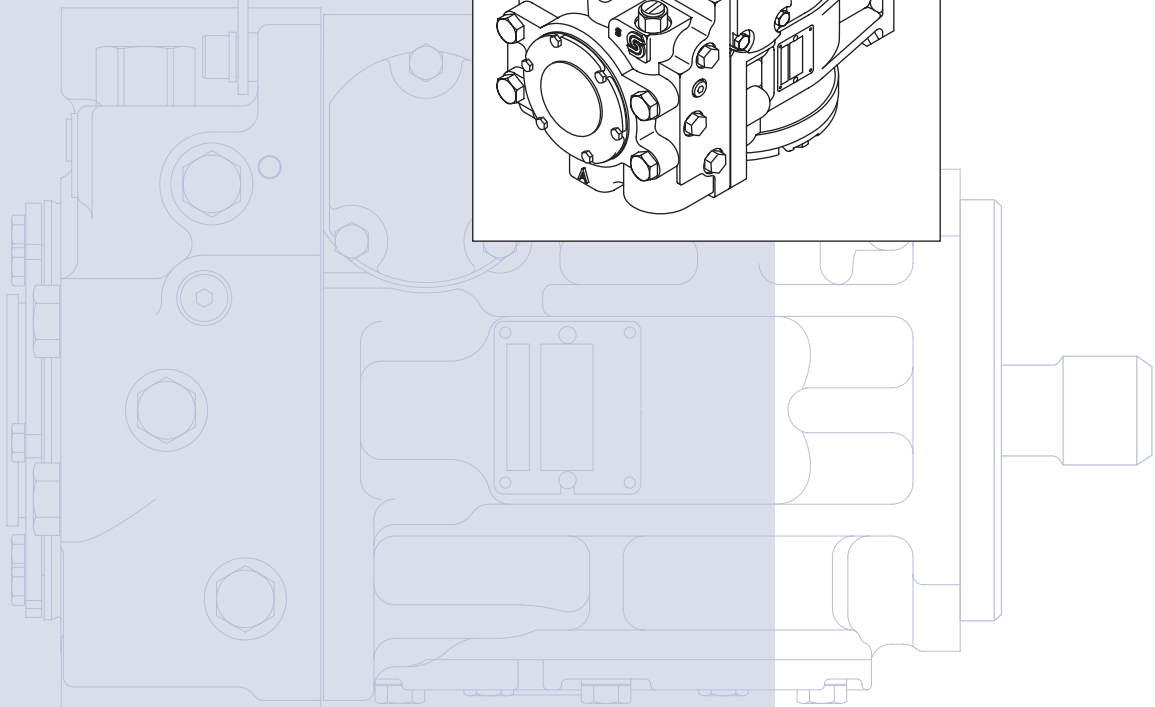
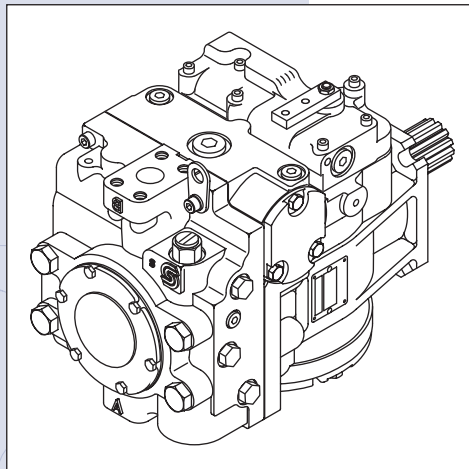
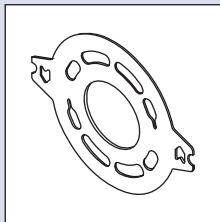
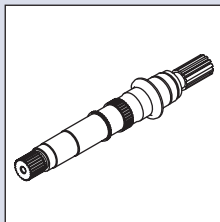
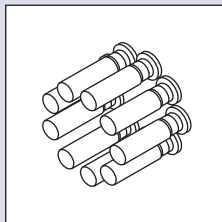


Series 90
75 cc Axial Piston
Pump

Parts Manual





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Front cover illustrations: P100 609, P100 681, P100 680, P100 679

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**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 Series 90, 75 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, 75 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

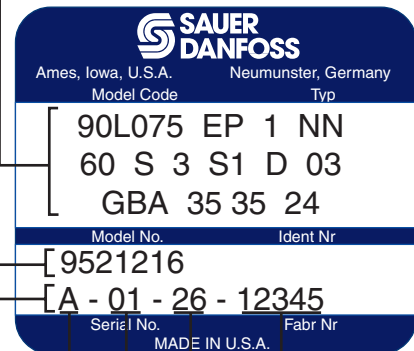
The Sauer-Danfoss serial number is used to identify the manufacture date and the unit sequence in the build. The serial number is also used to identify the units warranty time period.

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



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 receive 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

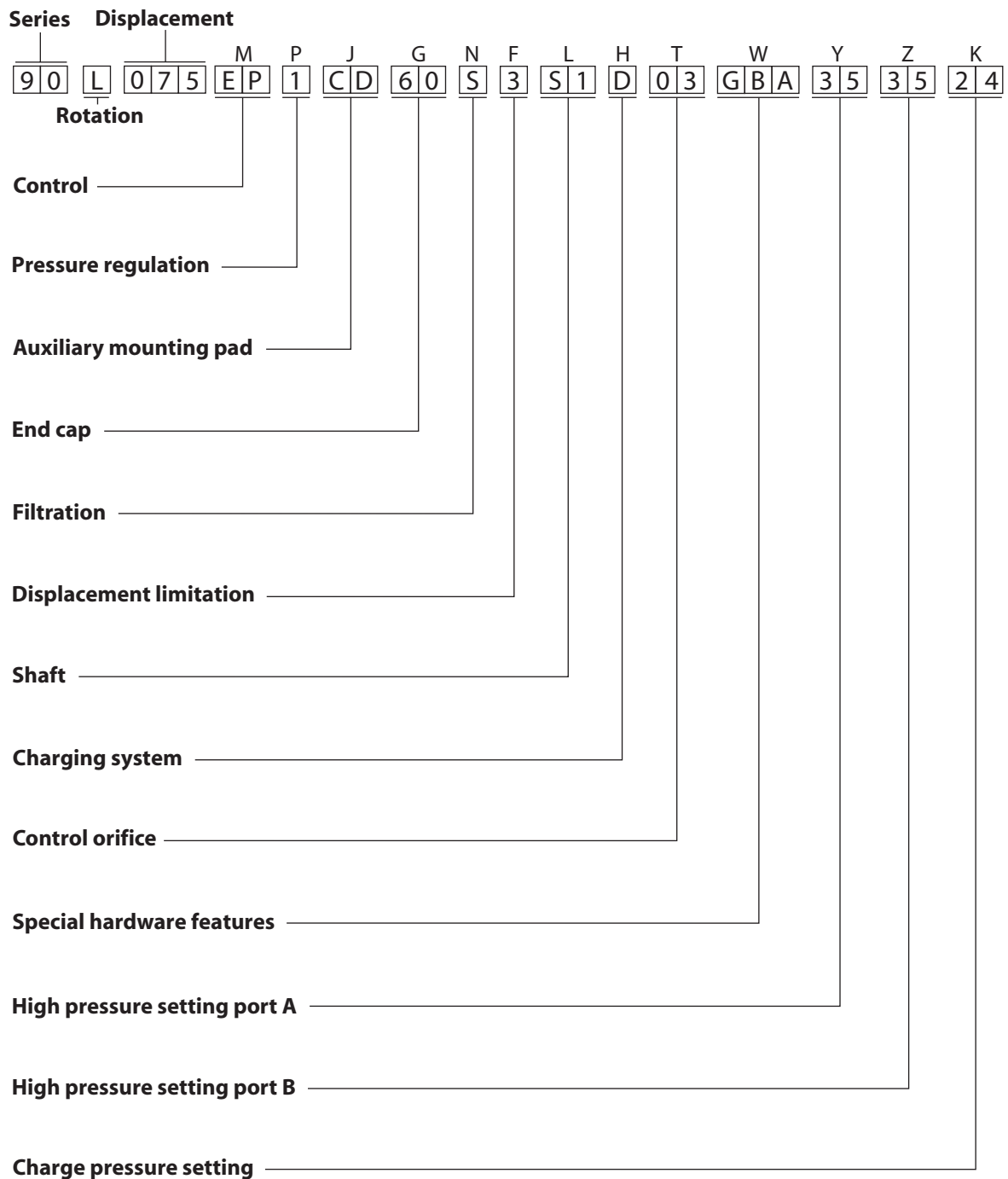
The nameplate on a Series 90 pump has an Order Code of 90L075 EP 1 NN 60 S 3 S1 D 03 GBA 35 35 24. Use the following procedures to determine the part number of the drive shaft used on this pump.

- 1) Referring to the input shaft module in the Order Code (see page 7), 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.

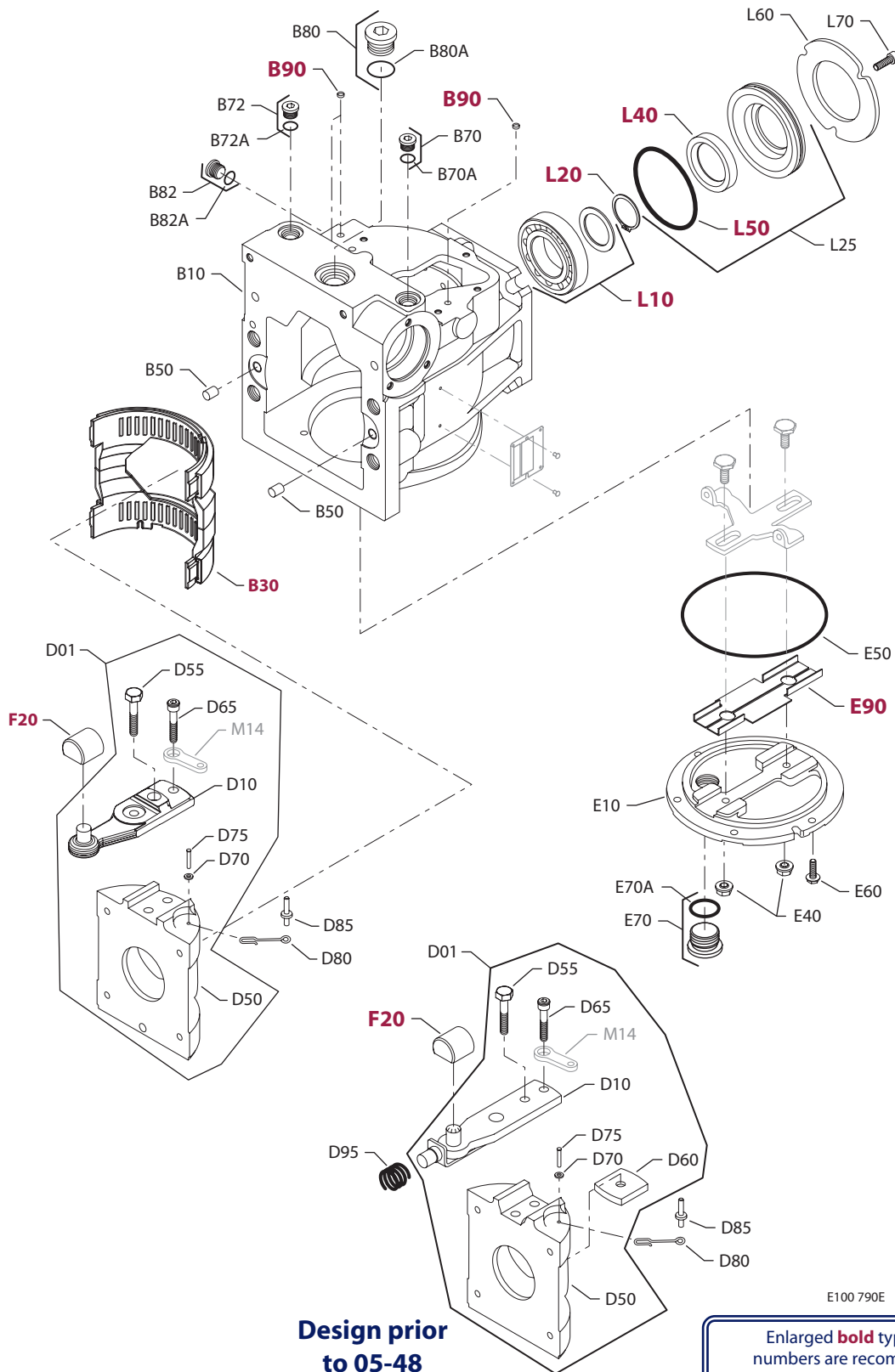


Series 90 75 cc Axial Piston Pump
Parts Manual
Notes





P100 704E

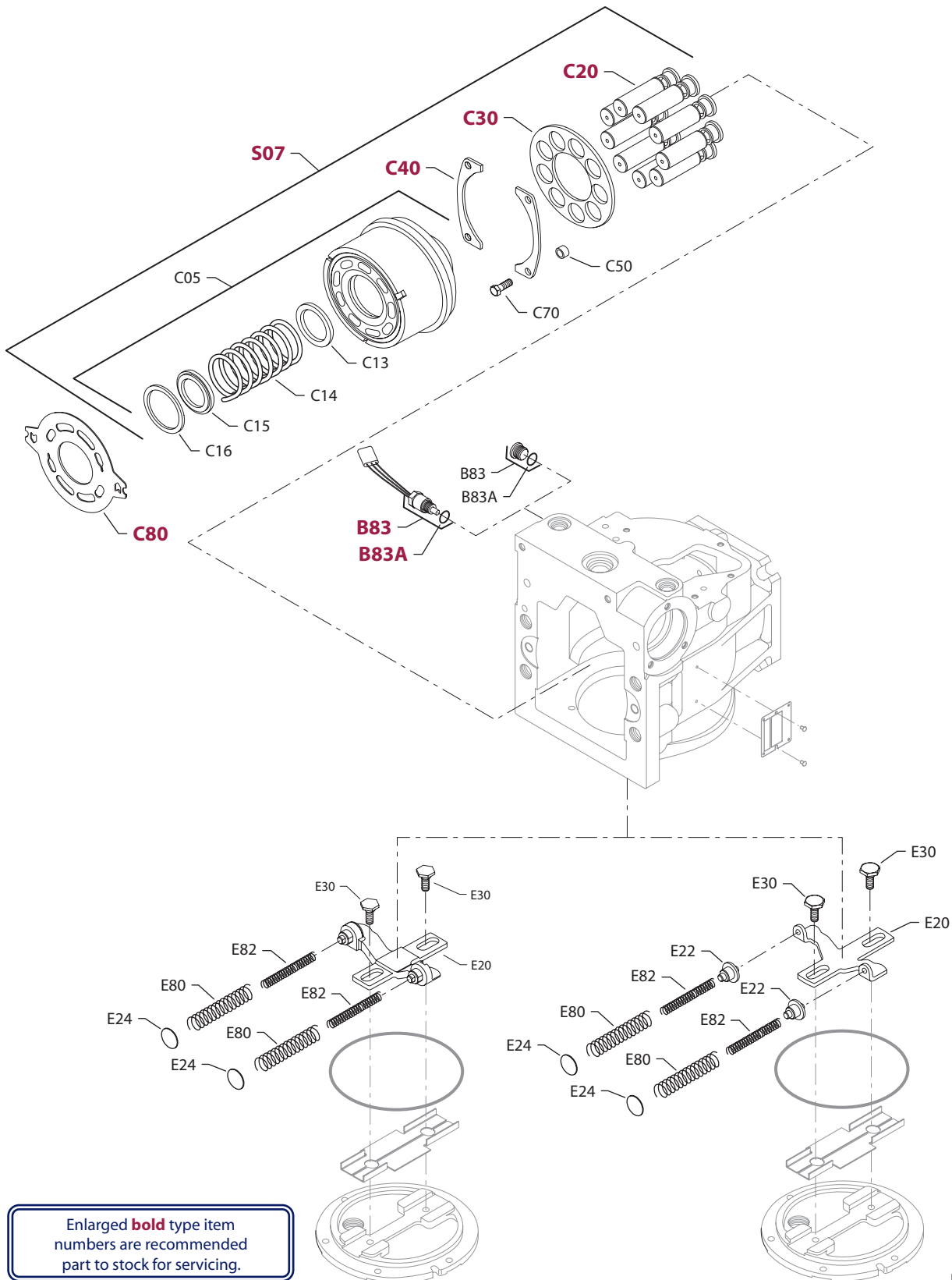


**Design prior
to 05-48**

E100 790E
Enlarged **bold** type item numbers are recommended part to stock for servicing.

COMMON PARTS

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|-----------------------|---|--------------------|
| | B10 | 05-49 | | 11001300 | Housing (SB-2005-007) | 1 |
| | B30 | 05-49 | | 518671 | Cradle bearing assembly (SB-2005-007) | 1 |
| | B30 | 87-02 | 05-48 | 676841 (8700048) | Cradle bearing assembly | 1 |
| | B50 | 87-02 | | 9004800-3708 | Pin | 2 |
| | B70 | 87-02 | | 515965 (9005110-5600) | Plug assembly | 1 |
| | B70A | 87-02 | | 085043 (9004201-3700) | O-ring | 1 |
| | B72 | 87-02 | | 515965 (9005110-5600) | Plug assembly | 1 |
| | B72A | 87-02 | | 085043 (9004201-3700) | O-ring | 1 |
| | B80 | 87-02 | | 664524 (9005110-9000) | Plug assembly | 1 |
| | B80A | 87-02 | | 001156 (9004201-7500) | O-ring | 1 |
| | B82 | 92-19 | | 515965 (9005110-5600) | Plug assembly (SB-1992-003) | 1 |
| | B82A | 92-19 | | 085043 (9004201-3700) | O-ring | 1 |
| | B90 | 87-02 | | 9803390 | Control filter screen | 3 |
| | D01 | 05-49 | | 8100984 | Swashplate assembly (SB-2005-007) | 1 |
| | D01 | 88-16 | 05-48 | 8100376 | Swashplate assembly (SB-1988-009) | 1 |
| | D10 | 05-49 | | 519046 | Servo arm (SB-2005-007) | 1 |
| | D10 | 88-16 | 05-48 | 8100499 | Servo arm assembly (SB-1993-015) | 1 |
| | D50 | 05-49 | | 521366 (11000688) | Swashplate (SB-2005-007) | 1 |
| | D50 | 88-16 | 05-48 | 516201 (8100367) | Swashplate (SB-1988-009) | 1 |
| | D55 | 05-49 | | 519150 | Screw (SB-2005-007) | 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) | 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 | 01-26 | | 8801235 | Pin (SB-2004-012) | 1 |
| | D85 | 87-02 | 01-25 | 8801135 | Pin (SB-1998-018) | 1 |
| | D95 | 87-02 | 05-48 | 8100035 | Spring (SB-2005-007) | 1 |
| | E10 | 05-49 | | 11001286 | Side cover (SB-2005-007) | 1 |
| | E10 | 95-50 | | 501572 | Side cover (SB-1995-025) | 1 |
| | 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 |
| | E70A | 87-02 | | 001156 (9004201-7500) | O-ring | 1 |
| | E90 | 95-50 | | 513886 | Insert assembly (SB-1995-025 & SB-1999-041) | 1 |
| | F20 | 88-16 | | 500247 (8800750) | Slider block (SB-1988-009) | 1 |
| | 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) | 1 |
| | L40 | 87-02 | | 519666 | Lip seal (SB-2005-007) | 1 |
| | L50 | 87-02 | | 071845 (9004104-1510) | O-ring | 1 |
| | L60 | 87-02 | | 516767 | Retainer plate | 1 |
| | L70 | 87-02 | | 041160 (9007314-0605) | Screw | 3 |



COMMON PARTS

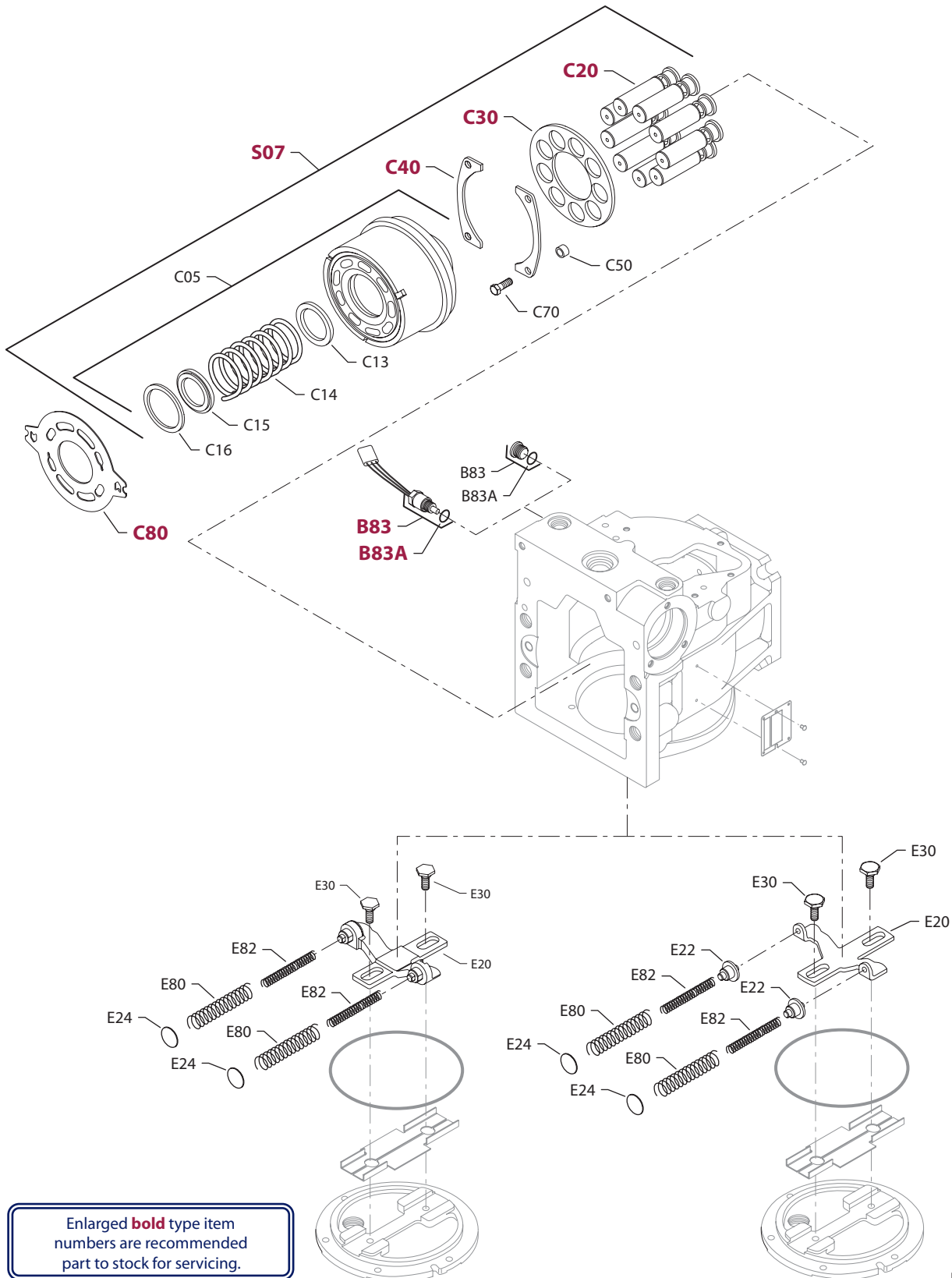
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|-----------------------|-------------------------------------|--------------------|
| | B83A | 92-06 | | 085043 (9004201-3700) | O-ring | 1 |
| | C13 | 87-02 | | 665067 (8100103) | Spring seat | 1 |
| | C14 | 87-02 | | 8100074 | Cylinder block spring | 1 |
| | C15 | 87-02 | | 665042 (8100127) | Spring retainer | 1 |
| | C16 | 87-02 | | 9006275-0027 | Retaining ring | 1 |
| | C20 | 87-02 | | 708230 | Piston assembly (SB-1988-023) | 9 |
| | C30 | 87-02 | | 8000007 | Slipper guide | 1 |
| | C40 | 88-22 | | 334391 (8100294) | Slipper guide bearing (SB-1988-016) | 2 |
| | C50 | 88-22 | | 8100777 | Spacer (SB-1988-016 & SB-1998-041) | 4 |
| | C65 | 88-22 | 98-47 | Obsolete | Washer (SB1988-016 & SB-1998-041) | 4 |
| | C70 | 88-22 | | 9007276-0114 | Screw (SB-1988-016 & SB-1998-041) | 4 |
| | E24 | 92-06 | | 8801225 | Shim (SB-2000-041) | 2 |
| | E30 | 99-28 | | 8000575 | Guide post | 2 |
| | E30 | 95-50 | 99-27 | 8000510 | Guide post (SB-1999-009) | 2 |
| | E30 | 87-02 | 95-49 | 8510098 | Side cover kit (SB-1995-025) | 1 |
| | E80 | 87-02 | | 334987 | Spring | 2 |

SPECIAL HARDWARE

| | | | | | | |
|-----|-----|-------|-------|-----------|--|---|
| EAB | B83 | 98-14 | | KPPG12508 | Speed sensor | 1 |
| | C05 | 98-14 | | 8100979 | Cylinder block assembly, with speed ring | 1 |
| | C80 | 98-14 | | 518008 | Valve plate | 1 |
| | E20 | 98-14 | | 517675 | Leveler (SB-1999-009) | 1 |
| | E22 | 06-27 | | 517935 | Spring seat | 2 |
| | E22 | 99-28 | 06-26 | none | | |
| | E22 | 98-14 | 99-27 | 358523 | Spring seat (SB-1999-009) | 2 |
| | E82 | 98-14 | | 360842 | Spring | 2 |
| | S07 | 98-14 | | 8510366 | Cylinder block kit, with speed ring | 1 |

| | | | | | | |
|-----|-----|-------|--|-----------|--|---|
| EAU | B83 | 02-21 | | KPPG12824 | Speed sensor | 1 |
| | C05 | 02-21 | | 8100979 | Cylinder block assembly, with speed ring | 1 |
| | C80 | 02-21 | | 518008 | Valve plate | 1 |
| | E20 | 02-21 | | 8100698 | Leveler | 1 |
| | E82 | 02-21 | | 360842 | Spring | 2 |
| | S07 | 02-21 | | 8510366 | Cylinder block kit, with speed ring | 1 |

| | | | | | | |
|-----|-----|-------|-------|-----------|--|---|
| EAV | B83 | 06-12 | | KPPG15824 | Speed sensor | 1 |
| | C05 | 06-12 | | 8100979 | Cylinder block assembly, with speed ring | 1 |
| | C80 | 06-12 | | 518008 | Valve plate | 1 |
| | E20 | 06-27 | | 517675 | Leveler | 1 |
| | E20 | 06-12 | 06-26 | 8100698 | Leveler (SB-1999-009) | 1 |
| | E22 | 06-27 | | 517935 | Spring seat | 2 |
| | E22 | 06-12 | 06-26 | none | | |
| | E82 | 06-12 | | 360842 | Spring | 2 |
| | S07 | 06-12 | | 8510366 | Cylinder block kit, with speed ring | 1 |



Enlarged **bold** type item numbers are recommended part to stock for servicing.

COMMON PARTS

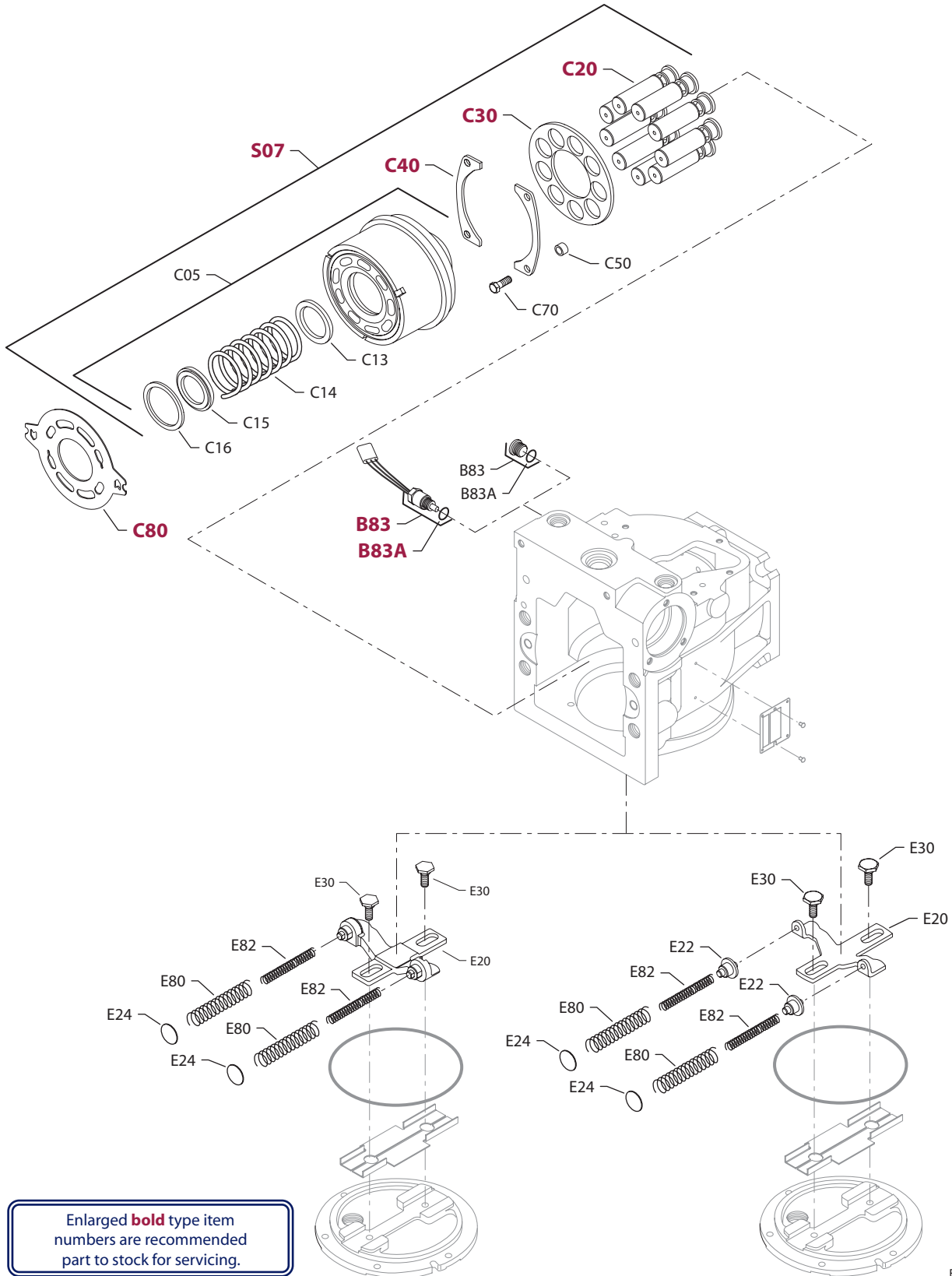
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|-----------------------|-------------------------------------|--------------------|
| | B83A | 92-06 | | 085043 (9004201-3700) | O-ring | 1 |
| | C13 | 87-02 | | 665067 (8100103) | Spring seat | 1 |
| | C14 | 87-02 | | 8100074 | Cylinder block spring | 1 |
| | C15 | 87-02 | | 665042 (8100127) | Spring retainer | 1 |
| | C16 | 87-02 | | 9006275-0027 | Retaining ring | 1 |
| | C20 | 87-02 | | 708230 | Piston assembly (SB-1988-023) | 9 |
| | C30 | 87-02 | | 8000007 | Slipper guide | 1 |
| | C40 | 88-22 | | 334391 (8100294) | Slipper guide bearing (SB-1988-016) | 2 |
| | C50 | 88-22 | | 8100777 | Spacer (SB-1988-016 & SB-1998-041) | 4 |
| | C65 | 88-22 | 98-47 | Obsolete | Washer (SB1988-016 & SB-1998-041) | 4 |
| | C70 | 88-22 | | 9007276-0114 | Screw (SB-1988-016 & SB-1998-041) | 4 |
| | E24 | 92-06 | | 8801225 | Shim (SB-2000-041) | 2 |
| | E30 | 99-28 | | 8000575 | Guide post | 2 |
| | E30 | 95-50 | 99-27 | 8000510 | Guide post (SB-1999-009) | 2 |
| | E30 | 87-02 | 95-49 | 8510098 | Side cover kit (SB-1995-025) | 1 |
| | E80 | 87-02 | | 334987 | Spring | 2 |

SPECIAL HARDWARE

| | | | | | | |
|-----|-----|-------|-------|-----------|--|---|
| EBA | B83 | 04-26 | | KPPG13408 | Speed sensor | 1 |
| | C05 | 04-26 | | 8100979 | Cylinder block assembly, with speed ring | 1 |
| | C80 | 04-26 | | 518805 | Valve plate | 1 |
| | E20 | 06-27 | | 517675 | Leveler | 1 |
| | E20 | 04-26 | 06-26 | 8100698 | Leveler (SB-1999-009) | 1 |
| | E22 | 06-27 | | 517935 | Spring seat | 2 |
| | E22 | 04-26 | 06-26 | none | | |
| | S07 | 04-26 | | 8510366 | Cylinder block kit, with speed ring | 1 |

| | | | | | | |
|-----|-----|-------|-------|-----------|--|---|
| EBC | B83 | 94-30 | | KPPG13408 | Speed sensor | 1 |
| | C05 | 94-30 | | 8100979 | Cylinder block assembly, with speed ring | 1 |
| | C80 | 94-30 | | 518805 | Valve plate | 1 |
| | E20 | 06-27 | | 517675 | Leveler | 1 |
| | E20 | 94-30 | 06-26 | 8100698 | Leveler (SB-1999-009) | 1 |
| | E22 | 06-27 | | 517935 | Spring seat | 2 |
| | E22 | 99-28 | 06-26 | none | | |
| | E22 | 94-30 | 99-27 | 358523 | Spring seat (SB-1999-009) | 2 |
| | S07 | 94-30 | | 8510366 | Cylinder block kit, with speed ring | 1 |

| | | | | | | |
|-----|-----|-------|-------|-----------|--|---|
| EBE | B83 | 98-44 | | KPPG15408 | Speed sensor | 1 |
| | C05 | 98-44 | | 8100979 | Cylinder block assembly, with speed ring | 1 |
| | C80 | 98-44 | | 518805 | Valve plate | 1 |
| | E20 | 06-27 | | 517675 | Leveler | 1 |
| | E20 | 98-44 | 06-26 | 8100698 | Leveler (SB-1999-009) | 1 |
| | E22 | 06-27 | | 517935 | Spring seat | 2 |
| | E22 | 99-28 | 06-26 | none | | |
| | E22 | 98-44 | 99-27 | 358523 | Spring seat (SB-1999-009) | 2 |
| | E82 | 98-44 | | 360842 | Spring | 2 |
| | S07 | 98-44 | | 8510366 | Cylinder block kit, with speed ring | 1 |



Enlarged **bold** type item numbers are recommended part to stock for servicing.

