-19 | | 500260 | Gasket | 1 |
| | M78 | 96-19 | | 692889 (9007314-0611) | Screw | 2 |
| | M83 | 96-19 | | 784686 | O-ring | 1 |
| | M90 | 96-19 | | 9007314-0614 | Screw | 6 |
| | QM10 | 96-19 | | 11086410 | MDC kit, 12 volt | 1 |
| | QM89 | 96-19 | | 11087773 | Neutral start switch kit | 1 |
| | QM034 | 96-19 | | 11100391 | Valve seal kit | 1 |
| | QM036 | 96-19 | | 11100383 | Nut | 1 |
| | QM037 | 96-19 | | 11100389 | Coil, 12 volt | 1 |
| | QM210 | 96-19 | | 11100415 | Control seal kit | 1 |

## Variable displacement pump

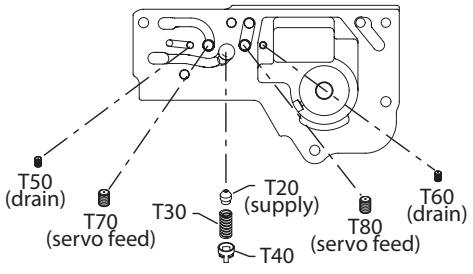
### (PA & PB)




Generic swashplate used to show link location only




View "A"




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E101 842E

* = included in control seal kit QM210

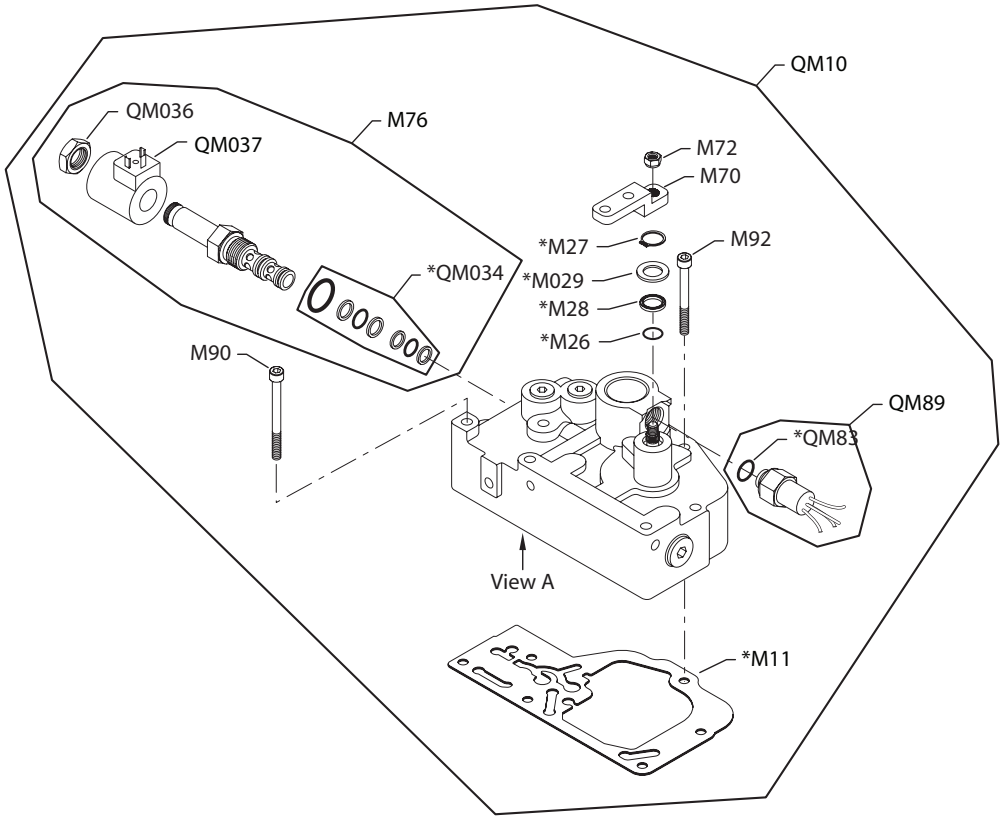
## Variable displacement pump

### Control

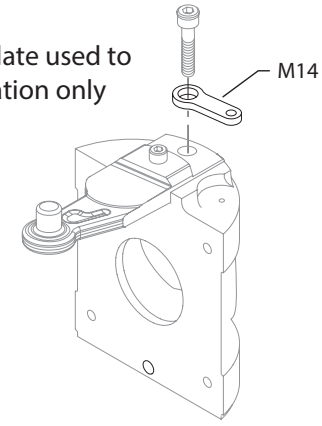
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| PA | M9 | 08-44 | | 782037 | PDC, 12 volt | 1 |
| | M11 | 08-44 | | 8801241 | Gasket | 1 |
| | M14 | 08-44 | | 11070307 | Feedback link | 1 |
| | M29 | 08-44 | | 035592 | Screw | 4 |
| | M51 | 08-44 | | 9003509-0008 | Seal nut | 1 |
| | M76 | 08-44 | | 11001795 | Solenoid, 12 volt | 2 |
| | M90 | 08-44 | | 692889 (9007314-0611) | Screw | 6 |
| | M95 | 08-44 | | 011296 (9004105-0120) | O-ring | 2 |
| | M96 | 08-44 | | 688721 (9004104-0170) | O-ring | 1 |
| | M97 | 08-44 | | 314534 (9004104-0310) | O-ring | 1 |
| | M658 | 08-44 | | 635938 (9004100-0210) | O-ring | 2 |
| | QM10 | 08-44 | | 11086411 | Control kit | 1 |
| | QM210 | 08-44 | | 11096251 | Control seal kit | 1 |
| PB | M9 | 04-49 | | 782045 | PDC, 24 volt | 1 |
| | M11 | 04-49 | | 8801241 | Gasket | 1 |
| | M14 | 04-49 | | 11070307 | Feedback link | 1 |
| | M29 | 04-49 | | 035592 | Screw | 4 |
| | M51 | 04-49 | | 9003509-0008 | Seal nut | 1 |
| | M76 | 04-49 | | 11001794 | Solenoid, 24 volt | 2 |
| | M90 | 04-49 | | 692889 (9007314-0611) | Screw | 6 |
| | M95 | 04-49 | | 011296 (9004105-0120) | O-ring | 2 |
| | M96 | 04-49 | | 688721 (9004104-0170) | O-ring | 1 |
| | M97 | 04-49 | | 314534 (9004104-0310) | O-ring | 1 |
| | M658 | 04-49 | | 635938 (9004100-0210) | O-ring | 2 |
| | QM10 | 04-49 | | 11034094 | Control kit | 1 |
| | QM210 | 04-49 | | 11096251 | Control seal kit | 1 |

## Variable displacement pump

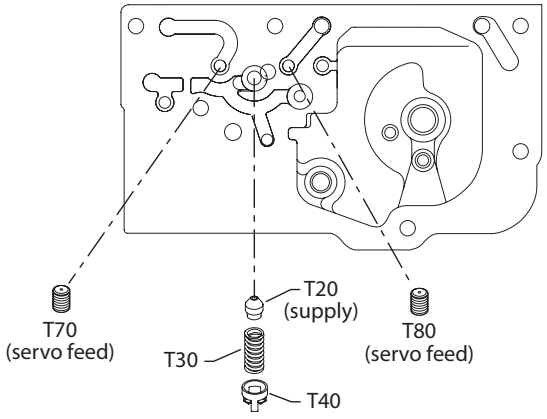
### (RS & RU)




Generic swashplate used to show link location only




View "A"




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E101 843E

* = included in control seal kit QM210

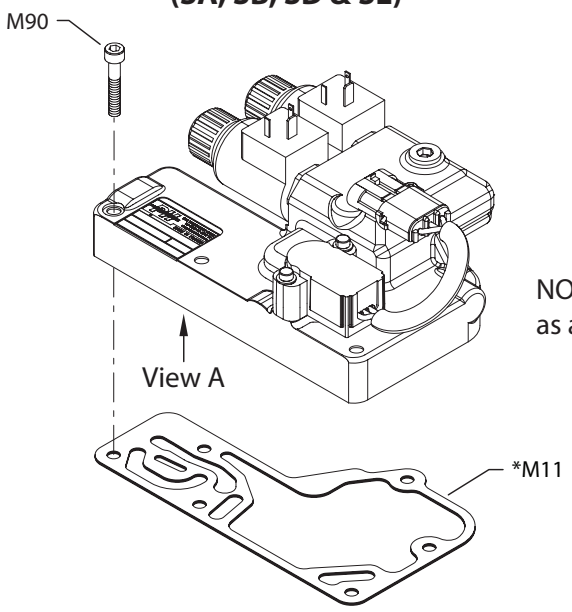
## Variable displacement pump

### Control

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| RS | M11 | 01-15 | | 510378 | Gasket | 1 |
| | M14 | 01-15 | | 11070307 | Feedback link | 1 |
| | M26 | 01-15 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 01-15 | | 042507 | Retaining ring | 1 |
| | M28 | 01-15 | | 510690 | Shaft seal ring | 1 |
| | M029 | 01-15 | | 512047 | Washer | 1 |
| | M70 | 01-15 | | 769075 | Control handle | 1 |
| | M71 | 01-15 | | 9009660-3100 | Toothlock washer | 1 |
| | M72 | 01-15 | | 040642 (9003513-0800) | Nut | 1 |
| | M76 | 01-15 | | 513018 | Solenoid, 24 volt | 1 |
| | M90 | 01-15 | | 354407 (9007314-0611) | Screw | 5 |
| | M92 | 01-15 | | 510382 | Screw | 1 |
| | QM10 | 01-15 | | 11086422 | Control kit, roller, 24 volt, nss | 1 |
| | QM83 | 01-15 | | 009670 (9004201-5000) | O-ring | 1 |
| | QM89 | 01-15 | | 11099847 | Neutral start switch kit | 1 |
| | QM034 | 01-15 | | 11099850 | Valve seal kit | 1 |
| | QM036 | 01-15 | | 11100383 | Nut | 1 |
| | QM037 | 01-15 | | 11100387 | Coil, 24 volt, Weather-pack connector | 1 |
| | QM210 | 01-15 | | 11100030 | Control seal kit | 1 |

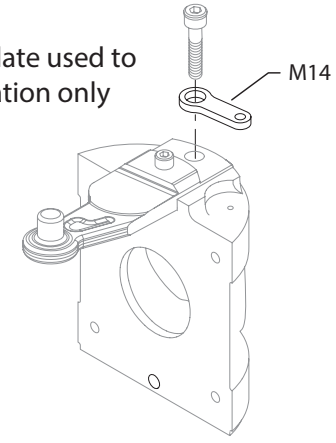
## Variable displacement pump

### (SA, SB, SD & SE)

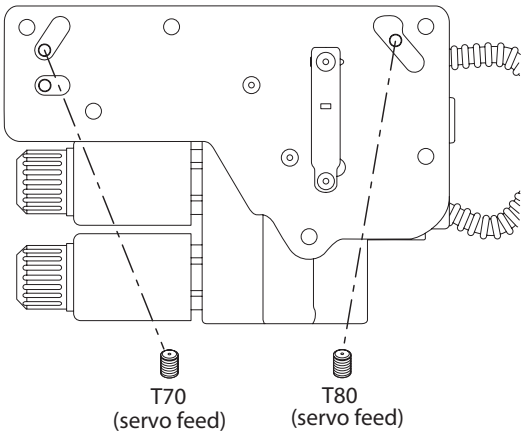



NOTE: This control is not available as a service part

Generic swashplate used to show link location only




View "A"




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E101 844E

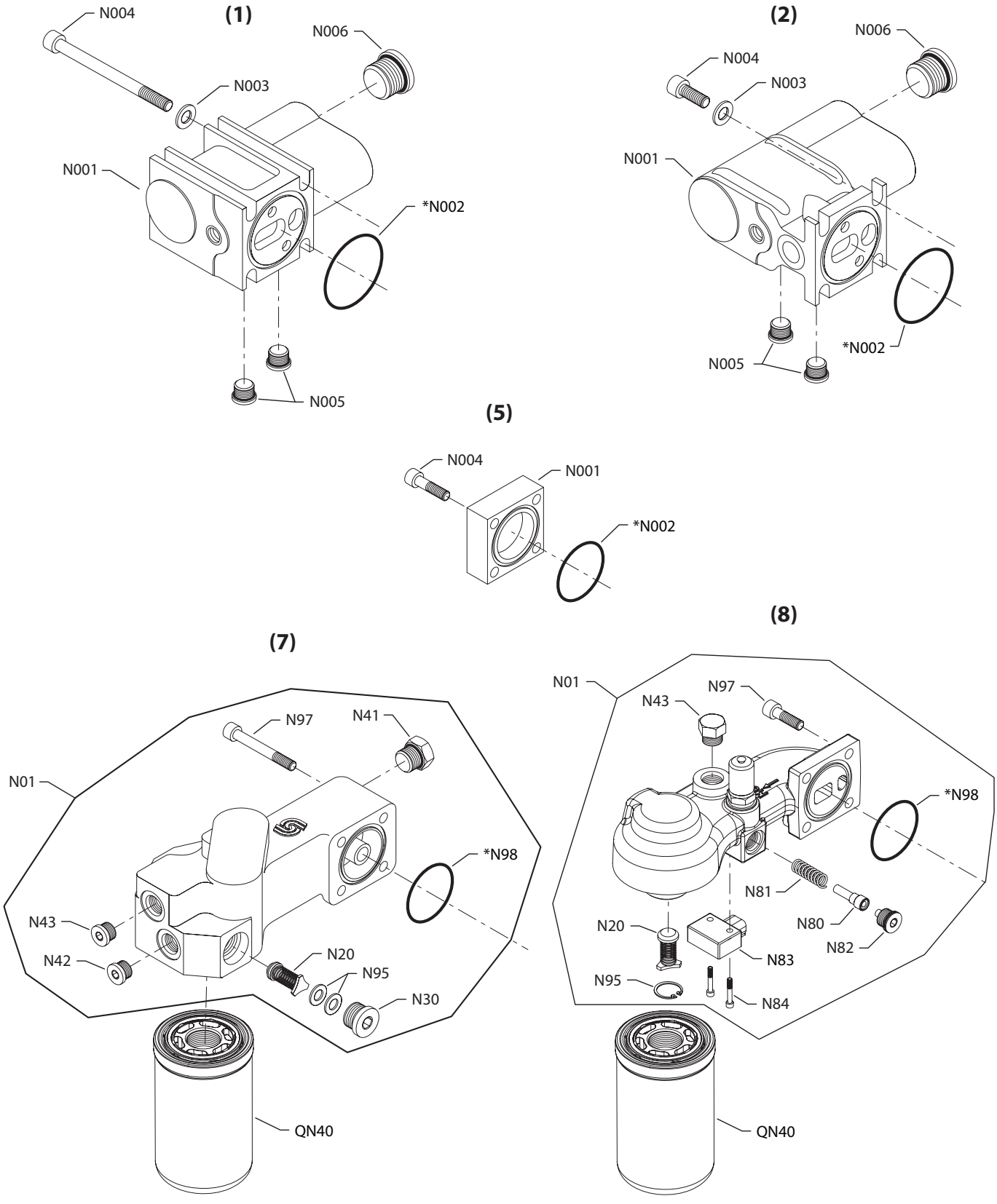
* = included in control seal kit QM210

## Variable displacement pump

### Control

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| SA | M11 | 08-32 | | 8800923 | Gasket | 1 |
| | M14 | 08-32 | | 11070307 | Feedback link | 1 |
| | M90 | 08-32 | | 694356 (9007314-0608) | Screw | 6 |
| SB | M11 | 08-32 | | 8800923 | Gasket | 1 |
| | M14 | 08-32 | | 11070307 | Feedback link | 1 |
| | M90 | 08-32 | | 694356 (9007314-0608) | Screw | 6 |
| SD | M11 | 10-34 | | 8800923 | Gasket | 1 |
| | M14 | 10-34 | | 11070307 | Feedback link | 1 |
| | M90 | 10-34 | | 694356 (9007314-0608) | Screw | 6 |
| SE | M11 | 10-34 | | 8800923 | Gasket | 1 |
| | M14 | 10-34 | | 11070307 | Feedback link | 1 |
| | M90 | 10-34 | | 694356 (9007314-0608) | Screw | 6 |

## Variable displacement pump



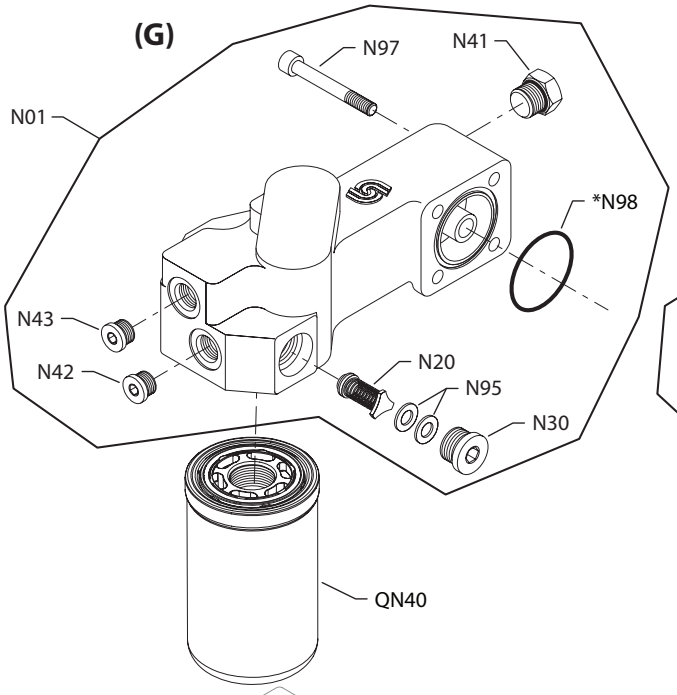

* = included in overhaul seal kit Q210

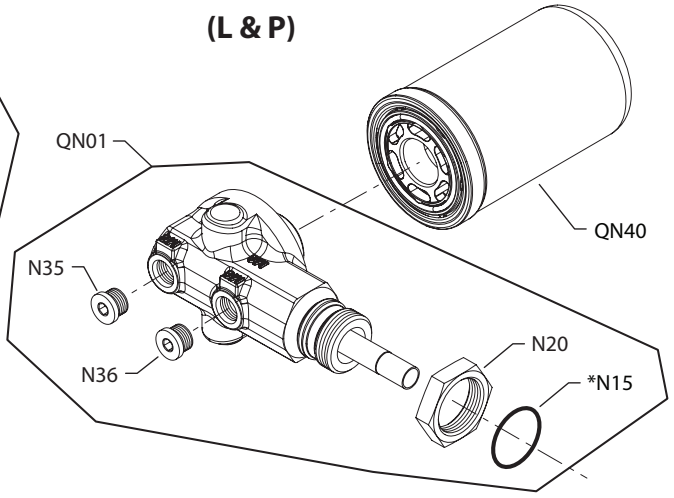
## Variable displacement pump

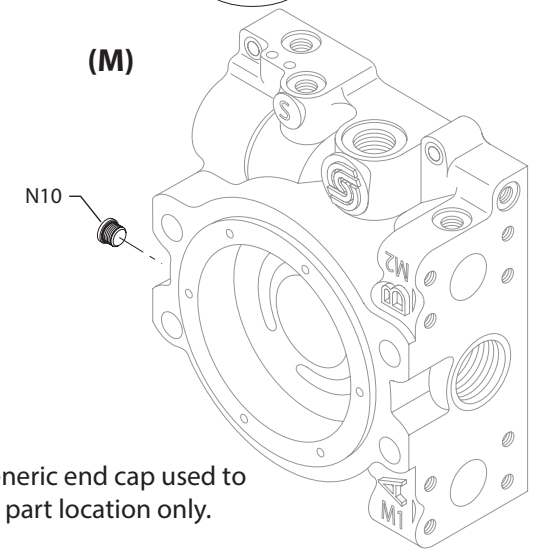
### Filtration

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 1 | N001 | 94-43 | 12-36 | 501096 | Manifold | 1 |
| | N002 | 94-43 | 12-36 | 9004104-0320 | O-ring | 1 |
| | N003 | 94-43 | 12-36 | 002311 (9009610-3459) | Washer | 4 |
| | N004 | 94-43 | 12-36 | 505442 | Screw | 4 |
| | N005 | 94-43 | 12-36 | 140644 | Plug assembly | 2 |
| | N006 | 94-43 | 12-36 | 320002 (9005110-9200) | Plug assembly | 1 |
| 2 | N001 | 94-43 | 12-36 | 505414 | Manifold | 1 |
| | N002 | 94-43 | 12-36 | 9004104-0320 | O-ring | 1 |
| | N003 | 94-43 | 12-36 | 002311 (9009610-3459) | Washer | 4 |
| | N004 | 94-43 | 12-36 | 713594 | Screw | 4 |
| | N005 | 94-43 | 12-36 | 140644 | Plug assembly | 2 |
| | N006 | 94-43 | 12-36 | 320002 (9005110-9200) | Plug assembly | 1 |
| 5 | N001 | 99-18 | | 515972 | Cover plate | 1 |
| | N002 | 99-18 | | 9004104-0320 | O-ring | 1 |
| | N004 | 99-18 | | 746594 | Screw | 4 |
| 7 | N01 | 02-03 | | 501831 | Filter manifold assembly | 1 |
| | N20 | 02-03 | | 360768 | Check valve | 1 |
| | N30 | 02-03 | | 365965 | Plug | 1 |
| | N43 | 02-03 | | 001537 (9005100-8700) | Plug assembly | 1 |
| | N42 | 02-03 | | 140644 | Plug assembly | 1 |
| | N43 | 02-03 | | 140644 | Plug assembly | 1 |
| | N95 | 02-03 | | 500115 | Washer | 2 |
| | N97 | 02-03 | | 376269 | Screw | 4 |
| | N98 | 02-03 | | 9004104-0320 | O-ring | 1 |
| | QN40 | 02-03 | | 11004919 | Filter assembly, long | 1 |
| 8 | | | | None | | |
| 9 | N01 | 02-03 | | 518202 | Filter manifold assembly | 1 |
| | N20 | 02-03 | | 520974 | Check valve | 1 |
| | N43 | 02-03 | | 508497 | Plug assembly | 1 |
| | N80 | 02-03 | | 518331 | Plug assembly, magnetnic | 1 |
| | N81 | 02-03 | | 519585 | Spring | 1 |
| | N82 | 02-03 | | 518335 | Plug assembly, special | 1 |
| | N83 | 02-03 | | 11000357 | Filtration sensor | 1 |
| | N84 | 02-03 | | 519968 | Screw | 2 |
| | N95 | 02-03 | | 042515 | Retaining ring | 1 |
| | N97 | 02-03 | | 393603 | Screw | 4 |
| | N98 | 02-03 | | 9004104-0320 | O-ring | 1 |
| | QN40 | 02-03 | | 11004919 | Filter assembly, long | 1 |
| D | | | | None | | |

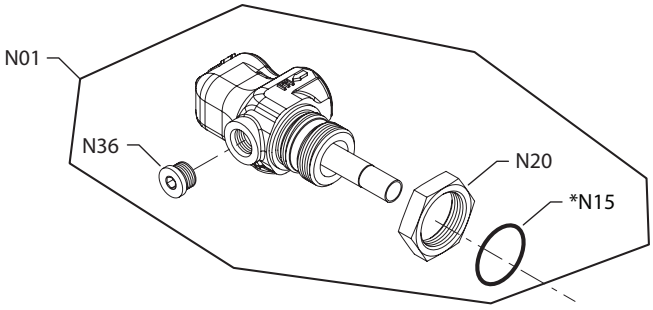
## Variable displacement pump

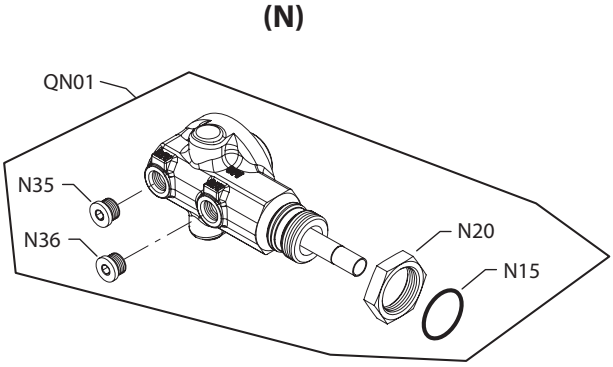



Generic end cap used to part location only.




E103 681E

* = included in overhaul seal kit Q210

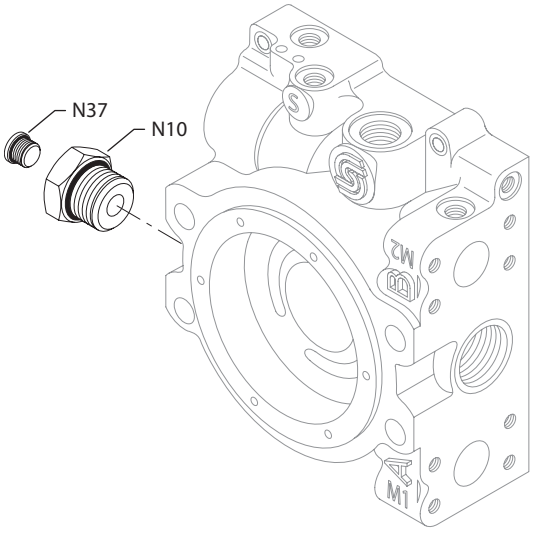
## Variable displacement pump

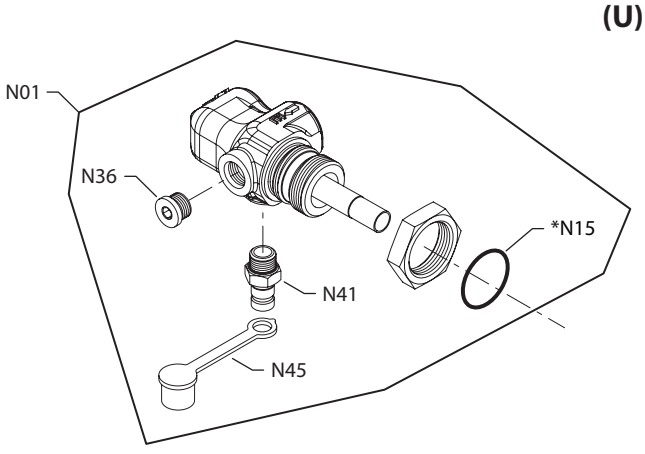
### Filtration

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| G | N01 | 02-03 | | 501831 | Filter manifold assembly | 1 |
| | N20 | 02-03 | | 360768 | Check valve | 1 |
| | N30 | 02-03 | | 365965 | Plug | 1 |
| | N43 | 02-03 | | 001537 (9005100-8700) | Plug assembly | 1 |
| | N42 | 02-03 | | 140644 | Plug assembly | 1 |
| | N43 | 02-03 | | 140644 | Plug assembly | 1 |
| | N95 | 02-03 | | 500115 | Washer | 2 |
| | N97 | 02-03 | | 376269 | Screw | 4 |
| | N98 | 02-03 | | 9004104-0320 | O-ring | 1 |
| | QN40 | 02-03 | | 11004917 | Filter assembly, short | 1 |
| L | N15 | 89-41 | | 9004201-9000 | O-ring | 1 |
| | N20 | 95-18 | | 11049997 | Nut | 1 |
| | N20 | 89-41 | 95-17 | 700492 (9002863-1600) | Nut (SB-1994-036) | 1 |
| | N35 | 89-41 | | 140644 | Plug assembly | 1 |
| | N36 | 89-41 | | 140644 | Plug assembly | 1 |
| | QN01 | 89-41 | | 11145250 | Filter manifold assembly | 1 |
| | QN40 | 02-03 | | 11004919 | Filter assembly, long | 1 |
| M | N10 | 94-16 | | 140644 | Plug assembly | 1 |
| N | N01 | 17-28 | | 11060346 | Filter manifold assembly | 1 |
| | N36 | 17-28 | | 140644 | Plug assembly | 1 |
| | N40 | 17-28 | | 11008261 | Filtration Cover | 1 |
| | QN01 | 17-28 | | 11145250 | Filter assembly assembly | 1 |
| P | N15 | 89-41 | | 9004201-9000 | O-ring | 1 |
| | N20 | 95-18 | | 11049997 | Nut | 1 |
| | N20 | 89-41 | 95-17 | 700492 (9002863-1600) | Nut (SB-1994-036) | 1 |
| | N35 | 89-41 | | 140644 | Plug assembly | 1 |
| | N36 | 89-41 | | 140644 | Plug assembly | 1 |
| | QN01 | 89-41 | | 11145250 | Filter manifold assembly | 1 |
| | QN40 | 02-03 | | 11004917 | Filter assembly, short | 1 |
| R | N01 | 89-41 | | 11060429 | Filter manifold assembly, remote | 1 |
| | N15 | 89-41 | | 9004201-9000 | O-ring | 1 |
| | N20 | 95-18 | | 11049997 | Nut | 1 |
| | N20 | 89-41 | 95-17 | 700492 (9002863-1600) | Nut (SB-1994-036) | 1 |
| | N36 | 89-41 | | 140644 | Plug assembly | 1 |

## Variable displacement pump

Generic end cap used to part location only.




E103 682E

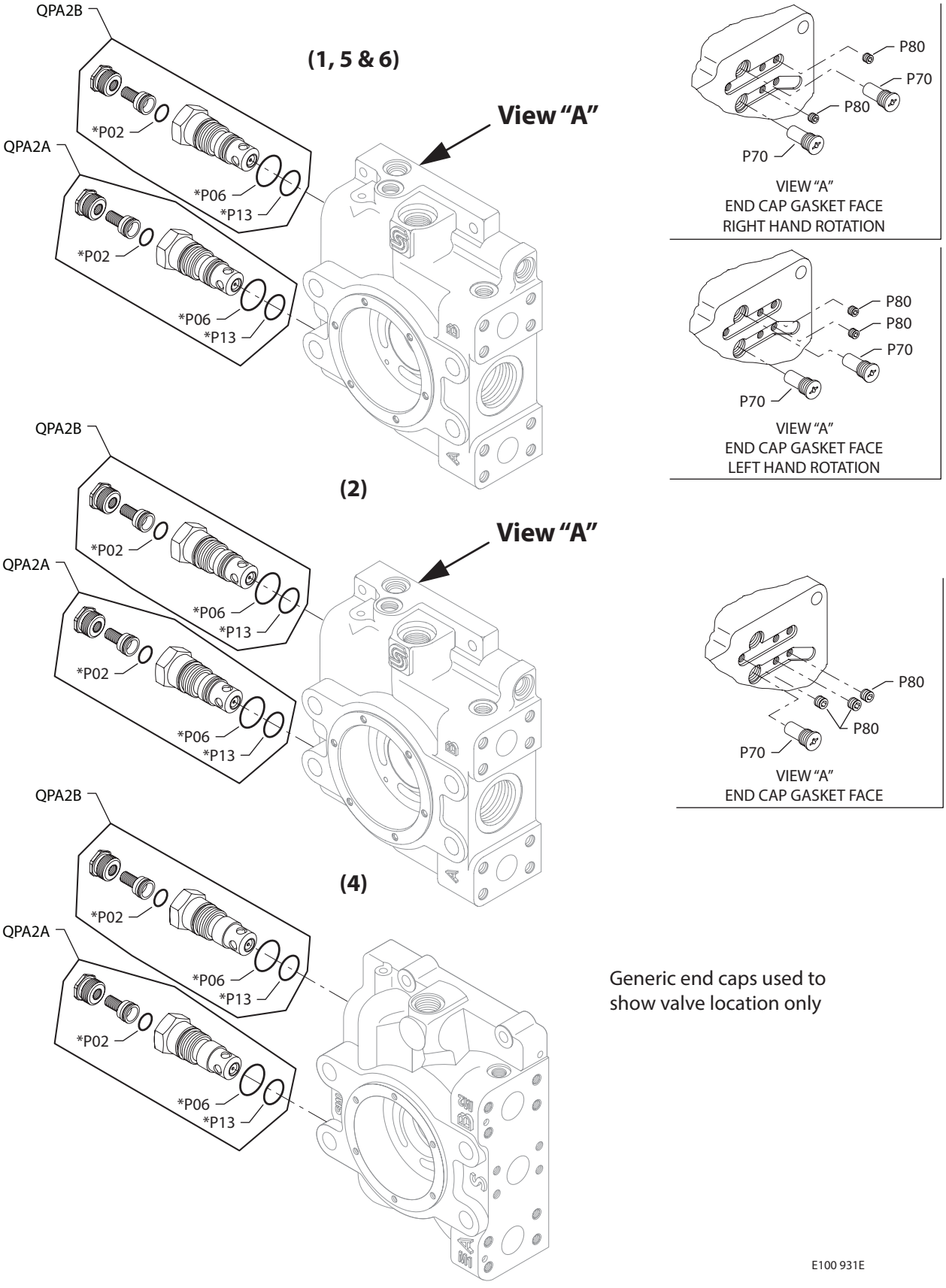
* = included in overhaul seal kit Q210

## Variable displacement pump

### Filtration

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| S | N10 | 89-41 | | 707554 | Reducer assembly | 1 |
| | N37 | 89-41 | | 140644 | Plug assembly | 1 |
| | | | | | | |
| U | N01 | 89-41 | | 11067124 | Filter manifold assembly, remote | 1 |
| | N15 | 89-41 | | 9004201-9000 | O-ring | 1 |
| | N20 | 95-18 | | 11049997 | Nut | 1 |
| | N20 | 89-41 | 95-17 | 700492 (9002863-1600) | Nut (SB-1994-036) | 1 |
| | N36 | 89-41 | | 140644 | Plug assembly | 1 |
| | N41 | 89-41 | | 8700127 | Diagnostic receptical | 1 |
| | N45 | 89-41 | | 8700128 | Dust cover | 1 |
| | | | | | | |
| V | | | | None | | |

## Variable displacement pump



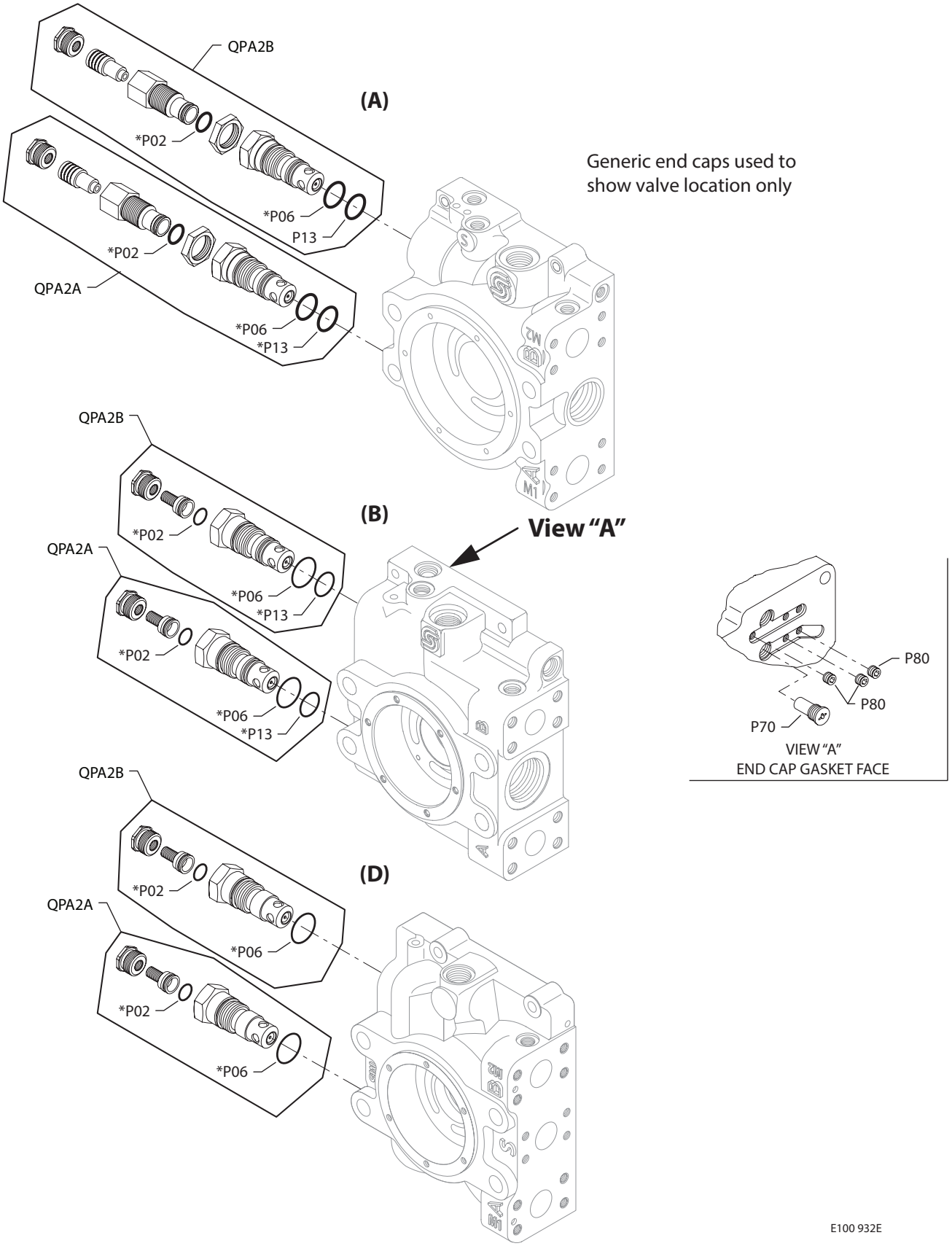

* = included in overhaul seal kit Q210

## Variable displacement pump

### High pressure regulation

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 1 | P2 | 89-41 | | 775080 | O-ring | 2 |
| | P6 | 89-41 | | 360784 (9004105-0290) | O-ring | 2 |
| | P13 | 89-41 | | 775155 | O-ring | 2 |
| | P70 | 89-41 | | 8800188 | Check valve assembly | 2 |
| | P80 | 89-41 | | 9005475-0004 | Special pipe plug | 2 |
| | QPA2A | 89-41 | | 8510023-1 | Multi-function valve kit (SB-1991-014) | 1 |
| | QPA2B | 89-41 | | 8510023-1 | Multi-function valve kit (SB-1991-014) | 1 |
| 2 | P2 | 89-41 | | 775080 | O-ring | 2 |
| | P6 | 89-41 | | 360784 (9004105-0290) | O-ring | 2 |
| | P13 | 89-41 | | 775155 | O-ring | 2 |
| | P70 | 89-41 | | 327007 (9005110-4400) | Plug assembly | 1 |
| | P80 | 89-41 | | 9005475-0004 | Special pipe plug | 3 |
| | QPA2A | 89-41 | | 8510023-2 | Multi-function valve kit (SB-1991-014) | 1 |
| | QPA2B | 89-41 | | 8510023-2 | Multi-function valve kit (SB-1991-014) | 1 |
| 4 | P2 | 03-28 | | 775080 | O-ring | 2 |
| | P6 | 03-28 | | 360784 (9004105-0290) | O-ring | 2 |
| | P13 | 03-28 | | 775155 | O-ring | 2 |
| | QPA2A | 03-28 | | 8510023-7 | Multi-function valve kit (SB-1991-014) | 1 |
| | QPA2B | 03-28 | | 8510023-7 | Multi-function valve kit (SB-1991-014) | 1 |
| 5 | P2 | 98-02 | | 775080 | O-ring | 2 |
| | P6 | 98-02 | | 360784 (9004105-0290) | O-ring | 2 |
| | P13 | 98-02 | | 775155 | O-ring | 2 |
| | P70 | 98-02 | | 8800188 | Check valve assembly | 2 |
| | P80 | 98-02 | | 9005475-0004 | Special pipe plug | 2 |
| | QPA2A | 98-02 | | 8510274 | Multi-function valve kit (SB-1991-014) | 1 |
| | QPA2B | 98-02 | | 8510274 | Multi-function valve kit (SB-1991-014) | 1 |
| 6 | P2 | 93-26 | | 775080 | O-ring | 2 |
| | P6 | 93-26 | | 360784 (9004105-0290) | O-ring | 2 |
| | P13 | 93-26 | | 775155 | O-ring | 2 |
| | P70 | 93-26 | | 8800188 | Check valve assembly | 2 |
| | P80 | 93-26 | | 9005475-0004 | Special pipe plug | 2 |
| | QPA2A | 93-26 | | 8510023-6 | Multi-function valve kit (SB-1991-014) | 1 |
| | QPA2B | 93-26 | | 8510023-6 | Multi-function valve kit (SB-1991-014) | 1 |

## Variable displacement pump



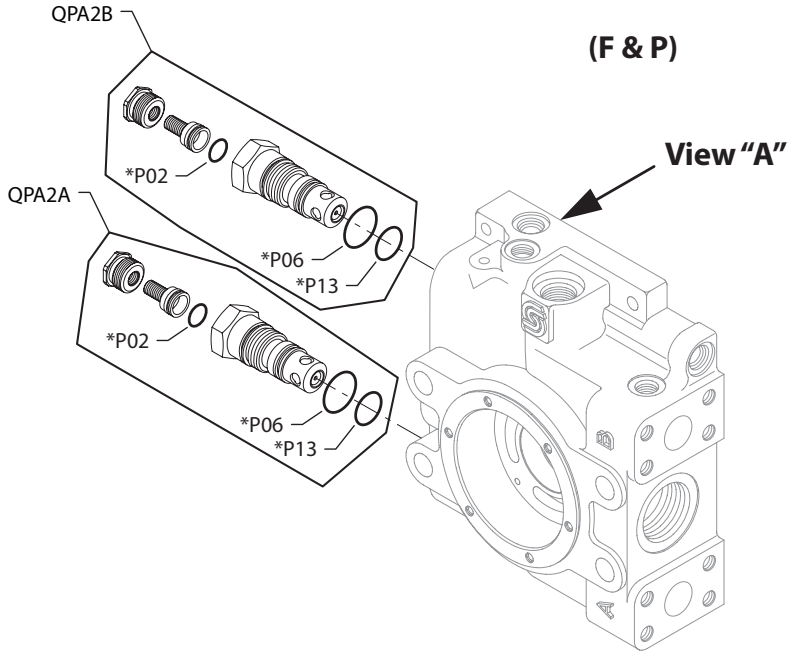

* = included in overhaul seal kit Q210

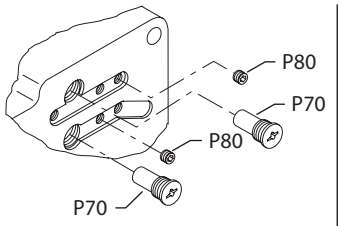
## Variable displacement pump

### High pressure regulation

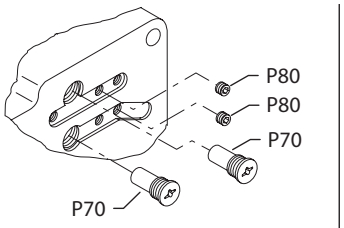
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| A | P02 | 89-41 | 14-25 | 775080 | O-ring | 2 |
| | P06 | 89-41 | 14-25 | 360784 (9004105-0290) | O-ring | 2 |
| | P13 | 89-41 | 14-25 | 775155 | O-ring | 2 |
| B | P02 | 99-09 | | 775080 | O-ring | 2 |
| | P06 | 99-09 | | 360784 (9004105-0290) | O-ring | 2 |
| | P13 | 99-09 | | 775155 | O-ring | 2 |
| | P70 | 99-09 | | 8800188 | Check valve assembly | 1 |
| | P80 | 99-09 | | 9005475-0004 | Special pipe plug | 3 |
| | QPA2A | 99-09 | | 8510023-1 | Multi-function valve kit (SB-1991-014) | 1 |
| | QPA2B | 99-09 | | 8510023-7 | Multi-function valve kit (SB-1991-014) | 1 |
| D | P02 | 97-40 | | 775080 | O-ring | 2 |
| | P06 | 97-40 | | 360784 (9004105-0290) | O-ring | 2 |
| | QPA2A | 97-40 | | 11086466 | Multi-function valve kit (SB-1991-014) | 1 |
| | QPA2B | 97-40 | | 11086466 | Multi-function valve kit (SB-1991-014) | 1 |

## Variable displacement pump

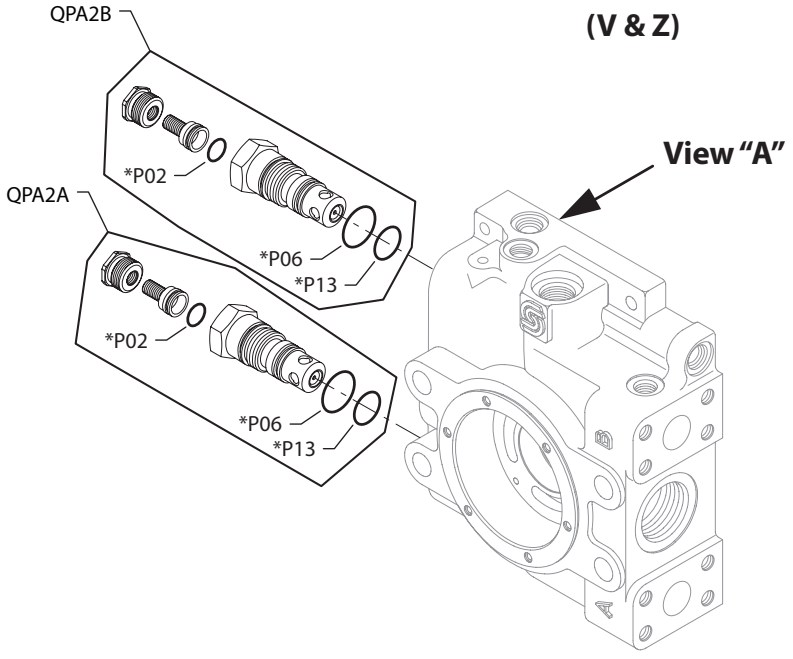


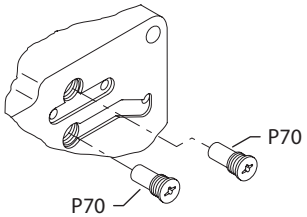




VIEW "A"
END CAP GASKET FACE
RIGHT HAND ROTATION




VIEW "A"
END CAP GASKET FACE
LEFT HAND ROTATION




VIEW "A"
END CAP GASKET FACE

Generic end cap used to show valve location only

E101 841E

* = included in overhaul seal kit Q210

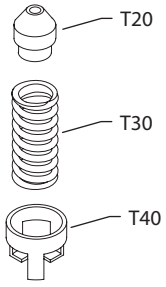
## Variable displacement pump

### High pressure regulation

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| F | P2 | 94-39 | | 775080 | O-ring | 2 |
| | P6 | 94-39 | | 360784 (9004105-0290) | O-ring | 2 |
| | P13 | 94-39 | | 775155 | O-ring | 2 |
| | P70 | 94-39 | | 8800188 | Check valve assembly | 2 |
| | P80 | 94-39 | | 9005475-0004 | Special pipe plug | 2 |
| | QPA2A | 94-39 | | 8510023-2 | Multi-function valve kit (SB-1991-014) | 1 |
| | QPA2B | 94-39 | | 8510023-2 | Multi-function valve kit (SB-1991-014) | 1 |
| P | P2 | 99-10 | | 775080 | O-ring | 2 |
| | P6 | 99-10 | | 360784 (9004105-0290) | O-ring | 2 |
| | P13 | 99-10 | | 775155 | O-ring | 2 |
| | P70 | 99-10 | | 8800188 | Check valve assembly | 2 |
| | P80 | 99-10 | | 9005475-0004 | Special pipe plug | 2 |
| | QPA2A | 99-10 | | 8510292 | Multi-function valve kit (SB-1991-014) | 1 |
| | QPA2B | 99-10 | | 8510292 | Multi-function valve kit (SB-1991-014) | 1 |
| V | P2 | 02-30 | | 775080 | O-ring | 2 |
| | P6 | 02-30 | | 360784 (9004105-0290) | O-ring | 2 |
| | P13 | 02-30 | | 775155 | O-ring | 2 |
| | P70 | 02-30 | | 8800188 | Check valve assembly | 2 |
| | QPA2A | 02-30 | | 8510240 | Multi-function valve kit (SB-1991-014) | 1 |
| | QPA2B | 02-30 | | 8510240 | Multi-function valve kit (SB-1991-014) | 1 |
| Z | P2 | 04-12 | | 775080 | O-ring | 2 |
| | P6 | 04-12 | | 360784 (9004105-0290) | O-ring | 2 |
| | P13 | 04-12 | | 775155 | O-ring | 2 |
| | P70 | 04-12 | | 8800188 | Check valve assembly | 2 |
| | QPA2A | 04-12 | | 8510022-1 | Multi-function valve kit (SB-1991-014) | 1 |
| | QPA2B | 04-12 | | 8510022-1 | Multi-function valve kit (SB-1991-014) | 1 |

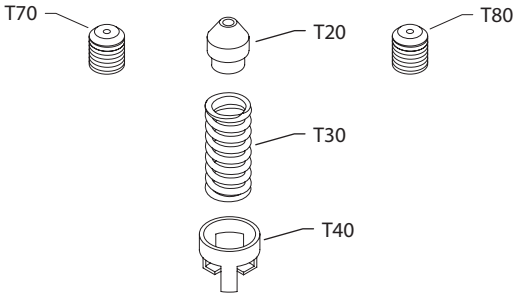
## Variable displacement pump

### (01, 02, 03, 04, 05, 06 & 09)



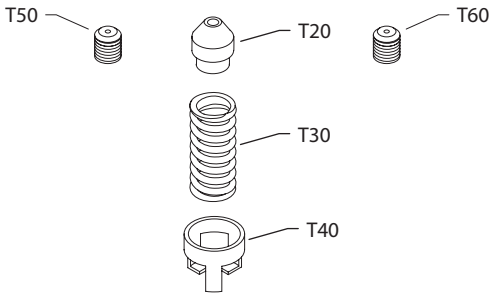

See control drawing for orifice location

### (21)




See control drawing for orifice location

### (23)




See control drawing for orifice location

E100 103E

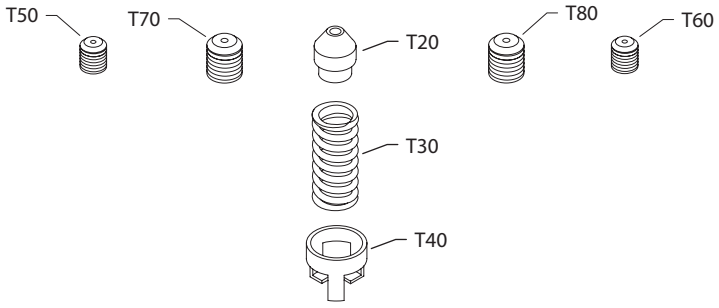
## Variable displacement pump

### Orifice

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 00 | | | | None | | |
| 01 | T20 | 89-41 | | 8801136 | Orificed check valve, .018" | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| 02 | T20 | 89-41 | | 8801139 | Orificed check valve, .026" | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| 03 | T20 | 89-41 | | 11061958 | Orificed check valve, .81mm | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| 04 | T20 | 89-41 | | 11061970 | Orificed check valve, 1.02mm | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| 05 | T20 | 89-41 | | 11061981 | Orificed check valve, 1.37mm | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| 06 | T20 | 89-41 | | 11061993 | Orificed check valve, 1.57mm | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| 09 | T20 | 89-41 | | 11062006 | Orificed check valve, 2.34mm | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| 21 | T20 | 89-41 | | 11061970 | Orificed check valve, 1.02mm | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| | T70 | 89-41 | | 714477 | Orifice plug, 0.8mm, M8 x 8 | 1 |
| | T80 | 89-41 | | 714477 | Orifice plug, 0.8mm, M8 x 8 | 1 |
| 22 | T20 | 89-41 | | 8801137 | Orificed check valve, .022" | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| 23 | T20 | 89-41 | | 11061958 | Orificed check valve, .81mm | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| | T50 | 89-41 | | 639153 | Orifice plug, 1.3mm, M5 x 6 | 1 |
| | T60 | 89-41 | | 639153 | Orifice plug, 1.3mm, M5 x 6 | 1 |

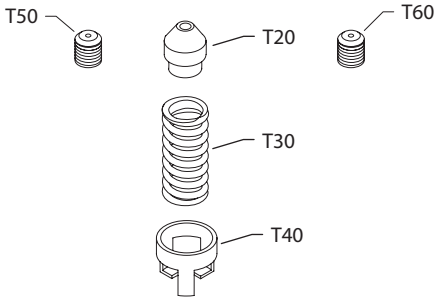
## Variable displacement pump

### (25, 28 & 30)



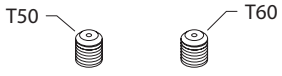

See control drawing
for orifice location

### (26, 27 & 29)




See control drawing
for orifice location

### (32 & 33)




See control drawing
for orifice location

E100 933E

## Variable displacement pump

### Orifice

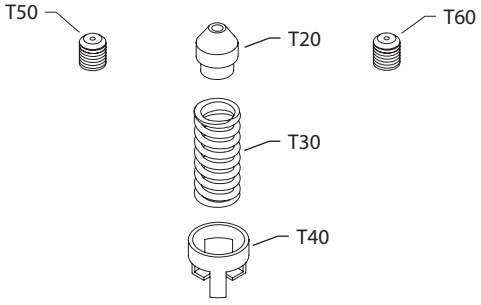
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 25 | T20 | 89-41 | | 8801139 | Orificed check valve, .026" | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| | T50 | 89-41 | | 606657 | Orifice plug, 0.5mm, M5 x 6 | 1 |
| | T60 | 89-41 | | 606657 | Orifice plug, 0.5mm, M5 x 6 | 1 |
| | T70 | 89-41 | | 716837 | Orifice plug, 0.6mm, M8 x 8 | 1 |
| | T80 | 89-41 | | 716837 | Orifice plug, 0.6mm, M8 x 8 | 1 |
| 26 | T20 | 89-41 | | 11061958 | Orificed check valve, .81mm | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| | T50 | 89-41 | | 598292 | Orifice plug, 0.8mm, M5 x 6 | 1 |
| | T60 | 89-41 | | 598292 | Orifice plug, 0.8mm, M5 x 6 | 1 |
| 27 | T20 | 89-41 | | 11061970 | Orificed check valve, 1.02mm | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| | T50 | 89-41 | | 598292 | Orifice plug, 0.8mm, M5 x 6 | 1 |
| | T60 | 89-41 | | 598292 | Orifice plug, 0.8mm, M5 x 6 | 1 |
| 28 | T20 | 89-41 | | 8801139 | Orificed check valve, .026" | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| | T50 | 89-41 | | 639104 | Orifice plug, 0.7mm, M5 x 6 | 1 |
| | T60 | 89-41 | | 639104 | Orifice plug, 0.7mm, M5 x 6 | 1 |
| | T70 | 89-41 | | 704650 | Orifice plug, 0.7mm, M8 x 8 | 1 |
| | T80 | 89-41 | | 704650 | Orifice plug, 0.7mm, M8 x 8 | 1 |
| 29 | T20 | 89-41 | | 11061958 | Orificed check valve, .81mm | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| | T50 | 89-41 | | 639104 | Orifice plug, 0.7mm, M5 x 6 | 1 |
| | T60 | 89-41 | | 639104 | Orifice plug, 0.7mm, M5 x 6 | 1 |
| 30 | T20 | 89-41 | | 8801139 | Orificed check valve, .026" | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| | T50 | 89-41 | | 639153 | Orifice plug, 1.3mm, M5 x 6 | 1 |
| | T60 | 89-41 | | 639153 | Orifice plug, 1.3mm, M5 x 6 | 1 |
| | T70 | 89-41 | | 704650 | Orifice plug, 0.7mm, M8 x 8 | 1 |
| | T80 | 89-41 | | 704650 | Orifice plug, 0.7mm, M8 x 8 | 1 |
| 32 | T50 | 89-41 | | 639120 | Orifice plug, 1.0mm, M5 x 6 | 1 |
| | T60 | 89-41 | | 639153 | Orifice plug, 1.3mm, M5 x 6 | 1 |
| 33 | T50 | 89-41 | | 639153 | Orifice plug, 1.3mm, M5 x 6 | 1 |
| | T60 | 89-41 | | 639153 | Orifice plug, 1.3mm, M5 x 6 | 1 |

## Variable displacement pump

**(34)**

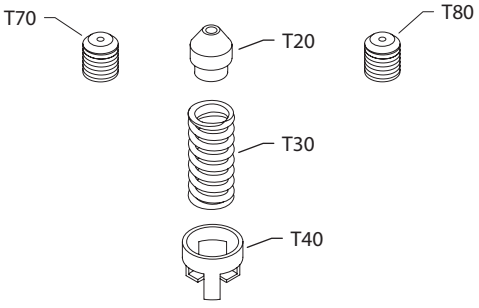
See control drawing
for orifice location

**(37, 44, 45, 46 & 49)**



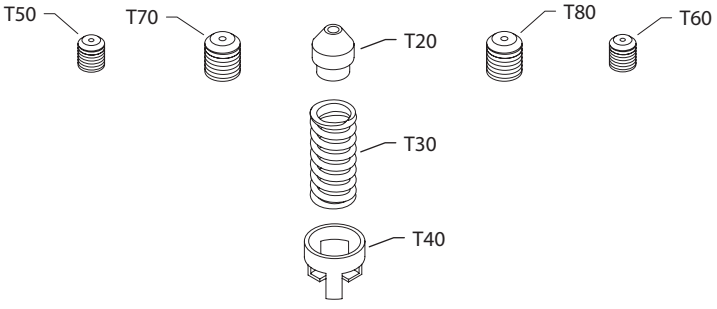

See control drawing
for orifice location

**(38)**




See control drawing
for orifice location

**(48)**




See control drawing
for orifice location

E100 934E

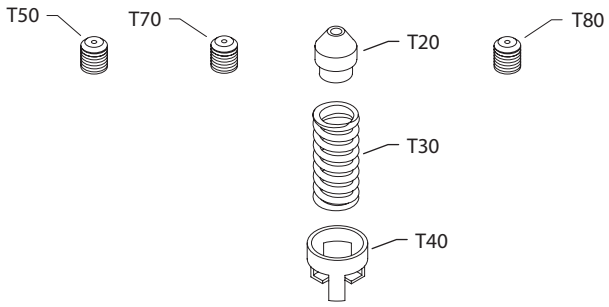
## Variable displacement pump

### Orifice

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 34 | T70 | 89-41 | | 755793 | Orifice plug, 1.0mm, M8 x 8 | 1 |
| | T80 | 89-41 | | 755793 | Orifice plug, 1.0mm, M8 x 8 | 1 |
| 37 | T20 | 89-41 | | 11061981 | Orificed check valve, 1.37mm | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| | T50 | 89-41 | | 639120 | Orifice plug, 1.0mm, M5 x 6 | 1 |
| | T60 | 89-41 | | 639120 | Orifice plug, 1.0mm, M5 x 6 | 1 |
| 38 | T20 | 89-41 | | 8801139 | Orificed check valve, .026" | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| | T70 | 89-41 | | 716837 | Orifice plug, 0.6mm, M8 x 8 | 1 |
| | T80 | 89-41 | | 716837 | Orifice plug, 0.6mm, M8 x 8 | 1 |
| 44 | T20 | 89-41 | | 11061981 | Orificed check valve, 1.37mm | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| | T50 | 89-41 | | 598292 | Orifice plug, 0.8mm, M5 x 6 | 1 |
| | T60 | 89-41 | | 598292 | Orifice plug, 0.8mm, M5 x 6 | 1 |
| 45 | T20 | 89-41 | | 11061958 | Orificed check valve, 0.81mm | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| | T50 | 89-41 | | 639153 | Orifice plug, 1.3mm, M5 x 6 | 1 |
| | T60 | 89-41 | | 598292 | Orifice plug, 0.8mm, M5 x 6 | 1 |
| 46 | T20 | 89-41 | | 8801139 | Orificed check valve, .026" | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| | T50 | 89-41 | | 598292 | Orifice plug, 0.8mm, M5 x 6 | 1 |
| | T60 | 89-41 | | 598292 | Orifice plug, 0.8mm, M5 x 6 | 1 |
| 48 | T20 | 89-41 | | 11061958 | Orificed check valve, 0.81mm | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| | T50 | 89-41 | | 598292 | Orifice plug, 0.8mm, M5 x 6 | 1 |
| | T60 | 89-41 | | 598292 | Orifice plug, 0.8mm, M5 x 6 | 1 |
| | T70 | 89-41 | | 714477 | Orifice plug, 0.8mm, M8 x 8 | 1 |
| | T80 | 89-41 | | 714477 | Orifice plug, 0.8mm, M8 x 8 | 1 |
| 49 | T20 | 89-41 | | 11061958 | Orificed check valve, 0.81mm | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| | T50 | 89-41 | | 639120 | Orifice plug, 1.0mm, M5 x 6 | 1 |
| | T60 | 89-41 | | 639120 | Orifice plug, 1.0mm, M5 x 6 | 1 |

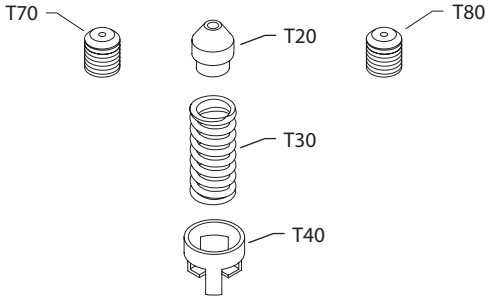
## Variable displacement pump

### (50)




See control drawing for orifice location

### (54)

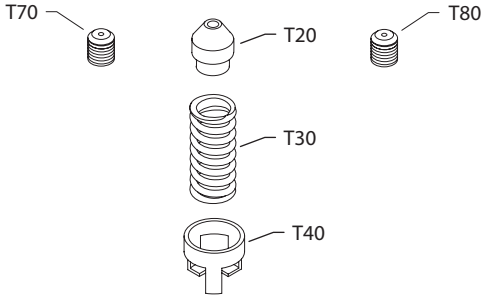



See control drawing for orifice location

### (64)

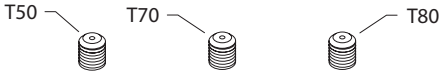
See control drawing for orifice location

### (76, 99, A5 & A8)




See control drawing for orifice location

### (82)




See control drawing for orifice location

### (84 & A4)

See control drawing for orifice location

E100 935E

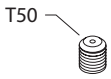
## Variable displacement pump

### Orifice

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 50 | T20 | 89-41 | | 8801139 | Orificed check valve, .026" | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| | T50 | 89-41 | | 310771 | Orifice plug, 1.2mm, M6 x 6 | 1 |
| | T70 | 89-41 | | 517571 | Orifice plug, 0.9mm, M6 x 6 | 1 |
| | T80 | 89-41 | | 517571 | Orifice plug, 0.9mm, M6 x 6 | 1 |
| 54 | T20 | 89-41 | 12-29 | 11061970 | Orificed check valve, 1.02mm | 1 |
| | T30 | 89-41 | 12-29 | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | 12-29 | 8801303 | Spring retainer | 1 |
| | T70 | 89-41 | 12-29 | 755793 | Orifice plug, 1.0mm, M8 x 8 | 1 |
| | T80 | 89-41 | 12-29 | 755793 | Orifice plug, 1.0mm, M8 x 8 | 1 |
| 64 | T50 | 89-41 | | 617159 | Orifice plug, 1.8mm, M5 x 6 | 1 |
| | T60 | 89-41 | | 617159 | Orifice plug, 1.8mm, M5 x 6 | 1 |
| 76 | T20 | 89-41 | | 8801139 | Orificed check valve, .026" | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| | T70 | 89-41 | | 578542 | Orifice plug, 0.8mm, M6 x 8 | 1 |
| | T80 | 89-41 | | 578542 | Orifice plug, 0.8mm, M6 x 8 | 1 |
| 82 | T50 | 89-41 | | 310771 | Orifice plug, 1.2mm, M6 x 6 | 1 |
| | T70 | 89-41 | | 310771 | Orifice plug, 1.2mm, M6 x 6 | 1 |
| | T80 | 89-41 | | 310771 | Orifice plug, 1.2mm, M6 x 6 | 1 |
| 84 | T70 | 89-41 | | 310771 | Orifice plug, 1.2mm, M6 x 6 | 1 |
| | T80 | 89-41 | | 310771 | Orifice plug, 1.2mm, M6 x 6 | 1 |
| 99 | T20 | 89-41 | | 8801301 | Orificed check valve, .047" | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| | T70 | 89-41 | | 517572 | Orifice plug, 1.5mm, M6 x 6 | 1 |
| | T80 | 89-41 | | 517572 | Orifice plug, 1.5mm, M6 x 6 | 1 |
| A4 | T70 | 89-41 | | 578542 | Orifice plug, 0.8mm, M6 x 8 | 1 |
| | T80 | 89-41 | | 578542 | Orifice plug, 0.8mm, M6 x 8 | 1 |
| A5 | T20 | 89-41 | | 11061970 | Control orifice kit, 1.02mm | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| | T70 | 89-41 | | 578542 | Orifice plug, 0.8mm, M6 x 8 | 1 |
| | T80 | 89-41 | | 578542 | Orifice plug, 0.8mm, M6 x 8 | 1 |
| A8 | T20 | 89-41 | | 11061970 | Control orifice kit, 1.02mm | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| | T70 | 89-41 | | 508014 | Orifice plug, 1.0mm, M6 x 8 | 1 |
| | T80 | 89-41 | | 508014 | Orifice plug, 1.0mm, M6 x 8 | 1 |

## Variable displacement pump

### (B1, B7, B8, B9 & G1)

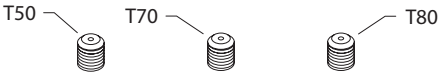



See control drawing for orifice location

### (B2)

See control drawing for orifice location

### (B3 & BA)

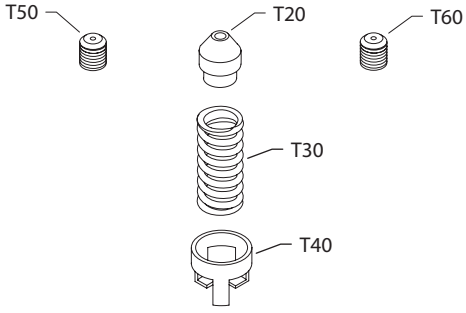



See control drawing for orifice location

### (C4)

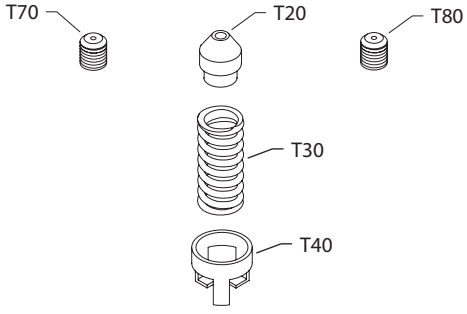
See control drawing for orifice location

### (C5, C6 & C7)




See control drawing for orifice location

### (D1)




See control drawing for orifice location

E100 936E

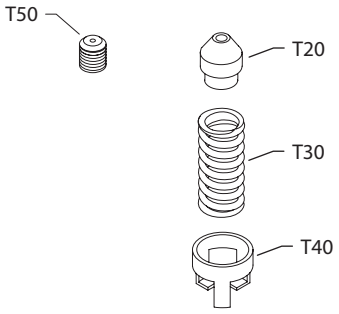
## Variable displacement pump

### Orifice

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| B1 | T50 | 89-41 | | 507042 | Orifice plug, 1.5mm, M6 x 8 | 1 |
| B2 | T70 | 89-41 | | 310771 | Orifice plug, 1.2mm, M6 x 6 | 1 |
| | T80 | 89-41 | | 310771 | Orifice plug, 1.2mm, M6 x 6 | 1 |
| B3 | T50 | 89-41 | | 507042 | Orifice plug, 1.5mm, M6 x 8 | 1 |
| | T70 | 89-41 | | 739144 | Orifice plug, 0.8mm, M6 x 6 | 1 |
| | T80 | 89-41 | | 739144 | Orifice plug, 0.8mm, M6 x 6 | 1 |
| B7 | T50 | 89-41 | | 578542 | Orifice plug, 0.8mm, M6 x 8 | 1 |
| B8 | T50 | 89-41 | | 508014 | Orifice plug, 1.0mm, M6 x 8 | 1 |
| B9 | T50 | 89-41 | | 516598 | Orifice plug, 1.2mm, M6 x 8 | 1 |
| BA | T50 | 89-41 | | 516598 | Orifice plug, 1.2mm, M6 x 8 | 1 |
| | T70 | 89-41 | | 507042 | Orifice plug, 1.5mm, M6 x 8 | 1 |
| | T80 | 89-41 | | 507042 | Orifice plug, 1.5mm, M6 x 8 | 1 |
| C4 | T50 | 89-41 | | 639161 | Orifice plug, 1.4 mm, M5 x 6 | 1 |
| | T60 | 89-41 | | 639161 | Orifice plug, 1.4 mm, M5 x 6 | 1 |
| C5 | T20 | 89-41 | | 11061958 | Orificed check valve, 0.81mm | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| | T50 | 89-41 | | 639161 | Orifice plug, 1.4 mm, M5 x 6 | 1 |
| | T60 | 89-41 | | 639161 | Orifice plug, 1.4 mm, M5 x 6 | 1 |
| C6 | T20 | 89-41 | | 11061970 | Control orifice kit, 1.02mm | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| | T50 | 89-41 | | 639161 | Orifice plug, 1.4 mm, M5 x 6 | 1 |
| | T60 | 89-41 | | 639161 | Orifice plug, 1.4 mm, M5 x 6 | 1 |
| C7 | T20 | 89-41 | | 11061981 | Control orifice kit, 1.37mm | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| | T50 | 89-41 | | 639161 | Orifice plug, 1.4 mm, M5 x 6 | 1 |
| | T60 | 89-41 | | 639161 | Orifice plug, 1.4 mm, M5 x 6 | 1 |
| D1 | T20 | 89-41 | | 11061981 | Control orifice kit, 1.37mm | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| | T70 | 89-41 | | 043356 | Orifice plug, 0.9mm, M6 x 8 | 1 |
| | T80 | 89-41 | | 043356 | Orifice plug, 0.9mm, M6 x 8 | 1 |
| G1 | T50 | 89-41 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |

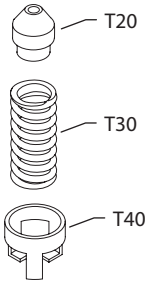
## Variable displacement pump

### (G4, G8, GB, GD, GF & GJ)



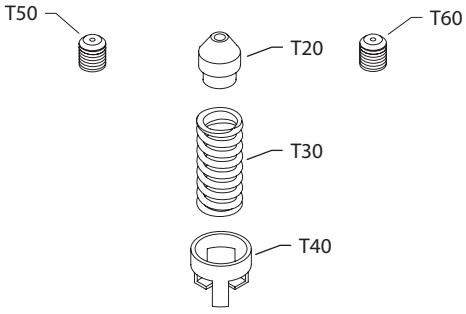

See control drawing for orifice location

### (K1)




See control drawing for orifice location

### (K2 & Z3)




See control drawing for orifice location

### (P1)

See control drawing for orifice location

E100 937E

## Variable displacement pump

### Orifice

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| G4 | T20 | 89-41 | | 8801136 | Control orifice kit, .018" | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| | T50 | 89-41 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |
| G8 | T20 | 89-41 | | 8801139 | Orificed check valve, .026" | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| | T50 | 89-41 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |
| GB | T20 | 89-41 | | 11061958 | Orificed check valve, 0.81mm | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| | T50 | 89-41 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |
| GD | T20 | 89-41 | | 11061993 | Orificed check valve, 1.57mm | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| | T50 | 89-41 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |
| GF | T20 | 89-41 | | 11061970 | Control orifice kit, 1.02mm | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| | T50 | 89-41 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |
| GJ | T20 | 89-41 | | 11061981 | Control orifice kit, 1.37mm | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| | T50 | 89-41 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |
| K1 | T20 | 89-41 | | 11061981 | Control orifice kit, 1.37mm | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| K2 | T20 | 89-41 | | 11061958 | Orificed check valve, 0.81mm | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| | T50 | 89-41 | | 639104 | Orifice plug, 0.7mm, M5 x 6 | 1 |
| | T60 | 89-41 | | 639104 | Orifice plug, 0.7mm, M5 x 6 | 1 |
| P1 | T70 | 11-40 | | 508014 | Orifice plug, 1.0mm, M6 x 8 | 1 |
| | T80 | 11-40 | | 508014 | Orifice plug, 1.0mm, M6 x 8 | 1 |
| Z3 | T20 | 89-41 | | 11061970 | Control orifice kit, 1.02mm | 1 |
| | T30 | 89-41 | | 679506 (8700007) | Spring | 1 |
| | T40 | 89-41 | | 8801303 | Spring retainer | 1 |
| | T50 | 89-41 | | 519659 | Orifice plug, 1.0mm, M6 x 6 | 1 |
| | T60 | 89-41 | | 519659 | Orifice plug, 1.0mm, M6 x 6 | 1 |

## Variable displacement pump

### Overhaul seal kit

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| | Q210 | 89-41 | | 11035671 | Overhaul seal kit, 130cc | 1 |
| | Q210 | 89-41 | | 11095651 | Service kit, base pump, 130cc | 1 |
| | B90 | 89-41 | | 9803390 | Filter screen | 3 |
| | C70 | 89-41 | | 308643 | Screw | 4 |
| | E40 | 89-41 | | 042432 | Seal nut, M10 | 2 |
| | E50 | 89-41 | | 517379 | O-ring | 1 |
| | E60 | 89-41 | | 517230 | Screw (SB-2002-014) | 6 |
| | F11 | 89-41 | | 9004100-2240 | O-ring | 2 |
| | F11 | 89-41 | | 754150 | O-ring | 2 |
| | F12 | 89-41 | | 507800 | Piston ring | 2 |
| | F12 | 89-41 | | 754168 | Piston ring | 2 |
| | F40 | 89-41 | | 354316 | O-ring | 2 |
| | F50 | 89-41 | | 552224 (9004104-0360) | O-ring | 2 |
| | F112 | 89-41 | | 042432 | Seal nut, M10 | 1 |
| | F124 | 89-41 | | 066159 | Seal nut, M12 | 1 |
| | F212 | 89-41 | | 042432 | Seal nut, M10 | 1 |
| | F224 | 89-41 | | 066159 | Seal nut, M12 | 1 |
| | G30 | 89-41 | | 730895 | End cap gasket | 1 |
| | J40 | 89-41 | | 11147582 | O-ring | 1 |
| | J50 | 89-41 | | 505068 | O-ring | 1 |
| | K50 | 89-41 | | 001156 (9004201-7500) | O-ring | 1 |
| | L25 | 89-41 | | 519732 | Seal carrier assembly | 1 |
| | N15 | 89-41 | | 001172 (9004201-9000) | O-ring | 1 |
| | N98 | 89-41 | | 9004104-0320 | O-ring | 1 |
| | P02 | 89-41 | | 775080 | O-ring | 2 |
| | P06 | 89-41 | | 360784 (9004105-0290) | O-ring | 2 |
| | P13 | 89-41 | | 775155 | O-ring | 2 |

## Notes

## BLN-10107

To improve efficiency and reliability, the number of parts in series 90 pumps is being reduced. The charge pump design on 55 cc - 130 cc frame sizes is being changed so that the outer port plate is an integral part of the charge pump cover and distance plates are eliminated. The change is taking effect at the following manufacturing dates:

55 cc: 93-10 75 cc: 93-10 100 cc: 93-15 130 cc: 93-34

For auxiliary pad options, the new charge pump cover is rotation dependent. The cover will be marked as either left hand (L) or right hand (R). The non-auxiliary pad cover is not rotation dependent.