COMMON PARTS

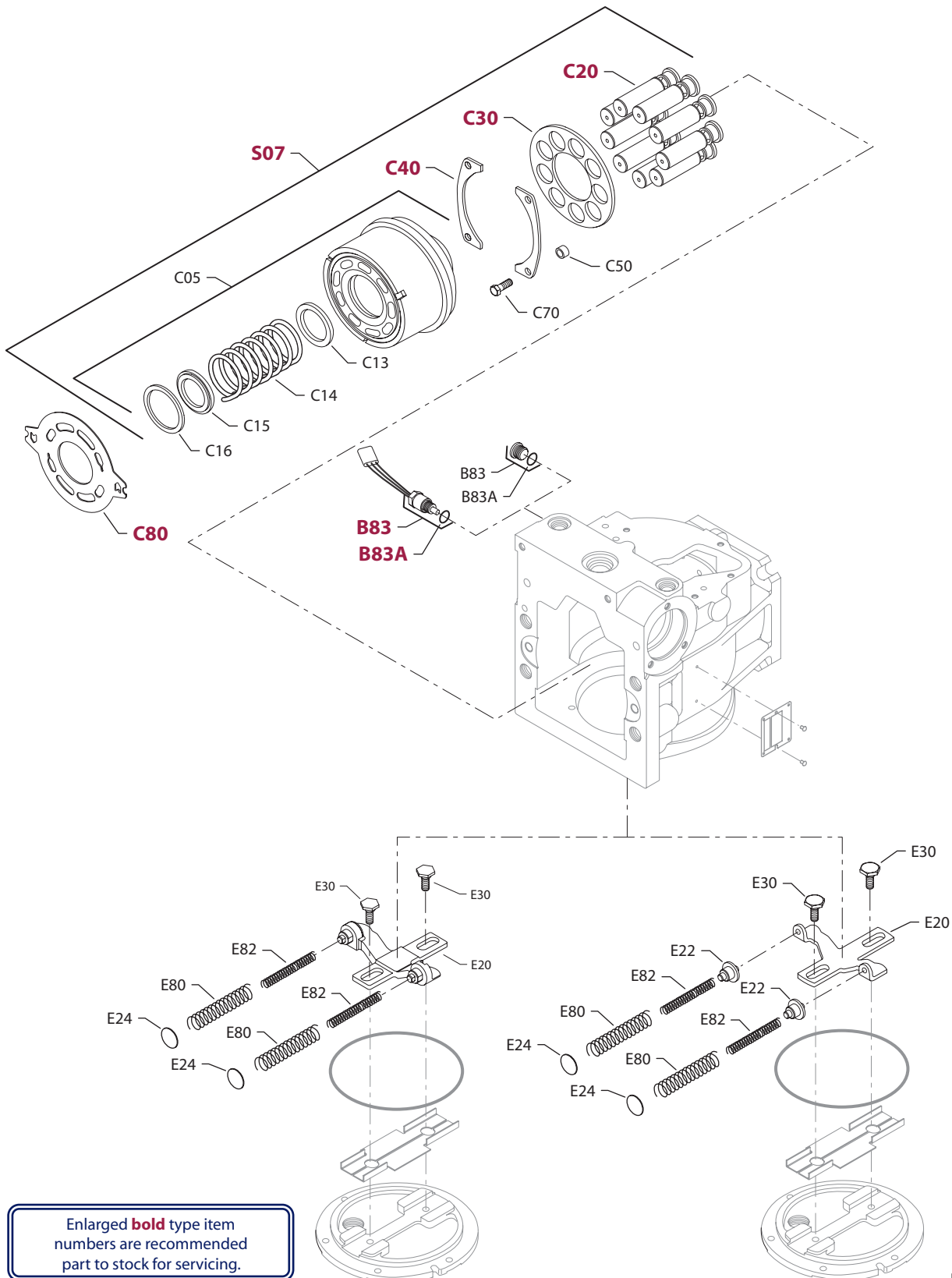
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|-----------------------|-------------------------------------|--------------------|
| | B83A | 92-06 | | 085043 (9004201-3700) | O-ring | 1 |
| | C13 | 87-02 | | 665067 (8100103) | Spring seat | 1 |
| | C14 | 87-02 | | 8100074 | Cylinder block spring | 1 |
| | C15 | 87-02 | | 665042 (8100127) | Spring retainer | 1 |
| | C16 | 87-02 | | 9006275-0027 | Retaining ring | 1 |
| | C20 | 87-02 | | 708230 | Piston assembly (SB-1988-023) | 9 |
| | C30 | 87-02 | | 8000007 | Slipper guide | 1 |
| | C40 | 88-22 | | 334391 (8100294) | Slipper guide bearing (SB-1988-016) | 2 |
| | C50 | 88-22 | | 8100777 | Spacer (SB-1988-016 & SB-1998-041) | 4 |
| | C65 | 88-22 | 98-47 | Obsolete | Washer (SB1988-016 & SB-1998-041) | 4 |
| | C70 | 88-22 | | 9007276-0114 | Screw (SB-1988-016 & SB-1998-041) | 4 |
| | E24 | 92-06 | | 8801225 | Shim (SB-2000-041) | 2 |
| | E30 | 99-28 | | 8000575 | Guide post | 2 |
| | E30 | 95-50 | 99-27 | 8000510 | Guide post (SB-1999-009) | 2 |
| | E30 | 87-02 | 95-49 | 8510098 | Side cover kit (SB-1995-025) | 1 |
| | E80 | 87-02 | | 334987 | Spring | 2 |

SPECIAL HARDWARE

| | | | | | | |
|-----|-----|-------|-------|-----------|--|---|
| EDC | B83 | 94-34 | | KPPG13408 | Speed sensor | 1 |
| | C05 | 94-34 | | 8100979 | Cylinder block assembly, with speed ring | 1 |
| | C80 | 94-34 | | 518926 | Valve plate | 1 |
| | E20 | 06-27 | | 517675 | Leveler | 1 |
| | E20 | 94-34 | 06-26 | 8100698 | Leveler (SB-1999-009) | 1 |
| | E22 | 06-27 | | 517935 | Spring seat | 2 |
| | E22 | 99-28 | 06-26 | none | | |
| | E22 | 94-34 | 99-27 | 358523 | Spring seat (SB-1999-009) | 2 |
| | E82 | 94-34 | | 360842 | Spring | 2 |
| | S07 | 94-34 | | 8510366 | Cylinder block kit, with speed ring | 1 |

| | | | | | | |
|-----|-----|-------|-------|-----------|--|---|
| EDF | B83 | 97-14 | | KPPG15824 | Speed sensor | 1 |
| | C05 | 97-14 | | 8100979 | Cylinder block assembly, with speed ring | 1 |
| | C80 | 97-14 | | 518008 | Valve plate | 1 |
| | E20 | 06-27 | | 517675 | Leveler | 1 |
| | E20 | 97-14 | 06-26 | 8100698 | Leveler (SB-1999-009) | 1 |
| | E22 | 06-27 | | 517935 | Spring seat | 2 |
| | E22 | 99-28 | 06-26 | none | | |
| | E22 | 97-14 | 99-27 | 358523 | Spring seat (SB-1999-009) | 2 |
| | S07 | 97-14 | | 8510366 | Cylinder block kit, with speed ring | 1 |

| | | | | | | |
|-----|-----|-------|-------|-----------------------|--|---|
| EEB | B83 | 96-05 | | 515965 (9005110-5600) | Plug | 1 |
| | C05 | 96-05 | | 8100979 | Cylinder block assembly, with speed ring | 1 |
| | C80 | 96-05 | | 518805 | Valve plate | 1 |
| | E20 | 06-27 | | 517675 | Leveler | 1 |
| | E20 | 96-05 | 06-26 | 8100698 | Leveler (SB-1999-009) | 1 |
| | E22 | 06-27 | | 517935 | Spring seat | 2 |
| | E22 | 99-28 | 06-26 | none | | |
| | E22 | 96-05 | 99-27 | 358523 | Spring seat (SB-1999-009) | 2 |
| | S07 | 96-05 | | 8510366 | Cylinder block kit, with speed ring | 1 |



Enlarged **bold** type item numbers are recommended part to stock for servicing.

COMMON PARTS

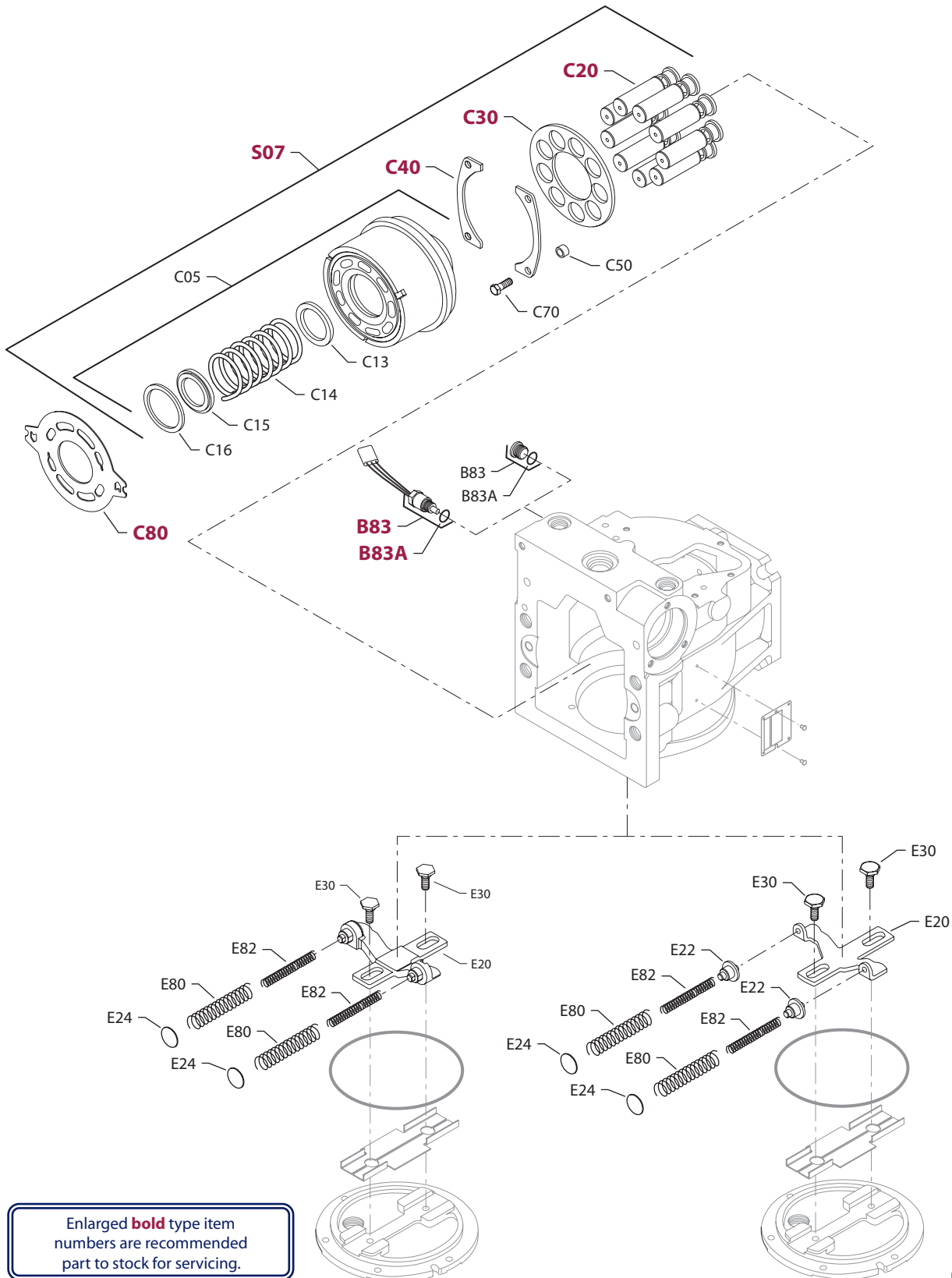
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|-----------------------|-------------------------------------|--------------------|
| | B83A | 92-06 | | 085043 (9004201-3700) | O-ring | 1 |
| | C13 | 87-02 | | 665067 (8100103) | Spring seat | 1 |
| | C14 | 87-02 | | 8100074 | Cylinder block spring | 1 |
| | C15 | 87-02 | | 665042 (8100127) | Spring retainer | 1 |
| | C16 | 87-02 | | 9006275-0027 | Retaining ring | 1 |
| | C20 | 87-02 | | 708230 | Piston assembly (SB-1988-023) | 9 |
| | C30 | 87-02 | | 8000007 | Slipper guide | 1 |
| | C40 | 88-22 | | 334391 (8100294) | Slipper guide bearing (SB-1988-016) | 2 |
| | C50 | 88-22 | | 8100777 | Spacer (SB-1988-016 & SB-1998-041) | 4 |
| | C65 | 88-22 | 98-47 | Obsolete | Washer (SB1988-016 & SB-1998-041) | 4 |
| | C70 | 88-22 | | 9007276-0114 | Screw (SB-1988-016 & SB-1998-041) | 4 |
| | E24 | 92-06 | | 8801225 | Shim (SB-2000-041) | 2 |
| | E30 | 99-28 | | 8000575 | Guide post | 2 |
| | E30 | 95-50 | 99-27 | 8000510 | Guide post (SB-1999-009) | 2 |
| | E30 | 87-02 | 95-49 | 8510098 | Side cover kit (SB-1995-025) | 1 |
| | E80 | 87-02 | | 334987 | Spring | 2 |

SPECIAL HARDWARE

| | | | | | | |
|-----|-----|-------|-------|---------|--|---|
| EFI | B83 | 98-22 | | KPPG156 | Speed sensor | 1 |
| | C05 | 98-22 | | 8100979 | Cylinder block assembly, with speed ring | 1 |
| | C80 | 98-22 | | 518925 | Valve plate | 1 |
| | E20 | 06-27 | | 517675 | Leveler | 1 |
| | E20 | 98-22 | 06-26 | 8100698 | Leveler (SB-1999-009) | 1 |
| | E22 | 06-27 | | 517935 | Spring seat | 2 |
| | E22 | 99-28 | 06-26 | none | | |
| | E22 | 98-22 | 99-27 | 358523 | Spring seat (SB-1999-009) | 2 |
| | S07 | 98-22 | | 8510366 | Cylinder block kit, with speed ring | 1 |

| | | | | | | |
|-----|-----|-------|-------|-----------|--|---|
| EHA | B83 | 00-42 | | KPPG16408 | Speed sensor | 1 |
| | C05 | 00-42 | | 8100979 | Cylinder block assembly, with speed ring | 1 |
| | C80 | 00-42 | | 518805 | Valve plate | 1 |
| | E20 | 06-27 | | 517675 | Leveler | 1 |
| | E20 | 00-42 | 06-26 | 8100698 | Leveler (SB-1999-009) | 1 |
| | E22 | 06-27 | | 517935 | Spring seat | 2 |
| | E22 | 00-42 | 06-26 | none | | |
| | S07 | 00-42 | | 8510366 | Cylinder block kit, with speed ring | 1 |

| | | | | | | |
|-----|-----|--------|-------|-----------|--|---|
| EKA | B83 | 99-31 | | KPPG16719 | Speed sensor | 1 |
| | C05 | 99-31 | | 8100979 | Cylinder block assembly, with speed ring | 1 |
| | C80 | 99-312 | | 518805 | Valve plate | 1 |
| | E20 | 06-27 | | 517675 | Leveler | 1 |
| | E20 | 99-31 | 06-26 | 8100698 | Leveler (SB-1999-009) | 1 |
| | E22 | 06-27 | | 517935 | Spring seat | 2 |
| | E22 | 99-31 | 06-26 | none | | |
| | S07 | 99-31 | | 8510366 | Cylinder block kit, with speed ring | 1 |



Enlarged **bold** type item numbers are recommended part to stock for servicing.

COMMON PARTS

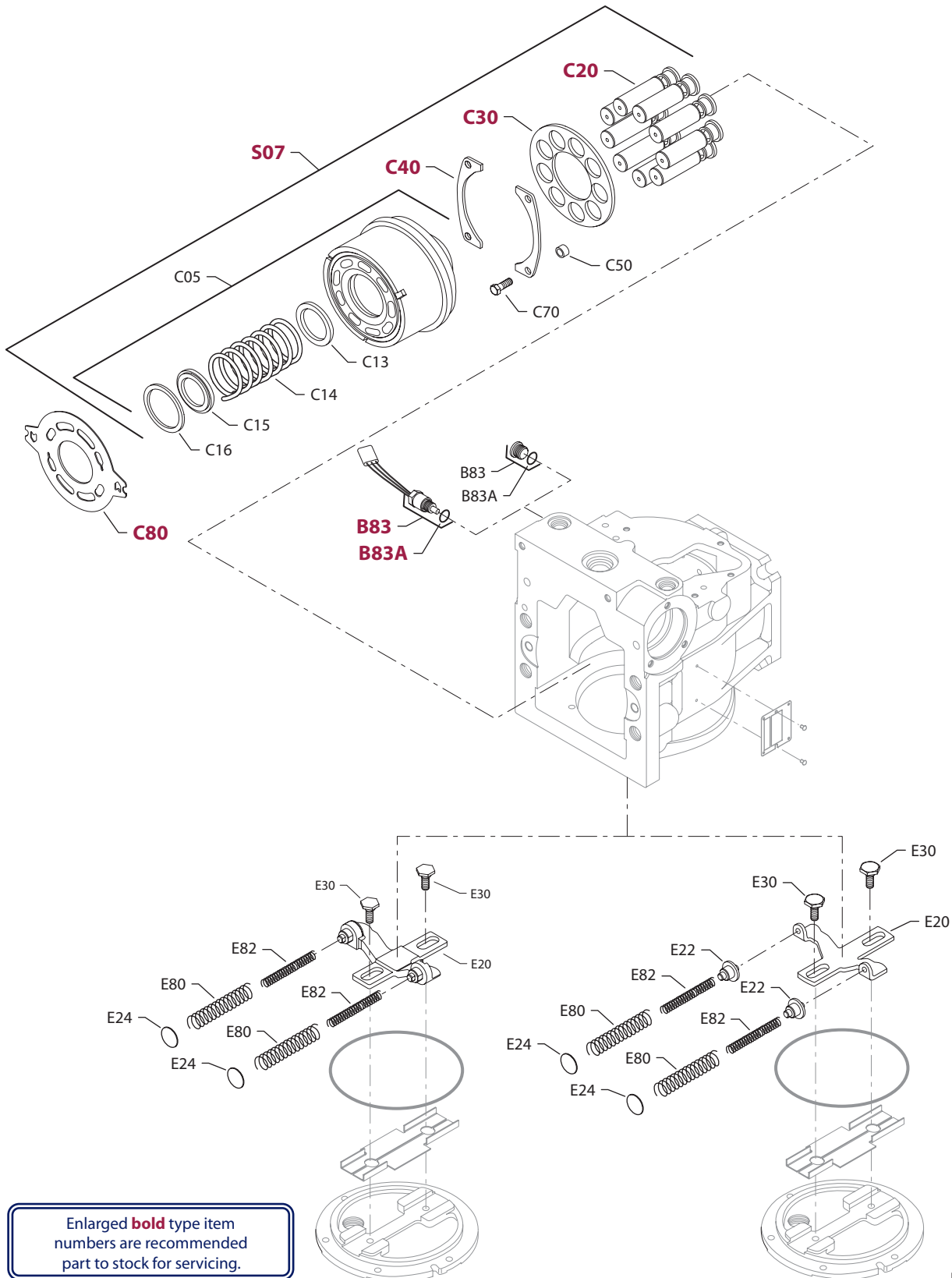
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|-----------------------|-------------------------------------|--------------------|
| | B83A | 92-06 | | 085043 (9004201-3700) | O-ring | 1 |
| | C13 | 87-02 | | 665067 (8100103) | Spring seat | 1 |
| | C14 | 87-02 | | 8100074 | Cylinder block spring | 1 |
| | C15 | 87-02 | | 665042 (8100127) | Spring retainer | 1 |
| | C16 | 87-02 | | 9006275-0027 | Retaining ring | 1 |
| | C20 | 87-02 | | 708230 | Piston assembly (SB-1988-023) | 9 |
| | C30 | 87-02 | | 8000007 | Slipper guide | 1 |
| | C40 | 88-22 | | 334391 (8100294) | Slipper guide bearing (SB-1988-016) | 2 |
| | C50 | 88-22 | | 8100777 | Spacer (SB-1988-016 & SB-1998-041) | 4 |
| | C65 | 88-22 | 98-47 | Obsolete | Washer (SB1988-016 & SB-1998-041) | 4 |
| | C70 | 88-22 | | 9007276-0114 | Screw (SB-1988-016 & SB-1998-041) | 4 |
| | E24 | 92-06 | | 8801225 | Shim (SB-2000-041) | 2 |
| | E30 | 99-28 | | 8000575 | Guide post | 2 |
| | E30 | 95-50 | 99-27 | 8000510 | Guide post (SB-1999-009) | 2 |
| | E30 | 87-02 | 95-49 | 8510098 | Side cover kit (SB-1995-025) | 1 |
| | E80 | 87-02 | | 334987 | Spring | 2 |

SPECIAL HARDWARE

| | | | | | | |
|-----------|-----|-------|-------|-----------------------|---|---|
| FAA & NDN | B83 | 04-26 | | 515965 (9005110-5600) | Plug | 1 |
| | C05 | 04-26 | | 8100974 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 04-26 | | 518924 | Valve plate | 1 |
| | E20 | 06-27 | | 517675 | Leveler | 1 |
| | E20 | 04-26 | 06-26 | 8100698 | Leveler (SB-1999-009) | 1 |
| | E22 | 06-27 | | 517935 | Spring seat | 2 |
| | E22 | 04-26 | 06-26 | none | | |
| | E82 | 04-26 | | 360842 | Spring | 2 |
| | S07 | 04-26 | | 8510365 | Cylinder block kit, without speed ring | 1 |

| | | | | | | |
|-----------|-----|-------|-------|-----------------------|---|---|
| FAB & NBN | B83 | 94-14 | | 515965 (9005110-5600) | Plug | 1 |
| | C05 | 94-14 | | 8100974 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 94-14 | | 518008 | Valve plate | 1 |
| | E20 | 06-27 | | 517675 | Leveler | 1 |
| | E20 | 94-14 | 06-26 | 8100698 | Leveler (SB-1999-009) | 1 |
| | E22 | 06-27 | | 517935 | Spring seat | 2 |
| | E22 | 99-28 | 06-26 | none | | |
| | E22 | 94-14 | 99-27 | 358523 | Spring seat (SB-1999-009) | 2 |
| | E82 | 94-14 | | 360842 | Spring | 2 |
| | S07 | 94-14 | | 8510365 | Cylinder block kit, without speed ring | 1 |

| | | | | | | |
|-----|-----|-------|-------|-----------------------|---|---|
| FAC | B83 | 94-14 | | 515965 (9005110-5600) | Plug | 1 |
| | C05 | 94-14 | | 8100974 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 94-14 | | 518923 | Valve plate | 1 |
| | E20 | 06-27 | | 517675 | Leveler | 1 |
| | E20 | 94-14 | 06-26 | 8100698 | Leveler (SB-1999-009) | 1 |
| | E22 | 06-27 | | 517935 | Spring seat | 2 |
| | E22 | 99-28 | 06-26 | none | | |
| | E22 | 94-14 | 99-27 | 358523 | Spring seat (SB-1999-009) | 2 |
| | E82 | 94-14 | | 360842 | Spring | 2 |
| | S07 | 94-14 | | 8510365 | Cylinder block kit, without speed ring | 1 |



Enlarged **bold** type item numbers are recommended part to stock for servicing.

COMMON PARTS

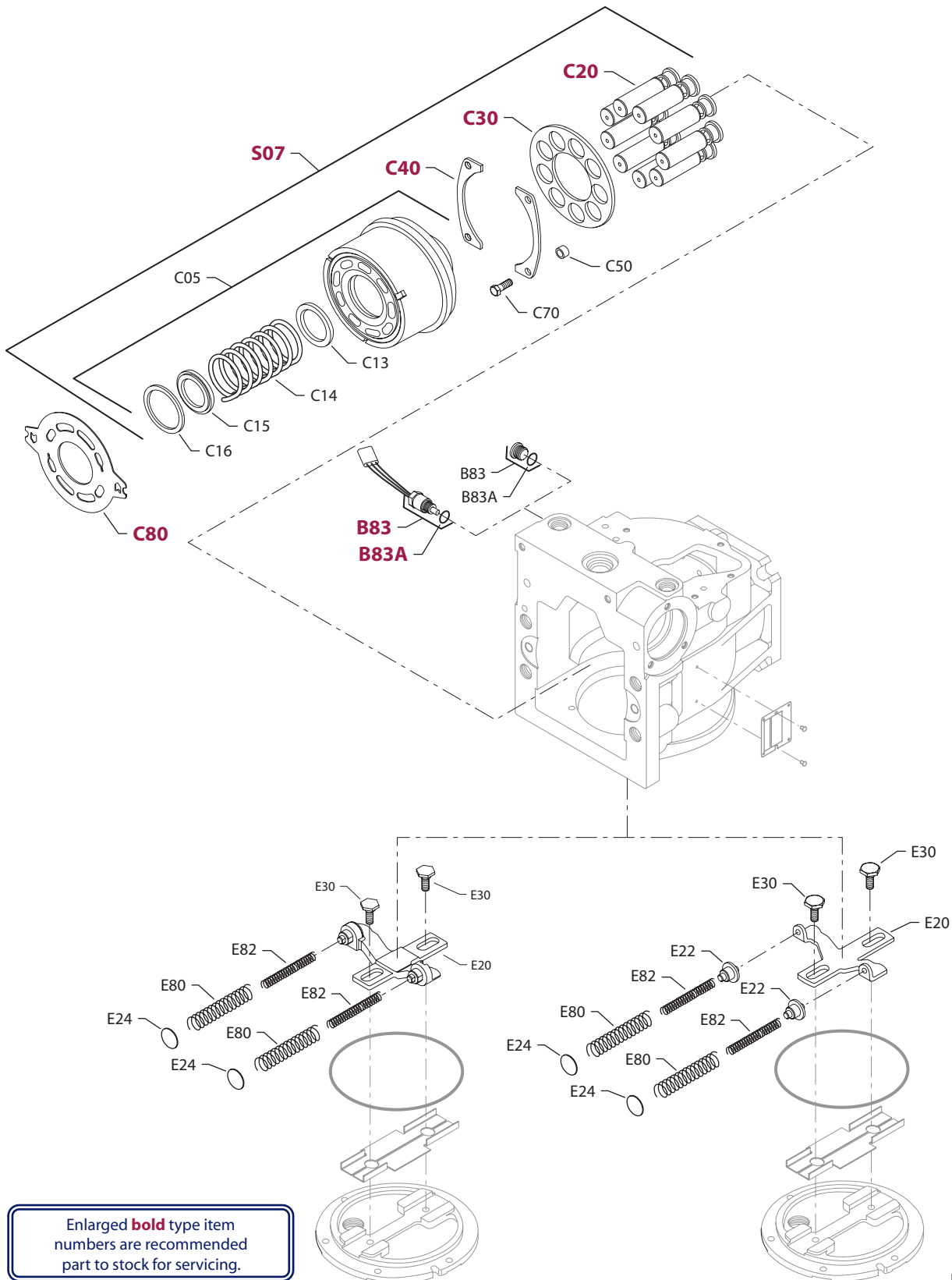
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|-----------------------|-------------------------------------|--------------------|
| | B83A | 92-06 | | 085043 (9004201-3700) | O-ring | 1 |
| | C13 | 87-02 | | 665067 (8100103) | Spring seat | 1 |
| | C14 | 87-02 | | 8100074 | Cylinder block spring | 1 |
| | C15 | 87-02 | | 665042 (8100127) | Spring retainer | 1 |
| | C16 | 87-02 | | 9006275-0027 | Retaining ring | 1 |
| | C20 | 87-02 | | 708230 | Piston assembly (SB-1988-023) | 9 |
| | C30 | 87-02 | | 8000007 | Slipper guide | 1 |
| | C40 | 88-22 | | 334391 (8100294) | Slipper guide bearing (SB-1988-016) | 2 |
| | C50 | 88-22 | | 8100777 | Spacer (SB-1988-016 & SB-1998-041) | 4 |
| | C65 | 88-22 | 98-47 | Obsolete | Washer (SB1988-016 & SB-1998-041) | 4 |
| | C70 | 88-22 | | 9007276-0114 | Screw (SB-1988-016 & SB-1998-041) | 4 |
| | E24 | 92-06 | | 8801225 | Shim (SB-2000-041) | 2 |
| | E30 | 99-28 | | 8000575 | Guide post | 2 |
| | E30 | 95-50 | 99-27 | 8000510 | Guide post (SB-1999-009) | 2 |
| | E30 | 87-02 | 95-49 | 8510098 | Side cover kit (SB-1995-025) | 1 |
| | E80 | 87-02 | | 334987 | Spring | 2 |

SPECIAL HARDWARE

| | | | | | | |
|-----|-----|-------|-------|-----------------------|---|---|
| FAD | B83 | 96-05 | | 515965 (9005110-5600) | Plug | 1 |
| | C05 | 96-05 | | 8100974 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 96-05 | | 518805 | Valve plate | 1 |
| | E20 | 06-27 | | 517675 | Leveler | 1 |
| | E20 | 96-05 | 06-26 | 8100698 | Leveler (SB-1999-009) | 1 |
| | E22 | 06-27 | | 517935 | Spring seat | 2 |
| | E22 | 99-28 | 06-26 | none | | |
| | E22 | 96-05 | 99-27 | 358523 | Spring seat (SB-1999-009) | 2 |
| | E82 | 96-05 | | 360842 | Spring | 2 |
| | S07 | 96-05 | | 8510365 | Cylinder block kit, without speed ring | 1 |

| | | | | | | |
|-----|-----|-------|-------|-----------------------|---|---|
| FAK | B83 | 98-51 | | 515965 (9005110-5600) | Plug | 1 |
| | C05 | 98-51 | | 8100974 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 98-51 | | 518805 | Valve plate | 1 |
| | E20 | 06-27 | | 517675 | Leveler | 1 |
| | E20 | 98-51 | 06-26 | 8100698 | Leveler (SB-1999-009) | 1 |
| | E22 | 06-27 | | 517935 | Spring seat | 2 |
| | E22 | 99-28 | 06-26 | none | | |
| | E22 | 98-51 | 99-27 | 358523 | Spring seat (SB-1999-009) | 2 |
| | E82 | 98-51 | | 360842 | Spring | 2 |
| | S07 | 98-51 | | 8510365 | Cylinder block kit, without speed ring | 1 |

| | | | | | | |
|-----|-----|-------|-------|-----------------------|---|---|
| FBA | B83 | 06-12 | | 515965 (9005110-5600) | Plug | 1 |
| | C05 | 06-12 | | 8100974 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 06-12 | | 518008 | Valve plate | 1 |
| | E20 | 06-27 | | 517675 | Leveler | 1 |
| | E20 | 06-12 | 06-26 | 8100698 | Leveler (SB-1999-009) | 1 |
| | E22 | 06-27 | | 517935 | Spring seat | 2 |
| | E22 | 06-12 | 06-26 | none | | |
| | E82 | 06-12 | | 360842 | Spring | 2 |
| | S07 | 06-12 | | 8510365 | Cylinder block kit, without speed ring | 1 |



Enlarged **bold** type item numbers are recommended part to stock for servicing.