The charge pump shaft also changes and must be replaced when using the new style hardware. The complete charge pump assembly can be interchanged with corresponding hardware from 89-17 and beyond. However, piece parts are not interchangeable. For units prior to 89-17, consult Sauer-Danfoss.

The old design charge pump hardware is obsolete and is no longer available. Refer to the chart on the next page to determine the replacement kit.

**BLN-10107**

The following information must be known to determine the correct charge pump replacement kit:

1. Unit size (055, 075, 100, or 130 cc)
2. Charge pump displacement (11, 14, 17, 20, 26, or 34 cc)
3. Auxiliary pad (Yes or No)
4. Rotation (LH or RH)

## Service Bulletin: SB-1991-014

| | |
|---|---|
| **Products affected** | Series 90130 cc variable pumps |
| **Subject** | Multi-function valve installation torque |
| **Description** | To avoid damaging the multi-function valve cartridge used on 130cc variable pumps, the torque has been lowered from 206 lbf•ft (279 Nm) to 155 lbf•ft (210 Nm).<br><br>The series 90 service manual will be changed to show the lower installation torque at its next revision. |
| **Models affected** | All 97-2xxx pumps |
| **Serial numbers** | All |
| **Part numbers affected** | All |
| **Parts disposition** | ■ Not applicable |

## Service Bulletin: SB-1992-003A

**Products affected**

Series 90: 55, 75,100.130 cc pumps

**Subject**

Block point change: components redesign

**Description**

As part of our overall series 90 product improvement program, numerous components are being redesigned. This redesign is referred to as a "block point" change. The objective of the block point change is to minimize the number of times we change the units while we convert to high volume tooling at various plant sites. These design improvements will provide increased reliability and more application flexibility. The nature of these changes makes customer requalification unnecessary. Old style (pre-block point) variable housings and end caps will no longer be available as spare parts.

**Frame size: 130 cc**

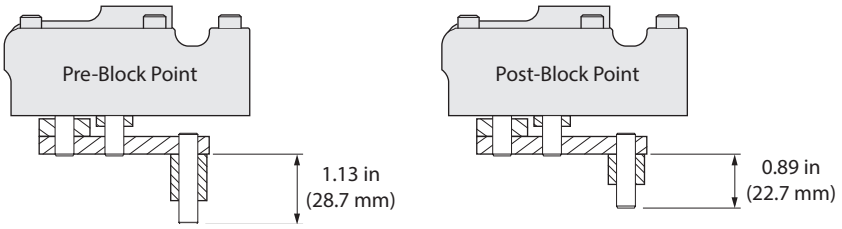
| Item | Description | Pre "blockpoint" Part Number | New Part Number (92-19 & Later) |
|---|---|---|---|
| Common Parts Group, 130 cc | | | |
| B10 | Variable housing | 700237(O) | 8510060 |
| E10 | Side cover | 340133 | 746107 |
| E20 | Leveler | 701037 | 730143 |
| E30 | Guide post | 340117 | 746255 |
| E40 | Screw | 364489 (4) | 042432 (2) Seal Nut |
| B82 | Plug | n/a | 9005110-5600 |
| End Cap Group, 130 cc | | | |
| G308 | End Cap gasket | 709816(I)(O) | 730895(I) |
| G908 | Screw | 376624 | 713719 |
| G958 | Screw | 527218 | 9007314-0811 |
| Special Hardware Features Group, 130 cc | | | |
| B83 | Plug-Speed Pick-up | n/a | 9005110-5600 |
| Control Group, 130 cc | | | |
| All Control Types-Delete The Following Parts: | | | |
| M810 | Plate | 738203(O) | N/A |
| M820 | O-ring | 9004104-0440 | N/A |
| M830 | O-ring | 9004100-0220 | N/A |
| M840 | O-ring | 9004101-0130 | N/A |
| M860 | Screw | 345496 | N/A |
| M870 | Plug | 9005100-4400 | N/A |
| M880 | Washer | 723981 | N/A |

(I) Interchangeable
(O) Obsolete

Warning: On 130cc pumps, "pre" and "Post" blockpoint controls are not interchangeable due to different length control pins.

## Service Bulletin: SB-1992-003A

Warning: On 130cc pumps, "pre" and "Post" blockpoint controls (MDC's, HDC's and EDC's) are not interchangeable due to different length control pins. Ensure positive pin engagement. Failure to do so may result in pump output, and the vehicle may move.




Controls, 130 cc

| Module Groups | Description | Pre "blockpoint" Part Number | New Part Number (92-19 & Later) |
|---|---|---|---|
| MEA | EDC kit MS connector | MCV111B1302 | See EC Group |
| MEP | EDC kit Packard | MCV111B1304 | See EE Group |
| MEC | EDC, MS,standard | MCV114A1402 | MCV114B1302 |
| MEE | EDC, Packard, standard | MCV114A1404 | MCV114B1304 |
| MEG | EDC, MS, annular | MCV114C1402 | MCV114D1302 |
| MEH | EDC, Packard, annular | MCV114C1404 | MCV114D1304 |
| | | | |
| | | | |
| MHA | HDC , 1-11 bar | MCV112A1302 | See HK Group |
| MHB | HDC, 1-6.7 bar | MCV112A1301 | See HM Group |
| MHC | HDC, 3-11 bar | MCV112A1303 | See HF Group |
| MHF | HDC, 3-11 bar, standard | MCV115A1403 | MCV115A1303 |
| MHG | HDC, .8-4.6 bar, annular | MCV115B1405 | MCV115B1305 |
| MHH | HDC, 1-11 bar, annular | MCV115B1402 | MCV115B1302 |
| MHJ | HDC, 3-11 bar, annular | MCV115B1403 | MCV115B1303 |
| MHK | HDC, 1-11 bar, standard | MCV115A1402 | MCV115A1302 |
| MHL | HDC, .8-4.6 bar, standard | MCV115A1405 | MCV115A1305 |
| MHM | HDC, 1.1-6.7 bar, standard | MCV115A1401 | MCV115A1301 |
| MHN | HDC, 1.1-6.7 bar, annular | MCV115B1401 | MCV115B1301 |
| | | | |
| MMA | MDC w/o nss | 8302MOMA-A | 8302MOMA-B |
| MMB | MDC w/ nss | 8302MOMB-A | 8302MOMB-B |

## Service Bulletin: SB-1992-003A

**Models affected**

All series 90 94-2xxx, 95-2xxx, 96-2xxx, and 97-2xxx variable pumps

**Serial numbers**

Changes will take place at the serial number 92-19-xxxxx for 130 cc pumps

**Part numbers affected**

Refer to text of this bulletin for specific part numbers.

| | |
|---|---|
| Housing: | (all frame sizes)Thickness adjacent to the side cover has been increased. |
| Side Cover: | (100 cc & 130cc only) Thickness increased. |
| End Cap: | (all frame sizes) Match housing change; small end cap screws (55 cc-100 cc) will be larger; the orientation of the charge relief valve on side port end caps has been changed from an oblique to a vertical orientation. |
| Controls: | (130cc only) Eliminate mounting plate, three-pin link change. |
| Side Cover: | (130cc only) Swashplate hold-down ("T-bar") mounting will be changed to commonize the design with the smaller displacement units |

**Note: Reference PIB-9102 for design changes and outline dimensions.**

**Parts disposition**

■ Non-interchangeable

## Service Bulletin: SB-1994-025

**Products affected**

Series 90 130 cc variable pumps

**Subject**

Charge pump design change

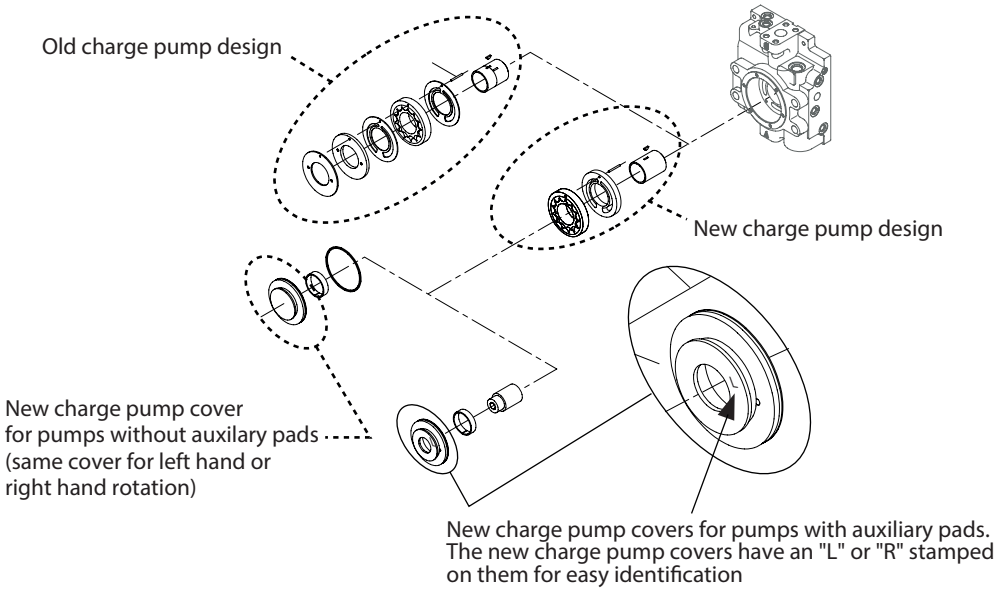
**Description**

To improve efficiency and reliability, the number of parts in the charge pump is being reduced. The charge pump on the 130 cc frame size is changing such that the outer port plate (H30) is an integral part of the charge pump cover (J15) and the distance plates are eliminated.

For auxiliary pad options, the new charge pump cover is rotation dependent. The cover will be marked either left hand (L) or right hand (R). The non-auxiliary pad cover is not rotation dependent.

The charge pump shaft also changes and must be replaced when using the new style hardware. The complete charge pump assembly can be interchanged with corresponding hardware.

However, piece parts are not interchangeable.



## Service Bulletin: SB-1994-025

**Models affected**

All 97-2xxx and 972xxxx variable pumps

**Serial numbers**

Change occurred at serial number N-93-34-xxxxx

**Part numbers affected**

| Obsoleted Charge Pump Parts | | | Chg. pump displace-ment | Auxilary pad | Rotation | Replacement Kit |
|---|---|---|---|---|---|---|
| Gear Set | Shaft | Cover | | | | |
| 714444 | 303636 | 347518 | 20 cc | No | LH or RH | 8510064 |
| | | 347526 | | Yes | LH | 8510065 |
| | | 347526 | | Yes | RH | 8510066 |
| 714451 | 303636 | 347518 | 26 cc | No | LH or RH | 8510067 |
| | | 347526 | | Yes | LH | 8510068 |
| | | 347526 | | Yes | RH | 8510069 |
| 714469 | 303636 | 347518 | 34 cc | No | LH or RH | 8510070 |
| | | 347526 | | Yes | LH | 8510071 |
| | | 347526 | | Yes | RH | 8510072 |

**Parts disposition**

■ Interchangeable - piece parts are not interchangeable

## Service Bulletin: SB-1994-036

**Products affected**

Series 90 55 thru 130 cc variable pumps

**Subject**

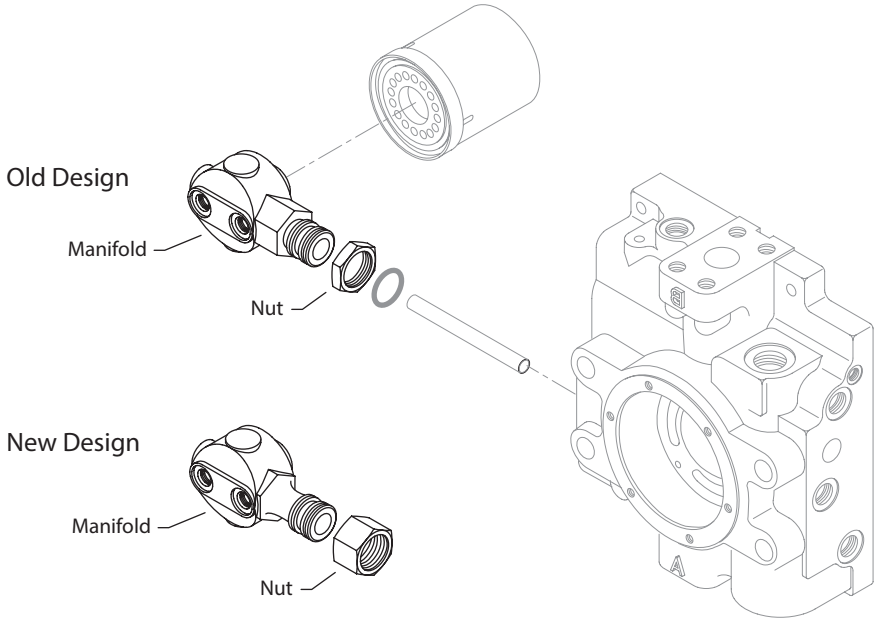
Integral filtration manifold

**Description**

As a product improvement, Sauer-Danfoss is changing the integral filter manifold and bulkhead nut to make it more easily indexed.

The old bulkhead nut may be used with either the old or new filter manifold. The new bulkhead nut can only be used with the new filter manifold.

The old bulkhead nut will remain available as a service part. The old filter manifold will be obsoleted and no longer available as a service part.




**Models affected**

All series 90 55 thru 130 cc variable pumps with "L", "M", or "P" filtration option code

**Serial numbers**

Change occurred at serial number 95-18-xxxxx

**Part numbers affected**

| Description | Part number (prior to 95-18) | Part number (95-18 & beyond) |
|---|---|---|
| Filter manifold | 8800200 | 8800896 |
| Bulkhead nut | 9002863-1600 | 5000222 |

**Parts disposition**

■ Interchangeable - new bulkhead nut can only be used with new filter manifold

## Service Bulletin: SB-1995-003

**Products affected**

Series 90 variable pumps - all frame sizes

**Subject**

Manual displacement control (MDC) with DC electric solenoid override

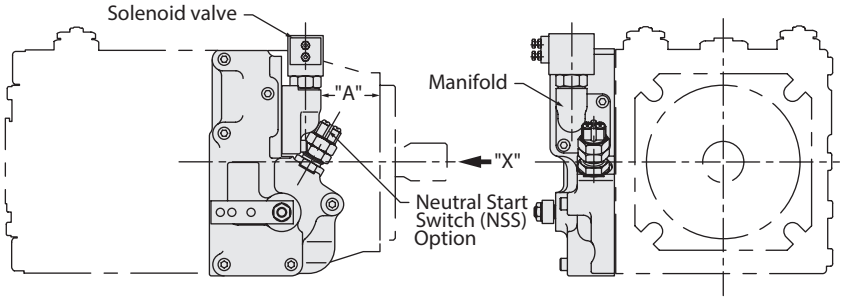
**Description**

In order to accommodate our European customers, the manifold which attaches to the front of the manual displacement control (MDC) housing is being changed.

The European solenoid valve requires a thicker manifold to provide clearance between the solenoid and the front of the MDC housing. The revised manifold will protrude closer to the mounting flange of the pump, reducing dimension "A" shown in the accompanying drawing by approximately 5 mm [0.2 in]. Please see chart below for specific clearances.

The thicker manifold requires longer screws and may be used with either the U.S. or European sourced solenoid.

This change will become effective during March of 1995. The old manifold will be obsoleted and no longer available as a service part.




Series 90
Manual displacement control
with DC solenoid override

| Frame size | | 42 | 55 | 75 | 100 | 130 |
|---|---|---|---|---|---|---|
| Dimension "A" | Current | 39.9 [1.57] | 55.9 [2.20] | 54.1 [2.13] | 60.2 [2.37] | 74.4 [2.93] |
| mm [in] | Future | 34.9 [1.37] | 50.9 [2.0] | 49.1 [1.93] | 55.2 [2.17] | 69.4 [2.73] |

**Models affected**

All series 90 variable pumps using MDC with DC electric solenoid override.

**Serial numbers**

Change will take place in March 1995.

**Part numbers affected**

| Description | Current part number | New part number | Quantity |
|---|---|---|---|
| Manifold | 8800365 | 505022 | 1 |
| Screw | 9007314-0605 | 9007314-0606 | 2 |

**P arts disposition**

■ Interchangeable (new manifold requires longer screws)

## Service Bulletin: SB-1996-004

**Products affected**

Series 90 42, 130, 180, and 250cc variable pumps

**Subject**

Side cover design change

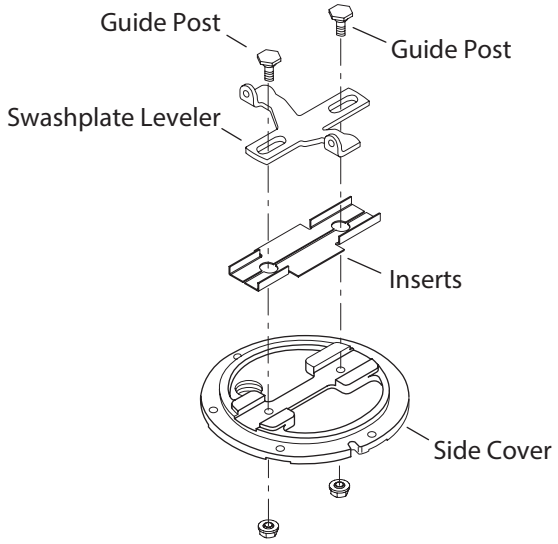
**Description**

As a product improvement, Sauer-Sundstrand is changing the side cover and swashplate leveler (T-Bar) guide post design.

The new design side cover will have two hardened inserts in the machined slot which serves as a guide for the swashplate leveler, and modified guide posts. The swashplate leveler does not change.

Old guide posts will remain available for service requirements of pumps with the old design side cover.

The old style side cover will be obsoleted and no longer available as a service part. A service kit has been created for replacing the old design side cover. The kit includes the new side cover, guide posts and inserts. Piece parts are not interchangeable..




**Models affected**

All series 42, 130, 180, and 250cc variable pumps

**Serial numbers**

Change occured at serial number N-96-08-xxxxx.

**Part numbers affected**

| | Old part numbers | | New part numbers | | |
|---|---|---|---|---|---|
| Description | Guide post | Side cover | Insert assy. | Guide post | Side cover kit |
| 42 cc | 344465 | 751305 | 506916 | 506369 | 506380 |
| 130 cc | 503205 | 746107 | 8300004 | 506368 | 11027814 |
| 180 cc | 503205 | 746404 | 506914 | 506368 | 506290 |
| 250 cc | 503205 | 746404 | 506914 | 506368 | 506290 |

**Parts disposition**

■ Interchangeable - piece parts are not interchangeable

## Service Bulletin: SB-1997-018

**Products affected**

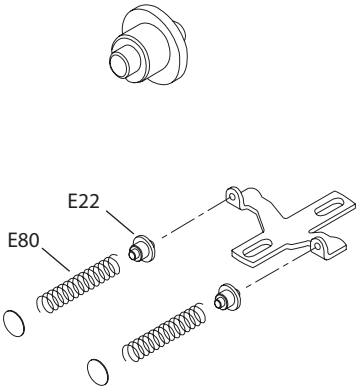
Series 90 130 cc variable pumps

**Subject**

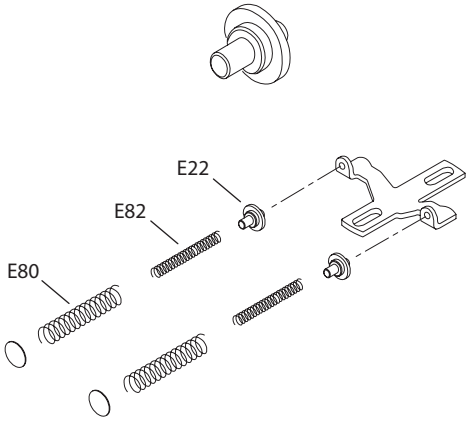
Swashplate leveler spring and spring seat change

**Description**

As a product improvement, Sauer-Danfoss has changed the design of the springs and spring seats used on the swashplate leveler from two springs to four springs. The older spring and spring seat are obsolete and no longer available as a service part.




Old Design




New Design

| Spring identification | Old spring | New springs E80 | New springs E82 |
|---|---|---|---|
| Free length | 106.44 mm [4.19 in] | 111.4 mm [4.38 in] | 95.25 mm [3.75 in] |
| O.D. | 28.5 mm [10122 in] | 28.07 mm [1.11 in] | 17.02 mm [ .67 in] |

**Models affected**

All 97-2xxx and 972xxxx variable pumps

**Serial numbers**

Change occurred at serial number N-97-08-xxxxx

**Part numbers affected**

| Item no. | Description | Old p/n | Qty | New p/n | Qty |
|---|---|---|---|---|---|
| E22 | Spring seat | 367037 | 2 | 8300011 | 2 |
| E82 | Spring | - | - | 8300009 | 2 |
| E80 | Spring | 503091 | 2 | 8300010 | 2 |

**Parts disposition**

■ Interchangeable - only if springs and seats are changed together

## Service Bulletin: SB-1999-010

**Products affected**

Series 90 130 cc variable pumps

**Subject**

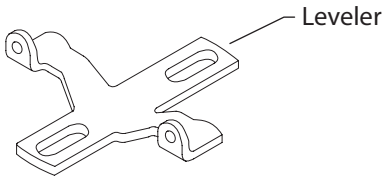
Swashplate leveler design change

**Description**

Sauer-Danfoss has changed the design of the swashplate leveler used on Series 90 130 cc variable displacement pumps. Previously, the Series 90 130 cc pumps used two different leveler designs on a production basis. One leveler (730143) was used in pumps which were not equipped with an integral speed sensor and a second leveler (510780) was used specifically for pumps equipped with a speed sensor.

The new leveler is designed and manufactured to be compatible for use in both non speed sensor and speed sensor equipped Series 90 130 cc pumps. This change improves the initial assembly and servicing of the pumps by increasing the parts commonality.

The new leveler is completely interchangeable with both of the previous levelers. The previous two levelers have been obsoleted and are no longer available as service parts.




**Models affected**

All 97-2xxx and 972xxxx variable pumps

**Serial numbers**

Change occurred at serial number N-98-40-xxxxx

**Part numbers affected**

| Integral speed sensor equipped | Previous to N-98-40 | Current |
|---|---|---|
| Yes | 510780 | 511052 |
| No | 730143 | 511052 |

**Parts disposition**

■ Interchangeable - piece parts are not interchangeable

## Service Bulletin: SB-1999-041

**Products affected**

Series 90 variable pumps

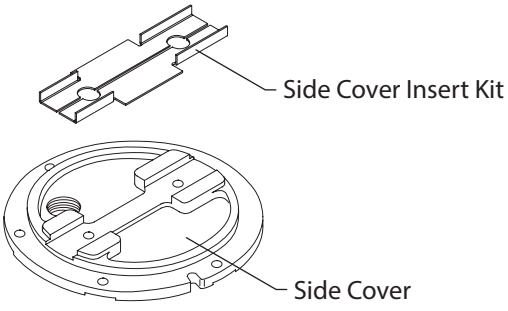
**Subject**

Change to side cover insert material

**Description**

As a continuous product improvement, Sauer-Danfoss has changed the side cover insert material to improve wear characteristics. The new material is more wear resistant than the previous material.

In order to track this change, new part numbers have been created and the old part numbers will be obsolete.




**Models affected**

93-2xxx, 94-2xxxx, 95-2xxx, 96-2xxxx, 97-2xxx, 98-2xxx, and 99-2xxx

**Serial numbers**

| Frame size | NMS effectivity date | Ames effectivity date |
|---|---|---|
| 42 cc | N-99-36-xxxxx | N/A |
| 55 cc | N-00-18-xxxxx | A-00-18-xxxxx |
| 75 cc | N-99-26-xxxxx | A-00-38-xxxxx |
| 100 cc | N-99-31-xxxxx | A-00-38-xxxxx |
| 130 cc | N-99-33-xxxxx | N/A |
| 180 cc | N-99-36-xxxxx | N/A |
| 250 cc | N-99-36-xxxxx | N/A |

**Part numbers affected**

| Frame size | Old part number | New part number |
|---|---|---|
| 42 cc | 506916 | 513885 |
| 55 cc | 8000406 | 513886 |
| 75 cc | 8000562 | 513888 |
| 100 cc | 8200321 | 513889 |
| 130 cc | 8300004 | 513890 |
| 180 cc | 506914 | 513891 |
| 250 cc | 506914 | 513891 |

**Parts disposition**

■ Interchangeable

## Service Bulletin: SB-1999-065A

**Products affected**

Series 90 75, 100, 130, 180, and 250cc variable displacement pumps

**Subject**

Hydraulic displacement control gasket and swashplate bearing locator pin retention

**Description**

The Series 90 75cc, 100cc, 130cc, 180cc, and 250cc variable displacement pumps utilize a common gasket to seal the joint between the displacement control housing and main pump housing.

In November 1998, Sauer-Danfoss introduced a new gasket design for Hydraulic Displacement Controls (HDC - all options), version 2 Electrical Displacement Controls (EDC2 - options EE and EN), and two amp current control (options PA and PB) equipped pumps (see SB-1998-038). The purpose of this gasket is primarily to seal the joint and aid in the retention of the bearing cage locator pin in the main pump housing. Sauer-Danfoss has identified that the new gasket may not adequately aid in the retention of this pin in 75cc pump sizes due to casting and machining tolerances. Installations which are particularly sensitive to pin retention include those oriented with the control on the side or on the bottom when the pump is installed. In these types of installations, it is possible for the pin to come out of its position in the pump housing. This will result in a loss of alignment between the swashplate and swashplate bearing assembly and the potential for erratic pump control and/or system performance.

To address this situation, Sauer-Danfoss has introduced a design modification to the control gasket. The modification will insure that the cage locator pin is retained in 75cc pumps in all circumstances, while still maintaining the desired gasket clamp load to avoid leaks.

The new gasket is completely interchangeable with the previous gasket. Sauer-Danfoss recommends that the previous control gasket be replaced immediately on 75cc pump assemblies, with controls noted above, in which the control is on the side or on the bottom of the pump. The pump serial numbers involved are A-98-41-xxxxx through A-99-49-xxxxx. It is not required to replace the gasket in pumps with the control in the up position, until the initial servicing of the pump assembly.

The 100cc, 130cc, 180cc, and 250cc pumps are not dependent upon the gasket to maintain retention of the bearing cage locator pin and are not affected by the information above.

The new gasket has replaced the previous gasket in all new pump assemblies with Hydraulic Displacement Control (HDC), version 2 Electrical Displacement Control (EDC2 - EE and EN), and two amp current (PA and PB) controls. The new gasket has also been placed in all appropriate control kits and overhaul seal kits. Page 3 of this bulletin will assist you in identifying the new gasket from the previous gasket.

**Models affected**

95-2xxx, 952xxxx, 96-2xxx, 962xxxx, 97-2xxx, 972xxxx, 98-2xxx, 982xxxx, 99-2xxx, and 992xxxx variable displacement pumps equipped with hydraulic displacement controls and specific option electronic displacement control. (EE, EN, PA, PB)

**Serial numbers**

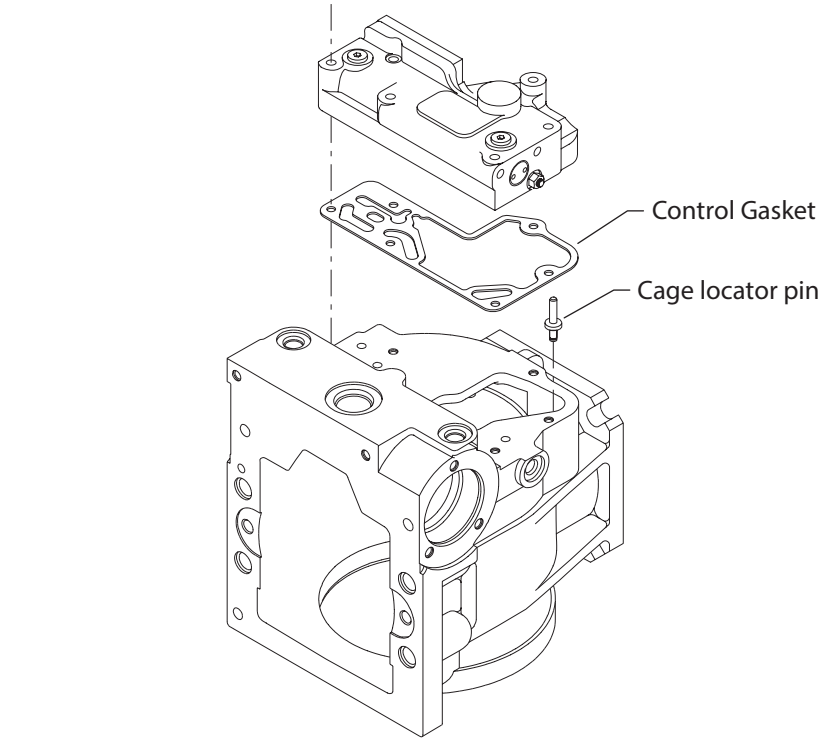
Sauer-Danfoss Ames 75cc pump production: A-99-50-xxxxx.
Sauer-Danfoss Ames 100cc pump production: A-00-25-xxxxx.
Sauer-Danfoss Neumunster production: N-00-01-xxxxx.

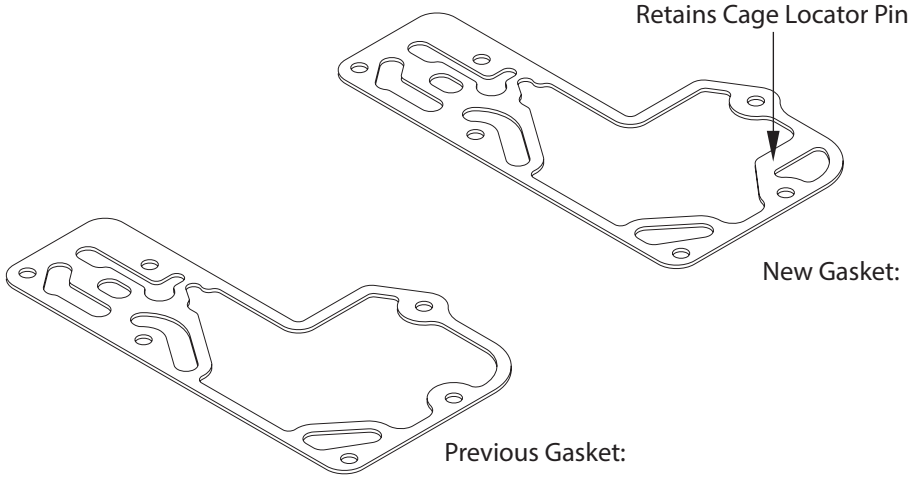
**Part numbers affected**

| Previous gasket | New gasket |
|---|---|
| 511608 | 8801241 |

## Service Bulletin: SB-1999-065A

**Parts disposition** ■ Interchangeable



## Service Bulletin: SB-2000-022

**Products affected**

Series 90 75, 100, and 130 cc variable displacement pumps

**Subject**

Displacement limiter screw and servo piston change

**Description**

Sauer-Danfoss has identified a product issue affecting a limited number of Series 90 100cc variable displacement pumps built at the Ames, Iowa, USA facility in the time frame of June 2000 through August 2000 (serial date range A-00-23-xxxxx up to and including A-00-34-xxxxx). This same issue also affects a limited number of Series 90 75cc, 100cc, and 130cc variable displacement pumps built at the Neumunster, Germany facility in the time frame of June 2000 through September 2000 (serial date range N-00-23-xxxxx up to and including A-00-39-xxxxx).

These pumps, equipped with displacement limiters, may have a servo piston with large center drills. These large center drills may allow the displacement limiter screw to thread into the servo piston while turning the screw in against the servo piston while adjusting the pump's displacement. If this occurs, the pump will be mechanically held in stroke by the displacement limiter screw. This situation can only happen during adjustment; it will not occur during normal operation.

Sauer-Danfoss has introduced a change to the servo piston and the displacement limiter screw to prevent the reoccurrence of this issue. We have made a change to the servo piston to limit the size of the center drill. We have also changed the design of the service displacment limiter screw from a "flat" point to a "dog nose" point. When servicing a pump that meets the above criteria, you must verify that the displacment limiter screw of the new "dog nose" version. If it is not, you must replace the displacement limiter screw with the new version. If the pump is not inside the date code ranges and displacements mentioned, you do not need to verify the version of the displacement limiter screws.

To assist in tracking this change, we have issued new part numbers for the servo pistons and displacement limiter screws. Even though this issue did not affect the 42cc or 55cc pumps, the service displacement limiter screw part number will change also to keep one common service part. We do this as the same displacement limiter screw is used on 42cc, 55cc, 75cc, and 100cc pumps.

Old
"Flat Point"
Displacement Limiter Screw

New
"Dog Nose"
Displacement Limiter Screw

## Service Bulletin: SB-2000-022

**Models affected**

All 95-2xxx, 952xxxx, 96-2xxx, 962xxxx, 97-2xxx, and 972xxxx variable displacement pumps. with 1, 2, 4, or P displacement limitation option.

**Serial numbers**

Sauer-Danfoss Ames 100cc production with serial number A-00-23-xxxxx up to and including A-00-34-xxxxx.

Sauer-Danfoss Neumunster, Germany production with serial number N-00-23-xxxxx up to and including A-00-39-xxxxx.

**Part numbers affected**

| Frame size | Old servo piston | New servo piston | Old screw | New screw |
|---|---|---|---|---|
| 42 & 55cc | N/A | N/A | 9007712-0814 | 516677 |
| 75 cc | 509282 | 516683 | 9007712-0814 | 516677 |
| 100 cc | 509284 | 516684 | 9007712-0814 | 516677 |
| 130 cc | 510496 | 516685 | 572180 | 516678 |

**Parts disposition**

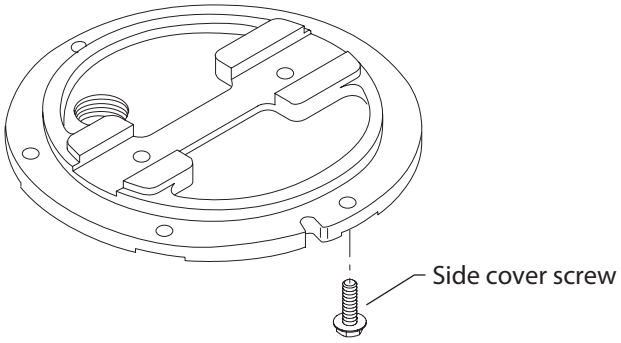
■ Interchangeable

## Service Bulletin: SB-2002-014

**Products affected** Series 90 42, 130, 180, and 250cc variable pumps

**Subject** Side cover screw change

**Description** Sauer-Danfoss has changed the locking compond used on the side cover screws. We have assigned new part numbers to track this change. The old screw part numbers are obsolete. They are no longer available for service.




**Models affected** All 42, 130, 180, and 250 cc variable pumps

**Serial numbers** N/A

**Part numbers affected**

| Description | Previous part number | New part number |
|---|---|---|
| Screw-hex flange, M6 x 16 | 508437 | 517229 |
| Screw-hex flange, M10 x 20 | 508439 | 517230 |
| Screw-hex flange, M10 x 25 | 508441 | 517231 |

**Parts disposition** ■ Interchangeable

## Service Bulletin: SB-2007-008A

**Products affected**

Series 90 130 cc variable pumps

**Subject**

Redesign block point change

**Part numbers affected**

As a global improvement, the series 90 130cc pump has the following redesigned components: servo arm, swashplate guide, pump housing, shaft seal assembly, cradle bearing, swashplate locator link pin, servo arm screw, and leveler.

All parts are non-interchangeable with the exception of the locator link pin and shaft seal assembly. Model numbers and order codes will not be changed.

Servo arm: A "one piece" servo arm is introduced. The pin that engages the servo piston is now machined as part of the servo arm instead of pressed in. The old servo arm will remain available as a service part for a period of time.

Swashplate Guide: The swashplate position is now guided by the fit between the servo arm and the pump housing . A "shelf" on the servo arm fits under a boss in the housing to provide a fixed clearance swashplate hold-down. The swashplate was previously held down with a spring and bracket, which was riveted to the servo arm. The servo arm to housing clearance now limits lateral movement of the swashplate. The swashplate guide that was bolted to the bottom of the swashplate has been removed. The separate swashplate guide will remain available as a service part for a period of time.

Housing: The housing is modified internally to provide the servo arm pivot. Also, the cradle and side cover radii are reduced. Some customers may notice cosmetic external changes. The old housing will be obsoleted and no longer available as a service part.

Shaft seal assembly: The shaft seal assembly is interchangeable, but the piece parts are not.The new lip seal has a smaller O.D. and the I.D. of the seal carrier changed accordingly. The old shaft lip seal will remain available as a service part.

Overhaul seal kit: A new overhaul seal kit has been created that will service both old and new design pumps. The new seal kit also has additional O-rings and seal nuts required for a more complete repair. The old seal kit will be obsoleted and no longer available.

Cradle bearing: The new design is cold formed with the positioning pin now integral with the bearing. The old cradle bearing will remain available as a service part for a period of time.

Locator link pin: The new locator link pin has a rubber gripping element added to help hold it in position during assembly. The new locator link pin is interchangeable with the old locator link pin.The old locator link pin is obsolete and no longer available for service.

Screw: One of the two screws that hold the servo arm to the swashplate has changed from a M10 to a M8 screw. See drawing for details.

Leveler: All 130cc pumps now use a leveler and two spring seats. The new leveler plus spring seats are interchangeable with the old leveler. The old leveler is obsolete and no longer available for service.

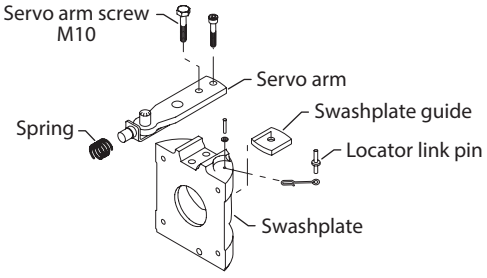
## Service Bulletin: SB-2007-008A

**Models affected** All series 90 130 cc variable pumps

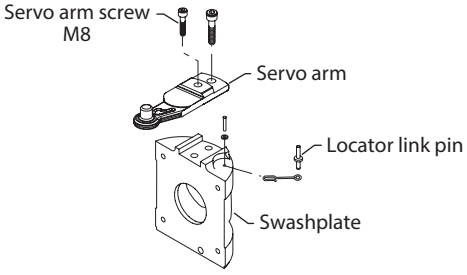
**Serial numbers** Change occurred at serial number N-07-10-xxxxx

**Part numbers affected**

| Description | Old part number | New part number |
|---|---|---|
| Servo arm | 303214 | 11000397 |
| Servo arm screw | 9007276-0111 | 519150 |
| Swashplate | 516204 | 11001678 |
| Pin | 754606 | 11003805 |
| Cradle bearing | 324657 | 11000866 |
| Swashplate guide | 766022 | Not Used |
| Spring | 303420 | Not Used |
| Seal carrier assembly | 510018 | 519732 |
| Shaft lip seal | 90080000-0114 | 519021 |
| Housing | 503426 | 11000395 |
| Housing PPU special | 515350 | 11006984 |
| Housing PPU assembly | 8510060 | 11026913 |
| Side cover | 501576 | 11001326 |
| Leveler | 508311 | 511052 |
| Spring seats | None | 8300011 |
| Overhaul seal kit | 83020S30 | 11035671 |




Old Design




New Design

**Parts disposition** ■ Interchangeable - piece parts are not interchangeable

## Service Bulletin: SB-2009-074

**Products affected**

Series 90 42, 130, 180 and 250cc variable pumps

**Subject**

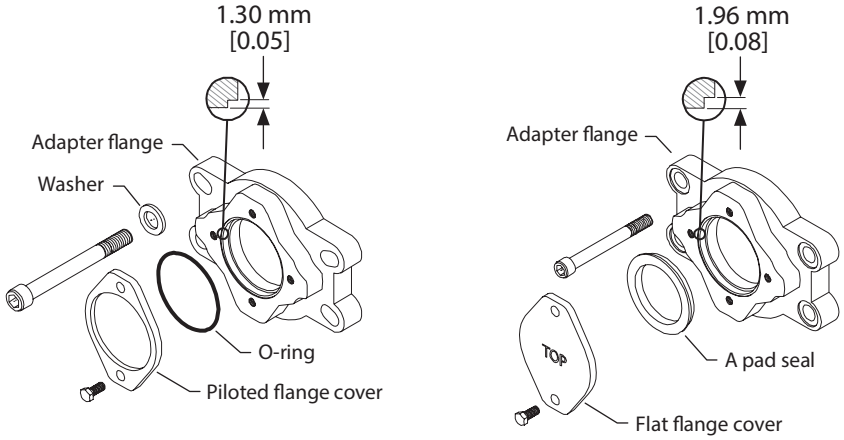
SAE A auxiliary mounting flange, O-ring seal

**Part numbers affected**

Sauer-Danfoss is pleased to announce a design improvement on the SAE A auxiliary mounting flange adapter on its series 90 pumps. The frame sizes affected by this change are 42, 130, 180 and 250cc. All manufacturing locations producing these pumps will be changed to this configuration.

The improvement comes in the form of a more robust sealing geometry with a larger cross-section O-ring. The O-ring groove in the flange will now be sized to mate with a 2.62mm [0.103"] cross-section O-ring rather than the old 1.78mm [0.070"] cross-section O-ring. The Sauer-Danfoss part number for the new O-ring is 9004104-1520 (2.62mm [0.070"] x 82.22mm [3.237"]). The larger cross-section sealing geometry allows for the use of a donut style A pad seal and a new flat cover for improved assembly. This new configuration is qualified as a running cover. When installing an auxiliary pump, the donut style A pad seal must be discarded and the part number 9004104-1520 O-ring used.

The pumps will now be supplied with the donut style seal and new flat cover, instead of the small O-ring and stepped cover plate (shown in the drawing below).




Old design New design

**Models affected**

All series90 42, 130, 180 and 250cc pumps with an SAE A auxiliary mounting flange.

**Serial numbers**

Change became effective at serial number N-09-30-xxxxx. (20 July 2009)

**Part numbers affected**

| Description | Old part number | New part number | Used on |
|---|---|---|---|
| A flange adapter | 511040 | 520944 | 42cc |
| A flange adapter | 505113 | 520946 | 130cc |
| A flange adapter | 505136 | 520949 | 180 and 250cc |
| O-ring | 9004104-0420 | 9004104-1520 | all sizes |
| A pad seal | N/A | 4800482 | all sizes |
| Flange cover | 9802336 | 4460586 | all sizes |

**Parts disposition**

■ Interchangeable if new O-ring or if the pad seal and new cover are used.

## Service Bulletin: SB-2009-075

**Products affected**

Series 90 42, 130, 180 and 250cc variable pumps

**Subject**

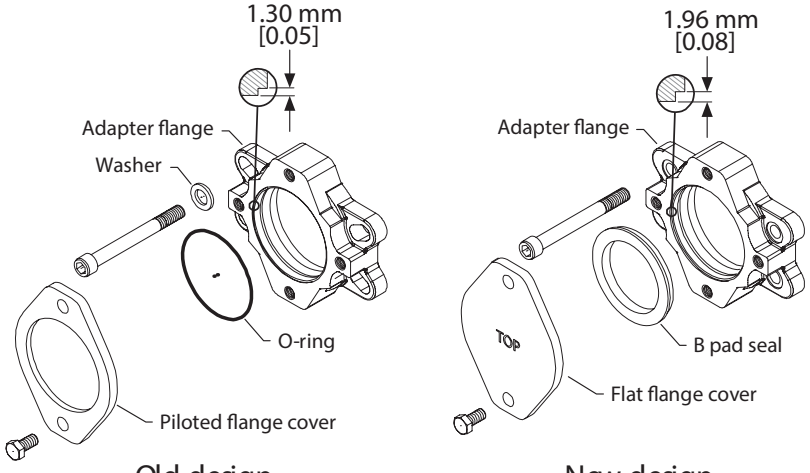
SAE B auxiliary mounting flange, O-ring seal

**Part numbers affected**

Sauer-Danfoss is pleased to announce a design improvement on the SAE B auxiliary mounting flange adapter on its series 90 pumps. The frame sizes affected by this change are 42, 130, 180 and 250cc. All manufacturing locations producing these pumps will be changed to this configuration.

The improvement comes in the form of a more robust sealing geometry with a larger cross-section O-ring. The O-ring groove in the flange will now be sized to mate with a 2.62mm [0.103"] cross-section O-ring rather than the old 1.78mm [0.070"] cross-section O-ring. The Sauer-Danfoss part number for the new O-ring is 9004104-1540 (2.62mm [0.070"] x 94.92mm [3.737"]). The larger cross-section sealing geometry allows for the use of a donut style B pad seal and a new flat cover for improved assembly. This new configuration is qualified as a running cover. When installing an auxiliary pump, the donut style B pad seal must be discarded and the part number 9004104-1540 O-ring used.

The pumps will now be supplied with the donut style seal and new flat cover, instead of the small O-ring and stepped cover plate (shown in the drawing below).




**Models affected**

All series90 42, 130, 180 and 250cc pumps with an SAE B auxiliary mounting flange.

**Serial numbers**

Change became effective at serial number N-09-30-xxxxx. (20 July 2009)

**Part numbers affected**

| Description | Old part number | New part number | Used on |
|---|---|---|---|
| B flange adapter | 506778 | 520945 | 42cc |
| B flange adapter | 503230 | 520947 | 130cc |
| B flange adapter | 11000255 | 11039180 | 130cc |
| B flange adapter | 505132 | 520950 | 180 and 250cc |
| O-ring | 9004104-0450 | 9004104-1540 | all sizes |
| B pad seal | N/A | 8801061 | all sizes |
| Flange cover | 4460370 | 8801059 | all sizes |

**Parts disposition**

■ Interchangeable if new O-ring or if the pad seal and new cover are used.

## Service Bulletin: SB-2009-076

**Products affected**

Series 90 130, 180 and 250cc variable pumps

**Subject**

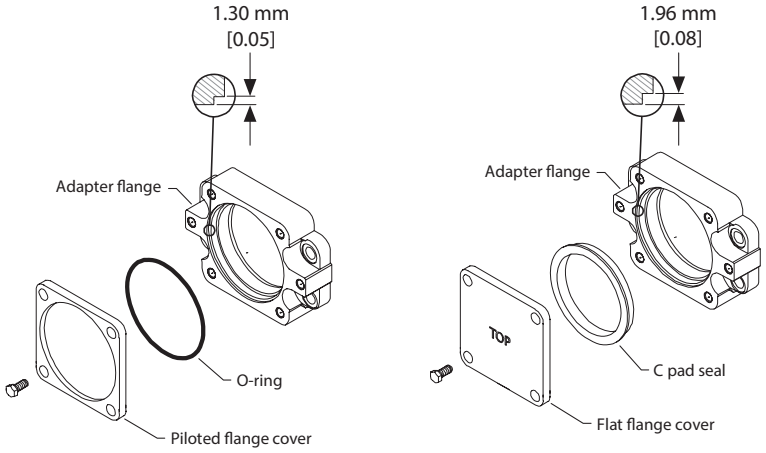
SAE C auxiliary mounting flange, O-ring seal

**Part numbers affected**

Sauer-Danfoss is pleased to announce a design improvement on the SAE C auxiliary mounting flange adapter on its series 90 pumps. The frame sizes affected by this change are 130, 180 and 250cc. All manufacturing locations producing these pumps will be changed to this configuration.

The improvement comes in the form of a more robust sealing geometry with a larger cross-section O-ring. The O-ring groove in the flange will now be sized to mate with a 2.62mm [0.103"] cross-section O-ring rather than the old 1.78mm [0.070"] cross-section O-ring. The Sauer-Danfoss part number for the new O-ring is 9004104-1580 (2.62mm [0.070"] x 120.32mm [4.737"]). The larger cross-section sealing geometry allows for the use of a donut style C pad seal and a new flat cover for improved assembly. This new configuration is qualified as a running cover. When installing an auxiliary pump, the donut style C pad seal must be discarded and the part number 9004104-1580 O-ring used.

The pumps will now be supplied with the donut style seal and new flat cover, instead of the small O-ring and stepped cover plate (shown in the drawing below).




Old design New design

**Models affected**

All series 90 130, 180 and 250cc pumps with an SAE C auxiliary mounting flange.

**Serial numbers**

Change became effective at serial number N-09-30-xxxxx. (20 July 2009)

**Part numbers affected**

| Description | Old part number | New part number | Used on |
|---|---|---|---|
| C Flange adapter | 505116 | 513617 | 130 cc |
| C Flange adapter | 508407 | 11039184 | 130 cc |
| C Flange adapter | 515116 | 513617 | 130 cc |
| C Flange adapter | 505139 | 520951 | 180cc and 250cc |
| C Flange adapter | 508406 | 11039178 | 180cc and 250cc |
| O-ring | 9004100-0480 | 9004104-1580 | All units |
| C pad seal | NA | 8801062 | All units |
| Flange cover | 8800406 | 8801060 | All units |

**Parts disposition**

■ Interchangeable if new O-ring or if the pad seal and new cover are used.

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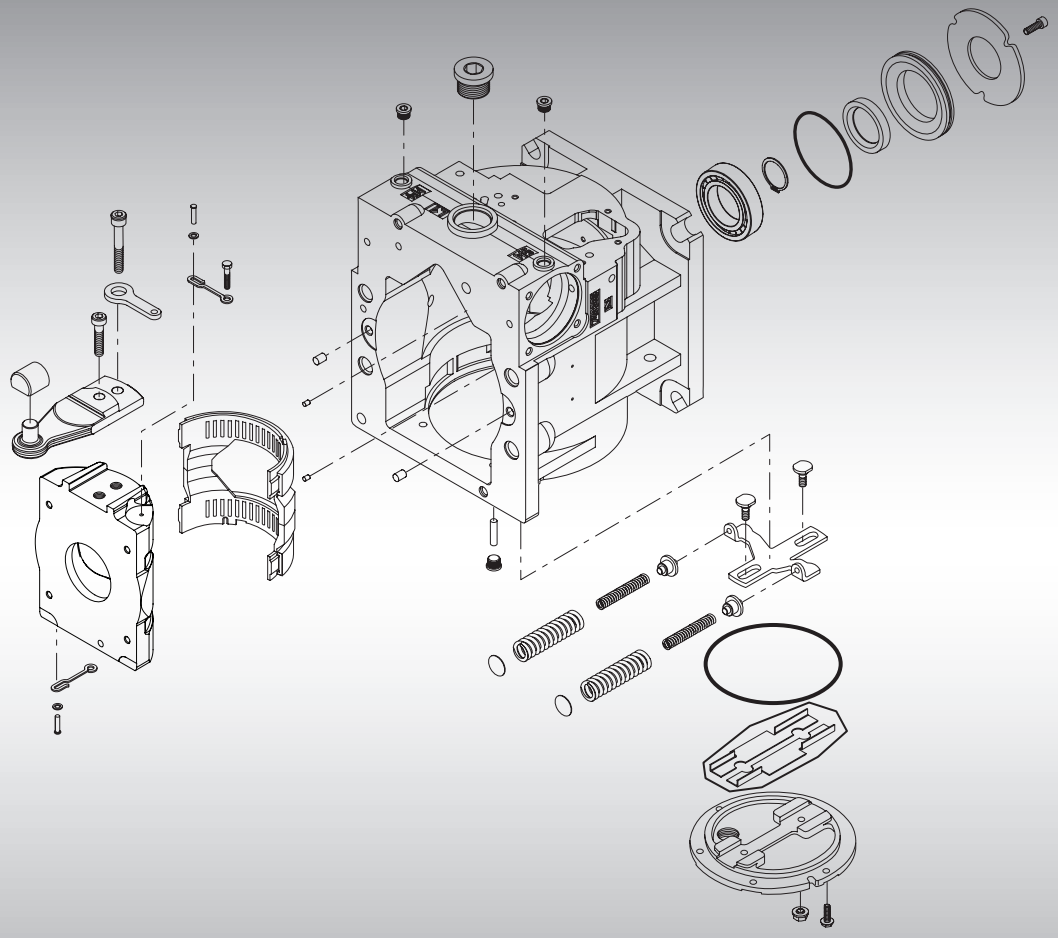
MAKING MODERN LIVING POSSIBLE

Parts Manual

# Series 90

# 180cc Axial Piston Pump



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## Contents


**General information**

Service parts identification ..... 4
Nameplate ..... 4
Date code ..... 5
Service bulletins ..... 5
Procedure to identify a part ..... 5
Order code ..... 7

**Variable displacement pump**

Common parts ..... 8-9
Special hardware ..... 10-29
Displacement limitation ..... 30-37
End cap ..... 38-41
Charging system ..... 42-43
Auxiliary mounting ..... 44-51
Charge pressure setting ..... 52-53
Shaft ..... 52-53
Control ..... 54-71
Filtration ..... 72-73
High pressure protection ..... 74-77
Orifice ..... 76-85
Overhaul seal kit ..... 85

**Service bulletin**

SB-1995-007 (charge pump design change) ..... 86-87
SB-1996-004 (side cover design change) ..... 88
SB-1999-065 (hydraulic control gasket) ..... 89-90
SB-2006-010 (charge pump shaft) ..... 91
SB-2009-074 (A pad flange/seal) ..... 92
SB-2009-075 (B pad flange/seal) ..... 93
SB-2002-076 (C pad flange/seal) ..... 94
SB-2011-032 (pump redesign) ..... 95-96
SB-2012-039 (lip seal) ..... 97
SB-2015-038 (gerotor pin) ..... 98

## General information

### Service parts indentification

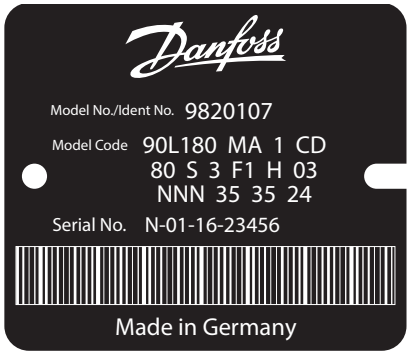
The following information and procedure is used to identify the module group, item number, manufacture date, part number, and part name of the parts included in the Series 90, 180 cc variable displacement pumps.

The parts listed include all parts which may be used when performing either "Minor Repairs", "Major Repairs" or "Conversions" on the Series 90, 180 cc pump.

### Nameplate

Each unit will have a nameplate affixed to the housing. The nameplate will include the following information.

**Model Number**
The Sauer-Danfoss model number is used by the factory in manufacturing. On repeat orders, a complete unit can be ordered by the model number.




**Model Code**
The Sauer-Danfoss model code completely defines the specific unit and must be used when ordering parts to service this product.

**Serial Number**
The Sauer-Danfoss serial number is used to identify the manufacture date and the unit sequence in the build. The serial number is also used to identify the units warranty time period.

The letter code indicates the location of original manufacture (assembly). "A" indicates the unit was originally assembled in Ames, Iowa, USA. "N" indicates the unit was originally assembled in Neumunster, Germany.

The first number (2 digits) indicates the year of manufacture. ("01" would indicate the unit was manufactured in 2001)

The second number (2 digits) indicates the calendar week of manufacture.

The third number (5 digits) is a sequential number used to identify a specific unit.

## General information

### Date code

The date code is defined as the year and week of manufacture. The same item number may list more than one part number. This indicates that there is more than one configuration for that item number. You will see that there are different date codes for the different part numbers. Find the date code of your unit from the nameplate to determine which service part number you need to order.

EXAMPLE: The service part desired is Item E10

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 80 | E10 | 92-19 | | 746107 | Side cover | 1 |
| | G30 | 89-41 | 92-18 | 340133 | Side cover (SB-1992-003) | 1 |

All units using this order code with a date code of 89-41 and up to and including 92-18, must use part number "340133". All units with a date code of 92-19 and newer must use part number "746107."

### Service bulletins

A Service Bulletin Number (SB-_ _ _ _ - _ _ _) may follow the "Part Name" of the part you desire. You must read that Service Bulletin prior to ordering that part. The information contained in these Service Bulletins, as of the print date of this bulletin, are included at the end of this manual. Service Bulletins contain more detailed information such as interchangeability, what additional parts are involved, etc. It is suggested that you add additional Service Bulletins to this manual as you recieve them.

### Procedure to identify a part

**General**

The modular design of Series 90 units results in a simplified service parts list and part number identification procedure.

The same item numbers are used for same part names on all units within a product type. (Example: The lip seal - Item L40 has the same item number on all pumps.)

A part number that has another number following it in parentheses is done to make this a world wide manual. The first number is sold in Germany. The number in parentheses is sold in the United States. (Example: 001149 (9004201-6200), customers would order 9004201-6200 if ordering the part in the United States.)

**Example of a Part Identification**

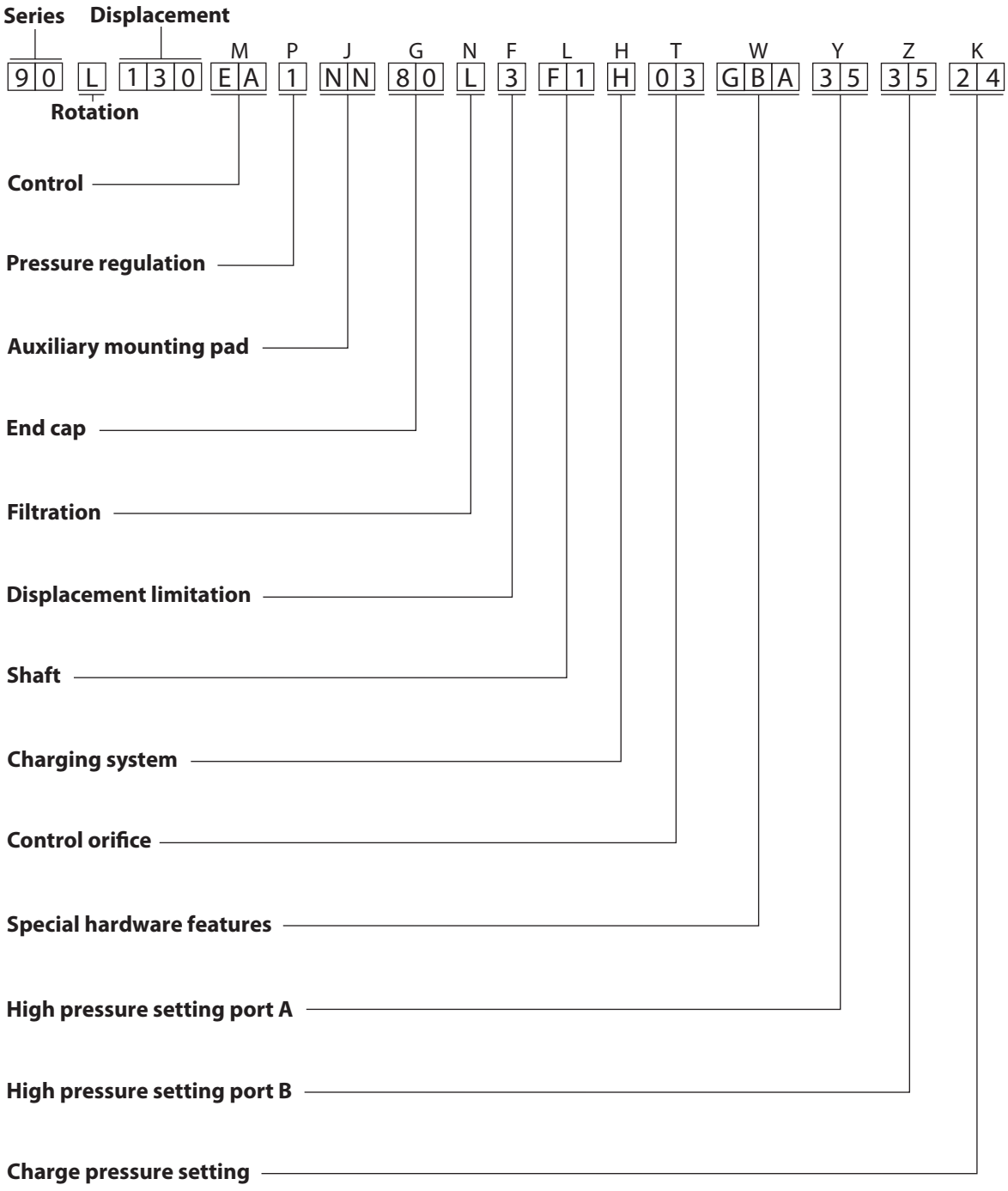
The nameplate on a Series 90 pump has an Order Code of 90L180 MA 1 CD 80 S 3 F1 H 03 NNN 35 35 24. Use the following procedures to determine the part number of the drive shaft used on this pump.

1) Referring to the input shaft module in the Order Code (see page 7), the input shaft option for this pump is identified by the code "F1. (90L180 MA 1 CD 80 S 3 **F1** H 03 NNN 35 35 24)

2) Referring to the Service Parts List, find the shaft group. Next find the order code that relates to this unit, which is "F1". The shaft is found to be item L100 and part number 11004306.

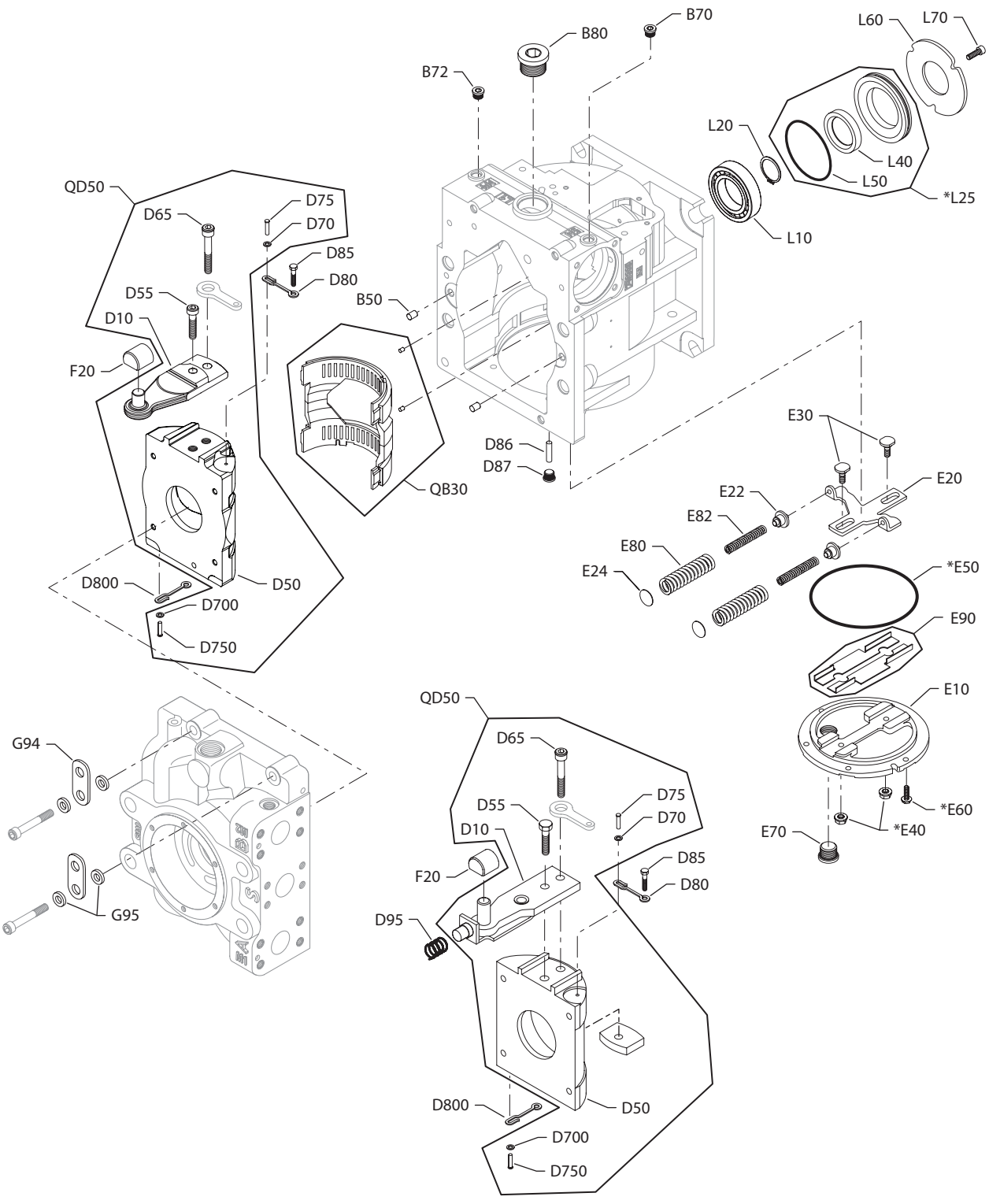
## Notes

## Order Code




P100 713E

## Variable displacement pump




*Swashplate design prior to 11-40*

E100 090E

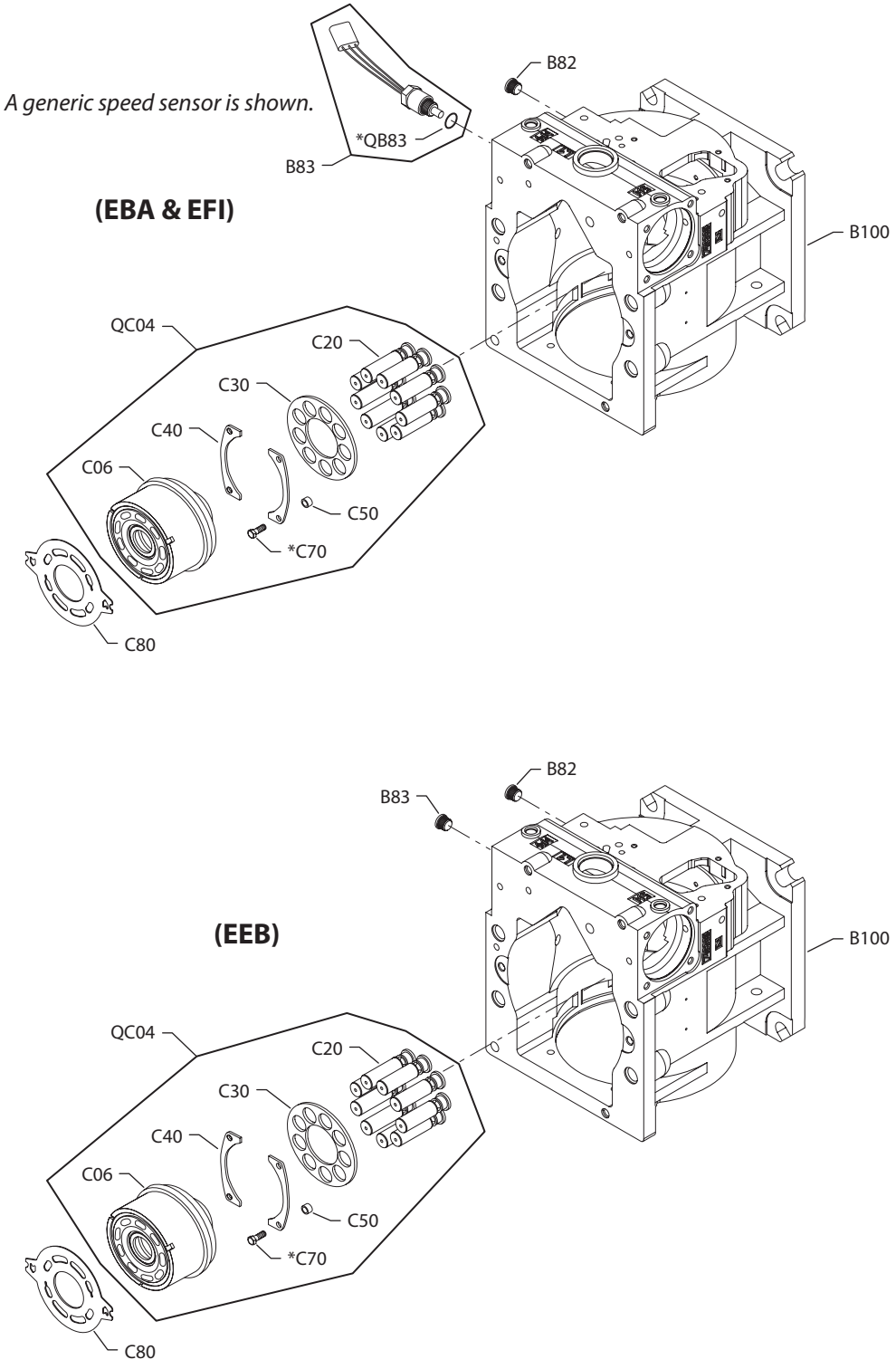
* = included in overhaul seal kit Q210

## Variable displacement pump

### Common parts

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| | B50 | 94-20 | | 9004800-3708 | Pin | 2 |
| | B70 | 94-20 | | 140644 | Plug assembly | 1 |
| | B72 | 94-20 | | 140644 | Plug assembly | 1 |
| | B80 | 94-20 | | 676734 (9005110-9500) | Plug assembly | 1 |
| | D10 | 11-40 | | 11061195 | Servo arm assembly | 1 |
| | D10 | 94-20 | 11-39 | 746339 | Servo arm assembly (SB-2011-032) | 1 |
| | D50 | 11-40 | | 11094403 | Swashplate | 1 |
| | D50 | 94-20 | 11-39 | 521426 | Swashplate | 1 |
| | D55 | 11-40 | | 519150 | Screw, socket head, M8 | 1 |
| | D55 | 94-20 | 11-39 | 746362 | Screw, hex head, M12 (SB-2011-032) | 1 |
| | D65 | 94-20 | | 504494 | Screw, M12 | 1 |
| | D70 | 94-20 | | 127464 | Washer | 1 |
| | D75 | 94-20 | | 333369 | Spiral head pin | 1 |
| | D80 | 94-20 | | 700948 | Cage locator link | 1 |
| | D85 | 94-20 | | 500449 | Screw | 1 |
| | D86 | 94-20 | | 770594 | Pin | 1 |
| | D87 | 94-20 | | 11040532 | Plug assembly | 1 |
| | D95 | 94-20 | 11-39 | 746396 | Spring (SB-2011-032) | 1 |
| | D700 | 94-20 | | 127464 | Washer | 1 |
| | D750 | 94-20 | | 333369 | Spiral head pin | 1 |
| | D800 | 94-20 | | 700948 | Cage locator link | 1 |
| | E10 | 96-08 | | 501579 | Side cover (SB-1996-004) | 1 |
| | E20 | 94-20 | | 746420 | Leveler | 1 |
| | E22 | 94-20 | | 746438 | Spring seat | 2 |
| | E24 | 94-20 | | 359067 | Shim | 2 |
| | E30 | 96-08 | | 11056592 | Guide post (SB-1996-004) | 2 |
| | E40 | 94-20 | | 042432 | Seal nut | 2 |
| | E50 | 94-20 | | 517380 | O-ring | 1 |
| | E60 | 94-20 | | 517231 | Screw | 6 |
| | E70 | 94-20 | | 676734 (9005110-9500) | Plug assembly | 1 |
| | E80 | 94-20 | | 746453 | Spring | 2 |
| | E90 | 96-08 | | 513891 | Insert assembly (SB-1996-004) | 1 |
| | F20 | 94-20 | | 11116308 | Slider block | 1 |
| | G94 | 94-20 | | 8800565 | Lifting bracket | 2 |
| | G95 | 94-20 | | 505479 | Washer | 4 |
| | L10 | 94-20 | | 11018485 | Roller bearing | 1 |
| | L20 | 94-20 | | 392233 | Retaining ring | 1 |
| | L25 | 94-20 | | 11053971 | Seal carrier assembly (SB-2012-039) | 1 |
| | L40 | 12-17 | | 519021 | Lip seal (SB-2012-039) | 1 |
| | L40 | 94-20 | 12-16 | 9008000-0114 | Lip seal | 1 |
| | L50 | 94-20 | | 509353 | O-ring | 1 |
| | L60 | 94-20 | | 516769 | Retainer plate | 1 |
| | L70 | 94-20 | | 009159 | Screw | 3 |
| | QB30 | 94-20 | | 746313 | Cradle bearing assembly | 1 |
| | QD50 | 11-40 | | 11097626 | Swashplate kit (SB-2011-032) | 1 |

## Variable displacement pump




E100 104E

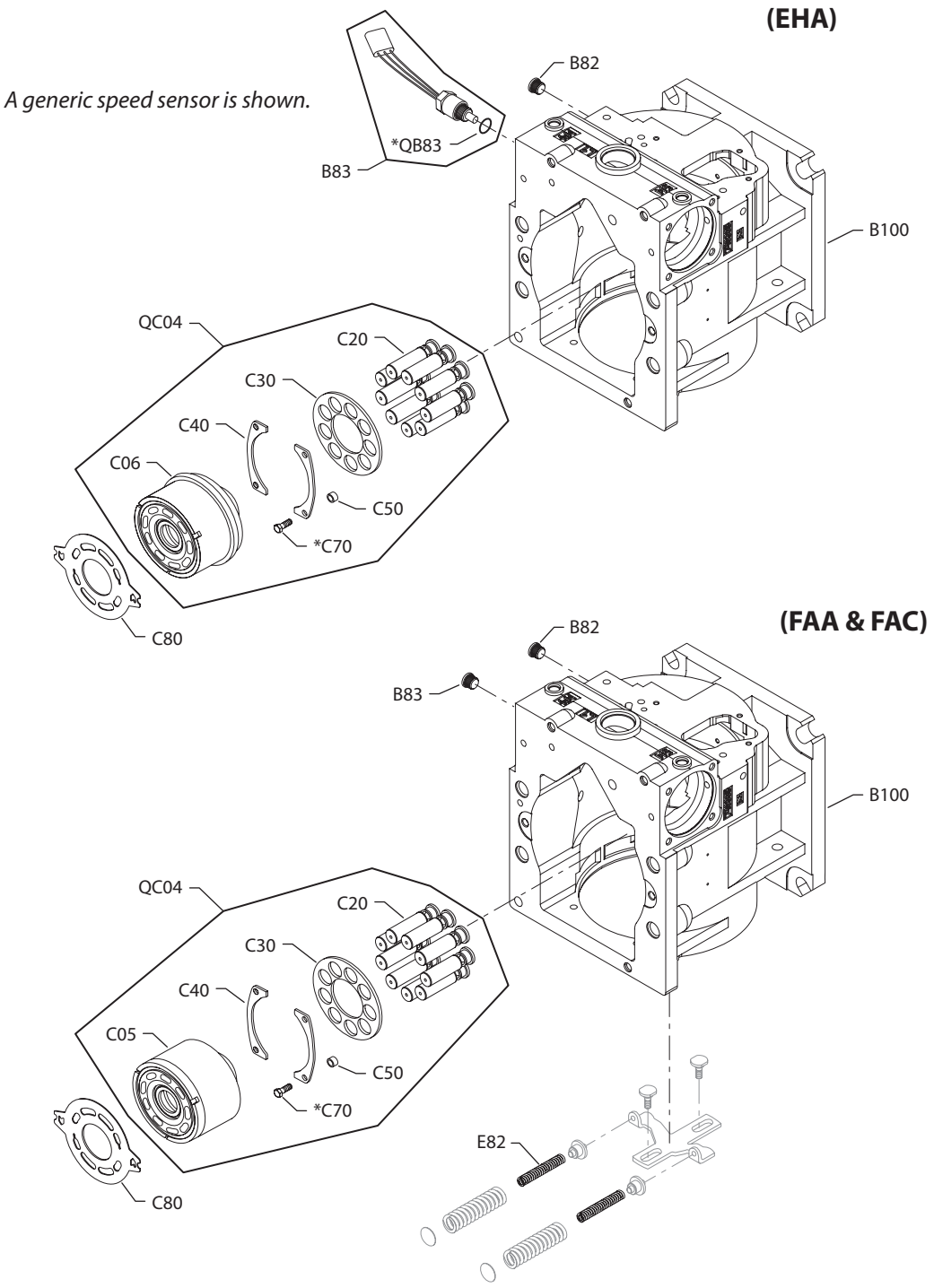
* = included in overhaul seal kit Q210

## Variable displacement pump

### Special hardware

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| EBA | B82 | 00-13 | | 140644 | Plug assembly | 1 |
| | B83 | 00-13 | | KPPG13408 | Speed sensor | 1 |
| | B100 | 11-40 | | 11097202 | Housing assembly | 1 |
| | B100 | 00-13 | 11-39 | 519646 | Housing assembly (SB-2011-032) | 1 |
| | C06 | 00-13 | | 519582 | Cylinder block assembly with speed ring | 1 |
| | C20 | 00-13 | | 755181 | Piston/slipper assembly | 9 |
| | C30 | 00-13 | | 11067353 | Slipper guide | 1 |
| | C40 | 00-13 | | 313452 | Slipper guide bearing | 2 |
| | C50 | 00-13 | | 313460 | Spacer | 4 |
| | C70 | 00-13 | | 308643 | Screw | 4 |
| | C80 | 00-13 | | 518939 | Valve plate | 1 |
| | QB83 | 00-13 | | 085043 (9004201-3700) | O-ring | 1 |
| | QC04 | 00-13 | | 11097627 | Cylinder block kit with speed ring | 1 |
| EEB | B82 | 00-13 | | 140644 | Plug assembly | 1 |
| | B83 | 00-13 | | 140644 | Plug assembly | 1 |
| | B100 | 11-40 | | 11097202 | Housing assembly | 1 |
| | B100 | 00-13 | 11-39 | 519646 | Housing assembly (SB-2011-032) | 1 |
| | C06 | 00-13 | | 519582 | Cylinder block assembly with speed ring | 1 |
| | C20 | 00-13 | | 755181 | Piston/slipper assembly | 9 |
| | C30 | 00-13 | | 11067353 | Slipper guide | 1 |
| | C40 | 00-13 | | 313452 | Slipper guide bearing | 2 |
| | C50 | 00-13 | | 313460 | Spacer | 4 |
| | C70 | 00-13 | | 308643 | Screw | 4 |
| | C80 | 00-13 | | 518939 | Valve plate | 1 |
| | QC04 | 00-13 | | 11097627 | Cylinder block kit with speed ring | 1 |
| EFI | B82 | 06-17 | | 140644 | Plug assembly | 1 |
| | B83 | 06-17 | | KPPG156 | Speed sensor | 1 |
| | B100 | 11-40 | | 11097202 | Housing assembly | 1 |
| | B100 | 06-17 | 11-39 | 519646 | Housing assembly (SB-2011-032) | 1 |
| | C06 | 06-17 | | 519582 | Cylinder block assembly with speed ring | 1 |
| | C20 | 06-17 | | 755181 | Piston/slipper assembly | 9 |
| | C30 | 06-17 | | 11067353 | Slipper guide | 1 |
| | C40 | 06-17 | | 313452 | Slipper guide bearing | 2 |
| | C50 | 06-17 | | 313460 | Spacer | 4 |
| | C70 | 06-17 | | 308643 | Screw | 4 |
| | C80 | 06-17 | | 518942 | Valve plate, CCW | 1 |
| | C80 | 06-17 | | 518941 | Valve plate, CW | 1 |
| | QB83 | 06-17 | | 085043 (9004201-3700) | O-ring | 1 |
| | QC04 | 06-17 | | 11097627 | Cylinder block kit with speed ring | 1 |

## Variable displacement pump




E101 801E

* = included in overhaul seal kit Q210

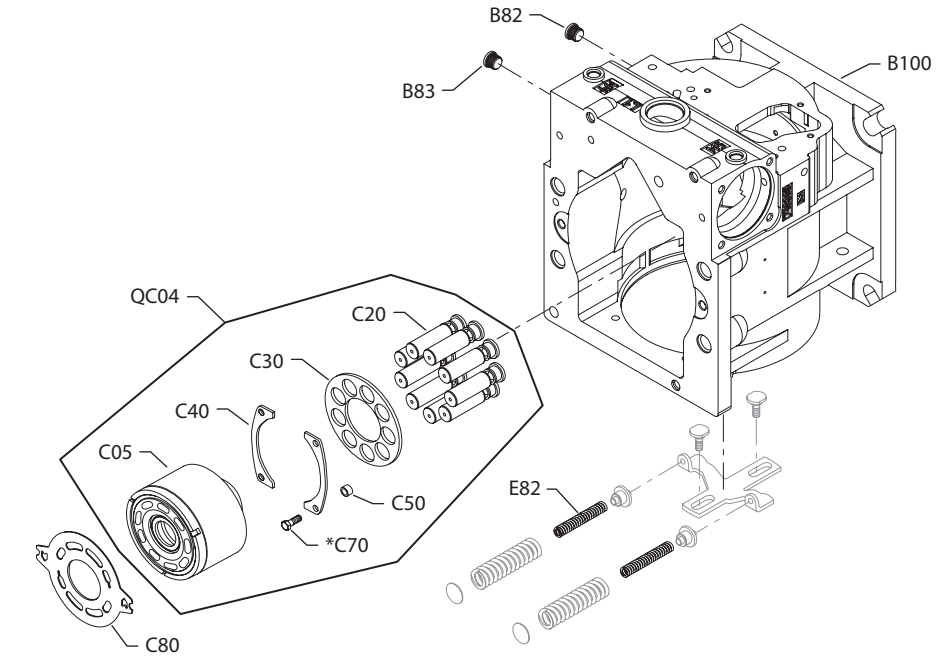
## Variable displacement pump

### Special hardware

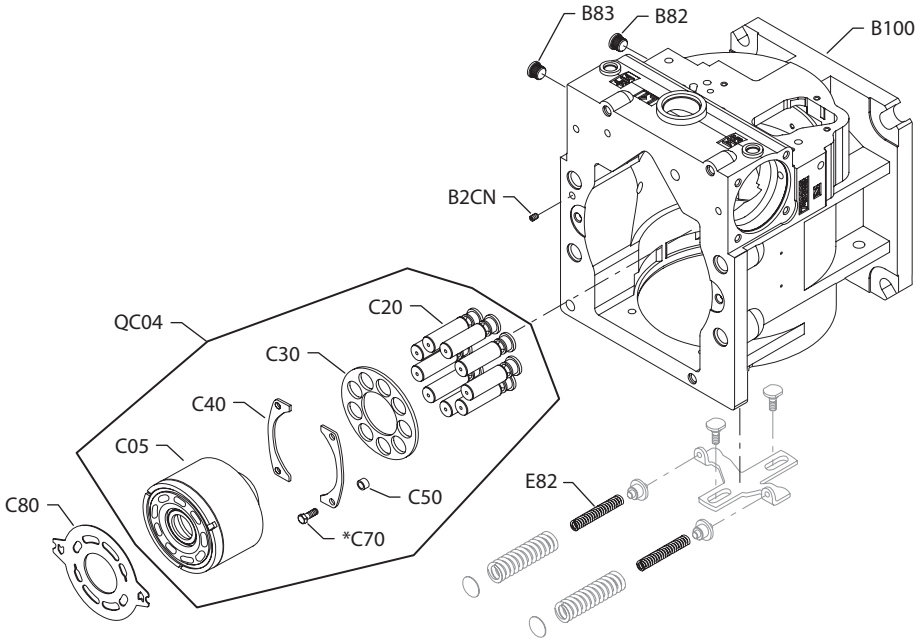
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| EHA | B82 | 06-17 | | 140644 | Plug assembly | 1 |
| | B83 | 06-17 | | KPPG16408 | Speed sensor | 1 |
| | B100 | 11-40 | | 11097202 | Housing assembly | 1 |
| | B100 | 06-17 | 11-39 | 519646 | Housing assembly (SB-2011-032) | 1 |
| | C06 | 06-17 | | 519582 | Cylinder block assembly with speed ring | 1 |
| | C20 | 06-17 | | 755181 | Piston/slipper assembly | 9 |
| | C30 | 06-17 | | 11067353 | Slipper guide | 1 |
| | C40 | 06-17 | | 313452 | Slipper guide bearing | 2 |
| | C50 | 06-17 | | 313460 | Spacer | 4 |
| | C70 | 06-17 | | 308643 | Screw | 4 |
| | C80 | 06-17 | | 518939 | Valve plate | 1 |
| | QB83 | 00-13 | | 85043 (9004201-3700) | O-ring | 1 |
| | QC04 | 06-17 | | 11097627 | Cylinder block kit with speed ring | 1 |
| FAA | B82 | 11-40 | | 140644 | Plug assembly | 1 |
| | B83 | 11-40 | | 140644 | Plug assembly | 1 |
| | B100 | 11-40 | | 11097202 | Housing assembly | 1 |
| | B100 | 04-49 | 11-39 | 789438 | Housing assembly (SB-2011-032) | 1 |
| | C05 | 04-49 | | 11125340 | Cylinder block assembly | 1 |
| | C20 | 04-49 | | 755181 | Piston/slipper assembly | 9 |
| | C30 | 04-49 | | 11067353 | Slipper guide | 1 |
| | C40 | 04-49 | | 313452 | Slipper guide bearing | 2 |
| | C50 | 04-49 | | 313460 | Spacer | 4 |
| | C70 | 04-49 | | 308643 | Screw | 4 |
| | C80 | 04-49 | | 518939 | Valve plate | 1 |
| | E82 | 04-49 | | 755553 | Spring | 2 |
| | QC04 | 04-49 | | 11145675 | Cylinder block kit | 1 |
| FAC | B82 | 11-40 | | 140644 | Plug assembly | 1 |
| | B83 | 11-40 | | 140644 | Plug assembly | 1 |
| | B100 | 11-40 | | 11097202 | Housing assembly | 1 |
| | B100 | 95-04 | 11-39 | 789438 | Housing assembly (SB-2011-032) | 1 |
| | C05 | 95-04 | | 11125340 | Cylinder block assembly | 1 |
| | C20 | 95-04 | | 755181 | Piston/slipper assembly | 9 |
| | C30 | 95-04 | | 11067353 | Slipper guide | 1 |
| | C40 | 95-04 | | 313452 | Slipper guide bearing | 2 |
| | C50 | 95-04 | | 313460 | Spacer | 4 |
| | C70 | 95-04 | | 308643 | Screw | 4 |
| | C80 | 95-04 | | 755983 | Valve plate | 1 |
| | E82 | 95-04 | | 755553 | Spring | 2 |
| | QC04 | 95-04 | | 11145675 | Cylinder block kit | 1 |

## Variable displacement pump

### (FAP & FTA)




### (FAT)




E101 802E

* = included in overhaul seal kit Q210

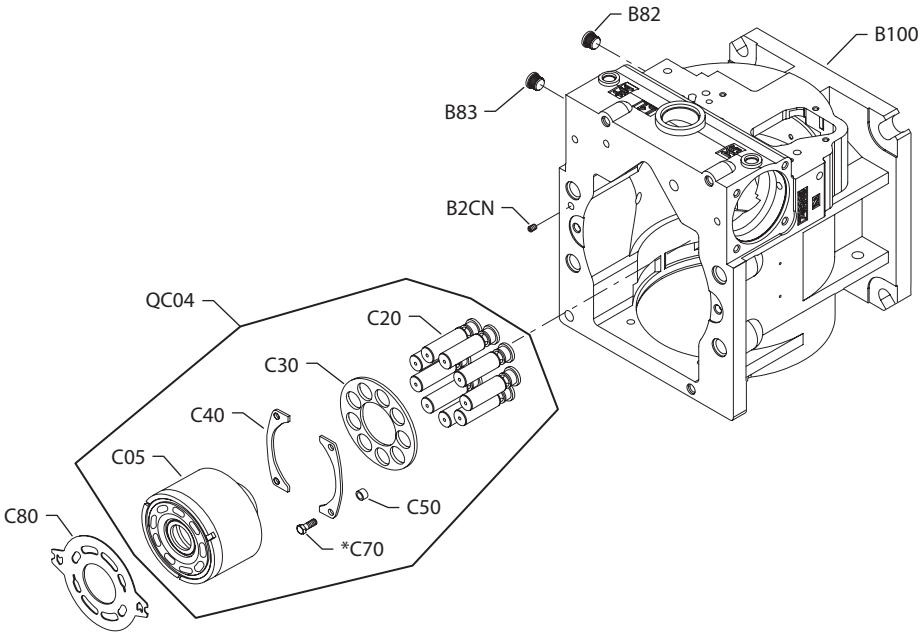
## Variable displacement pump

### Special hardware

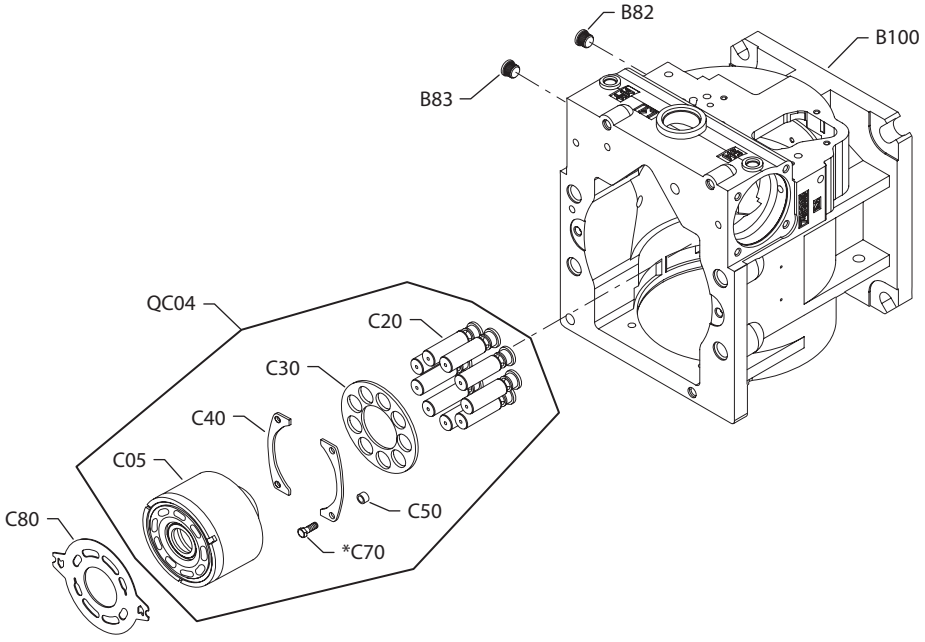
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| FAP | B82 | 11-40 | | 140644 | Plug assembly | 1 |
| | B83 | 11-40 | | 140644 | Plug assembly | 1 |
| | B100 | 11-40 | | 11097202 | Housing assembly | 1 |
| | B100 | 06-09 | 11-39 | 789438 | Housing assembly (SB-2011-032) | 1 |
| | C05 | 06-09 | | 11125340 | Cylinder block assembly | 1 |
| | C20 | 06-09 | | 755181 | Piston/slipper assembly | 9 |
| | C30 | 06-09 | | 11067353 | Slipper guide | 1 |
| | C40 | 06-09 | | 313452 | Slipper guide bearing | 2 |
| | C50 | 06-09 | | 313460 | Spacer | 4 |
| | C70 | 06-09 | | 308643 | Screw | 4 |
| | C80 | 06-09 | | 518941 | Valve plate, CW | 1 |
| | E82 | 06-09 | | 755553 | Spring | 2 |
| | QC04 | 06-09 | | 11145675 | Cylinder block kit | 1 |
| FAT | B2CN | 98-13 | | 042465 | Set screw | 1 |
| | B82 | 98-13 | | 140644 | Plug assembly | 1 |
| | B83 | 98-13 | | 140644 | Plug assembly | 1 |
| | B100 | 11-40 | | 11097202 | Housing assembly | 1 |
| | B100 | 98-13 | 11-39 | 519646 | Housing assembly (SB-2011-032) | 1 |
| | C05 | 98-13 | | 11125340 | Cylinder block assembly | 1 |
| | C20 | 98-13 | | 755181 | Piston/slipper assembly | 9 |
| | C30 | 98-13 | | 11067353 | Slipper guide | 1 |
| | C40 | 98-13 | | 313452 | Slipper guide bearing | 2 |
| | C50 | 98-13 | | 313460 | Spacer | 4 |
| | C70 | 98-13 | | 308643 | Screw | 4 |
| | C80 | 98-13 | | 518940 | Valve plate | 1 |
| | E82 | 98-13 | | 755553 | Spring | 2 |
| | QC04 | 98-13 | | 11145675 | Cylinder block kit | 1 |
| FTA | B82 | 14-02 | | 140644 | Plug assembly | 1 |
| | B83 | 14-02 | | 140644 | Plug assembly | 1 |
| | B100 | 14-02 | | 11097202 | Housing assembly | 1 |
| | C05 | 14-02 | | 11125340 | Cylinder block assembly | 1 |
| | C20 | 14-02 | | 755181 | Piston/slipper assembly | 9 |
| | C30 | 14-02 | | 11067353 | Slipper guide | 1 |
| | C40 | 14-02 | | 313452 | Slipper guide bearing | 2 |
| | C50 | 14-02 | | 313460 | Spacer | 4 |
| | C70 | 14-02 | | 308643 | Screw | 4 |
| | C80 | 14-02 | | 755983 | Valve plate | 1 |
| | E82 | 14-02 | | 755553 | Spring | 2 |
| | QC04 | 14-02 | | 11145675 | Cylinder block kit | 1 |

## Variable displacement pump

### (GBG)




### (GBX & GCA)




E101 803E

* = included in overhaul seal kit Q210

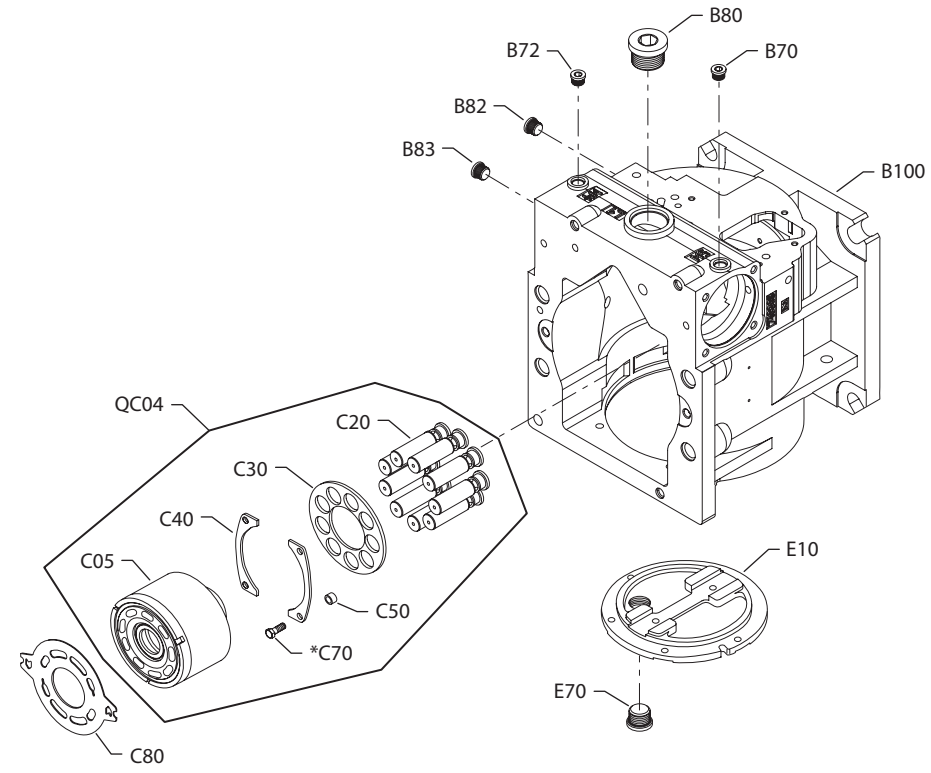
## Variable displacement pump

### Special hardware

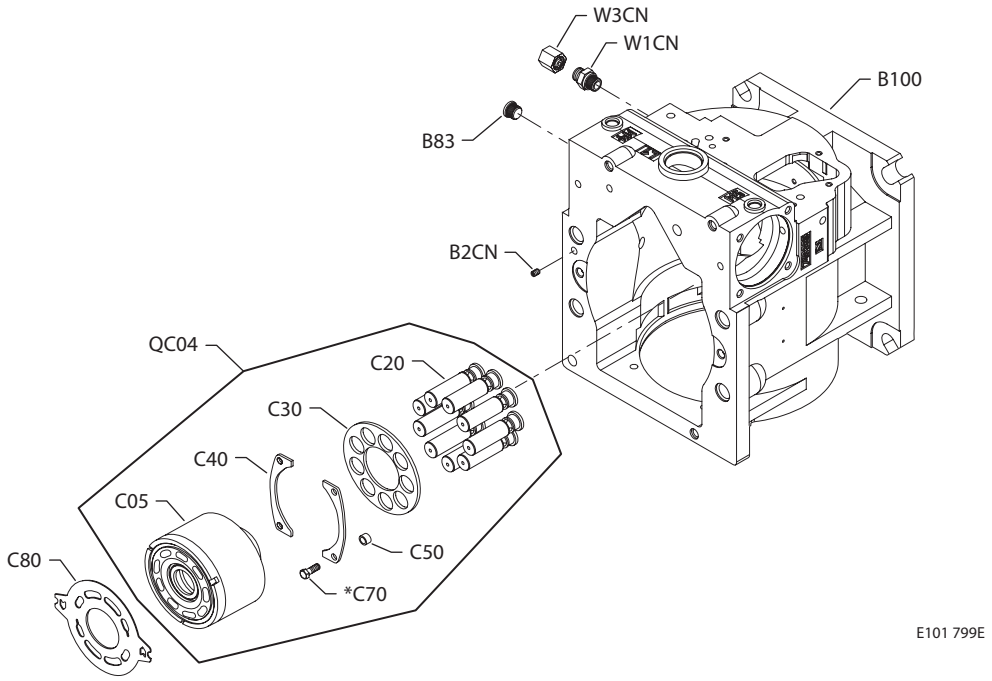
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| GBG | B2CN | 04-49 | | 042465 | Set screw | 1 |
| | B82 | 04-49 | | 140644 | Plug assembly | 1 |
| | B83 | 04-49 | | 140644 | Plug assembly | 1 |
| | B100 | 11-40 | | 11097202 | Housing assembly | 1 |
| | B100 | 04-49 | 11-39 | 519646 | Housing assembly (SB-2011-032) | 1 |
| | C05 | 04-49 | | 11125340 | Cylinder block assembly | 1 |
| | C20 | 04-49 | | 755181 | Piston/slipper assembly | 9 |
| | C30 | 04-49 | | 11067353 | Slipper guide | 1 |
| | C40 | 04-49 | | 313452 | Slipper guide bearing | 2 |
| | C50 | 04-49 | | 313460 | Spacer | 4 |
| | C70 | 04-49 | | 308643 | Screw | 4 |
| | C80 | 04-49 | | 518939 | Valve plate | 1 |
| | QC04 | 04-49 | | 11145675 | Cylinder block kit | 1 |
| GBX | B82 | 11-40 | | 140644 | Plug assembly | 1 |
| | B83 | 11-40 | | 140644 | Plug assembly | 1 |
| | B100 | 11-40 | | 11097202 | Housing assembly | 1 |
| | B100 | 94-20 | 11-39 | 789438 | Housing assembly (SB-2011-032) | 1 |
| | C05 | 94-20 | | 11125340 | Cylinder block assembly | 1 |
| | C20 | 94-20 | | 755181 | Piston/slipper assembly | 9 |
| | C30 | 94-20 | | 11067353 | Slipper guide | 1 |
| | C40 | 94-20 | | 313452 | Slipper guide bearing | 2 |
| | C50 | 94-20 | | 313460 | Spacer | 4 |
| | C70 | 94-20 | | 308643 | Screw | 4 |
| | C80 | 94-20 | | 518939 | Valve plate | 1 |
| | QC04 | 94-20 | | 11145675 | Cylinder block kit | 1 |
| GCA | B82 | 11-40 | | 140644 | Plug assembly | 1 |
| | B83 | 11-40 | | 140644 | Plug assembly | 1 |
| | B100 | 11-40 | | 11097202 | Housing assembly | 1 |
| | B100 | 94-20 | 11-39 | 789438 | Housing assembly (SB-2011-032) | 1 |
| | C05 | 94-20 | | 11125340 | Cylinder block assembly | 1 |
| | C20 | 94-20 | | 755181 | Piston/slipper assembly | 9 |
| | C30 | 94-20 | | 11067353 | Slipper guide | 1 |
| | C40 | 94-20 | | 313452 | Slipper guide bearing | 2 |
| | C50 | 94-20 | | 313460 | Spacer | 4 |
| | C70 | 94-20 | | 308643 | Screw | 4 |
| | C80 | 94-20 | | 755983 | Valve plate | 1 |
| | QC04 | 94-20 | | 11145675 | Cylinder block kit | 1 |

## Variable displacement pump

### (GCE & GCF)




### (GCG)




* = included in overhaul seal kit Q210

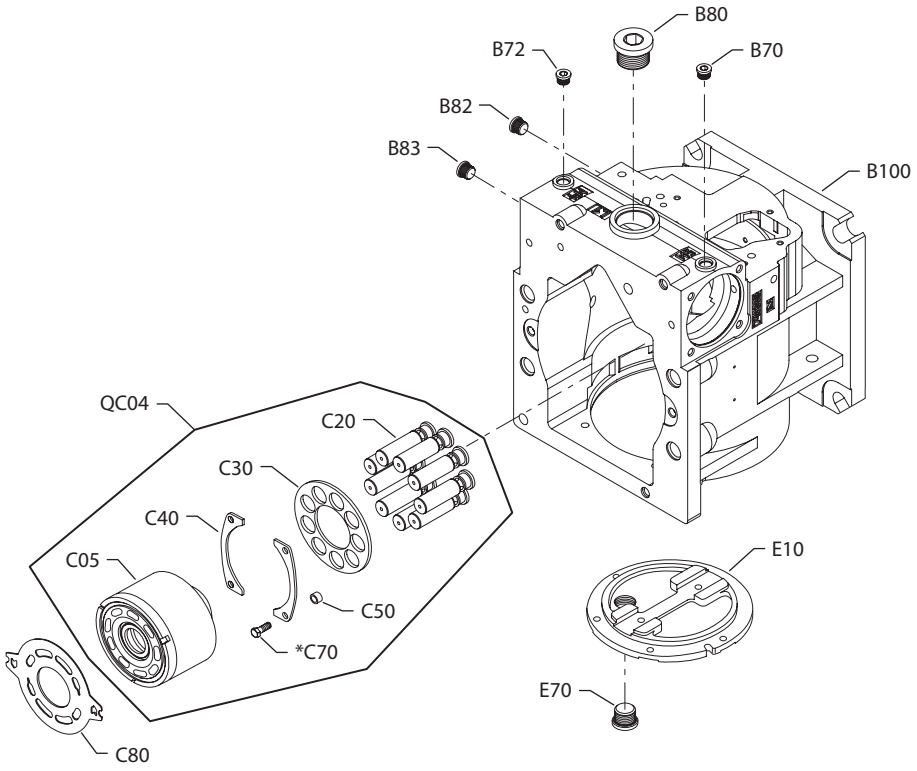
## Variable displacement pump

### Special hardware

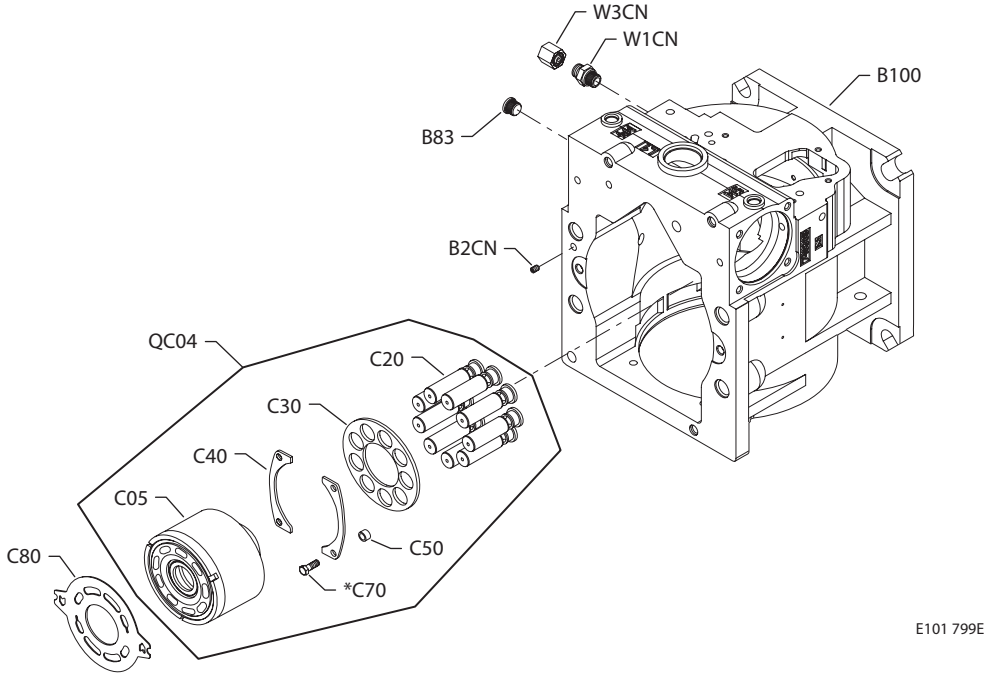
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| GCE | B70 | 12-18 | | 623173 | Plug assembly, M14 | 1 |
| | B72 | 12-18 | | 623173 | Plug assembly, M14 | 1 |
| | B80 | 12-18 | | 11115267 | Plug assembly, M52 | 1 |
| | B82 | 12-18 | | 623173 | Plug assembly, M14 | 1 |
| | B83 | 12-18 | | 623173 | Plug assembly, M14 | 1 |
| | B100 | 12-18 | | 11115183 | Housing assembly, metric | 1 |
| | C05 | 12-18 | | 11125340 | Cylinder block assembly | 1 |
| | C20 | 12-18 | | 755181 | Piston/slipper assembly | 9 |
| | C30 | 12-18 | | 11067353 | Slipper guide | 1 |
| | C40 | 12-18 | | 313452 | Slipper guide bearing | 2 |
| | C50 | 12-18 | | 313460 | Spacer | 4 |
| | C70 | 12-18 | | 308643 | Screw | 4 |
| | C80 | 12-18 | | 755983 | Valve plate | 1 |
| | E70 | 12-18 | | 11115267 | Plug assembly, M52 | 1 |
| | QC04 | 12-18 | | 11145675 | Cylinder block kit | 1 |
| GCF | B70 | 12-18 | | 623173 | Plug assembly, M14 | 1 |
| | B72 | 12-18 | | 623173 | Plug assembly, M14 | 1 |
| | B80 | 12-18 | | 11115267 | Plug assembly, M52 | 1 |
| | B82 | 12-18 | | 623173 | Plug assembly, M14 | 1 |
| | B83 | 12-18 | | 623173 | Plug assembly, M14 | 1 |
| | B100 | 12-18 | | 11115183 | Housing assembly, metric | 1 |
| | C05 | 12-18 | | 11125340 | Cylinder block assembly | 1 |
| | C20 | 12-18 | | 755181 | Piston/slipper assembly | 9 |
| | C30 | 12-18 | | 11067353 | Slipper guide | 1 |
| | C40 | 12-18 | | 313452 | Slipper guide bearing | 2 |
| | C50 | 12-18 | | 313460 | Spacer | 4 |
| | C70 | 12-18 | | 308643 | Screw | 4 |
| | C80 | 12-18 | | 755983 | Valve plate | 1 |
| | E70 | 12-18 | | 11115267 | Plug assembly, M52 | 1 |
| | QC04 | 12-18 | | 11145675 | Cylinder block kit | 1 |
| GCG | B2CN | 04-46 | | 042465 | Set screw | 1 |
| | B83 | 04-46 | | 140644 | Plug assembly | 1 |
| | B100 | 04-46 | | 11097202 | Housing assembly | 1 |
| | C05 | 04-46 | | 11125340 | Cylinder block assembly | 1 |
| | C20 | 04-46 | | 755181 | Piston/slipper assembly | 9 |
| | C30 | 04-46 | | 11067353 | Slipper guide | 1 |
| | C40 | 04-46 | | 313452 | Slipper guide bearing | 2 |
| | C50 | 04-46 | | 313460 | Spacer | 4 |
| | C70 | 04-46 | | 308643 | Screw | 4 |
| | C80 | 04-46 | | 755983 | Valve plate | 1 |
| | QC04 | 04-46 | | 11145675 | Cylinder block kit | 1 |
| | W1CN | 04-46 | | 723726 | Connector | 1 |
| | W3CN | 04-46 | | 574095 | Cap | 1 |

## Variable displacement pump

### (GCP & GLA)




### (GCH)




* = included in overhaul seal kit Q210

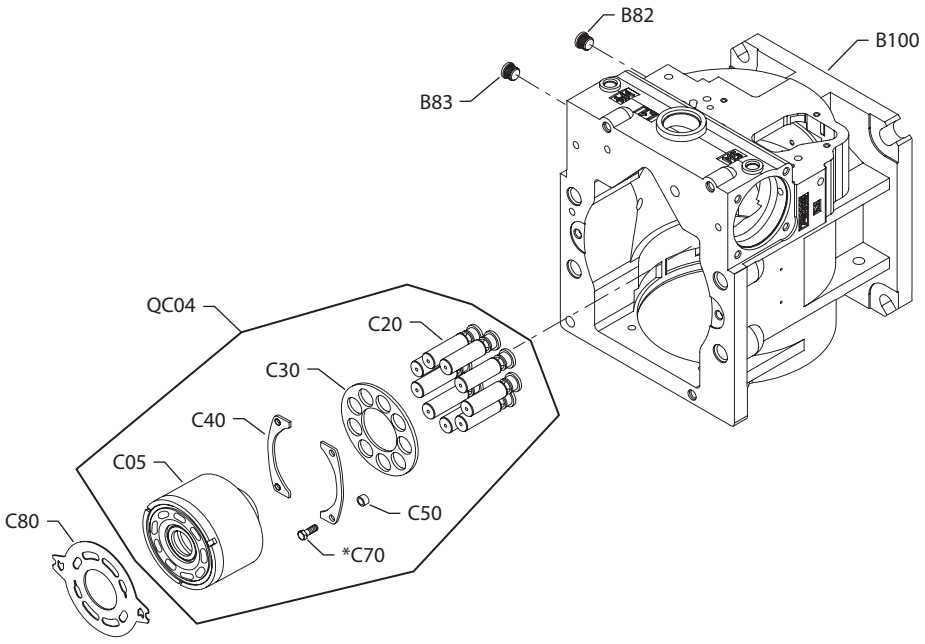
## Variable displacement pump

### Special hardware

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| GCH | B2CN | 13-02 | | 042465 | Set screw | 1 |
| | B83 | 13-02 | | 140644 | Plug assembly | 1 |
| | B100 | 13-02 | | 11097202 | Housing assembly | 1 |
| | C05 | 13-02 | | 11125340 | Cylinder block assembly | 1 |
| | C20 | 13-02 | | 755181 | Piston/slipper assembly | 9 |
| | C30 | 13-02 | | 11067353 | Slipper guide | 1 |
| | C40 | 13-02 | | 313452 | Slipper guide bearing | 2 |
| | C50 | 13-02 | | 313460 | Spacer | 4 |
| | C70 | 13-02 | | 308643 | Screw | 4 |
| | C80 | 13-02 | | 755983 | Valve plate | 1 |
| | QC04 | 13-02 | | 11145675 | Cylinder block kit | 1 |
| | W1CN | 13-02 | | 723726 | Connector | 1 |
| | W3CN | 13-02 | | 574095 | Cap | 1 |
| GCP | B82 | 11-40 | | 140644 | Plug assembly | 1 |
| | B83 | 11-40 | | 140644 | Plug assembly | 1 |
| | B100 | 11-40 | | 11097202 | Housing assembly | 1 |
| | B100 | 95-06 | 11-39 | 789438 | Housing assembly (SB-2011-032) | 1 |
| | C05 | 94-20 | | 11149151 | Cylinder block assembly | 1 |
| | C20 | 94-20 | | 755181 | Piston/slipper assembly | 9 |
| | C30 | 94-20 | | 11067353 | Slipper guide | 1 |
| | C40 | 94-20 | | 313452 | Slipper guide bearing | 2 |
| | C50 | 94-20 | | 313460 | Spacer | 4 |
| | C70 | 94-20 | | 308643 | Screw | 4 |
| | C80 | 94-20 | | 755983 | Valve plate | 1 |
| | QC04 | 94-20 | | 11145675 | Cylinder block kit | 1 |
| GLA | B82 | 11-40 | | 140644 | Plug assembly | 1 |
| | B83 | 11-40 | | 140644 | Plug assembly | 1 |
| | B100 | 11-40 | | 11097202 | Housing assembly | 1 |
| | B100 | 06-17 | 11-39 | 789438 | Housing assembly (SB-2011-032) | 1 |
| | C05 | 06-17 | | 11125340 | Cylinder block assembly | 1 |
| | C20 | 06-17 | | 755181 | Piston/slipper assembly | 9 |
| | C30 | 06-17 | | 11067353 | Slipper guide | 1 |
| | C40 | 06-17 | | 313452 | Slipper guide bearing | 2 |
| | C50 | 06-17 | | 313460 | Spacer | 4 |
| | C70 | 06-17 | | 308643 | Screw | 4 |
| | C80 | 06-17 | | 518942 | Valve plate, CCW | 1 |
| | C80 | 06-17 | | 518941 | Valve plate, CW | 1 |
| | QC04 | 06-17 | | 11145675 | Cylinder block kit | 1 |

## Variable displacement pump

### (GLP, GTB, HCA & JBA)




E103 436E

* = included in overhaul seal kit Q210

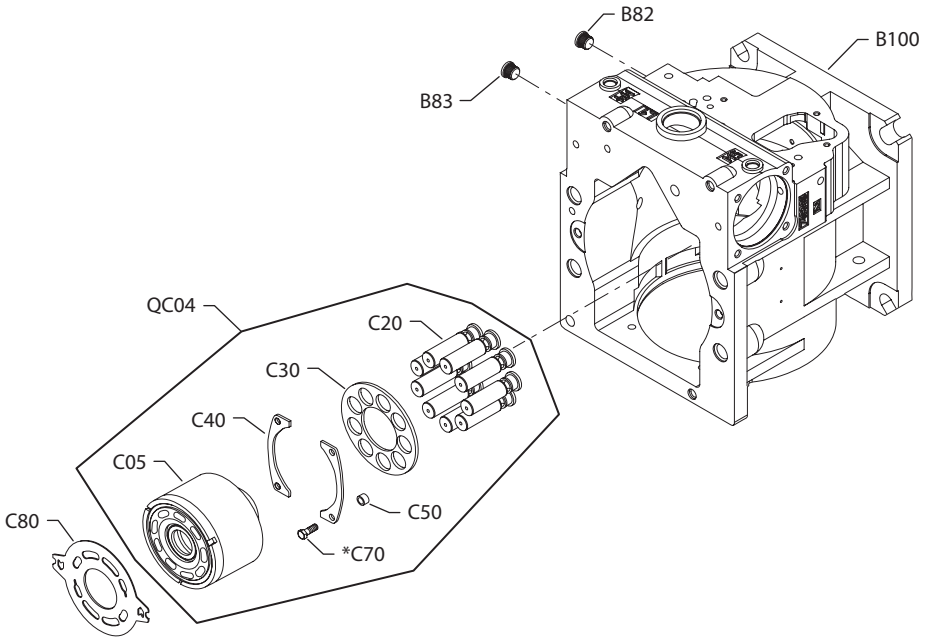
## Variable displacement pump

### Special hardware

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| GLP | B82 | 11-40 | | 140644 | Plug assembly | 1 |
| | B83 | 11-40 | | 140644 | Plug assembly | 1 |
| | B100 | 11-40 | | 11097202 | Housing assembly | 1 |
| | B100 | 06-17 | 11-39 | 789438 | Housing assembly (SB-2011-032) | 1 |
| | C05 | 06-17 | | 11125340 | Cylinder block assembly | 1 |
| | C20 | 06-17 | | 755181 | Piston/slipper assembly | 9 |
| | C30 | 06-17 | | 11067353 | Slipper guide | 1 |
| | C40 | 06-17 | | 313452 | Slipper guide bearing | 2 |
| | C50 | 06-17 | | 313460 | Spacer | 4 |
| | C70 | 06-17 | | 308643 | Screw | 4 |
| | C80 | 06-17 | | 518942 | Valve plate, CCW | 1 |
| | C80 | 06-17 | | 518941 | Valve plate, CW | 1 |
| | QC04 | 06-17 | | 11145675 | Cylinder block kit | 1 |
| GTB | B82 | 15-41 | | 140644 | Plug assembly | 1 |
| | B83 | 15-41 | | 140644 | Plug assembly | 1 |
| | B100 | 15-41 | | 11097202 | Housing assembly | 1 |
| | C05 | 15-41 | | 11125340 | Cylinder block assembly | 1 |
| | C20 | 15-41 | | 755181 | Piston/slipper assembly | 9 |
| | C30 | 15-41 | | 11067353 | Slipper guide | 1 |
| | C40 | 15-41 | | 313452 | Slipper guide bearing | 2 |
| | C50 | 15-41 | | 313460 | Spacer | 4 |
| | C70 | 15-41 | | 308643 | Screw | 4 |
| | C80 | 15-41 | | 518939 | Valve plate | 1 |
| | QC04 | 15-41 | | 11145675 | Cylinder block kit | 1 |
| HCA | B82 | 94-20 | | 140644 | Plug assembly | 1 |
| | B83 | 94-20 | | 140644 | Plug assembly | 1 |
| | B100 | 11-40 | | 11097202 | Housing assembly | 1 |
| | B100 | 94-20 | 11-39 | 519646 | Housing assembly (SB-2011-032) | 1 |
| | C05 | 94-20 | | 11125340 | Cylinder block assembly | 1 |
| | C20 | 94-20 | | 755181 | Piston/slipper assembly | 9 |
| | C30 | 94-20 | | 11067353 | Slipper guide | 1 |
| | C40 | 94-20 | | 313452 | Slipper guide bearing | 2 |
| | C50 | 94-20 | | 313460 | Spacer | 4 |
| | C70 | 94-20 | | 308643 | Screw | 4 |
| | C80 | 94-20 | | 518939 | Valve plate | 1 |
| | QC04 | 94-20 | | 11145675 | Cylinder block kit | 1 |
| JBA | B82 | 11-40 | | 140644 | Plug assembly | 1 |
| | B83 | 11-40 | | 140644 | Plug assembly | 1 |
| | B100 | 11-40 | | 11097202 | Housing assembly | 1 |
| | B100 | 06-17 | 11-39 | 789438 | Housing assembly (SB-2011-032) | 1 |
| | C05 | 06-17 | | 11125340 | Cylinder block assembly | 1 |
| | C20 | 06-17 | | 755181 | Piston/slipper assembly | 9 |
| | C30 | 06-17 | | 11067353 | Slipper guide | 1 |
| | C40 | 06-17 | | 313452 | Slipper guide bearing | 2 |
| | C50 | 06-17 | | 313460 | Spacer | 4 |
| | C70 | 06-17 | | 308643 | Screw | 4 |
| | C80 | 06-17 | | 518939 | Valve plate | 1 |
| | QC04 | 06-17 | | 11145675 | Cylinder block kit | 1 |

## Variable displacement pump

### (JCE, NNA & NNN)




E103 436E

* = included in overhaul seal kit Q210

## Variable displacement pump

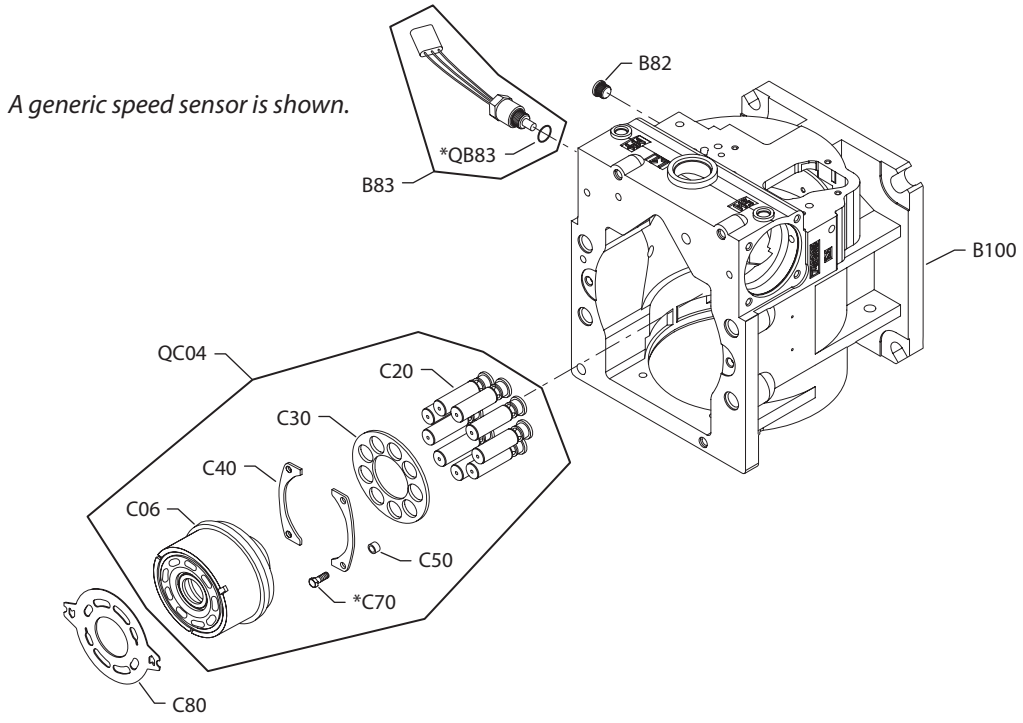
### Special hardware

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| JCE | B82 | 11-40 | | 140644 | Plug assembly | 1 |
| | B83 | 11-40 | | 140644 | Plug assembly | 1 |
| | B100 | 11-40 | | 11097202 | Housing assembly | 1 |
| | B100 | 09-39 | 11-39 | 789438 | Housing assembly (SB-2011-032) | 1 |
| | C05 | 06-17 | | 11125340 | Cylinder block assembly | 1 |
| | C20 | 06-17 | | 755181 | Piston/slipper assembly | 9 |
| | C30 | 06-17 | | 11067353 | Slipper guide | 1 |
| | C40 | 06-17 | | 313452 | Slipper guide bearing | 2 |
| | C50 | 06-17 | | 313460 | Spacer | 4 |
| | C70 | 06-17 | | 308643 | Screw | 4 |
| | C80 | 06-17 | | 518939 | Valve plate | 1 |
| | QC04 | 06-17 | | 11145675 | Cylinder block kit | 1 |
| NNA | B82 | 13-34 | | 140644 | Plug assembly | |
| | B83 | 13-34 | | 140644 | Plug assembly | 1 |
| | B100 | 13-34 | | 11097202 | Housing assembly | 1 |
| | C05 | 13-34 | | 11125340 | Cylinder block assembly | 1 |
| | C20 | 13-34 | | 755181 | Piston/slipper assembly | 9 |
| | C30 | 13-34 | | 11067353 | Slipper guide | 1 |
| | C40 | 13-34 | | 313452 | Slipper guide bearing | 2 |
| | C50 | 13-34 | | 313460 | Spacer | 4 |
| | C70 | 13-34 | | 308643 | Screw | 4 |
| | C80 | 13-34 | | 755983 | Valve plate | 1 |
| | QC04 | 13-34 | | 11145675 | Cylinder block kit | 1 |
| NNN | B82 | 11-40 | | 140644 | Plug assembly | |
| | B83 | 11-40 | | 140644 | Plug assembly | 1 |
| | B100 | 11-40 | | 11097202 | Housing assembly | 1 |
| | B100 | 94-20 | 11-39 | 789438 | Housing assembly (SB-2011-032) | 1 |
| | C05 | 94-20 | | 11125340 | Cylinder block assembly | 1 |
| | C20 | 94-20 | | 755181 | Piston/slipper assembly | 9 |
| | C30 | 94-20 | | 11067353 | Slipper guide | 1 |
| | C40 | 94-20 | | 313452 | Slipper guide bearing | 2 |
| | C50 | 94-20 | | 313460 | Spacer | 4 |
| | C70 | 94-20 | | 308643 | Screw | 4 |
| | C80 | 94-20 | | 518939 | Valve plate | 1 |
| | QC04 | 94-20 | | 11145675 | Cylinder block kit | 1 |

## Variable displacement pump

### (PEA, PEB & PEC)

*A generic speed sensor is shown.*




E101 792E

* = included in overhaul seal kit Q210

## Variable displacement pump

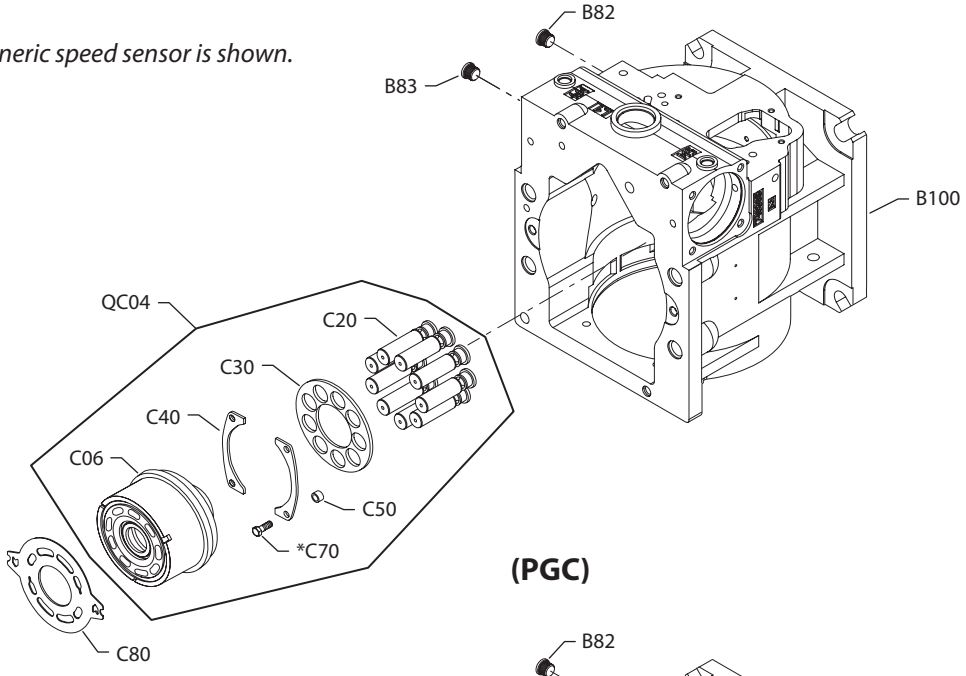
### Special hardware

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| PEA | B82 | 09-24 | | 140644 | Plug assembly | 1 |
| | B83 | 09-24 | | KPPG156 | Speed sensor | 1 |
| | B100 | 11-40 | | 11097202 | Housing assembly | 1 |
| | B100 | 09-24 | 11-39 | 519646 | Housing assembly (SB-2011-032) | 1 |
| | C06 | 09-24 | | 519582 | Cylinder block assembly with speed ring | 1 |
| | C20 | 09-24 | | 755181 | Piston/slipper assembly | 9 |
| | C30 | 09-24 | | 11067353 | Slipper guide | 1 |
| | C40 | 09-24 | | 313452 | Slipper guide bearing | 2 |
| | C50 | 09-24 | | 313460 | Spacer | 4 |
| | C70 | 09-24 | | 308643 | Screw | 4 |
| | C80 | 09-24 | | 518939 | Valve plate | 1 |
| | QB83 | 09-24 | | 085043 (9004201-3700) | O-ring | 1 |
| | QC04 | 09-24 | | 11097627 | Cylinder block kit with speed ring | 1 |
| PEB | B82 | 14-40 | | 140644 | Plug assembly | 1 |
| | B83 | 14-40 | | KPPG156 | Speed sensor | 1 |
| | B100 | 14-40 | | 11097202 | Housing assembly | 1 |
| | C06 | 14-40 | | 519582 | Cylinder block assembly with speed ring | 1 |
| | C20 | 14-40 | | 755181 | Piston/slipper assembly | 9 |
| | C30 | 14-40 | | 11067353 | Slipper guide | 1 |
| | C40 | 14-40 | | 313452 | Slipper guide bearing | 2 |
| | C50 | 14-40 | | 313460 | Spacer | 4 |
| | C70 | 14-40 | | 308643 | Screw | 4 |
| | C80 | 14-40 | | 518941 | Valve plate, CW | 1 |
| | C80 | 14-40 | | 518942 | Valve plate, CCW | 1 |
| | QB83 | 14-40 | | 085043 (9004201-3700) | O-ring | 1 |
| | QC04 | 14-40 | | 11097627 | Cylinder block kit with speed ring | 1 |
| PEC | B82 | 12-45 | | 140644 | Plug assembly | 1 |
| | B83 | 12-45 | | KPPG156 | Speed sensor | 1 |
| | B100 | 12-45 | | 11097202 | Housing assembly | 1 |
| | C06 | 12-45 | | 519582 | Cylinder block assembly with speed ring | 1 |
| | C20 | 12-45 | | 755181 | Piston/slipper assembly | 9 |
| | C30 | 12-45 | | 11067353 | Slipper guide | 1 |
| | C40 | 12-45 | | 313452 | Slipper guide bearing | 2 |
| | C50 | 12-45 | | 313460 | Spacer | 4 |
| | C70 | 12-45 | | 308643 | Screw | 4 |
| | C80 | 12-45 | | 755983 | Valve plate | 1 |
| | QB83 | 12-45 | | 085043 (9004201-3700) | O-ring | 1 |
| | QC04 | 12-45 | | 11097627 | Cylinder block kit with speed ring | 1 |

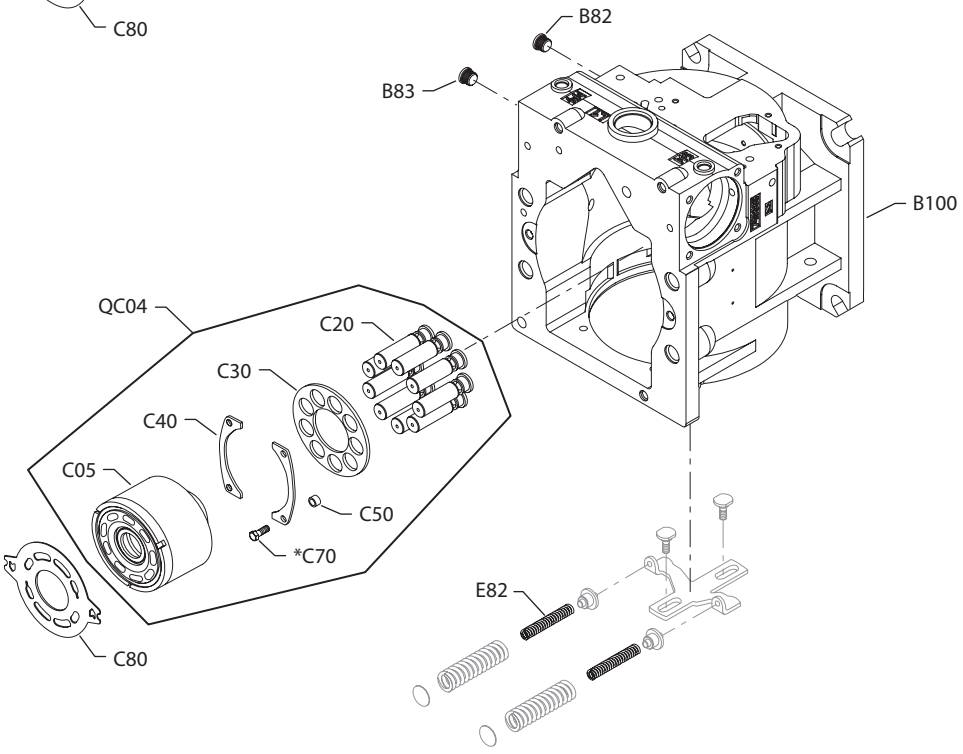
## Variable displacement pump

*A generic speed sensor is shown.*

**(PGA)**




**(PGC)**




E103 437E

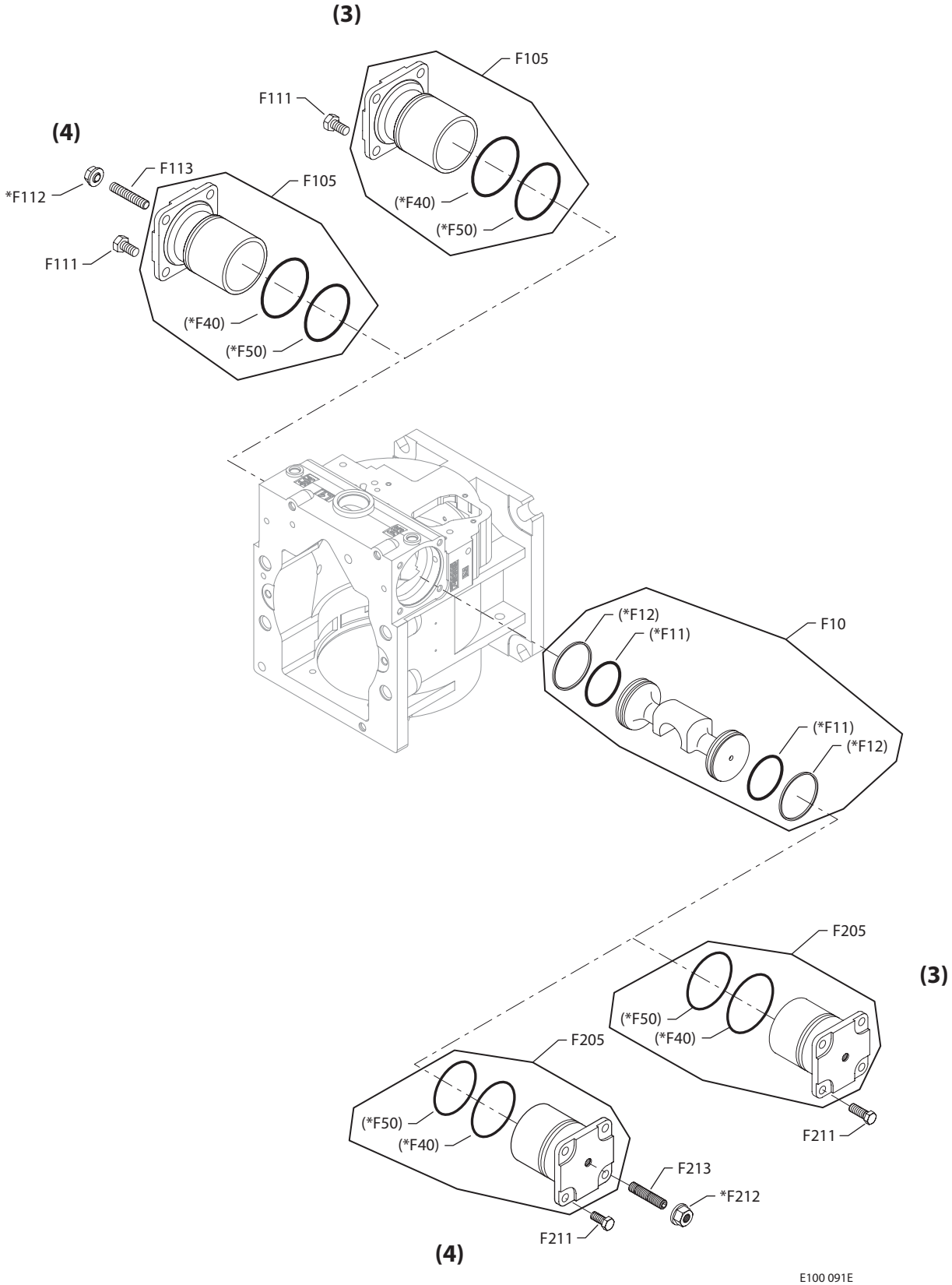
* = included in overhaul seal kit Q210

## Variable displacement pump

### Special hardware

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| PGA | B82 | 11-40 | | 140644 | Plug assembly | 1 |
| | B83 | 11-40 | | 140644 | Plug assembly | 1 |
| | B100 | 11-40 | | 11097202 | Housing assembly | 1 |
| | B100 | 07-27 | 11-39 | 789438 | Housing assembly (SB-2011-032) | 1 |
| | C05 | 07-27 | | 11125340 | Cylinder block assembly | 1 |
| | C20 | 07-27 | | 755181 | Piston/slipper assembly | 9 |
| | C30 | 07-27 | | 11067353 | Slipper guide | 1 |
| | C40 | 07-27 | | 313452 | Slipper guide bearing | 2 |
| | C50 | 07-27 | | 313460 | Spacer | 4 |
| | C70 | 07-27 | | 308643 | Screw | 4 |
| | C80 | 07-27 | | 518939 | Valve plate | 1 |
| | QC04 | 07-27 | | 11145675 | Cylinder block kit | 1 |
| PGC | B82 | 12-45 | | 140644 | Plug assembly | 1 |
| | B83 | 12-45 | | 140644 | Plug assembly | 1 |
| | B100 | 12-45 | | 11097202 | Housing assembly | 1 |
| | C05 | 12-45 | | 11125340 | Cylinder block assembly | 1 |
| | C20 | 12-45 | | 755181 | Piston/slipper assembly | 9 |
| | C30 | 12-45 | | 11067353 | Slipper guide | 1 |
| | C40 | 12-45 | | 313452 | Slipper guide bearing | 2 |
| | C50 | 12-45 | | 313460 | Spacer | 4 |
| | C70 | 12-45 | | 308643 | Screw | 4 |
| | C80 | 12-45 | | 755983 | Valve plate | 1 |
| | E82 | 12-45 | | 755553 | Spring | 2 |
| | QC04 | 12-45 | | 11145675 | Cylinder block kit | 1 |

## Variable displacement pump



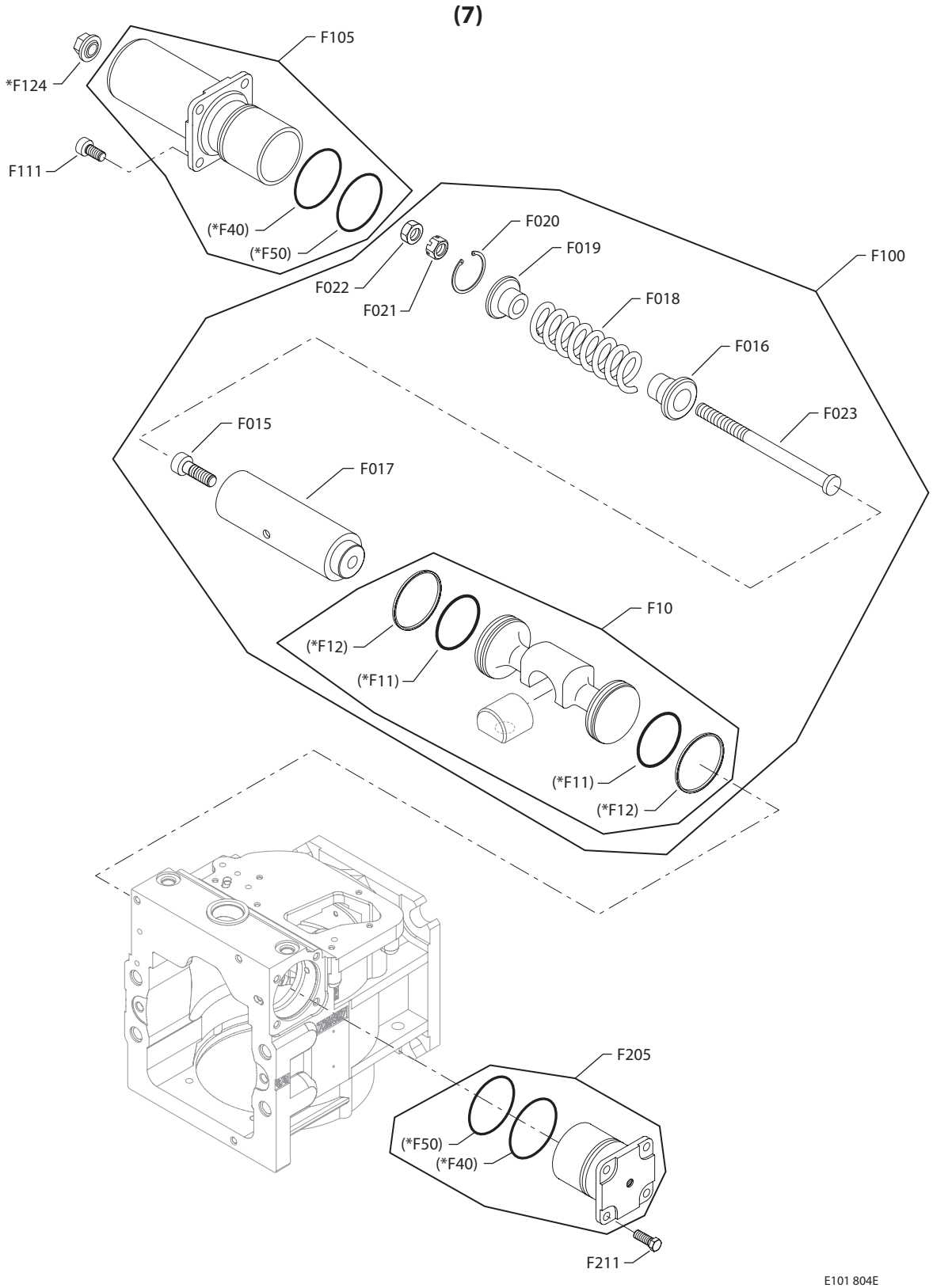

* = included in overhaul seal kit Q210
( ) = not available individually

## Variable displacement pump

### Displacement limitation

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 3 | F10 | 94-20 | | 11046674 | Servo piston assembly | 1 |
| | F105 | 94-20 | | 11060184 | Servo cyclinder assembly | 1 |
| | F111 | 94-20 | | 507205 | Screw | 4 |
| | F205 | 94-20 | | 11060184 | Servo cyclinder assembly | 1 |
| | F211 | 94-20 | | 507205 | Screw | 4 |
| | | | | | | |
| 4 | F10 | 94-20 | | 11046674 | Servo piston assembly | 1 |
| | F105 | 94-20 | | 11060183 | Servo cyclinder assembly | 1 |
| | F111 | 94-20 | | 507205 | Screw | 4 |
| | F112 | 94-20 | | 649822 | Seal nut | 1 |
| | F113 | 94-20 | | 11000798 | Set screw | 1 |
| | F205 | 94-20 | | 11060183 | Servo cyclinder assembly | 1 |
| | F211 | 94-20 | | 507205 | Screw | 4 |
| | F212 | 94-20 | | 649822 | Seal nut | 1 |
| | F213 | 94-20 | | 11000798 | Set screw | 1 |