COMMON PARTS

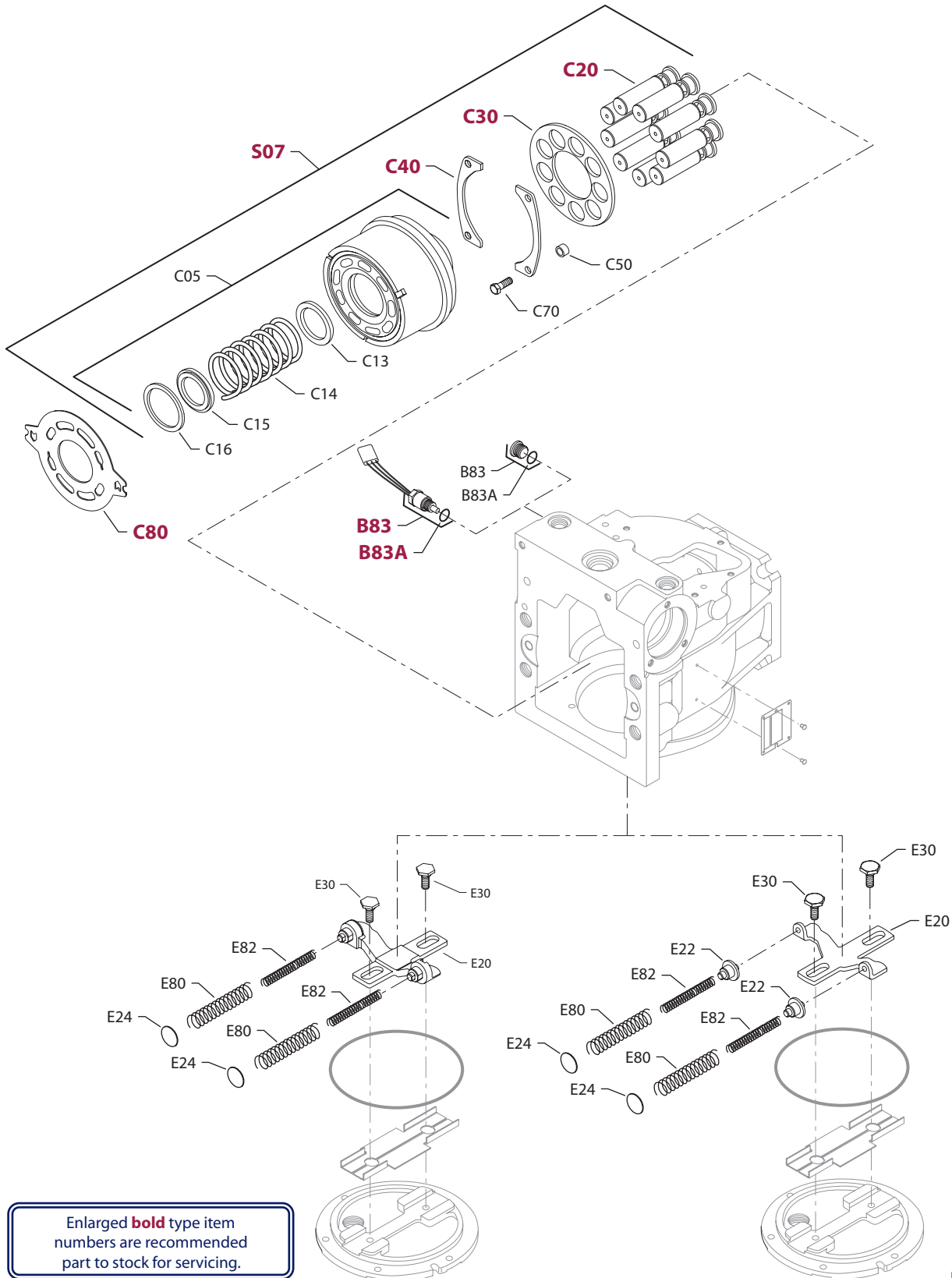
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|-----------------------|-------------------------------------|--------------------|
| | B83A | 92-06 | | 085043 (9004201-3700) | O-ring | 1 |
| | C13 | 87-02 | | 665067 (8100103) | Spring seat | 1 |
| | C14 | 87-02 | | 8100074 | Cylinder block spring | 1 |
| | C15 | 87-02 | | 665042 (8100127) | Spring retainer | 1 |
| | C16 | 87-02 | | 9006275-0027 | Retaining ring | 1 |
| | C20 | 87-02 | | 708230 | Piston assembly (SB-1988-023) | 9 |
| | C30 | 87-02 | | 8000007 | Slipper guide | 1 |
| | C40 | 88-22 | | 334391 (8100294) | Slipper guide bearing (SB-1988-016) | 2 |
| | C50 | 88-22 | | 8100777 | Spacer (SB-1988-016 & SB-1998-041) | 4 |
| | C65 | 88-22 | 98-47 | Obsolete | Washer (SB1988-016 & SB-1998-041) | 4 |
| | C70 | 88-22 | | 9007276-0114 | Screw (SB-1988-016 & SB-1998-041) | 4 |
| | E24 | 92-06 | | 8801225 | Shim (SB-2000-041) | 2 |
| | E30 | 99-28 | | 8000575 | Guide post | 2 |
| | E30 | 95-50 | 99-27 | 8000510 | Guide post (SB-1999-009) | 2 |
| | E30 | 87-02 | 95-49 | 8510098 | Side cover kit (SB-1995-025) | 1 |
| | E80 | 87-02 | | 334987 | Spring | 2 |

SPECIAL HARDWARE

| | | | | | | |
|-----|-----|-------|-------|-----------------------|---|---|
| FBC | B83 | 06-12 | | 515965 (9005110-5600) | Plug | 1 |
| | C05 | 06-12 | | 8100974 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 06-12 | | 518805 | Valve plate | 1 |
| | E20 | 06-27 | | 517675 | Leveler | 1 |
| | E20 | 06-12 | 06-26 | 8100698 | Leveler (SB-1999-009) | 1 |
| | E22 | 06-27 | | 517935 | Spring seat | 2 |
| | E22 | 06-12 | 06-26 | none | | |
| | E82 | 06-12 | | 360842 | Spring | 2 |
| | S07 | 06-12 | | 8510365 | Cylinder block kit, without speed ring | 1 |

| | | | | | | |
|-----|-----|-------|--|-----------------------|---|---|
| FBG | B83 | 06-16 | | 515965 (9005110-5600) | Plug | 1 |
| | C05 | 06-16 | | 8100974 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 06-16 | | 518805 | Valve plate | 1 |
| | E20 | 06-16 | | 8100698 | Leveler (SB-1999-009) | 1 |
| | E82 | 06-16 | | 360842 | Spring | 2 |
| | S07 | 06-16 | | 8510365 | Cylinder block kit, without speed ring | 1 |

| | | | | | | |
|-------------------|-----|-------|-------|-----------------------|---|---|
| GBA, NNN & NWN | B83 | 87-02 | | 515965 (9005110-5600) | Plug | 1 |
| | C05 | 87-02 | | 8100974 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 87-02 | | 518805 | Valve plate | 1 |
| | E20 | 06-27 | | 517675 | Leveler | 1 |
| | E20 | 87-02 | 06-26 | 8100698 | Leveler (SB-1999-009) | 1 |
| | E22 | 06-27 | | 517935 | Spring seat | 2 |
| | E22 | 99-28 | 06-26 | none | | |
| | E22 | 87-02 | 99-27 | 358523 | Spring seat (SB-1999-009) | 2 |
| | S07 | 87-02 | | 8510365 | Cylinder block kit, without speed ring | 1 |



COMMON PARTS

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|-----------------------|-------------------------------------|--------------------|
| | B83A | 92-06 | | 085043 (9004201-3700) | O-ring | 1 |
| | C13 | 87-02 | | 665067 (8100103) | Spring seat | 1 |
| | C14 | 87-02 | | 8100074 | Cylinder block spring | 1 |
| | C15 | 87-02 | | 665042 (8100127) | Spring retainer | 1 |
| | C16 | 87-02 | | 9006275-0027 | Retaining ring | 1 |
| | C20 | 87-02 | | 708230 | Piston assembly (SB-1988-023) | 9 |
| | C30 | 87-02 | | 8000007 | Slipper guide | 1 |
| | C40 | 88-22 | | 334391 (8100294) | Slipper guide bearing (SB-1988-016) | 2 |
| | C50 | 88-22 | | 8100777 | Spacer (SB-1988-016 & SB-1998-041) | 4 |
| | C65 | 88-22 | 98-47 | Obsolete | Washer (SB1988-016 & SB-1998-041) | 4 |
| | C70 | 88-22 | | 9007276-0114 | Screw (SB-1988-016 & SB-1998-041) | 4 |
| | E24 | 92-06 | | 8801225 | Shim (SB-2000-041) | 2 |
| | E30 | 99-28 | | 8000575 | Guide post | 2 |
| | E30 | 95-50 | 99-27 | 8000510 | Guide post (SB-1999-009) | 2 |
| | E30 | 87-02 | 95-49 | 8510098 | Side cover kit (SB-1995-025) | 1 |
| | E80 | 87-02 | | 334987 | Spring | 2 |

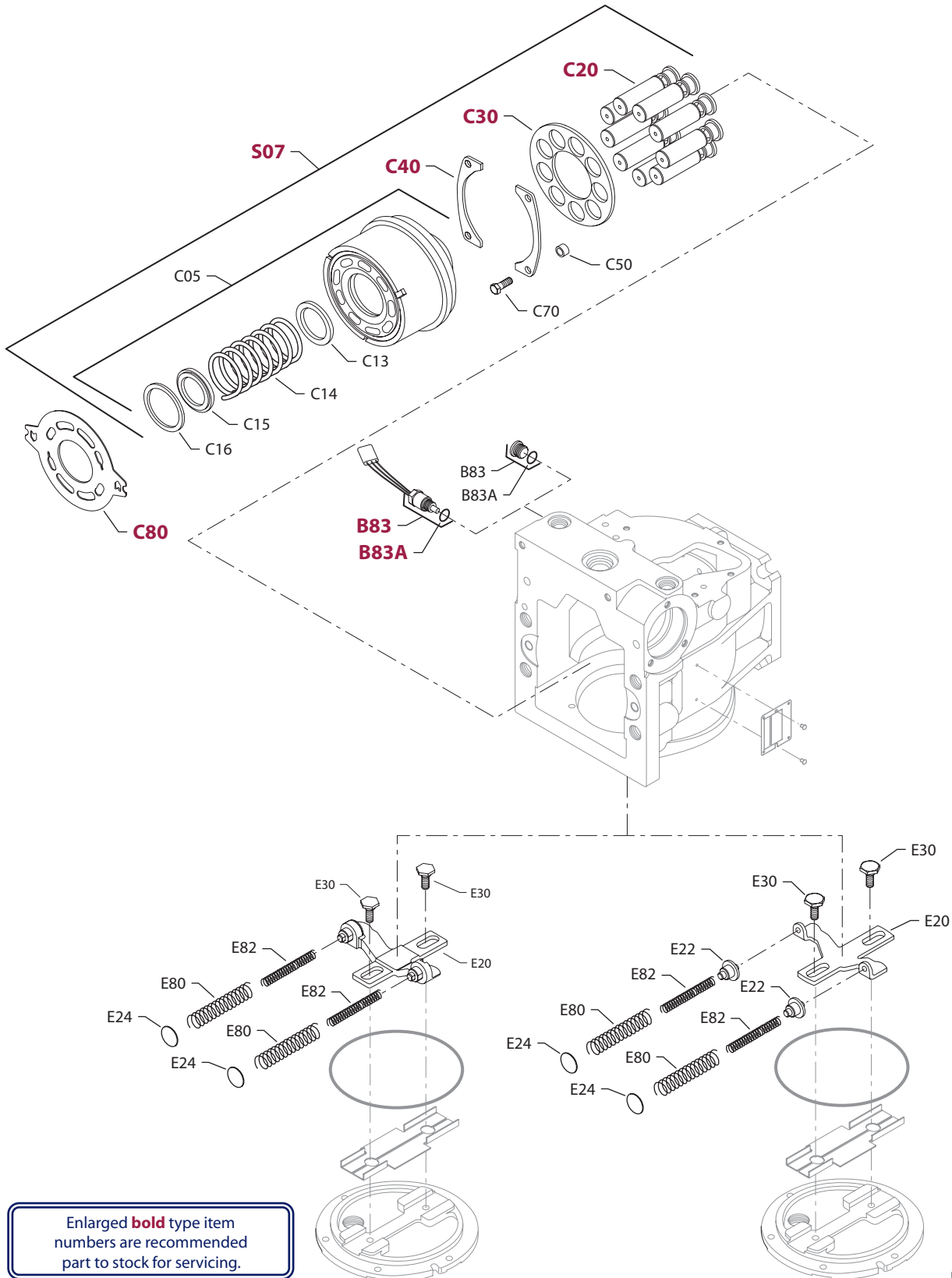
SPECIAL HARDWARE

| | | | | | | |
|-----|-----|-------|--|-----------------------|---|---|
| GCA | B83 | 98-14 | | 515965 (9005110-5600) | Plug | 1 |
| | C05 | 98-14 | | 8100974 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 98-14 | | 518008 | Valve plate | 1 |
| | E20 | 98-14 | | 8100698 | Leveler | 1 |
| | S07 | 98-14 | | 8510365 | Cylinder block kit, without speed ring | 1 |

| | | | | | | |
|-----|-----|-------|--|-----------------------|---|---|
| GCT | B83 | 02-26 | | 515965 (9005110-5600) | Plug | 1 |
| | C05 | 02-26 | | 8100974 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 02-26 | | 518008 | Valve plate | 1 |
| | E20 | 02-26 | | 8100698 | Leveler | 1 |
| | S07 | 02-26 | | 8510365 | Cylinder block kit, without speed ring | 1 |

| | | | | | | |
|-----|-----|-------|-------|-----------------------|---|---|
| GCU | B83 | 06-12 | | 515965 (9005110-5600) | Plug | 1 |
| | C05 | 06-12 | | 8100974 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 06-12 | | 518008 | Valve plate | 1 |
| | E20 | 06-27 | | 517675 | Leveler | 1 |
| | E20 | 06-12 | 06-26 | 8100698 | Leveler (SB-1999-009) | 1 |
| | E22 | 06-27 | | 517935 | Spring seat | 2 |
| | E22 | 06-12 | 06-26 | none | | |
| | S07 | 06-12 | | 8510365 | Cylinder block kit, without speed ring | 1 |

| | | | | | | |
|-----|-----|-------|-------|-----------------------|---|---|
| GFD | B83 | 06-12 | | 515965 (9005110-5600) | Plug | 1 |
| | C05 | 06-12 | | 8100974 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 06-12 | | 518805 | Valve plate | 1 |
| | E20 | 06-27 | | 517675 | Leveler | 1 |
| | E20 | 06-12 | 06-26 | 8100698 | Leveler (SB-1999-009) | 1 |
| | E22 | 06-27 | | 517935 | Spring seat | 2 |
| | E22 | 06-12 | 06-26 | none | | |
| | S07 | 06-12 | | 8510365 | Cylinder block kit, without speed ring | 1 |



COMMON PARTS

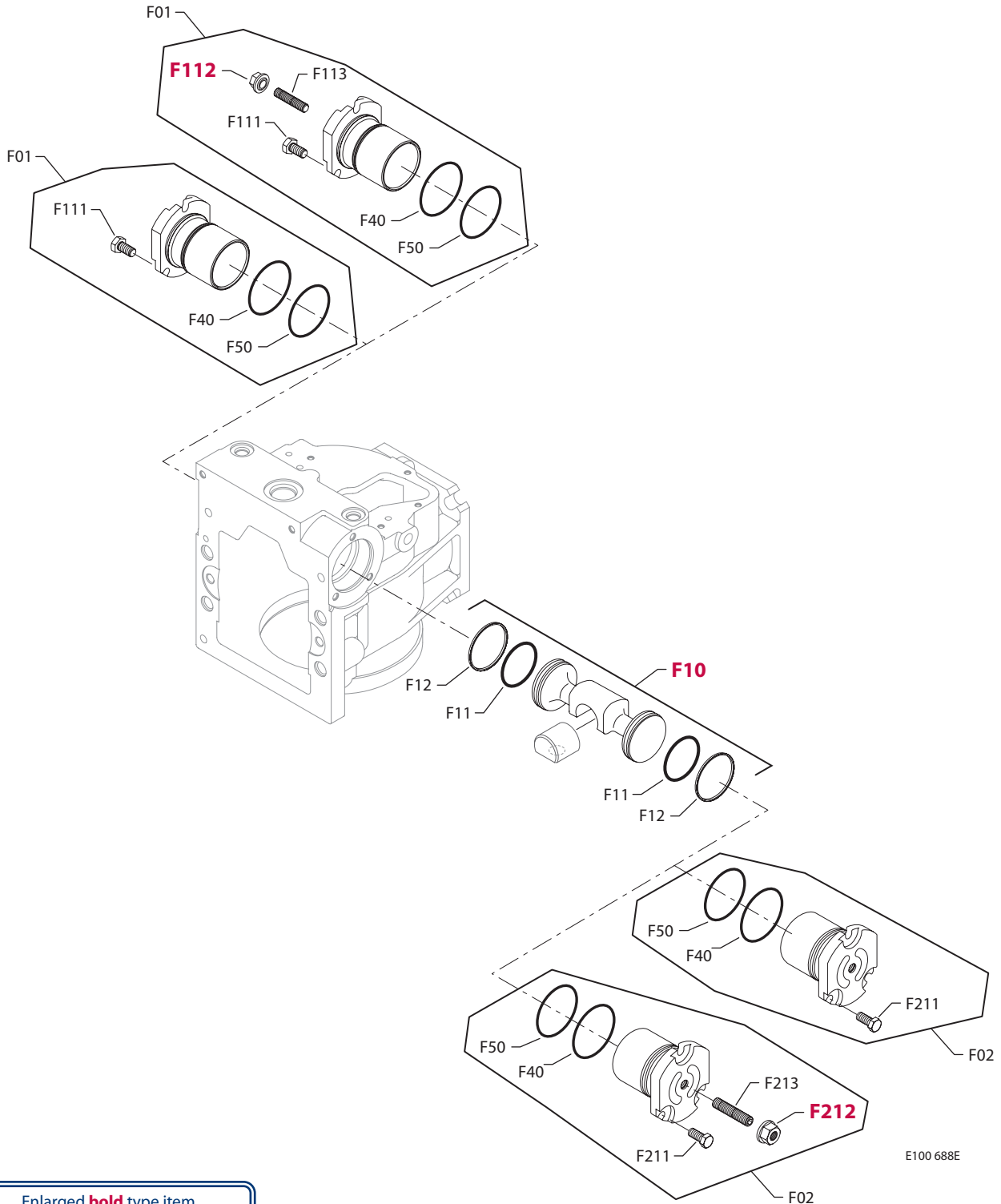
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|-----------------------|-------------------------------------|--------------------|
| | B83A | 92-06 | | 085043 (9004201-3700) | O-ring | 1 |
| | C13 | 87-02 | | 665067 (8100103) | Spring seat | 1 |
| | C14 | 87-02 | | 8100074 | Cylinder block spring | 1 |
| | C15 | 87-02 | | 665042 (8100127) | Spring retainer | 1 |
| | C16 | 87-02 | | 9006275-0027 | Retaining ring | 1 |
| | C20 | 87-02 | | 708230 | Piston assembly (SB-1988-023) | 9 |
| | C30 | 87-02 | | 8000007 | Slipper guide | 1 |
| | C40 | 88-22 | | 334391 (8100294) | Slipper guide bearing (SB-1988-016) | 2 |
| | C50 | 88-22 | | 8100777 | Spacer (SB-1988-016 & SB-1998-041) | 4 |
| | C65 | 88-22 | 98-47 | Obsolete | Washer (SB1988-016 & SB-1998-041) | 4 |
| | C70 | 88-22 | | 9007276-0114 | Screw (SB-1988-016 & SB-1998-041) | 4 |
| | E24 | 92-06 | | 8801225 | Shim (SB-2000-041) | 2 |
| | E30 | 99-28 | | 8000575 | Guide post | 2 |
| | E30 | 95-50 | 99-27 | 8000510 | Guide post (SB-1999-009) | 2 |
| | E30 | 87-02 | 95-49 | 8510098 | Side cover kit (SB-1995-025) | 1 |
| | E80 | 87-02 | | 334987 | Spring | 2 |

SPECIAL HARDWARE

| | | | | | | |
|-----|-----|-------|--|-----------------------|---|---|
| GFH | B83 | 06-12 | | 515965 (9005110-5600) | Plug | 1 |
| | C05 | 06-12 | | 8100974 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 06-12 | | 518805 | Valve plate | 1 |
| | E20 | 06-12 | | 8100698 | Leveler | 1 |
| | S07 | 06-12 | | 8510365 | Cylinder block kit, without speed ring | 1 |

| | | | | | | |
|-------------------|-----|-------|-------|-----------------------|---|---|
| GFJ, GFK & GFS | B83 | 06-12 | | 515965 (9005110-5600) | Plug | 1 |
| | C05 | 06-12 | | 8100974 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 06-12 | | 518805 | Valve plate | 1 |
| | E20 | 06-27 | | 517675 | Leveler | 1 |
| | E20 | 06-12 | 06-26 | 8100698 | Leveler (SB-1999-009) | 1 |
| | E22 | 06-27 | | 517935 | Spring seat | 2 |
| | E22 | 06-12 | 06-26 | none | | |
| | S07 | 06-12 | | 8510365 | Cylinder block kit, without speed ring | 1 |

| | | | | | | |
|-----|-----|-------|-------|-----------------------|---|---|
| GLA | B83 | 98-38 | | 515965 (9005110-5600) | Plug | 1 |
| | C05 | 98-38 | | 8100974 | Cylinder block assembly, without speed ring | 1 |
| | C80 | 98-38 | | 518926 | Valve plate | 1 |
| | E20 | 06-27 | | 517675 | Leveler | 1 |
| | E20 | 98-38 | 06-26 | 8100698 | Leveler (SB-1999-009) | 1 |
| | E22 | 06-27 | | 517935 | Spring seat | 2 |
| | E22 | 99-28 | 06-26 | none | | |
| | E22 | 98-38 | 99-27 | 358523 | Spring seat (SB-1999-009) | 2 |
| | S07 | 98-38 | | 8510365 | Cylinder block kit, without speed ring | 1 |

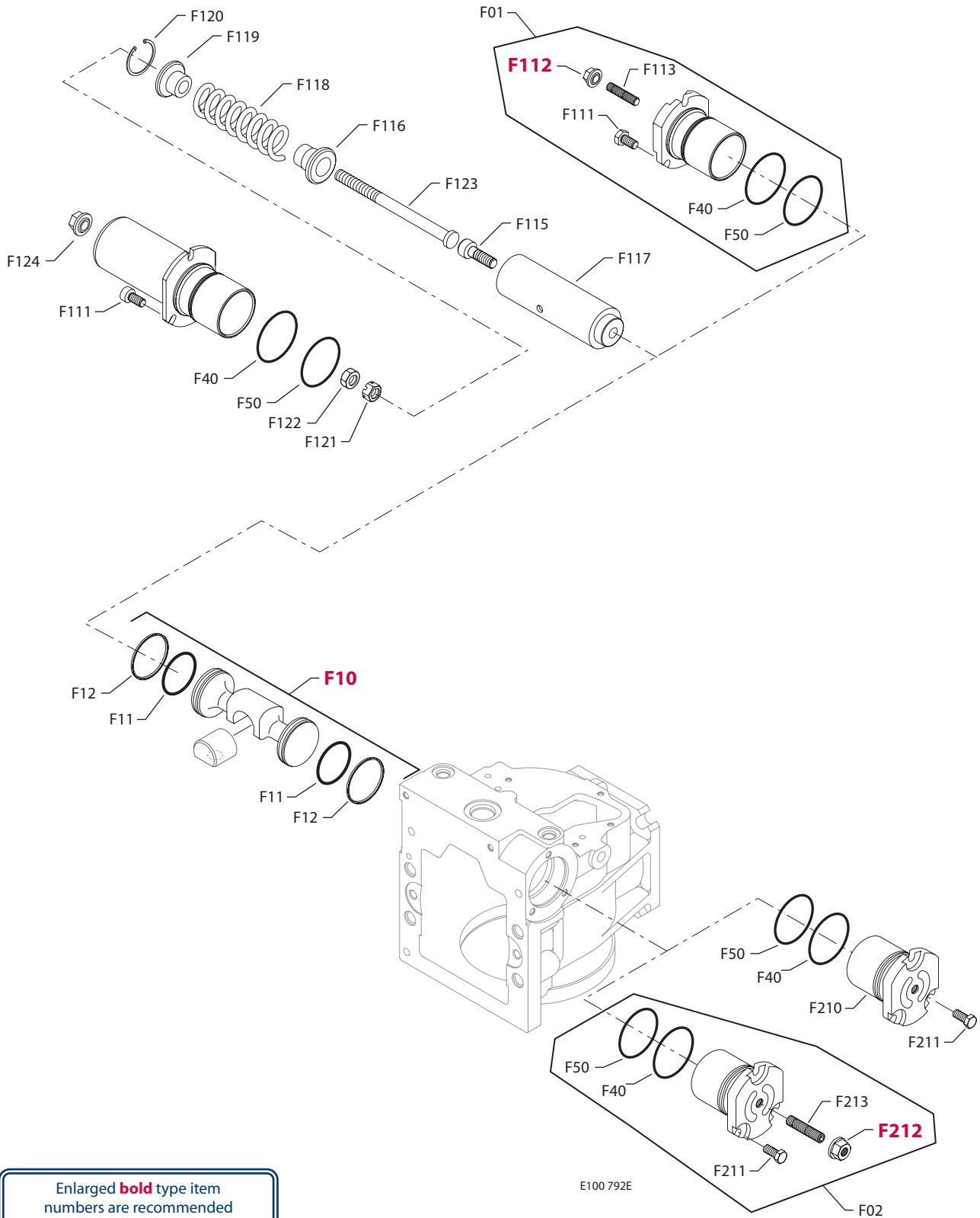


E100 688E

Enlarged **bold** type item numbers are recommended part to stock for servicing.

DISPLACEMENT LIMITATION

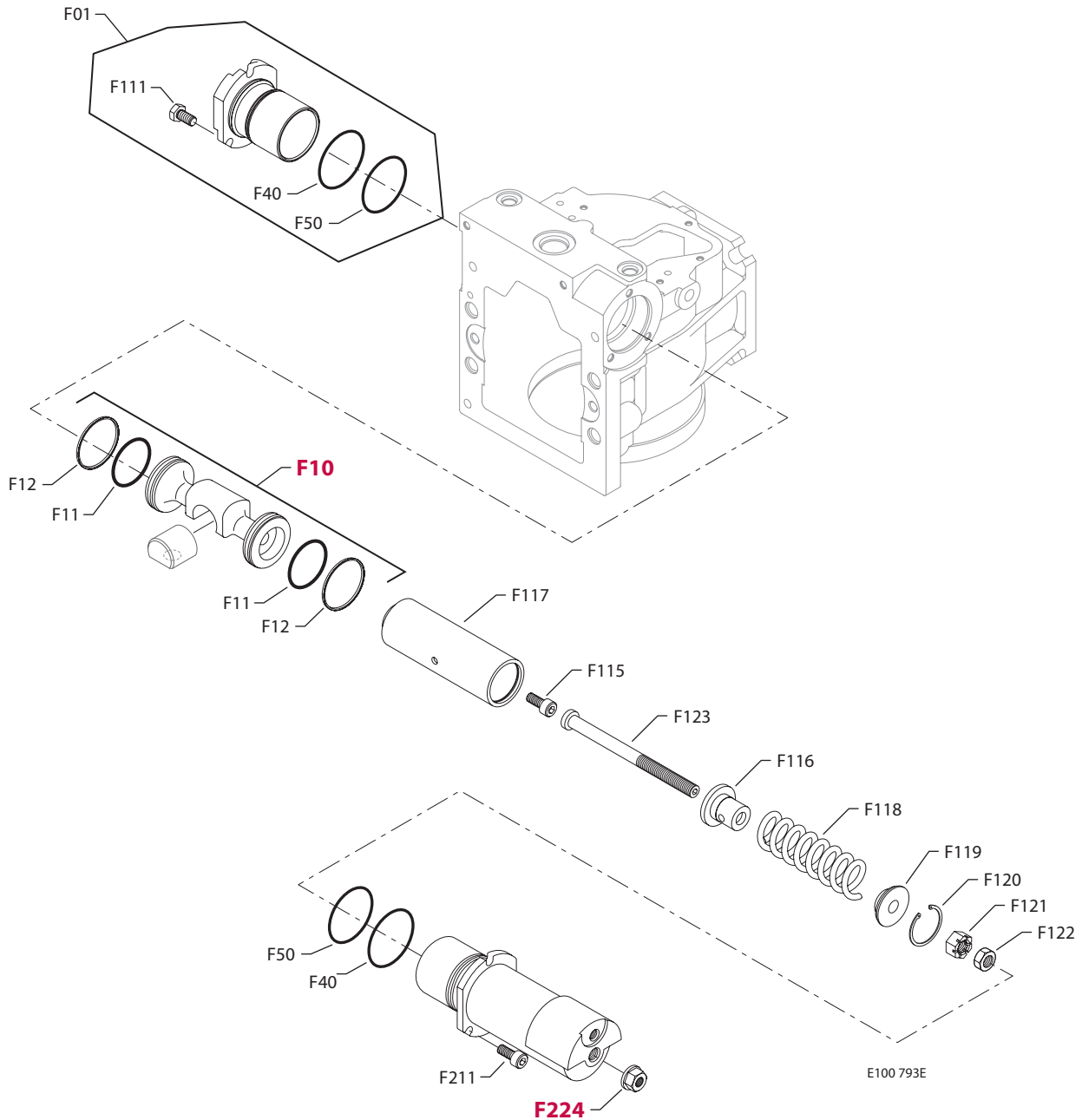
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|-----------------------|---|--|
| 1 | F01 | 87-02 | | 8102F004-A | Displacement limiter kit, adjustable | 1 |
| | F02 | 87-02 | | 8102F003-A | Displacement limiter kit, non-adjustable | 1 |
| | F10 | 88-16 | | 516683 | Servo piston assembly (SB-1988-009 & SB-2000-022) | 1 |
| | F11 | 87-02 | | 676569 (9004100-1270) | O-ring | 2 |
| | F12 | 87-02 | | 507797 (8700066) | Piston ring | 2 |
| | F40 | 89-41 | | 363754 (9004104-1350) | O-ring | 2 |
| | F40 | 87-02 | 89-40 | 680884 (9004104-0330) | O-ring | 2 |
| | F50 | 87-02 | | 9004104-0320 | O-ring | 2 |
| | F111 | 87-02 | | 378083 (9007210-0804) | Screw | 3 |
| | F112 | 87-02 | | 505412 (9003509-0008) | Seal nut | 1 |
| | F113 | 87-02 | | 516677 | Set screw (SB-2000-022) | 1 |
| | F211 | 87-02 | | 378083 (9007210-0804) | Screw | 3 |
| | 2 | F01 | 87-02 | | 8102F003-A | Displacement limiter kit, non-adjustable |
| F02 | | 87-02 | | 8102F004-A | Displacement limiter kit, adjustable | 1 |
| F10 | | 88-16 | | 516683 | Servo piston assembly (SB-1988-009 & SB-2000-022) | 1 |
| F11 | | 87-02 | | 676569 (9004100-1270) | O-ring | 2 |
| F12 | | 87-02 | | 507797 (8700066) | Piston ring | 2 |
| F40 | | 89-41 | | 363754 (9004104-1350) | O-ring | 2 |
| F40 | | 87-02 | 89-40 | 680884 (9004104-0330) | O-ring | 2 |
| F50 | | 87-02 | | 9004104-0320 | O-ring | 2 |
| F111 | | 87-02 | | 378083 (9007210-0804) | Screw | 3 |
| F211 | | 87-02 | | 378083 (9007210-0804) | Screw | 3 |
| F212 | | 87-02 | | 505412 (9003509-0008) | Seal nut | 1 |
| F213 | | 87-02 | | 516677 | Set screw (SB-2000-022) | 1 |
| 3 | | F01 | 87-02 | | 8102F003-A | Displacement limiter kit, non-adjustable |
| | F02 | 87-02 | | 8102F003-A | Displacement limiter kit, non-adjustable | 1 |
| | F10 | 88-16 | | 516683 | Servo piston assembly (SB-1988-009 & SB-2000-022) | 1 |
| | F11 | 87-02 | | 676569 (9004100-1270) | O-ring | 2 |
| | F12 | 87-02 | | 507797 (8700066) | Piston ring | 2 |
| | F40 | 89-41 | | 363754 (9004104-1350) | O-ring | 2 |
| | F40 | 87-02 | 89-40 | 680884 (9004104-0330) | O-ring | 2 |
| | F50 | 87-02 | | 9004104-0320 | O-ring | 2 |
| | F111 | 87-02 | | 378083 (9007210-0804) | Screw | 3 |
| | F211 | 87-02 | | 378083 (9007210-0804) | Screw | 3 |



Enlarged **bold** type item numbers are recommended part to stock for servicing.