## Variable displacement pump



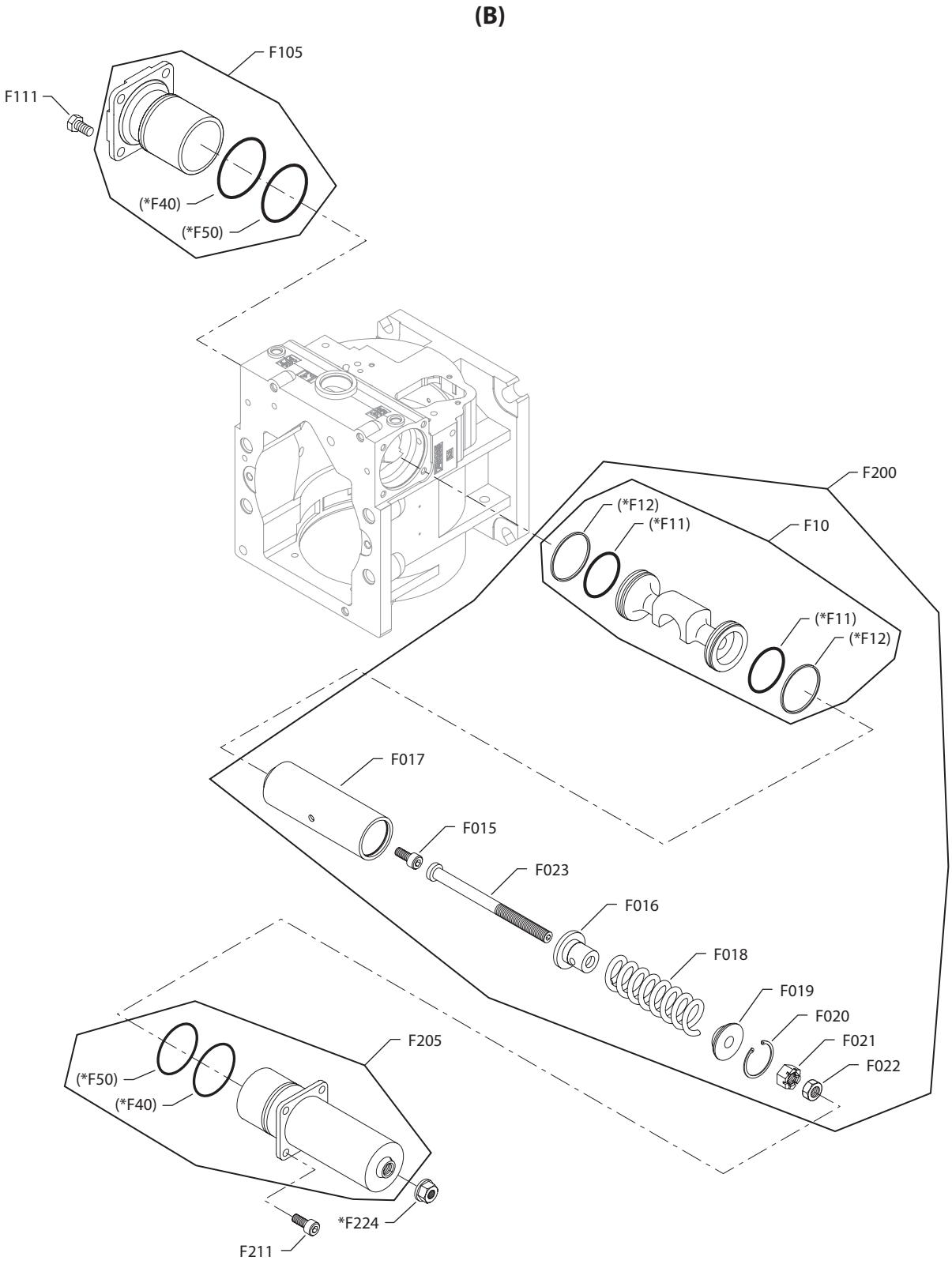

* = included in overhaul seal kit Q210
( ) = not available individually

## Variable displacement pump

### Displacement limitation

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 7 | F10 | 00-09 | | 11046677 | Servo piston assembly | 1 |
| | F015 | 00-09 | | 515682 | Screw | 1 |
| | F016 | 00-09 | | 515667 | Spring guide | 1 |
| | F017 | 00-09 | | 515670 | Pre-load tube | 1 |
| | F018 | 00-09 | | 515683 | Spring | 1 |
| | F019 | 00-09 | | 515669 | Spring seat | 1 |
| | F020 | 00-09 | | 515685 | Retaining ring | 1 |
| | F021 | 00-09 | | 515686 | Nut | 1 |
| | F022 | 00-09 | | 515687 | Nut | 1 |
| | F023 | 00-09 | | 11140222 | Screw | 1 |
| | F100 | 00-09 | | 515680 | Servo piston assembly | 1 |
| | F105 | 00-09 | | 11060186 | Servo cyclinder assembly | 1 |
| | F111 | 00-09 | | 513197 | Screw | 4 |
| | F124 | 00-09 | | 074542 | Seal nut, M16 | 1 |
| | F205 | 00-09 | | 11060185 | Servo cyclinder assembly | 1 |
| | F211 | 00-09 | | 507205 | Screw | 4 |

## Variable displacement pump



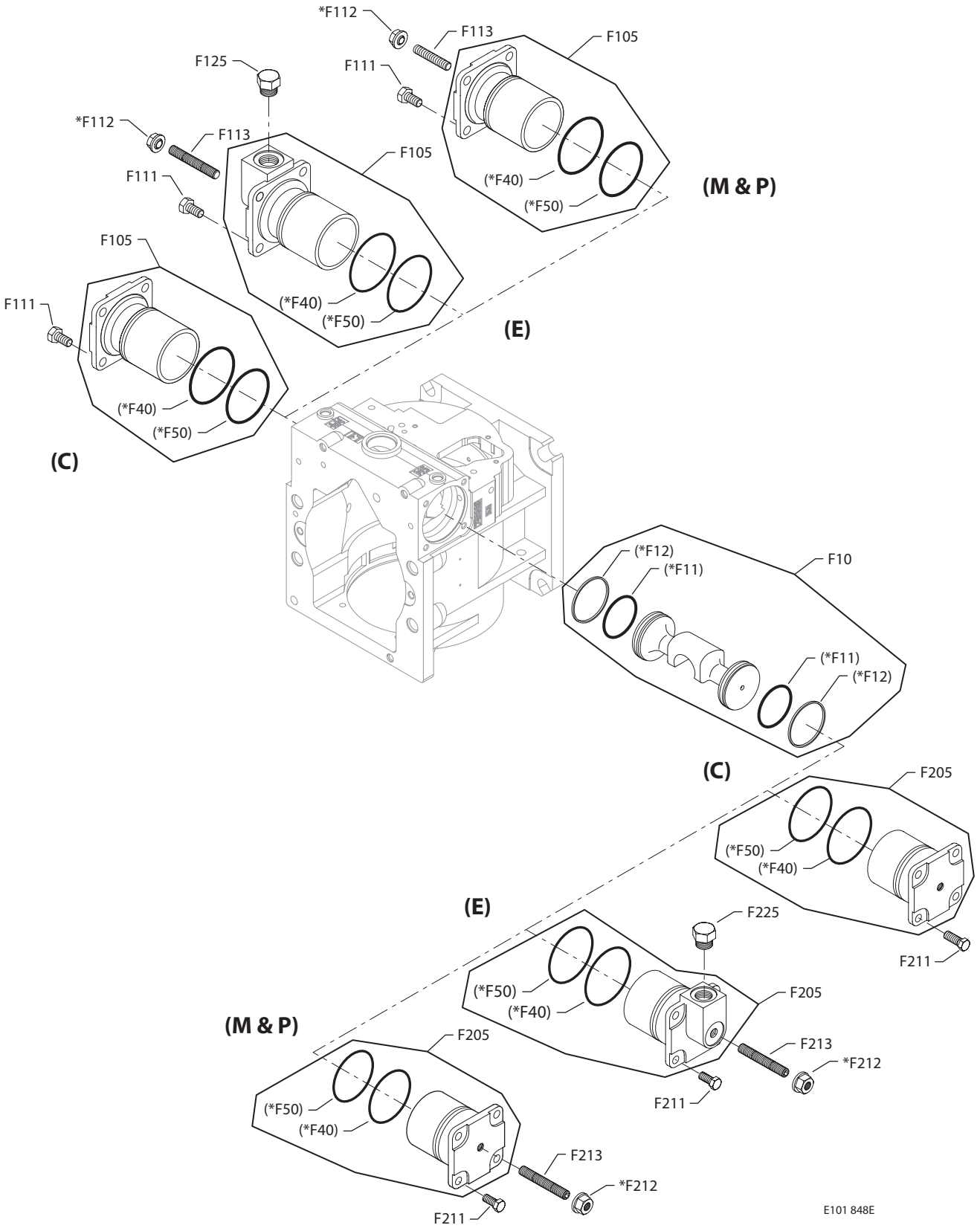

* = included in overhaul seal kit Q210
( ) = not available individually

## Variable displacement pump

### Displacement limitation

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| B | F10 | 00-09 | | 11046677 | Servo piston assembly | 1 |
| | F015 | 00-09 | | 515682 | Screw | 1 |
| | F016 | 00-09 | | 515667 | Spring guide | 1 |
| | F017 | 00-09 | | 515670 | Pre-load tube | 1 |
| | F018 | 00-09 | | 515683 | Spring | 1 |
| | F019 | 00-09 | | 515669 | Spring seat | 1 |
| | F020 | 00-09 | | 515685 | Retaining ring | 1 |
| | F021 | 00-09 | | 515686 | Nut | 1 |
| | F022 | 00-09 | | 515687 | Nut | 1 |
| | F023 | 00-09 | | 11140222 | Screw | 1 |
| | F105 | 00-09 | | 11060185 | Servo cyclinder assembly | 1 |
| | F111 | 00-09 | | 507205 | Screw | 4 |
| | F200 | 00-09 | | 515680 | Servo piston assembly | 1 |
| | F205 | 00-09 | | 11060186 | Servo cyclinder assembly | 1 |
| | F211 | 00-09 | | 513197 | Screw | 4 |
| | F224 | 00-09 | | 074542 | Seal nut, M16 | 1 |

## Variable displacement pump



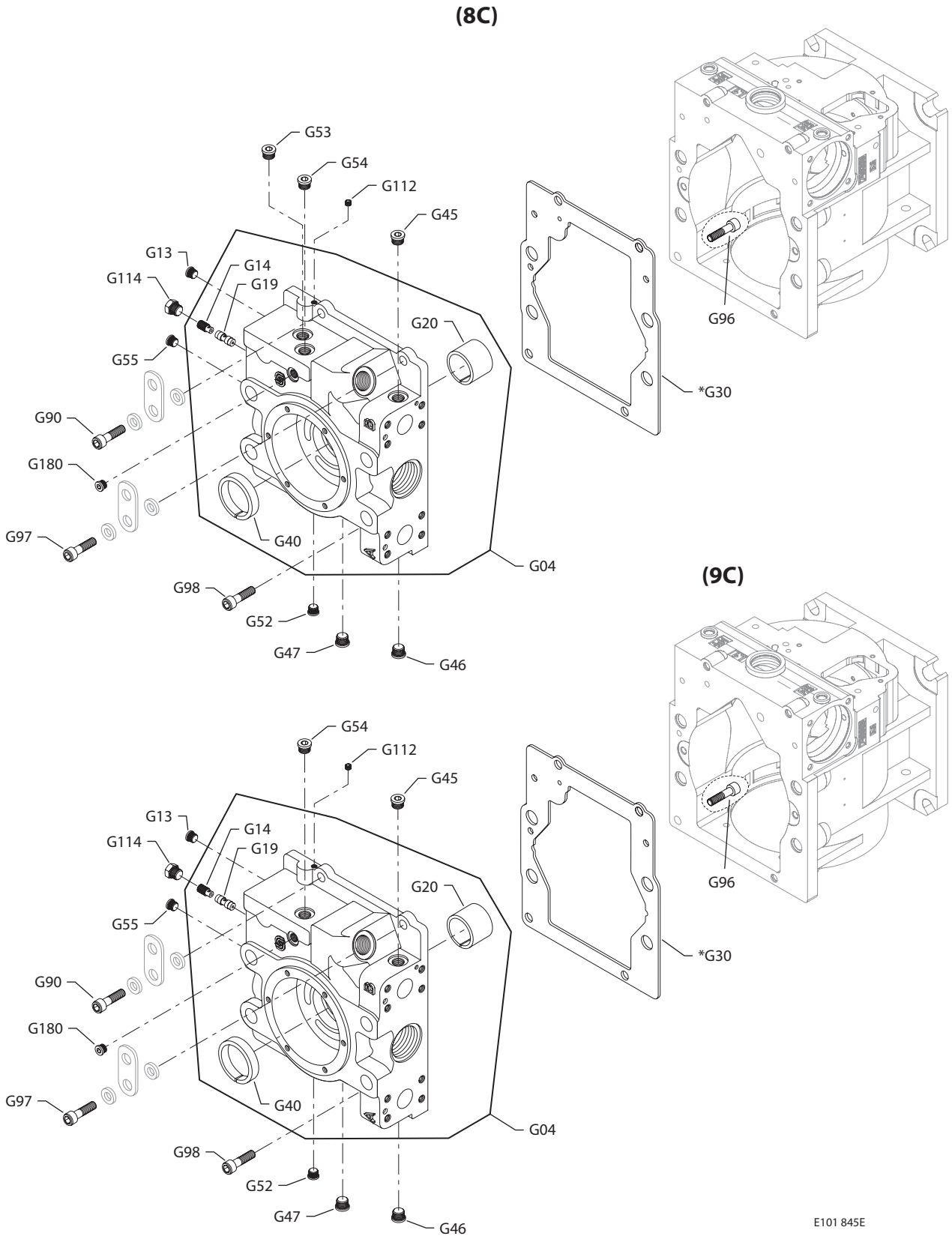

* = included in overhaul seal kit Q210
( ) = not available individually

## Variable displacement pump

### Displacement limitation

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| C | F10 | 97-13 | | 11046679 | Servo piston assembly | 1 |
| | F105 | 97-13 | | 11060705 | Servo cyclinder assembly | 1 |
| | F111 | 97-13 | | 308643 | Screw | 4 |
| | F205 | 97-13 | | 11060705 | Servo cyclinder assembly | 1 |
| | F211 | 97-13 | | 308643 | Screw | 4 |
| E | F10 | 11-51 | | 11046674 | Servo piston assembly | 1 |
| | F105 | 11-51 | | 11108107 | Servo cyclinder assembly | 1 |
| | F111 | 11-51 | | 507205 | Screw | 4 |
| | F112 | 11-51 | | 649822 | Seal nut, M14 | 1 |
| | F113 | 11-51 | | 11000798 | Set screw | 1 |
| | F125 | 11-51 | | 731943 | Plug assembly, M22 | 1 |
| | F205 | 11-51 | | 11108107 | Servo cyclinder assembly | 1 |
| | F211 | 11-51 | | 507205 | Screw | 4 |
| | F212 | 11-51 | | 649822 | Seal nut, M14 | 1 |
| | F213 | 11-51 | | 11000798 | Set screw | 1 |
| | F225 | 11-51 | | 731943 | Plug assembly, M22 | 1 |
| M | F10 | 97-13 | | 11046679 | Servo piston assembly | 1 |
| | F105 | 97-13 | | 11060706 | Servo cyclinder assembly | 1 |
| | F111 | 97-13 | | 308643 | Screw | 4 |
| | F112 | 97-13 | | 649822 | Seal nut, M14 | 1 |
| | F113 | 97-13 | | 11000798 | Set screw | 1 |
| | F205 | 97-13 | | 11060706 | Servo cyclinder assembly | 1 |
| | F211 | 97-13 | | 308643 | Screw | 4 |
| | F212 | 97-13 | | 649822 | Seal nut, M14 | 1 |
| | F213 | 97-13 | | 11000798 | Set screw | 1 |
| P | F10 | 00-05 | | 11046674 | Servo piston assembly | 1 |
| | F105 | 00-05 | | 11060183 | Servo cyclinder assembly | 1 |
| | F111 | 00-05 | | 507205 | Screw | 4 |
| | F112 | 00-05 | | 649822 | Seal nut, M14 | 1 |
| | F113 | 00-05 | | 516127 | Set screw | 1 |
| | F205 | 00-05 | | 11060183 | Servo cyclinder assembly | 1 |
| | F211 | 00-05 | | 507205 | Screw | 4 |
| | F212 | 00-05 | | 649822 | Seal nut, M14 | 1 |
| | F213 | 00-05 | | 516127 | Set screw | 1 |

## Variable displacement pump



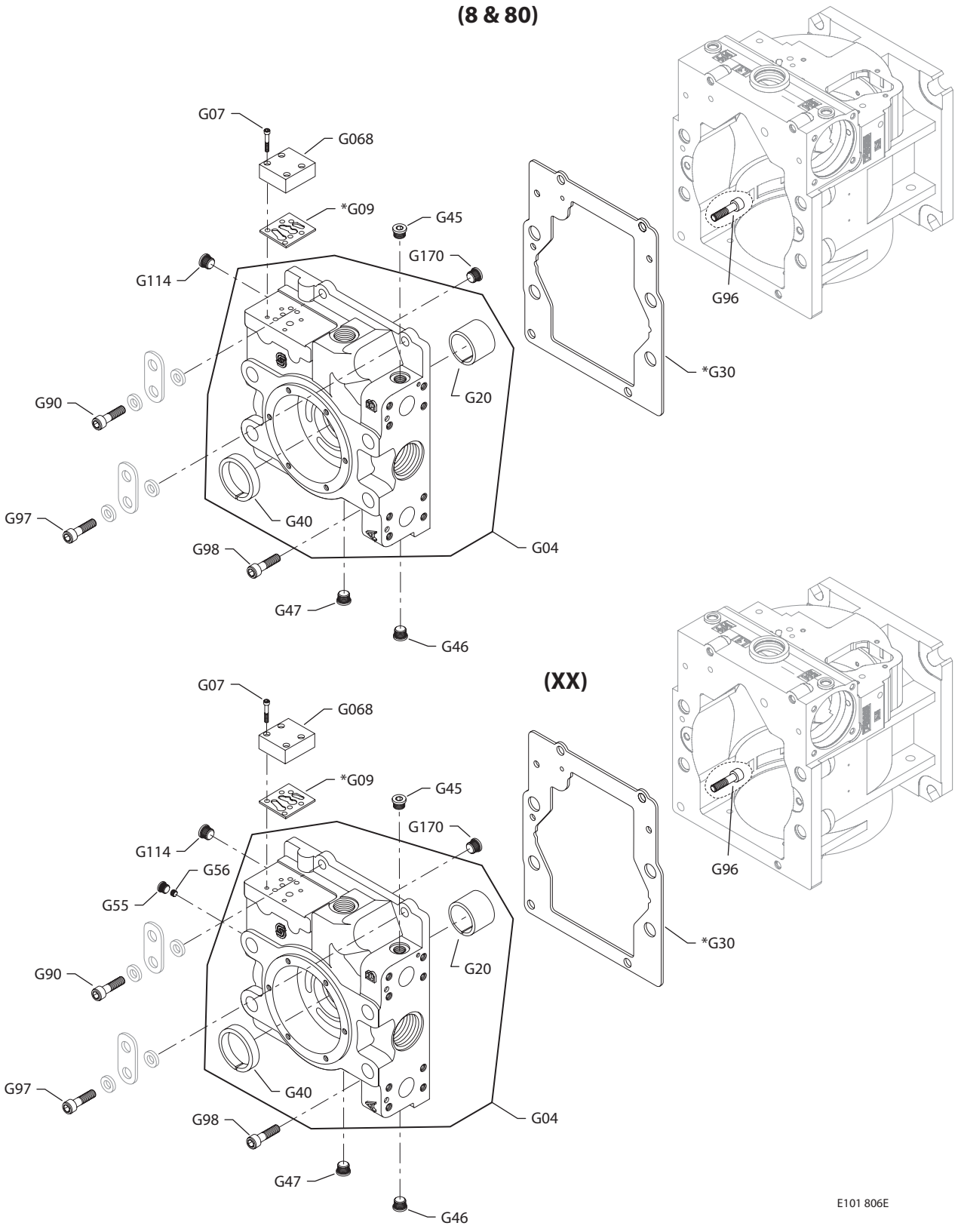

* = included in overhaul seal kit Q210

## Variable displacement pump

### End cap

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 8C | G04 | 11-32 | | 503019/P | End cap assembly, twin ports | 1 |
| | G13 | 11-32 | | 11040532 | Plug assembly | 1 |
| | G14 | 11-32 | | 765750 | Orifice plug | 1 |
| | G19 | 11-32 | | 759415 | Spool | 1 |
| | G20 | 11-32 | | 303693 | Jounal bearing | 1 |
| | G30 | 11-32 | | 511809 | End cap gasket | 1 |
| | G40 | 11-32 | | 303651 | Bushing | 1 |
| | G45 | 11-32 | | 140644 | Plug assembly | 1 |
| | G46 | 11-32 | | 140644 | Plug assembly | 1 |
| | G47 | 11-32 | | 140644 | Plug assembly | 1 |
| | G52 | 11-32 | | 11040532 | Plug assembly | 1 |
| | G53 | 11-32 | | 140644 | Plug assembly | 1 |
| | G54 | 11-32 | | 140644 | Plug assembly | 1 |
| | G55 | 11-32 | | 11040532 | Plug assembly | 1 |
| | G90 | 11-32 | | 290502 | Screw, M12 x 40 | 1 |
| | G96 | 11-32 | | 290502 | Screw, M12 x 40 | 1 |
| | G97 | 11-32 | | 290502 | Screw, M12 x 40 | 1 |
| | G98 | 11-32 | | 290502 | Screw, M12 x 40 | 1 |
| | G112 | 11-32 | | 787838 | Set screw | 1 |
| | G114 | 11-32 | | 9005100-3700 | Plug assembly | 1 |
| | G180 | 11-32 | | 11040532 | Plug assembly | 1 |
| | | | | | | |
| 9C | G04 | 12-18 | | 11115118 | End cap assembly, twin ports | 1 |
| | G13 | 12-18 | | 11040532 | Plug assembly | 1 |
| | G14 | 12-18 | | 765750 | Orifice plug | 1 |
| | G19 | 12-18 | | 759415 | Spool | 1 |
| | G20 | 12-18 | | 303693 | Jounal bearing | 1 |
| | G30 | 12-18 | | 511809 | End cap gasket | 1 |
| | G40 | 12-18 | | 303651 | Bushing | 1 |
| | G45 | 12-18 | | 623173 | Plug assembly, M14 | 1 |
| | G46 | 12-18 | | 623173 | Plug assembly, M14 | 1 |
| | G47 | 12-18 | | 623173 | Plug assembly, M14 | 1 |
| | G52 | 12-18 | | 11040532 | Plug assembly | 1 |
| | G54 | 12-18 | | 623173 | Plug assembly, M14 | 1 |
| | G55 | 12-18 | | 11040532 | Plug assembly | 1 |
| | G90 | 12-18 | | 290502 | Screw, M12 x 40 | 1 |
| | G96 | 12-18 | | 290502 | Screw, M12 x 40 | 1 |
| | G97 | 12-18 | | 290502 | Screw, M12 x 40 | 1 |
| | G98 | 12-18 | | 290502 | Screw, M12 x 40 | 1 |
| | G112 | 12-18 | | 787838 | Set screw | 1 |
| | G114 | 12-18 | | 9005100-3700 | Plug assembly | 1 |
| | G180 | 12-18 | | 11040532 | Plug assembly | 1 |

## Variable displacement pump



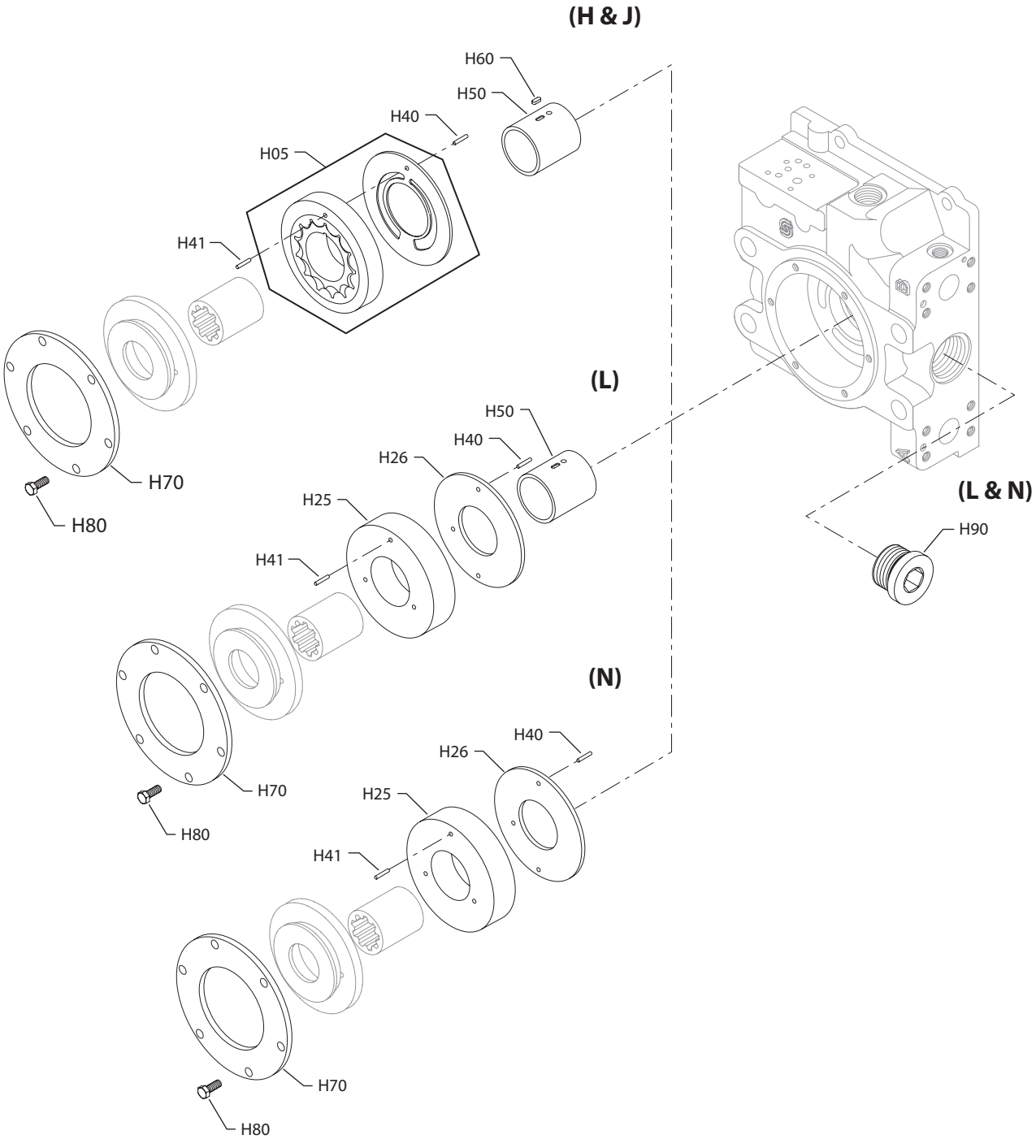

* = included in overhaul seal kit Q210

## Variable displacement pump

### End cap

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 8 & 80 | G04 | 94-20 | | 11004673 | End cap assembly, twin ports | 1 |
| | G068 | 94-20 | | 11140729 | Valve housing assembly | 1 |
| | G07 | 94-20 | | 694356 | Screw | 1 |
| | G09 | 94-20 | | 689117 | Gasket | 1 |
| | G20 | 94-20 | | 303693 | Jounal bearing | 1 |
| | G30 | 94-20 | | 511809 | End cap gasket | 1 |
| | G40 | 94-20 | | 303651 | Bushing | 1 |
| | G45 | 94-20 | | 140644 | Plug assembly | 1 |
| | G46 | 94-20 | | 140644 | Plug assembly | 1 |
| | G47 | 94-20 | | 140644 | Plug assembly | 1 |
| | G90 | 94-20 | | 675900 | Screw | 1 |
| | G96 | 94-20 | | 290502 | Screw | 1 |
| | G97 | 94-20 | | 290502 | Screw | 1 |
| | G98 | 94-20 | | 290502 | Screw | 1 |
| | G114 | 94-20 | | 140644 | Plug assembly | 1 |
| | G170 | 12-23 | | 327007 (9005110-4400) | Plug assembly | 1 |
| XX | G04 | 09-27 | | 11067910 | End cap assembly, twin ports | 1 |
| | G068 | 09-27 | | 11140729 | Valve housing assembly | 1 |
| | G07 | 09-27 | | 694356 | Screw | 1 |
| | G09 | 09-27 | | 689117 | Gasket | 1 |
| | G20 | 09-27 | | 11073987 | Jounal bearing | 1 |
| | G30 | 09-27 | | 511809 | End cap gasket | 1 |
| | G40 | 09-27 | | 303651 | Bushing | 1 |
| | G45 | 09-27 | | 140644 | Plug assembly | 1 |
| | G46 | 09-27 | | 140644 | Plug assembly | 1 |
| | G47 | 09-27 | | 140644 | Plug assembly | 1 |
| | G55 | 09-27 | | 327007 (9005110-4400) | Plug assembly | 1 |
| | G56 | 09-27 | | 775312 | Set screw | 1 |
| | G57 | 09-27 | | 11068189 | Orifice plug | 1 |
| | G90 | 09-27 | | 675900 | Screw | 1 |
| | G96 | 09-27 | | 290502 | Screw | 1 |
| | G97 | 09-27 | | 290502 | Screw | 1 |
| | G98 | 09-27 | | 290502 | Screw | 1 |
| | G114 | 09-27 | | 140644 | Plug assembly | 1 |
| | G170 | 12-23 | | 327007 (9005110-4400) | Plug assembly | 1 |

## Variable displacement pump




E101 807E

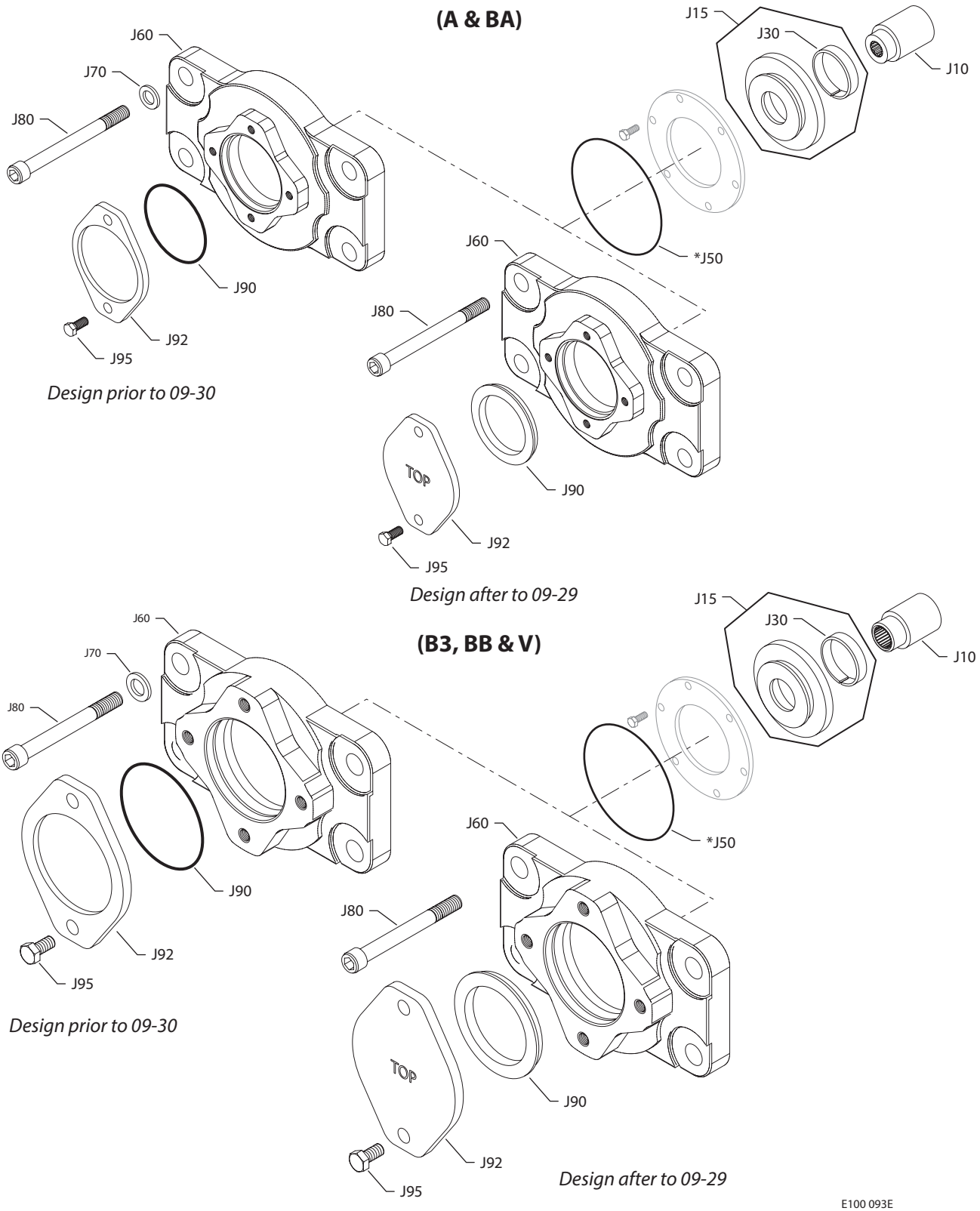
* = included in overhaul seal kit Q210

## Variable displacement pump

### Charging system

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| H | H05 | 94-20 | | 503517 | Charge pump set, 34 cc (SB-1995-007) | 1 |
| | H40 | 94-20 | | 11152775 | Pin, 20mm (SB-2015-038) | 1 |
| | H41 | 94-20 | | 11152775 | Pin, 20mm (SB-2015-038) | 1 |
| | H50 | 94-20 | | 11002443 | Charge pump shaft (SB-2006-010) | 1 |
| | H60 | 94-20 | | 734608 | Key | 1 |
| | H70 | 94-20 | | 509361 | Retaining plate | 1 |
| | H80 | 94-20 | | 378083 | Screw | 6 |
| J | H05 | 94-20 | | 503518 | Charge pump set, 47 cc (SB-1995-007) | 1 |
| | H40 | 94-20 | | 11152775 | Pin, 20mm (SB-2015-038) | 1 |
| | H41 | 94-20 | | 11152775 | Pin, 20mm (SB-2015-038) | 1 |
| | H50 | 94-20 | | 11002443 | Charge pump shaft (SB-2006-010) | 1 |
| | H60 | 94-20 | | 734608 | Key | 1 |
| | H70 | 94-20 | | 509361 | Retaining plate | 1 |
| | H80 | 94-20 | | 378083 | Screw | 6 |
| L | H25 | 94-20 | | 11077719 | Spacer | 1 |
| | H26 | 94-20 | | 711218 | Distance plate | 1 |
| | H40 | 94-20 | | 11152775 | Pin, 20mm (SB-2015-038) | 1 |
| | H41 | 94-20 | | 11152775 | Pin, 20mm (SB-2015-038) | 1 |
| | H50 | 94-20 | | 11002443 | Charge pump shaft (SB-2006-010) | 1 |
| | H70 | 94-20 | | 509361 | Retaining plate | 1 |
| | H80 | 94-20 | | 378083 | Screw | 6 |
| | H90 | 94-20 | | 676734 (9005110-9500) | Plug assembly | 1 |
| N | H25 | 94-20 | | 11077719 | Spacer | 1 |
| | H26 | 94-20 | | 711218 | Distance plate | 1 |
| | H40 | 94-20 | | 11152775 | Pin, 20mm (SB-2015-038) | 1 |
| | H41 | 94-20 | | 11152775 | Pin, 20mm (SB-2015-038) | 1 |
| | H70 | 94-20 | | 509361 | Retaining plate | 1 |
| | H80 | 94-20 | | 378083 | Screw | 6 |
| | H90 | 94-20 | | 676734 (9005110-9500) | Plug assembly | 1 |

## Variable displacement pump



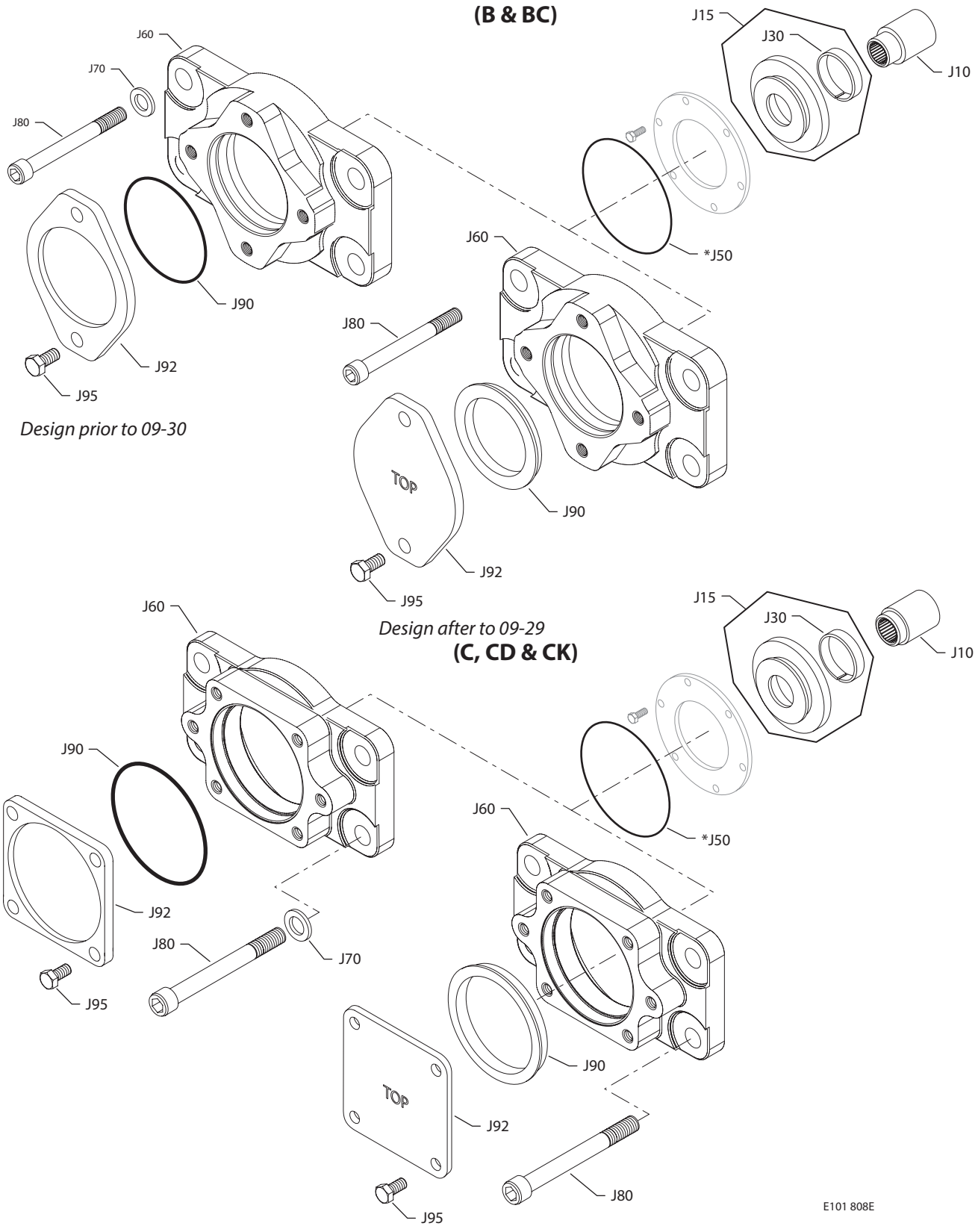

* = included in overhaul seal kit Q210

## Variable displacement pump

### Auxiliary mounting

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| A & AB | J10 | 94-20 | | 11053336 | Coupling, 9 tooth | 1 |
| | J15 | 94-20 | | 501402 | Cover assembly, CW | 1 |
| | J15 | 94-20 | | 501401 | Cover assembly, CCW | 1 |
| | J30 | 94-20 | | 303651 | Bushing | 1 |
| | J50 | 94-20 | | 505068 | O-ring | 1 |
| | J60 | 09-30 | | 520949 | Flange adaptor, SAE A | 1 |
| | J60 | 94-20 | 09-29 | 505136 | Flange adaptor, SAE A (SB-2009-074) | 1 |
| | J70 | 94-20 | 09-29 | 279729 | Washer (SB-2009-074) | 4 |
| | J80 | 89-46 | | 750414 | Screw | 4 |
| | J90 | 09-30 | | 4800482 | A pad seal | 1 |
| | J90 | 94-20 | 09-29 | 726950 (9004104-0420) | O-ring (SB-2009-074) | 1 |
| | J92 | 09-30 | | 4460586 | Cover plate | 1 |
| | J92 | 94-20 | 09-29 | 545475 (9802336) | Cover plate (SB-2009-074) | 1 |
| | J95 | 94-20 | | 9007200-3714 | Screw | 2 |
| B3 | J10 | 15-41 | | 11053289 | Coupling, 13 tooth | 1 |
| | J15 | 15-41 | | 501402 | Cover assembly, CW | 1 |
| | J15 | 15-41 | | 501401 | Cover assembly, CCW | 1 |
| | J30 | 15-41 | | 303651 | Bushing | 1 |
| | J50 | 15-41 | | 505068 | O-ring | 1 |
| | J60 | 15-41 | | 11153463 | Flange adaptor, SAE B, metric | 1 |
| | J80 | 15-41 | | 750414 | Screw | 4 |
| | J90 | 15-41 | | 8801061 | B pad seal | 1 |
| | J92 | 15-41 | | 8801059 | Cover plate | 1 |
| | J95 | 15-41 | | 370320 | Screw, M12 | 2 |
| BB & V | J10 | 94-20 | | 11053334 | Coupling, 15 tooth | 1 |
| | J15 | 94-20 | | 501402 | Cover assembly, CW | 1 |
| | J15 | 94-20 | | 501401 | Cover assembly, CCW | 1 |
| | J30 | 94-20 | | 303651 | Bushing | 1 |
| | J50 | 94-20 | | 505068 | O-ring | 1 |
| | J60 | 09-30 | | 520950 | Flange adaptor, SAE B | 1 |
| | J60 | 94-20 | 09-29 | 505132 | Flange adaptor, SAE B (SB-2009-075) | 1 |
| | J70 | 94-20 | 09-29 | 279729 | Washer (SB-2009-075) | 4 |
| | J80 | 89-46 | | 750414 | Screw | 4 |
| | J90 | 09-30 | | 8801061 | B pad seal | 1 |
| | J90 | 94-20 | 09-29 | 726935 (9004104-0450) | O-ring (SB-2009-075) | 1 |
| | J92 | 09-30 | | 8801059 | Cover plate | 1 |
| | J92 | 94-20 | 09-29 | 4460370 | Cover plate (SB-2009-075) | 1 |
| | J95 | 94-20 | | 9007200-5021 | Screw | 2 |

## Variable displacement pump



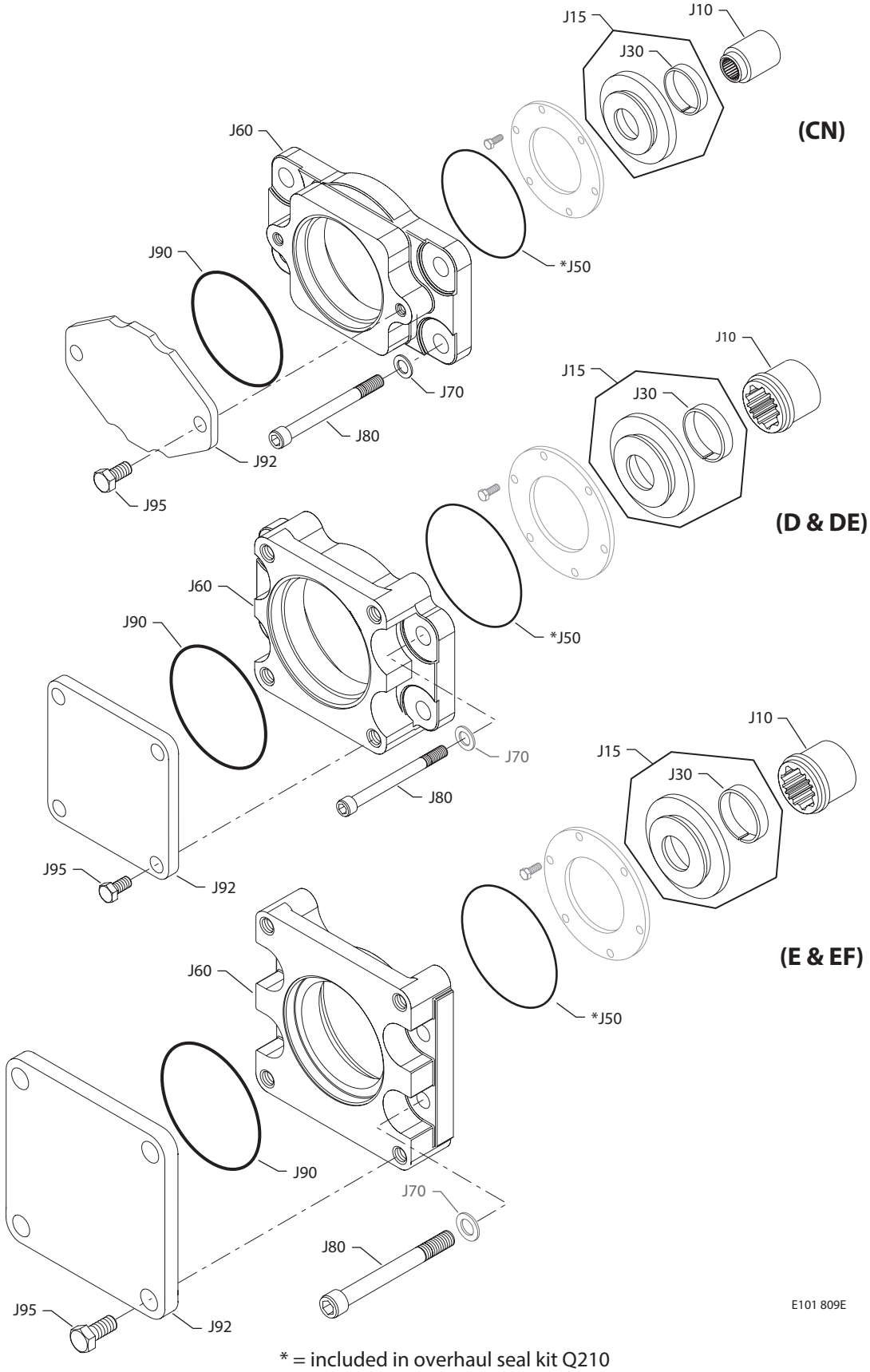

* = included in overhaul seal kit Q210

## Variable displacement pump

### Auxiliary mounting

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| B & BC | J10 | 94-20 | | 11053289 | Coupling, 13 tooth | 1 |
| | J15 | 94-20 | | 501402 | Cover assembly, CW | 1 |
| | J15 | 94-20 | | 501401 | Cover assembly, CCW | 1 |
| | J30 | 94-20 | | 303651 | Bushing | 1 |
| | J50 | 94-20 | | 505068 | O-ring | 1 |
| | J60 | 09-30 | | 520950 | Flange adaptor, SAE B | 1 |
| | J60 | 94-20 | 09-29 | 505132 | Flange adaptor, SAE B (SB-2009-075) | 1 |
| | J70 | 94-20 | 09-29 | 279729 | Washer (SB-2009-075) | 4 |
| | J80 | 89-46 | | 750414 | Screw | 4 |
| | J90 | 09-30 | | 8801061 | B pad seal | 1 |
| | J90 | 94-20 | 09-29 | 726935 (9004104-0450) | O-ring (SB-2009-075) | 1 |
| | J92 | 09-30 | | 8801059 | Cover plate | 1 |
| | J92 | 94-20 | 09-29 | 4460370 | Cover plate (SB-2009-075) | 1 |
| | J95 | 94-20 | | 9007200-5021 | Screw | 2 |
| C & CD | J10 | 94-20 | | 11053291 | Coupling, 14 tooth | 1 |
| | J15 | 94-20 | | 501402 | Cover assembly, CW | 1 |
| | J15 | 94-20 | | 501401 | Cover assembly, CCW | 1 |
| | J30 | 94-20 | | 303651 | Bushing | 1 |
| | J50 | 94-20 | | 505068 | O-ring | 1 |
| | J60 | 09-30 | | 520951 | Flange adaptor, SAE C | 1 |
| | J60 | 94-20 | 09-29 | 505139 | Flange adaptor, SAE C (SB-2009-076) | 1 |
| | J70 | 94-20 | 09-29 | 279729 | Washer (SB-2009-076) | 4 |
| | J80 | 89-46 | | 750414 | Screw | 4 |
| | J90 | 09-30 | | 11081805 | C pad seal | 1 |
| | J90 | 94-20 | 09-29 | 726943 (9004104-0490) | O-ring (SB-2009-076) | 1 |
| | J92 | 09-30 | | 8801060 | Cover plate | 1 |
| | J92 | 94-20 | 09-29 | 307363 (8800406) | Cover plate (SB-2009-076) | 1 |
| | J95 | 94-20 | | 9007200-5021 | Screw | 4 |
| CK | J10 | 94-20 | | 506548 | Coupling, 25 tooth | 1 |
| | J15 | 94-20 | | 501402 | Cover assembly, CW | 1 |
| | J15 | 94-20 | | 501401 | Cover assembly, CCW | 1 |
| | J30 | 94-20 | | 303651 | Bushing | 1 |
| | J50 | 94-20 | | 505068 | O-ring | 1 |
| | J60 | 09-30 | | 520951 | Flange adaptor, SAE C | 1 |
| | J70 | 94-20 | 09-29 | 279729 | Washer (SB-2009-076) | 4 |
| | J80 | 89-46 | | 750414 | Screw | 4 |
| | J90 | 09-30 | | 11081805 | C pad seal | 1 |
| | J90 | 94-20 | 09-29 | 726943 (9004104-0490) | O-ring (SB-2009-076) | 1 |
| | J92 | 09-30 | | 8801060 | Cover plate | 1 |
| | J92 | 94-20 | 09-29 | 307363 (8800406) | Cover plate (SB-2009-076) | 1 |
| | J95 | 94-20 | | 9007200-5021 | Screw | 4 |

## Variable displacement pump




* = included in overhaul seal kit Q210

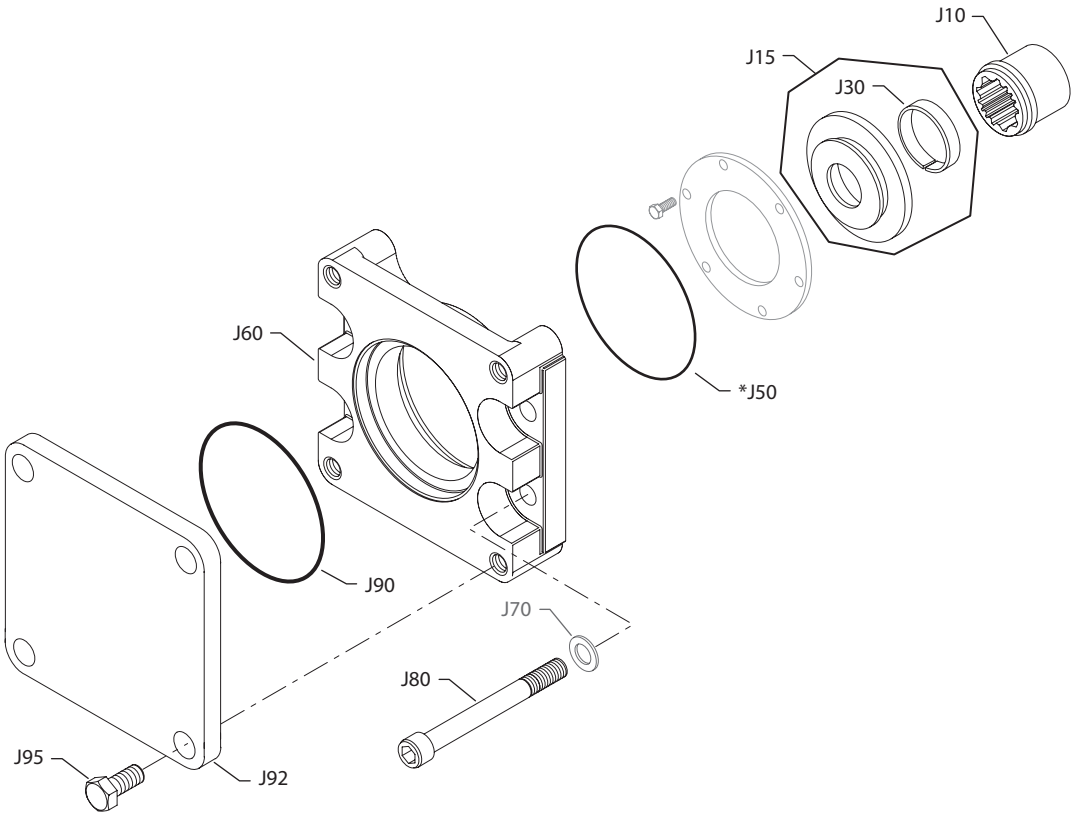
## Variable displacement pump

### Auxiliary mounting

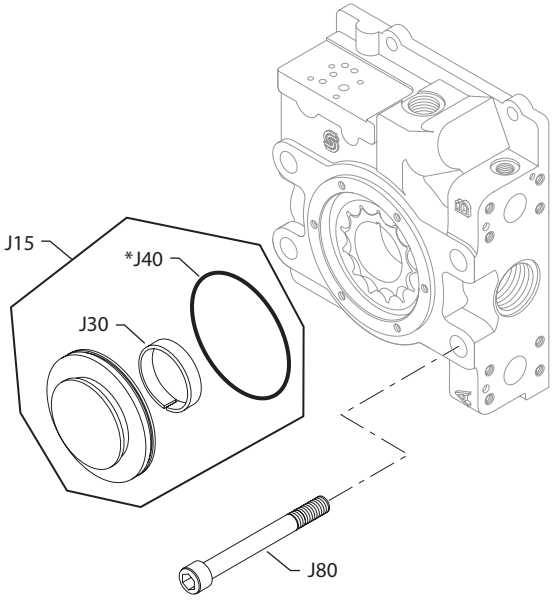
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| CN | J10 | 94-20 | 12-37 | 11053291 | Coupling, 14 tooth | 1 |
| | J15 | 94-20 | 12-37 | 501402 | Cover assembly, CW | 1 |
| | J15 | 94-20 | 12-37 | 501401 | Cover assembly, CCW | 1 |
| | J30 | 94-20 | 12-37 | 303651 | Bushing | 1 |
| | J50 | 94-20 | 12-37 | 505068 | O-ring | 1 |
| | J60 | 09-30 | 12-37 | 11039178 | Flange adaptor, SAE C | 1 |
| | J60 | 94-20 | 09-29 | 508406 | Flange adaptor, SAE C (SB-2009-076) | 1 |
| | J70 | 94-20 | 09-29 | 279729 | Washer (SB-2009-076) | 4 |
| | J80 | 89-46 | 12-37 | 750414 | Screw | 4 |
| | J90 | 09-30 | 12-37 | 11081805 | C pad seal | 1 |
| | J90 | 94-20 | 09-29 | 726943 (9004104-0490) | O-ring (SB-2009-076) | 1 |
| | J92 | 09-30 | 12-37 | 11048554 | Cover plate | 1 |
| | J92 | 94-20 | 09-29 | 307363 (8800406) | Cover plate (SB-2009-076) | 1 |
| | J95 | 94-20 | 12-37 | 9007200-6222 | Screw | 2 |
| D & DE | J10 | 94-20 | | 11053290 | Coupling, 13 tooth | 1 |
| | J15 | 94-20 | | 503663 | Cover assembly, CW | 1 |
| | J15 | 94-20 | | 503666 | Cover assembly, CCW | 1 |
| | J30 | 94-20 | | 303651 | Bushing | 1 |
| | J50 | 94-20 | | 505068 | O-ring | 1 |
| | J60 | 94-20 | | 505140 | Flange adaptor, SAE D | 1 |
| | J70 | 94-20 | 15-46 | 279729 | Washer | 4 |
| | J80 | 94-20 | | 750414 | Screw | 4 |
| | J90 | 94-20 | | 726927 | O-ring | 1 |
| | J92 | 94-20 | | 338400 | Cover plate | 1 |
| | J95 | 94-20 | | 9007200-7524 | Screw | 4 |
| E & EF | J10 | 94-20 | | 11053290 | Coupling, 13 tooth | 1 |
| | J15 | 94-20 | | 503663 | Cover assembly, CW | 1 |
| | J15 | 94-20 | | 503666 | Cover assembly, CCW | 1 |
| | J30 | 94-20 | | 303651 | Bushing | 1 |
| | J50 | 94-20 | | 505068 | O-ring | 1 |
| | J60 | 94-20 | | 505141 | Flange adaptor, SAE E | 1 |
| | J70 | 94-20 | 15-46 | 279729 | Washer | 4 |
| | J80 | 94-20 | | 750414 | Screw | 4 |
| | J90 | 94-20 | | 505068 | O-ring | 1 |
| | J92 | 94-20 | | 750422 | Cover plate | 1 |
| | J95 | 94-20 | | 9007200-7524 | Screw | 4 |

## Variable displacement pump

### (EG & H)




### (N & NN)




E101 810E

* = included in overhaul seal kit Q210

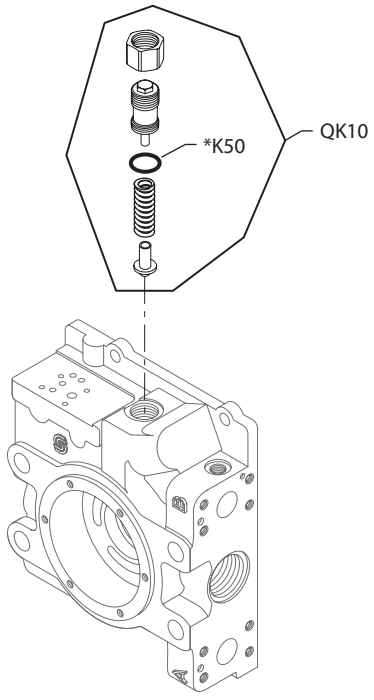
## Variable displacement pump

### Auxiliary mounting

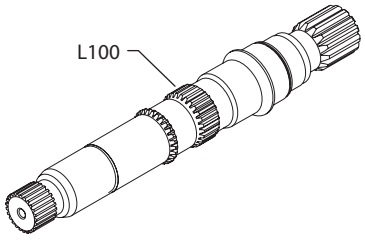
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| EG & H | J10 | 94-20 | | 11053335 | Coupling, 27 tooth | 1 |
| | J15 | 94-20 | | 503663 | Cover assembly, CW | 1 |
| | J15 | 94-20 | | 503666 | Cover assembly, CCW | 1 |
| | J30 | 94-20 | | 303651 | Bushing | 1 |
| | J50 | 94-20 | | 505068 | O-ring | 1 |
| | J60 | 94-20 | | 505141 | Flange adaptor, SAE E | 1 |
| | J70 | 94-20 | 15-46 | 279729 | Washer | 4 |
| | J80 | 94-20 | | 750414 | Screw | 4 |
| | J90 | 94-20 | | 505068 | O-ring | 1 |
| | J92 | 94-20 | | 750422 | Cover plate | 1 |
| | J95 | 94-20 | | 9007200-7524 | Screw | 4 |
| | | | | | | |
| N & NN | J15 | 94-20 | | 501400 | Cover assembly | 1 |
| | J30 | 94-20 | | 303651 | Bushing | 1 |
| | J40 | 94-20 | | 11147582 | O-ring | 1 |
| | J80 | 94-20 | | 308734 | Screw | 4 |

## Variable displacement pump

### (18-42 & XX)




### (C8, D5, D8, F1 & F5)




E101 811E

* = included in overhaul seal kit Q210

## Variable displacement pump

### Charge pressure relief

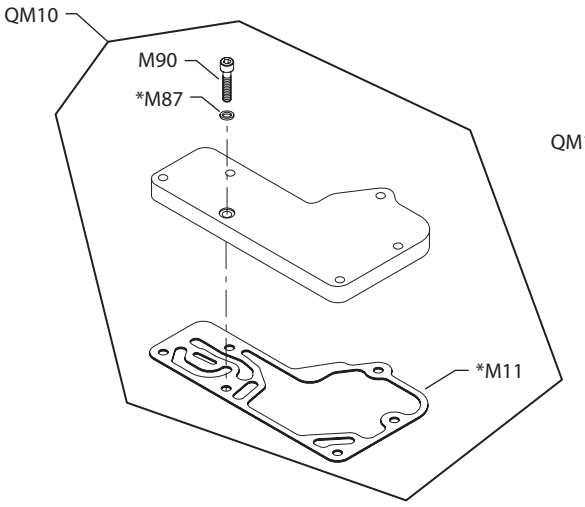
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 18-32 & XX | QK10 | 94-20 | | 8510272 | Charge relief valve kit, 18-32 bar | 1 |
| | K50 | 94-20 | | 001156 (9004201-7500) | O-ring | 1 |
| 34-42 | QK10 | 94-20 | | 8510390 | Charge relief valve kit, 34-36 bar | 1 |
| | K50 | 94-20 | | 001156 (9004201-7500) | O-ring | 1 |

### Shaft

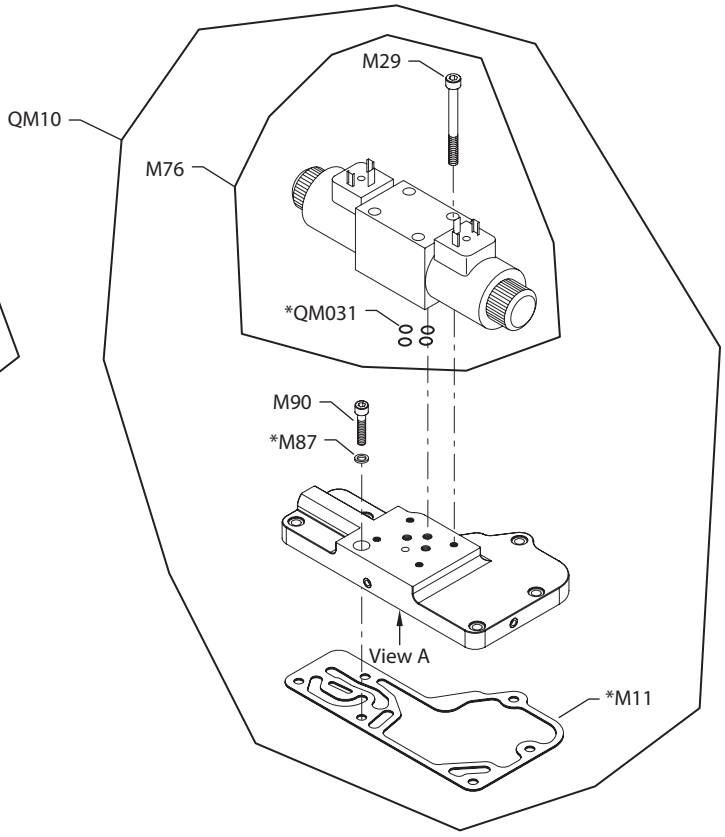
| | | | | | | |
|---|---|---|---|---|---|---|
| C8 | L100 | 94-20 | | 11004305 | Shaft, 27 tooth spline | 1 |
| D5 | L100 | 12-17 | | 11114883 | Shaft, 24 tooth spline, tapped, M16 | 1 |
| D8 | L100 | 12-17 | | 11004304 | Shaft, 27 tooth spline, tapped, M10 | 1 |
| F1 | L100 | 94-20 | | 11004306 | Shaft, 13 tooth spline | 1 |
| F5 | L100 | 94-20 | | 11004303 | Shaft, 13 tooth spline, tapped, 5/8-11 | 1 |

## Variable displacement pump

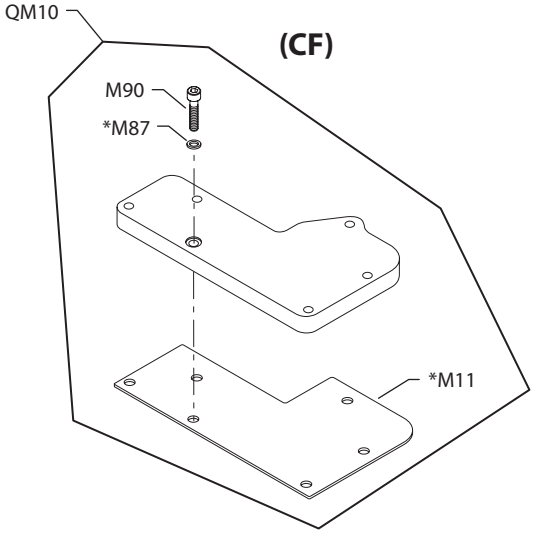
### (CA & CB)



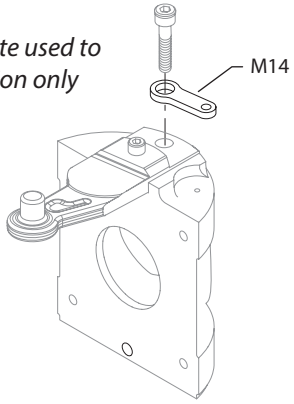

### (DC & DD)

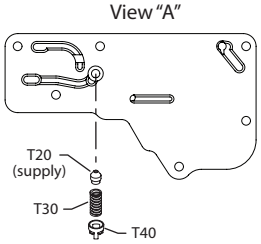


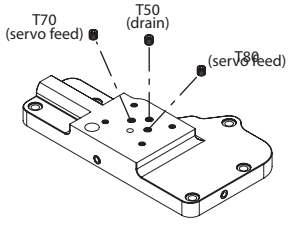

### (CF)




*Generic swashplate used to show link location only*




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E101 812E

* = included in control seal kit QM210

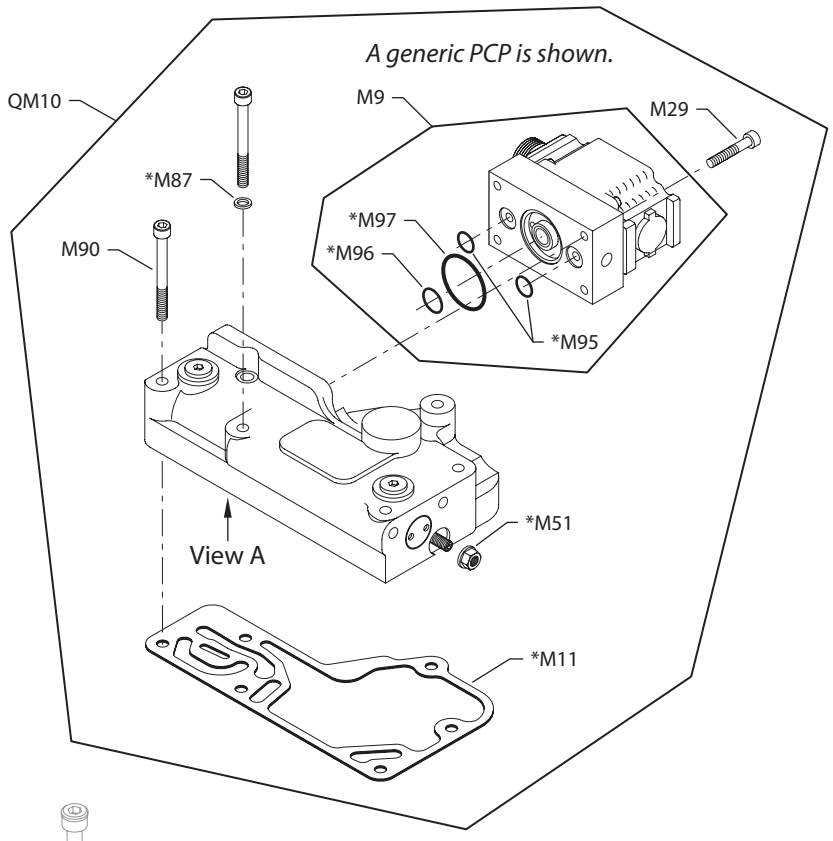
## Variable displacement pump

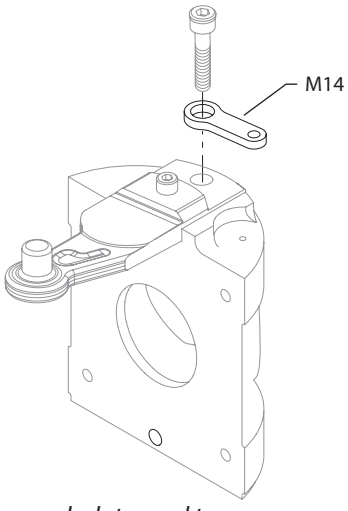
### Control

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| CA | M11 | 94-20 | | 8800923 | Control gasket | 1 |
| | M87 | 94-20 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 94-20 | | 693341 (9007314-0606) | Screw | 6 |
| | QM10 | 94-20 | | 11098677 | Control cover plate kit | 1 |
| | QM210 | 94-20 | | 11096320 | Control seal kit | 1 |
| CB | M11 | 94-20 | | 8800923 | Control gasket | 1 |
| | M14 | 94-20 | | 11070308 | Feedback link | 1 |
| | M87 | 94-20 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 94-20 | | 693341 (9007314-0606) | Screw | 6 |
| | QM10 | 94-20 | | 11098677 | Control cover plate kit | 1 |
| | QM210 | 94-20 | | 11096320 | Control seal kit | 1 |
| CF | M11 | 94-20 | | 509718 | Control gasket | 1 |
| | M14 | 94-20 | | 11070308 | Feedback link | 1 |
| | M87 | 94-20 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 94-20 | | 693341 (9007314-0606) | Screw | 6 |
| | QM10 | 94-20 | | 11098675 | Control cover plate kit | 1 |
| | QM210 | 94-20 | | 11097122 | Control seal kit | 1 |
| DC | M11 | 94-20 | | 8800923 | Control gasket | 1 |
| | M87 | 94-20 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 94-20 | | 693341 (9007314-0606) | Screw | 6 |
| | QM10 | 94-20 | | 8102M0DC-A | 3-position control kit, 12 volt | 1 |
| | QM031 | 94-20 | | 11099647 | Valve seal kit | 1 |
| | QM210 | 94-20 | | 11096172 | Control seal kit | 1 |
| DD | M11 | 94-20 | | 8800923 | Control gasket | 1 |
| | M87 | 94-20 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 94-20 | | 693341 (9007314-0606) | Screw | 6 |
| | QM10 | 94-20 | | 8102M0DD-A | 3-position control kit, 24 volt | 1 |
| | QM031 | 94-20 | | 11099647 | Valve seal kit | 1 |
| | QM210 | 94-20 | | 11096172 | Control seal kit | 1 |