DISPLACEMENT LIMITATION

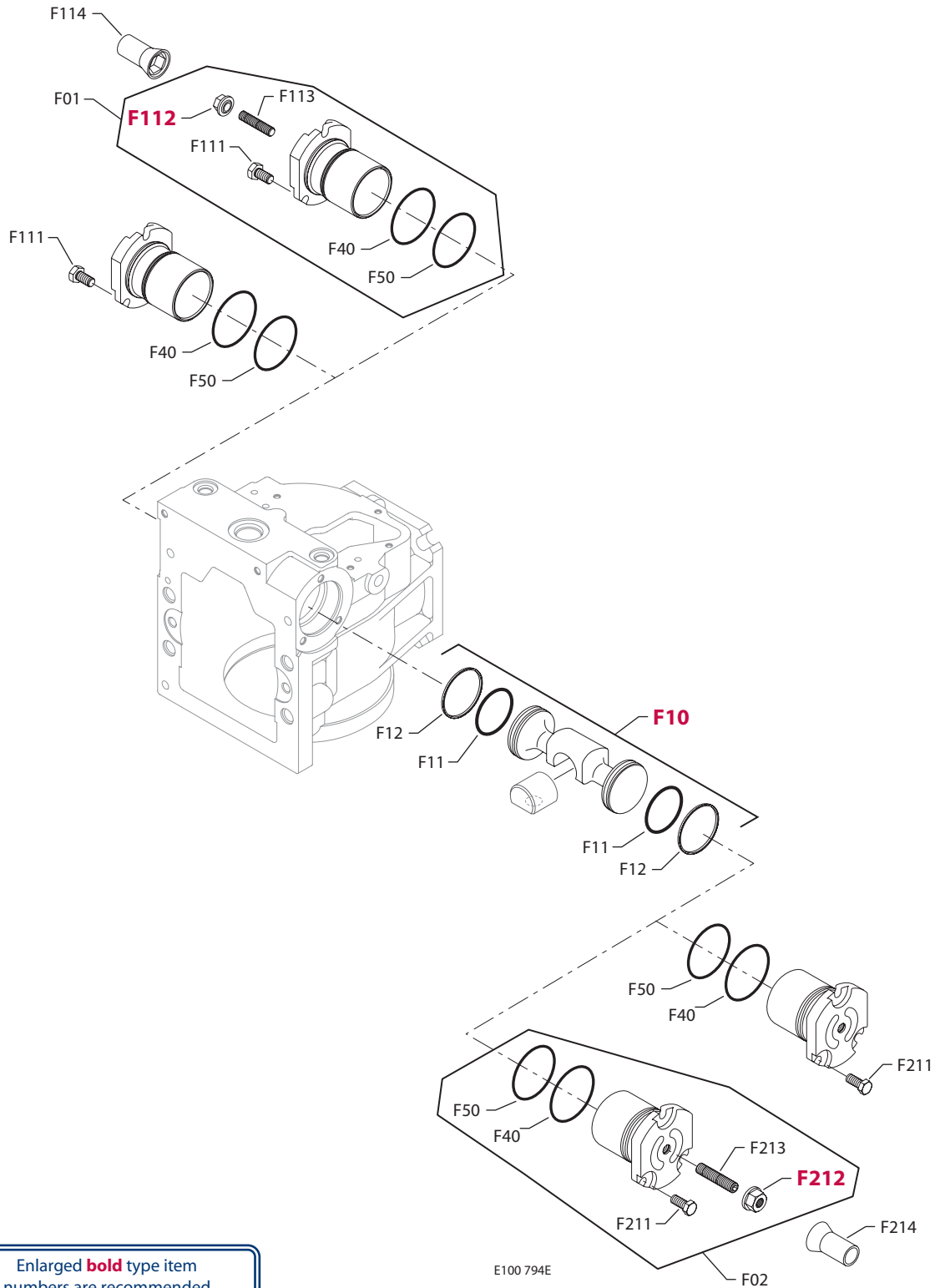
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|-----------------------|---|-----------------------|
| 4 | F01 | 87-02 | | 8102F004-A | Displacement limiter kit, adjustable | 1 |
| | F02 | 87-02 | | 8102F004-A | Displacement limiter kit, adjustable | 1 |
| | F10 | 88-16 | | 516683 | Servo piston assembly (SB-1988-009 & SB-2000-022) | 1 |
| | F11 | 87-02 | | 676569 (9004100-1270) | O-ring | 2 |
| | F12 | 87-02 | | 507797 (8700066) | Piston ring | 2 |
| | F40 | 89-41 | | 363754 (9004104-1350) | O-ring | 2 |
| | F40 | 87-02 | 89-40 | 680884 (9004104-0330) | O-ring | 2 |
| | F50 | 87-02 | | 9004104-0320 | O-ring | 2 |
| | F111 | 87-02 | | 378083 (9007210-0804) | Screw | 3 |
| | F112 | 87-02 | | 505412 (9003509-0008) | Seal nut | 1 |
| | F113 | 87-02 | | 516677 | Set screw (SB-2000-022) | 1 |
| | F211 | 87-02 | | 378083 (9007210-0804) | Screw | 3 |
| | F212 | 87-02 | | 505412 (9003509-0008) | Seal nut | 1 |
| | F213 | 87-02 | | 516677 | Set screw (SB-2000-022) | 1 |
| | 7 | F10 | 98-14 | | 509280 | Servo piston assembly |
| F11 | | 98-14 | | 676569 (9004100-1270) | O-ring | 2 |
| F12 | | 98-14 | | 507797 (8700066) | Piston ring | 2 |
| F40 | | 98-14 | | 363754 (9004104-1350) | O-ring | 2 |
| F50 | | 98-14 | | 9004104-0320 | O-ring | 2 |
| F110 | | 98-14 | | 501125 | Servo cylinder | 1 |
| F111 | | 98-14 | | 393595 | Screw | 3 |
| F115 | | 98-14 | | 346395 | Screw | 1 |
| F116 | | 98-14 | | 507092 | Spring guide | 1 |
| F117 | | 98-14 | | 346320 | Spring housing | 1 |
| F118 | | 98-14 | | 346254 | Spring | 1 |
| F119 | | 98-14 | | 507093 | Spring guide | 1 |
| F120 | | 98-14 | | 346379 | Retaining ring | 1 |
| F121 | | 98-14 | | 787887 | Castle nut | 1 |
| F122 | | 98-14 | | 336800 | Hex nut | 1 |
| F123 | | 98-14 | | 346387 | Adjust screw | 1 |
| F124 | | 98-14 | | 336826 | Seal nut | 1 |
| F210 | | 98-14 | | 8100948 | Servo cylinder | 1 |
| F211 | | 87-02 | | 378083 (9007210-0804) | Screw | 3 |



Enlarged **bold** type item numbers are recommended part to stock for servicing.

DISPLACEMENT LIMITATION

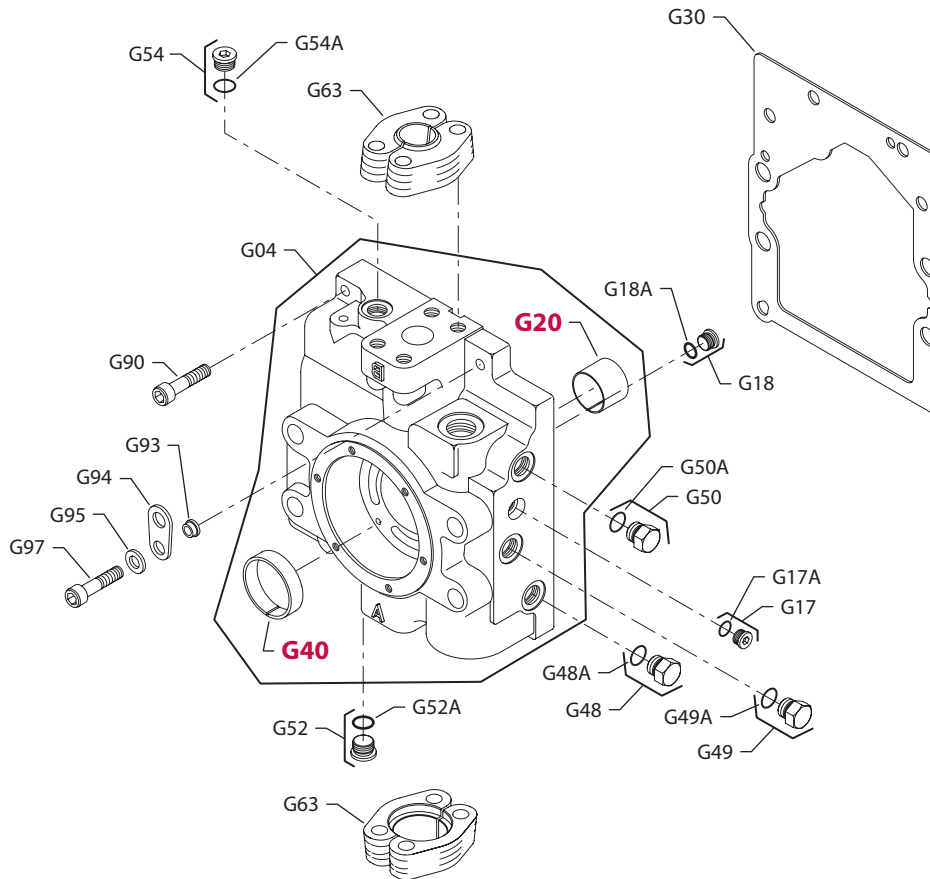
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|-----------------------|-----------------------|--------------------|
| B | F01 | 98-14 | | 8102F003-A | Servo cylinder kit | 1 |
| | F10 | 98-14 | | 509280 | Servo piston assembly | 1 |
| | F11 | 98-14 | | 676569 (9004100-1270) | O-ring | 2 |
| | F12 | 98-14 | | 507797 (8700066) | Piston ring | 2 |
| | F40 | 98-14 | | 363754 (9004104-1350) | O-ring | 2 |
| | F50 | 98-14 | | 9004104-0320 | O-ring | 2 |
| | F111 | 98-14 | | 378083 (9007210-0804) | Screw | 3 |
| | F215 | 98-14 | | 346395 | Screw | 1 |
| | F216 | 98-14 | | 507092 | Spring guide | 1 |
| | F217 | 98-14 | | 346320 | Spring housing | 1 |
| | F218 | 98-14 | | 346254 | Spring | 1 |
| | F219 | 98-14 | | 507093 | Spring guide | 1 |
| | F220 | 98-14 | | 346379 | Retaining ring | 1 |
| | F221 | 98-14 | | 787887 | Castle nut | 1 |
| | F222 | 98-14 | | 336800 | Hex nut | 1 |
| | F223 | 98-14 | | 346387 | Adjust screw | 1 |
| | F210 | 98-14 | | 501125 | Servo cylinder | 1 |
| | F211 | 87-02 | | 393595 | Screw | 3 |
| | F224 | 98-14 | | 336826 | Seal nut | 1 |



Enlarged **bold** type item numbers are recommended part to stock for servicing.

DISPLACEMENT LIMITATION

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit | |
|------------|-------|------------|----------|-----------------------|-------------------------------------|--------------------------------------|---|
| F | F10 | 91-30 | | 516683 | Servo piston assembly (SB-2000-022) | 1 | |
| | F11 | 91-30 | | 676569 (9004100-1270) | O-ring | 2 | |
| | F12 | 91-30 | | 507797 (8700066) | Piston ring | 2 | |
| | F40 | 91-30 | | 363754 (9004104-1350) | O-ring | 2 | |
| | F50 | 91-30 | | 9004104-0320 | O-ring | 2 | |
| | F110 | 91-30 | | 8100948 | Servo cylinder | 1 | |
| | F111 | 91-30 | | 378083 (9007210-0804) | Screw | 3 | |
| | F210 | 91-30 | | 8100948 | Servo cylinder | 1 | |
| | F211 | 91-30 | | 378083 (9007210-0804) | Screw | 3 | |
| | J | F01 | 94-01 | | 8102F004-A | Displacement limiter kit, adjustable | 1 |
| | | F02 | 94-01 | | 8102F004-A | Displacement limiter kit, adjustable | 1 |
| F10 | | 94-01 | | 516683 | Servo piston assembly (SB-2000-022) | 1 | |
| F11 | | 94-01 | | 676569 (9004100-1270) | O-ring | 2 | |
| F12 | | 94-01 | | 507797 (8700066) | Piston ring | 2 | |
| F40 | | 94-01 | | 363754 (9004104-1350) | O-ring | 2 | |
| F50 | | 94-01 | | 9004104-0320 | O-ring | 2 | |
| F111 | | 94-01 | | 378083 (9007210-0804) | Screw | 3 | |
| F112 | | 94-01 | | 505412 (9003509-0008) | Seal nut | 1 | |
| F113 | | 94-01 | | 516677 | Set screw (SB-2000-022) | 1 | |
| F114 | | 94-01 | | 8700116 | Plastic cover | 1 | |
| F211 | | 94-01 | | 378083 (9007210-0804) | Screw | 3 | |
| F212 | | 94-01 | | 505412 (9003509-0008) | Seal nut | 1 | |
| F213 | | 94-01 | | 516677 | Set screw (SB-2000-022) | 1 | |
| F214 | 94-01 | | 8700116 | Plastic cover | 1 | | |

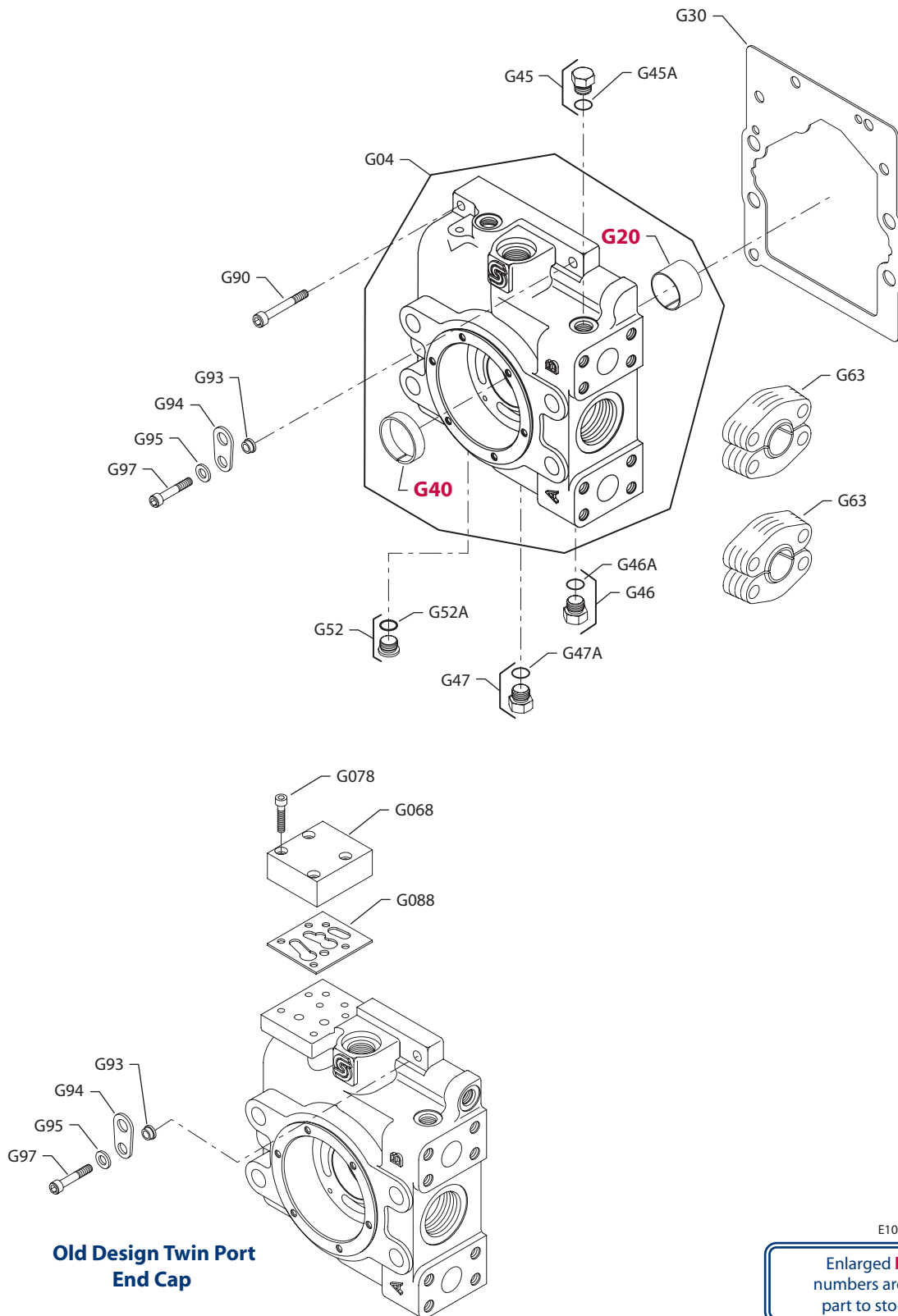


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Enlarged **bold** type item numbers are recommended part to stock for servicing.

END CAP

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|-----------------------|--|--------------------|
| | G17 | 92-19 | | 327007 (9005110-4400) | Plug (SB-1992-0003) | 1 |
| | G17A | 92-19 | | 001123 (9004201-2500) | O-ring | 1 |
| | G18 | 92-19 | | 327007 (9005110-4400) | Plug (SB-1992-0003) | 1 |
| | G18A | 92-19 | | 001123 (9004201-2500) | O-ring | 1 |
| | G20 | 87-02 | | 664763 (8700013) | Journal bearing | 1 |
| | G30 | 92-19 | | 8100565 | End cap gasket | 1 |
| | G30 | 87-02 | 92-18 | 8100212 | End cap gasket (SB-1992-003) | 1 |
| | G40 | 87-02 | | 8700008 | Bushing | 1 |
| | G48 | 87-02 | | 046151 (9005100-5600) | Plug assembly | 1 |
| | G48A | 87-02 | | 085043 (9004201-3700) | O-ring | 1 |
| | G49 | 87-02 | | 046151 (9005100-5600) | Plug assembly | 1 |
| | G49A | 87-02 | | 085043 (9004201-3700) | O-ring | 1 |
| | G50 | 87-02 | | 046151 (9005100-5600) | Plug assembly | 1 |
| | G50A | 87-02 | | 085043 (9004201-3700) | O-ring | 1 |
| | G52 | 87-02 | | 515965 (9005110-5600) | Plug assembly | 1 |
| | G52A | 87-02 | | 085043 (9004201-3700) | O-ring | 1 |
| | G54 | 87-02 | | 515965 (9005110-5600) | Plug assembly | 1 |
| | G54A | 87-02 | | 085043 (9004201-3700) | O-ring | 1 |
| | G90 | 92-19 | | 746644 (9007314-0810) | Screw | 1 |
| | G90 | 87-02 | 92-18 | 690628 (9007210-0611) | Screw (SB-1992-003) | 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 | | 002311 (9009610-3459) | Washer | 1 |
| | G95 | 87-02 | 92-18 | 002295 (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 | 694356 (9007314-0604) | Screw (SB-1992-003) | 1 |
| 6 & 60 | G04 | 92-19 | | 8100686 | End cap assembly, side ports (SB-1992-003) | 1 |
| 2 & 61 | G04 | 92-19 | | 8100686 | End cap assembly, side ports (SB-1992-003) | 1 |
| | G63 | 87-02 | | 8700074 | Split clamp | 4 |
| H & 62 | G04 | 94-07 | | 8100687 | End cap assembly, metric side ports | 1 |
| 6E | G04 | 97-23 | | 8100685 | End cap assembly, side ports, special M3 gage port | 1 |
| 6R | G04 | 98-11 | | 8100845 | End cap assembly, metric side ports, CCW | 1 |

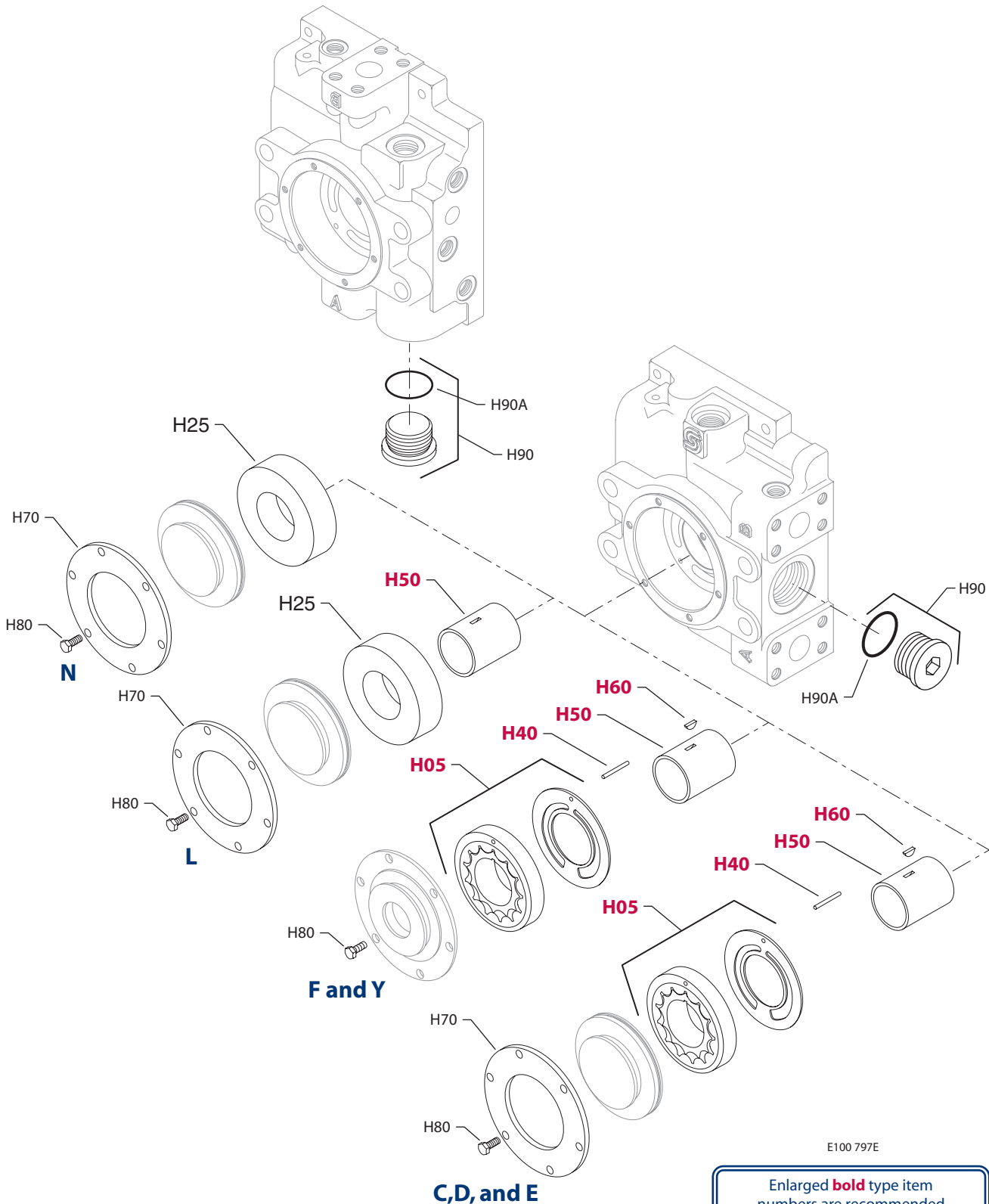


E100 796E

Enlarged **bold** type item numbers are recommended part to stock for servicing.

END CAP

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|-----------------------|--|--------------------|
| | G20 | 87-02 | | 664763 (8700013) | Jounal bearing | 1 |
| | G30 | 96-05 | | 8100565 | End cap gasket (SB-1995-012) | 1 |
| | G30 | 87-02 | 96-04 | 8100466 | End cap gasket (SB-1992-003) | 1 |
| | G40 | 87-02 | | 8700008 | Bushing | 1 |
| | G45 | 87-02 | | 046151 (9005100-5600) | Plug assembly | 1 |
| | G45A | 87-02 | | 085043 (9004201-3700) | O-ring | 1 |
| | G46 | 87-02 | | 046151 (9005100-5600) | Plug assembly | 1 |
| | G46A | 87-02 | | 085043 (9004201-3700) | O-ring | 1 |
| | G47 | 87-02 | | 046151 (9005100-5600) | Plug assembly | 1 |
| | G47A | 87-02 | | 085043 (9004201-3700) | O-ring | 1 |
| | G52 | 87-02 | | 515965 (9005110-5600) | Plug assembly | 1 |
| | G52A | 87-02 | | 085043 (9004201-3700) | O-ring | 1 |
| | G54 | 87-02 | | 515965 (9005110-5600) | Plug assembly | 1 |
| | G54A | 87-02 | | 085043 (9004201-3700) | O-ring | 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 | | 002311 (9009610-3459) | 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) | 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) | 4 |
| | G088 | 87-02 | 96-04 | 689117 | Gasket (SB-1995-012) | 1 |
| 8 & 80 | G04 | 96-05 | | 8100688 | End cap assembly, twin ports (SB-1995-012) | 1 |
| 1 & 81 | G04 | 96-05 | | 8100688 | End cap assembly, twin ports (SB-1995-012) | 1 |
| | G63 | 87-02 | | 8700074 | Split clamp | 4 |
| 82 | G04 | 97-01 | | 8100689 | End cap assembly, metric twin ports | 1 |
| 8W | G04 | 97-24 | | 8100916 | End cap assembly, metric twin ports, CW | 1 |
| 8W | G04 | 97-24 | | 8100929 | End cap assembly, metric twin ports, CCW | 1 |



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Enlarged **bold** type item numbers are recommended part to stock for servicing.

CHARGING SYSTEM

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|-----------------------|---|--------------------|
| C | H05 | 93-10 | | 8100479 | Charge pump set, 14 cc (SB-1993-001*) | 1 |
| | H40 | 87-02 | | 9004800-1222 | Pin | 1 |
| | H50 | 93-10 | | 8801178 | Charge pump shaft (SB-1993-001 & SB-1998-066) | 1 |
| | H50 | 87-02 | 89-16 | 8100142 | Charge pump shaft (SB-1989-006) | 1 |
| | H60 | 87-02 | | 9003310-1208 | Key | 1 |
| | H70 | 87-02 | | 516761 | Retaining plate | 1 |
| | H80 | 87-02 | | 672493 (9007210-0604) | Screw | 6 |

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

| | | | | | | |
|---|-----|-------|-------|-----------------------|---|---|
| D | H05 | 93-10 | | 8100480 | Charge pump set, 17 cc (SB-1993-001*) | 1 |
| | H40 | 87-02 | | 9004800-1222 | Pin | 1 |
| | H50 | 93-10 | | 8801178 | Charge pump shaft (SB-1993-001 & SB-1998-066) | 1 |
| | H50 | 87-02 | 89-16 | 8100142 | Charge pump shaft (SB-1989-006) | 1 |
| | H60 | 87-02 | | 9003310-1208 | Key | 1 |
| | H70 | 87-02 | | 516761 | Retaining plate | 1 |
| | H80 | 87-02 | | 672493 (9007210-0604) | Screw | 6 |

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

| | | | | | | |
|---|-----|-------|-------|-----------------------|---|---|
| E | H05 | 93-10 | | 8100481 | Charge pump set, 20 cc (SB-1993-001*) | 1 |
| | H40 | 87-02 | | 9004800-1222 | Pin | 1 |
| | H50 | 93-10 | | 8801178 | Charge pump shaft (SB-1993-001 & SB-1998-066) | 1 |
| | H50 | 87-02 | 89-16 | 8100142 | Charge pump shaft (SB-1989-006) | 1 |
| | H60 | 87-02 | | 9003310-1208 | Key | 1 |
| | H70 | 87-02 | | 516761 | Retaining plate | 1 |
| | H80 | 87-02 | | 672493 (9007210-0604) | Screw | 6 |

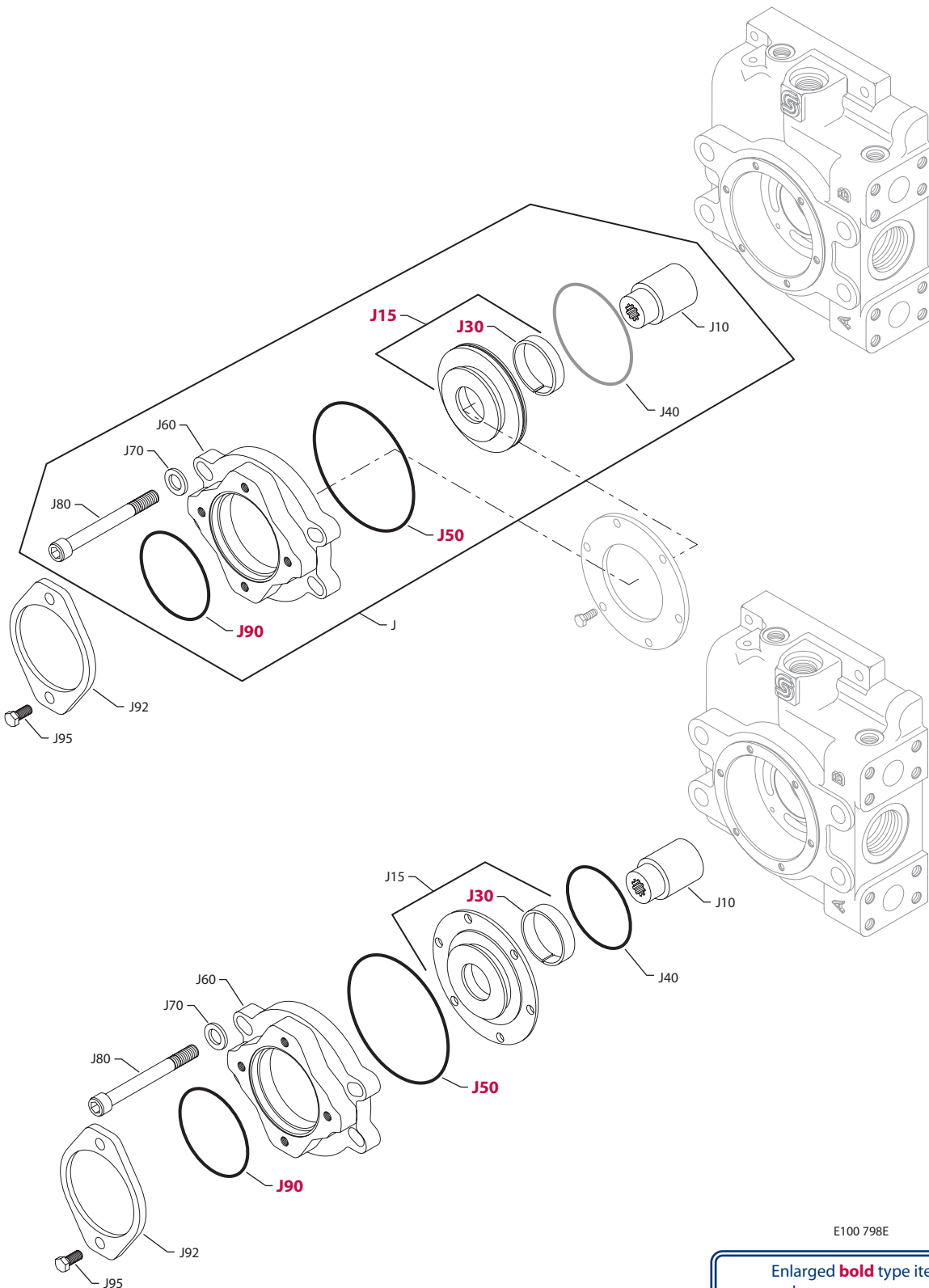
* For information regarding replacement parts for units built from 89-17 to 93-09, refer to BLN-10107 in the appendix.

| | | | | | | |
|---|-----|-------|--|-----------------------|------------------------|---|
| F | H05 | 97-01 | | 8100627 | 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 |

| | | | | | | |
|---|------|-------|-------|-----------------------|---|---|
| L | H25 | 87-02 | | 331819 (8800466-0075) | Charge pump spacer | 1 |
| | H50 | 93-10 | | 8801178 | 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 | | 672493 (9007210-0604) | Screw | 6 |
| | H90 | 87-02 | | 320002 (9005110-9200) | Plug assembly | 1 |
| | H90A | 87-02 | | 001156 (9004201-7500) | O-ring | 1 |

| | | | | | | |
|---|------|-------|--|-----------------------|--------------------|---|
| N | H25 | 98-51 | | 331819 (8800466-0075) | Charge pump spacer | 1 |
| | H70 | 98-51 | | 516761 | Retaining plate | 1 |
| | H80 | 98-51 | | 648451 | Screw | 6 |
| | H90 | 98-51 | | 320002 (9005110-9200) | Plug assembly | 1 |
| | H90A | 98-51 | | 001156 (9004201-7500) | O-ring | 1 |

| | | | | | | |
|---|-----|-------|--|-----------------------|------------------------|---|
| Y | H05 | 99-18 | | 8100627 | 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 | | 672493 (9007210-0604) | Screw | 6 |



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AUXILIARY MOUNTING

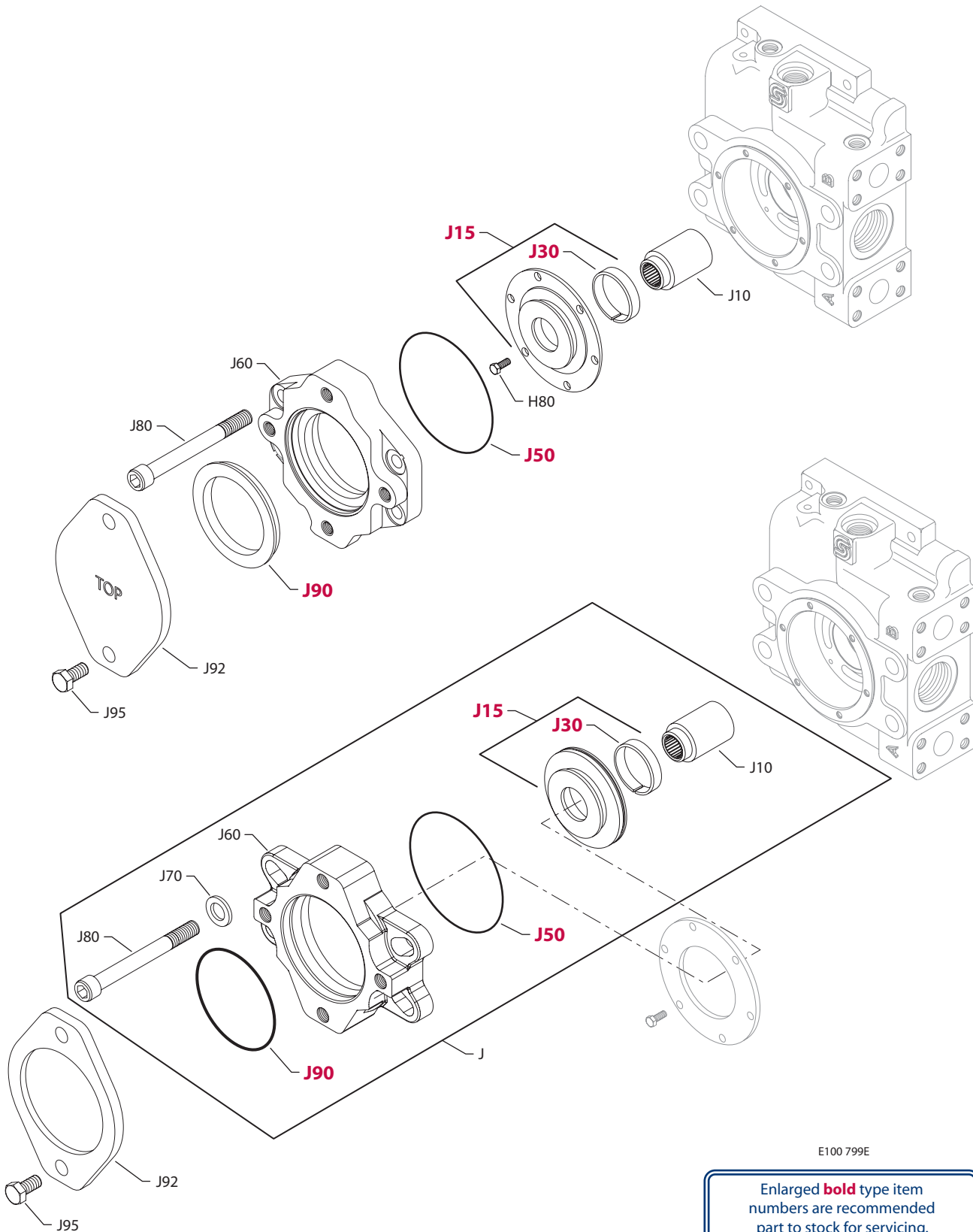
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|-----------------------|--|--------------------|
| AB & A | J | 87-02 | | 8102J00A-A | Aux. mounting kit, A flange, 9 tooth | 1 |
| | J10 | 87-02 | | 8100147 | Coupling, 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 | | 673384 (8800172) | Flange adaptor, SAE A | 1 |
| | J70 | 87-02 | | 664920 (9009625-0132) | Washer | 4 |
| | J80 | 98-44 | | 518721 | Screw, M16 x 140 | 4 |
| | J80 | 87-02 | 98-43 | 9007314-1622 | Screw, M16 x 130 (SB-1998-073) | 4 |
| | J90 | 87-02 | | 545434 (9004100-0420) | O-ring | 1 |
| | J92 | 87-02 | | 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. New style covers may be used with either charge pump design.