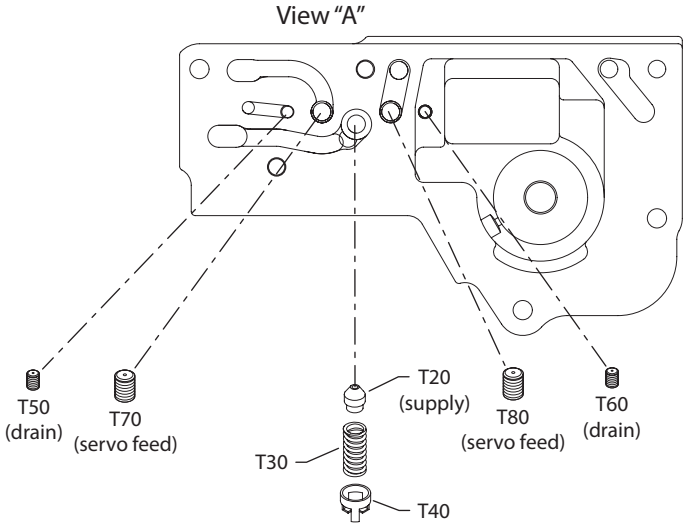
## Variable displacement pump

**(EA)**




*Generic swashplate used to show link location only*




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E101 813E

* = included in control seal kit QM210

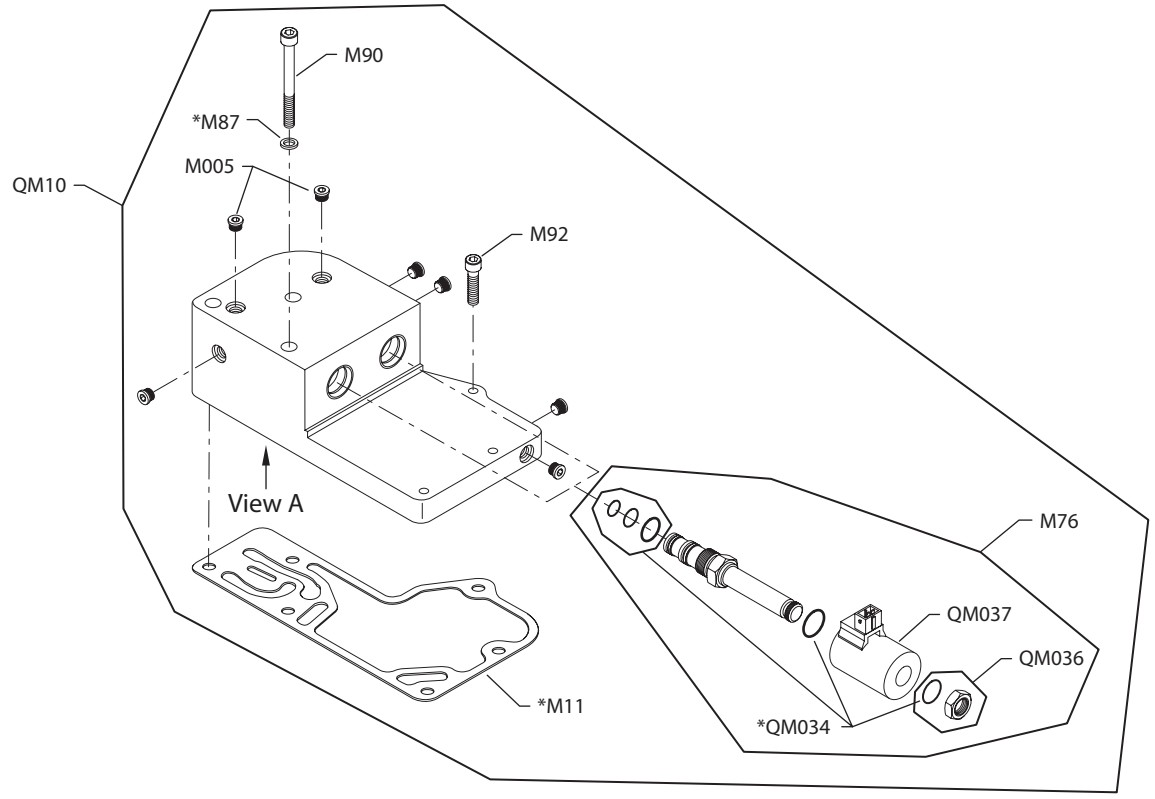
## Variable displacement pump

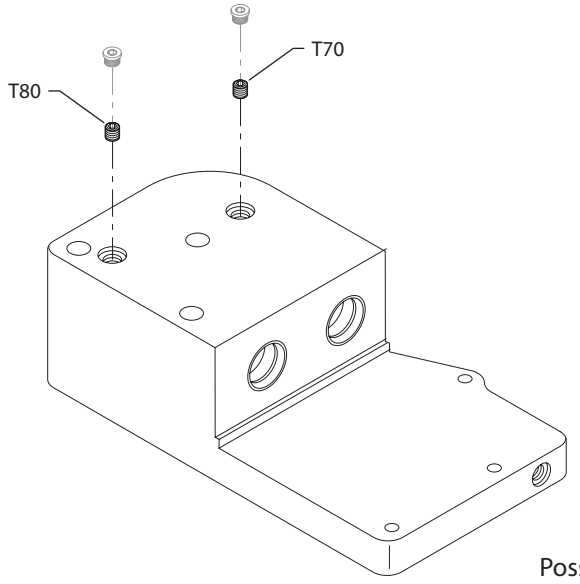
### Control

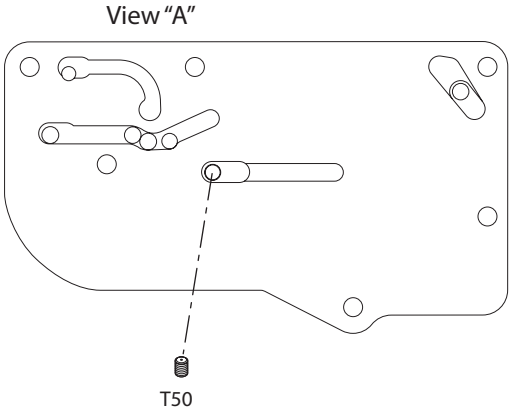
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| EA | M9 | 94-20 | | MCV110A1017 | PCP, MS connector | 1 |
| | M11 | 94-20 | | 8800923 | Control gasket | 1 |
| | M14 | 94-20 | | 11070308 | Feedback link | 1 |
| | M29 | 94-20 | | K07067 | Screw | 4 |
| | M51 | 94-20 | | 9003509-0008 | Seal nut | 1 |
| | M87 | 94-20 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 94-20 | | 692889 (9007314-0611) | Screw | 6 |
| | M95 | 94-20 | | 318337 (9004104-0120) | O-ring | 2 |
| | M96 | 94-20 | | 011304 (9004104-0140) | O-ring | 1 |
| | M97 | 94-20 | | 318345 (9004104-0240) | O-ring | 1 |
| | QM10 | 94-20 | | 8510153 | EDC1 kit, MS connector | 1 |
| | QM210 | 94-20 | | 11096174 | Control seal kit | 1 |

## Variable displacement pump

### (FG & FH)




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

* = included in control seal kit QM210

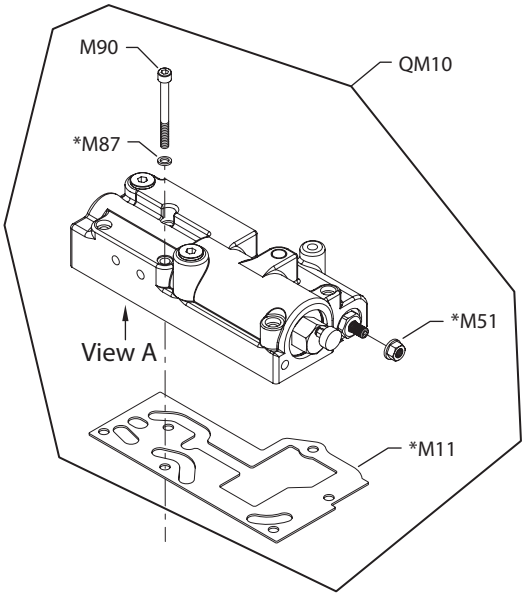
## Variable displacement pump

### Control

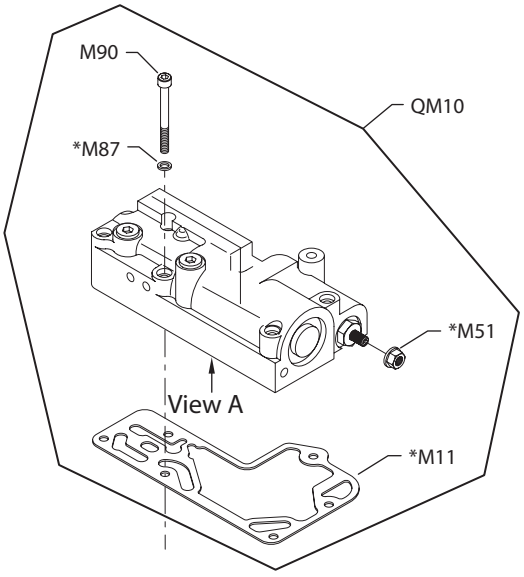
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| FG | M11 | 94-20 | | 8800923 | Control gasket | 1 |
| | M76 | 94-20 | | 516006 | Pressure reducing valve, 12 volt | 2 |
| | M87 | 94-20 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 94-20 | | 9007314-0614 | Screw | 3 |
| | M92 | 94-20 | | 693341 | Screw | 3 |
| | M005 | 94-20 | | 11040532 | Plug assembly | 2 |
| | QM10 | 94-20 | | 11026563 | Control kit, NFPE, 12 volt | 1 |
| | QM034 | 94-20 | | 11100185 | Valve seal kit | 2 |
| | QM036 | 94-20 | | 518088 | Nut/O-ring kit | 2 |
| | QM037 | 94-20 | | 516003 | Coil, 12 volt | 2 |
| | QM210 | 94-20 | | 11100001 | Control seal kit | 1 |
| | | | | | | |
| FH | M11 | 94-20 | | 8800923 | Control gasket | 1 |
| | M76 | 94-20 | | 515617 | Pressure reducing valve, 24 volt | 2 |
| | M87 | 94-20 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 94-20 | | 9007314-0614 | Screw | 3 |
| | M92 | 94-20 | | 693341 | Screw | 3 |
| | M005 | 94-20 | | 11040532 | Plug assembly | 2 |
| | QM10 | 94-20 | | 11026569 | Control kit, NFPE, 24 volt | 1 |
| | QM034 | 94-20 | | 11100185 | Valve seal kit | 2 |
| | QM036 | 94-20 | | 518088 | Nut/O-ring kit | 2 |
| | QM037 | 94-20 | | 516004 | Coil, 24 volt | 2 |
| | QM210 | 94-20 | | 11100001 | Control seal kit | 1 |

## Variable displacement pump

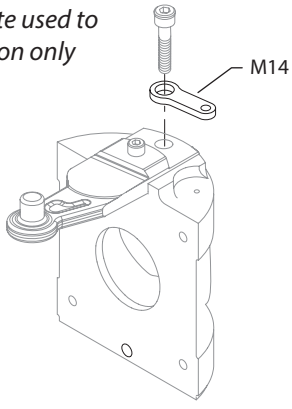
### (H9 & HD)

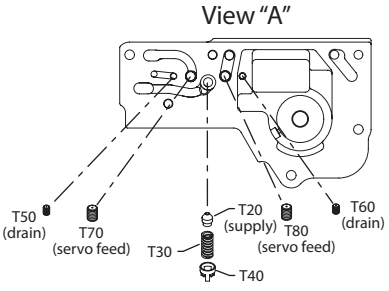



### (HF, HM & HS)




*Generic swashplate used to show link location only*




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E100 100E

* = included in control seal kit QM210

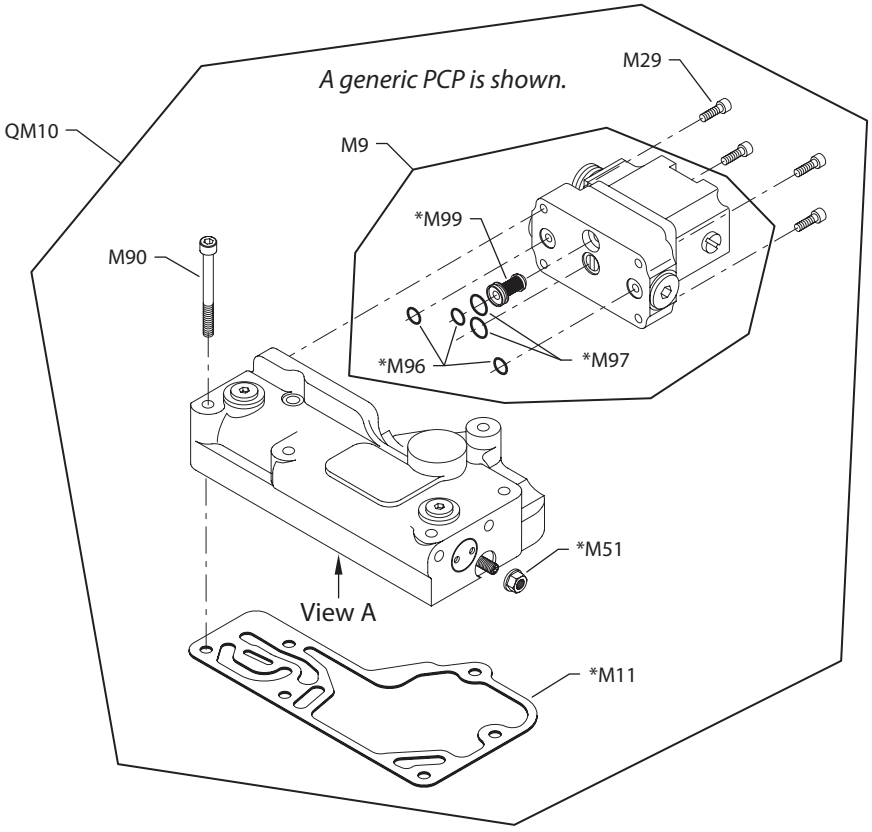
## Variable displacement pump

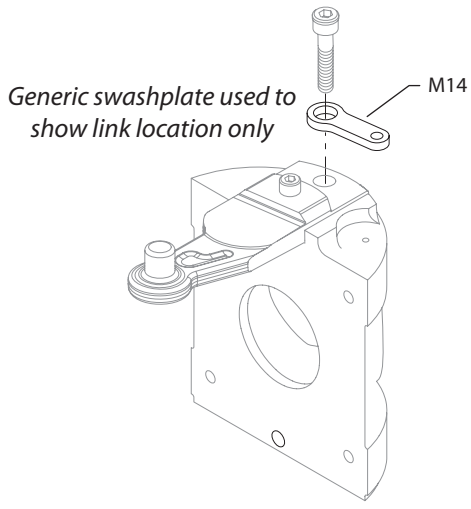
### Control

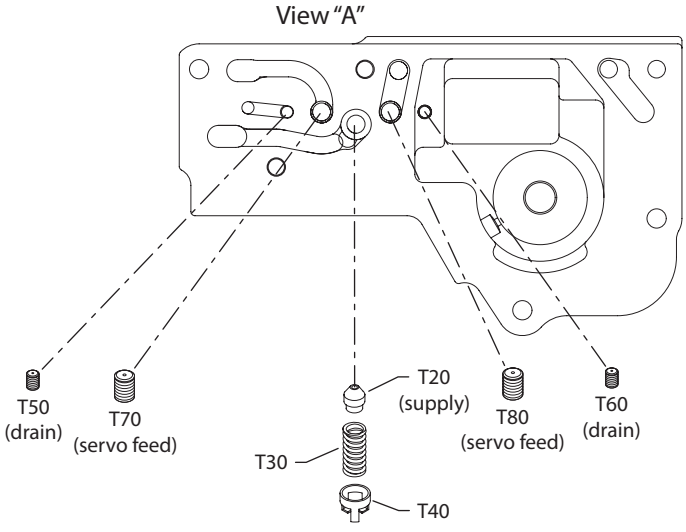
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| H9 | M11 | 12-18 | | 501665 | Control gasket | 1 |
| | M14 | 12-18 | | 11070308 | Feedback link | 1 |
| | M51 | 12-18 | | 9003509-0008 | Seal nut | 1 |
| | M87 | 12-18 | 12-52 | 592386 | Seal washer | 1 |
| | M90 | 12-18 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 12-18 | | 11115361 | HDC kit, 6-18 bar, metric | 1 |
| | QM210 | 12-18 | | 11096265 | Control seal kit | 1 |
| HD | M11 | 94-20 | | 501665 | Control gasket | 1 |
| | M14 | 94-20 | | 11070308 | Feedback link | 1 |
| | M51 | 94-20 | | 9003509-0008 | Seal nut | 1 |
| | M87 | 94-20 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 94-20 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 94-20 | | 11098674 | HDC kit, 6-18 bar | 1 |
| | QM210 | 94-20 | | 11096265 | Control seal kit | 1 |
| HF | M11 | 94-20 | | 8801241 | Control gasket (SB-1999-065) | 1 |
| | M14 | 94-20 | | 11070308 | Feedback link | 1 |
| | M51 | 94-20 | | 9003509-0008 | Seal nut | 1 |
| | M87 | 94-20 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 94-20 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 94-20 | | 8510157 | HDC kit, 3-11 bar | 1 |
| | QM210 | 94-20 | | 11096266 | Control seal kit | 1 |
| HM | M11 | 98-27 | | 8801241 | Control gasket | 1 |
| | M14 | 98-27 | | 11070308 | Feedback link | 1 |
| | M51 | 98-27 | | 9003509-0008 | Seal nut | 1 |
| | M87 | 98-27 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 98-27 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 98-27 | | 11013637 | HDC kit, 1.1 - 6.7 bar | 1 |
| | QM210 | 98-27 | | 11096266 | Control seal kit | 1 |
| HS | M11 | 05-43 | | 8801241 | Control gasket | 1 |
| | M14 | 05-43 | | 11070308 | Feedback link | 1 |
| | M51 | 05-43 | | 9003509-0008 | Seal nut | 1 |
| | M87 | 05-43 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 05-43 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 05-43 | | 11020565 | HDC kit, 6 - 18 bar | 1 |
| | QM210 | 05-43 | | 11096266 | Control seal kit | 1 |

## Variable displacement pump

### (K8, KA, KE & KN)




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E100 926E

* = included in control seal kit QM210

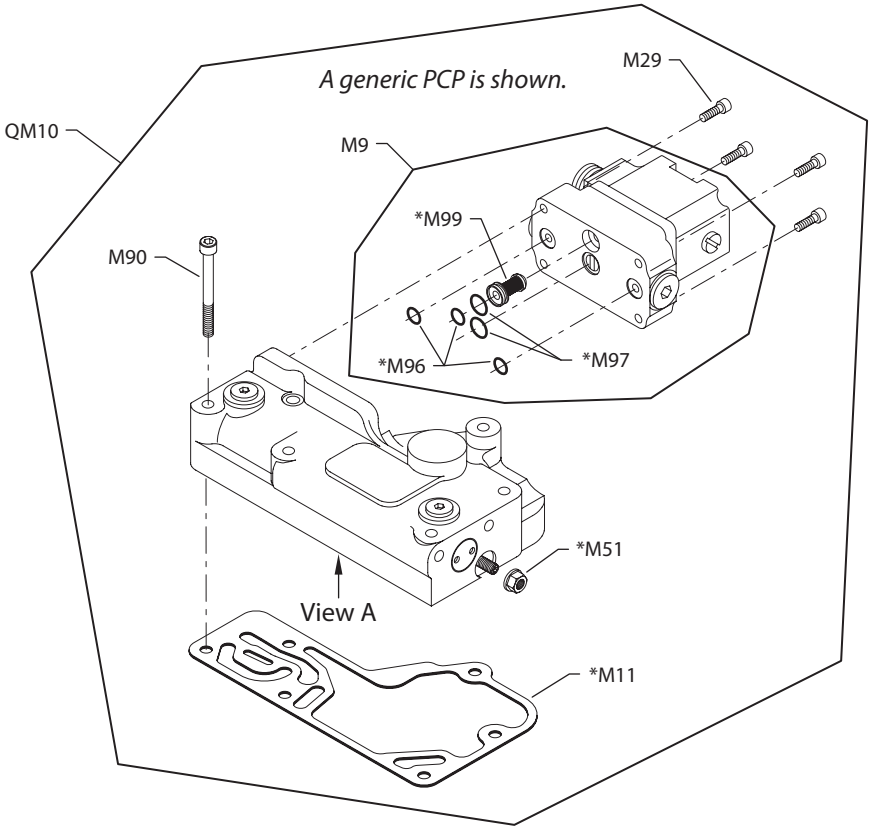
## Variable displacement pump

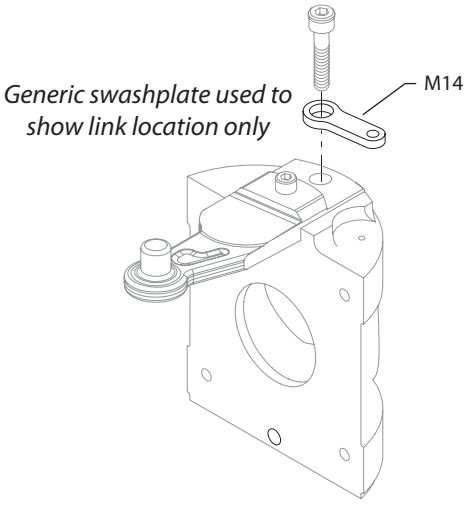
### Control

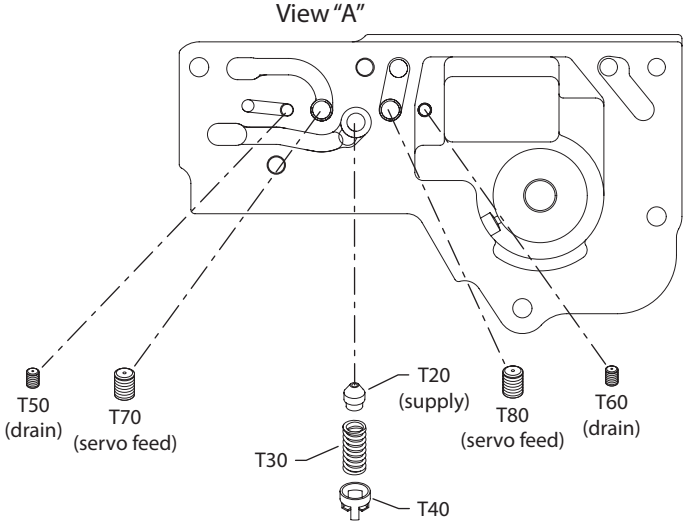
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| K8 | M9 | 15-28 | | 11101106 | PCP, MS connector | 1 |
| | M11 | 15-28 | | 8800923 | Control gasket | 1 |
| | M14 | 15-28 | | 11070308 | Feedback link | 1 |
| | M29 | 15-28 | | K07067 | Screw | 4 |
| | M51 | 15-28 | | 9003509-0008 | Seal nut | 1 |
| | M90 | 15-28 | | 692889 (9007314-0611) | Screw | 6 |
| | M96 | 15-28 | | 011296 (9004105-0120) | O-ring | 3 |
| | M97 | 15-28 | | 9004105-0130 | O-ring | 2 |
| | M99 | 15-28 | | K08572 | Filter assembly | 1 |
| | QM10 | 15-28 | | 11168552 | EDC3 kit, MS connector | 1 |
| | QM210 | 15-28 | | 11095724 | Control seal kit | 1 |
| KA | M9 | 94-20 | | MCV116G4201 | PCP, MS connector | 1 |
| | M11 | 94-20 | | 8800923 | Control gasket | 1 |
| | M14 | 94-20 | | 11070308 | Feedback link | 1 |
| | M29 | 94-20 | | K07067 | Screw | 4 |
| | M51 | 94-20 | | 9003509-0008 | Seal nut | 1 |
| | M87 | 94-20 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 94-20 | | 692889 (9007314-0611) | Screw | 6 |
| | M96 | 94-20 | | 011296 (9004105-0120) | O-ring | 3 |
| | M97 | 94-20 | | 9004105-0130 | O-ring | 2 |
| | M99 | 94-20 | | K08572 | Filter assembly | 1 |
| | QM10 | 94-20 | | 8510155 | EDC3 kit, MS connector | 1 |
| | QM210 | 94-20 | | 11095724 | Control seal kit | 1 |
| KE | M9 | 13-43 | | MCV116F3118 | PCP, Deutsch connector | 1 |
| | M11 | 13-43 | | 8800923 | Control gasket | 1 |
| | M14 | 13-43 | | 11070308 | Feedback link | 1 |
| | M29 | 13-43 | | K07067 | Screw | 4 |
| | M51 | 13-43 | | 9003509-0008 | Seal nut | 1 |
| | M90 | 13-43 | | 692889 (9007314-0611) | Screw | 6 |
| | M96 | 13-43 | | 011296 (9004105-0120) | O-ring | 3 |
| | M97 | 13-43 | | 9004105-0130 | O-ring | 2 |
| | M99 | 13-43 | | K08572 | Filter assembly | 1 |
| | QM10 | 13-43 | | 11099382 | EDC3 kit, Deutsch connector | 1 |
| | QM210 | 13-43 | | 11095724 | Control seal kit | 1 |
| KN | M9 | 94-20 | | MCV116A3501 | PCP, MS connector | 1 |
| | M11 | 94-20 | | 8800923 | Control gasket | 1 |
| | M14 | 94-20 | | 11070308 | Feedback link | 1 |
| | M29 | 94-20 | | K07067 | Screw | 4 |
| | M51 | 94-20 | | 9003509-0008 | Seal nut | 1 |
| | M87 | 94-20 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 94-20 | | 692889 (9007314-0611) | Screw | 6 |
| | M96 | 94-20 | | 011296 (9004105-0120) | O-ring | 3 |
| | M97 | 94-20 | | 9004105-0130 | O-ring | 2 |
| | M99 | 94-20 | | K08572 | Filter assembly | 1 |
| | QM10 | 94-20 | | 8510185 | EDC3 kit, MS connector | 1 |
| | QM210 | 94-20 | | 11095724 | Control seal kit | 1 |

## Variable displacement pump

### (KP & KT)




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E100 926E

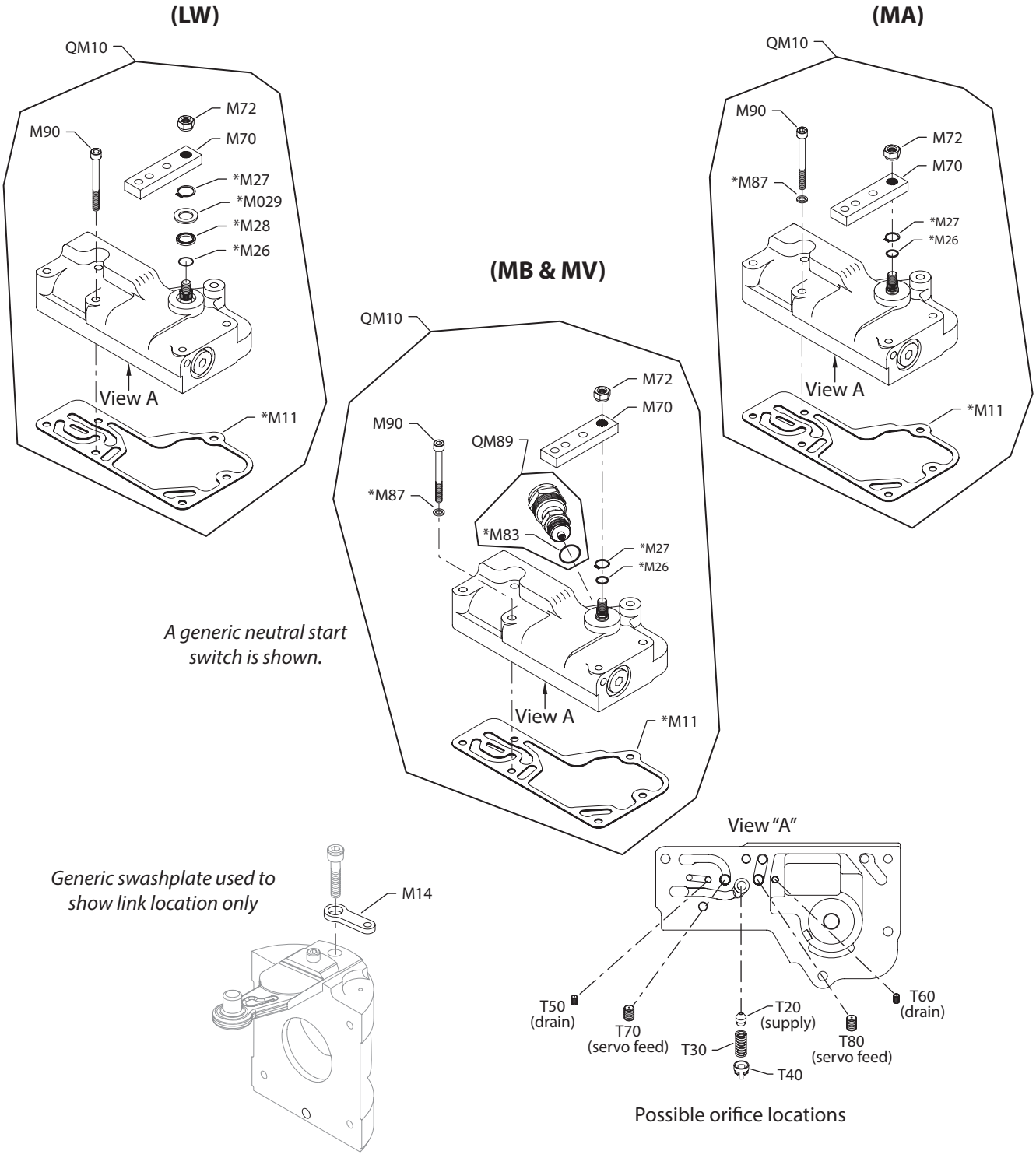
* = included in control seal kit QM210

## Variable displacement pump

### Control

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| KP | M9 | 94-20 | | MCV116G4204 | PCP, Weather-Pac connector | 1 |
| | M11 | 94-20 | | 8800923 | Control gasket | 1 |
| | M14 | 94-20 | | 11070308 | Feedback link | 1 |
| | M29 | 94-20 | | K07067 | Screw | 4 |
| | M51 | 94-20 | | 9003509-0008 | Seal nut | 1 |
| | M87 | 94-20 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 94-20 | | 692889 (9007314-0611) | Screw | 6 |
| | M96 | 94-20 | | 011296 (9004105-0120) | O-ring | 3 |
| | M97 | 94-20 | | 9004105-0130 | O-ring | 2 |
| | M99 | 94-20 | | K08572 | Filter assembly | 1 |
| | QM10 | 94-20 | | 8510156 | EDC3 kit, Weather-Pac connector | 1 |
| | QM210 | 94-20 | | 11095724 | Control seal kit | 1 |
| KT | M9 | 94-20 | | MCV116G4214 | PCP, Deutsch connector | 1 |
| | M11 | 94-20 | | 8800923 | Control gasket | 1 |
| | M14 | 94-20 | | 11070308 | Feedback link | 1 |
| | M29 | 94-20 | | K07067 | Screw | 4 |
| | M51 | 94-20 | | 9003509-0008 | Seal nut | 1 |
| | M87 | 94-20 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 94-20 | | 692889 (9007314-0611) | Screw | 6 |
| | M96 | 94-20 | | 011296 (9004105-0120) | O-ring | 3 |
| | M97 | 94-20 | | 9004105-0130 | O-ring | 2 |
| | M99 | 94-20 | | K08572 | Filter assembly | 1 |
| | QM10 | 94-20 | | 8510268 | EDC3 kit, Weather-Pac connector | 1 |
| | QM210 | 94-20 | | 11095724 | Control seal kit | 1 |

## Variable displacement pump




NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E101 816E

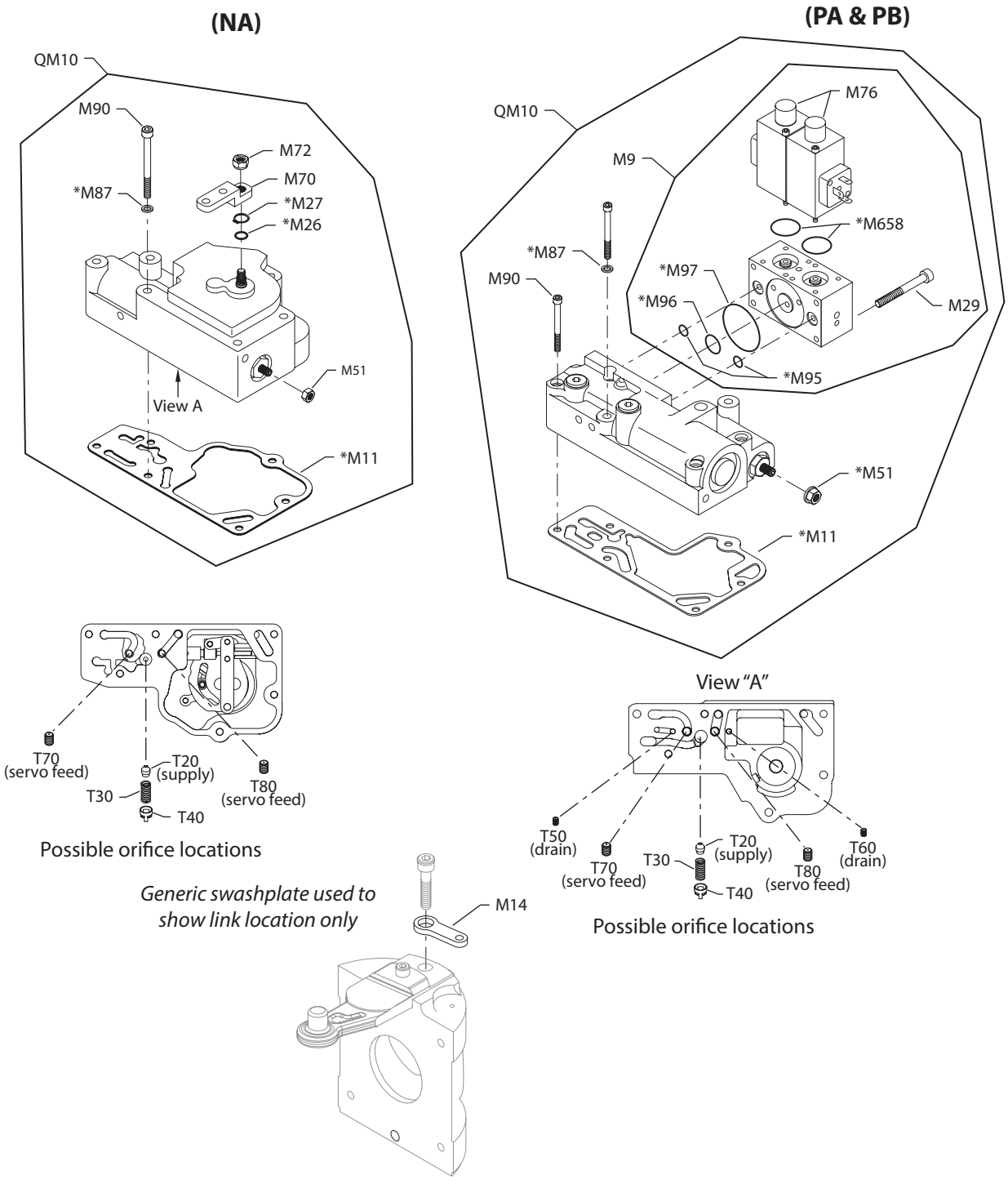
* = included in control seal kit QM210

## Variable displacement pump

### Control

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| LW | M11 | 12-11 | | 8800923 | Control gasket | 1 |
| | M14 | 12-11 | | 11070308 | Feedback link | 1 |
| | M26 | 12-11 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 12-11 | | 042507 | Retaining ring | 1 |
| | M28 | 12-11 | | 510690 | Lip seal | 1 |
| | M029 | 12-11 | | 512047 | Washer | 1 |
| | M70 | 12-11 | | 9800916 | Control handle | 1 |
| | M72 | 12-11 | | 040642 (9003513-0800) | Nut | 1 |
| | M90 | 12-11 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 12-11 | | 11112426 | Control kit | 1 |
| | QM210 | 12-11 | | 11110668 | Control seal kit | 1 |
| MA | M11 | 94-20 | | 8800923 | Control gasket | 1 |
| | M14 | 94-20 | | 11070308 | Feedback link | 1 |
| | M26 | 94-20 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 94-20 | | 9006300-0044 | Retaining ring | 1 |
| | M70 | 94-20 | | 9800916 | Control handle | 1 |
| | M72 | 94-20 | | 040642 (9003513-0800) | Nut | 1 |
| | M87 | 94-20 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 94-20 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 94-20 | | 8510158 | Control kit | 1 |
| | QM210 | 94-20 | | 11096274 | Control seal kit | 1 |
| MB | M11 | 94-20 | | 8800923 | Control gasket | 1 |
| | M14 | 94-20 | | 11070308 | Feedback link | 1 |
| | M26 | 94-20 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 94-20 | | 9006300-0044 | Retaining ring | 1 |
| | M70 | 94-20 | | 9800916 | Control handle | 1 |
| | M72 | 94-20 | | 040642 (9003513-0800) | Nut | 1 |
| | M83 | 94-20 | | 001131 (9004201-5000) | O-ring | 1 |
| | M87 | 94-20 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 94-20 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 94-20 | | 8510186 | Control kit with neutral start switch | 1 |
| | QM89 | 94-20 | | 80020S40 | Neutral start switch | 1 |
| | QM210 | 94-20 | | 11096274 | Control seal kit | 1 |
| MV | M11 | 94-20 | | 8800923 | Control gasket | 1 |
| | M14 | 94-20 | | 11070308 | Feedback link | 1 |
| | M26 | 94-20 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 94-20 | | 9006300-0044 | Retaining ring | 1 |
| | M70 | 94-20 | | 9800916 | Control handle | 1 |
| | M72 | 94-20 | | 040642 (9003513-0800) | Nut | 1 |
| | M83 | 94-20 | | 001131 (9004201-5000) | O-ring | 1 |
| | M87 | 94-20 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 94-20 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 94-20 | | 11098659 | Control kit with neutral start switch | 1 |
| | QM89 | 94-20 | | 8510170 | Neutral start switch | 1 |
| | QM210 | 94-20 | | 11096274 | Control seal kit | 1 |

## Variable displacement pump




Possible orifice locations

*Generic swashplate used to show link location only*

Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E101 817E

* = included in control seal kit QM210

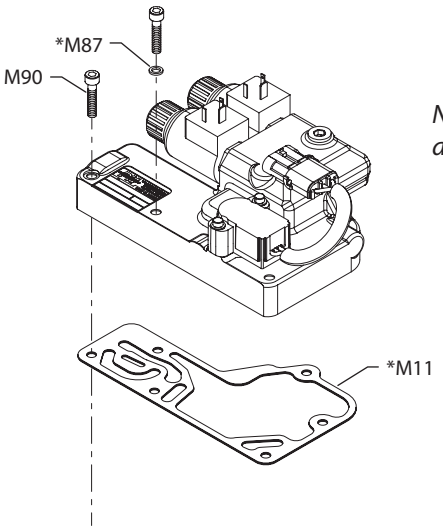
## Variable displacement pump

### Control

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| NA | M11 | 95-46 | | 504733 | Control gasket | 1 |
| | M14 | 95-46 | | 11070308 | Feedback link | 1 |
| | M26 | 95-46 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 95-46 | | 9006300-0044 | Retaining ring | 1 |
| | M51 | 95-46 | | 345462 | Nut | 1 |
| | M70 | 95-46 | | 769075 | Control handle | 1 |
| | M72 | 95-46 | | 040642 (9003513-0800) | Nut | 1 |
| | M87 | 95-46 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 95-46 | | 9007314-0614 | Screw | 6 |
| | QM10 | 95-46 | | 11098672 | Control kit | 1 |
| | QM210 | 95-46 | | 11096273 | Control seal kit | 1 |
| PA | M9 | 98-27 | | 782037 | PDC, 12 volt | 1 |
| | M11 | 98-27 | | 8801241 | Gasket | 1 |
| | M14 | 98-27 | | 11070308 | Feedback link | 1 |
| | M29 | 98-27 | | 035592 | Screw | 4 |
| | M51 | 98-27 | | 9003509-0008 | Seal nut | 1 |
| | M76 | 98-27 | | 11001795 | Solenoid, 12 volt | 2 |
| | M87 | 98-27 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 98-27 | | 692889 (9007314-0611) | Screw | 6 |
| | M95 | 98-27 | | 011296 (9004105-0120) | O-ring | 2 |
| | M96 | 98-27 | | 688721 (9004104-0170) | O-ring | 1 |
| | M97 | 98-27 | | 314534 (9004104-0310) | O-ring | 1 |
| | M658 | 98-27 | | 635938 (9004100-0210) | O-ring | 2 |
| | QM10 | 98-27 | | 11098673 | Control kit, 12 volt | 1 |
| | QM210 | 98-27 | | 11096251 | Control seal kit | 1 |
| PB | M9 | 94-20 | | 782045 | PDC, 24 volt | 1 |
| | M11 | 94-20 | | 8801241 | Gasket | 1 |
| | M14 | 94-20 | | 11070308 | Feedback link | 1 |
| | M29 | 94-20 | | 035592 | Screw | 4 |
| | M51 | 94-20 | | 9003509-0008 | Seal nut | 1 |
| | M76 | 94-20 | | 11001794 | Solenoid, 24 volt | 2 |
| | M87 | 94-20 | 12-37 | 592386 | Seal washer | 1 |
| | M90 | 94-20 | | 692889 (9007314-0611) | Screw | 6 |
| | M95 | 94-20 | | 011296 (9004105-0120) | O-ring | 2 |
| | M96 | 94-20 | | 688721 (9004104-0170) | O-ring | 1 |
| | M97 | 94-20 | | 314534 (9004104-0310) | O-ring | 1 |
| | M658 | 94-20 | | 635938 (9004100-0210) | O-ring | 2 |
| | QM10 | 94-20 | | 8510378 | Control kit, 24 volt | 1 |
| | QM210 | 94-20 | | 11096251 | Control seal kit | 1 |

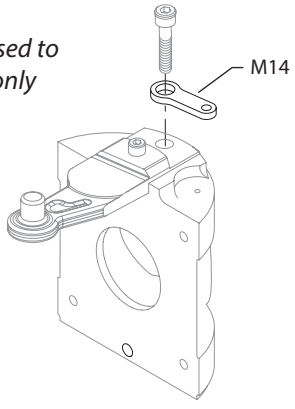
## Variable displacement pump

### (SA, SB, SD & SE)

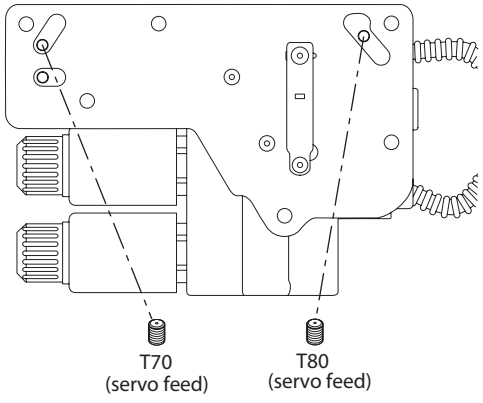



*NOTE: This control is not available as a service part*

*Generic swashplate used to show link location only*




View "A"




Possible orifice locations

E101 818E

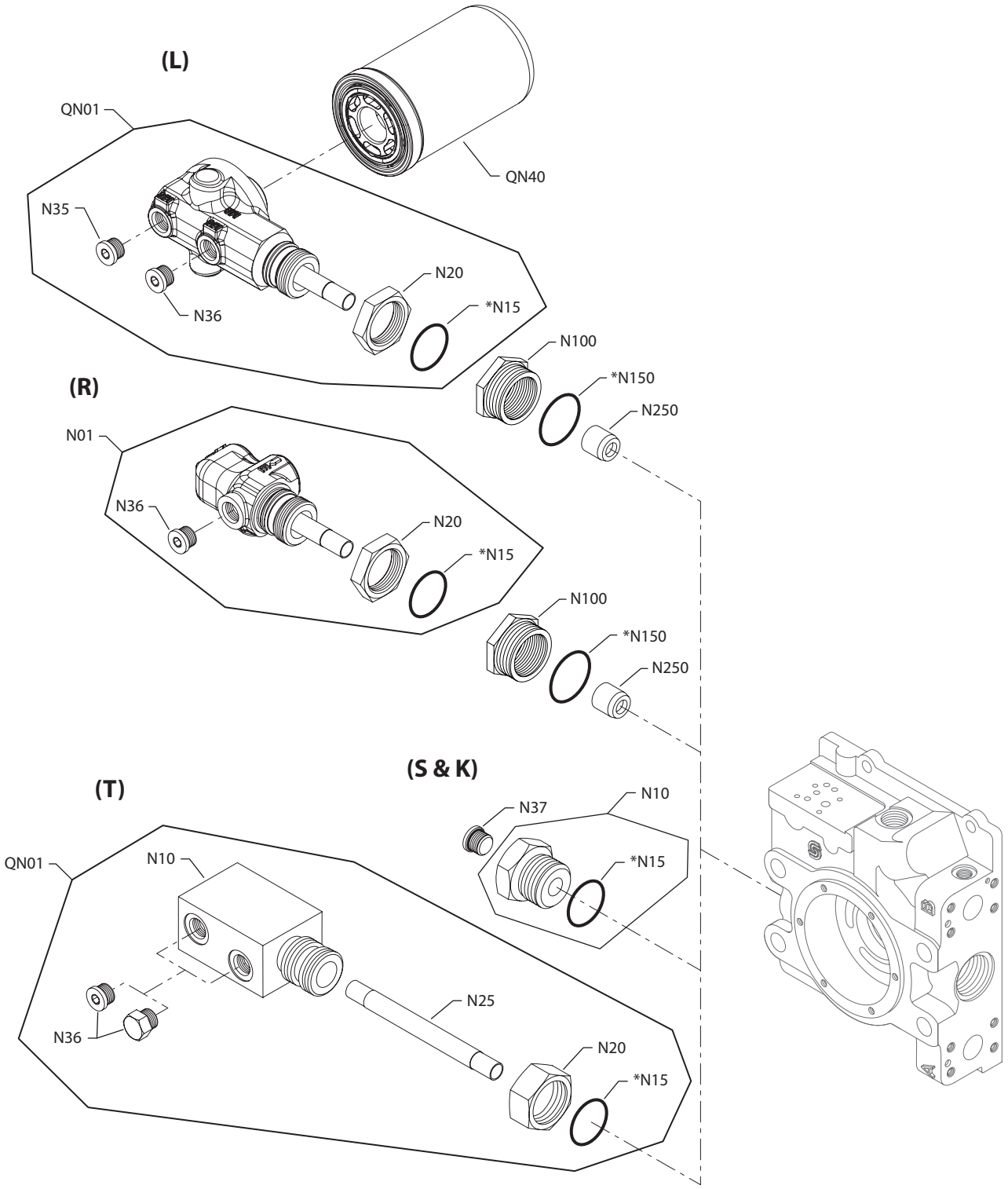
* = included in control seal kit QM210

## Variable displacement pump

### Control

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| SA | M11 | 94-20 | | 8800923 | Control gasket | 1 |
| | M14 | 94-20 | | 11070308 | Feedback link | 1 |
| | M87 | 94-20 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 94-20 | | 694356 | Screw | 6 |
| | QM210 | 94-20 | | 11096320 | Control seal kit | 1 |
| SB | M11 | 94-20 | | 8800923 | Control gasket | 1 |
| | M14 | 94-20 | | 11070308 | Feedback link | 1 |
| | M87 | 94-20 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 94-20 | | 694356 | Screw | 6 |
| | QM210 | 94-20 | | 11096320 | Control seal kit | 1 |
| SD | M11 | 94-20 | | 8800923 | Control gasket | 1 |
| | M14 | 94-20 | | 11070308 | Feedback link | 1 |
| | M87 | 94-20 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 94-20 | | 694356 | Screw | 6 |
| | QM210 | 94-20 | | 11096320 | Control seal kit | 1 |
| SE | M11 | 94-20 | | 8800923 | Control gasket | 1 |
| | M14 | 94-20 | | 11070308 | Feedback link | 1 |
| | M87 | 94-20 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 94-20 | | 694356 | Screw | 6 |
| | QM210 | 94-20 | | 11096320 | Control seal kit | 1 |

## Variable displacement pump




E101 819E

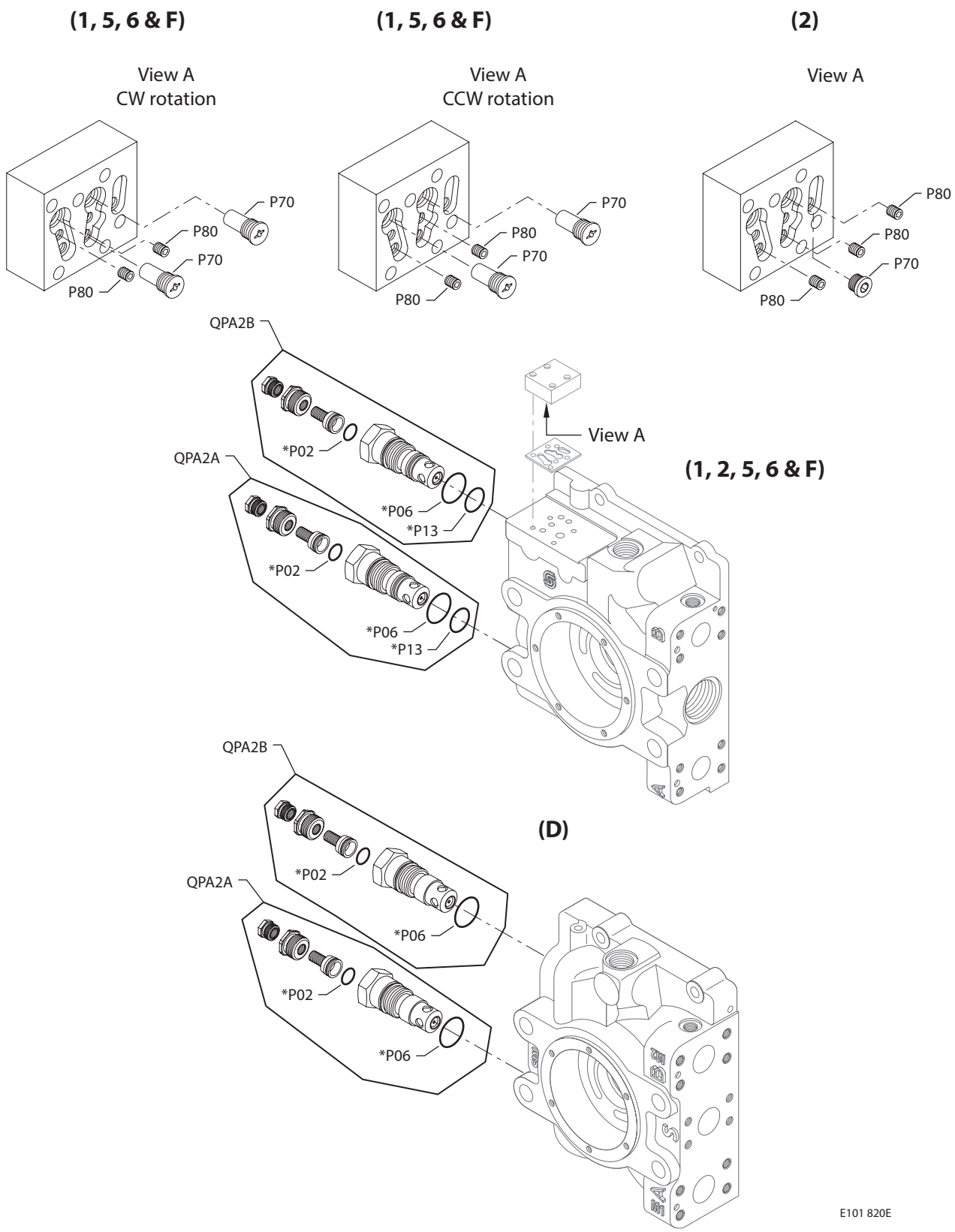
* = included in overhaul seal kit Q210

## Variable displacement pump

### Filtration

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| D | | | | None | | |
| K | N10 | 12-18 | | 11115186 | Reducer fitting assembly, metric | 1 |
| | N15 | 12-18 | | 093823 (9004201-9200) | O-ring | 1 |
| | N37 | 12-18 | | 731943 | Plug assembly, M22 | 1 |
| L | N15 | 10-44 | | 9004201-9000 | O-ring | 1 |
| | N20 | 10-44 | | 11049997 | Nut | 1 |
| | N35 | 10-44 | | 140644 | Plug assembly | 1 |
| | N36 | 10-44 | | 140644 | Plug assembly | 1 |
| | N100 | 10-44 | | 781401 | Reducer | 1 |
| | N150 | 10-44 | | 093823 (9004201-9200) | O-ring | 1 |
| | N250 | 10-44 | | 789404 | Tube bushing | 1 |
| | QN01 | 10-44 | | 11145361 | Filter manifold kit, intergal | 1 |
| | QN40 | 10-44 | | 11004919 | Filter | 1 |
| R | N01 | 94-20 | | 11060430 | Filter manifold assembly, remote | 1 |
| | N15 | 94-20 | | 9004201-9000 | O-ring | 1 |
| | N20 | 94-20 | | 11049997 | Nut | 1 |
| | N36 | 94-20 | | 140644 | Plug assembly | 2 |
| | N100 | 94-20 | | 781401 | Reducer | 1 |
| | N150 | 94-20 | | 093823 (9004201-9200) | O-ring | 1 |
| | N250 | 94-20 | | 789404 | Tube bushing | 1 |
| S | N10 | 94-20 | | 757831 | Reducer fitting assembly | 1 |
| | N15 | 94-20 | | 093823 (9004201-9200) | O-ring | 1 |
| | N37 | 94-20 | | 140644 | Plug assembly | 1 |
| T | N10 | 94-20 | | 507014 | Filter manifold | 1 |
| | N15 | 94-20 | | 093823 (9004201-9200) | O-ring | 1 |
| | N20 | 94-20 | | 11139975 | Nut | 1 |
| | N25 | 94-20 | | 507016 | Tube | 1 |
| | N36 | 94-20 | | 140644 | Plug assembly | 2 |
| | QN01 | 94-20 | | 8510147 | Remote filtration manifold kit | 1 |

## Variable displacement pump



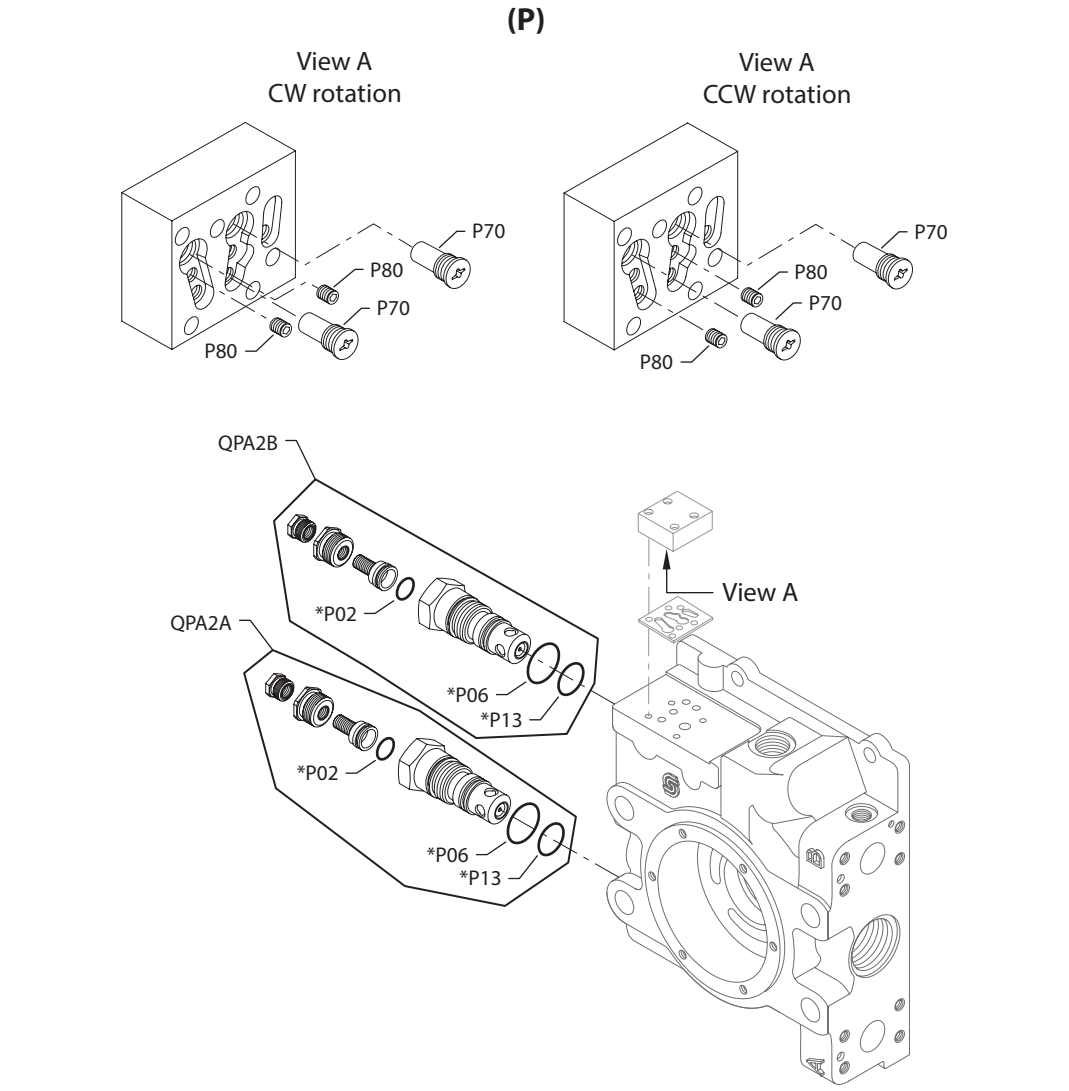

* = included in overhaul seal kit Q210

## Variable displacement pump

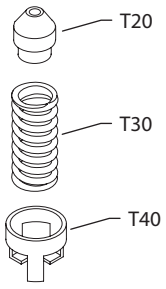
### High pressure regulation

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 1 | P02 | 94-20 | | 775080 | O-ring | 2 |
| | P06 | 94-20 | | 360784 (9004105-0290) | O-ring | 2 |
| | P13 | 94-20 | | 775155 | O-ring | 2 |
| | P70 | 94-20 | | 8800188 | Check valve | 2 |
| | P80 | 94-20 | | 9005475-0004 | Special plug | 2 |
| | QPA2A | 94-20 | | 8510023-1 | Multi-function valve kit | 1 |
| | QPA2B | 94-20 | | 8510023-1 | Multi-function valve kit | 1 |
| 2 | P02 | 94-20 | | 775080 | O-ring | 2 |
| | P06 | 94-20 | | 360784 (9004105-0290) | O-ring | 2 |
| | P13 | 94-20 | | 775155 | O-ring | 2 |
| | P70 | 94-20 | | 327007 (9005110-4400) | Plug assembly | 1 |
| | P80 | 94-20 | | 9005475-0004 | Pipe plug | 3 |
| | QPA2A | 94-20 | | 8510023-2 | Multi-function valve kit | 1 |
| | QPA2B | 94-20 | | 8510023-2 | Multi-function valve kit | 1 |
| 5 | P02 | 94-20 | | 775080 | O-ring | 2 |
| | P06 | 94-20 | | 360784 (9004105-0290) | O-ring | 2 |
| | P13 | 94-20 | | 775155 | O-ring | 2 |
| | P70 | 94-20 | | 8800188 | Check valve | 2 |
| | P80 | 94-20 | | 9005475-0004 | Special plug | 2 |
| | QPA2A | 94-20 | | 8510274 | Multi-function valve kit | 1 |
| | QPA2B | 94-20 | | 8510274 | Multi-function valve kit | 1 |
| 6 | P02 | 94-20 | | 775080 | O-ring | 2 |
| | P06 | 94-20 | | 360784 (9004105-0290) | O-ring | 2 |
| | P13 | 94-20 | | 775155 | O-ring | 2 |
| | P70 | 94-20 | | 8800188 | Check valve | 2 |
| | P80 | 94-20 | | 9005475-0004 | Special plug | 2 |
| | QPA2A | 94-20 | | 8510023-6 | Multi-function valve kit | 1 |
| | QPA2B | 94-20 | | 8510023-6 | Multi-function valve kit | 1 |
| D | P02 | 94-20 | | 775080 | O-ring | 2 |
| | P06 | 94-20 | | 360784 (9004105-0290) | O-ring | 2 |
| | QPA2A | 94-20 | | 11086466 | Multi-function valve kit | 1 |
| | QPA2B | 94-20 | | 11086466 | Multi-function valve kit | 1 |
| F | P02 | 94-20 | | 775080 | O-ring | 2 |
| | P06 | 94-20 | | 360784 (9004105-0290) | O-ring | 2 |
| | P13 | 94-20 | | 775155 | O-ring | 2 |
| | P70 | 94-20 | | 8800188 | Check valve | 2 |
| | P80 | 94-20 | | 9005475-0004 | Special plug | 2 |
| | QPA2A | 94-20 | | 8510023-2 | Multi-function valve kit | 1 |
| | QPA2B | 94-20 | | 8510023-2 | Multi-function valve kit | 1 |

## Variable displacement pump

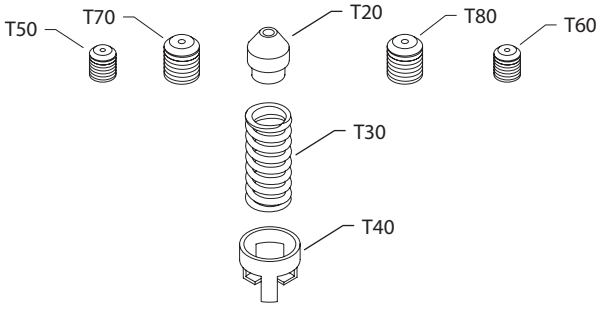



**(02, 03, 04, 05, 06, 09 & 22)**




See control drawing for orifice location

**(30)**




See control drawing for orifice location

E101 821E

* = included in overhaul seal kit Q210

## Variable displacement pump

### High pressure regulation

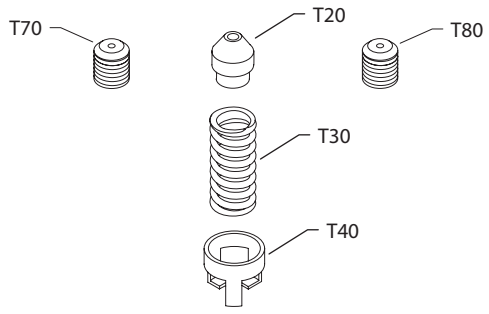
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| P | P02 | 94-20 | | 775080 | O-ring | 2 |
| | P06 | 94-20 | | 360784 (9004105-0290) | O-ring | 2 |
| | P13 | 94-20 | | 775155 | O-ring | 2 |
| | P70 | 94-20 | | 8800188 | Check valve | 2 |
| | P80 | 94-20 | | 9005475-0004 | Special plug | 2 |
| | QPA2A | 94-20 | | 8510292 | Multi-function valve kit | 1 |
| | QPA2B | 94-20 | | 8510292 | Multi-function valve kit | 1 |

### Orifice

| | | | | | | |
|---|---|---|---|---|---|---|
| 00 | | | | None | | |
| | | | | | | |
| 02 | T20 | 94-20 | | 8801139 | Orificed check valve, .026" | 1 |
| | T30 | 94-20 | | 679506 (8700007) | Spring | 1 |
| | T40 | 94-20 | | 8801303 | Spring retainer | 1 |
| | | | | | | |
| 03 | T20 | 94-20 | | 11061958 | Orificed check valve, .81mm | 1 |
| | T30 | 94-20 | | 679506 (8700007) | Spring | 1 |
| | T40 | 94-20 | | 8801303 | Spring retainer | 1 |
| | | | | | | |
| 04 | T20 | 94-20 | | 11061970 | Orificed check valve, 1.02mm | 1 |
| | T30 | 94-20 | | 679506 (8700007) | Spring | 1 |
| | T40 | 94-20 | | 8801303 | Spring retainer | 1 |
| | | | | | | |
| 05 | T20 | 94-20 | | 11061981 | Orificed check valve, 1.37mm | 1 |
| | T30 | 94-20 | | 679506 (8700007) | Spring | 1 |
| | T40 | 94-20 | | 8801303 | Spring retainer | 1 |
| | | | | | | |
| 06 | T20 | 94-20 | | 11061993 | Orificed check valve, 1.57mm | 1 |
| | T30 | 94-20 | | 679506 (8700007) | Spring | 1 |
| | T40 | 94-20 | | 8801303 | Spring retainer | 1 |
| | | | | | | |
| 09 | T20 | 94-20 | | 11062006 | Orificed check valve, 2.34mm | 1 |
| | T30 | 94-20 | | 679506 (8700007) | Spring | 1 |
| | T40 | 94-20 | | 8801303 | Spring retainer | 1 |
| | | | | | | |
| 22 | T20 | 94-20 | | 8801137 | Orificed check valve, .022" | 1 |
| | T30 | 94-20 | | 679506 (8700007) | Spring | 1 |
| | T40 | 94-20 | | 8801303 | Spring retainer | 1 |
| | | | | | | |
| 30 | T20 | 94-20 | | 8801139 | Orificed check valve, 0.26" | 1 |
| | T30 | 94-20 | | 679506 (8700007) | Spring | 1 |
| | T40 | 94-20 | | 8801303 | Spring retainer | 1 |
| | T50 | 94-20 | | 639153 | Orifice plug, 1.3mm, M5 x 6 | 1 |
| | T60 | 94-20 | | 639153 | Orifice plug, 1.3mm, M5 x 6 | 1 |
| | T70 | 94-20 | | 704650 | Orifice plug, 0.7mm, M8 x 8 | 1 |
| | T80 | 94-20 | | 704650 | Orifice plug, 0.7mm, M8 x 8 | 1 |
| | | | | | | |
| 33 | | | | None | | |

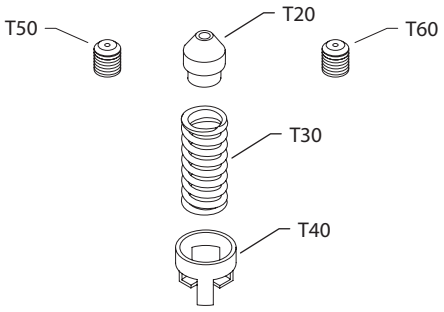
## Variable displacement pump

**(38 & 54)**




See control drawing for orifice location

**(44, 45, 46 & 49)**

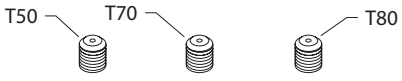



See control drawing for orifice location

**(72)**

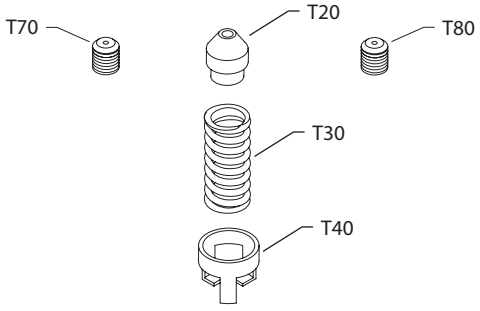
See control drawing for orifice location

**(82)**




See control drawing for orifice location

**(76)**




See control drawing for orifice location

E101 822E

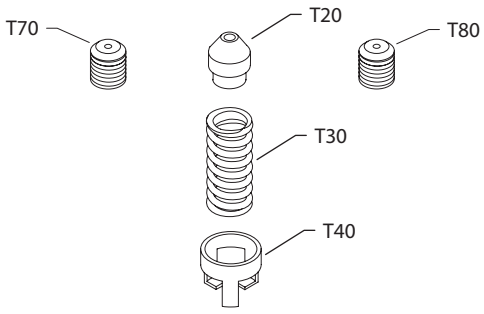
## Variable displacement pump

### Orifice

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 38 | T20 | 94-20 | | 8801139 | Orificed check valve, 0.26" | 1 |
| | T30 | 94-20 | | 679506 (8700007) | Spring | 1 |
| | T40 | 94-20 | | 8801303 | Spring retainer | 1 |
| | T70 | 94-20 | | 716837 | Orifice plug, 0.6mm, M8 x 8 | 1 |
| | T80 | 94-20 | | 716837 | Orifice plug, 0.6mm, M8 x 8 | 1 |
| 44 | T20 | 94-20 | | 11061981 | Orificed check valve, 1.37mm | 1 |
| | T30 | 94-20 | | 679506 (8700007) | Spring | 1 |
| | T40 | 94-20 | | 8801303 | Spring retainer | 1 |
| | T50 | 94-20 | | 598292 | Orifice plug, 0.8mm, M5 x 6 | 1 |
| | T60 | 94-20 | | 598292 | Orifice plug, 0.8mm, M5 x 6 | 1 |
| 45 | T20 | 94-20 | | 11061958 | Orificed check valve, 0.81mm | 1 |
| | T30 | 94-20 | | 679506 (8700007) | Spring | 1 |
| | T40 | 94-20 | | 8801303 | Spring retainer | 1 |
| | T50 | 94-20 | | 639153 | Orifice plug, 1.3mm, M5 x 6 | 1 |
| | T60 | 94-20 | | 639153 | Orifice plug, 1.3mm, M5 x 6 | 1 |
| 46 | T20 | 94-20 | | 8801139 | Orificed check valve, 0.026" | 1 |
| | T30 | 94-20 | | 679506 (8700007) | Spring | 1 |
| | T40 | 94-20 | | 8801303 | Spring retainer | 1 |
| | T50 | 94-20 | | 598292 | Orifice plug, 0.8mm, M5 x 6 | 1 |
| | T60 | 94-20 | | 598292 | Orifice plug, 0.8mm, M5 x 6 | 1 |
| 49 | T20 | 94-20 | | 11061958 | Orificed check valve, 0.81mm | 1 |
| | T30 | 94-20 | | 679506 (8700007) | Spring | 1 |
| | T40 | 94-20 | | 8801303 | Spring retainer | 1 |
| | T50 | 94-20 | | 639120 | Orifice plug, 1.0mm, M5 x 6 | 1 |
| | T60 | 94-20 | | 639120 | Orifice plug, 1.0mm, M5 x 6 | 1 |
| 54 | T20 | 94-20 | 12-29 | 11061970 | Orificed check valve, 1.02mm | 1 |
| | T30 | 94-20 | 12-29 | 679506 (8700007) | Spring | 1 |
| | T40 | 94-20 | 12-29 | 8801303 | Spring retainer | 1 |
| | T70 | 94-20 | 12-29 | 755793 | Orifice plug, 1.0mm, M8 x 8 | 1 |
| | T80 | 94-20 | 12-29 | 755793 | Orifice plug, 1.0mm, M8 x 8 | 1 |
| 72 | T50 | 15-32 | | 639120 | Orifice plug, 1.0mm, M5 x 6 | 1 |
| | T60 | 15-32 | | 639120 | Orifice plug, 1.0mm, M5 x 6 | 1 |
| 76 | T20 | 94-20 | | 8801139 | Orificed check valve, 0.26" | 1 |
| | T30 | 94-20 | | 679506 (8700007) | Spring | 1 |
| | T40 | 94-20 | | 8801303 | Spring retainer | 1 |
| | T70 | 94-20 | | 578542 | Orifice plug, 0.8mm, M6 x 8 | 1 |
| | T80 | 94-20 | | 578542 | Orifice plug, 0.8mm, M6 x 8 | 1 |
| 82 | T50 | 94-20 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |
| | T70 | 94-20 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |
| | T80 | 94-20 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |

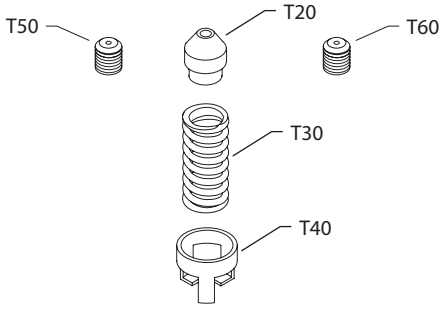
## Variable displacement pump

### (99 & A7)




See control drawing for orifice location

### (A3, C5 & C6)

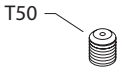



See control drawing for orifice location

### (A4 & B2)

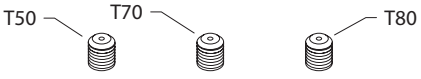
See control drawing for orifice location

### (B1 & B9)




See control drawing for orifice location

### (B5)




See control drawing for orifice location

### (C4)

See control drawing for orifice location

E101 823E

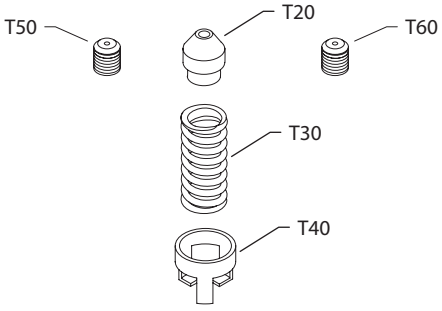
## Variable displacement pump

### Orifice

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 99 | T20 | 94-20 | | 8801301 | Orificed check valve, 0.47" | 1 |
| | T30 | 94-20 | | 679506 (8700007) | Spring | 1 |
| | T40 | 94-20 | | 8801303 | Spring retainer | 1 |
| | T70 | 94-20 | | 517572 | Orifice plug, 1.5 mm, M6 x 6 | 1 |
| | T80 | 94-20 | | 517572 | Orifice plug, 1.5 mm, M6 x 6 | 1 |
| A3 | T20 | 94-20 | | 11061958 | Orificed check valve, 0.81 mm | 1 |
| | T30 | 94-20 | | 679506 (8700007) | Spring | 1 |
| | T40 | 94-20 | | 8801303 | Spring retainer | 1 |
| | T50 | 94-20 | | 704650 | Orifice plug, 0.7 mm, M8 x 8 | 1 |
| | T60 | 94-20 | | 704650 | Orifice plug, 0.7 mm, M8 x 8 | 1 |
| A4 | T70 | 94-20 | | 578542 | Orifice plug, 0.8 mm, M6 x 8 | 1 |
| | T80 | 94-20 | | 578542 | Orifice plug, 0.8 mm, M6 x 8 | 1 |
| A7 | T20 | 94-20 | | 11061958 | Orificed check valve, 0.81 mm | 1 |
| | T30 | 94-20 | | 679506 (8700007) | Spring | 1 |
| | T40 | 94-20 | | 8801303 | Spring retainer | 1 |
| | T70 | 94-20 | | 578542 | Orifice plug, 0.8 mm, M6 x 8 | 1 |
| | T80 | 94-20 | | 578542 | Orifice plug, 0.8 mm, M6 x 8 | 1 |
| B1 | T50 | 94-20 | | 507042 | Orifice plug, 1.5 mm, M6 x 8 | 1 |
| B2 | T70 | 94-20 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |
| | T80 | 94-20 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |
| B5 | T50 | 94-20 | | 507042 | Orifice plug, 1.5 mm, M6 x 8 | 1 |
| | T70 | 94-20 | | 518215 | Orifice plug, 2.2 mm, M6 x 6 | 1 |
| | T80 | 94-20 | | 518215 | Orifice plug, 2.2 mm, M6 x 6 | 1 |
| B9 | T50 | 94-20 | | 516598 | Orifice plug, 1.2 mm, M6 x 8 | 1 |
| C4 | T50 | 94-20 | | 639161 | Orifice plug, 1.4 mm, M5 x 6 | 1 |
| | T60 | 94-20 | | 639161 | Orifice plug, 1.4 mm, M5 x 6 | 1 |
| C5 | T20 | 94-20 | | 11061958 | Orificed check valve, 0.81 mm | 1 |
| | T30 | 94-20 | | 679506 (8700007) | Spring | 1 |
| | T40 | 94-20 | | 8801303 | Spring retainer | 1 |
| | T50 | 94-20 | | 639161 | Orifice plug, 1.4 mm, M5 x 6 | 1 |
| | T60 | 94-20 | | 639161 | Orifice plug, 1.4 mm, M5 x 6 | 1 |
| C6 | T20 | 94-20 | | 11061970 | Orificed check valve, 1.02 mm | 1 |
| | T30 | 94-20 | | 679506 (8700007) | Spring | 1 |
| | T40 | 94-20 | | 8801303 | Spring retainer | 1 |
| | T50 | 94-20 | | 639161 | Orifice plug, 1.4 mm, M5 x 6 | 1 |
| | T60 | 94-20 | | 639161 | Orifice plug, 1.4 mm, M5 x 6 | 1 |

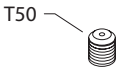
## Variable displacement pump

### (C7 & GT)



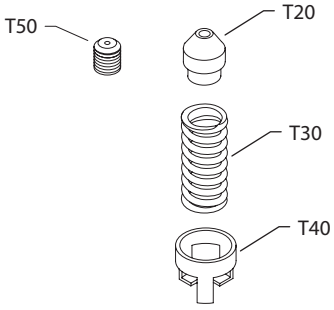

See control drawing for orifice location

### (G1)



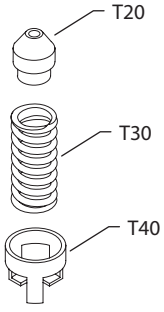

See control drawing for orifice location

### (G4, G8, GB, GD, GF & GJ)




See control drawing for orifice location

### (K1)




See control drawing for orifice location

E101 824E

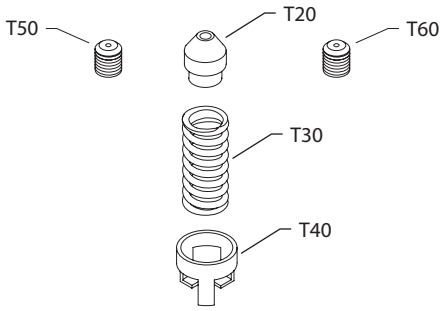
## Variable displacement pump

### Orifice

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| C7 | T20 | 94-20 | | 11061981 | Orificed check valve, 1.02 mm | 1 |
| | T30 | 94-20 | | 679506 (8700007) | Spring | 1 |
| | T40 | 94-20 | | 8801303 | Spring retainer | 1 |
| | T50 | 94-20 | | 639161 | Orifice plug, 1.4 mm, M5 x 6 | 1 |
| | T60 | 94-20 | | 639161 | Orifice plug, 1.4 mm, M5 x 6 | 1 |
| G1 | T50 | 94-20 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |
| G4 | T20 | 94-20 | | 8801136 | Orificed check valve, .018" | 1 |
| | T30 | 94-20 | | 679506 (8700007) | Spring | 1 |
| | T40 | 94-20 | | 8801303 | Spring retainer | 1 |
| | T50 | 94-20 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |
| G8 | T20 | 94-20 | | 8801139 | Orificed check valve, .026" | 1 |
| | T30 | 94-20 | | 679506 (8700007) | Spring | 1 |
| | T40 | 94-20 | | 8801303 | Spring retainer | 1 |
| | T50 | 94-20 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |
| GB | T20 | 94-20 | | 11061958 | Orificed check valve, 0.81mm | 1 |
| | T30 | 94-20 | | 679506 (8700007) | Spring | 1 |
| | T40 | 94-20 | | 8801303 | Spring retainer | 1 |
| | T50 | 94-20 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |
| GD | T20 | 94-20 | | 11061993 | Orificed check valve, 1.57mm | 1 |
| | T30 | 94-20 | | 679506 (8700007) | Spring | 1 |
| | T40 | 94-20 | | 8801303 | Spring retainer | 1 |
| | T50 | 94-20 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |
| GF | T20 | 94-20 | | 11061970 | Orificed check valve, 1.02mm | 1 |
| | T30 | 94-20 | | 679506 (8700007) | Spring | 1 |
| | T40 | 94-20 | | 8801303 | Spring retainer | 1 |
| | T50 | 94-20 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |
| GJ | T20 | 94-20 | | 11061981 | Orificed check valve, 1.37mm | 1 |
| | T30 | 94-20 | | 679506 (8700007) | Spring | 1 |
| | T40 | 94-20 | | 8801303 | Spring retainer | 1 |
| | T50 | 94-20 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |
| GT | T20 | 94-20 | | 11061958 | Orificed check valve, 0.81 mm | 1 |
| | T30 | 94-20 | | 679506 (8700007) | Spring | 1 |
| | T40 | 94-20 | | 8801303 | Spring retainer | 1 |
| | T50 | 94-20 | | 714477 | Orifice plug, 0.8 mm, M8 x 8 | 1 |
| | T60 | 94-20 | | 714477 | Orifice plug, 0.8 mm, M8 x 8 | 1 |
| K1 | T20 | 94-20 | | 11061981 | Orificed check valve, 1.37 mm | 1 |
| | T30 | 94-20 | | 679506 (8700007) | Spring | 1 |
| | T40 | 94-20 | | 8801303 | Spring retainer | 1 |

## Variable displacement pump

**(K4)**




See control drawing for orifice location

**(P1)**

See control drawing for orifice location

E100 103E

## Variable displacement pump

### Orifice

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| K4 | T20 | 94-20 | | 11061981 | Orificed check valve, 1.37 mm | 1 |
| | T30 | 94-20 | | 679506 (8700007) | Spring | 1 |
| | T40 | 94-20 | | 8801303 | Spring retainer | 1 |
| | T50 | 94-20 | | 598292 | Orifice plug, 0.8 mm, M5 x 6 | 1 |
| | T60 | 94-20 | | 598292 | Orifice plug, 0.8 mm, M5 x 6 | 1 |
| P1 | T70 | 94-20 | | 508014 | Orifice plug, 1.0 mm, M6 x 8 | 1 |
| | T80 | 94-20 | | 508014 | Orifice plug, 1.0 mm, M6 x 8 | 1 |

### Overhaul seal kit

| | | | | | | |
|---|---|---|---|---|---|---|
| | Q210 | 94-20 | | 11095663 | Service seal kit, base pump, 180cc | 1 |
| | C70 | 94-20 | | 308643 | Screw, M8 | 4 |
| | E40 | 94-20 | | 042432 | Seal nut, M10 | 2 |
| | E50 | 94-20 | | 517380 | O-ring | 1 |
| | E60 | 94-20 | | 517231 | Screw, M10 | 6 |
| | F11 | 94-20 | | 000927 (9004100-2260) | O-ring, | 2 |
| | F11 | 94-20 | | 504627 | O-ring | 2 |
| | F11 | 94-20 | | 755264 | O-ring | 2 |
| | F12 | 94-20 | | 507801 | Piston ring | 2 |
| | F12 | 94-20 | | 515689 | Piston ring | 2 |
| | F12 | 94-20 | | 507802 | Piston ring | 2 |
| | F40 | 94-20 | | 9004104-1520 | O-ring | 2 |
| | F50 | 94-20 | | 755272 | O-ring | 2 |
| | F112 | 94-20 | | 649822 | Seal nut, M14 | 1 |
| | F124 | 94-20 | | 074542 | Seal nut, M16 | 1 |
| | F212 | 94-20 | | 649822 | Seal nut, M14 | 1 |
| | F224 | 94-20 | | 074542 | Seal nut, M16 | 1 |
| | G09 | 94-20 | | 689117 | Gasket | 1 |
| | G30 | 94-20 | | 511809 | End cap gasket | 1 |
| | J40 | 94-20 | | 11147582 | O-ring | 1 |
| | J50 | 94-20 | | 505068 | O-ring | 1 |
| | K50 | 94-20 | | 001156 (9004201-7500) | O-ring | 1 |
| | L25 | 94-20 | | 512637 | Shaft seal carrier assembly | 1 |
| | N15 | 94-20 | | 9004201-9000 | O-ring | 1 |
| | N150 | 94-20 | | 093823 (9004201-9200) | O-ring | 1 |
| | P02 | 94-20 | | 775080 (9004100-0170) | O-ring | 2 |
| | P06 | 94-20 | | 360784 (9004105-0290) | O-ring | 2 |
| | P13 | 94-20 | | 775155 | O-ring | 2 |

## Service bulletin: SB-1995-007

**Products affected**

Series 90 180 variable pumps

**Subject**

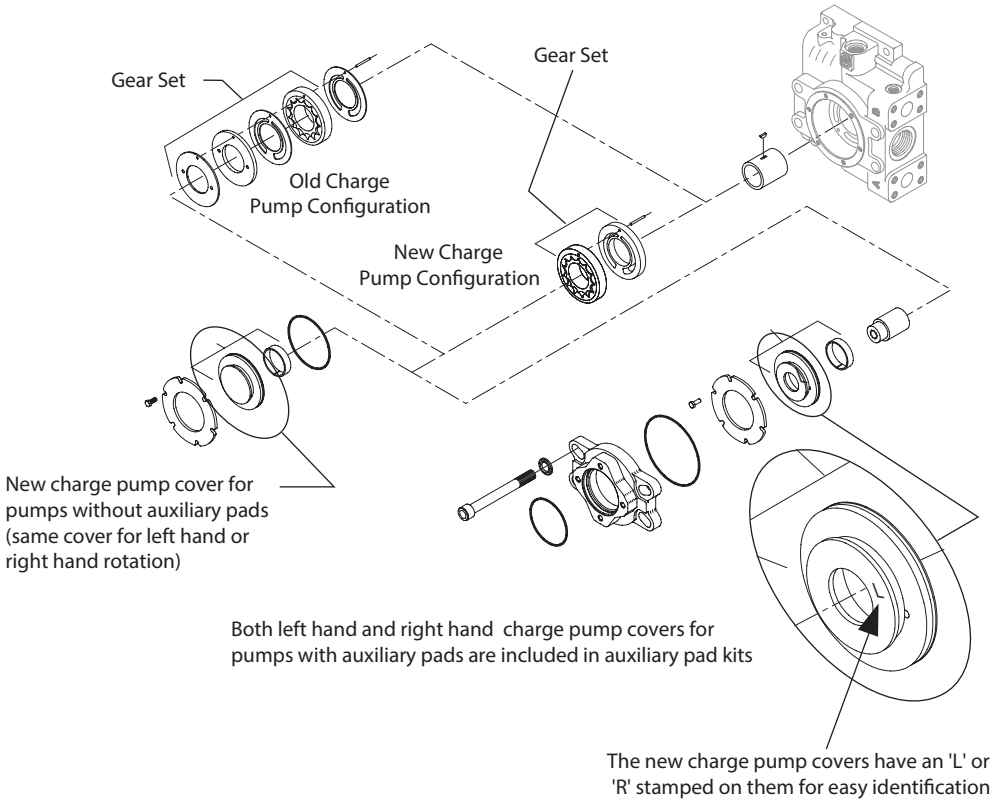
Charge pump design change

**Description**

To improve efficiency and reliability, the number of charge pump parts in the Series 90 180cc pump is being reduced. The charge pump design is being changed to make the outer port plate an intergal part of the charge pump cover and to eliminate the distance plates.

For auxiliary pad options, the new charge pump cover is rotation dependent. The cover will be marked either left hand (L) or right hand (R). The non-auxiliary pad cover is not rotation dependent.

The complete charge pump assembly can be interchanged with corresponding hardware. However, piece parts are not interchangeable.



## Service bulletin: SB-1995-007

**Models affected**

All 982xxxx variable pumps

**Serial numbers**

Change occured at serial number N-94-06-xxxxx.

**Part numbers affected**

| Obsoleted Charge Pump Parts | | | Chg. pump displace-ment | Auxilary pad | Rotation | Replacement Kit |
|---|---|---|---|---|---|---|
| Gear Set | Shaft | Cover | | | | |
| 778779 | 750141 | 347518 | 34 cc | No | LH or RH | 8510091 |
| | | 347526 | | Yes | LH | 8510092 |
| | | 347526 | | Yes | RH | 8510093 |
| 750125 | 750141 | 347518 | 47 cc | No | LH or RH | 8510094 |
| | | 347526 | | Yes | LH | 8510095 |
| | | 347526 | | Yes | RH | 8510096 |

The following information pertains to "L" charge pump option only:

| Old Shaft | Old Cover | Auxilary pad | Rotation | Replacement cover | Replacement shaft |
|---|---|---|---|---|---|
| 750141 | 347518 | No | LH or RH | 501400 | 503519 |
| | 347526 | Yes | LH | 501401 | |
| | | | RH | 501402 | |

**Parts disposition**

■ Interchangeable - piece parts are not interchangeable

## Service Bulletin: SB-1996-004

**Products affected**

Series 90 42, 130, 180, and 250cc variable pumps

**Subject**

Side cover design change

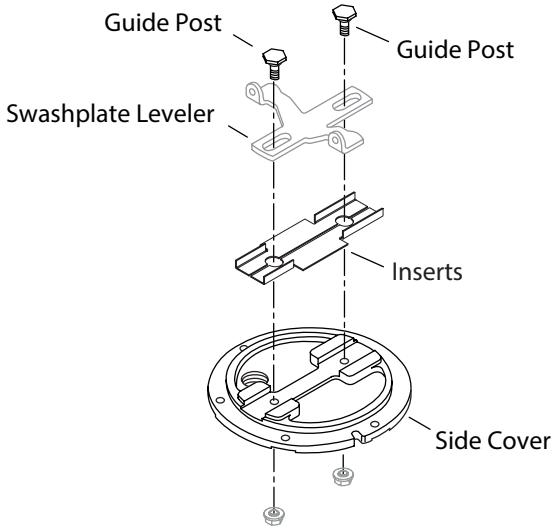
**Description**

As a product improvement, Sauer-Sundstrand is changing the side cover and swashplate leveler (T-Bar) guide post design.

The new design side cover will have two hardened inserts in the machined slot which serves as a guide for the swashplate leveler, and modified guide posts. The swashplate leveler does not change.

Old guide posts will remain available for service requirements of pumps with the old design side cover.

The old style side cover will be obsoleted and no longer available as a service part. A service kit has been created for replacing the old design side cover. The kit includes the new side cover, guide posts and inserts. Piece parts are not interchangeable..




**Models affected**

All series 42, 130, 180, and 250cc variable pumps

**Serial numbers**

Change occured at serial number N-96-08-xxxxx.

**Part numbers affected**

| | Old part numbers | | New part numbers | | |
|---|---|---|---|---|---|
| Description | Guide post | Side cover | Insert assy. | Guide post | Replacement kit |
| 42 cc | 344465 | 751305 | 506916 | 506369 | 506380 |
| 130 cc | 503205 | 746107 | 8300004 | 506368 | 11027814 |
| 180 cc | 503205 | 746404 | 506914 | 506368 | 506290 |
| 250 cc | 503205 | 746404 | 506914 | 506368 | 506290 |

**Parts disposition**

■ Interchangeable - piece parts are not interchangeable

## Service Bulletin: SB-1999-065A

**Products affected**

Series 90 75, 100, 130, 180, and 250cc variable displacement pumps

**Subject**

Hydraulic displacement control gasket and swashplate bearing locator pin retention

**Description**

The Series 90 75cc, 100cc, 130cc, 180cc, and 250cc variable displacement pumps utilize a common gasket to seal the joint between the displacement control housing and main pump housing.

In November 1998, Sauer-Danfoss introduced a new gasket design for Hydraulic Displacement Controls (HDC - all options), version 2 Electrical Displacement Controls (EDC2 - options EE and EN), and two amp current control (options PA and PB) equipped pumps (see SB-1998-038). The purpose of this gasket is primarily to seal the joint and aid in the retention of the bearing cage locator pin in the main pump housing. Sauer-Danfoss has identified that the new gasket may not adequately aid in the retention of this pin in 75cc pump sizes due to casting and machining tolerances. Installations which are particularly sensitive to pin retention include those oriented with the control on the side or on the bottom when the pump is installed. In these types of installations, it is possible for the pin to come out of its position in the pump housing. This will result in a loss of alignment between the swashplate and swashplate bearing assembly and the potential for erratic pump control and/or system performance.

To address this situation, Sauer-Danfoss has introduced a design modification to the control gasket. The modification will insure that the cage locator pin is retained in 75cc pumps in all circumstances, while still maintaining the desired gasket clamp load to avoid leaks.

The new gasket is completely interchangeable with the previous gasket. Sauer-Danfoss recommends that the previous control gasket be replaced immediately on 75cc pump assemblies, with controls noted above, in which the control is on the side or on the bottom of the pump. The pump serial numbers involved are A-98-41-xxxxx through A-99-49-xxxxx. It is not required to replace the gasket in pumps with the control in the up position, until the initial servicing of the pump assembly.

The 100cc, 130cc, 180cc, and 250cc pumps are not dependent upon the gasket to maintain retention of the bearing cage locator pin and are not affected by the information above.

The new gasket has replaced the previous gasket in all new pump assemblies with Hydraulic Displacement Control (HDC), version 2 Electrical Displacement Control (EDC2 - EE and EN), and two amp current (PA and PB) controls. The new gasket has also been placed in all appropriate control kits and overhaul seal kits. Page 3 of this bulletin will assist you in identifying the new gasket from the previous gasket.

**Models affected**

95-2xxx, 952xxxx, 96-2xxx, 962xxxx, 97-2xxx, 972xxxx, 98-2xxx, 982xxxx, 99-2xxx, and 992xxxx variable displacement pumps equipped with hydraulic displacement controls and specific option electronic displacement control. (EE, EN, PA, PB)

**Serial numbers**

Sauer-Danfoss Ames 75cc pump production: A-99-50-xxxxx.
Sauer-Danfoss Ames 100cc pump production: A-00-25-xxxxx.
Sauer-Danfoss Neumunster production: N-00-01-xxxxx.

## Service Bulletin: SB-1999-065A

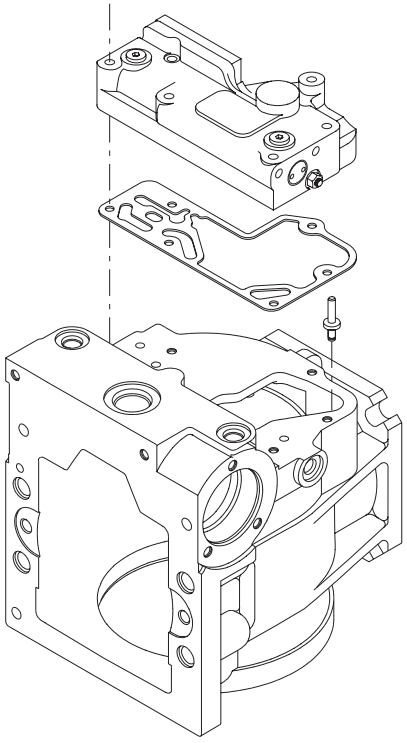
**Part numbers affected**

| Previous gasket | New gasket |
|---|---|
| 511608 | 8801241 |

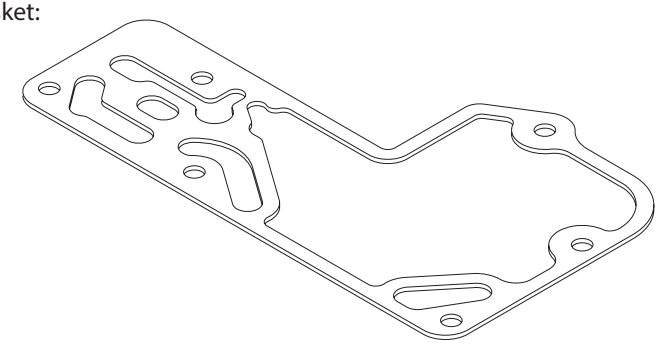
**Parts disposition**

■ Interchangeable

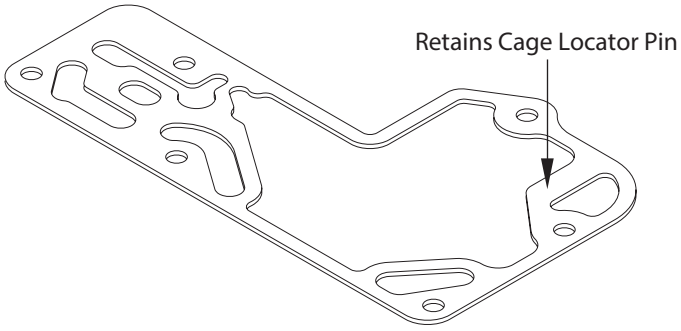
Control Gasket Location:



Previous Gasket:



New Gasket:



## Service Bulletin: SB-1996-010

**Products affected**

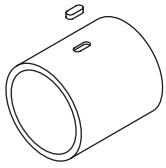
Series 90 180cc variable pumps

**Subject**

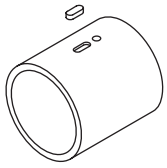
Charge pump shaft

**Description**

As a product improvement, Sauer-Danfoss has changed the charge pump drive shaft. This change will incorporate two drain holes in the shaft. These drain holes will prevent pressure build up at the end of the pump input shaft. Relieving this pressure reduces the axial load on the shaft and increases the life of the front roller bearing. The old charge pump shaft part number will become obsolete and not available for service. The new shaft is a direct replacement and can be used in older 180cc pumps.



Old shaft



New shaft

**Models affected**

All series 180cc variable pumps

**Serial numbers**

Change became effective at serial number N-06-12-xxxxx.

**Part numbers affected**

| Old part number | New part number |
|---|---|
| 513437 | 11002443 |

**Parts disposition**

■ Interchangeable

## Service Bulletin: SB-2009-074

**Products affected**

Series 90 42, 130, 180 and 250cc variable pumps

**Subject**

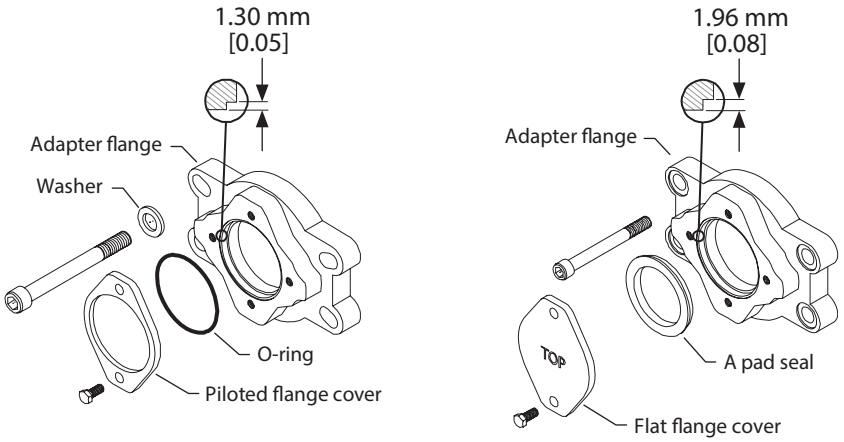
SAE A auxiliary mounting flange, O-ring seal

**Part numbers affected**

Sauer-Danfoss is pleased to announce a design improvement on the SAE A auxiliary mounting flange adapter on its series 90 pumps. The frame sizes affected by this change are 42, 130, 180 and 250cc. All manufacturing locations producing these pumps will be changed to this configuration.

The improvement comes in the form of a more robust sealing geometry with a larger cross-section O-ring. The O-ring groove in the flange will now be sized to mate with a 2.62mm [0.103"] cross-section O-ring rather than the old 1.78mm [0.070"] cross-section O-ring. The Sauer-Danfoss part number for the new O-ring is 9004104-1520 (2.62mm [0.070"] x 82.22mm [3.237"]). The larger cross-section sealing geometry allows for the use of a donut style A pad seal and a new flat cover for improved assembly. This new configuration is qualified as a running cover. When installing an auxiliary pump, the donut style A pad seal must be discarded and the part number 9004104-1520 O-ring used.

The pumps will now be supplied with the donut style seal and new flat cover, instead of the small O-ring and stepped cover plate (shown in the drawing below).




Old design New design

**Models affected**

All series90 42, 130, 180 and 250cc pumps with an SAE A auxiliary mounting flange.

**Serial numbers**

Change became effective at serial number N-09-30-xxxxx. (20 July 2009)

**Part numbers affected**

| Description | Old part number | New part number | Used on |
|---|---|---|---|
| A flange adapter | 511040 | 520944 | 42cc |
| A flange adapter | 505113 | 520946 | 130cc |
| A flange adapter | 505136 | 520949 | 180 and 250cc |
| O-ring | 9004104-0420 | 9004104-1520 | all sizes |
| A pad seal | N/A | 4800482 | all sizes |
| Flange cover | 9802336 | 4460586 | all sizes |

**Parts disposition**

■ Interchangeable if new O-ring or if the pad seal and new cover are used.

## Service Bulletin: SB-2009-075

**Products affected**

Series 90 42, 130, 180 and 250cc variable pumps

**Subject**

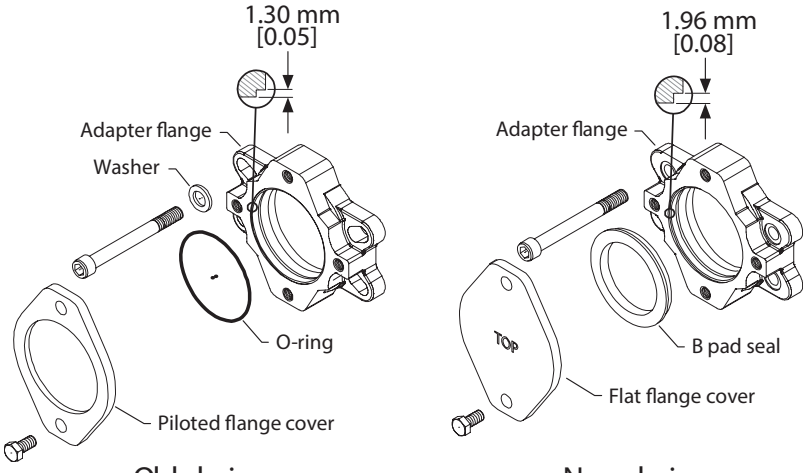
SAE B auxiliary mounting flange, O-ring seal

**Part numbers affected**

Sauer-Danfoss is pleased to announce a design improvement on the SAE B auxiliary mounting flange adapter on its series 90 pumps. The frame sizes affected by this change are 42, 130, 180 and 250cc. All manufacturing locations producing these pumps will be changed to this configuration.

The improvement comes in the form of a more robust sealing geometry with a larger cross-section O-ring. The O-ring groove in the flange will now be sized to mate with a 2.62mm [0.103"] cross-section O-ring rather than the old 1.78mm [0.070"] cross-section O-ring. The Sauer-Danfoss part number for the new O-ring is 9004104-1540 (2.62mm [0.070"] x 94.92mm [3.737"]). The larger cross-section sealing geometry allows for the use of a donut style B pad seal and a new flat cover for improved assembly. This new configuration is qualified as a running cover. When installing an auxiliary pump, the donut style B pad seal must be discarded and the part number 9004104-1540 O-ring used.

The pumps will now be supplied with the donut style seal and new flat cover, instead of the small O-ring and stepped cover plate (shown in the drawing below).




**Models affected**

All series90 42, 130, 180 and 250cc pumps with an SAE B auxiliary mounting flange.

**Serial numbers**

Change became effective at serial number N-09-30-xxxxx. (20 July 2009)

**Part numbers affected**

| Description | Old part number | New part number | Used on |
|---|---|---|---|
| B flange adapter | 506778 | 520945 | 42cc |
| B flange adapter | 503230 | 520947 | 130cc |
| B flange adapter | 11000255 | 11039180 | 130cc |
| B flange adapter | 505132 | 520950 | 180 and 250cc |
| O-ring | 9004104-0450 | 9004104-1540 | all sizes |
| B pad seal | N/A | 8801061 | all sizes |
| Flange cover | 4460370 | 8801059 | all sizes |

**Parts disposition**

■ Interchangeable if new O-ring or if the pad seal and new cover are used.

## Service Bulletin: SB-2009-076

**Products affected**

Series 90 130, 180 and 250cc variable pumps

**Subject**

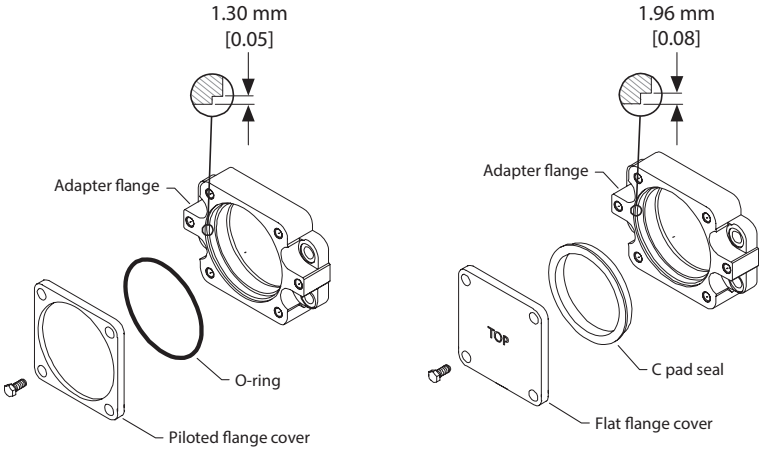
SAE C auxiliary mounting flange, O-ring seal

**Part numbers affected**

Sauer-Danfoss is pleased to announce a design improvement on the SAE C auxiliary mounting flange adapter on its series 90 pumps. The frame sizes affected by this change are 130, 180 and 250cc. All manufacturing locations producing these pumps will be changed to this configuration.

The improvement comes in the form of a more robust sealing geometry with a larger cross-section O-ring. The O-ring groove in the flange will now be sized to mate with a 2.62mm [0.103"] cross-section O-ring rather than the old 1.78mm [0.070"] cross-section O-ring. The Sauer-Danfoss part number for the new O-ring is 9004104-1580 (2.62mm [0.070"] x 120.32mm [4.737"]). The larger cross-section sealing geometry allows for the use of a donut style C pad seal and a new flat cover for improved assembly. This new configuration is qualified as a running cover. When installing an auxiliary pump, the donut style C pad seal must be discarded and the part number 9004104-1580 O-ring used.

The pumps will now be supplied with the donut style seal and new flat cover, instead of the small O-ring and stepped cover plate (shown in the drawing below).




Old design New design

**Models affected**

All series 90 130, 180 and 250cc pumps with an SAE C auxiliary mounting flange.

**Serial numbers**

Change became effective at serial number N-09-30-xxxxx. (20 July 2009)

**Part numbers affected**

| Description | Old part number | New part number | Used on |
|---|---|---|---|
| C Flange adapter | 505116 | 513617 | 130 cc |
| C Flange adapter | 508407 | 11039184 | 130 cc |
| C Flange adapter | 515116 | 513617 | 130 cc |
| C Flange adapter | 505139 | 520951 | 180cc and 250cc |
| C Flange adapter | 508406 | 11039178 | 180cc and 250cc |
| O-ring | 9004100-0480 | 9004104-1580 | All units |
| C pad seal | NA | 8801062 | All units |
| Flange cover | 8800406 | 8801060 | All units |

**Parts disposition**

■ Interchangeable if new O-ring or if the pad seal and new cover are used.

## Service Bulletin: SB-2011-032

**Products affected**

Series 90 180cc variable pumps

**Subject**

Pump redesign

**Description**

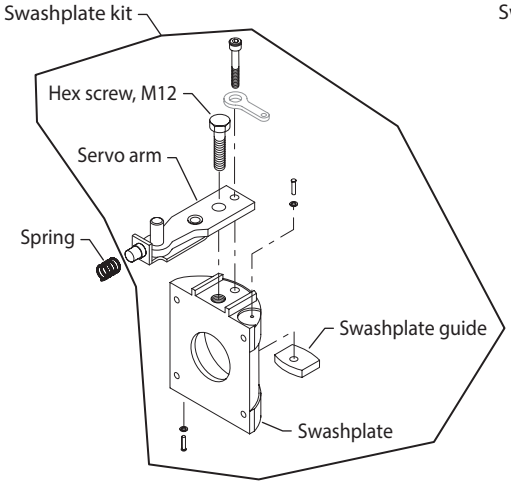
As a global improvement, the series 90 180/250cc pumps have redesigned the following components: servo arm, servo arm screw, swashplate guide and pump housing. This is a non-interchangeable change. Model numbers and order codes will not be changed.

A "one piece" servo arm is introduced. The pin that engages the servo piston is now machined as part of the servo arm instead of pressed in. The old servo arm will remain available as a service part for a period of time.

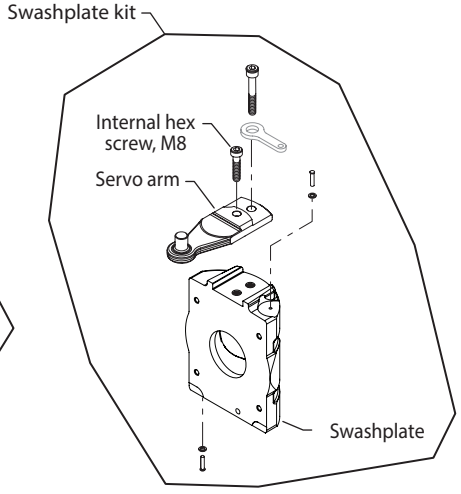
One of the two screws that hold the servo arm to the swashplate has changed from a M12 external hex to a M8 internal hex screw. The old screw will remain available as a service part for a period of time.

The swashplate position is now guided by the fit between the servo arm and the pump housing. A "shelf" on the servo arm fits under a boss in the housing to provide a fixed clearance. The swashplate was previously held down with a spring and bracket, which was riveted to the servo arm. The servo arm to housing clearance now limits lateral movement of the swashplate. The swashplate guide that was bolted to the bottom of the swashplate has been removed. The old swashplate guide will remain available as a service part for a period of time.

The housing is modified internally to provide the servo arm pivot. The old housing will remain available as a service part for a period of time.




Old design




New design

## Service Bulletin: SB-2011-032

**Models affected** Series 90, 180cc and 250cc pumps.

**Serial numbers** This change became effective at serial number A-11-40-xxxxx. (3 Oct 2011)

**Part numbers affected**

| Description | Old part number | New part number |
|---|---|---|
| Housing 180cc assy without PPU | 789438 | 11097202 |
| Housing 180cc assy with PPU | 519646 | 11097202 |
| Swashplate 180cc | 521426 | 11094403 |
| Swashplate kit, 180cc | 11107093 | 11097626 |
| Housing 250cc with PPU assy | 515967 | 11088644 |
| Swashplate 250cc | 521428 | 11088847 |
| Swashplate kit, 250cc | 11107094 | 11097784 |
| Servo arm 180/250cc | 746339 | 11061195 |
| Screw, servo arm | 746362 | 519150 |
| Swashplate guide, 180/250cc | 745703 | not used |
| Spring | 746396 | not used |

**Parts disposition** ■ Non-interchangeable

## Service Bulletin: SB-2012-039

**Products affected**

Series 90 180 and 250cc pumps

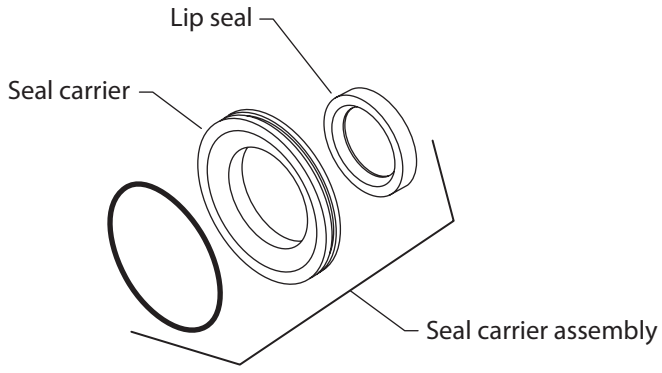
**Subject**

Shaft seal change

**Description**

A supplier change for the shaft seal used in Series 90 180 and 250cc pumps has been made as part of globalization of the entire Sauer-Danfoss product line. The new lip seal has a smaller O.D., and the I.D. of the seal carrier changed accordingly. The old lip seal and seal carrier will become obsolete and not available for service.

The seal carrier assembly part number has changed to better track this change. The new seal carrier assembly is interchangeable, but the piece parts are not.




**Models affected**

Series 90 180 and 250cc pumps

**Serial numbers**

This change became effective at serial number N-12-17-XXXXX (25-Apr-2012)

**Part numbers affected**

| Description | Old part number | New part number |
|---|---|---|
| Seal carrier assembly | 512637 | 11053971 |
| Lip seal | 9008000-0114 | 519021 |

**Parts disposition**

Non-interchangeable
Order replacement parts
Revise existing part orders

## Service Bulletin: SB-2015-038

**Products affected**

Series 90 130, 180 and 250cc pumps

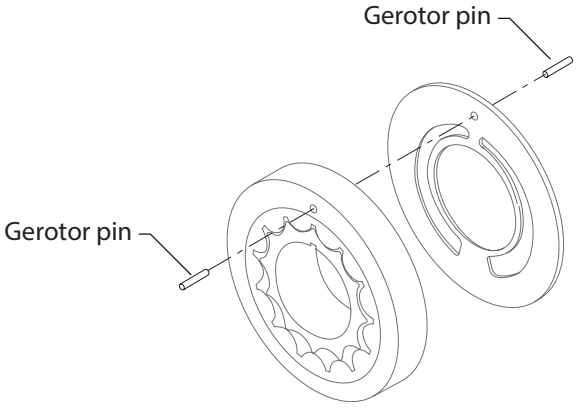
**Subject**

Gerotor pin change

**Description**

As an assembly aid, some of the charge pump gerotor pins used in 130, 180 and 250cc pumps are being changed from one to two pins. This change is being made to reduce the chance of mis-locating the pin in the end cap or gerotor cover during the assembly process.

There will be three new lengths of pins used in these pumps. The new pin lengths will be 16, 20 and 26mm. To aid in the identification of the new pins, the 20mm pins will be yellow/gold in color.




**Models affected**

Series 90, 130, 180 and 250cc pumps

**Serial numbers**

| Frame size | NMS effectivity date |
|---|---|
| 130 cc | N-15-14-xxxxx |
| 180 cc | N-15-04-xxxxx |
| 250 cc | N-15-02-xxxxx |

**Part numbers affected**

| | Old pin (1) | | New pin (2) | |
|---|---|---|---|---|
| Frame size | Length | Part number | Length | Part number |
| 130 cc | 32mm | 308718 | 16mm | 11152774 |
| 180 cc | 40mm | 750133 | 20mm | 11152775 |
| 250 cc | 55mm | 504507 | 26mm | 11152778 |

**Parts disposition**

Interchangeable
Use parts in stock

## Notes

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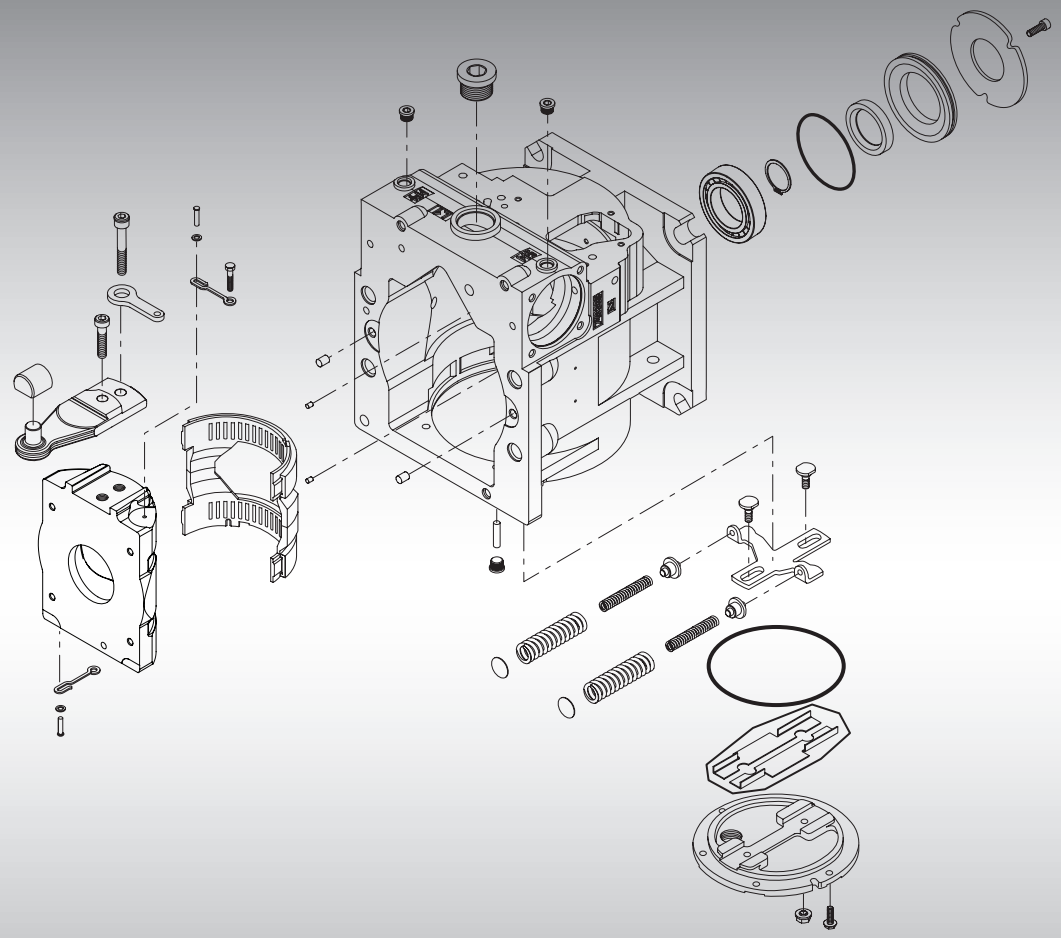
MAKING MODERN LIVING POSSIBLE

Parts Manual

# Series 90

# 250cc Axial Piston Pump



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## Contents


**General information**

Service parts identification ..... 4
Nameplate ..... 4
Date code ..... 5
Service bulletins ..... 5
Procedure to identify a part ..... 5
Order code ..... 7

**Variable displacement pump**

Common parts ..... 8-9
Special hardware ..... 10-19
Displacement limitation ..... 20-21
End cap ..... 22-23
Charging system ..... 24-25
Auxiliary mounting ..... 26-31
Charge pressure setting ..... 32-33
Shaft ..... 32-33
Control ..... 34-45
Filtration ..... 46-47
High pressure protection ..... 48-49
Orifice ..... 50-55
Overhaul seal kit ..... 56

**Service bulletin**

SB-1996-004 (side cover design change) ..... 57
SB-1999-065 (hydraulic control gasket) ..... 58-59
SB-2002-040 (charge pump shaft) ..... 60
SB-2009-074 (A pad flange/seal) ..... 61
SB-2009-075 (B pad flange/seal) ..... 62
SB-2002-076 (C pad flange/seal) ..... 63
SB-2011-032 (pump redesign) ..... 64-65
SB-2012-039 (lip seal) ..... 66
SB-2015-038 (gerotor pin) ..... 67

## General information

### Service parts indentification

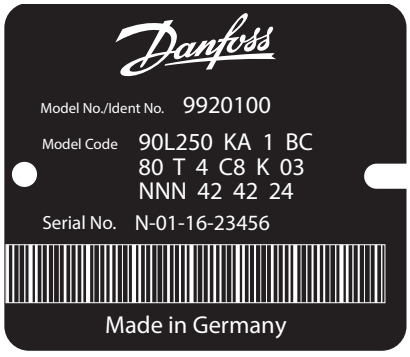
The following information and procedure is used to identify the module group, item number, manufacture date, part number, and part name of the parts included in the Series 90, 250 cc variable displacement pumps.

The parts listed include all parts which may be used when performing either "Minor Repairs", "Major Repairs" or "Conversions" on the Series 90, 250 cc pump.

### Nameplate

Each unit will have a nameplate affixed to the housing. The nameplate will include the following information.

**Model Number**
The Sauer-Danfoss model number is used by the factory in manufacturing. On repeat orders, a complete unit can be ordered by the model number.




**Model Code**
The Sauer-Danfoss model code completely defines the specific unit and must be used when ordering parts to service this product.

**Serial Number**
The Sauer-Danfoss serial number is used to identify the manufacture date and the unit sequence in the build. The serial number is also used to identify the units warranty time period.

The letter code indicates the location of original manufacture (assembly). "A" indicates the unit was originally assembled in Ames, Iowa, USA. "N" indicates the unit was originally assembled in Neumunster, Germany.

The first number (2 digits) indicates the year of manufacture. ("01" would indicate the unit was manufactured in 2001)

The second number (2 digits) indicates the calendar week of manufacture.

The third number (5 digits) is a sequential number used to identify a specific unit.

## General information

### Date code

The date code is defined as the year and week of manufacture. The same item number may list more than one part number. This indicates that there is more than one configuration for that item number. You will see that there are different date codes for the different part numbers. Find the date code of your unit from the nameplate to determine which service part number you need to order.

EXAMPLE: The service part desired is Item E10

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 80 | E10 | 92-19 | | 746107 | Side cover | 1 |
| | G30 | 89-41 | 92-18 | 340133 | Side cover (SB-1992-003) | 1 |

All units using this order code with a date code of 89-41 and up to and including 92-18, must use part number "340133". All units with a date code of 92-19 and newer must use part number "746107."

### Service bulletins

A Service Bulletin Number (SB-_ _ _ _ - _ _ _) may follow the "Part Name" of the part you desire. You must read that Service Bulletin prior to ordering that part. The information contained in these Service Bulletins, as of the print date of this bulletin, are included at the end of this manual. Service Bulletins contain more detailed information such as interchangeability, what additional parts are involved, etc. It is suggested that you add additional Service Bulletins to this manual as you recieve them.

### Procedure to identify a part

**General**

The modular design of Series 90 units results in a simplified service parts list and part number identification procedure.

The same item numbers are used for same part names on all units within a product type. (Example: The lip seal - Item L40 has the same item number on all pumps.)

A part number that has another number following it in parentheses is done to make this a world wide manual. The first number is sold in Germany. The number in parentheses is sold in the United States. (Example: 001149 (9004201-6200), customers would order 9004201-6200 if ordering the part in the United States.)

**Example of a Part Identification**

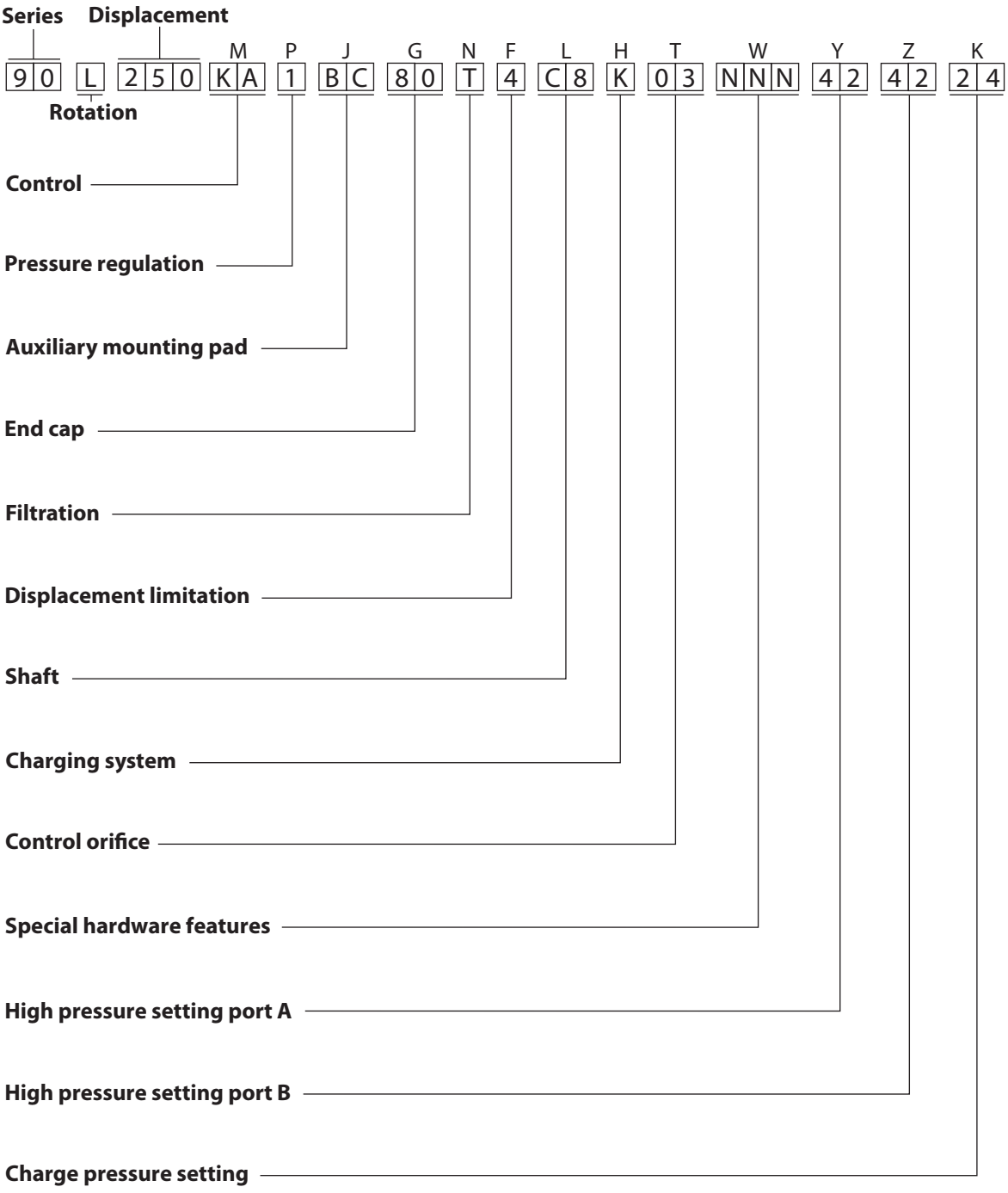
The nameplate on a Series 90 pump has an Order Code of 90L250 KA 1 BC 80 T 4 C8 K 03 NNN 42 42 24. Use the following procedures to determine the part number of the drive shaft used on this pump.

1) Referring to the input shaft module in the Order Code (see page 7), the input shaft option for this pump is identified by the code "C8. (90L250 KA 1 BC 80 T 4 **C8** K 03 NNN 42 42 24)

2) Referring to the Service Parts List, find the shaft group. Next find the order code that relates to this unit, which is "C8". The shaft is found to be item L100 and part number 504338.

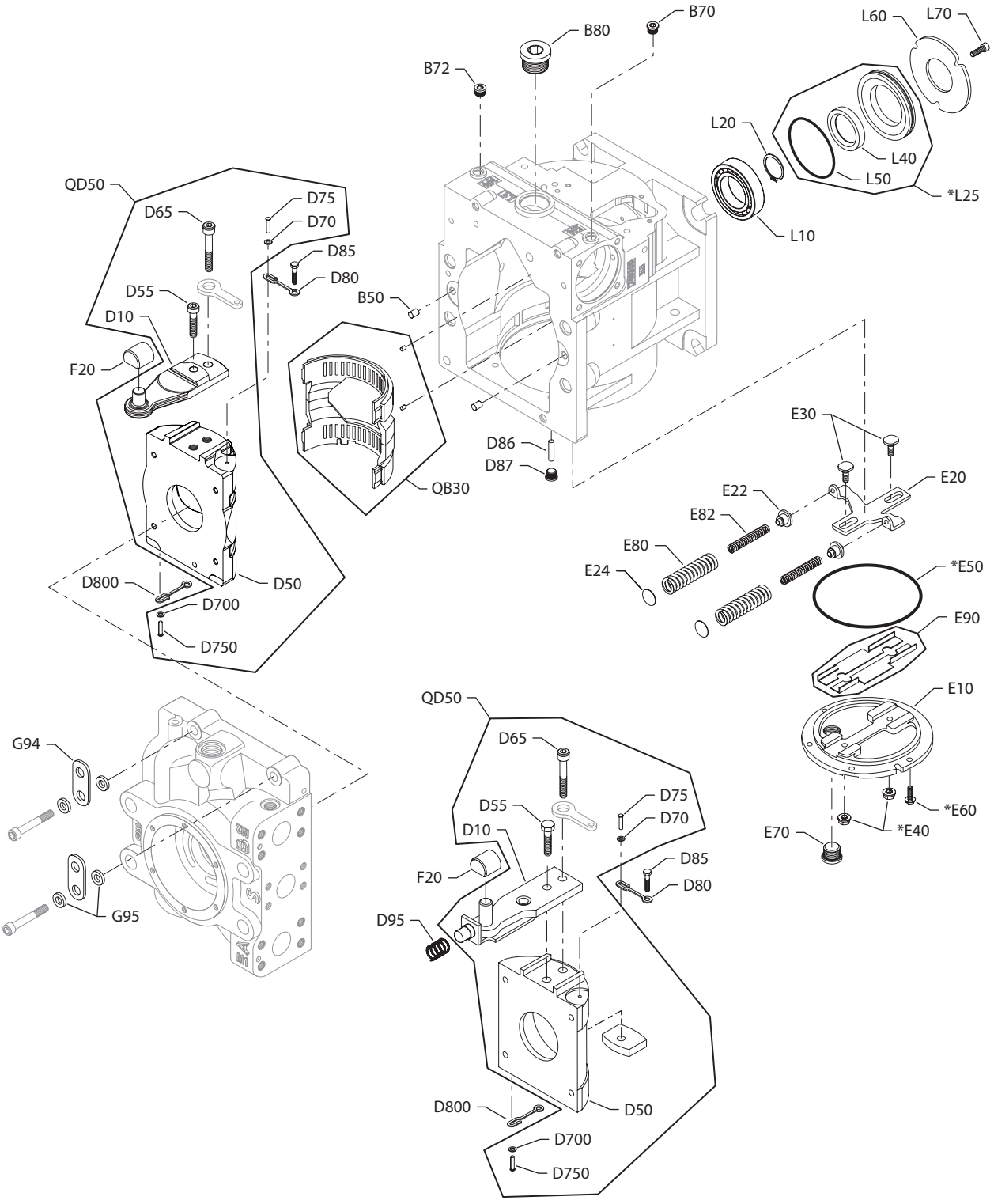
## Notes

## Order Code




P108 522E

## Variable displacement pump




*Swashplate design prior to 11-40*

E100 090E

* = included in overhaul seal kit Q210

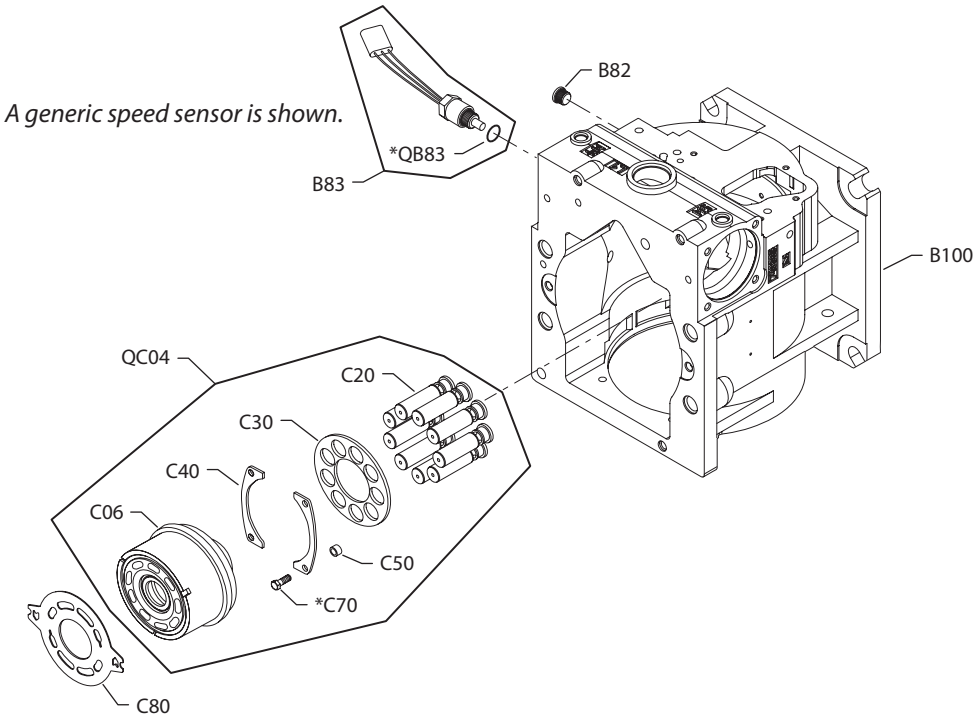
## Variable displacement pump

### Common parts

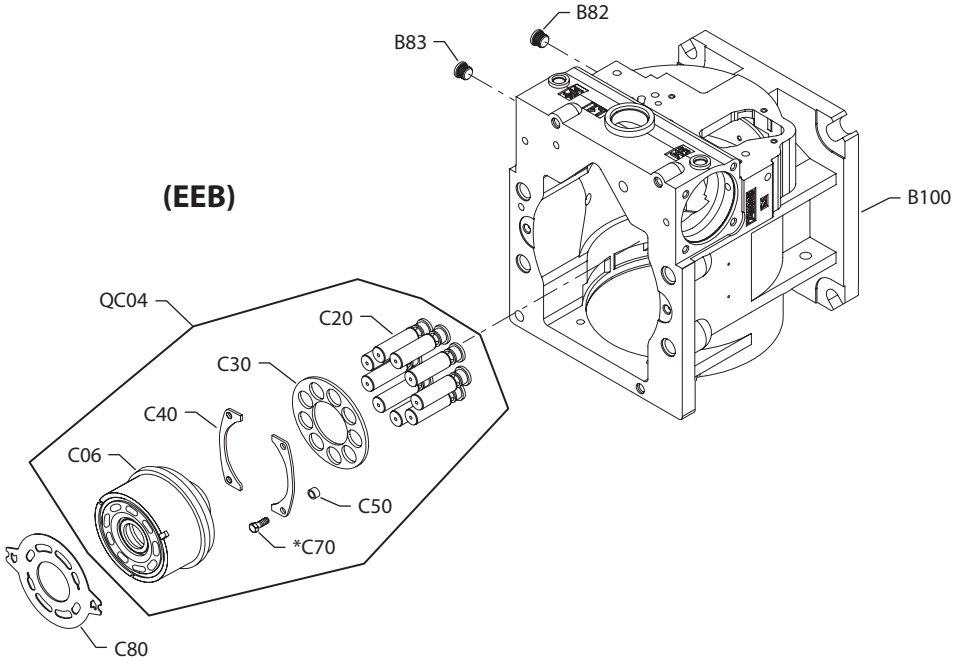
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| | B50 | 95-28 | | 9004800-3708 | Pin | 2 |
| | B70 | 95-28 | | 140644 | Plug assembly | 1 |
| | B72 | 95-28 | | 140644 | Plug assembly | 1 |
| | B80 | 95-28 | | 676734 (9005110-9500) | Plug assembly | 1 |
| | D10 | 11-40 | | 11061195 | Servo arm assembly | 1 |
| | D10 | 95-28 | 11-39 | 746339 | Servo arm assembly (SB-2011-032) | 1 |
| | D50 | 11-40 | | 11088847 | Swashplate | 1 |
| | D50 | 95-28 | 11-39 | 521428 | Swashplate | 1 |
| | D55 | 11-40 | | 519150 | Screw, socket head | 1 |
| | D55 | 95-28 | 11-39 | 746362 | Screw, hex head (SB-2011-032) | 1 |
| | D65 | 95-28 | | 504494 | Screw | 1 |
| | D70 | 95-28 | | 127464 | Washer | 1 |
| | D75 | 95-28 | | 333369 | Spiral head pin | 1 |
| | D80 | 95-28 | | 700948 | Cage locator link | 1 |
| | D85 | 95-28 | | 500449 | Screw | 1 |
| | D86 | 95-28 | | 770594 | Pin | 1 |
| | D87 | 95-28 | | 11040532 | Plug assembly | 1 |
| | D95 | 95-28 | 11-39 | 746396 | Spring (SB-2011-032) | 1 |
| | D700 | 95-28 | | 127464 | Washer | 1 |
| | D750 | 95-28 | | 333369 | Spiral head pin | 1 |
| | D800 | 95-28 | | 700948 | Cage locator link | 1 |
| | E10 | 96-08 | | 501579 | Side cover (SB-1996-004) | 1 |
| | E20 | 95-28 | | 746420 | Leveler | 1 |
| | E22 | 95-28 | | 746438 | Spring seat | 2 |
| | E24 | 95-28 | | 359067 | Shim | 2 |
| | E30 | 97-08 | | 11056592 | Guide post (SB-1996-004) | 2 |
| | E40 | 95-28 | | 042432 | Seal nut | 2 |
| | E50 | 95-28 | | 517380 | O-ring | 1 |
| | E60 | 95-28 | | 517231 | Screw | 6 |
| | E70 | 95-28 | | 676734 (9005110-9500) | Plug assembly | 1 |
| | E80 | 95-28 | | 746453 | Spring | 2 |
| | E82 | 95-28 | | 755553 | Spring | 2 |
| | E90 | 96-08 | | 513891 | Insert assembly (SB-1996-004) | 1 |
| | F20 | 95-28 | | 11116308 | Slider block | 1 |
| | G94 | 95-28 | | 8800565 | Lifting bracket | 2 |
| | G95 | 95-28 | | 505479 | Washer | 4 |
| | L10 | 95-28 | | 11018485 | Roller bearing | 1 |
| | L20 | 95-28 | | 392233 | Retaining ring | 1 |
| | L25 | 95-28 | | 11053971 | Seal carrier assembly (SB-2012-039) | 1 |
| | L40 | 12-17 | | 519021 | Lip seal (SB-2012-039) | 1 |
| | L40 | 95-28 | 12-16 | 9008000-0114 | Lip seal | 1 |
| | L50 | 95-28 | | 509353 | O-ring | 1 |
| | L60 | 95-28 | | 516769 | Retainer plate | 1 |
| | L70 | 95-28 | | 009159 | Screw | 3 |
| | QB30 | 95-28 | | 746313 | Cradle bearing assembly | 1 |
| | QD50 | 11-40 | | 11097784 | Swashplate kit (SB-2011-032) | 1 |

## Variable displacement pump

### (EDI & EFI)




### (EEB)




E100 104E

* = included in overhaul seal kit Q210

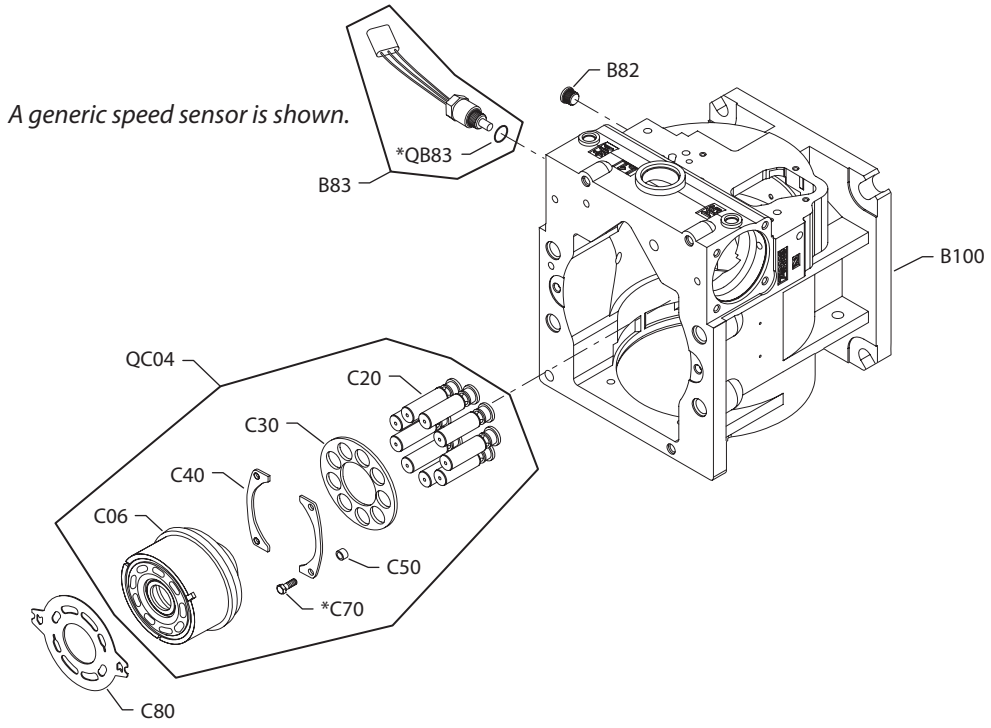
## Variable displacement pump

### Special hardware

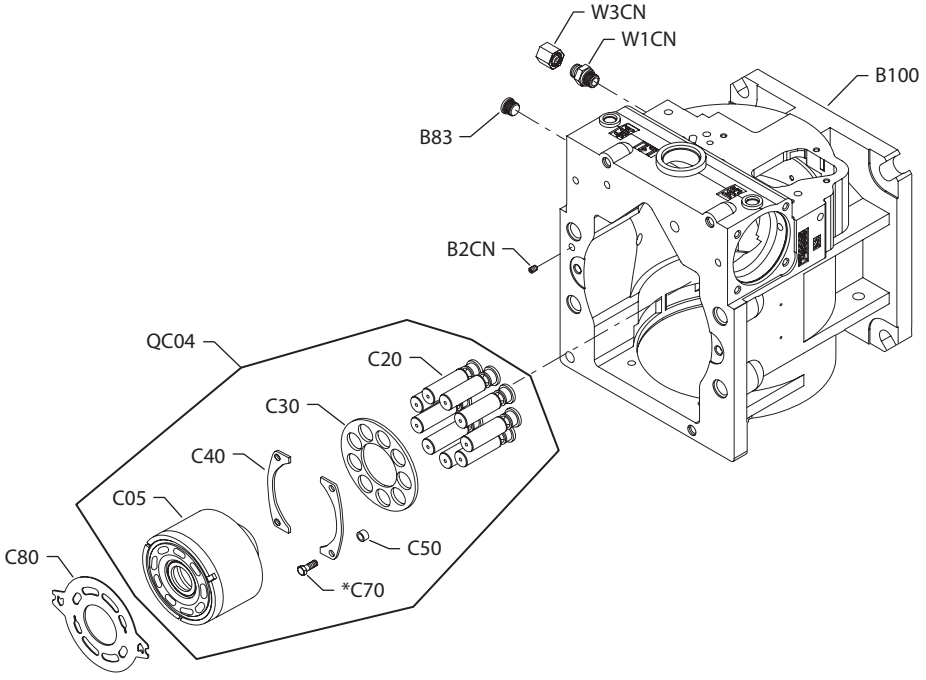
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| EDI | B82 | 00-29 | | 140644 | Plug assembly | 1 |
| | B83 | 00-29 | | KPPG15408 | Speed sensor | 1 |
| | B100 | 11-40 | | 11088644 | Housing assembly | 1 |
| | B100 | 00-29 | 11-39 | 515967 | Housing assembly (SB-2011-032) | 1 |
| | C06 | 00-29 | | 519889/P | Cylinder block assembly with speed ring | 1 |
| | C20 | 00-29 | | 504501 | Piston/slipper assembly | 9 |
| | C30 | 00-29 | | 11067354 | Slipper guide | 1 |
| | C40 | 00-29 | | 504377 | Slipper guide bearing | 2 |
| | C50 | 00-29 | | 504378 | Spacer | 4 |
| | C70 | 00-29 | | 308643 | Screw | 4 |
| | C80 | 00-29 | | 504278 | Valve plate, CCW, 90L250 | 1 |
| | C80 | 00-29 | | 504287 | Valve plate, CW, 90R250 | 1 |
| | QB83 | 00-29 | | 085043 (9004201-3700) | O-ring | 1 |
| | QC04 | 00-29 | | 11097868 | Cylinder block kit with speed ring | 1 |
| EEB | B82 | 10-34 | | 140644 | Plug assembly | 1 |
| | B83 | 10-34 | | 140644 | Plug assembly | 1 |
| | B100 | 11-40 | | 11088644 | Housing assembly | 1 |
| | B100 | 10-34 | 11-39 | 515967 | Housing assembly (SB-2011-032) | 1 |
| | C06 | 10-34 | | 519889/P | Cylinder block assembly | 1 |
| | C20 | 10-34 | | 504501 | Piston/slipper assembly | 9 |
| | C30 | 10-34 | | 11067354 | Slipper guide | 1 |
| | C40 | 10-34 | | 504377 | Slipper guide bearing | 2 |
| | C50 | 10-34 | | 504378 | Spacer | 4 |
| | C70 | 10-34 | | 308643 | Screw | 4 |
| | C80 | 10-34 | | 507346 | Valve plate | 1 |
| | QC04 | 10-34 | | 11097868 | Cylinder block kit | 1 |
| EFI | B82 | 00-07 | | 140644 | Plug assembly | 1 |
| | B83 | 99-20 | | KPPG156 | Speed sensor | 1 |
| | B100 | 11-40 | | 11088644 | Housing assembly | 1 |
| | B100 | 00-07 | 11-39 | 515967 | Housing assembly (SB-2011-032) | 1 |
| | C06 | 99-20 | | 519889/P | Cylinder block assembly | 1 |
| | C20 | 99-20 | | 504501 | Piston/slipper assembly | 9 |
| | C30 | 99-20 | | 11067354 | Slipper guide | 1 |
| | C40 | 99-20 | | 504377 | Slipper guide bearing | 2 |
| | C50 | 99-20 | | 504378 | Spacer | 4 |
| | C70 | 99-20 | | 308643 | Screw | 4 |
| | C80 | 99-20 | | 504278 | Valve plate, CCW, 90L250 | 1 |
| | C80 | 99-20 | | 504287 | Valve plate, CW, 90R250 | 1 |
| | QB83 | 99-20 | | 085043 (9004201-3700) | O-ring | 1 |
| | QC04 | 99-20 | | 11097868 | Cylinder block kit | 1 |