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|-----------------------|--|--------------------|
| AC & T | J | 87-02 | | 8102J00T-A | Aux. mounting kit, A flange, 11 tooth | 1 |
| | J10 | 87-02 | | 8100297 | 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 | | 673384 (8800172) | Flange adaptor, SAE A | 1 |
| | J70 | 87-02 | | 664920 (9009625-0132) | Washer | 4 |
| | J80 | 98-44 | | 518721 | Screw, M16 x 140 | 4 |
| | J80 | 87-02 | 98-43 | 9007314-1622 | Screw M16 x 130 (SB-1998-073) | 4 |
| | J90 | 87-02 | | 545434 (9004100-0420) | O-ring | 1 |
| | J92 | 87-02 | | 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. New style covers may be used with either charge pump design.

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|-----------------------|-----------------------|--------------------|
| AH | 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 | | 8700008 | Bushing | 1 |
| | J40 | 02-08 | | 680892 (9004104-0440) | O-ring | 1 |
| | J50 | 02-08 | | 056739 (9004104-1580) | O-ring | 1 |
| | J60 | 02-08 | | 673384 (8800172) | Flange adaptor, SAE A | 1 |
| | J70 | 02-08 | | 664920 (9009625-0132) | Washer | 4 |
| | J80 | 02-08 | | 518721 | Screw, M16 x 140 | 4 |
| | J90 | 02-08 | | 545434 (9004100-0420) | O-ring | 1 |
| | J92 | 02-08 | | 9802336 | Cover plate | 1 |
| | J95 | 02-08 | | 9007200-3714 | Screw | 2 |



E100 799E

Enlarged **bold** type item numbers are recommended part to stock for servicing.

AUXILIARY MOUNTING

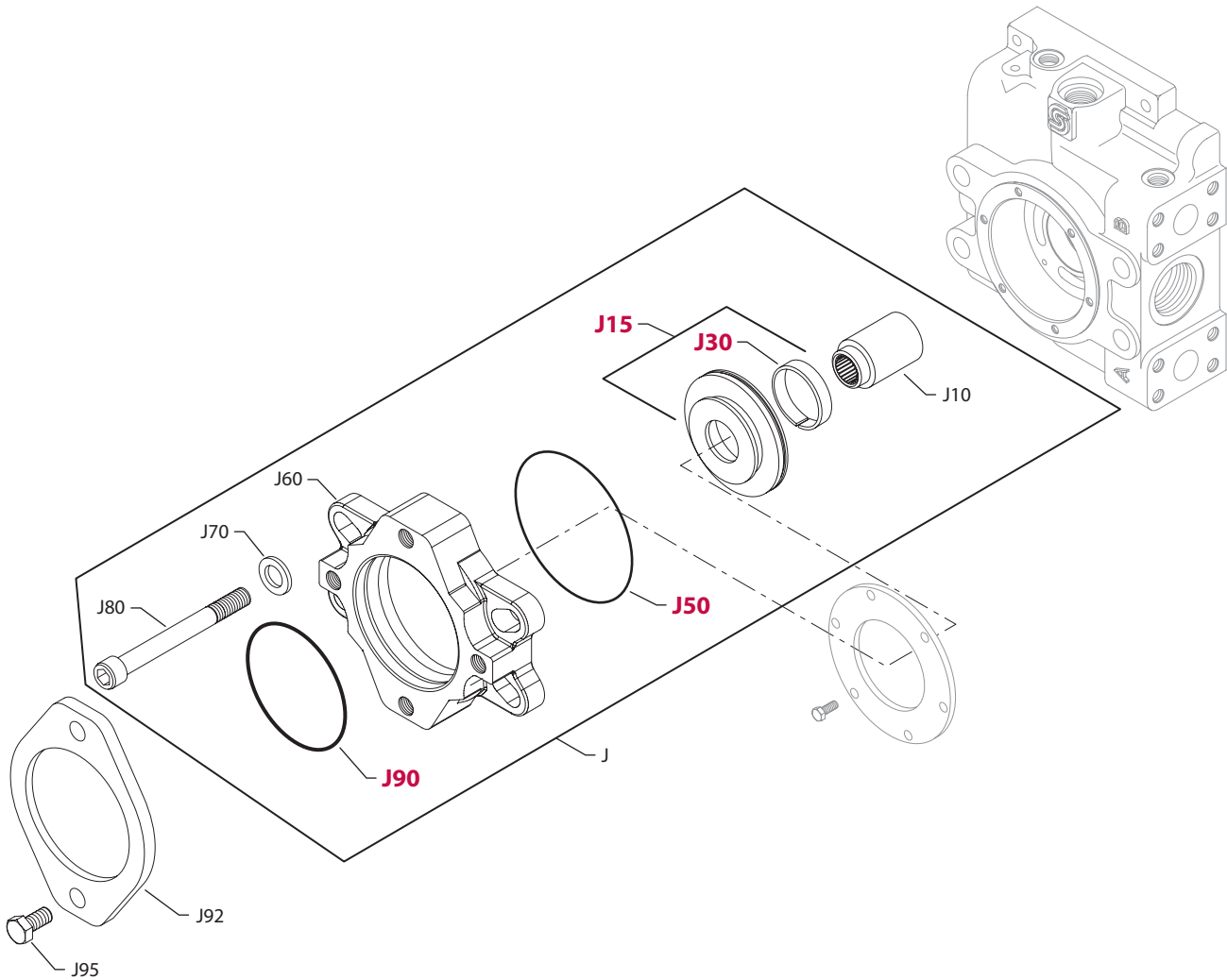
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|-----------------------|-----------------------|--------------------|
| BA | J10 | 06-15 | | 8100273 | Coupling, 15 tooth | 1 |
| | J15 | 06-15 | | 8801248 | Cover assembly, CW | 1 |
| | J15 | 06-15 | | 8801352 | Cover assembly, CCW | 1 |
| | J30 | 06-15 | | 8700008 | Bushing | 1 |
| | J50 | 06-15 | | 056739 (9004104-1580) | O-ring | 1 |
| | J60 | 06-15 | | 8100847 | Flange adaptor, 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 |

| | | | | | | |
|--------|-----|-------|-------|-----------------------|--|---|
| BB & V | J | 87-02 | | 8102J00V-A | Aux. mounting kit, B-B flange, 15 tooth | 1 |
| | J10 | 87-02 | | 8100273 | 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 | | 8800173 | Flange adaptor, SAE B | 1 |
| | J70 | 87-02 | | 9009625-0132 | Washer | 4 |
| | J80 | 98-44 | | 518721 | Screw, M16 x 140 | 4 |
| | J80 | 87-02 | 98-43 | 9007314-1622 | Screw M16 x 130 (SB-1998-073) | 4 |
| | J90 | 87-02 | | 726935 (9004104-0450) | O-ring | 1 |
| | J92 | 87-02 | | 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 BLN-10107 in the appendix. New style covers may be used with either charge pump design.

| | | | | | | |
|--------|-----|-------|-------|-----------------------|--|---|
| BC & B | J | 87-02 | | 8102J00B-A | Aux. mounting kit, B flange, 13 tooth | 1 |
| | J10 | 87-02 | | 8100148 | 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 | | 8800173 | Flange adaptor, SAE B | 1 |
| | J70 | 87-02 | | 9009625-0132 | Washer | 4 |
| | J80 | 98-44 | | 518721 | Screw, M16 x 140 | 4 |
| | J80 | 87-02 | 98-43 | 9007314-1622 | Screw M16 x 130 (SB-1998-073) | 4 |
| | J90 | 87-02 | | 726935 (9004104-0450) | O-ring | 1 |
| | J92 | 87-02 | | 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 BLN-10107 in the appendix. New style covers may be used with either charge pump design.



E100 800E

Enlarged **bold** type item numbers are recommended part to stock for servicing.

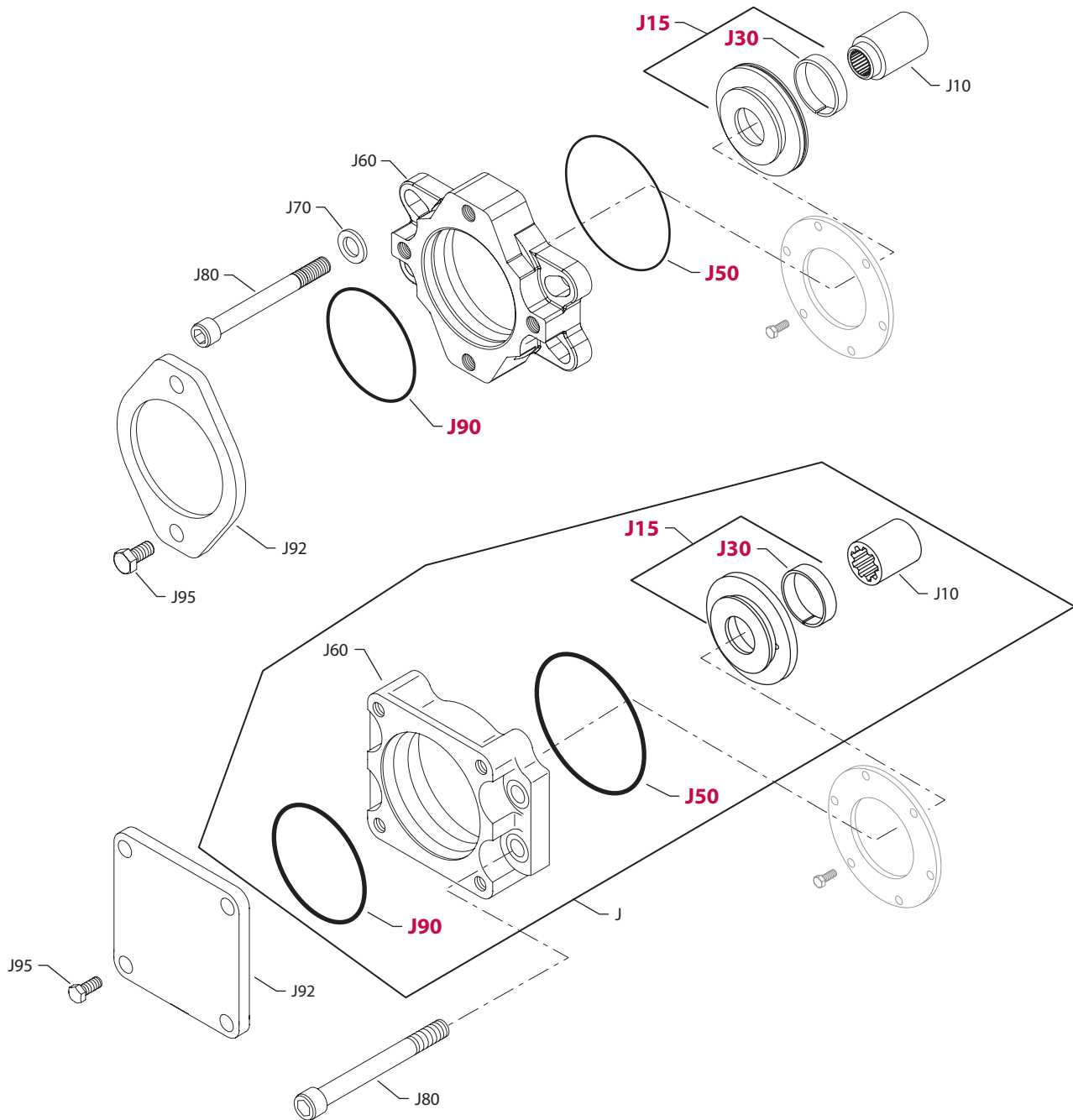
AUXILIARY MOUNTING

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|-----------------------|--|--------------------|
| BE & P | J | 98-44 | | 8510123 | Aux. mounting kit, B flange, 13 tooth, M12 threads | 1 |
| | J10 | 95-21 | | 8100148 | Coupling, 13 tooth | 1 |
| | J15 | 95-21 | | 8800832 | Cover assembly, CW (SB-2005-011) | 1 |
| | J15 | 95-21 | | 8800833 | Cover assembly, CCW (SB-2005-011) | 1 |
| | J30 | 95-21 | | 8700008 | Bushing | 1 |
| | J50 | 95-21 | | 056739 (9004104-1580) | O-ring | 1 |
| | J60 | 95-21 | | 8800983 | Flange adaptor, SAE B, metric threads | 1 |
| | J70 | 95-21 | | 9009625-0132 | Washer | 4 |
| | J80 | 98-44 | | 518721 | Screw, M16 x 140 | 4 |
| | J80 | 95-21 | 98-43 | 9007314-1622 | Screw M16 x 130 (SB-1998-073) | 4 |
| | J90 | 95-21 | | 726935 (9004104-0450) | O-ring | 1 |
| | J92 | 95-21 | | 4460370 | Cover plate | 1 |
| | J95 | 95-21 | | 737866 (9007314-1207) | Screw | 2 |

| | | | | | | |
|--------|-----|-------|-------|-----------------------|--|---|
| BF & U | J10 | 87-02 | | 8100407 | Coupling, 19 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 | | 8800173 | Flange adaptor, SAE B | 1 |
| | J70 | 87-02 | | 9009625-0132 | Washer | 4 |
| | J80 | 98-44 | | 518721 | Screw, M16 x 140 | 4 |
| | J80 | 87-02 | 98-43 | 9007314-1622 | Screw M16 x 130 (SB-1998-073) | 4 |
| | J90 | 87-02 | | 726935 (9004104-0450) | O-ring | 1 |
| | J92 | 87-02 | | 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 BLN-10107 in the appendix. New style covers may be used with either charge pump design.

| | | | | | | |
|--------|-----|-------|-------|-----------------------|---------------------------------------|---|
| BM & 7 | J10 | 94-07 | | 8100273 | Coupling, 15 tooth | 1 |
| | J15 | 94-07 | | 8800832 | Cover assembly, CW (SB-2005-011) | 1 |
| | J15 | 94-07 | | 8800833 | Cover assembly, CCW (SB-2005-011) | 1 |
| | J30 | 94-07 | | 8700008 | Bushing | 1 |
| | J50 | 94-07 | | 056739 (9004104-1580) | O-ring | 1 |
| | J60 | 94-07 | | 8800983 | Flange adaptor, SAE B, metric threads | 1 |
| | J70 | 94-07 | | 9009625-0132 | Washer | 4 |
| | J80 | 98-44 | | 518721 | Screw, M16 x 140 | 4 |
| | J80 | 94-07 | 98-43 | 9007314-1622 | Screw M16 x 130 (SB-1998-073) | 4 |
| | J90 | 94-07 | | 726935 (9004104-0450) | O-ring | 1 |
| | J92 | 94-07 | | 4460370 | Cover plate | 1 |
| | J95 | 94-07 | | 737866 (9007314-1207) | Screw | 2 |

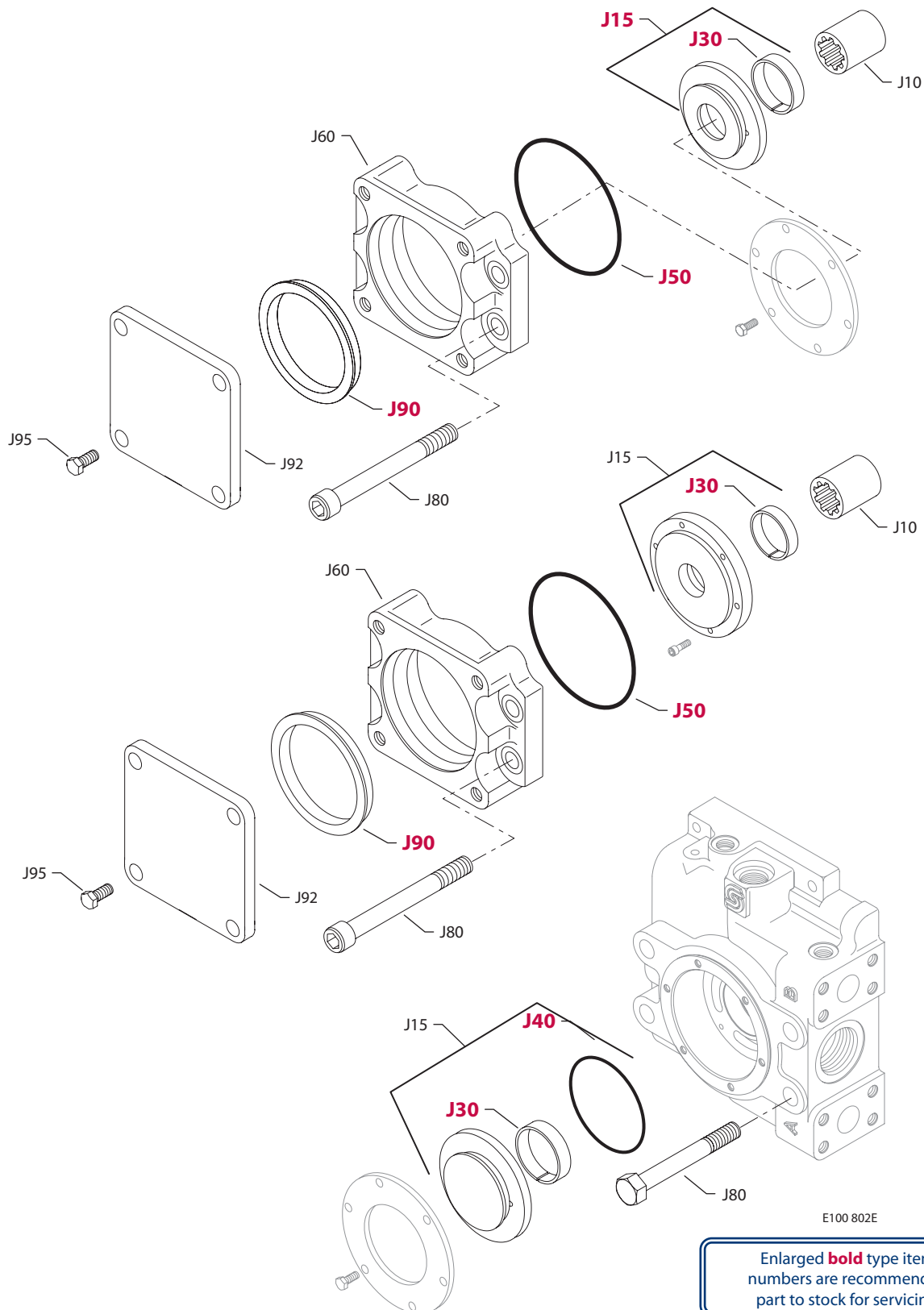


E100 801E

Enlarged **bold** type item numbers are recommended part to stock for servicing.

AUXILIARY MOUNTING

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|--------|------------|----------|-----------------------|---|---------------------------------------|
| BT | J10 | 05-12 | | 8801196 | Coupling, 14 tooth | 1 |
| | J15 | 05-12 | | 8800832 | Cover assembly, CW (SB-2005-011) | 1 |
| | J15 | 05-12 | | 8800833 | Cover assembly, CCW (SB-2005-011) | 1 |
| | J30 | 05-12 | | 8700008 | Bushing | 1 |
| | J50 | 05-12 | | 056739 (9004104-1580) | O-ring | 1 |
| | J60 | 05-12 | | 8800173 | Flange adaptor, SAE B | 1 |
| | J70 | 05-12 | | 9009625-0132 | Washer | 4 |
| | J80 | 05-12 | | 518721 | Screw, M16 x 140 | 4 |
| | J90 | 05-12 | | 726935 (9004104-0450) | O-ring | 1 |
| | J92 | 05-12 | | 4460370 | Cover plate | 1 |
| | J95 | 05-12 | | 9007200-5021 | Screw | 2 |
| | CD & C | J | 87-02 | | 8102J00C-A | Aux. mounting kit, C flange, 14 tooth |
| J10 | | 87-02 | | 8801196 | 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 | | 8100848 | Flange adaptor, SAE C (SB-2002-050) | 1 |
| J70 | | 87-02 | 03-10 | 5000602 | Washer (SB-2002-050) | 4 |
| J80 | | 98-44 | | 518721 | Screw, M16 x 140 | 4 |
| J80 | | 87-02 | 98-43 | 9007314-1622 | Screw M16 x 130 (SB-1998-073) | 4 |
| J90 | | 87-02 | | 719179 (9004100-0480) | O-ring | 1 |
| J92 | | 87-02 | | 8800406 | Cover plate | 1 |
| J95 | | 87-02 | | 9007200-5021 | Screw | 2 |
| CT | | J10 | 98-42 | | 8100407 | Coupling, 19 tooth |
| | J15 | 98-42 | | 8800832 | Cover assembly, CW (SB-2005-011) | 1 |
| | J15 | 98-42 | | 8800833 | Cover assembly, CCW (SB-2005-011) | 1 |
| | J30 | 98-42 | | 8700008 | Bushing | 1 |
| | J50 | 98-42 | | 056739 (9004104-1580) | O-ring | 1 |
| | J60 | 98-42 | | 8100848 | Flange adaptor, SAE C (SB-2002-050) | 1 |
| | J70 | 98-42 | 03-10 | 5000602 | Washer (SB-2002-050) | 4 |
| | J80 | 98-44 | | 518721 | Screw, M16 x 140 | 4 |
| | J80 | 98-42 | 98-43 | 9007314-1622 | Screw M16 x 130 (SB-1998-073) | 4 |
| | J90 | 98-42 | | 719179 (9004100-0480) | O-ring | 1 |
| | J92 | 98-42 | | 8800406 | Cover plate | 1 |
| | J95 | 98-42 | | 9007200-5021 | Screw | 2 |

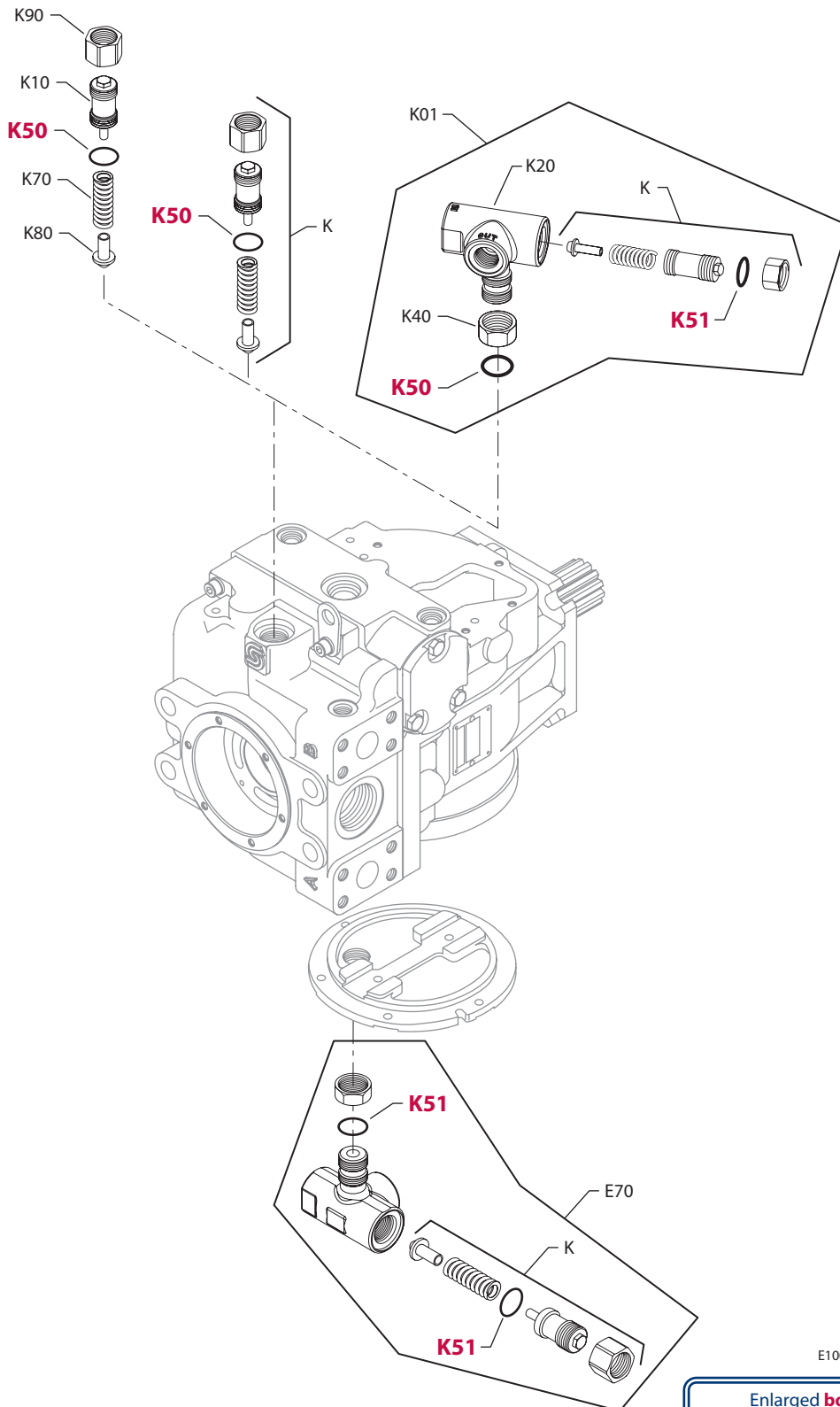


Enlarged **bold** type item numbers are recommended part to stock for servicing.

AUXILIARY MOUNTING

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit | |
|------------|--------|------------|----------|-----------------------|----------------------------------|-----------------------------------|---|
| CV | J10 | 98-42 | | 503918 | Coupling, 25 tooth | 1 | |
| | J15 | 98-42 | | 8800832 | Cover assembly, CW (SB-2005-011) | 1 | |
| | J30 | 98-42 | | 8700008 | Bushing | 1 | |
| | J50 | 98-42 | | 056739 (9004104-1580) | O-ring | 1 | |
| | J60 | 02-08 | | 8100897 | Flange adaptor, SAE C | 1 | |
| | J70 | 98-42 | 03-10 | 5000602 | Washer (SB-2002-050) | 4 | |
| | J80 | 98-44 | | 518721 | Screw, M16 x 140 | 4 | |
| | J80 | 98-42 | 98-43 | 9007314-1622 | Screw M16 x 130 (SB-1998-073) | 4 | |
| | J90 | 98-42 | | 8801062 | C pad seal | 1 | |
| | J92 | 98-42 | | 8801060 | Cover plate | 1 | |
| | J95 | 98-42 | | 9007200-5021 | Screw | 2 | |
| | CW | J10 | 98-42 | | 8801196 | Coupling, 25 tooth, high strength | 1 |
| | | J15 | 98-42 | | 8800832 | Cover assembly, CW (SB-2005-011) | 1 |
| J30 | | 98-42 | | 8700008 | Bushing | 1 | |
| J50 | | 98-42 | | 056739 (9004104-1580) | O-ring | 1 | |
| J60 | | 02-08 | | 8100897 | Flange adaptor, SAE C | 1 | |
| J70 | | 98-42 | 03-10 | 5000602 | Washer (SB-2002-050) | 4 | |
| J80 | | 98-44 | | 518721 | Screw, M16 x 140 | 4 | |
| J80 | | 98-42 | 98-43 | 9007314-1622 | Screw M16 x 130 (SB-1998-073) | 4 | |
| J90 | | 98-42 | | 8801062 | C pad seal | 1 | |
| J92 | | 98-42 | | 8801060 | Cover plate | 1 | |
| J95 | | 98-42 | | 9007200-5021 | Screw | 2 | |
| CW | | J10 | 98-42 | | 8801196 | Coupling, 25 tooth, high strength | 1 |
| | | J15 | 98-42 | | 8801248 | Cover assembly, CW1 | |
| | J30 | 98-42 | | 8700008 | Bushing | 1 | |
| | J50 | 98-42 | | 056739 (9004104-1580) | O-ring | 1 | |
| | J60 | 02-08 | | 8100897 | Flange adaptor, SAE C | 1 | |
| | J70 | 98-42 | 03-10 | 5000602 | Washer (SB-2002-050) | 4 | |
| | J80 | 98-44 | | 518721 | Screw, M16 x 140 | 4 | |
| | J80 | 98-42 | 98-43 | 9007314-1622 | Screw M16 x 130 (SB-1998-073) | 4 | |
| | J90 | 98-42 | | 8801062 | C pad seal | 1 | |
| | J92 | 98-42 | | 8801060 | Cover plate | 1 | |
| | J95 | 98-42 | | 9007200-5021 | Screw | 2 | |
| | NN & N | 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 | | 98-44 | | 9007210-1621 | Screw, M12 x 120 | 4 | |
| J80 | | 87-02 | 98-43 | 9007210-1620 | Screw, M12 x 100 (SB-1998-073) | 4 | |

* For additional information regarding replacement parts for units built prior to 93-10, refer to BLN-10107 in the appendix

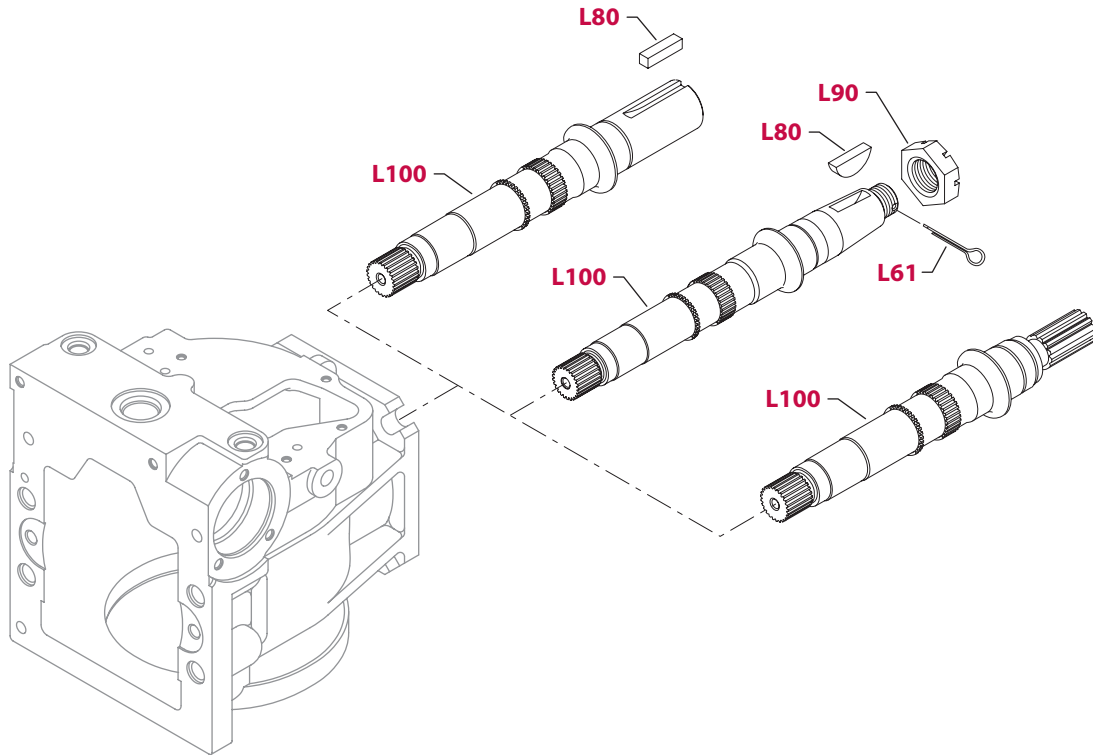


E100 803E

Enlarged **bold** type item numbers are recommended part to stock for servicing.

CHARGE PRESSURE SETTING

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|-----------------------|--|--------------------|
| 00-30 | K | 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 |
| 32-34 | K | 94-13 | | 8510269 | Charge relief valve kit, 30-42 bar | 1 |
| | K50 | 94-13 | | 001149 (9004201-6200) | O-ring | 1 |
| JD | | | | none | | |
| JJ | K01 | 99-11 | | 8100832 | Externally mounted charge pressure relief valve | 1 |
| | K02 | 99-11 | | 8002K000-A | 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 | | 001156 (9004201-7500) | O-ring | 1 |
| | K51 | 99-11 | | 001149 (9004201-6200) | O-ring | 1 |
| JK | E70 | 99-11 | | 8100832 | Externally mounted charge pressure relief valve | 1 |
| | K02 | 99-11 | | 8002K000-A | 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 | | 001156 (9004201-7500) | O-ring | 1 |
| | K51 | 99-11 | | 001149 (9004201-6200) | O-ring | 1 |
| XX | K10 | 96-23 | | 502300 | Adjuster | 1 |
| | K50 | 96-23 | | 012559 (9004202-6200) | O-ring | 1 |
| | K70 | 96-23 | | 344127 | Spring | 1 |
| | K80 | 96-23 | | 342428 (8800449) | Poppet | 1 |
| | K90 | 96-23 | | 342709 (9003575-0101) | Nut | 1 |

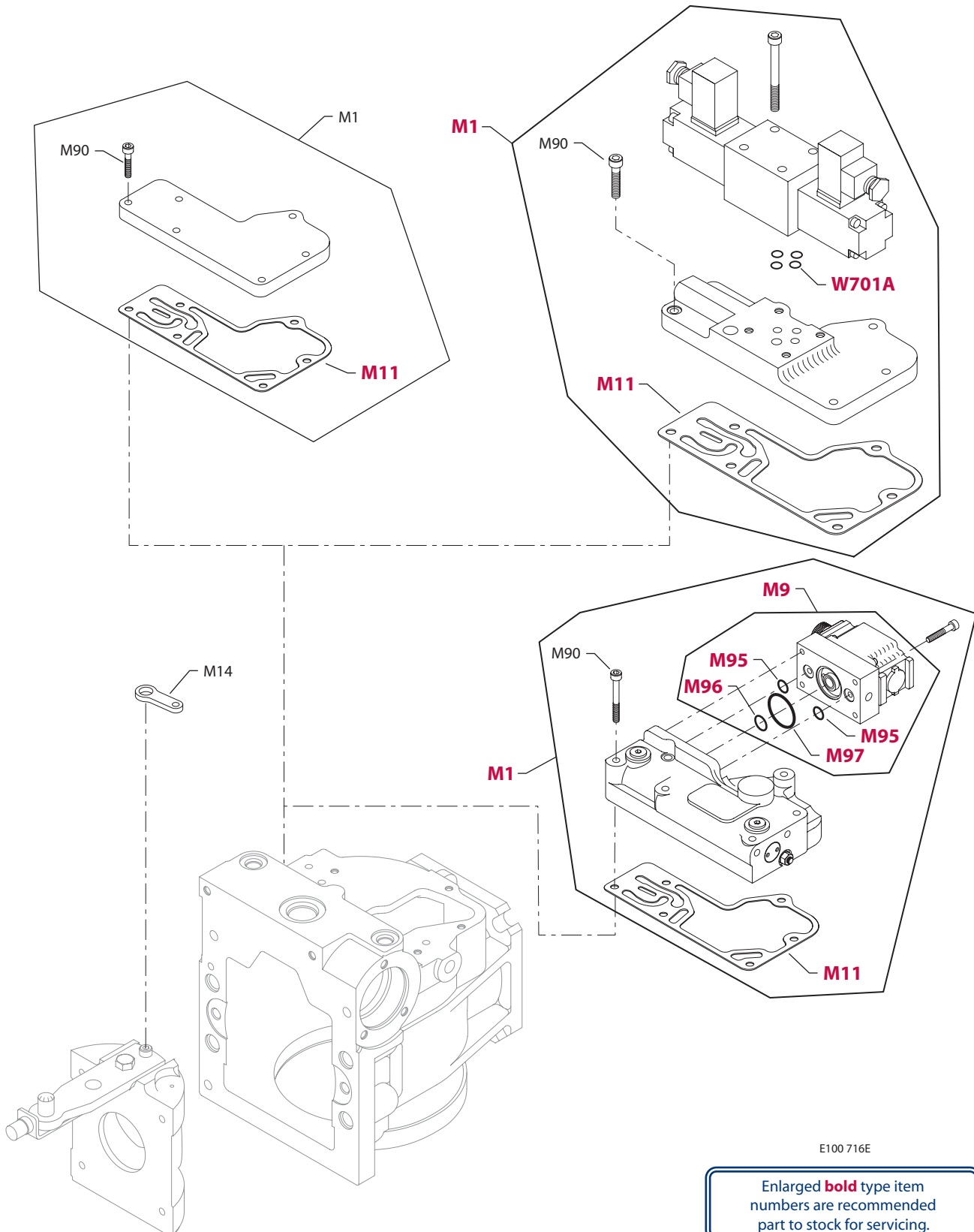


E100 804E

Enlarged **bold** type item numbers are recommended part to stock for servicing.

SHAFT

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|-----------------------|--|--------------------|
| C6 | L100 | 87-02 | | 318998 (8100299) | Shaft, 21 tooth spline | 1 |
| C7 | L100 | 87-02 | | 693838 (8100266) | Shaft, 23 tooth spline | 1 |
| D9 | L100 | 95-08 | | 500054 | Shaft, 21 tooth spline, M10 threaded tapped hole | 1 |
| G2 | L100 | 97-15 | | 8100701 | Shaft, 21 tooth spline, special length | 1 |
| G6 | L100 | 97-15 | | 8100652 | Shaft, 25 tooth spline, special | 1 |
| J1 | L100 | 92-16 | | 8100469 | Shaft, 23 tooth spline, special length | 1 |
| J8 | L100 | 99-11 | | 8100830 | Shaft, 23 tooth spline, special length | 1 |
| K2 | L80 | 87-02 | | 9003261-3724 | Key | 1 |
| | L100 | 87-02 | | 331835 (8100354) | Shaft, straight key, 1.5" diameter | 1 |
| S1 | L100 | 87-02 | | 701441 (8100264) | Shaft, 14 tooth spline | 1 |
| S3 | L100 | 87-02 | | 322024 (8100238) | Shaft, 16 tooth spline | 1 |
| S4 | L100 | 87-02 | | 8100440 | Shaft, 17 tooth spline | 1 |
| T1 | 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 |
| 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 (8100283) | Shaft, 1.5" tapered | 1 |

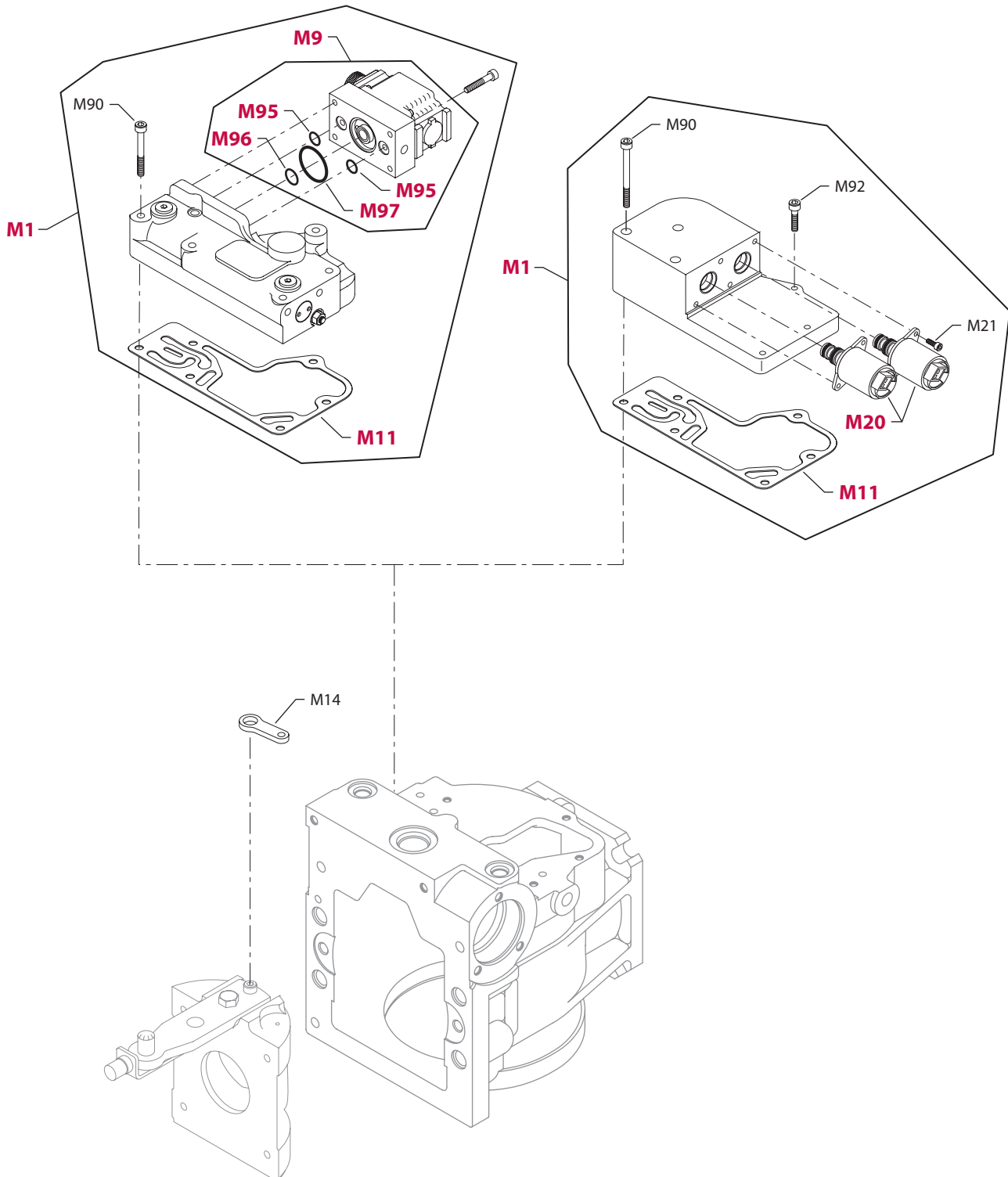


E100 716E

Enlarged **bold** type item numbers are recommended part to stock for servicing.

CONTROL

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|-------|------------|----------|-----------------------|---------------------------------|--------------------|
| CA | M1 | 87-02 | | 8102M0CA-A | Control cover plate kit | 1 |
| | M11 | 87-02 | | 8800923 | Control gasket | 1 |
| | M90 | 87-02 | | 693341 (9007314-0606) | Screw | 6 |
| CB | M1 | 87-02 | | 8102M0CA-A | Control cover plate kit | 1 |
| | M11 | 87-02 | | 8800923 | Control gasket | 1 |
| | M14 | 96-40 | | 8000602 | Feedback link (SB-1999-019) | 1 |
| | M14 | 87-02 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M90 | 87-02 | | 693341 (9007314-0606) | Screw | 6 |
| DC | M1 | 87-02 | | 8102M0DC-A | 3-position control kit, 12 volt | 1 |
| | M11 | 87-02 | | 8800923 | Control gasket | 1 |
| | M90 | 87-02 | | 693341 (9007314-0606) | Screw | 6 |
| | W701A | 87-02 | | 048413 | O-ring | 4 |
| DD | M1 | 87-02 | | 8102M0DD-A | 3-position control kit, 24 volt | 1 |
| | M11 | 87-02 | | 8800923 | Control gasket | 1 |
| | M90 | 87-02 | | 693341 (9007314-0606) | Screw | 6 |
| | W701A | 87-02 | | 048413 | O-ring | 4 |
| EA | M1 | 91-16 | | 8102M0EA-B | EDC kit, MS connector | 1 |
| | M9 | 91-16 | | MCV110A1017 | PCP, MS connector | 1 |
| | M11 | 91-16 | | 8800923 | Control gasket | 1 |
| | M14 | 96-40 | | 8000602 | Feedback link (SB-1999-019) | 1 |
| | M14 | 91-16 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 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 |
| EG | M1 | 98-44 | | 8510233 | EDC kit, MS connector | 1 |
| | M9 | 98-44 | | MCV110A1018 | PCP, MS connector | 1 |
| | M11 | 98-44 | | 8800923 | Control gasket | 1 |
| | M14 | 98-44 | | 8000602 | Feedback link (SB-1999-019) | 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 |

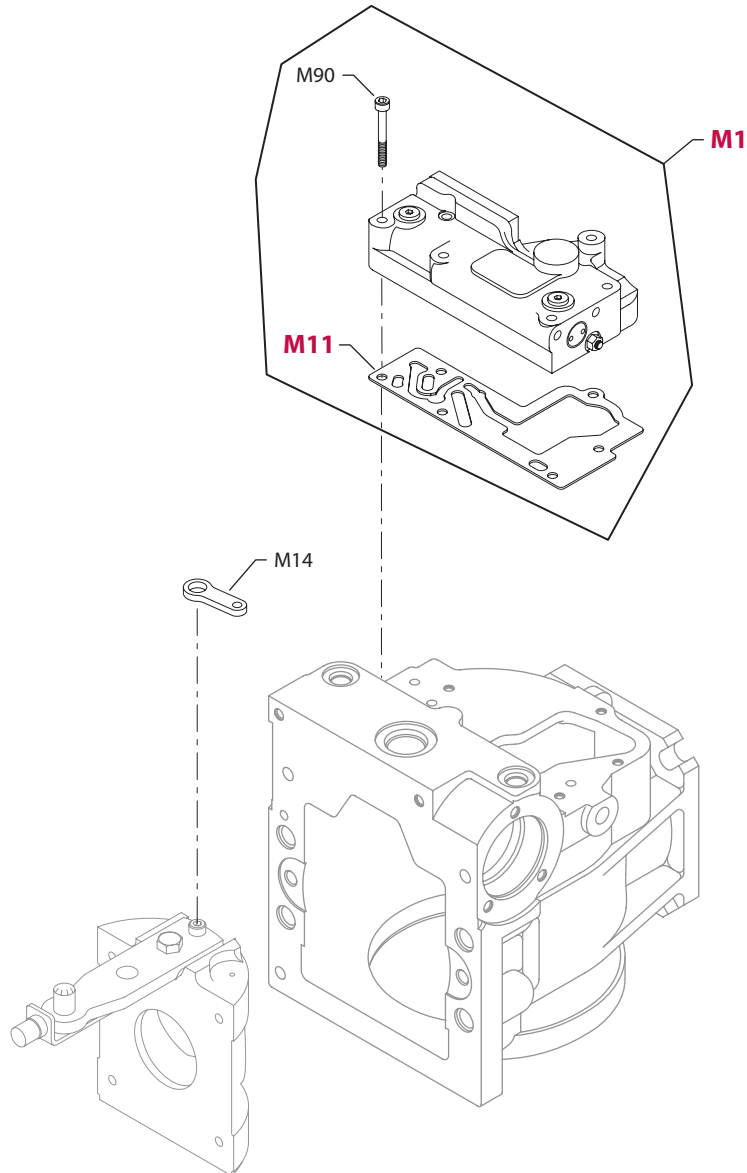


E100 805E

Enlarged **bold** type item numbers are recommended part to stock for servicing.

CONTROL

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|-----------------------|-----------------------------------|--------------------|
| EP | M1 | 91-07 | | 8102M0EP-B | EDC kit, Packard connector | 1 |
| | M9 | 91-07 | | MCV110A1058 | PCP, Packard connector | 1 |
| | M11 | 91-07 | | 8800923 | Control gasket | 1 |
| | M14 | 96-40 | | 8000602 | Feedback link (SB-1999-019) | 1 |
| | M14 | 91-07 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 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 |
| EX | M1 | 93-16 | | 8102M0EX-B | EDC kit, Metri-pack connector | 1 |
| | M9 | 93-16 | | MCV110A1090 | PCP, Metri-pack connector | 1 |
| | M11 | 93-16 | | 8800923 | Control gasket | 1 |
| | M14 | 96-40 | | 8000602 | Feedback link (SB-1999-019) | 1 |
| | M14 | 93-16 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 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 |
| FA | M1 | 98-14 | | 11015079 | NFPE control kit, 12 volt, 25 bar | 1 |
| | M11 | 98-14 | | 8800923 | Control gasket | 1 |
| | M20 | 98-14 | | 518080 | Solenoid valve, 12 volt, 25 bar | 2 |
| | M21 | 98-14 | | 067694 | Screw | 4 |
| | M90 | 98-14 | | 348847 | Screw | 3 |
| | M92 | 98-14 | | 9007314-0606 | Screw | 3 |
| FB | M1 | 98-14 | | 11015080 | NFPE control kit, 24 volt, 25 bar | 1 |
| | M11 | 98-14 | | 8800923 | Control gasket | 1 |
| | M20 | 98-14 | | 518081 | Solenoid valve, 24 volt, 25 bar | 2 |
| | M21 | 98-14 | | 067694 | Screw | 4 |
| | M90 | 98-14 | | 348847 | Screw | 3 |
| | M92 | 98-14 | | 9007314-0606 | Screw | 3 |
| FC | M1 | 98-14 | | 8510230 | NFPE control kit, 12 volt, 32 bar | 1 |
| | M11 | 98-14 | | 8800923 | Control gasket | 1 |
| | M20 | 98-14 | | 518079 | Solenoid valve, 12 volt, 32 bar | 2 |
| | M21 | 98-14 | | 067694 | Screw | 4 |
| | M90 | 98-14 | | 348847 | Screw | 3 |
| | M92 | 98-14 | | 9007314-0606 | Screw | 3 |
| FD | M1 | 98-14 | | 11015081 | NFPE control kit, 24 volt, 32 bar | 1 |
| | M11 | 98-14 | | 8800923 | Control gasket | 1 |
| | M20 | 98-14 | | 517214 | Solenoid valve, 24 volt, 32 bar | 2 |
| | M21 | 98-14 | | 067694 | Screw | 4 |
| | M90 | 98-14 | | 348847 | Screw | 3 |
| | M92 | 98-14 | | 9007314-0606 | Screw | 3 |

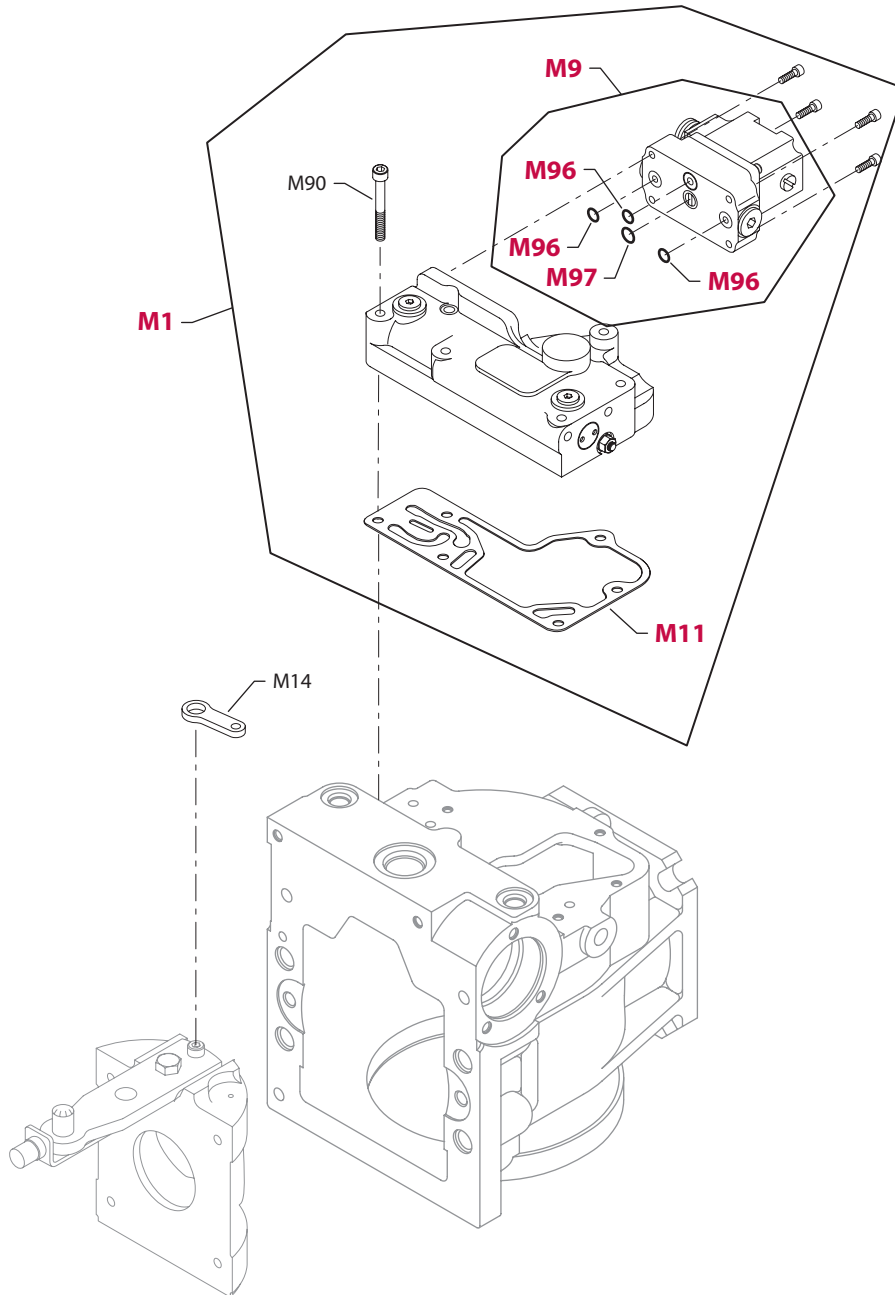


E100 806E

Enlarged **bold** type item numbers are recommended part to stock for servicing.

CONTROL

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|-----------------------|---------------------------------|--------------------|
| HF | M1 | 92-15 | | 8102M0HF-A | HDC kit, 3-11 bar | 1 |
| | M11 | 92-15 | | 8801241 | Control gasket (SB-1999-065) | 1 |
| | M14 | 96-40 | | 8000602 | Feedback link (SB-1999-019) | 1 |
| | M14 | 92-15 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M90 | 92-15 | | 692889 (9007314-0611) | Screw | 6 |
| HK | M1 | 92-15 | | 8102M0HK-A | HDC kit, 1-11 bar | 1 |
| | M11 | 92-15 | | 8801241 | Control gasket (SB-1999-065) | 1 |
| | M14 | 96-40 | | 8000602 | Feedback link (SB-1999-019) | 1 |
| | M14 | 92-15 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M90 | 92-15 | | 692889 (9007314-0611) | Screw | 6 |
| HM | M1 | 92-15 | | 8102M0HM-A | HDC kit, 1.1 -6.7 bar | 1 |
| | M11 | 92-15 | | 8801241 | Control gasket (SB-1999-065) | 1 |
| | M14 | 96-40 | | 8000602 | Feedback link (SB-1999-019) | 1 |
| | M14 | 92-15 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M90 | 92-15 | | 692889 (9007314-0611) | Screw | 6 |
| HS | M1 | 94-19 | | 8102M0HS-A | HDC kit, 6-18 bar | 1 |
| | M11 | 94-19 | | 8801241 | Control gasket (SB-1999-065) | 1 |
| | M14 | 96-40 | | 8000602 | Feedback link (SB-1999-019) | 1 |
| | M14 | 94-19 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M90 | 94-19 | | 692889 (9007314-0611) | Screw | 6 |
| HU | M1 | 96-06 | | 8510276 | HDC kit, 3-11 bar | 1 |
| | M11 | 96-06 | | 8801241 | Control gasket (SB-1999-065) | 1 |
| | M14 | 96-40 | | 8000602 | Feedback link (SB-1999-019) | 1 |
| | M14 | 96-06 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M90 | 96-06 | | 692889 (9007314-0611) | Screw | 6 |
| HX | M1 | 00-19 | | 11015102 | HDC kit, 3-11 bar | 1 |
| | M11 | 00-19 | | 8801241 | Control gasket (SB-1999-065) | 1 |
| | M14 | 00-19 | | 8000602 | Feedback link (SB-1999-019) | 1 |
| | M90 | 00-19 | | 692889 (9007314-0611) | Screw | 6 |
| HY | M1 | 98-11 | | 8510280 | HDC kit, 4-14 bar | 1 |
| | M11 | 98-11 | | 8801241 | Control gasket (SB-1999-065) | 1 |
| | M14 | 98-11 | | 8000602 | Feedback link | 1 |
| | M90 | 98-11 | | 692889 (9007314-0611) | Screw | 6 |
| JC | M1 | 03-06 | | 8510312 | HDC kit, 6-18 bar, steel barrel | 1 |
| | M11 | 03-06 | | 8801241 | Control gasket | 1 |
| | M14 | 03-06 | | 8000602 | Feedback link | 1 |
| | M90 | 03-06 | | 692889 (9007314-0611) | Screw | 6 |

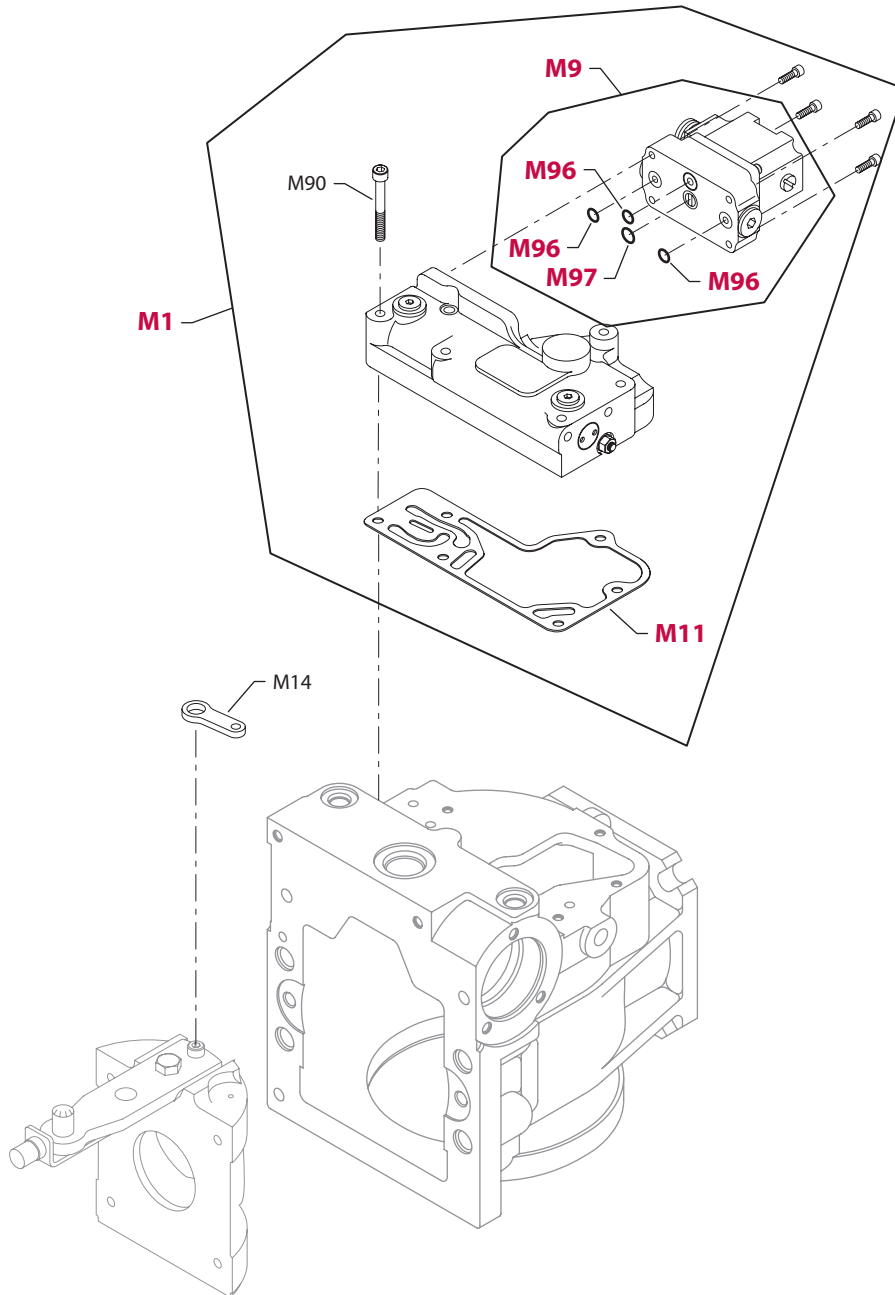


E100 807E

Enlarged **bold** type item numbers are recommended part to stock for servicing.

CONTROL

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|-----------------------|--|-----------------------------------|
| K0 | M1 | 02-49 | | 11015103 | EDC3 kit, Packard connector, dual coil | 1 |
| | M9 | 02-49 | | MCV116G4217 | PCP, Packard connector, dual coil | 1 |
| | M11 | 02-49 | | 8800923 | Control gasket | 1 |
| | M14 | 02-49 | | 8000602 | Feedback link | 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 | 1 |
| | KA | M1 | 95-26 | | 8510115 | EDC3 kit, MS connector, dual coil |
| M9 | | 95-26 | | MCV116G4201 | PCP, MS connector, dual coil | 1 |
| M11 | | 95-26 | | 8800923 | Control gasket | 1 |
| M14 | | 96-40 | | 8000602 | Feedback link (SB-1999-019) | 1 |
| M14 | | 95-26 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 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 |
| KC | M1 | 02-22 | | 11013634 | EDC kit, MS connector | 1 |
| | M9 | 02-22 | | MCV116C1401 | PCP, MS connector | 1 |
| | M11 | 02-22 | | 8800923 | Control gasket | 1 |
| | M14 | 02-22 | | 8000602 | Feedback link (SB-1999-019) | 1 |
| | M90 | 02-22 | | 692889 (9007314-0611) | Screw | 6 |
| | M96 | 02-22 | | 011296 (9004105-0120) | O-ring | 3 |
| | M97 | 02-22 | | 9004105-0130 | O-ring | 1 |
| | KD | M1 | 97-79 | | 8510246 | EDC kit, Metripack |
| M9 | | 97-49 | | MCV116F3113 | PCP, Metripack | 1 |
| M11 | | 97-49 | | 8800923 | Control gasket | 1 |
| M14 | | 97-49 | | 8000602 | Feedback link (SB-1999-019) | 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 |
| KE | | M1 | 97-79 | | 8510322 | EDC kit, Deutsch connector |
| | M9 | 97-49 | | MCV116F3118 | PCP, Deutsch connector | 1 |
| | M11 | 97-49 | | 8800923 | Control gasket | 1 |
| | M14 | 97-49 | | 8000602 | Feedback link (SB-1999-019) | 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 |
| | KG | M1 | 97-79 | | 11015104 | EDC kit, DT-Deutsch connector |
| M9 | | 97-49 | | MCV116G4214 | PCP, DT-Deutsch connector | 1 |
| M11 | | 97-49 | | 8800923 | Control gasket | 1 |
| M14 | | 97-49 | | 8000602 | Feedback link (SB-1999-019) | 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 |

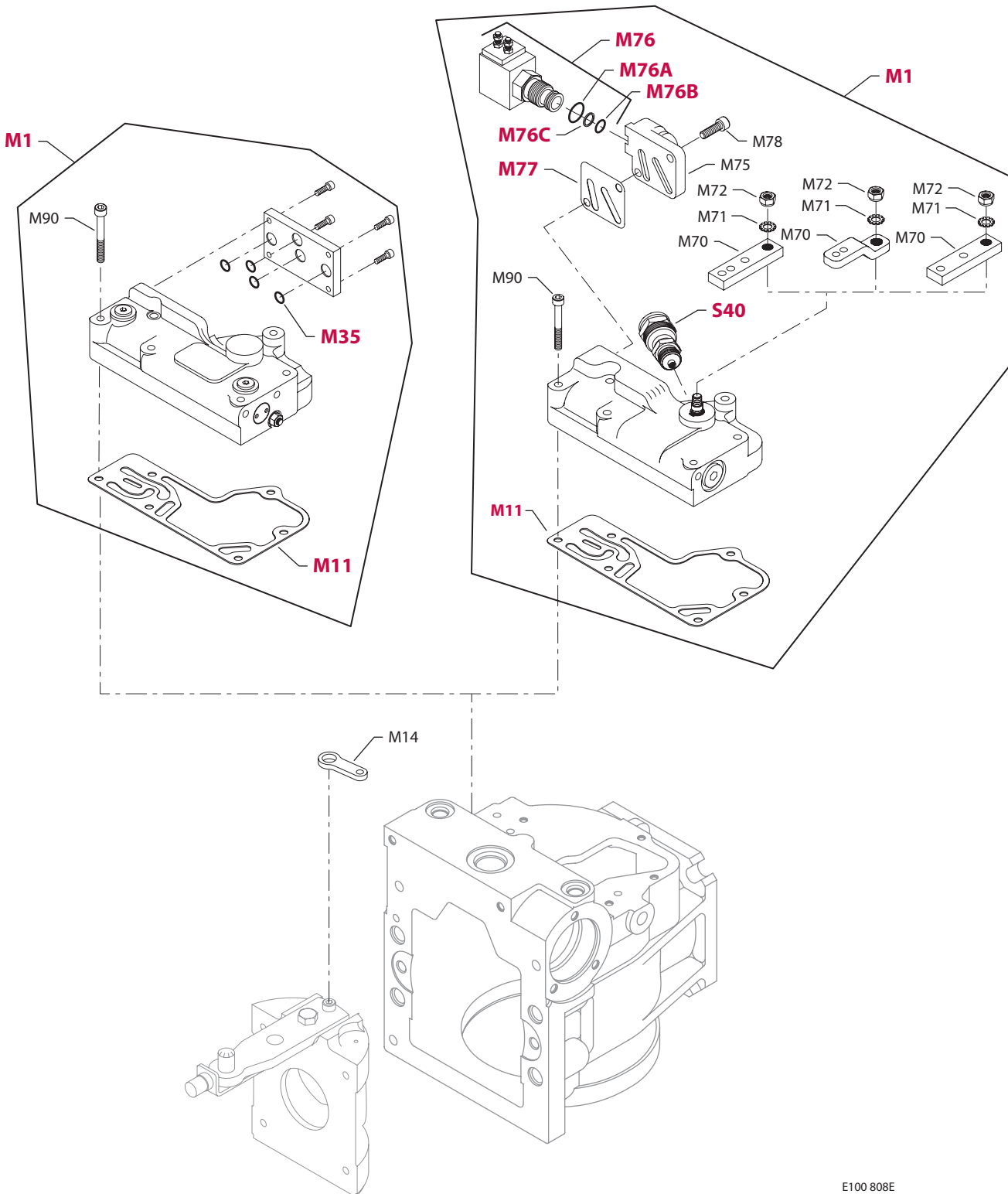


E100 807E

Enlarged **bold** type item numbers are recommended part to stock for servicing.