## Variable displacement pump

### (EFN & EHA)




### (GCG




E101 791E

* = included in overhaul seal kit Q210

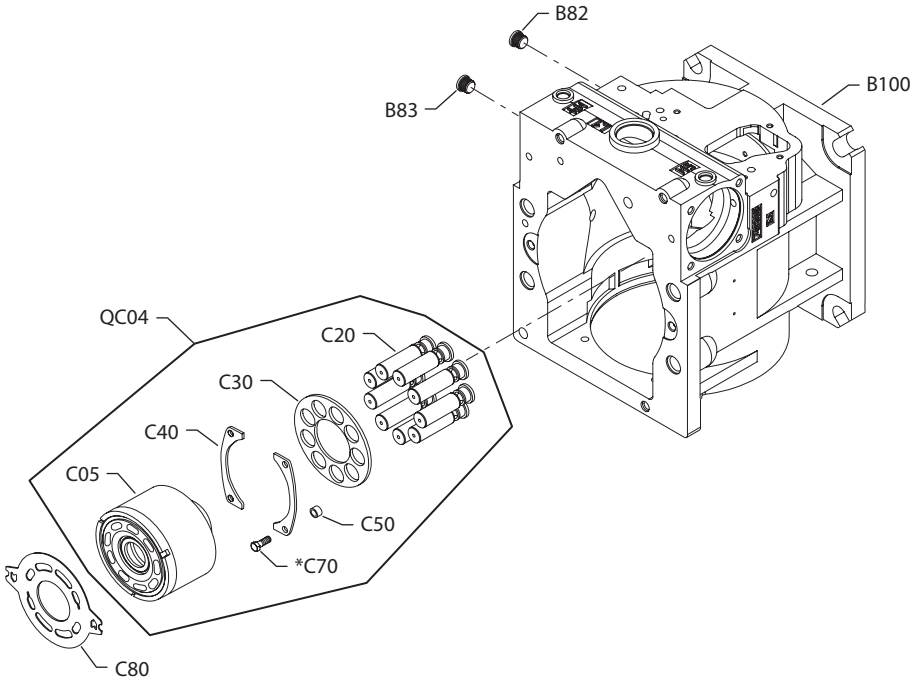
## Variable displacement pump

### Special hardware

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| EFN | B82 | 01-34 | | 140644 | Plug assembly | 1 |
| | B83 | 01-34 | | KPPG136 | Speed sensor | 1 |
| | B100 | 11-40 | | 11088644 | Housing assembly | 1 |
| | B100 | 01-34 | 11-39 | 515967 | Housing assembly (SB-2011-032) | 1 |
| | C06 | 01-34 | | 519889/P | Cylinder block assembly with speed ring | 1 |
| | C20 | 01-34 | | 504501 | Piston/slipper assembly | 9 |
| | C30 | 01-34 | | 11067354 | Slipper guide | 1 |
| | C40 | 01-34 | | 504377 | Slipper guide bearing | 2 |
| | C50 | 01-34 | | 504378 | Spacer | 4 |
| | C70 | 01-34 | | 308643 | Screw | 4 |
| | C80 | 01-34 | | 504278 | Valve plate, CCW, 90L250 | 1 |
| | C80 | 01-34 | | 504287 | Valve plate, CW, 90R250 | 1 |
| | QB83 | 01-34 | | 085043 (9004201-3700) | O-ring | 1 |
| | QC04 | 01-34 | | 11097868 | Cylinder block kit with speed ring | 1 |
| EHA | B82 | 06-27 | | 140644 | Plug assembly | 1 |
| | B83 | 06-27 | | KPPG16408 | Speed sensor | 1 |
| | B100 | 11-40 | | 11088644 | Housing assembly | 1 |
| | B100 | 06-27 | 11-39 | 515967 | Housing assembly (SB-2011-032) | 1 |
| | C06 | 06-27 | | 519889/P | Cylinder block assembly with speed ring | 1 |
| | C20 | 06-27 | | 504501 | Piston/slipper assembly | 9 |
| | C30 | 06-27 | | 11067354 | Slipper guide | 1 |
| | C40 | 06-27 | | 504377 | Slipper guide bearing | 2 |
| | C50 | 06-27 | | 504378 | Spacer | 4 |
| | C70 | 06-27 | | 308643 | Screw | 4 |
| | C80 | 06-27 | | 507346 | Valve plate | 1 |
| | QB83 | 06-27 | | 085043 (9004201-3700) | O-ring | 1 |
| | QC04 | 06-27 | | 11097868 | Cylinder block kit with speed ring | 1 |
| GCG | B2CN | 05-06 | | 042465 | Set screw | 1 |
| | B83 | 05-06 | | 140644 | Plug assembly | 1 |
| | B100 | 11-40 | | 11088644 | Housing assembly | 1 |
| | B100 | 05-06 | 11-39 | 515967 | Housing assembly (SB-2011-032) | 1 |
| | C05 | 05-06 | | 11147681 | Cylinder block assembly | 1 |
| | C20 | 05-06 | | 504501 | Piston/slipper assembly | 9 |
| | C30 | 05-06 | | 11067354 | Slipper guide | 1 |
| | C40 | 05-06 | | 504377 | Slipper guide bearing | 2 |
| | C50 | 05-06 | | 504378 | Spacer | 4 |
| | C70 | 05-06 | | 308643 | Screw | 4 |
| | C80 | 05-06 | | 507346 | Valve plate | 1 |
| | QC04 | 05-06 | | 519279 | Cylinder block kit | 1 |
| | W1CN | 05-06 | | 723726 | Connector | 1 |
| | W3CN | 05-06 | | 574095 | Cap | 1 |

## Variable displacement pump

### (GCP, GCX & GLA)




E101 799E

* = included in overhaul seal kit Q210

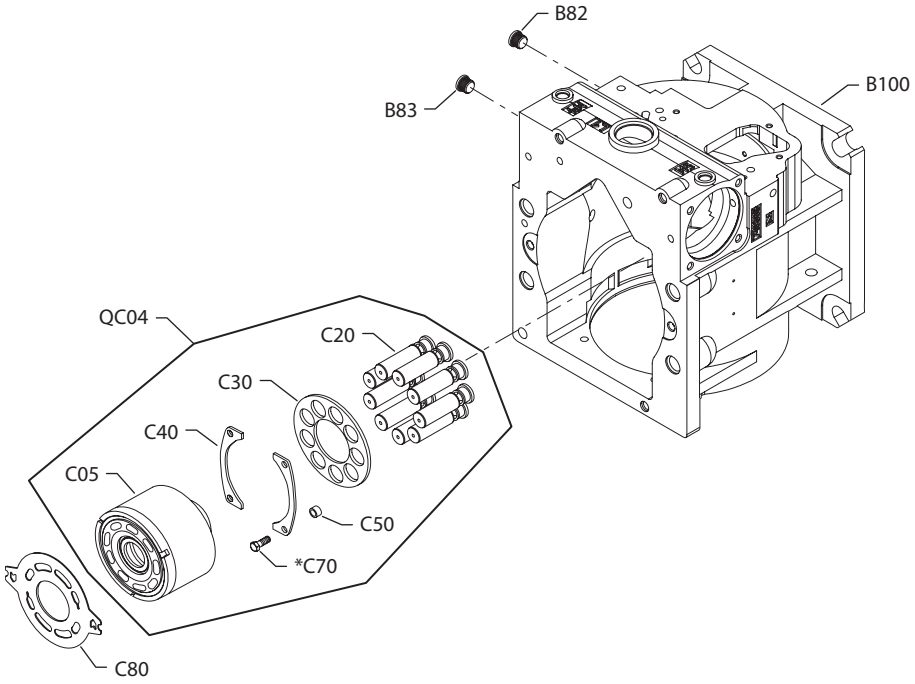
## Variable displacement pump

### Special hardware

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| GCP | B82 | 00-07 | | 140644 | Plug assembly | 1 |
| | B83 | 95-28 | | 140644 | Plug assembly | 1 |
| | B100 | 11-40 | | 11088644 | Housing assembly | 1 |
| | B100 | 00-07 | 11-39 | 515967 | Housing assembly (SB-2011-032) | 1 |
| | C05 | 95-28 | | 11147681 | Cylinder block assembly | 1 |
| | C20 | 95-28 | | 504501 | Piston/slipper assembly | 9 |
| | C30 | 95-28 | | 11067354 | Slipper guide | 1 |
| | C40 | 95-28 | | 504377 | Slipper guide bearing | 2 |
| | C50 | 95-28 | | 504378 | Spacer | 4 |
| | C70 | 95-28 | | 308643 | Screw | 4 |
| | C80 | 95-28 | | 507346 | Valve plate | 1 |
| | QC04 | 95-28 | | 519279 | Cylinder block kit | 1 |
| GCX | B82 | 00-38 | | 140644 | Plug assembly | 1 |
| | B83 | 00-38 | | 140644 | Plug assembly | 1 |
| | B100 | 11-40 | | 11088644 | Housing assembly | 1 |
| | B100 | 00-38 | 11-39 | 515967 | Housing assembly (SB-2011-032) | 1 |
| | C05 | 00-38 | | 11147681 | Cylinder block assembly | 1 |
| | C20 | 00-38 | | 504501 | Piston/slipper assembly | 9 |
| | C30 | 00-38 | | 11067354 | Slipper guide | 1 |
| | C40 | 00-38 | | 504377 | Slipper guide bearing | 2 |
| | C50 | 00-38 | | 504378 | Spacer | 4 |
| | C70 | 00-38 | | 308643 | Screw | 4 |
| | C80 | 00-38 | | 507346 | Valve plate | 1 |
| | QC04 | 00-38 | | 519279 | Cylinder block kit | 1 |
| GLA | B82 | 00-07 | | 140644 | Plug assembly | 1 |
| | B83 | 98-25 | | 140644 | Plug assembly | 1 |
| | B100 | 11-40 | | 11088644 | Housing assembly | 1 |
| | B100 | 00-07 | 11-39 | 515967 | Housing assembly (SB-2011-032) | 1 |
| | C05 | 98-25 | | 11147681 | Cylinder block assembly | 1 |
| | C20 | 98-25 | | 504501 | Piston/slipper assembly | 9 |
| | C30 | 98-25 | | 11067354 | Slipper guide | 1 |
| | C40 | 98-25 | | 504377 | Slipper guide bearing | 2 |
| | C50 | 98-25 | | 504378 | Spacer | 4 |
| | C70 | 98-25 | | 308643 | Screw | 4 |
| | C80 | 00-29 | | 504278 | Valve plate, CCW, 90L250 | 1 |
| | C80 | 00-29 | | 504287 | Valve plate, CW, 90R250 | 1 |
| | QC04 | 98-25 | | 519279 | Cylinder block kit | 1 |

## Variable displacement pump

### (NNA & NNN)




E101 799E

* = included in overhaul seal kit Q210

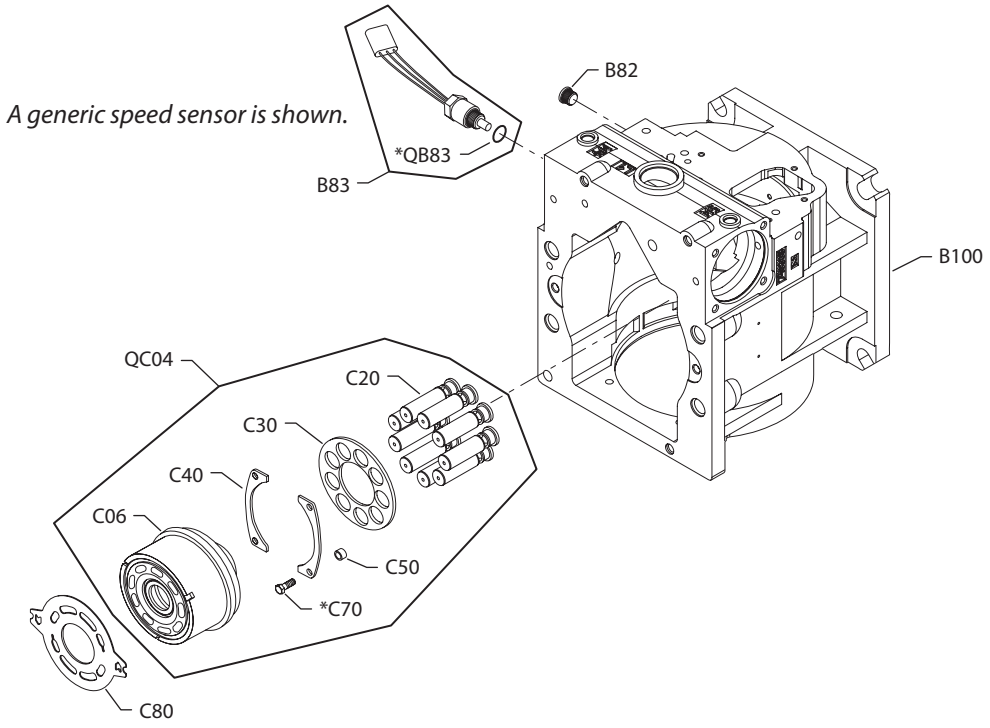
## Variable displacement pump

### Special hardware

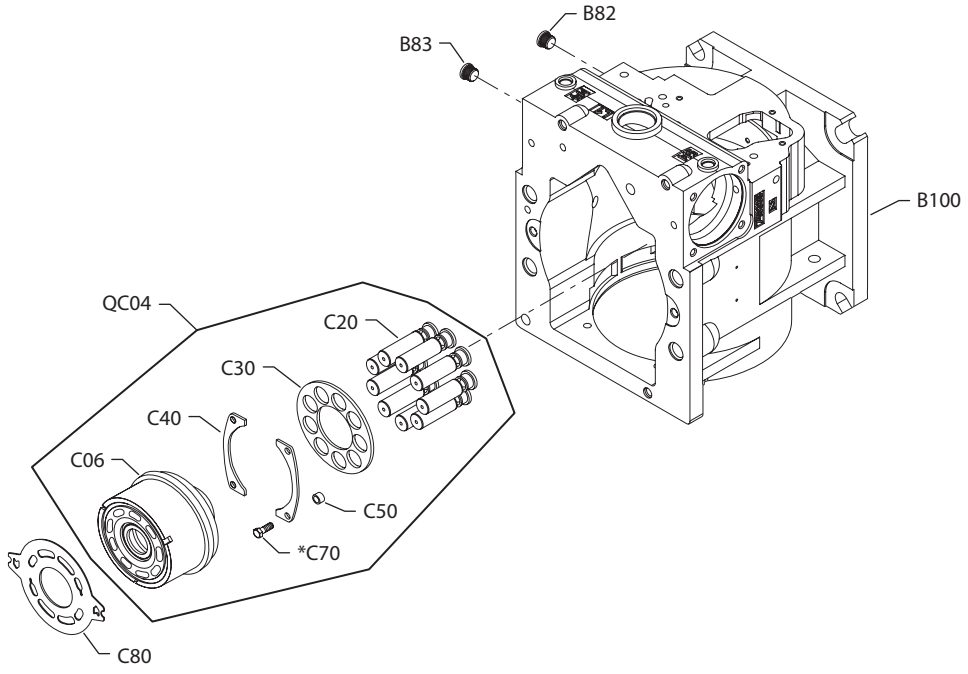
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| NNA | B82 | 12-36 | | 140644 | Plug assembly | 1 |
| | B83 | 12-39 | | 140644 | Plug assembly | 1 |
| | B100 | 12-36 | | 11088644 | Housing assembly | 1 |
| | C05 | 12-39 | | 11147681 | Cylinder block assembly | 1 |
| | C20 | 12-39 | | 504501 | Piston/slipper assembly | 9 |
| | C30 | 12-39 | | 11067354 | Slipper guide | 1 |
| | C40 | 12-39 | | 504377 | Slipper guide bearing | 2 |
| | C50 | 12-39 | | 504378 | Spacer | 4 |
| | C70 | 12-39 | | 308643 | Screw | 4 |
| | C80 | 12-39 | | 507346 | Valve plate | 1 |
| | QC04 | 12-39 | | 519279 | Cylinder block kit | 1 |
| | | | | | | |
| NNN | B82 | 00-07 | | 140644 | Plug assembly | 1 |
| | B83 | 95-28 | | 140644 | Plug assembly | 1 |
| | B100 | 11-40 | | 11088644 | Housing assembly | 1 |
| | B100 | 00-07 | 11-39 | 515967 | Housing assembly (SB-2011-032) | 1 |
| | C05 | 95-28 | | 11147681 | Cylinder block assembly | 1 |
| | C20 | 95-28 | | 504501 | Piston/slipper assembly | 9 |
| | C30 | 95-28 | | 11067354 | Slipper guide | 1 |
| | C40 | 95-28 | | 504377 | Slipper guide bearing | 2 |
| | C50 | 95-28 | | 504378 | Spacer | 4 |
| | C70 | 95-28 | | 308643 | Screw | 4 |
| | C80 | 95-28 | | 507346 | Valve plate | 1 |
| | QC04 | 95-28 | | 519279 | Cylinder block kit | 1 |

## Variable displacement pump

### (PEA)




### (PGA)




E100 104E

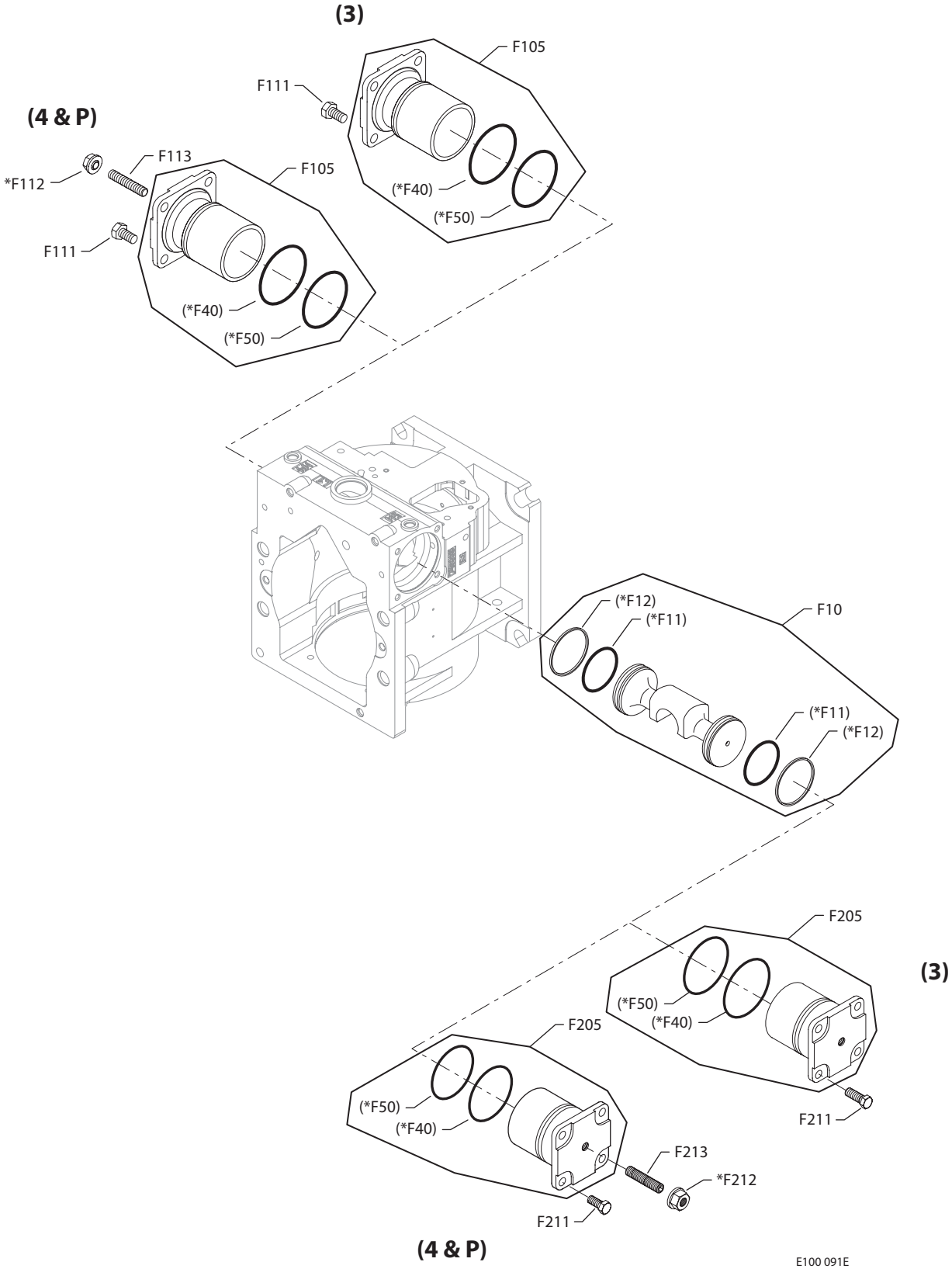
* = included in overhaul seal kit Q210

## Variable displacement pump

### Special hardware

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| PEA | B82 | 08-37 | | 140644 | Plug assembly | 1 |
| | B83 | 08-37 | | KPPG156 | Speed sensor | 1 |
| | B100 | 11-40 | | 11088644 | Housing assembly | 1 |
| | B100 | 08-37 | 11-39 | 515967 | Housing assembly (SB-2011-032) | 1 |
| | C06 | 08-37 | | 519889/P | Cylinder block assembly with speed ring | 1 |
| | C20 | 08-37 | | 504501 | Piston/slipper assembly | 9 |
| | C30 | 08-37 | | 11067354 | Slipper guide | 1 |
| | C40 | 08-37 | | 504377 | Slipper guide bearing | 2 |
| | C50 | 08-37 | | 504378 | Spacer | 4 |
| | C70 | 08-37 | | 308643 | Screw | 4 |
| | C80 | 08-37 | | 507346 | Valve plate | 1 |
| | QB83 | 08-37 | | 085043 (9004201-3700) | O-ring | 1 |
| | QC04 | 08-37 | | 11097868 | Cylinder block kit with speed ring | 1 |
| PGA | B82 | 08-37 | | 140644 | Plug assembly | 1 |
| | B83 | 08-37 | | 140644 | Plug assembly | 1 |
| | B100 | 11-40 | | 11088644 | Housing assembly | 1 |
| | B100 | 08-37 | 11-39 | 515967 | Housing assembly (SB-2011-032) | 1 |
| | C05 | 08-37 | | 11147681 | Cylinder block assembly | 1 |
| | C20 | 08-37 | | 504501 | Piston/slipper assembly | 9 |
| | C30 | 08-37 | | 11067354 | Slipper guide | 1 |
| | C40 | 08-37 | | 504377 | Slipper guide bearing | 2 |
| | C50 | 08-37 | | 504378 | Spacer | 4 |
| | C70 | 08-37 | | 308643 | Screw | 4 |
| | C80 | 08-37 | | 507346 | Valve plate | 1 |
| | QC04 | 08-37 | | 519279 | Cylinder block kit | 1 |

## Variable displacement pump



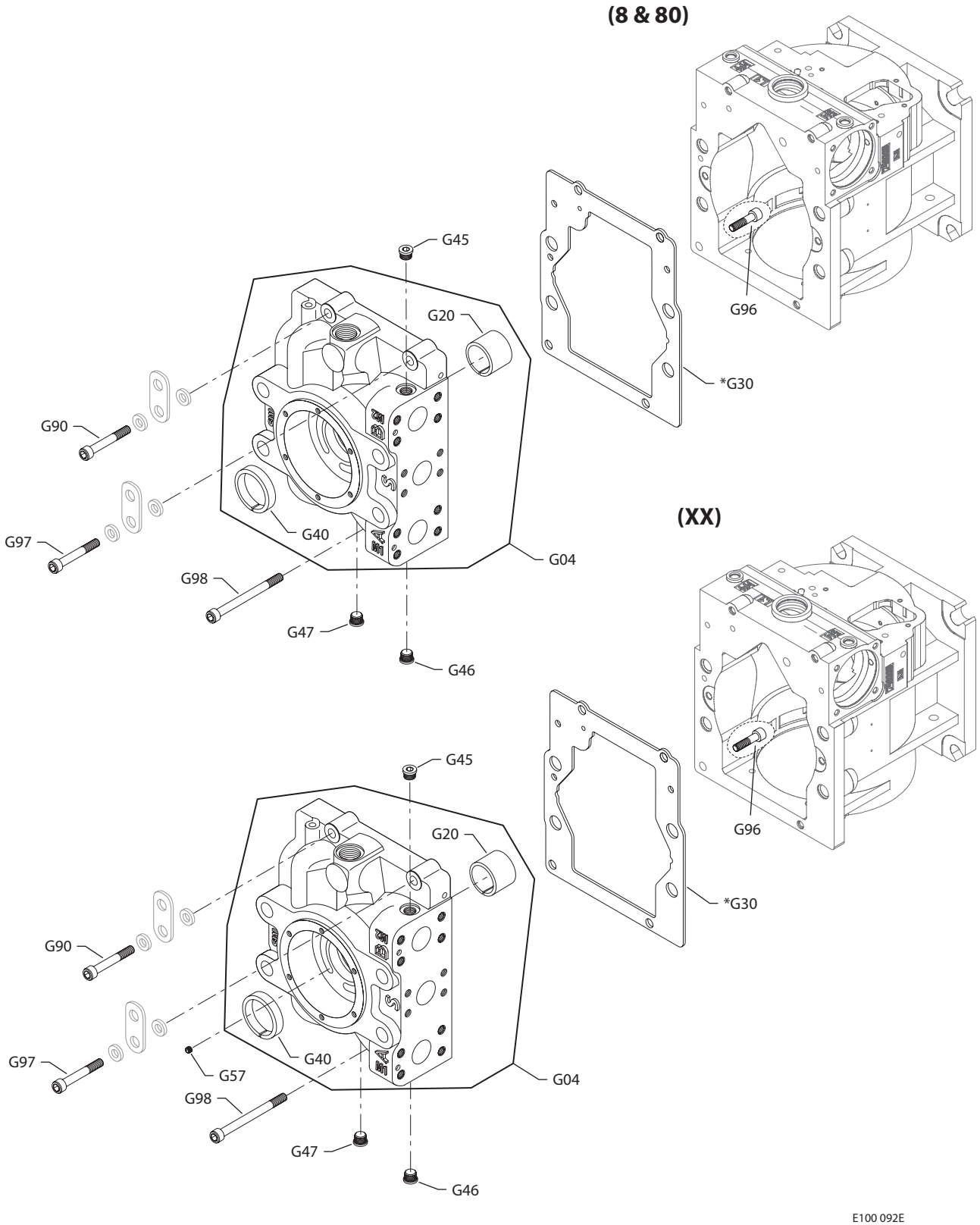

* = included in overhaul seal kit Q210
( ) = not available individually

## Variable displacement pump

### Displacement limitation

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 3 | F10 | 95-28 | | 11046679 | Servo piston assembly | 1 |
| | F105 | 95-28 | | 11060705 | Servo cyclinder assembly | 1 |
| | F111 | 95-28 | | 308643 | Screw | 4 |
| | F205 | 95-28 | | 11060705 | Servo cyclinder assembly | 1 |
| | F211 | 95-28 | | 308643 | Screw | 4 |
| 4 | F10 | 95-28 | | 11046679 | Servo piston assembly | 1 |
| | F105 | 95-28 | | 11060706 | Servo cyclinder assembly | 1 |
| | F111 | 95-28 | | 308643 | Screw | 4 |
| | F112 | 95-28 | | 649822 | Seal nut | 1 |
| | F113 | 95-28 | | 11000798 | Set screw | 1 |
| | F205 | 95-28 | | 11060706 | Servo cyclinder assembly | 1 |
| | F211 | 95-28 | | 308643 | Screw | 4 |
| | F212 | 95-28 | | 649822 | Seal nut | 1 |
| | F213 | 95-28 | | 11000798 | Set screw | 1 |
| P | F10 | 95-28 | | 11046679 | Servo piston assembly | 1 |
| | F105 | 95-28 | | 11060706 | Servo cyclinder assembly | 1 |
| | F111 | 95-28 | | 308643 | Screw | 4 |
| | F112 | 95-28 | | 649822 | Seal nut | 1 |
| | F113 | 95-28 | | 516127 | Set screw | 1 |
| | F205 | 95-28 | | 11060706 | Servo cyclinder assembly | 1 |
| | F211 | 95-28 | | 308643 | Screw | 4 |
| | F212 | 95-28 | | 649822 | Seal nut | 1 |
| | F213 | 95-28 | | 516127 | Set screw | 1 |

## Variable displacement pump



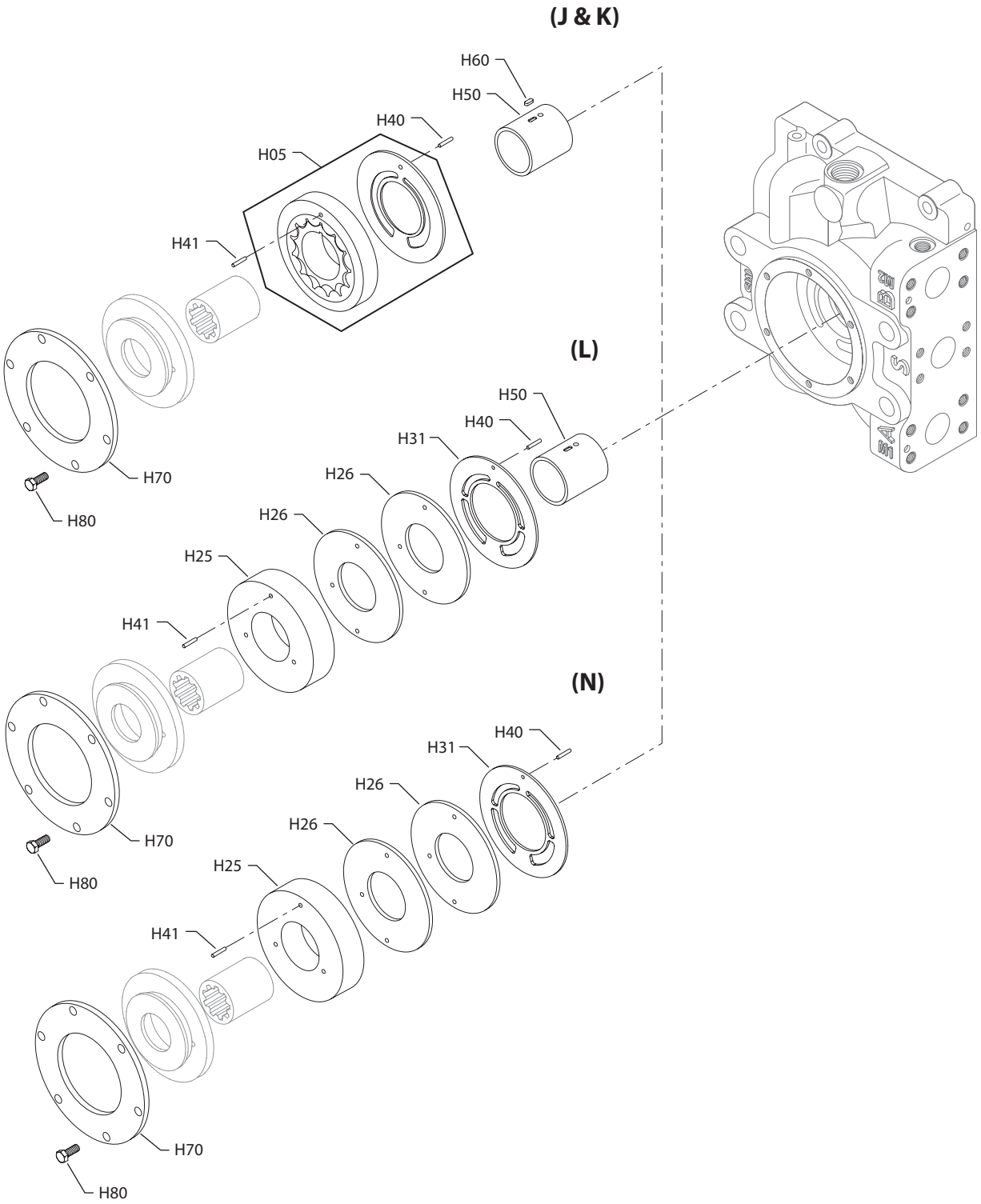

* = included in overhaul seal kit Q210

## Variable displacement pump

### End cap

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 8 & 80 | G04 | 95-28 | | 519034 | End cap assembly, twin ports | 1 |
| | G20 | 95-28 | | 504503 | Jounal bearing | 1 |
| | G30 | 95-28 | | 511809 | End cap gasket | 1 |
| | G40 | 95-28 | | 303651 | Bushing | 1 |
| | G45 | 95-28 | | 140644 | Plug assembly | 1 |
| | G46 | 95-28 | | 140644 | Plug assembly | 1 |
| | G47 | 95-28 | | 140644 | Plug assembly | 1 |
| | G90 | 95-28 | | 356220 | Screw | 1 |
| | G96 | 95-28 | | 290502 | Screw | 1 |
| | G97 | 95-28 | | 356220 | Screw | 1 |
| | G98 | 95-28 | | 505261 | Screw | 1 |
| | | | | | | |
| XX | G04 | 09-27 | | 11068492 | End cap assembly, twin ports | 1 |
| | G20 | 09-27 | | 11068455 | Jounal bearing | 1 |
| | G30 | 09-27 | | 511809 | End cap gasket | 1 |
| | G40 | 09-27 | | 303651 | Bushing | 1 |
| | G45 | 09-27 | | 140644 | Plug assembly | 1 |
| | G46 | 09-27 | | 140644 | Plug assembly | 1 |
| | G47 | 09-27 | | 140644 | Plug assembly | 1 |
| | G57 | 09-27 | | 11068189 | Orifice plug | 1 |
| | G90 | 09-27 | | 356220 | Screw | 1 |
| | G96 | 09-27 | | 290502 | Screw | 1 |
| | G97 | 09-27 | | 356220 | Screw | 1 |
| | G98 | 09-27 | | 505261 | Screw | 1 |

## Variable displacement pump



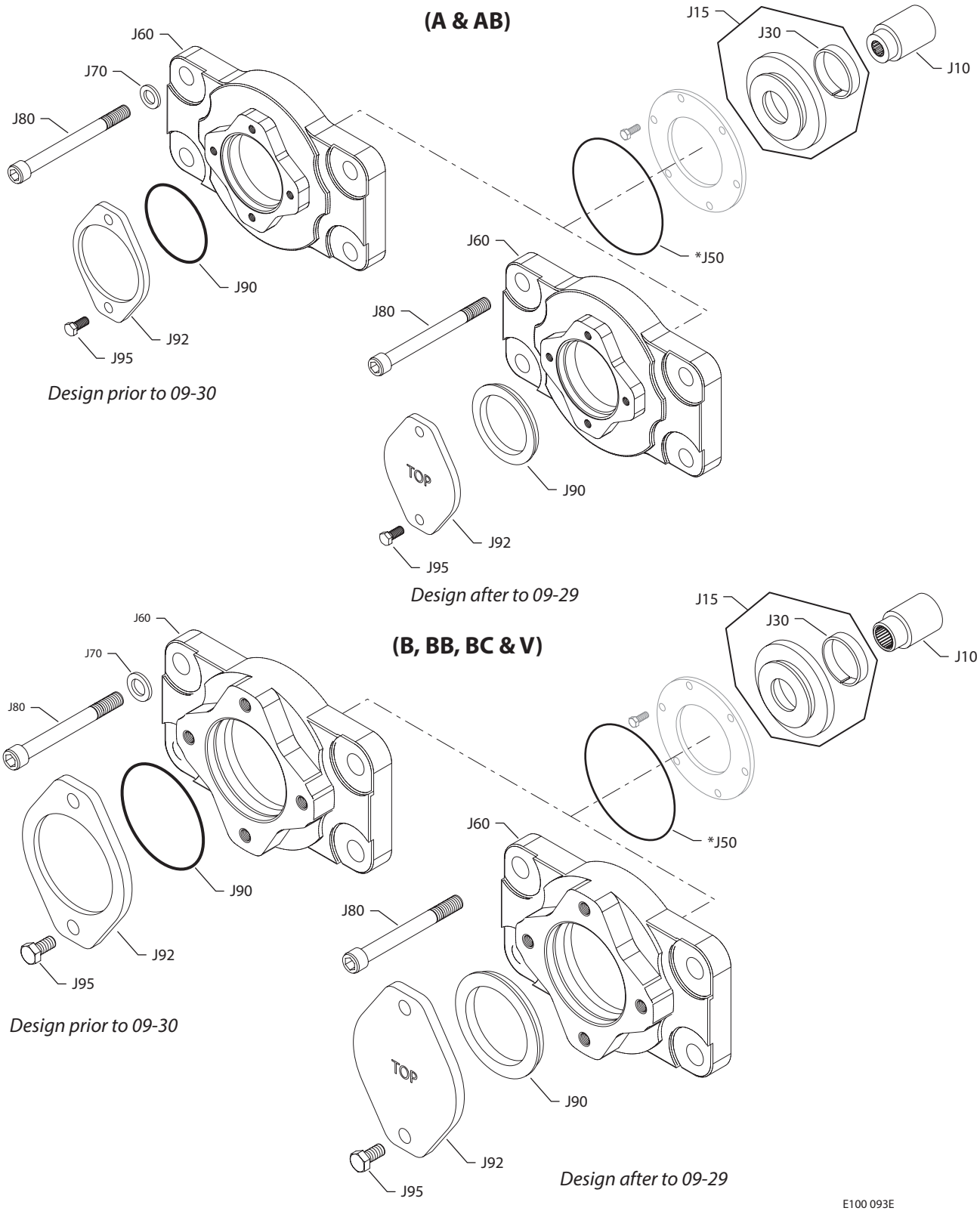

E101 793E

## Variable displacement pump

### Charging system

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| J | H05 | 95-28 | | 504557 | Charge pump set, 47 cc | 1 |
| | H40 | 95-28 | | 11152778 | Pin, 26mm (SB-2015-038) | 1 |
| | H41 | 95-28 | | 11152778 | Pin, 26mm (SB-2015-038) | 1 |
| | H50 | 95-28 | | 518691 | Charge pump shaft (SB-2002-040) | 1 |
| | H60 | 95-28 | | 734608 | Key | 1 |
| | H70 | 95-28 | | 509361 | Retaining plate | 1 |
| | H80 | 95-28 | | 378083 | Screw | 6 |
| K | H05 | 95-28 | | 505410 | Charge pump set, 65 cc | 1 |
| | H40 | 95-28 | | 11152778 | Pin, 26mm (SB-2015-038) | 1 |
| | H41 | 95-28 | | 11152778 | Pin, 26mm (SB-2015-038) | 1 |
| | H50 | 95-28 | | 518691 | Charge pump shaft (SB-2002-040) | 1 |
| | H60 | 95-28 | | 734608 | Key | 1 |
| | H70 | 95-28 | | 509361 | Retaining plate | 1 |
| | H80 | 95-28 | | 378083 | Screw | 6 |
| L | H25 | 04-49 | | 11077719 | Spacer | 1 |
| | H26 | 04-49 | | 711218 | Distance plate | 2 |
| | H31 | 04-49 | | 11078207 | Port plate | 1 |
| | H40 | 04-49 | | 11152778 | Pin, 26mm (SB-2015-038) | 1 |
| | H41 | 04-49 | | 11152778 | Pin, 26mm (SB-2015-038) | 1 |
| | H50 | 04-49 | | 518691 | Charge pump shaft | 1 |
| | H70 | 04-49 | | 509361 | Retaining plate | 1 |
| | H80 | 04-49 | | 378083 | Screw | 6 |
| N | H25 | 04-49 | | 11077719 | Spacer | 1 |
| | H26 | 04-49 | | 711218 | Distance plate | 2 |
| | H31 | 04-49 | | 11078207 | Port plate | 1 |
| | H40 | 04-49 | | 11152778 | Pin, 26mm (SB-2015-038) | 1 |
| | H41 | 04-49 | | 11152778 | Pin, 26mm (SB-2015-038) | 1 |
| | H70 | 04-49 | | 509361 | Retaining plate | 1 |
| | H80 | 04-49 | | 378083 | Screw | 6 |

## Variable displacement pump




* = included in overhaul seal kit Q210

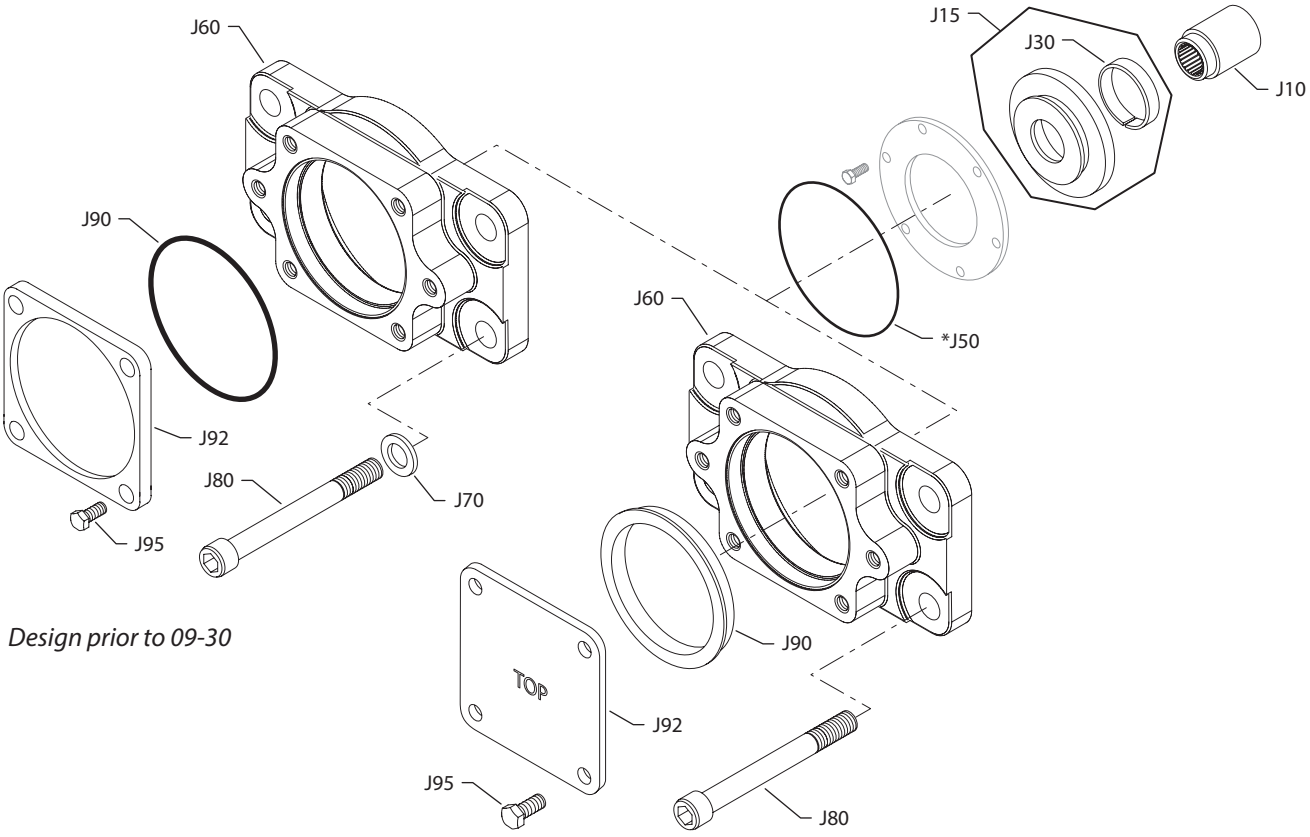
## Variable displacement pump

### Auxiliary mounting

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| AB & A | J10 | 95-28 | | 11053336 | Coupling, 9 tooth | 1 |
| | J15 | 95-28 | | 501402 | Cover assembly, CW | 1 |
| | J15 | 95-28 | | 501401 | Cover assembly, CCW | 1 |
| | J30 | 95-28 | | 303651 | Bushing | 1 |
| | J50 | 95-28 | | 505068 | O-ring | 1 |
| | J60 | 09-30 | | 520949 | Flange adaptor, SAE A | 1 |
| | J60 | 95-28 | 09-29 | 505136 | Flange adaptor, SAE A (SB-2009-074) | 1 |
| | J70 | 95-28 | 09-29 | 279729 | Washer (SB-2009-074) | 4 |
| | J80 | 89-46 | | 505260 | Screw | 4 |
| | J90 | 09-30 | | 4800482 | A pad seal | 1 |
| | J90 | 95-28 | 09-29 | 726950 (9004104-0420) | O-ring (SB-2009-074) | 1 |
| | J92 | 09-30 | | 4460586 | Cover plate | 1 |
| | J92 | 95-28 | 09-29 | 545475 (9802336) | Cover plate (SB-2009-074) | 1 |
| | J95 | 95-28 | | 9007200-3714 | Screw | 2 |
| BB & V | J10 | 95-28 | | 11053334 | Coupling, 15 tooth | 1 |
| | J15 | 95-28 | | 501402 | Cover assembly, CW | 1 |
| | J15 | 95-28 | | 501401 | Cover assembly, CCW | 1 |
| | J30 | 95-28 | | 303651 | Bushing | 1 |
| | J50 | 95-28 | | 505068 | O-ring | 1 |
| | J60 | 09-30 | | 520950 | Flange adaptor, SAE B | 1 |
| | J60 | 95-28 | 09-29 | 505132 | Flange adaptor, SAE B (SB-2009-075) | 1 |
| | J70 | 95-28 | 09-29 | 279729 | Washer (SB-2009-075) | 4 |
| | J80 | 89-46 | | 505260 | Screw | 4 |
| | J90 | 09-30 | | 8801061 | B pad seal | 1 |
| | J90 | 95-28 | 09-29 | 726935 (9004104-0450) | O-ring (SB-2009-075) | 1 |
| | J92 | 09-30 | | 8801059 | Cover plate | 1 |
| | J92 | 95-28 | 09-29 | 4460370 | Cover plate (SB-2009-075) | 1 |
| | J95 | 95-28 | | 9007200-5021 | Screw | 2 |
| BC & B | J10 | 95-28 | | 11053289 | Coupling, 13 tooth | 1 |
| | J15 | 95-28 | | 501402 | Cover assembly, CW | 1 |
| | J15 | 95-28 | | 501401 | Cover assembly, CCW | 1 |
| | J30 | 95-28 | | 303651 | Bushing | 1 |
| | J50 | 95-28 | | 505068 | O-ring | 1 |
| | J60 | 09-30 | | 520950 | Flange adaptor, SAE B | 1 |
| | J60 | 95-28 | 09-29 | 505132 | Flange adaptor, SAE B (SB-2009-075) | 1 |
| | J70 | 95-28 | 09-29 | 279729 | Washer (SB-2009-075) | 4 |
| | J80 | 89-46 | | 505260 | Screw | 4 |
| | J90 | 09-30 | | 8801061 | B pad seal | 1 |
| | J90 | 95-28 | 09-29 | 726935 (9004104-0450) | O-ring (SB-2009-075) | 1 |
| | J92 | 09-30 | | 8801059 | Cover plate | 1 |
| | J92 | 95-28 | 09-29 | 4460370 | Cover plate (SB-2009-075) | 1 |
| | J95 | 95-28 | | 9007200-5021 | Screw | 2 |

## Variable displacement pump

### (C, C1 & CD)




*Design prior to 09-30*

*Design after to 09-29*

E100 094E

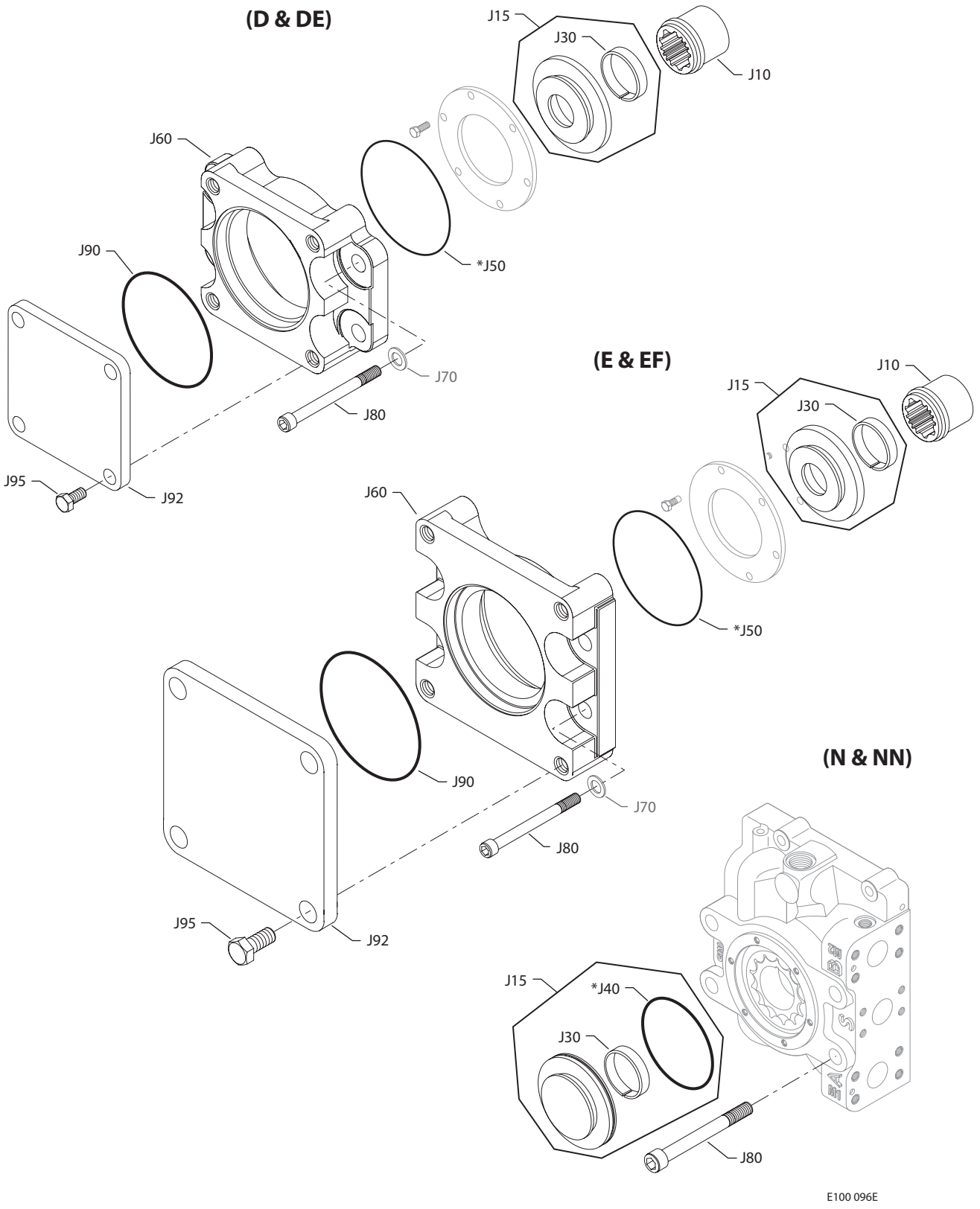
* = included in overhaul seal kit Q210

## Variable displacement pump

### Auxiliary mounting

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| C1 | J10 | 06-25 | | 11053337 | Coupling, 17 tooth | 1 |
| | J15 | 95-28 | | 503399 | Cover assembly, CW | 1 |
| | J15 | 95-28 | | 503397 | Cover assembly, CCW | 1 |
| | J30 | 95-28 | | 303651 | Bushing | 1 |
| | J50 | 95-28 | | 505068 | O-ring | 1 |
| | J60 | 09-30 | | 520951 | Flange adaptor, SAE C | 1 |
| | J60 | 95-28 | 09-29 | 505139 | Flange adaptor, SAE C (SB-2009-076) | 1 |
| | J70 | 95-28 | 09-29 | 279729 | Washer (SB-2009-076) | 4 |
| | J80 | 89-46 | | 505260 | Screw | 4 |
| | J90 | 09-30 | | 11081805 | C pad seal | 1 |
| | J90 | 95-28 | 09-29 | 726943 (9004104-0490) | O-ring (SB-2009-076) | 1 |
| | J92 | 09-30 | | 8801060 | Cover plate | 1 |
| | J92 | 95-28 | 09-29 | 307363 (8800406) | Cover plate (SB-2009-076) | 1 |
| | J95 | 95-28 | | 9007200-5021 | Screw | 4 |
| CD & C | J10 | 95-28 | | 11053291 | Coupling, 14 tooth | 1 |
| | J15 | 95-28 | | 501402 | Cover assembly, CW | 1 |
| | J15 | 95-28 | | 501401 | Cover assembly, CCW | 1 |
| | J30 | 95-28 | | 303651 | Bushing | 1 |
| | J50 | 95-28 | | 505068 | O-ring | 1 |
| | J60 | 09-30 | | 520951 | Flange adaptor, SAE C | 1 |
| | J60 | 95-28 | 09-29 | 505139 | Flange adaptor, SAE C (SB-2009-076) | 1 |
| | J70 | 95-28 | 09-29 | 279729 | Washer (SB-2009-076) | 4 |
| | J80 | 89-46 | | 505260 | Screw | 4 |
| | J90 | 09-30 | | 11081805 | C pad seal | 1 |
| | J90 | 95-28 | 09-29 | 726943 (9004104-0490) | O-ring (SB-2009-076) | 1 |
| | J92 | 09-30 | | 8801060 | Cover plate | 1 |
| | J92 | 95-28 | 09-29 | 307363 (8800406) | Cover plate (SB-2009-076) | 1 |
| | J95 | 95-28 | | 9007200-5021 | Screw | 4 |

## Variable displacement pump



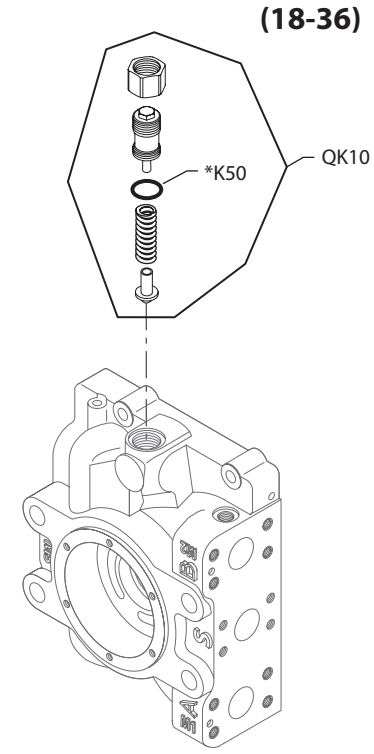

* = included in overhaul seal kit Q210

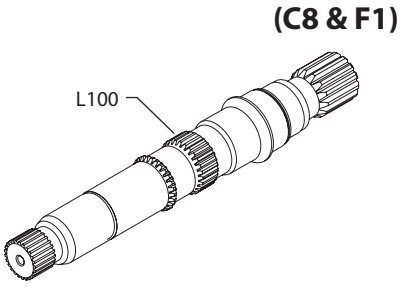
## Variable displacement pump

### Auxiliary mounting

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| D & DE | J10 | 95-28 | | 11053290 | Coupling, 13 tooth | 1 |
| | J15 | 95-28 | | 503663 | Cover assembly, CW | 1 |
| | J15 | 95-28 | | 503666 | Cover assembly, CCW | 1 |
| | J30 | 95-28 | | 303651 | Bushing | 1 |
| | J50 | 95-28 | | 505068 | O-ring | 1 |
| | J60 | 95-28 | | 505140 | Flange adaptor, SAE D | 1 |
| | J70 | 95-28 | 15-46 | 279729 | Washer | 4 |
| | J80 | 95-28 | | 505260 | Screw | 4 |
| | J90 | 95-28 | | 726927 | O-ring | 1 |
| | J92 | 95-28 | | 338400 | Cover plate | 1 |
| | J95 | 95-28 | | 9007200-7524 | Screw | 4 |
| E & EF | J10 | 95-28 | | 11053290 | Coupling, 13 tooth | 1 |
| | J15 | 95-28 | | 503663 | Cover assembly, CW | 1 |
| | J15 | 95-28 | | 503666 | Cover assembly, CCW | 1 |
| | J30 | 95-28 | | 303651 | Bushing | 1 |
| | J50 | 95-28 | | 505068 | O-ring | 1 |
| | J60 | 95-28 | | 505141 | Flange adaptor, SAE E | 1 |
| | J70 | 95-28 | 15-46 | 279729 | Washer | 4 |
| | J80 | 95-28 | | 505260 | Screw | 4 |
| | J90 | 95-28 | | 505068 | O-ring | 1 |
| | J92 | 95-28 | | 750422 | Cover plate | 1 |
| | J95 | 95-28 | | 9007200-7524 | Screw | 4 |
| EG & H | J10 | 95-28 | | 11053335 | Coupling, 27 tooth | 1 |
| | J15 | 95-28 | | 503663 | Cover assembly, CW | 1 |
| | J15 | 95-28 | | 503666 | Cover assembly, CCW | 1 |
| | J30 | 95-28 | | 303651 | Bushing | 1 |
| | J50 | 95-28 | | 505068 | O-ring | 1 |
| | J60 | 95-28 | | 505141 | Flange adaptor, SAE E | 1 |
| | J70 | 95-28 | 15-46 | 279729 | Washer | 4 |
| | J80 | 95-28 | | 505260 | Screw | 4 |
| | J90 | 95-28 | | 505068 | O-ring | 1 |
| | J92 | 95-28 | | 750422 | Cover plate | 1 |
| | J95 | 95-28 | | 9007200-7524 | Screw | 4 |
| N & NN | J15 | 95-28 | | 501400 | Cover assembly | 1 |
| | J30 | 95-28 | | 303651 | Bushing | 1 |
| | J40 | 95-28 | | 11147582 | O-ring | 1 |
| | J80 | 95-28 | | 505422 | Screw | 4 |

## Variable displacement pump




E100 098E

* = included in overhaul seal kit Q210

## Variable displacement pump

### Charge pressure relief

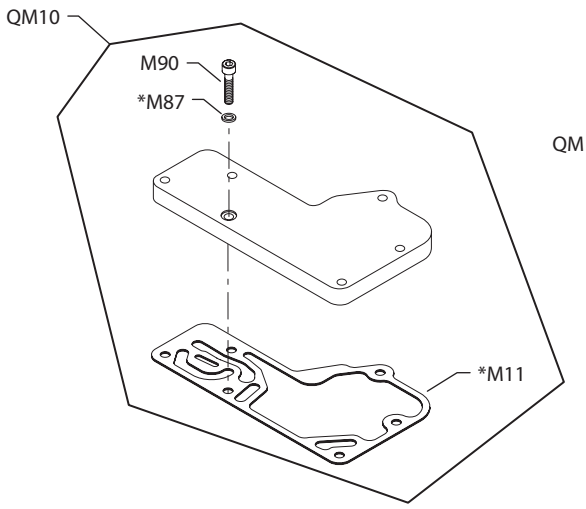
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 18-32 | QK10 | 95-28 | | 8510272 | Charge relief valve kit, 18-32 bar | 1 |
| | K50 | 95-28 | | 001156 (9004201-7500) | O-ring | 1 |
| 36 | QK10 | 95-28 | | 8510390 | Charge relief valve kit, 34-36 bar | 1 |
| | K50 | 95-28 | | 001156 (9004201-7500) | O-ring | 1 |

### Shaft

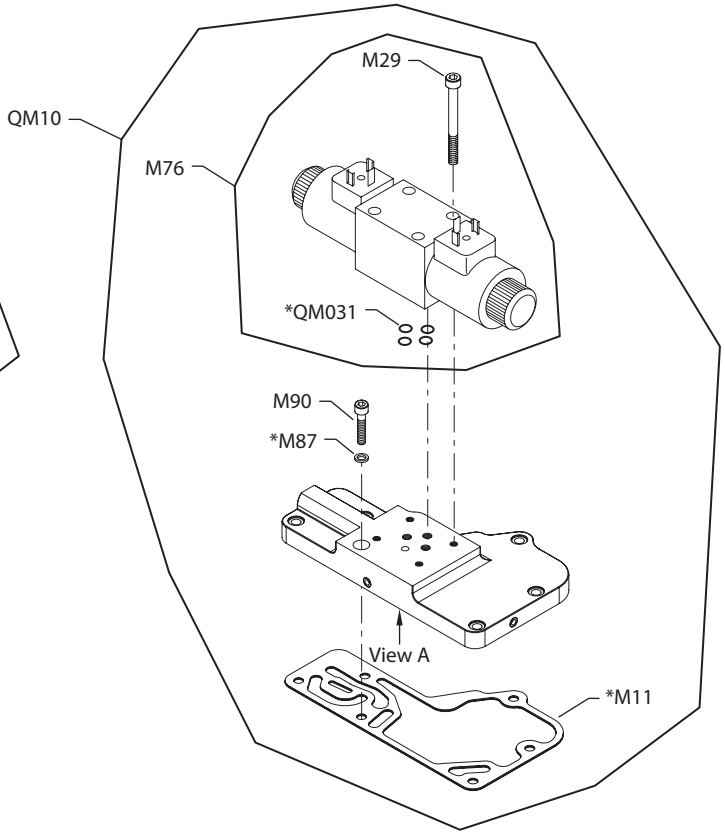
| | | | | | | |
|---|---|---|---|---|---|---|
| C8 | L100 | 95-28 | | 504338 | Shaft, 27 tooth spline | 1 |
| F1 | L100 | 95-28 | | 504411 | Shaft, 13 tooth spline | 1 |

## Variable displacement pump

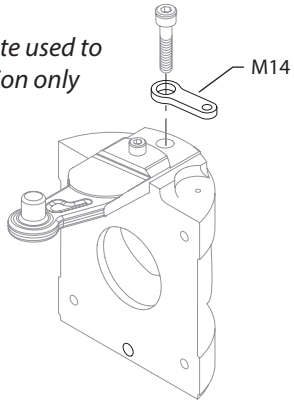
### (CA & CB)

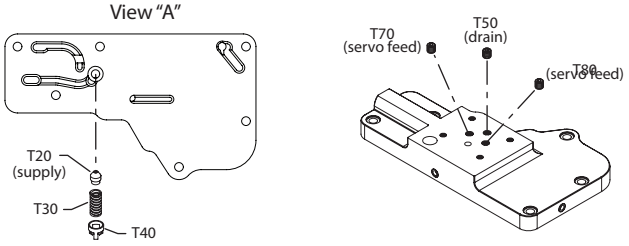



### (DD)




*Generic swashplate used to show link location only*




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E100 099E

* = included in control seal kit QM210

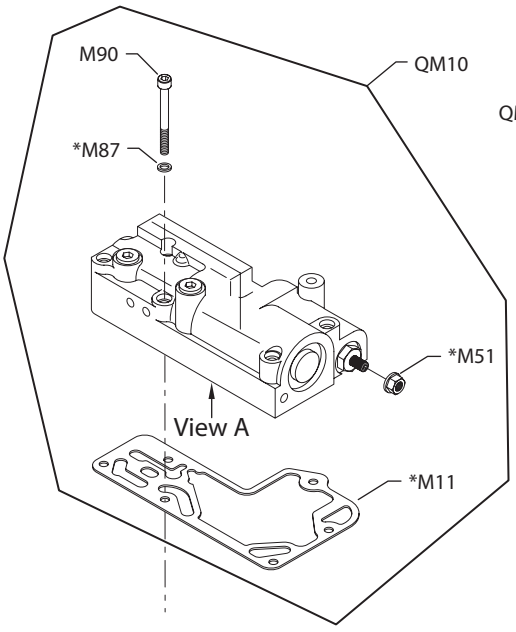
## Variable displacement pump

### Control

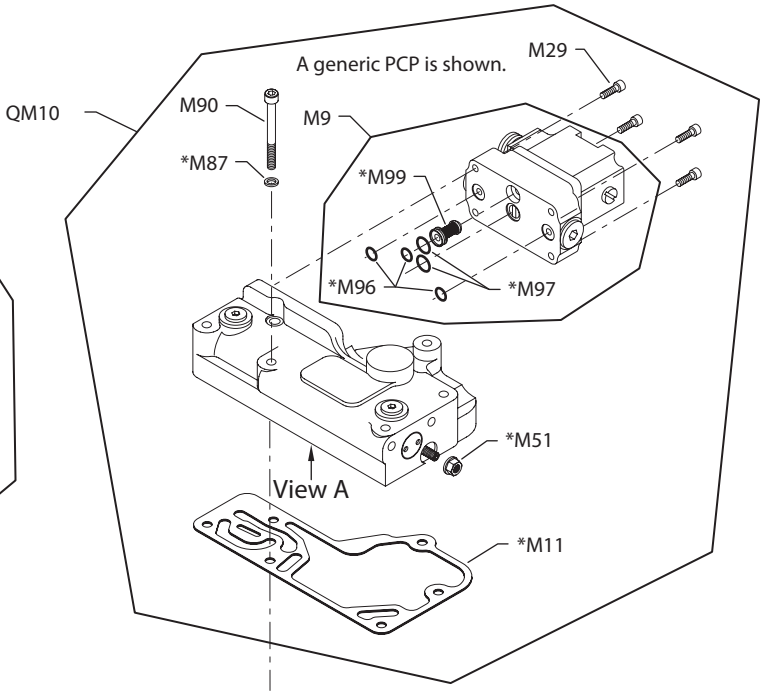
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| CA | M11 | 13-42 | | 8800923 | Control gasket | 1 |
| | M90 | 13.42 | | 693341 (9007314-0606) | Screw | 6 |
| | QM10 | 13.42 | | 11098677 | Control cover plate kit | 1 |
| | QM210 | 13-42 | | 11096320 | Control seal kit | 1 |
| CB | M11 | 95-28 | | 8800923 | Control gasket | 1 |
| | M14 | 95-28 | | 11070308 | Feedback link | 1 |
| | M87 | 95-28 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 95-28 | | 693341 (9007314-0606) | Screw | 6 |
| | QM10 | 95-28 | | 11098677 | Control cover plate kit | 1 |
| | QM210 | 95-28 | | 11096320 | Control seal kit | 1 |
| CF | M11 | 95-28 | | 509718 | Control gasket | 1 |
| | M14 | 95-28 | | 11070308 | Feedback link | 1 |
| | M87 | 95-28 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 95-28 | | 693341 (9007314-0606) | Screw | 6 |
| | QM10 | 95-28 | | 11098675 | Control cover plate kit | 1 |
| | QM210 | 95-28 | | 11097122 | Control seal kit | 1 |
| DD | M11 | 95-28 | | 8800923 | Control gasket | 1 |
| | M87 | 95-28 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 95-28 | | 693341 (9007314-0606) | Screw | 6 |
| | QM10 | 95-28 | | 8102M0DD-A | 3-position control kit, 24 volt | 1 |
| | QM031 | 95-28 | | 11099647 | Valve seal kit | 1 |
| | QM210 | 95-28 | | 11096172 | Control seal kit | 1 |

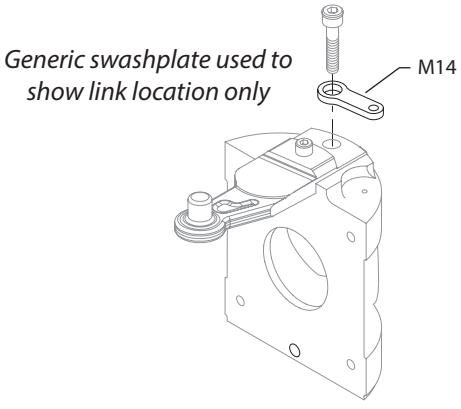
## Variable displacement pump

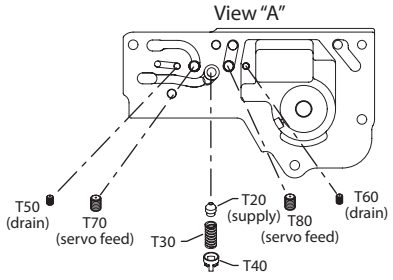
### (HF, HM & HS)




### (K7 & K8)




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E100 100E

* = included in control seal kit Q210

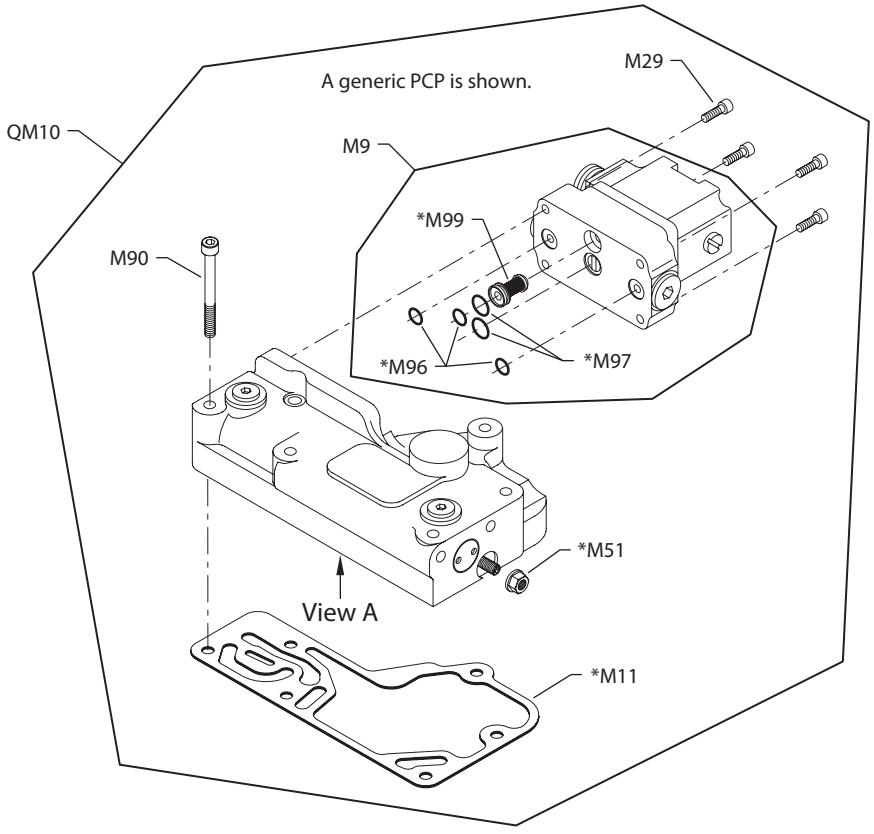
## Variable displacement pump

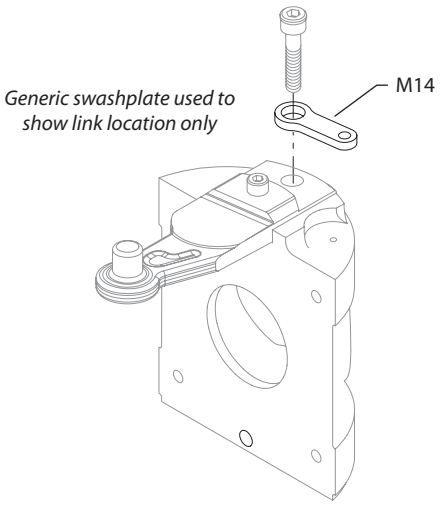
### Control

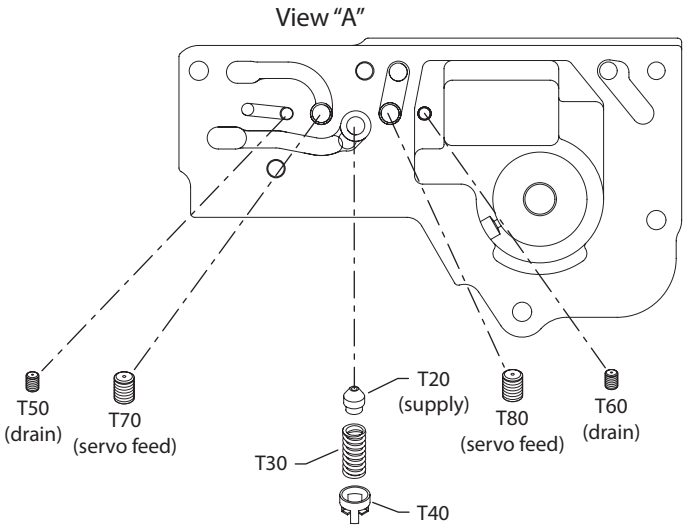
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| HF | M11 | 95-28 | | 8801241 | Control gasket (SB-1999-065) | 1 |
| | M14 | 95-28 | | 11070308 | Feedback link | 1 |
| | M51 | 95-28 | | 9003509-0008 | Seal nut | 1 |
| | M87 | 95-28 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 95-28 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 95-28 | | 8510157 | HDC kit, 3-11 bar | 1 |
| | QM210 | 95-28 | | 11096266 | Control seal kit | 1 |
| HM | M11 | 95-28 | | 8801241 | Control gasket | 1 |
| | M14 | 95-28 | | 11070308 | Feedback link | 1 |
| | M51 | 95-28 | | 9003509-0008 | Seal nut | 1 |
| | M87 | 95-28 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 95-28 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 95-28 | | 11013637 | HDC kit, 1.1 - 6.7 bar | 1 |
| | QM210 | 95-28 | | 11096266 | Control seal kit | 1 |
| HS | M11 | 95-28 | | 8801241 | Control gasket | 1 |
| | M14 | 95-28 | | 11070308 | Feedback link | 1 |
| | M51 | 95-28 | | 9003509-0008 | Seal nut | 1 |
| | M87 | 95-28 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 95-28 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 95-28 | | 11020565 | HDC kit, 6 - 18 bar | 1 |
| | QM210 | 95-28 | | 11096266 | Control seal kit | 1 |
| K7 | M9 | 14-31 | | 11101116 | PCP, MS connector | 1 |
| | M11 | 14-31 | | 8800923 | Control gasket | 1 |
| | M14 | 14-31 | | 11070308 | Feedback link | 1 |
| | M29 | 14-31 | | K07067 | Screw | 4 |
| | M51 | 14-31 | | 9003509-0008 | Seal nut | 1 |
| | M90 | 14-31 | | 692889 (9007314-0611) | Screw | 6 |
| | M96 | 14-31 | | 011296 (9004105-0120) | O-ring | 3 |
| | M97 | 14-31 | | 9004105-0130 | O-ring | 2 |
| | M99 | 14-31 | | K08572 | Filter assembly | 1 |
| | QM10 | 14-31 | | 11139997 | EDC kit, MS connector | 1 |
| | QM210 | 14-31 | | 11095724 | Control seal kit | 1 |
| K8 | M9 | 15-28 | | 11101106 | PCP, MS connector | 1 |
| | M11 | 15-28 | | 8800923 | Control gasket | 1 |
| | M14 | 15-28 | | 11070308 | Feedback link | 1 |
| | M29 | 15-28 | | K07067 | Screw | 4 |
| | M51 | 15-28 | | 9003509-0008 | Seal nut | 1 |
| | M90 | 15-28 | | 692889 (9007314-0611) | Screw | 6 |
| | M96 | 15-28 | | 011296 (9004105-0120) | O-ring | 3 |
| | M97 | 15-28 | | 9004105-0130 | O-ring | 2 |
| | M99 | 15-28 | | K08572 | Filter assembly | 1 |
| | QM10 | 15-28 | | 11168552 | EDC3 kit, MS connector | 1 |
| | QM210 | 15-28 | | 11095724 | Control seal kit | 1 |