CONTROL

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|-----------------------|---|-------------------------------------|
| KH | M1 | 00-06 | | 11015105 | EDC3 kit, cold oil special | 1 |
| | M9 | 00-06 | | MCV116G4211 | PCP, cold oil special | 1 |
| | M11 | 00-06 | | 8800923 | Control gasket | 1 |
| | M14 | 00-06 | | 8000602 | Feedback link | 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 |
| | KK | M1 | 96-44 | | 11013632 | EDC3 kit, cold oil special |
| M9 | | 96-44 | | MCV116G4211 | PCP, cold oil special | 1 |
| M11 | | 96-44 | | 8800923 | Control gasket | 1 |
| M14 | | 96-44 | | 8000602 | Feedback link | 1 |
| M90 | | 96-44 | | 692889 (9007314-0611) | Screw | 6 |
| M96 | | 96-44 | | 011296 (9004105-0120) | O-ring | 3 |
| M97 | | 96-44 | | 9004105-0130 | O-ring | 1 |
| KN | | M1 | 95-51 | | 11013622 | EDC3 kit, MS connector, single coil |
| | M9 | 95-51 | | MCV116A3501 | PCP, MS connector, single coil | 1 |
| | M11 | 96-44 | | 8800923 | Control gasket | 1 |
| | M14 | 96-40 | | 8000602 | Feedback link (SB-1999-019) | 1 |
| | M14 | 95-51 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 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 |
| KP | M1 | 95-26 | | 8510116 | EDC3 kit, Weather-pack connector, dual coil | 1 |
| | M9 | 95-26 | | MCV116G4204 | PCP, Weather-pack connector, dual coil | 1 |
| | M11 | 96-44 | | 8800923 | Control gasket | 1 |
| | M14 | 96-40 | | 8000602 | Feedback link (SB-1999-019) | 1 |
| | M14 | 95-26 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 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 |
| KT | M1 | 99-49 | | 8510298 | EDC3 kit, Deutsch connector | 1 |
| | M9 | 99-49 | | MCV116G4214 | PCP, Duetsch connector | 1 |
| | M11 | 99-49 | | 8800923 | Control gasket | 1 |
| | M14 | 99-49 | | 8000602 | Feedback link | 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 | 1 |
| | KX | M1 | 01-17 | | 8510297 | EDC3 kit, Deutsch connector |
| M9 | | 01-17 | | MCV116G4214 | PCP, Duetsch connector | 1 |
| M11 | | 01-17 | | 8800923 | Control gasket | 1 |
| M14 | | 01-17 | | 8000602 | Feedback link | 1 |
| M90 | | 01-17 | | 692889 (9007314-0611) | Screw | 6 |
| M96 | | 01-17 | | 011296 (9004105-0120) | O-ring | 3 |
| M97 | | 01-17 | | 9004105-0130 | O-ring | 1 |

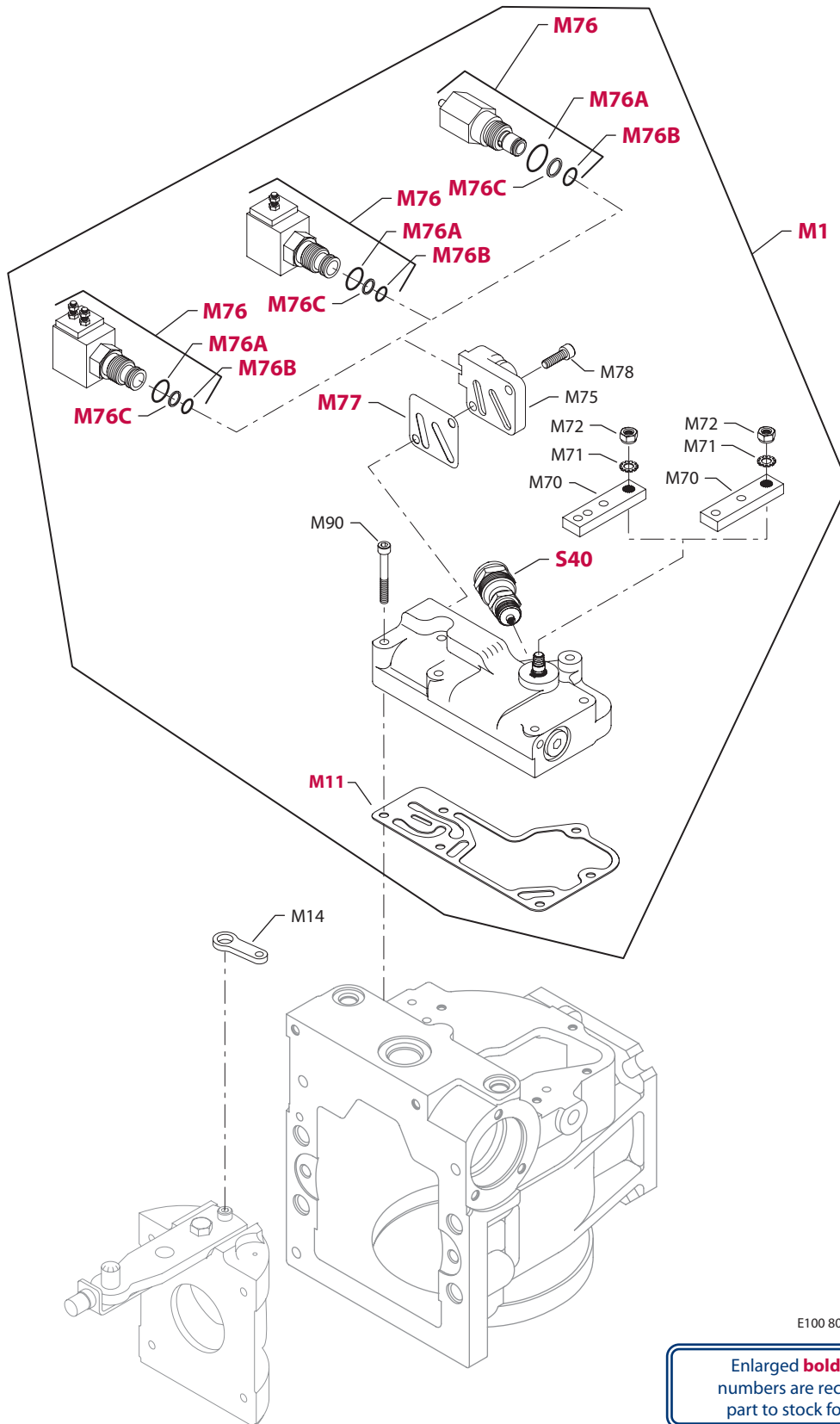


E100 808E

Enlarged **bold** type item numbers are recommended part to stock for servicing.

CONTROL

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|-----------------------|--|--|
| KY | M1 | 02-22 | | 11015106 | EDC3 kit, w/HDC plate | 1 |
| | M9 | 02-22 | | MCV116G4214 | PCP, Deutsch connector, dual coil | 1 |
| | M11 | 02-22 | | 8800923 | Control gasket | 1 |
| | M14 | 02-22 | | 8000602 | Feedback link | 1 |
| | M35 | 02-22 | | 9004101-0120 | O-ring | 4 |
| | M90 | 02-22 | | 692889 (9007314-0611) | Screw | 6 |
| | M96 | 02-22 | | 011296 (9004105-0120) | O-ring | 3 |
| | M97 | 02-22 | | 9004105-0130 | O-ring | 1 |
| | LB | M1 | 96-40 | | 8510173 | MDC kit, w/4 lbs neutral start switch |
| M11 | | 96-40 | | 8800923 | Control gasket | 1 |
| M14 | | 96-40 | | 8000602 | Feedback link (SB-1996-009 & SB-1999-019) | 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 |
| M90 | | 96-40 | | 692889 (9007314-0611) | Screw | 6 |
| S40 | | 96-40 | | 8510316 | Neutral start switch kit, 4 lbs, Weather-pack | 1 |
| LC | | M1 | 97-06 | | 11015107 | MDC kit, w/neutral start switch, 2 pole 12v solenoid |
| | M11 | 97-06 | | 8800923 | Control gasket | 1 |
| | M14 | 97-06 | | 8000602 | Feedback link (SB-1999-019) | 1 |
| | M70 | 97-06 | | 9801201 | 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 | | 326108 (9700886) | Solenoid valve, 12 volt, 2-pole | 1 |
| | M76A | 97-06 | | 001131 (9004201-5000) | O-ring | 1 |
| | M76B | 97-06 | | 9006150-0140 | Back up ring | 1 |
| | M76C | 97-06 | | 000810 (9004100-0140) | O-ring | 1 |
| | M77 | 97-06 | | 8800882 | Manifold gasket | 1 |
| | M78 | 97-06 | | 693341 (9007314-0606) | Screw | 2 |
| | M90 | 97-06 | | 692889 (9007314-0611) | Screw | 6 |
| | S40 | 97-06 | | 8510027 | Neutral start switch kit | 1 |
| | LE | M1 | 01-07 | | 8510291 | MDC kit, high force neutral start switch |
| M11 | | 01-07 | | 8800923 | Control gasket | 1 |
| M14 | | 01-07 | | 8000602 | Feedback link | 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 |
| M90 | | 01-07 | | 692889 (9007314-0611) | Screw | 6 |
| S40 | | 01-07 | | 8510174 | Neutral start switch kit, high force, Weather-pack | 1 |

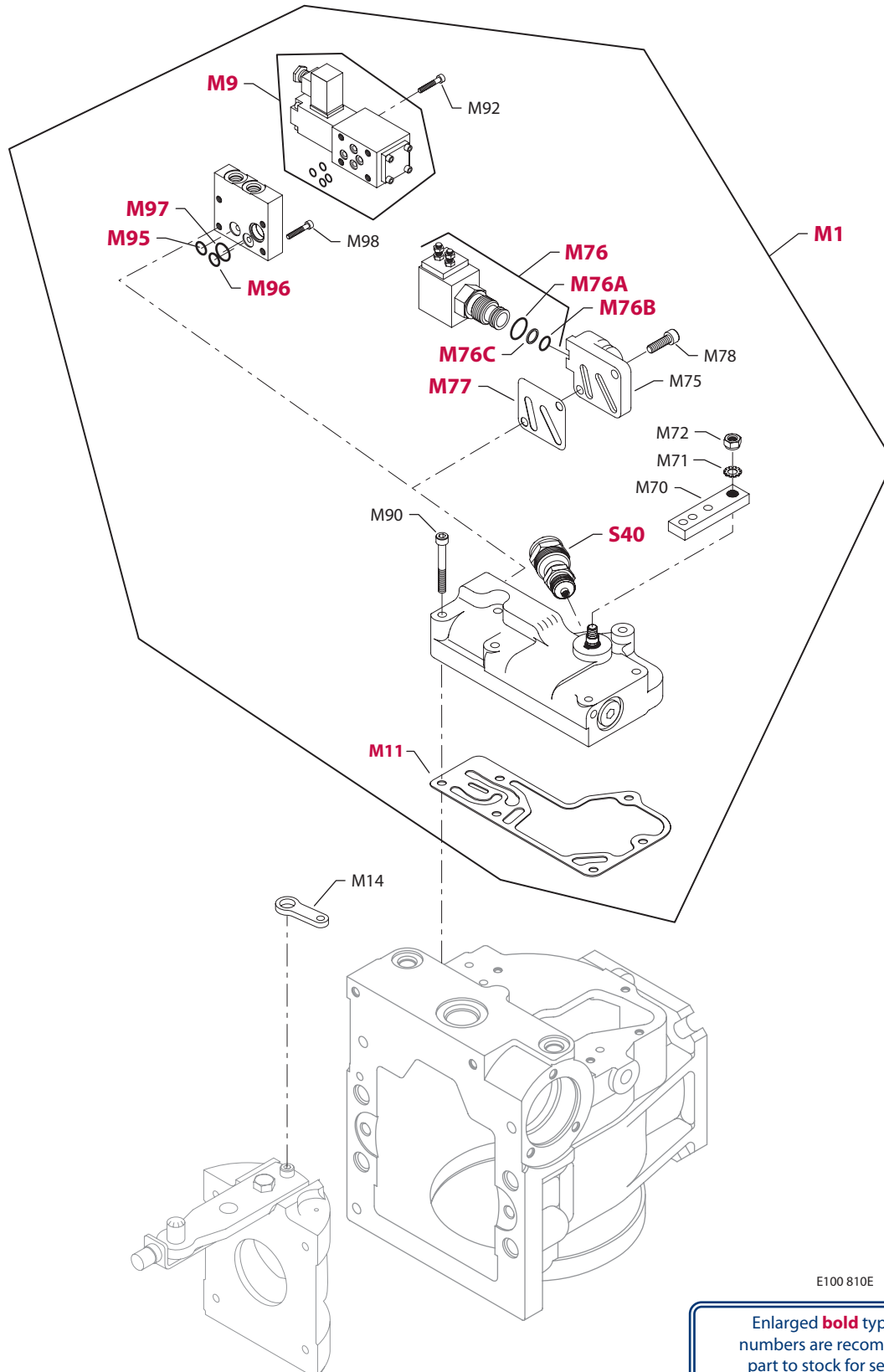


E100 809E

Enlarged **bold** type item numbers are recommended part to stock for servicing.

CONTROL

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit | |
|------------|------|------------|----------|-----------------------|--|--|---|
| LG | M1 | 01-01 | | 11015108 | MDC kit, w/2-pole 12v solenoid | 1 | |
| | M11 | 01-01 | | 8800923 | Control gasket | 1 | |
| | M14 | 01-01 | | 8000602 | Feedback link | 1 | |
| | M70 | 01-01 | | 9801201 | 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 | | 326108 (9700886) | Solenoid valve, 12 volt, 2-pole | 1 | |
| | M76A | 01-01 | | 001131 (9004201-5000) | O-ring | 1 | |
| | M76B | 01-01 | | 9006150-0140 | Back up ring | 1 | |
| | M76C | 01-01 | | 000810 (9004100-0140) | O-ring | 1 | |
| | M77 | 01-01 | | 8800882 | Manifold gasket | 1 | |
| | M78 | 01-01 | | 693341 (9007314-0606) | Screw | 2 | |
| | M90 | 01-01 | | 692889 (9007314-0611) | Screw | 6 | |
| | LK | M1 | 99-49 | | 11015109 | MDC kit, neutral start switch, shunt valve | 1 |
| | | M11 | 99-49 | | 8800923 | Control gasket | 1 |
| M14 | | 99-49 | | 8000602 | Feedback link | 1 | |
| M70 | | 99-49 | | 9800916 | Control handle | 1 | |
| M71 | | 99-49 | | 689018 (9009660-3100) | Toothlock washer | 1 | |
| M72 | | 99-49 | | 040642 (9003513-0800) | Nut | 1 | |
| M75 | | 99-49 | | 8800920 | Control manifold | 1 | |
| M76 | | 99-49 | | 8800921 | Mechanical shunt valve | 1 | |
| M76A | | 99-49 | | 001131 (9004201-5000) | O-ring | 1 | |
| M76B | | 99-49 | | 9006150-0140 | Back up ring | 1 | |
| M76C | | 99-49 | | 000810 (9004100-0140) | O-ring | 1 | |
| M77 | | 99-49 | | 8800882 | Manifold gasket | 1 | |
| M78 | | 99-49 | | 693341 (9007314-0606) | Screw | 2 | |
| M90 | | 99-49 | | 692889 (9007314-0611) | Screw | 6 | |
| S40 | | 99-49 | | 8510174 | Neutral start switch kit, high force, Weather-pack | 1 | |
| LL | | M1 | 02-16 | | 8510393 | MDC kit, neutral start switch, shunt valve | 1 |
| | M11 | 02-16 | | 8800923 | Control gasket | 1 | |
| | M14 | 02-16 | | 8000602 | Feedback link | 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 | | 8700119 | Solenoid valve. 12v, single pole | 1 | |
| | M76A | 02-16 | | 001131 (9004201-5000) | O-ring | 1 | |
| | M76B | 02-16 | | 9006150-0140 | Back up ring | 1 | |
| | M76C | 02-16 | | 000810 (9004100-0140) | O-ring | 1 | |
| | M77 | 02-16 | | 8800882 | Manifold gasket | 1 | |
| | M78 | 02-16 | | 693341 (9007314-0606) | Screw | 2 | |
| | M90 | 02-16 | | 692889 (9007314-0611) | Screw | 6 | |
| | S40 | 02-16 | | 8510316 | Neutral start switch kit, high force, Weather-pack | 1 | |

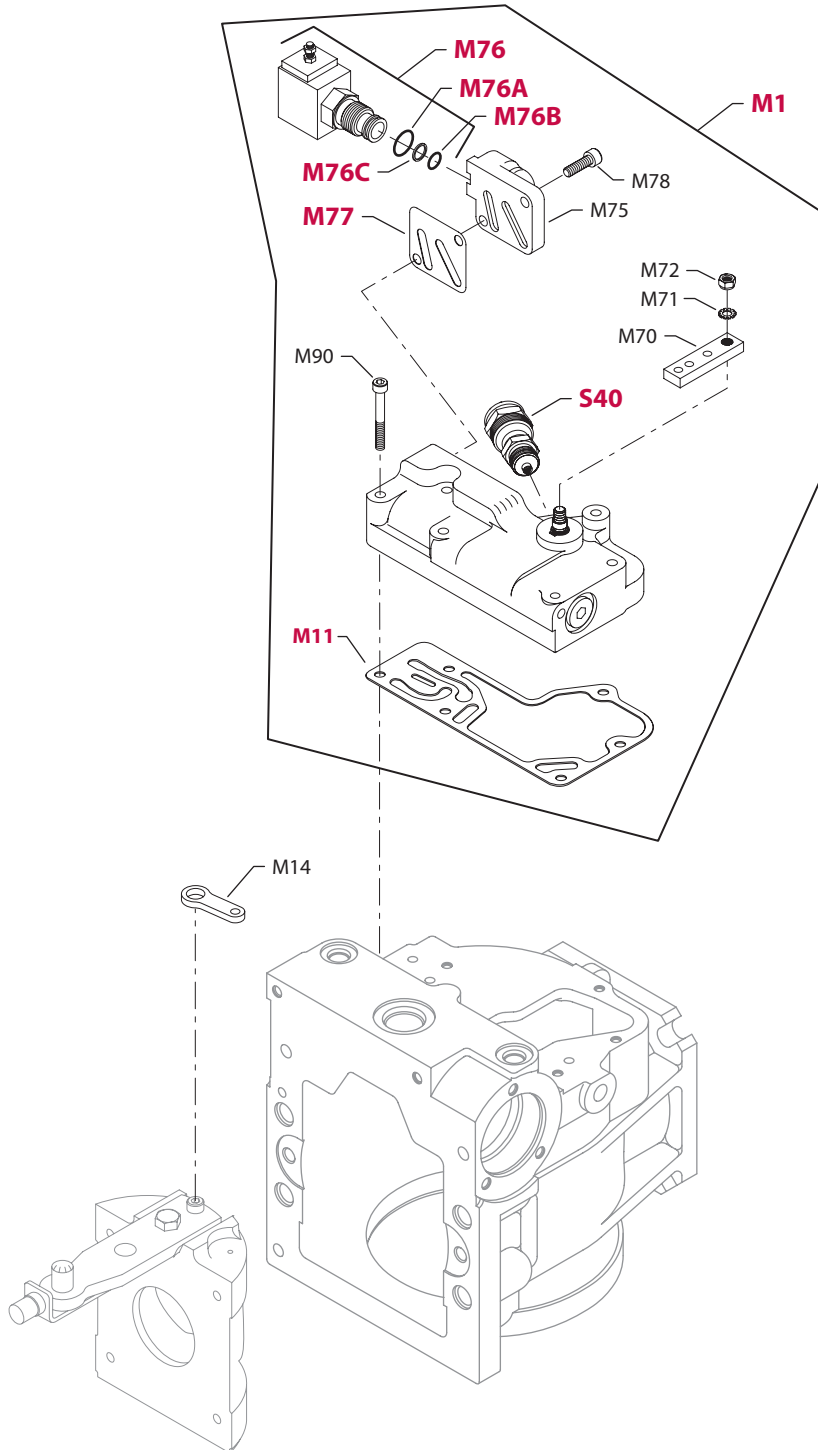


E100 810E

Enlarged **bold** type item numbers are recommended part to stock for servicing.

CONTROL

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|-----------------------|--------------------------------------|--|
| LN | M1 | 04-33 | | 8100961 | MDC kit, w/special orifice | 1 |
| | M11 | 04-33 | | 8800923 | Control gasket | 1 |
| | M14 | 04-33 | | 8000602 | Feedback link | 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 | | 326108 (9700886) | Solenoid valve, 12 volt, 2-pole | 1 |
| | M76A | 04-33 | | 001131 (9004201-5000) | O-ring | 1 |
| | M76B | 04-33 | | 9006150-0140 | Back up ring | 1 |
| | M76C | 04-33 | | 000810 (9004100-0140) | O-ring | 1 |
| | M77 | 04-33 | | 8800882 | Manifold gasket | 1 |
| | M78 | 04-33 | | 693341 (9007314-0606) | Screw | 2 |
| | M90 | 04-33 | | 692889 (9007314-0611) | Screw | 6 |
| | M1 | M1 | 95-37 | | 11014378 | MDC kit, brass sleeve |
| M11 | | 95-37 | | 8800923 | Control gasket | 1 |
| M14 | | 96-40 | | 8000602 | Feedback link (SB-1999-019) | 1 |
| M14 | | 95-37 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 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 |
| M2 | | M1 | 95-37 | | 8510112 | MDC kit, with neutral start switch, brass sleeve |
| | M11 | 95-37 | | 354209 (8800520) | Control gasket | 1 |
| | M14 | 96-40 | | 8000602 | Feedback link (SB-1999-019) | 1 |
| | M14 | 95-37 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 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 |
| | S40 | 95-37 | | 709014 (80020S40) | Neutral start switch kit | 1 |
| M8 | M1 | 04-31 | | 11015110 | MDC kit, w/2-position solenoid valve | 1 |
| | M9 | 04-31 | | 508009 | Solenoid valve | 1 |
| | M11 | 04-31 | | 354209 (8800520) | Control gasket | 1 |
| | M14 | 04-31 | | 8000602 | Feedback link | 1 |
| | M60 | 04-31 | | 347716 | Manifold | 1 |
| | M70 | 04-31 | | 9800916 | Control handle | 1 |
| | M71 | 04-31 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| | M72 | 04-31 | | 040642 (9003513-0800) | Nut | 1 |
| | M90 | 04-31 | | 692889 (9007314-0611) | Screw | 6 |
| | M92 | 04-31 | | 9007315-0507 | Screw | 4 |
| | M95 | 04-31 | | 9004105-0140 | O-ring | 1 |
| | M96 | 04-31 | | 9004105-0140 | O-ring | 1 |
| | M97 | 04-31 | | 9004105-0190 | O-ring | 1 |
| | M98 | 04-31 | | 9007315-0505 | Screw | 4 |

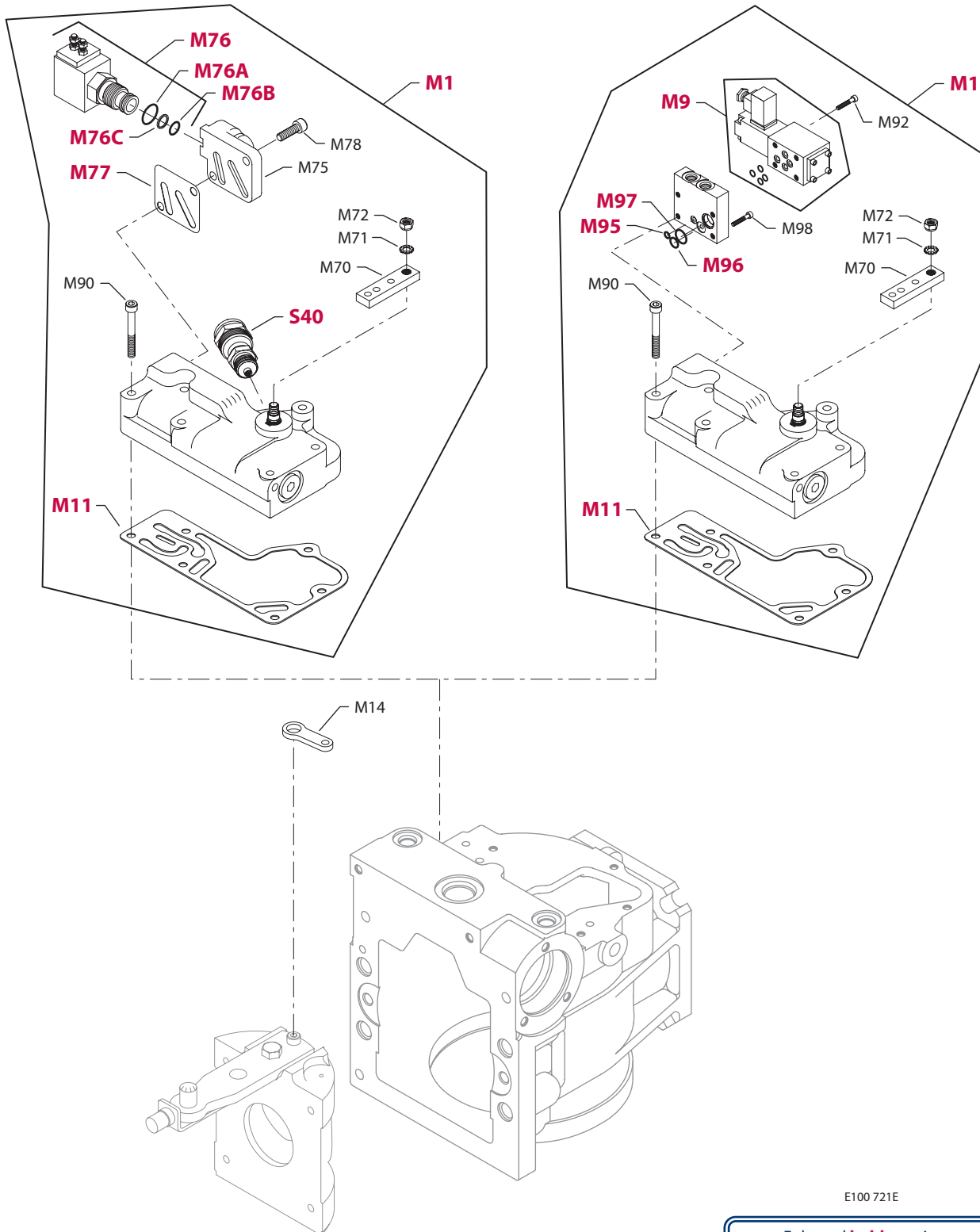


E100 720E

Enlarged **bold** type item numbers are recommended part to stock for servicing.

CONTROL

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|-----------------------|---|------------------------------------|
| MA | M1 | 87-02 | | 8102M0MA-A | MDC kit | 1 |
| | M11 | 87-02 | | 8800923 | Control gasket | 1 |
| | M14 | 96-40 | | 8000602 | Feedback link (SB-1999-019) | 1 |
| | M14 | 87-02 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 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 |
| | MB | M1 | 87-02 | | 8102M0MB-A | MDC kit, with neutral start switch |
| M11 | | 87-02 | | 8800923 | Control gasket | 1 |
| M14 | | 96-40 | | 8000602 | Feedback link (SB-1999-019) | 1 |
| M14 | | 87-02 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 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 |
| S40 | | 87-02 | | 80020S40 | Neutral start switch kit | 1 |
| MC | M1 | 87-02 | | 8102M0MC-A | MDC kit w/12 volt solenoid, single pole | 1 |
| | M11 | 87-02 | | 8800923 | Control gasket | 1 |
| | M14 | 96-40 | | 8000602 | Feedback link (SB-1999-019) | 1 |
| | M14 | 87-02 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 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) | 1 |
| | M76 | 87-02 | | 9700803 | Solenoid valve, 12 volt, single pole | 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 |

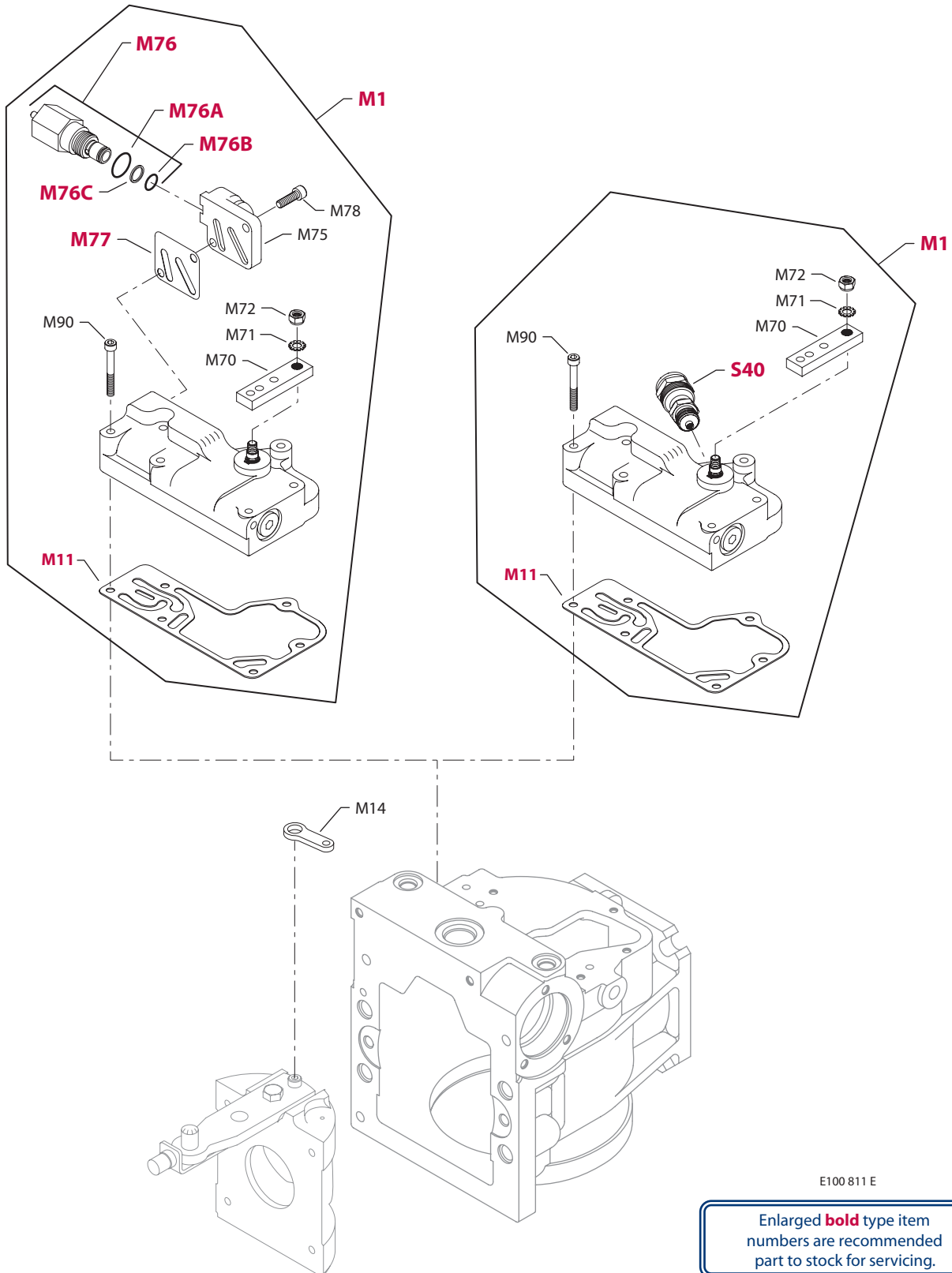


E100 721E

Enlarged **bold** type item numbers are recommended part to stock for servicing.