## Variable displacement pump

### (KA, KE, KN & KP)




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E100 926E

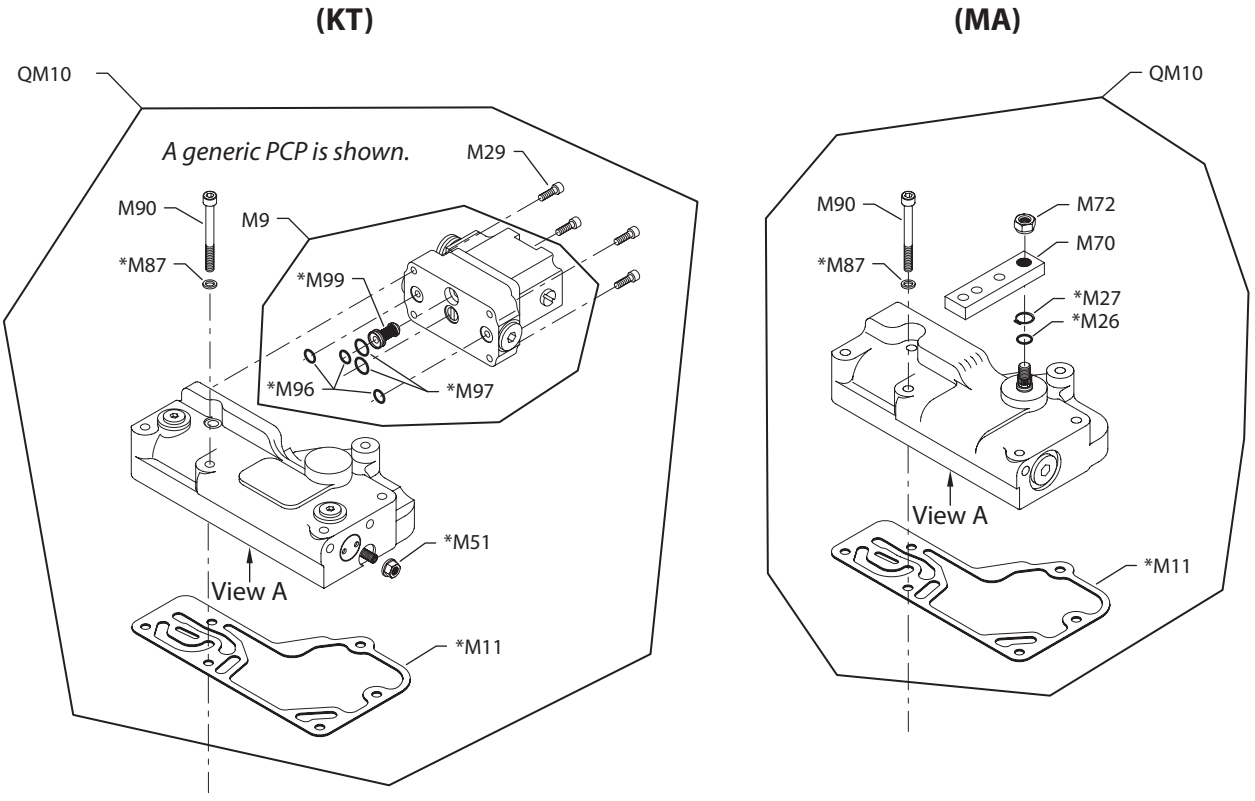
* = included in control seal kit QM210

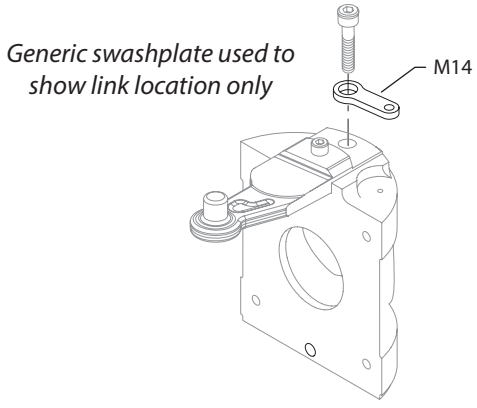
## Variable displacement pump

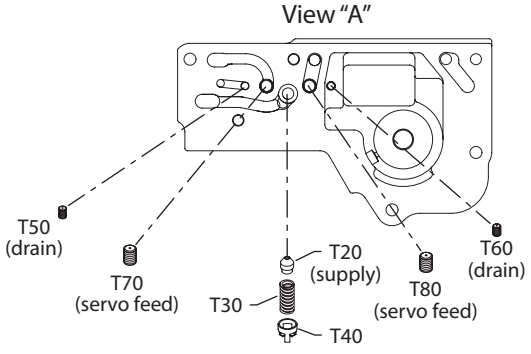
### Control

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| KA | M9 | 95-28 | | MCV116G4201 | PCP, MS connector | 1 |
| | M11 | 95-28 | | 8800923 | Control gasket | 1 |
| | M14 | 95-28 | | 11070308 | Feedback link | 1 |
| | M29 | 95-28 | | K07067 | Screw | 4 |
| | M51 | 95-28 | | 9003509-0008 | Seal nut | 1 |
| | M87 | 95-28 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 95-28 | | 692889 (9007314-0611) | Screw | 6 |
| | M96 | 95-28 | | 011296 (9004105-0120) | O-ring | 3 |
| | M97 | 95-28 | | 9004105-0130 | O-ring | 2 |
| | M99 | 95-28 | | K08572 | Filter assembly | 1 |
| | QM10 | 95-28 | | 8510155 | EDC3 kit, MS connector | 1 |
| | QM210 | 95-28 | | 11095724 | Control seal kit | 1 |
| KE | M9 | 13-43 | | MCV116F3118 | PCP, Deutsch connector | 1 |
| | M11 | 13-43 | | 8800923 | Control gasket | 1 |
| | M14 | 13-43 | | 11070308 | Feedback link | 1 |
| | M29 | 13-43 | | K07067 | Screw | 4 |
| | M51 | 13-43 | | 9003509-0008 | Seal nut | 1 |
| | M90 | 13-43 | | 692889 (9007314-0611) | Screw | 6 |
| | M96 | 13-43 | | 011296 (9004105-0120) | O-ring | 3 |
| | M97 | 13-43 | | 9004105-0130 | O-ring | 2 |
| | M99 | 13-43 | | K08572 | Filter assembly | 1 |
| | QM10 | 13-43 | | 11099382 | EDC3 kit, Deutsch connector | 1 |
| | QM210 | 13-43 | | 11095724 | Control seal kit | 1 |
| KN | M9 | 95-28 | | MCV116A3501 | PCP, MS connector | 1 |
| | M11 | 95-28 | | 8800923 | Control gasket | 1 |
| | M14 | 95-28 | | 11070308 | Feedback link | 1 |
| | M29 | 95-28 | | K07067 | Screw | 4 |
| | M51 | 95-28 | | 9003509-0008 | Seal nut | 1 |
| | M87 | 95-28 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 95-28 | | 692889 (9007314-0611) | Screw | 6 |
| | M96 | 95-28 | | 011296 (9004105-0120) | O-ring | 3 |
| | M97 | 95-28 | | 9004105-0130 | O-ring | 2 |
| | M99 | 95-28 | | K08572 | Filter assembly | 1 |
| | QM10 | 95-28 | | 8510185 | EDC3 kit, MS connector | 1 |
| | QM210 | 95-28 | | 11095724 | Control seal kit | 1 |
| KP | M9 | 95-28 | | MCV116G4204 | PCP, Weather-Pac connector | 1 |
| | M11 | 95-28 | | 8800923 | Control gasket | 1 |
| | M14 | 95-28 | | 11070308 | Feedback link | 1 |
| | M29 | 95-28 | | K07067 | Screw | 4 |
| | M51 | 95-28 | | 9003509-0008 | Seal nut | 1 |
| | M87 | 95-28 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 95-28 | | 692889 (9007314-0611) | Screw | 6 |
| | M96 | 95-28 | | 011296 (9004105-0120) | O-ring | 3 |
| | M97 | 95-28 | | 9004105-0130 | O-ring | 2 |
| | M99 | 95-28 | | K08572 | Filter assembly | 1 |
| | QM10 | 95-28 | | 8510156 | EDC3 kit, Weather-Pac connector | 1 |
| | QM210 | 95-28 | | 11095724 | Control seal kit | 1 |

## Variable displacement pump




Possible orifice locations

NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E101 794E

* = included in control seal kit Q210

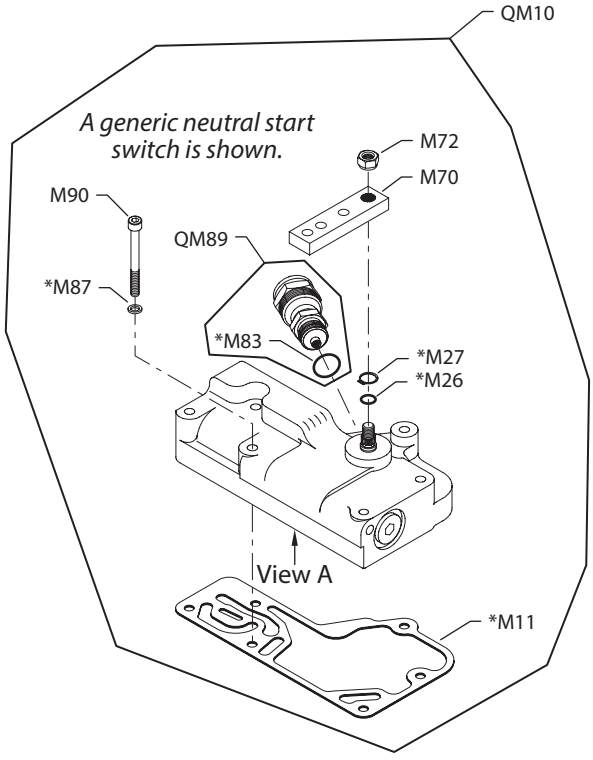
## Variable displacement pump

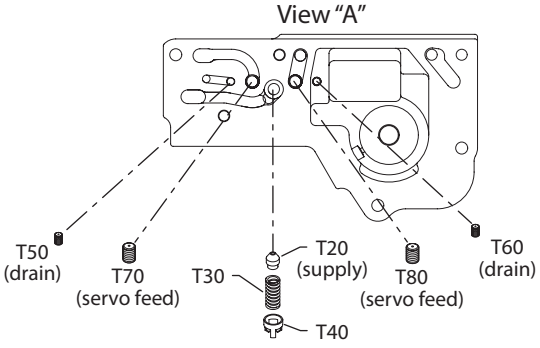
### Control

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| KT | M9 | 95-28 | | MCV116G4214 | PCP, Deutsch connector | 1 |
| | M11 | 95-28 | | 8800923 | Control gasket | 1 |
| | M14 | 95-28 | | 11070308 | Feedback link | 1 |
| | M29 | 95-28 | | K07067 | Screw | 4 |
| | M51 | 95-28 | | 9003509-0008 | Seal nut | 1 |
| | M87 | 95-28 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 95-28 | | 692889 (9007314-0611) | Screw | 6 |
| | M96 | 95-28 | | 011296 (9004105-0120) | O-ring | 3 |
| | M97 | 95-28 | | 9004105-0130 | O-ring | 2 |
| | M99 | 95-28 | | K08572 | Filter assembly | 1 |
| | QM10 | 95-28 | | 8510268 | EDC3 kit, Weather-Pac connector | 1 |
| | QM210 | 95-28 | | 11095724 | Control seal kit | 1 |
| MA | M11 | 95-28 | | 8800923 | Control gasket | 1 |
| | M14 | 95-28 | | 11072308 | Feedback link | 1 |
| | M26 | 95-28 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 95-28 | | 9006300-0044 | Retaining ring | 1 |
| | M70 | 95-28 | | 9800916 | Control handle | 1 |
| | M72 | 95-28 | | 040642 (9003513-0800) | Nut | 1 |
| | M87 | 95-28 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 95-28 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 95-28 | | 8510158 | Control kit | 1 |
| | QM210 | 95-28 | | 11096274 | Control seal kit | 1 |

## Variable displacement pump

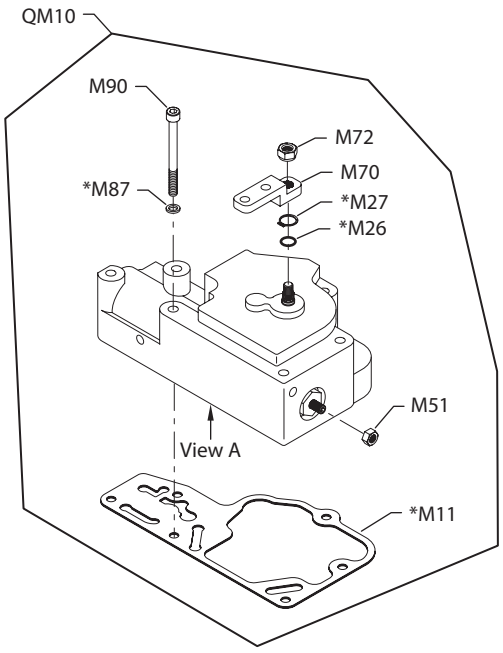
### (MB)

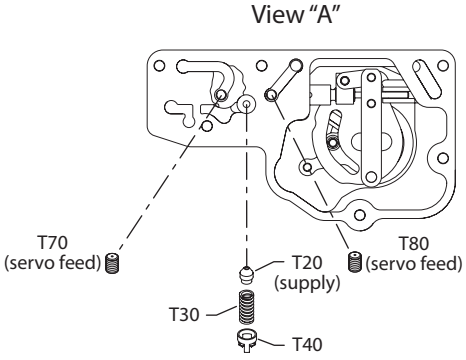


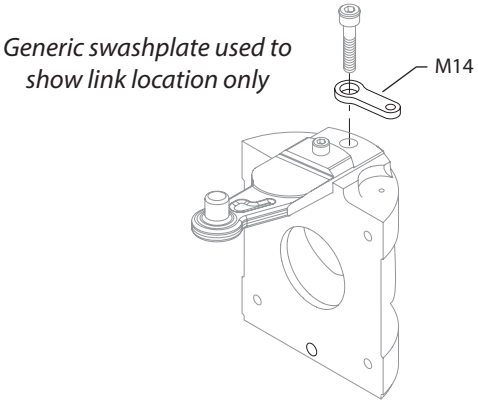

Possible orifice locations

### (NA)




Possible orifice locations




NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E101 795E

* = included in control seal kit Q210

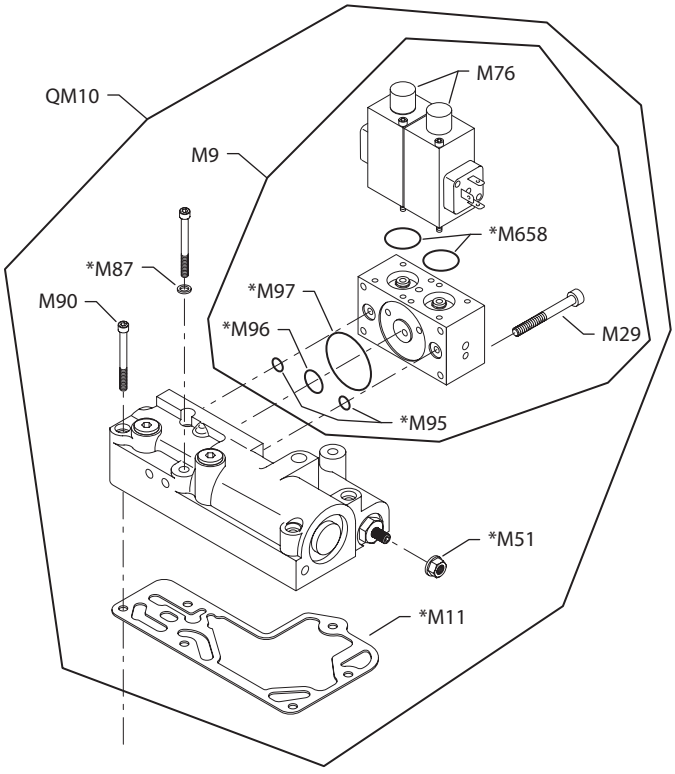
## Variable displacement pump

### Control

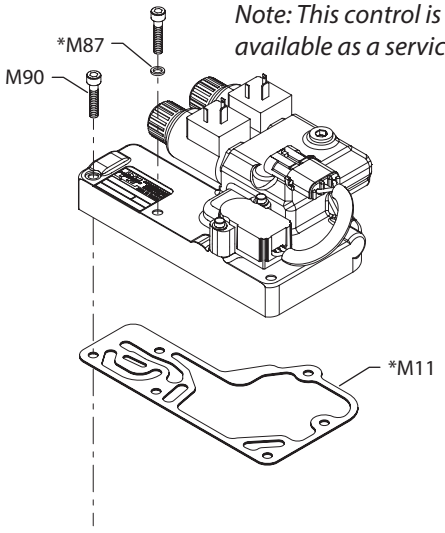
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| MB | M11 | 95-28 | | 8800923 | Control gasket | 1 |
| | M14 | 95-28 | | 11072308 | Feedback link | 1 |
| | M26 | 95-28 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 95-28 | | 9006300-0044 | Retaining ring | 1 |
| | M70 | 95-28 | | 9800916 | Control handle | 1 |
| | M72 | 95-28 | | 040642 (9003513-0800) | Nut | 1 |
| | M83 | 95-28 | | 001131 (9004201-5000) | O-ring | 1 |
| | M87 | 95-28 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 95-28 | | 692889 (9007314-0611) | Screw | 6 |
| | QM10 | 95-28 | | 8510186 | Control kit with neutral start switch | 1 |
| | QM89 | 95-28 | | 80020S40 | Neutral start switch | 1 |
| | QM210 | 95-28 | | 11096274 | Control seal kit | 1 |
| | | | | | | |
| NA | M11 | 95-46 | | 504733 | Control gasket | 1 |
| | M14 | 95-46 | | 11072308 | Feedback link | 1 |
| | M26 | 95-46 | | 144725 (9004105-0110) | O-ring | 1 |
| | M27 | 95-46 | | 9006300-0044 | Retaining ring | 1 |
| | M51 | 95-46 | | 345462 | Nut | 1 |
| | M70 | 95-46 | | 769075 | Control handle | 1 |
| | M72 | 95-46 | | 040642 (9003513-0800) | Nut | 1 |
| | M87 | 95-46 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 95-46 | | 9007314-0614 | Screw | 6 |
| | QM10 | 95-46 | | 11098672 | Control kit | 1 |
| | QM210 | 95-46 | | 11096273 | Control seal kit | 1 |

## Variable displacement pump

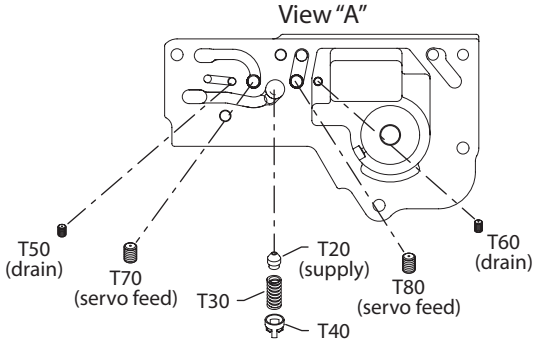
### (PB)




### (SA & SB)

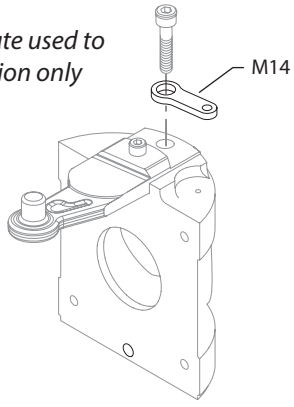



*Note: This control is not available as a service part.*




Possible orifice locations

*Generic swashplate used to show link location only*




NOTE: All orifices present in the original control must be transfered to the replacement control. If replacement control contains pre-installed orifices, remove and discard them before transferring existing orifices to new control.

E101 796E

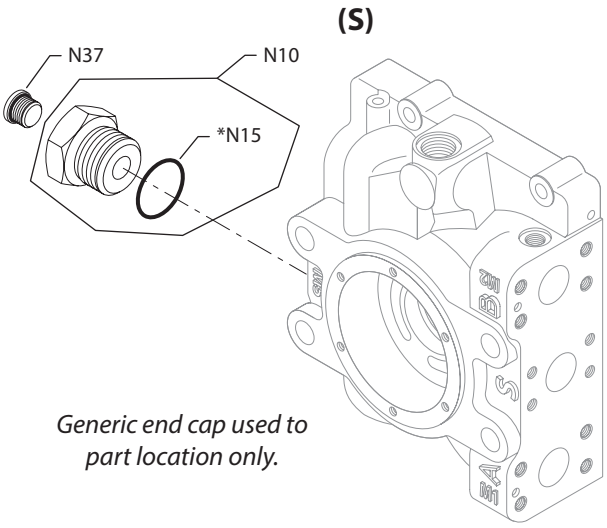
* = included in control seal kit Q210

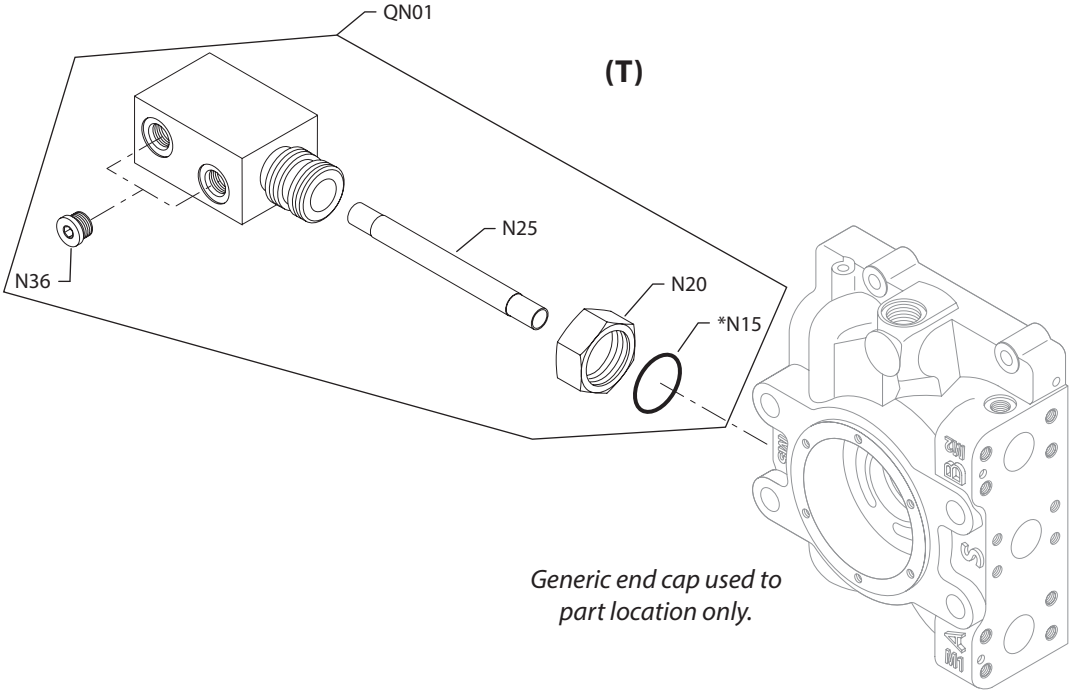
## Variable displacement pump

### Control

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| PB | M9 | 95-28 | | 782045 | PDC, 24 volt | 1 |
| | M11 | 95-28 | | 8801241 | Gasket | 1 |
| | M14 | 95-28 | | 11072308 | Feedback link | 1 |
| | M29 | 95-28 | | 035592 | Screw | 4 |
| | M51 | 95-28 | | 9003509-0008 | Seal nut | 1 |
| | M76 | 95-28 | | 11001794 | Solenoid, 24 volt | 2 |
| | M87 | 95-28 | 12-37 | 592386 | Seal washer | 1 |
| | M90 | 95-28 | | 692889 (9007314-0611) | Screw | 6 |
| | M95 | 95-28 | | 011296 (9004105-0120) | O-ring | 2 |
| | M96 | 95-28 | | 688721 (9004104-0170) | O-ring | 1 |
| | M97 | 95-28 | | 314534 (9004104-0310) | O-ring | 1 |
| | M658 | 95-28 | | 635938 (9004100-0210) | O-ring | 2 |
| | QM10 | 95-28 | | 8510378 | Control kit, 24 volt | 1 |
| | QM210 | 95-28 | | 11096251 | Control seal kit | 1 |
| SA | M11 | 95-28 | | 8800923 | Control gasket | 1 |
| | M14 | 95-28 | | 11072308 | Feedback link | 1 |
| | M87 | 95-28 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 95-28 | | 694356 | Screw | 6 |
| | QM210 | 95-28 | | 11096320 | Control seal kit | 1 |
| SB | M11 | 95-28 | | 8800923 | Control gasket | 1 |
| | M14 | 95-28 | | 11072308 | Feedback link | 1 |
| | M87 | 95-28 | 12-23 | 592386 | Seal washer | 1 |
| | M90 | 95-28 | | 694356 | Screw | 6 |
| | QM210 | 95-28 | | 11096320 | Control seal kit | 1 |

## Variable displacement pump




E100 101E

* = included in overhaul seal kit Q210

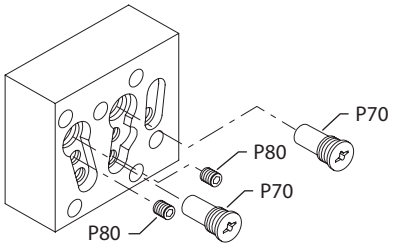
## Variable displacement pump

### Filtration

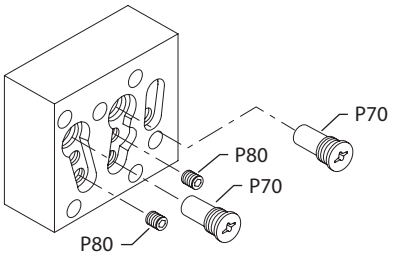
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| D | | | | None | | |
| | | | | | | |
| S | N10 | 95-28 | | 757831 | Reducer fitting assembly | 1 |
| | N15 | 95-28 | | 093823 (9004201-9200) | O-ring | 1 |
| | N37 | 95-28 | | 140644 | Plug assembly | 1 |
| | | | | | | |
| T | N15 | 95-28 | | 093823 (9004201-9200) | O-ring | 1 |
| | N20 | 95-28 | | 11139975 | Nut | 1 |
| | N25 | 95-28 | | 507016 | Tube | 1 |
| | N36 | 95-28 | | 140644 | Plug assembly | 2 |
| | QN01 | 95-28 | | 8510147 | Remote filtration manifold kit | 1 |

## Variable displacement pump

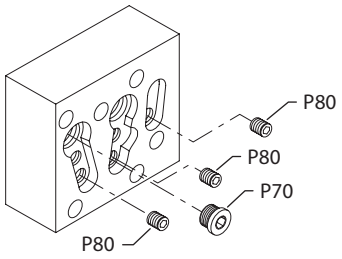
**(1, 5, 6 & P)**
View A
CW rotation



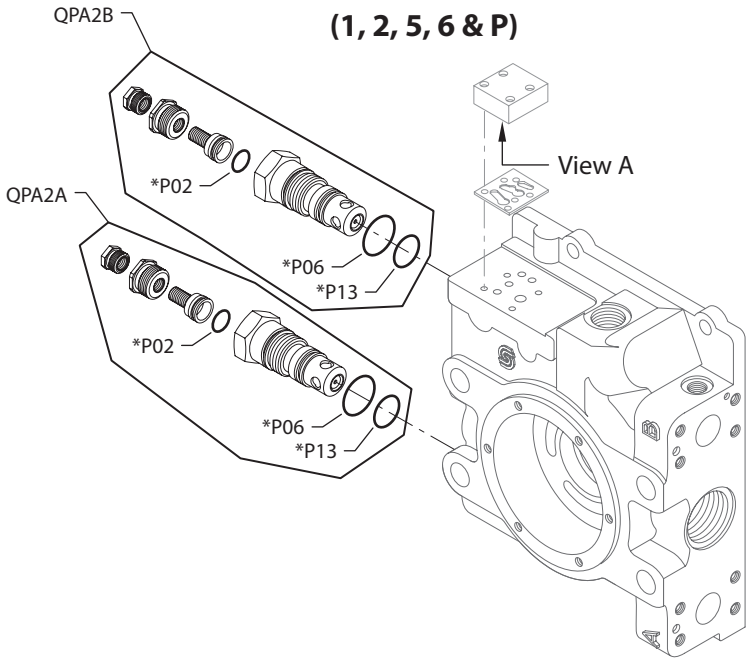

**(1, 5, 6 & P)**
View A
CCW rotation




**(2)**
View A




**(1, 2, 5, 6 & P)**




E100 102E

* = included in overhaul seal kit Q210

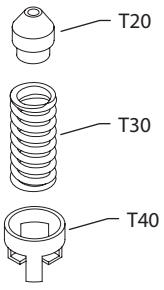
## Variable displacement pump

### High pressure regulation

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 1 | P02 | 94-20 | | 775080 | O-ring | 2 |
| | P06 | 94-20 | | 360784 (9004105-0290) | O-ring | 2 |
| | P13 | 94-20 | | 775155 | O-ring | 2 |
| | P70 | 94-20 | | 8800188 | Check valve | 2 |
| | P80 | 94-20 | | 9005475-0004 | Special plug | 2 |
| | QPA2A | 94-20 | | 8510023-1 | Multi-function valve kit | 1 |
| | QPA2B | 94-20 | | 8510023-1 | Multi-function valve kit | 1 |
| 2 | P02 | 94-20 | | 775080 | O-ring | 2 |
| | P06 | 94-20 | | 360784 (9004105-0290) | O-ring | 2 |
| | P13 | 94-20 | | 775155 | O-ring | 2 |
| | P70 | 94-20 | | 327007 (9005110-4400) | Plug assembly | 1 |
| | P80 | 94-20 | | 9005475-0004 | Pipe plug | 3 |
| | QPA2A | 94-20 | | 8510023-2 | Multi-function valve kit | 1 |
| | QPA2B | 94-20 | | 8510023-2 | Multi-function valve kit | 1 |
| 5 | P02 | 94-20 | | 775080 | O-ring | 2 |
| | P06 | 94-20 | | 360784 (9004105-0290) | O-ring | 2 |
| | P13 | 94-20 | | 775155 | O-ring | 2 |
| | P70 | 94-20 | | 8800188 | Check valve | 2 |
| | P80 | 94-20 | | 9005475-0004 | Special plug | 2 |
| | QPA2A | 94-20 | | 8510274 | Multi-function valve kit | 1 |
| | QPA2B | 94-20 | | 8510274 | Multi-function valve kit | 1 |
| 6 | P02 | 94-20 | | 775080 | O-ring | 2 |
| | P06 | 94-20 | | 360784 (9004105-0290) | O-ring | 2 |
| | P13 | 94-20 | | 775155 | O-ring | 2 |
| | P70 | 94-20 | | 8800188 | Check valve | 2 |
| | P80 | 94-20 | | 9005475-0004 | Special plug | 2 |
| | QPA2A | 94-20 | | 8510023-6 | Multi-function valve kit | 1 |
| | QPA2B | 94-20 | | 8510023-6 | Multi-function valve kit | 1 |
| P | P02 | 94-20 | | 775080 | O-ring | 2 |
| | P06 | 94-20 | | 360784 (9004105-0290) | O-ring | 2 |
| | P13 | 94-20 | | 775155 | O-ring | 2 |
| | P70 | 94-20 | | 8800188 | Check valve | 2 |
| | P80 | 94-20 | | 9005475-0004 | Special plug | 2 |
| | QPA2A | 94-20 | | 8510292 | Multi-function valve kit | 1 |
| | QPA2B | 94-20 | | 8510292 | Multi-function valve kit | 1 |

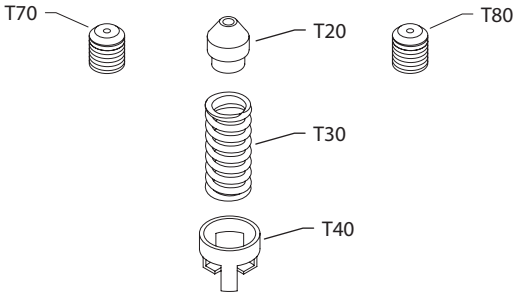
## Variable displacement pump

**(01, 02, 03, 04, 05, 06, 09 & 22)**



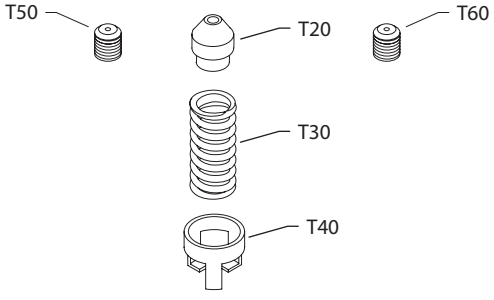

See control drawing for orifice location

**(38)**




See control drawing for orifice location

**(26)**




See control drawing for orifice location

E100 103E

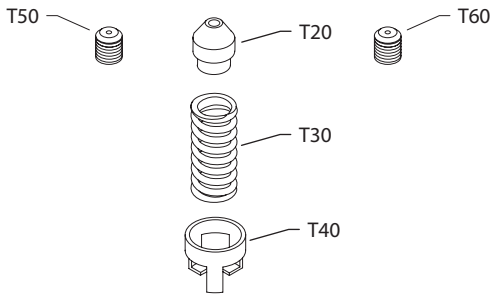
## Variable displacement pump

### Orifice

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 00 | | | | None | | |
| 01 | T20 | 95-28 | | 8801136 | Orificed check valve, .018" | 1 |
| | T30 | 95-28 | | 679506 (8700007) | Spring | 1 |
| | T40 | 95-28 | | 8801303 | Spring retainer | 1 |
| 02 | T20 | 95-28 | | 8801139 | Orificed check valve, .026" | 1 |
| | T30 | 95-28 | | 679506 (8700007) | Spring | 1 |
| | T40 | 95-28 | | 8801303 | Spring retainer | 1 |
| 03 | T20 | 95-28 | | 11061958 | Orificed check valve, .81mm | 1 |
| | T30 | 95-28 | | 679506 (8700007) | Spring | 1 |
| | T40 | 95-28 | | 8801303 | Spring retainer | 1 |
| 04 | T20 | 95-28 | | 11061970 | Orificed check valve, 1.02mm | 1 |
| | T30 | 95-28 | | 679506 (8700007) | Spring | 1 |
| | T40 | 95-28 | | 8801303 | Spring retainer | 1 |
| 05 | T20 | 95-28 | | 11061981 | Orificed check valve, 1.37mm | 1 |
| | T30 | 95-28 | | 679506 (8700007) | Spring | 1 |
| | T40 | 95-28 | | 8801303 | Spring retainer | 1 |
| 06 | T20 | 95-28 | | 11061993 | Orificed check valve, 1.57mm | 1 |
| | T30 | 95-28 | | 679506 (8700007) | Spring | 1 |
| | T40 | 95-28 | | 8801303 | Spring retainer | 1 |
| 09 | T20 | 95-28 | | 11062006 | Orificed check valve, 2.34mm | 1 |
| | T30 | 95-28 | | 679506 (8700007) | Spring | 1 |
| | T40 | 95-28 | | 8801303 | Spring retainer | 1 |
| 22 | T20 | 95-28 | | 8801137 | Orificed check valve, .022" | 1 |
| | T30 | 95-28 | | 679506 (8700007) | Spring | 1 |
| | T40 | 95-28 | | 8801303 | Spring retainer | 1 |
| 26 | T20 | 95-28 | | 11061958 | Orificed check valve, 0.81mm | 1 |
| | T30 | 95-28 | | 679506 (8700007) | Spring | 1 |
| | T40 | 95-28 | | 8801303 | Spring retainer | 1 |
| | T50 | 95-28 | | 598292 | Orifice plug, 0.8mm, M5 x 6 | 1 |
| | T60 | 95-28 | | 598292 | Orifice plug, 0.8mm, M5 x 6 | 1 |
| 33 | | | | None | | |
| 38 | T20 | 95-28 | | 8801139 | Orificed check valve, 0.26" | 1 |
| | T30 | 95-28 | | 679506 (8700007) | Spring | 1 |
| | T40 | 95-28 | | 8801303 | Spring retainer | 1 |
| | T70 | 95-28 | | 716837 | Orifice plug, 0.6mm, M8 x 8 | 1 |
| | T80 | 95-28 | | 716837 | Orifice plug, 0.6mm, M8 x 8 | 1 |

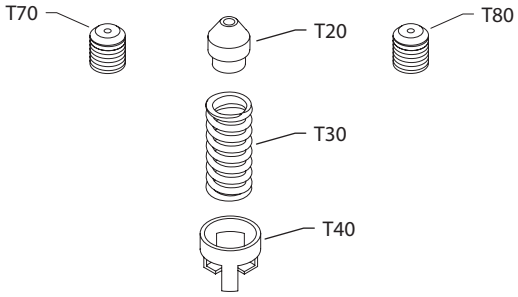
## Variable displacement pump

### (49, C3, C5 & C6)




See control drawing for orifice location

### (54 & 76)




See control drawing for orifice location

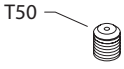
### (72 & C4)

See control drawing for orifice location

### (A4)

See control drawing for orifice location

### (B1)




See control drawing for orifice location

E101 797E

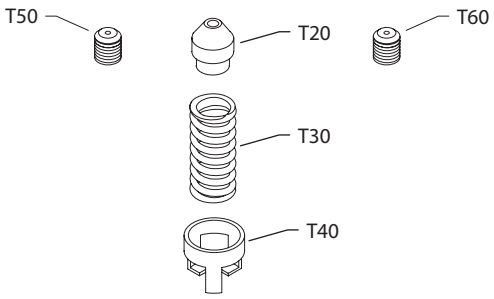
## Variable displacement pump

### Orifice

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| 49 | T20 | 95-28 | | 11061958 | Orificed check valve, 0.81mm | 1 |
| | T30 | 95-28 | | 679506 (8700007) | Spring | 1 |
| | T40 | 95-28 | | 8801303 | Spring retainer | 1 |
| | T50 | 95-28 | | 639120 | Orifice plug, 1.0mm, M5 x 6 | 1 |
| | T60 | 95-28 | | 639120 | Orifice plug, 1.0mm, M5 x 6 | 1 |
| 54 | T20 | 95-28 | 12-29 | 11061970 | Orificed check valve, 1.02mm | 1 |
| | T30 | 95-28 | 12-29 | 679506 (8700007) | Spring | 1 |
| | T40 | 95-28 | 12-29 | 8801303 | Spring retainer | 1 |
| | T70 | 95-28 | 12-29 | 755793 | Orifice plug, 1.0mm, M8 x 8 | 1 |
| | T80 | 95-28 | 12-29 | 755793 | Orifice plug, 1.0mm, M8 x 8 | 1 |
| 72 | T50 | 95-28 | | 617159 | Orifice plug, 1.8mm, M5 x 6 | 1 |
| | T60 | 95-28 | | 617159 | Orifice plug, 1.8mm, M5 x 6 | 1 |
| 76 | T20 | 95-28 | | 8801139 | Orificed check valve, 0.26" | 1 |
| | T30 | 95-28 | | 679506 (8700007) | Spring | 1 |
| | T40 | 95-28 | | 8801303 | Spring retainer | 1 |
| | T70 | 95-28 | | 578542 | Orifice plug, 0.8mm, M6 x 8 | 1 |
| | T80 | 95-28 | | 578542 | Orifice plug, 0.8mm, M6 x 8 | 1 |
| A4 | T70 | 95-28 | | 578542 | Orifice plug, 0.8mm, M6 x 8 | 1 |
| | T80 | 95-28 | | 578542 | Orifice plug, 0.8mm, M6 x 8 | 1 |
| B1 | T50 | 95-28 | | 507042 | Orifice plug, 1.5mm, M6 x 8 | 1 |
| C3 | T20 | 95-28 | | 8801139 | Orificed check valve, 0.26" | 1 |
| | T30 | 95-28 | | 679506 (8700007) | Spring | 1 |
| | T40 | 95-28 | | 8801303 | Spring retainer | 1 |
| | T50 | 95-28 | | 639153 | Orifice plug, 1.3 mm, M5 x 6 | 1 |
| | T60 | 95-28 | | 639153 | Orifice plug, 1.3 mm, M5 x 6 | 1 |
| C4 | T50 | 95-28 | | 639161 | Orifice plug, 1.4 mm, M5 x 6 | 1 |
| | T60 | 95-28 | | 639161 | Orifice plug, 1.4 mm, M5 x 6 | 1 |
| C5 | T20 | 95-28 | | 11061958 | Orificed check valve, 0.81mm | 1 |
| | T30 | 95-28 | | 679506 (8700007) | Spring | 1 |
| | T40 | 95-28 | | 8801303 | Spring retainer | 1 |
| | T50 | 95-28 | | 639161 | Orifice plug, 1.4 mm, M5 x 6 | 1 |
| | T60 | 95-28 | | 639161 | Orifice plug, 1.4 mm, M5 x 6 | 1 |
| C6 | T20 | 95-28 | | 11061970 | Orificed check valve, 1.02mm | 1 |
| | T30 | 95-28 | | 679506 (8700007) | Spring | 1 |
| | T40 | 95-28 | | 8801303 | Spring retainer | 1 |
| | T50 | 95-28 | | 639161 | Orifice plug, 1.4 mm, M5 x 6 | 1 |
| | T60 | 95-28 | | 639161 | Orifice plug, 1.4 mm, M5 x 6 | 1 |

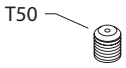
## Variable displacement pump

### (C7 & K3)



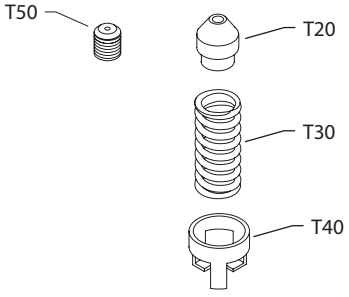

See control drawing for orifice location

### (G1)



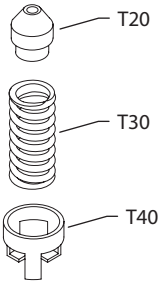

See control drawing for orifice location

### (G4, G8, GB, GD, GF & GJ)




See control drawing for orifice location

### (K1)




See control drawing for orifice location

### (P1)

See control drawing for orifice location

E101 798E

## Variable displacement pump

### Orifice

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| C7 | T20 | 95-28 | | 11061981 | Orificed check valve, 1.37mm | 1 |
| | T30 | 95-28 | | 679506 (8700007) | Spring | 1 |
| | T40 | 95-28 | | 8801303 | Spring retainer | 1 |
| | T50 | 95-28 | | 639161 | Orifice plug, 1.4 mm, M5 x 6 | 1 |
| | T60 | 95-28 | | 639161 | Orifice plug, 1.4 mm, M5 x 6 | 1 |
| G1 | T50 | 95-28 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |
| G4 | T20 | 95-28 | | 8801136 | Orificed check valve, .018" | 1 |
| | T30 | 95-28 | | 679506 (8700007) | Spring | 1 |
| | T40 | 95-28 | | 8801303 | Spring retainer | 1 |
| | T50 | 95-28 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |
| G8 | T20 | 95-28 | | 8801139 | Orificed check valve, .026" | 1 |
| | T30 | 95-28 | | 679506 (8700007) | Spring | 1 |
| | T40 | 95-28 | | 8801303 | Spring retainer | 1 |
| | T50 | 95-28 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |
| GB | T20 | 95-28 | | 11061958 | Orificed check valve, 0.81mm | 1 |
| | T30 | 95-28 | | 679506 (8700007) | Spring | 1 |
| | T40 | 95-28 | | 8801303 | Spring retainer | 1 |
| | T50 | 95-28 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |
| GD | T20 | 95-28 | | 11061993 | Orificed check valve, 1.57mm | 1 |
| | T30 | 95-28 | | 679506 (8700007) | Spring | 1 |
| | T40 | 95-28 | | 8801303 | Spring retainer | 1 |
| | T50 | 95-28 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |
| GF | T20 | 95-28 | | 11061970 | Orificed check valve, 1.02mm | 1 |
| | T30 | 95-28 | | 679506 (8700007) | Spring | 1 |
| | T40 | 95-28 | | 8801303 | Spring retainer | 1 |
| | T50 | 95-28 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |
| GJ | T20 | 95-28 | | 11061981 | Orificed check valve, 1.37mm | 1 |
| | T30 | 95-28 | | 679506 (8700007) | Spring | 1 |
| | T40 | 95-28 | | 8801303 | Spring retainer | 1 |
| | T50 | 95-28 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |
| K1 | T20 | 95-28 | | 11061981 | Orificed check valve, 1.37mm | 1 |
| | T30 | 95-28 | | 679506 (8700007) | Spring | 1 |
| | T40 | 95-28 | | 8801303 | Spring retainer | 1 |
| K3 | T20 | 95-28 | | 11061993 | Orificed check valve, 1.57mm | 1 |
| | T30 | 95-28 | | 679506 (8700007) | Spring | 1 |
| | T40 | 95-28 | | 8801303 | Spring retainer | 1 |
| | T50 | 95-28 | | 639120 | Orifice plug, 1.0 mm, M5 x 6 | 1 |
| | T60 | 95-28 | | 639120 | Orifice plug, 1.0 mm, M5 x 6 | 1 |
| P1 | T70 | 94-20 | | 508014 | Orifice plug, 1.0 mm, M6 x 8 | 1 |
| | T80 | 94-20 | | 508014 | Orifice plug, 1.0 mm, M6 x 8 | 1 |

## Variable displacement pump

### Overhaul seal kit

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|---|---|---|---|---|---|---|
| | Q210 | 95-28 | | 11095664 | Service seal kit, base pump, 250cc | 1 |
| | C70 | 95-28 | | 308643 | Screw | 4 |
| | E40 | 95-28 | | 042432 | Seal nut, M10 | 2 |
| | E50 | 95-28 | | 517380 | O-ring | 1 |
| | E60 | 95-28 | | 517231 | Screw | 6 |
| | F11 | 95-28 | | 504627 | O-ring | 2 |
| | F12 | 95-28 | | 507802 | Piston ring | 2 |
| | F40 | 95-28 | | 9004104-1520 | O-ring | 2 |
| | F50 | 95-28 | | 755272 | O-ring | 2 |
| | F112 | 95-28 | | 649822 | Seal nut, M14 | 1 |
| | F212 | 95-28 | | 649822 | Seal nut, M14 | 1 |
| | G30 | 95-28 | | 511809 | End cap gasket | 1 |
| | J40 | 95-28 | | 11147582 | O-ring | 1 |
| | J50 | 95-28 | | 505068 | O-ring | 1 |
| | K50 | 95-28 | | 001156 (9004201-7500) | O-ring | 1 |
| | L25 | 95-28 | | 11053971 | Shaft seal carrier assembly | 1 |
| | N15 | 95-28 | | 093823 (9004201-9200) | O-ring | 1 |
| | P02 | 95-28 | | 775080 (9004100-0170) | O-ring | 2 |
| | P06 | 95-28 | | 360784 (9004105-0290) | O-ring | 2 |
| | P13 | 95-28 | | 775155 | O-ring | 2 |

## Service Bulletin: SB-1996-004

**Products affected**

Series 90 42, 130, 180, and 250cc variable pumps

**Subject**

Side cover design change

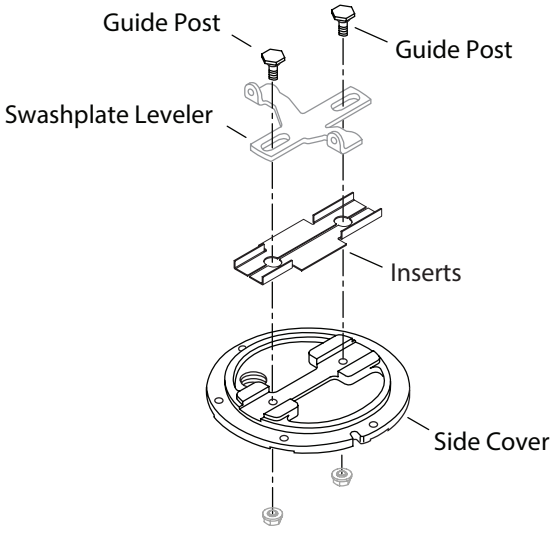
**Description**

As a product improvement, Sauer-Sundstrand is changing the side cover and swashplate leveler (T-Bar) guide post design.

The new design side cover will have two hardened inserts in the machined slot which serves as a guide for the swashplate leveler, and modified guide posts. The swashplate leveler does not change.

Old guide posts will remain available for service requirements of pumps with the old design side cover.

The old style side cover will be obsoleted and no longer available as a service part. A service kit has been created for replacing the old design side cover. The kit includes the new side cover, guide posts and inserts. Piece parts are not interchangeable..




**Models affected**

All series 42, 130, 180, and 250cc variable pumps

**Serial numbers**

Change occured at serial number N-96-08-xxxxx.

**Part numbers affected**

| | Old part numbers | | New part numbers | | |
|---|---|---|---|---|---|
| Description | Guide post | Side cover | Insert assy. | Guide post | Replacement kit |
| 42 cc | 344465 | 751305 | 506916 | 506369 | 506380 |
| 130 cc | 503205 | 746107 | 8300004 | 506368 | 11027814 |
| 180 cc | 503205 | 746404 | 506914 | 506368 | 506290 |
| 250 cc | 503205 | 746404 | 506914 | 506368 | 506290 |

**Parts disposition**

■ Interchangeable - piece parts are not interchangeable

## Service Bulletin: SB-1999-065A

**Products affected**

Series 90 75, 100, 130, 180, and 250cc variable displacement pumps

**Subject**

Hydraulic displacement control gasket and swashplate bearing locator pin retention

**Description**

The Series 90 75cc, 100cc, 130cc, 180cc, and 250cc variable displacement pumps utilize a common gasket to seal the joint between the displacement control housing and main pump housing.

In November 1998, Sauer-Danfoss introduced a new gasket design for Hydraulic Displacement Controls (HDC - all options), version 2 Electrical Displacement Controls (EDC2 - options EE and EN), and two amp current control (options PA and PB) equipped pumps (see SB-1998-038). The purpose of this gasket is primarily to seal the joint and aid in the retention of the bearing cage locator pin in the main pump housing. Sauer-Danfoss has identified that the new gasket may not adequately aid in the retention of this pin in 75cc pump sizes due to casting and machining tolerances. Installations which are particularly sensitive to pin retention include those oriented with the control on the side or on the bottom when the pump is installed. In these types of installations, it is possible for the pin to come out of its position in the pump housing. This will result in a loss of alignment between the swashplate and swashplate bearing assembly and the potential for erratic pump control and/or system performance.

To address this situation, Sauer-Danfoss has introduced a design modification to the control gasket. The modification will insure that the cage locator pin is retained in 75cc pumps in all circumstances, while still maintaining the desired gasket clamp load to avoid leaks.

The new gasket is completely interchangeable with the previous gasket. Sauer-Danfoss recommends that the previous control gasket be replaced immediately on 75cc pump assemblies, with controls noted above, in which the control is on the side or on the bottom of the pump. The pump serial numbers involved are A-98-41-xxxxx through A-99-49-xxxxx. It is not required to replace the gasket in pumps with the control in the up position, until the initial servicing of the pump assembly.

The 100cc, 130cc, 180cc, and 250cc pumps are not dependent upon the gasket to maintain retention of the bearing cage locator pin and are not affected by the information above.

The new gasket has replaced the previous gasket in all new pump assemblies with Hydraulic Displacement Control (HDC), version 2 Electrical Displacement Control (EDC2 - EE and EN), and two amp current (PA and PB) controls. The new gasket has also been placed in all appropriate control kits and overhaul seal kits. Page 3 of this bulletin will assist you in identifying the new gasket from the previous gasket.

**Models affected**

95-2xxx, 952xxxx, 96-2xxx, 962xxxx, 97-2xxx, 972xxxx, 98-2xxx, 982xxxx, 99-2xxx, and 992xxxx variable displacement pumps equipped with hydraulic displacement controls and specific option electronic displacement control. (EE, EN, PA, PB)

**Serial numbers**

Sauer-Danfoss Ames 75cc pump production: A-99-50-xxxxx.
Sauer-Danfoss Ames 100cc pump production: A-00-25-xxxxx.
Sauer-Danfoss Neumunster production: N-00-01-xxxxx.

## Service Bulletin: SB-1999-065A

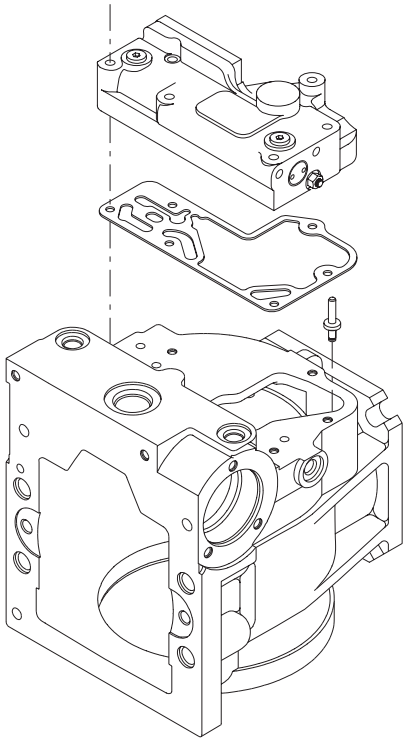
**Part numbers affected**

| Previous gasket | New gasket |
|---|---|
| 511608 | 8801241 |

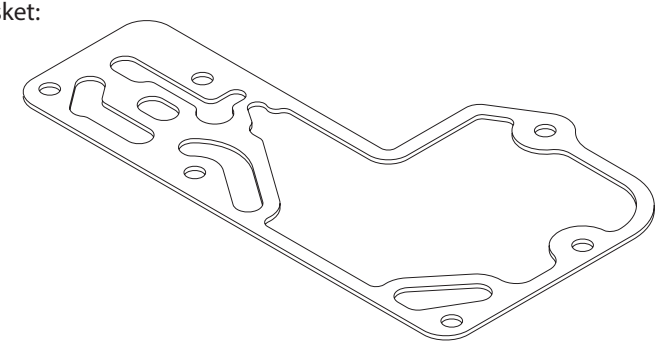
**Parts disposition**

■ Interchangeable

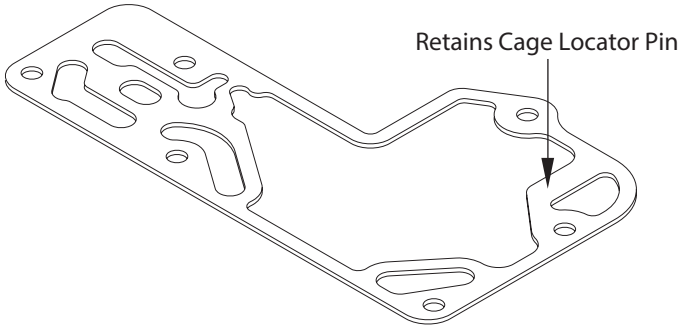
Control Gasket Location:



Previous Gasket:



New Gasket:



## Service Bulletin: SB-2002-040

**Products affected**

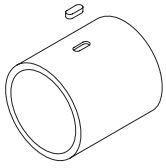
Series 90 250cc variable pumps

**Subject**

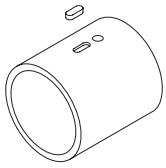
Charge pump shaft

**Description**

As a product improvement, Sauer-Danfoss has changed the charge pump drive shaft. This change will incorporate two drain holes in the shaft. These drain holes will prevent pressure build up at the end of the pump input shaft. Relieving this pressure reduces the axial load on the shaft and increases the life of the front roller bearing. The old charge pump shaft part number will become obsolete and not available for service. The new shaft is a direct replacement and can be used in older 250cc pumps.



Old shaft



New shaft

**Models affected**

All series 250cc variable pumps

**Serial numbers**

Change became effective at serial number N-02-41-xxxxx.

**Part numbers affected**

| Old part numbers | New part numbers |
|---|---|
| 513439 | 518691 |

**Parts disposition**

■ Interchangeable

## Service Bulletin: SB-2009-074

**Products affected**

Series 90 42, 130, 180 and 250cc variable pumps

**Subject**

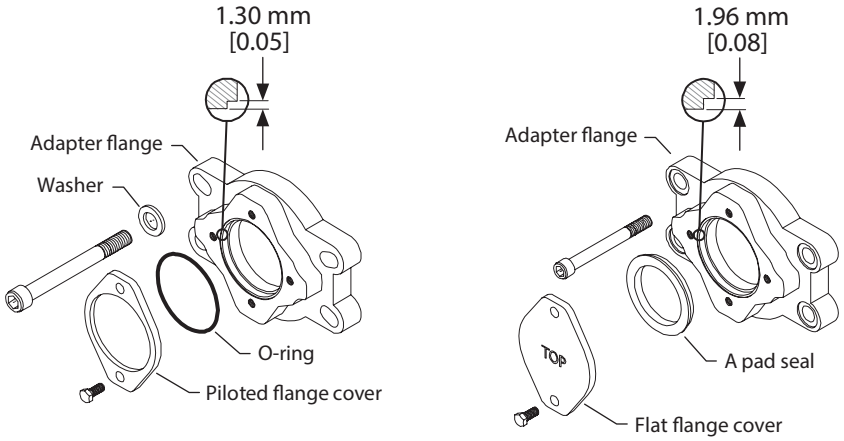
SAE A auxiliary mounting flange, O-ring seal

**Part numbers affected**

Sauer-Danfoss is pleased to announce a design improvement on the SAE A auxiliary mounting flange adapter on its series 90 pumps. The frame sizes affected by this change are 42, 130, 180 and 250cc. All manufacturing locations producing these pumps will be changed to this configuration.

The improvement comes in the form of a more robust sealing geometry with a larger cross-section O-ring. The O-ring groove in the flange will now be sized to mate with a 2.62mm [0.103"] cross-section O-ring rather than the old 1.78mm [0.070"] cross-section O-ring. The Sauer-Danfoss part number for the new O-ring is 9004104-1520 (2.62mm [0.070"] x 82.22mm [3.237"]). The larger cross-section sealing geometry allows for the use of a donut style A pad seal and a new flat cover for improved assembly. This new configuration is qualified as a running cover. When installing an auxiliary pump, the donut style A pad seal must be discarded and the part number 9004104-1520 O-ring used.

The pumps will now be supplied with the donut style seal and new flat cover, instead of the small O-ring and stepped cover plate (shown in the drawing below).




Old design New design

**Models affected**

All series90 42, 130, 180 and 250cc pumps with an SAE A auxiliary mounting flange.

**Serial numbers**

Change became effective at serial number N-09-30-xxxxx. (20 July 2009)

**Part numbers affected**

| Description | Old part number | New part number | Used on |
|---|---|---|---|
| A flange adapter | 511040 | 520944 | 42cc |
| A flange adapter | 505113 | 520946 | 130cc |
| A flange adapter | 505136 | 520949 | 180 and 250cc |
| O-ring | 9004104-0420 | 9004104-1520 | all sizes |
| A pad seal | N/A | 4800482 | all sizes |
| Flange cover | 9802336 | 4460586 | all sizes |

**Parts disposition**

■ Interchangeable if new O-ring or if the pad seal and new cover are used.

## Service Bulletin: SB-2009-075

**Products affected**

Series 90 42, 130, 180 and 250cc variable pumps

**Subject**

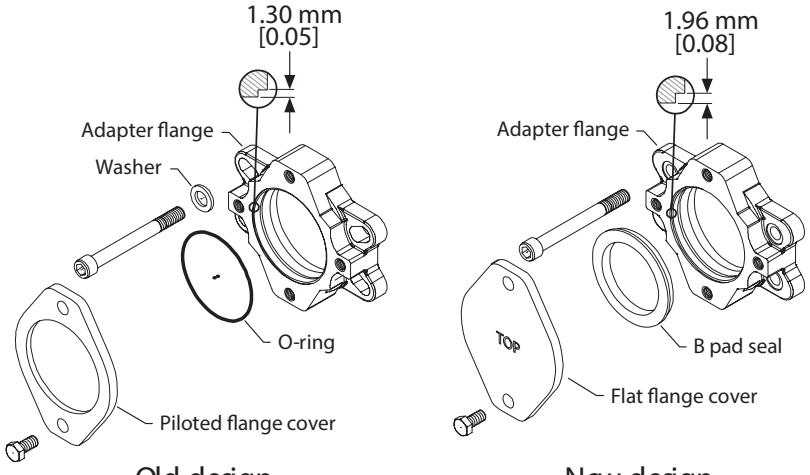
SAE B auxiliary mounting flange, O-ring seal

**Part numbers affected**

Sauer-Danfoss is pleased to announce a design improvement on the SAE B auxiliary mounting flange adapter on its series 90 pumps. The frame sizes affected by this change are 42, 130, 180 and 250cc. All manufacturing locations producing these pumps will be changed to this configuration.

The improvement comes in the form of a more robust sealing geometry with a larger cross-section O-ring. The O-ring groove in the flange will now be sized to mate with a 2.62mm [0.103"] cross-section O-ring rather than the old 1.78mm [0.070"] cross-section O-ring. The Sauer-Danfoss part number for the new O-ring is 9004104-1540 (2.62mm [0.070"] x 94.92mm [3.737"]). The larger cross-section sealing geometry allows for the use of a donut style B pad seal and a new flat cover for improved assembly. This new configuration is qualified as a running cover. When installing an auxiliary pump, the donut style B pad seal must be discarded and the part number 9004104-1540 O-ring used.

The pumps will now be supplied with the donut style seal and new flat cover, instead of the small O-ring and stepped cover plate (shown in the drawing below).




**Models affected**

All series90 42, 130, 180 and 250cc pumps with an SAE B auxiliary mounting flange.

**Serial numbers**

Change became effective at serial number N-09-30-xxxxx. (20 July 2009)

**Part numbers affected**

| Description | Old part number | New part number | Used on |
|---|---|---|---|
| B flange adapter | 506778 | 520945 | 42cc |
| B flange adapter | 503230 | 520947 | 130cc |
| B flange adapter | 11000255 | 11039180 | 130cc |
| B flange adapter | 505132 | 520950 | 180 and 250cc |
| O-ring | 9004104-0450 | 9004104-1540 | all sizes |
| B pad seal | N/A | 8801061 | all sizes |
| Flange cover | 4460370 | 8801059 | all sizes |

**Parts disposition**

■ Interchangeable if new O-ring or if the pad seal and new cover are used.

## Service Bulletin: SB-2009-076

**Products affected**

Series 90 130, 180 and 250cc variable pumps

**Subject**

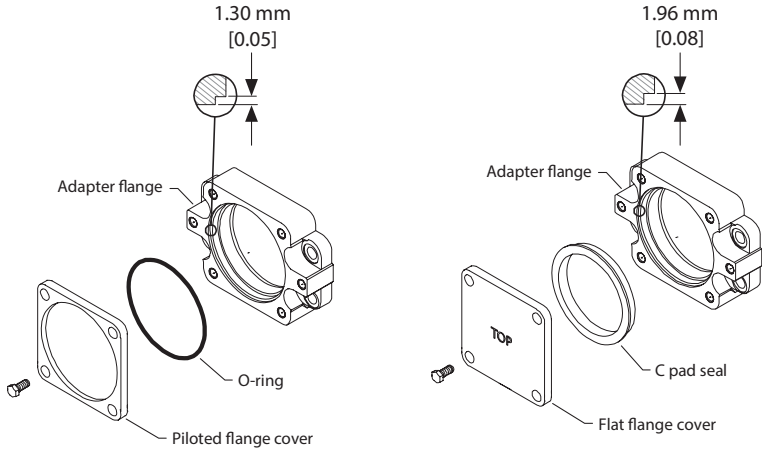
SAE C auxiliary mounting flange, O-ring seal

**Part numbers affected**

Sauer-Danfoss is pleased to announce a design improvement on the SAE C auxiliary mounting flange adapter on its series 90 pumps. The frame sizes affected by this change are 130, 180 and 250cc. All manufacturing locations producing these pumps will be changed to this configuration.

The improvement comes in the form of a more robust sealing geometry with a larger cross-section O-ring. The O-ring groove in the flange will now be sized to mate with a 2.62mm [0.103"] cross-section O-ring rather than the old 1.78mm [0.070"] cross-section O-ring. The Sauer-Danfoss part number for the new O-ring is 9004104-1580 (2.62mm [0.070"] x 120.32mm [4.737"]). The larger cross-section sealing geometry allows for the use of a donut style C pad seal and a new flat cover for improved assembly. This new configuration is qualified as a running cover. When installing an auxiliary pump, the donut style C pad seal must be discarded and the part number 9004104-1580 O-ring used.

The pumps will now be supplied with the donut style seal and new flat cover, instead of the small O-ring and stepped cover plate (shown in the drawing below).




Old design New design

**Models affected**

All series 90 130, 180 and 250cc pumps with an SAE C auxiliary mounting flange.

**Serial numbers**

Change became effective at serial number N-09-30-xxxxx. (20 July 2009)

**Part numbers affected**

| Description | Old part number | New part number | Used on |
|---|---|---|---|
| C Flange adapter | 505116 | 513617 | 130 cc |
| C Flange adapter | 508407 | 11039184 | 130 cc |
| C Flange adapter | 515116 | 513617 | 130 cc |
| C Flange adapter | 505139 | 520951 | 180cc and 250cc |
| C Flange adapter | 508406 | 11039178 | 180cc and 250cc |
| O-ring | 9004100-0480 | 9004104-1580 | All units |
| C pad seal | NA | 8801062 | All units |
| Flange cover | 8800406 | 8801060 | All units |

**Parts disposition**

■ Interchangeable if new O-ring or if the pad seal and new cover are used.

## Service Bulletin: SB-2011-032

**Products affected**

Series 90 180cc variable pumps

**Subject**

Pump redesign

**Description**

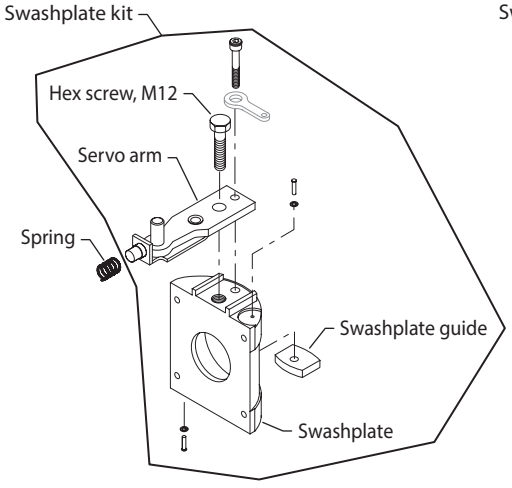
As a global improvement, the series 90 180/250cc pumps have redesigned the following components: servo arm, servo arm screw, swashplate guide and pump housing. This is a non-interchangeable change. Model numbers and order codes will not be changed.

A "one piece" servo arm is introduced. The pin that engages the servo piston is now machined as part of the servo arm instead of pressed in. The old servo arm will remain available as a service part for a period of time.

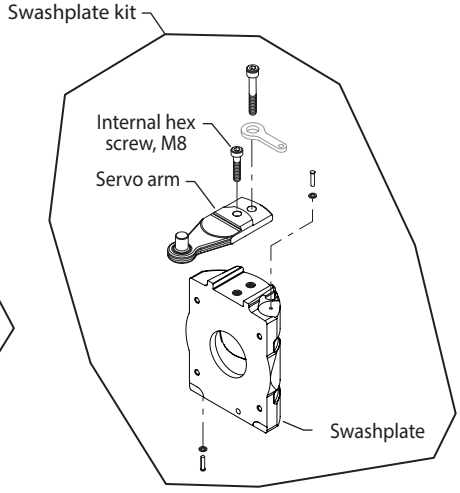
One of the two screws that hold the servo arm to the swashplate has changed from a M12 external hex to a M8 internal hex screw. The old screw will remain available as a service part for a period of time.

The swashplate position is now guided by the fit between the servo arm and the pump housing. A "shelf" on the servo arm fits under a boss in the housing to provide a fixed clearance. The swashplate was previously held down with a spring and bracket, which was riveted to the servo arm. The servo arm to housing clearance now limits lateral movement of the swashplate. The swashplate guide that was bolted to the bottom of the swashplate has been removed. The old swashplate guide will remain available as a service part for a period of time.

The housing is modified internally to provide the servo arm pivot. The old housing will remain available as a service part for a period of time.




Old design




New design

## Service Bulletin: SB-2011-032

**Models affected**

Series 90, 180cc and 250cc pumps.

**Serial numbers**

This change became effective at serial number A-11-40-xxxxx. (3 Oct 2011)

**Part numbers affected**

| Description | Old part number | New part number |
|---|---|---|
| Housing 180cc assy without PPU | 789438 | 11097202 |
| Housing 180cc assy with PPU | 519646 | 11097202 |
| Swashplate 180cc | 521426 | 11094403 |
| Swashplate kit, 180cc | 11107093 | 11097626 |
| Housing 250cc with PPU assy | 515967 | 11088644 |
| Swashplate 250cc | 521428 | 11088847 |
| Swashplate kit, 250cc | 11107094 | 11097784 |
| Servo arm 180/250cc | 746339 | 11061195 |
| Screw, servo arm | 746362 | 519150 |
| Swashplate guide, 180/250cc | 745703 | not used |
| Spring | 746396 | not used |

**Parts disposition**

■ Non-interchangeable

## Service Bulletin: SB-2012-039

**Products affected**

Series 90 180 and 250cc pumps

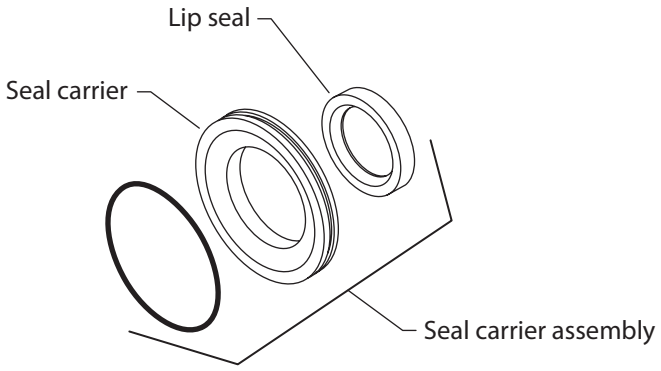
**Subject**

Shaft seal change

**Description**

A supplier change for the shaft seal used in Series 90 180 and 250cc pumps has been made as part of globalization of the entire Sauer-Danfoss product line. The new lip seal has a smaller O.D., and the I.D. of the seal carrier changed accordingly. The old lip seal and seal carrier will become obsolete and not available for service.

The seal carrier assembly part number has changed to better track this change. The new seal carrier assembly is interchangeable, but the piece parts are not.




**Models affected**

Series 90 180 and 250cc pumps

**Serial numbers**

This change became effective at serial number N-12-17-XXXXX (25-Apr-2012)

**Part numbers affected**

| Description | Old part number | New part number |
|---|---|---|
| Seal carrier assembly | 512637 | 11053971 |
| Lip seal | 9008000-0114 | 519021 |

**Parts disposition**

Non-interchangeable
Order replacement parts
Revise existing part orders

## Service Bulletin: SB-2015-038

**Products affected**

Series 90 130, 180 and 250cc pumps

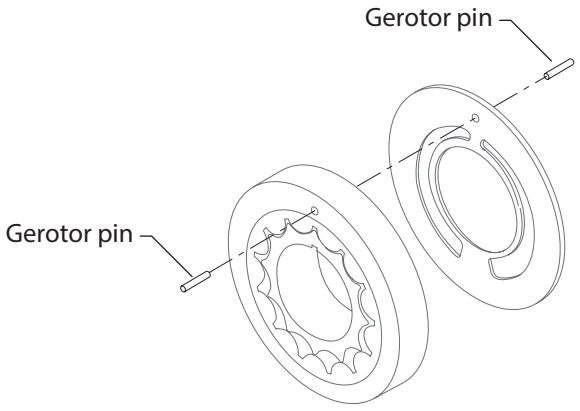
**Subject**

Gerotor pin change

**Description**

As an assembly aid, some of the charge pump gerotor pins used in 130, 180 and 250cc pumps are being changed from one to two pins. This change is being made to reduce the chance of mis-locating the pin in the end cap or gerotor cover during the assembly process.

There will be three new lengths of pins used in these pumps. The new pin lengths will be 16, 20 and 26mm. To aid in the identification of the new pins, the 20mm pins will be yellow/gold in color.




**Models affected**

Series 90, 130, 180 and 250cc pumps

**Serial numbers**

| Frame size | NMS effectivity date |
|---|---|
| 130 cc | N-15-14-xxxxx |
| 180 cc | N-15-04-xxxxx |
| 250 cc | N-15-02-xxxxx |

**Part numbers affected**

| | Old pin (1) | | New pin (2) | |
|---|---|---|---|---|
| Frame size | Length | Part number | Length | Part number |
| 130 cc | 32mm | 308718 | 16mm | 11152774 |
| 180 cc | 40mm | 750133 | 20mm | 11152775 |
| 250 cc | 55mm | 504507 | 26mm | 11152778 |

**Parts disposition**

Interchangeable
Use parts in stock

## Notes

## Notes

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