CONTROL

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|-----------------------|--|--------------------|
| MD | M1 | 87-02 | | 8102M0MD-A | MDC kit w/12 volt double pole solenoid, high force nss | 1 |
| | M11 | 87-02 | | 8800923 | Control gasket | 1 |
| | M14 | 96-40 | | 8000602 | Feedback link (SB-1999-019) | 1 |
| | M14 | 87-02 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 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) | 1 |
| | M76 | 87-02 | | 326108 (9700886) | Solenoid valve, 12 volt, double pole | 1 |
| | M76A | 87-02 | | 001131 (9004201-5000) | O-ring | 1 |
| | M76B | 87-02 | | 9006150-0140 | Back up ring | 1 |
| | M76C | 87-02 | | 000810 (9004100-0140) | O-ring | 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 |
| | S40 | 87-02 | | 709014 (8510027) | Neutral start switch kit, high force | 1 |
| ME | M1 | 87-02 | | 8102M0ME-A | MDC kit w/2-position solenoid valve, 12 volt | 1 |
| | M9 | 87-02 | | 519357 | Solenoid valve, 2-position, 12 volt | 1 |
| | M11 | 87-02 | | 8800923 | Control gasket | 1 |
| | M14 | 96-40 | | 8000602 | Feedback link (SB-1999-019) | 1 |
| | M14 | 87-02 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 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 |
| | M92 | 87-02 | | 9007315-0510 | Screw | 4 |
| | M95 | 87-02 | | 144725 (9004105-0110) | O-ring | 1 |
| | M96 | 87-02 | | 056770 (9004105-0150) | O-ring | 1 |
| | M97 | 87-02 | | 544742 (9004105-0190) | O-ring | 1 |
| | M98 | 87-02 | | 9007315-0505 | Screw | 4 |
| MG | M1 | 87-02 | | 8510061 | MDC kit w/24 volt solenoid, double pole, nss | 1 |
| | M11 | 87-02 | | 8800923 | Control gasket | 1 |
| | M14 | 96-40 | | 8000602 | Feedback link (SB-1999-019) | 1 |
| | M14 | 87-02 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 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) | 1 |
| | M76 | 87-02 | | 711028 (8700087) | Solenoid valve, 24 volt, double pole | 1 |
| | M76A | 87-02 | | 001131 (9004201-5000) | O-ring | 1 |
| | M76B | 87-02 | | 9006150-0140 | Back up ring | 1 |
| | M76C | 87-02 | | 000810 (9004100-0140) | O-ring | 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 |
| | S40 | 87-02 | | 80020540 | Neutral start switch kit | 1 |

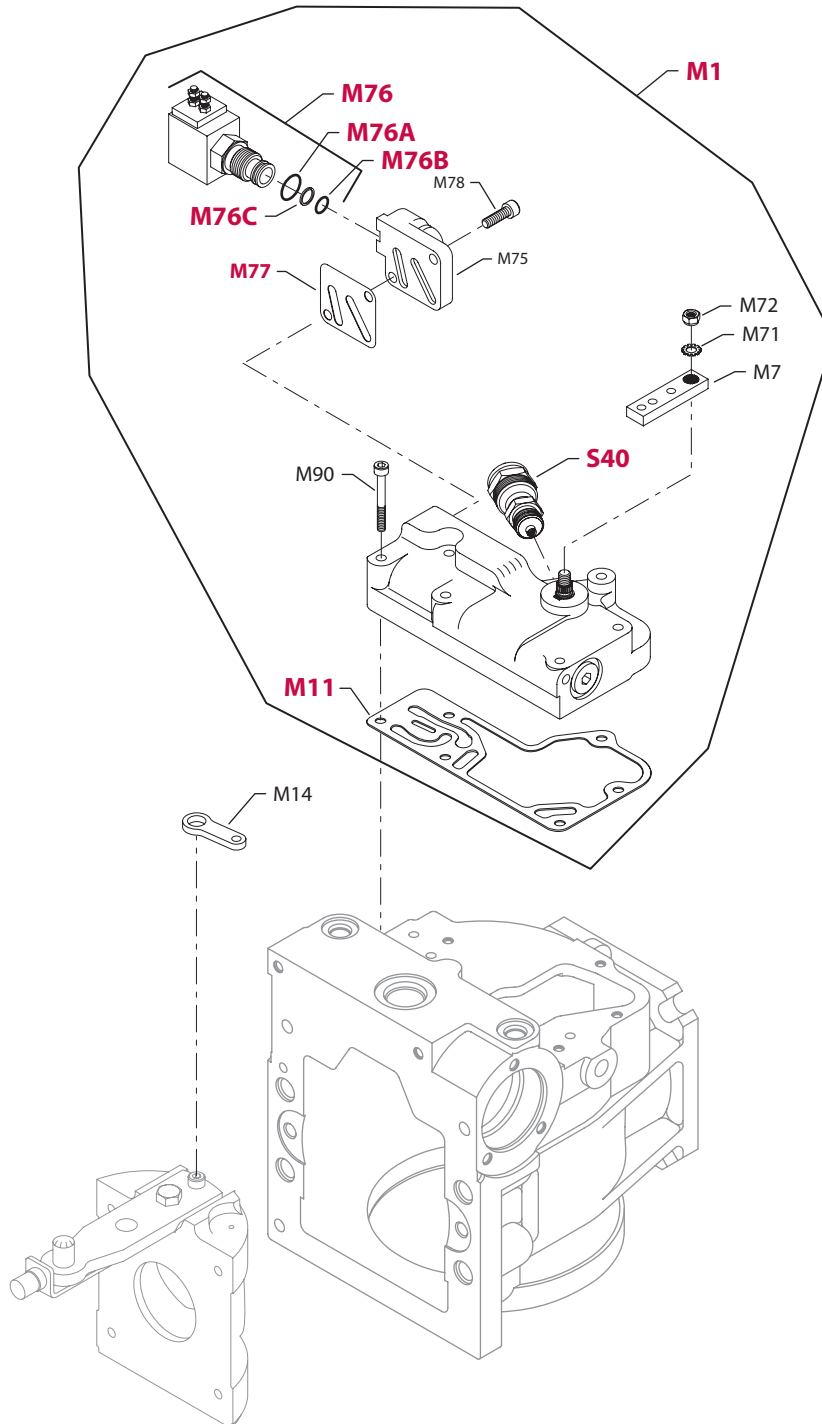


E100 811 E

Enlarged **bold** type item numbers are recommended part to stock for servicing.

CONTROL

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|-----------------------|--------------------------------------|---|
| MJ | M1 | 96-12 | | 11015111 | MDC kit, shunt valve | 1 |
| | M11 | 96-12 | | 8800923 | Control gasket | 1 |
| | M14 | 96-40 | | 8000602 | Feedback link (SB-1999-019) | 1 |
| | M14 | 96-12 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| | M70 | 96-12 | | 9800916 | Control handle | 1 |
| | M71 | 96-12 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| | M72 | 96-12 | | 040642 (9003513-0800) | Nut | 1 |
| | M75 | 96-12 | | 8800920 | Control manifold | 1 |
| | M76 | 96-12 | | 8800921 | Mechanical shunt valve | 1 |
| | M76A | 96-12 | | 001131 (9004201-5000) | O-ring | 1 |
| | M76B | 96-12 | | 9006150-0140 | Back up ring | 1 |
| | M76C | 96-12 | | 000810 (9004100-0140) | O-ring | 1 |
| | M77 | 96-12 | | 8800882 | Manifold gasket | 1 |
| | M78 | 96-12 | | 693341 (9007314-0606) | Screw | 2 |
| | M90 | 96-12 | | 692889 (9007314-0611) | Screw | 6 |
| | MK | M1 | 87-02 | | 8102M0MK-A | MDC kit w/wide deadband, nss |
| M11 | | 87-02 | | 8800923 | Control gasket | 1 |
| M14 | | 96-40 | | 8000602 | Feedback link (SB-1999-019) | 1 |
| M14 | | 87-02 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 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 |
| S40 | | 87-02 | | 80020S40 | Neutral start switch kit | 1 |
| ML | | M1 | 87-02 | | 11015112 | MDC kit w/wide deadband, high force nss |
| | M11 | 87-02 | | 8800923 | Control gasket | 1 |
| | M14 | 96-40 | | 8000602 | Feedback link (SB-1999-019) | 1 |
| | M14 | 87-02 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 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 |
| | S40 | 87-02 | | 709014 (8510027) | Neutral start switch kit, high force | 1 |

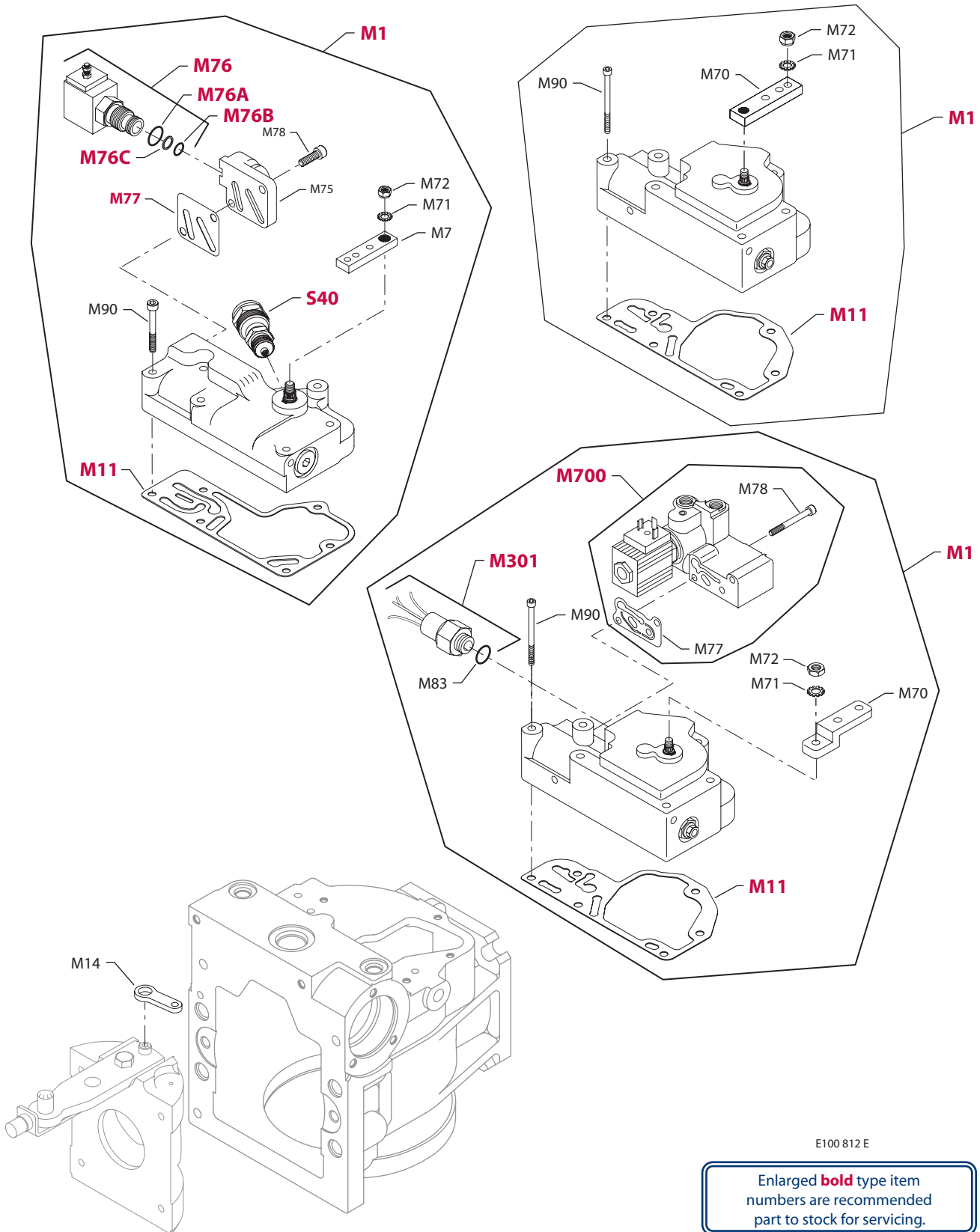


E100 722E

Enlarged **bold** type item numbers are recommended part to stock for servicing.

CONTROL

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|-----------------------|---|---|
| MR | M1 | 96-43 | | 8510394 | MDC kit w/24 volt solenoid, double pole, high force nss | 1 |
| | M11 | 96-43 | | 8800923 | Control gasket | 1 |
| | M14 | 96-43 | | 8000602 | Feedback link | 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 (SB-1995-003) | 1 |
| | M76 | 96-43 | | 711028 (8700087) | Solenoid valve, 24 volt, double pole | 1 |
| | M76A | 96-43 | | 001131 (9004201-5000) | O-ring | 1 |
| | M76B | 96-43 | | 9006150-0140 | Back up ring | 1 |
| | M76C | 96-43 | | 000810 (9004100-0140) | O-ring | 1 |
| | M77 | 96-43 | | 8800882 | Manifold gasket | 1 |
| | M78 | 96-43 | | 693341 (9007314-0606) | Screw | 2 |
| | M90 | 96-43 | | 692889 (9007314-0611) | Screw | 6 |
| | S40 | 96-43 | | 709014 (8510027) | Neutral start switch kit, high force | 1 |
| | MS | M1 | 93-29 | | 8510287 | MDC kit, high force nss |
| M11 | | 93-29 | | 8800923 | Control gasket | 1 |
| M14 | | 96-40 | | 8000602 | Feedback link (SB-1999-019) | 1 |
| M14 | | 93-29 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 1 |
| M70 | | 93-29 | | 9800916 | Control handle | 1 |
| M71 | | 93-29 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| M72 | | 93-29 | | 040642 (9003513-0800) | Nut | 1 |
| M90 | | 93-29 | | 692889 (9007314-0611) | Screw | 6 |
| S40 | | 93-29 | | 709014 (8510027) | Neutral start switch kit, high force | 1 |
| MT | | M1 | 95-20 | | 8510320 | MDC kit w/12 volt solenoid, double pole |
| | M11 | 95-20 | | 8800923 | Control gasket | 1 |
| | M14 | 95-20 | | 8000602 | Feedback link | 1 |
| | M70 | 95-20 | | 9800916 | Control handle | 1 |
| | M71 | 95-20 | | 689018 (9009660-3100) | Toothlock washer | 1 |
| | M72 | 95-20 | | 040642 (9003513-0800) | Nut | 1 |
| | M75 | 95-20 | | 505022 | Control manifold | 1 |
| | M76 | 95-20 | | 326108 (9700886) | Solenoid valve, 12 volt, double pole | 1 |
| | M76A | 95-20 | | 001131 (9004295-2000) | O-ring | 1 |
| | M76B | 95-20 | | 9006150-0140 | Back up ring | 1 |
| | M76C | 95-20 | | 000810 (9004100-0140) | O-ring | 1 |
| | M77 | 95-20 | | 8800882 | Manifold gasket | 1 |
| | M78 | 95-20 | | 693341 (9007314-0606) | Screw | 2 |
| | M90 | 95-20 | | 692889 (9007314-0611) | Screw | 6 |

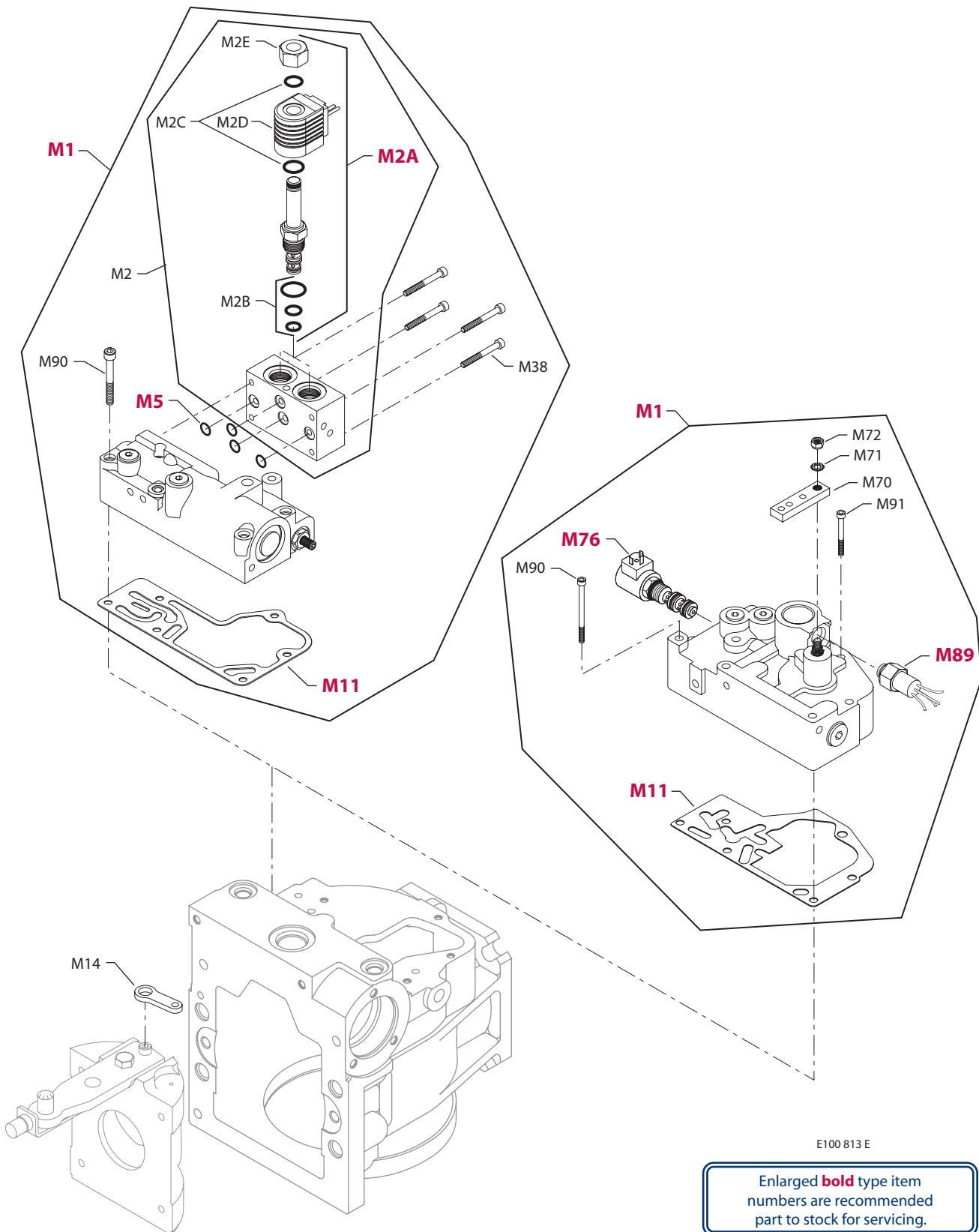


E100 812 E

Enlarged **bold** type item numbers are recommended part to stock for servicing.

CONTROL

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit | |
|------------|------|------------|----------|-----------------------|---|---|---|
| MV | M1 | 94-30 | | 8510342 | MDC kit, nss w/weatherpack connector, 2-way | 1 | |
| | M11 | 94-30 | | 8800923 | Control gasket | 1 | |
| | M14 | 96-40 | | 8000602 | Feedback link (SB-1999-019) | 1 | |
| | M14 | 94-30 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 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 | |
| | M90 | 94-30 | | 692889 (9007314-0611) | Screw | 6 | |
| | S40 | 94-30 | | 8510170 | Neutral start switch kit, weather pack connector, 2-way | 1 | |
| | MX | M1 | 94-30 | | 11015113 | MDC kit w/12 volt solenoid, single pole | 1 |
| M11 | | 94-30 | | 8800923 | Control gasket | 1 | |
| M14 | | 96-40 | | 8000602 | Feedback link (SB-1999-019) | 1 | |
| M14 | | 94-30 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 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) | 1 | |
| M76 | | 94-30 | | 8700119 | Solenoid valve, 12 volt, single pole | 1 | |
| M76A | | 94-30 | | 001131 (9004201-5000) | O-ring | 1 | |
| M76B | | 94-30 | | 9006150-0140 | Back up ring | 1 | |
| M76C | | 94-30 | | 000810 (9004100-0140) | O-ring | 1 | |
| M77 | | 94-30 | | 8800882 | Manifold gasket | 1 | |
| M78 | | 95-10 | | 693341 (9007314-0606) | Screw (SB-1995-003) | 2 | |
| M78 | | 94-30 | 95-09 | 041160 (9007314-0605) | Screw | 2 | |
| M90 | | 94-30 | | 692889 (9007314-0611) | Screw | 6 | |
| NA | | M1 | 94-30 | | 8102M0NA-A | MDC kit, NL w/o nss | 1 |
| | | M11 | 94-30 | | 504733 | Control gasket | 1 |
| | M14 | 96-40 | | 8000602 | Feedback link (SB-1999-019) | 1 | |
| | M14 | 94-30 | 96-39 | 8000481 | Feedback link (SB-1996-009) | 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 | |
| | M90 | 94-30 | | 9007314-0614 | Screw | 6 | |
| | NU | M1 | 98-51 | | 11015114 | MDC kit, NL w/nss | 1 |
| M11 | | 98-51 | | 504733 | Control gasket | 1 | |
| M14 | | 98-51 | | 8000602 | Feedback link | 1 | |
| M70 | | 98-51 | | 769075 | Control handle | 1 | |
| M71 | | 98-51 | | 689018 (9009660-3100) | Toothlock washer | 1 | |
| M72 | | 98-51 | | 040642 (9003513-0800) | Nut | 1 | |
| M77 | | 98-51 | | 500260 | Manifold gasket | 1 | |
| M78 | | 98-51 | | 692889 (9007314-0611) | Screw | 2 | |
| M83 | | 98-51 | | 784686 (9004104-0130) | O-ring | 1 | |
| M90 | | 98-51 | | 348847 | Screw | 6 | |
| M301 | | 98-51 | | 501035 | Backup alarm assembly | 1 | |
| M700 | | 98-51 | | 518097 | Servo valve assembly | 1 | |

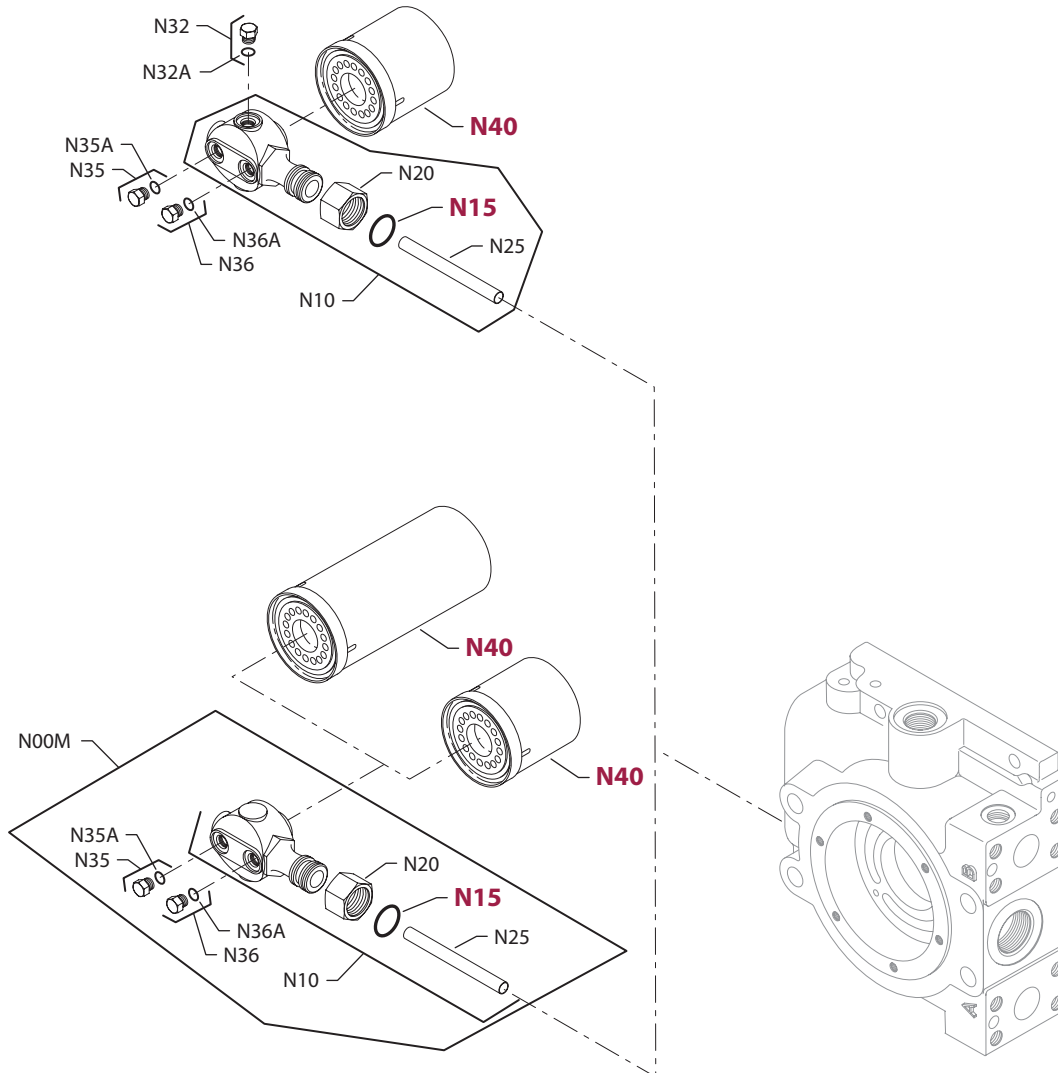


E100 813 E

Enlarged **bold** type item numbers are recommended part to stock for servicing.

CONTROL

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit | |
|------------|------|------------|----------|-----------------------|--------------------------------------|--------------------|---|
| PE | M1 | 00-06 | | 8510318 | EDC, high current, 3-11 bar, 12 volt | 1 | |
| | M2 | 01-02 | | 138563.01 | HIC, proportional reducing manifold | 1 | |
| | M2A | 01-02 | | 138108 | Solenoid, 12 volt, deutsch connector | 2 | |
| | M2B | 01-02 | | 11016794 | O-ring kit | 2 | |
| | M2C | 01-02 | | 11016151 | Valve seal kit | 2 | |
| | M2D | 01-02 | | 322466 | Coil, 12 volt | 2 | |
| | M2E | 01-02 | | 322399 | Coil nut | 2 | |
| | M5 | 01-02 | | 9004105-0120 | O-ring | 4 | |
| | M11 | 01-02 | | 8801241 | Control gasket | 1 | |
| | M14 | 00-06 | | 8000602 | Feedback link | 1 | |
| | M38 | 01-02 | | 9007315-0510 | Screw | 4 | |
| | M90 | 01-02 | | 692889 (9007314-0611) | Screw | 6 | |
| | RR | M1 | 99-45 | | 8510245 | MDC kit, roller | 1 |
| | | M11 | 99-45 | | 510378 | Control gasket | 1 |
| M14 | | 99-45 | | 8000602 | Feedback link | 1 | |
| M70 | | 99-45 | | 9800916 | Control handle | 1 | |
| M71 | | 99-45 | | 689018 (9009660-3100) | Toothlock washer | 1 | |
| M72 | | 99-45 | | 040642 (9003513-0800) | Nut | 1 | |
| M90 | | 99-45 | | 354407 | Screw | 5 | |
| M91 | | 99-45 | | 510382 | Screw | 1 | |
| M76 | | 99-45 | | 513582 | Solenoid valve, 12 volt | 1 | |
| M89 | | 99-45 | | 4700025 | Neutral start switch | 1 | |

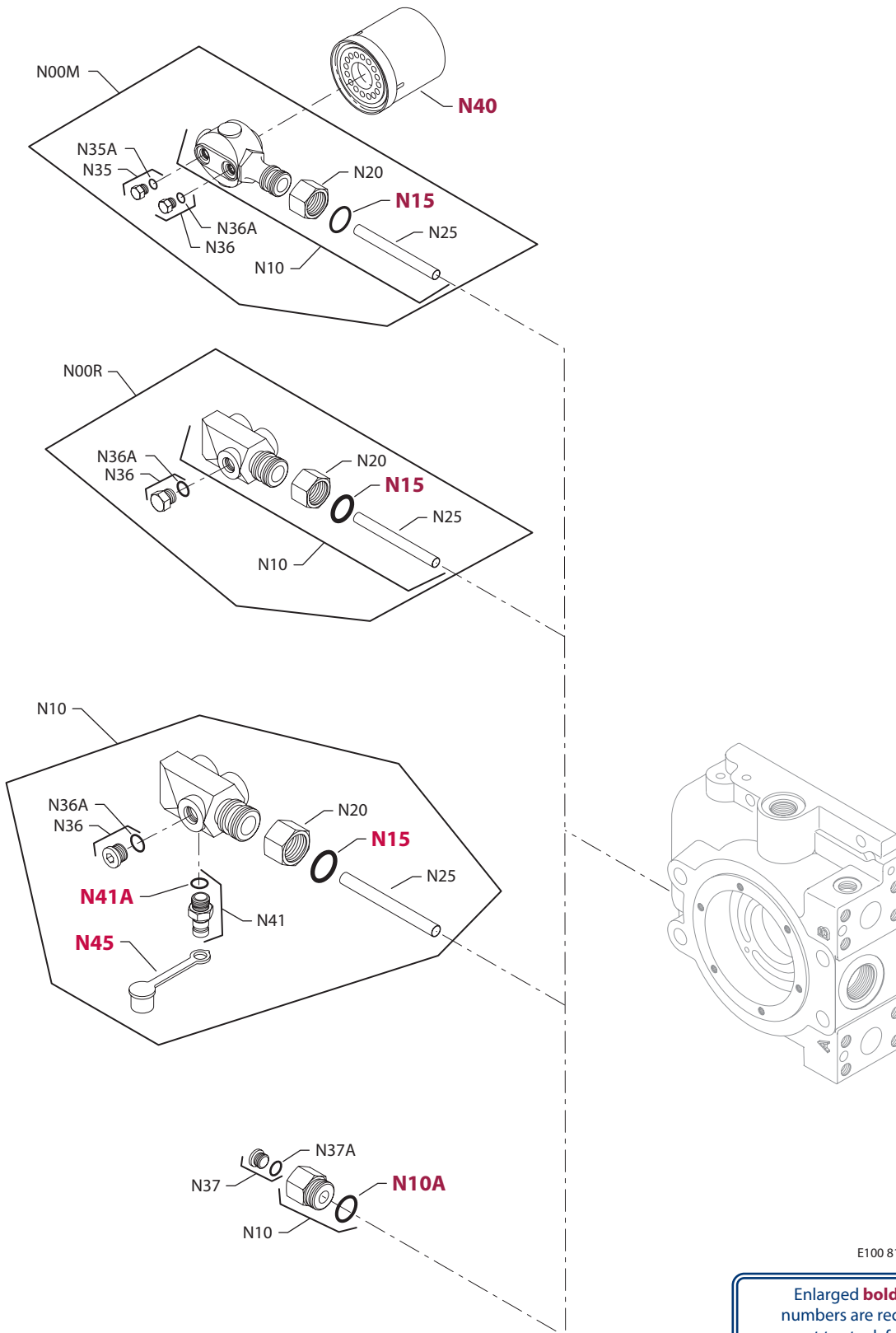


E100 814E

Enlarged **bold** type item numbers are recommended part to stock for servicing.

FILTRATION

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|-----------------------|--------------------------|--------------------|
| 3 | N00M | 99-18 | | 8510199 | Intergal filtration kit | 1 |
| | N10 | 99-18 | | 8801072 | Filter manifold assembly | 1 |
| | N15 | 99-18 | | 001172 (9004201-9000) | O-ring | 1 |
| | N20 | 99-18 | | 5000222 | Nut | 1 |
| | N25 | 99-18 | | 700302 (8800180) | Tube | 1 |
| | N35 | 99-18 | | 046151 (9005100-5600) | Plug assembly | 1 |
| | N35A | 99-18 | | 085043 (9004201-3700) | O-ring | 1 |
| | N36 | 99-18 | | 046151 (9005100-5600) | Plug assembly | 1 |
| | N36A | 99-18 | | 085043 (9004201-3700) | O-ring | 1 |
| | N40 | 99-18 | | 317883 (8700068) | Filter, long | 1 |
| 6 | N10 | 00-01 | | 8801233 | Filter manifold assembly | 1 |
| | N15 | 00-01 | | 001172 (9004201-9000) | O-ring | 1 |
| | N20 | 00-01 | | 5000222 | Nut | 1 |
| | N25 | 00-01 | | 700302 (8800180) | Tube | 1 |
| | N32 | 00-01 | | 046151 (9005100-5600) | Plug assembly | 1 |
| | N32A | 00-01 | | 085043 (9004201-3700) | O-ring | 1 |
| | N35 | 00-01 | | 046151 (9005100-5600) | Plug assembly | 1 |
| | N35A | 00-01 | | 085043 (9004201-3700) | O-ring | 1 |
| | N36 | 00-01 | | 046151 (9005100-5600) | Plug assembly | 1 |
| | N36A | 00-01 | | 085043 (9004201-3700) | O-ring | 1 |
| | N40 | 00-01 | | 9700810 | Filter, short | 1 |
| 8 & D | | | | None | | |
| E | N00M | 96-46 | | 8510199 | Intergal filtration kit | 1 |
| | N10 | 96-46 | | 8801072 | Filter manifold assembly | 1 |
| | N15 | 96-46 | | 001172 (9004201-9000) | O-ring | 1 |
| | N20 | 96-46 | | 5000222 | Nut | 1 |
| | N25 | 96-46 | | 700302 (8800180) | Tube | 1 |
| | N35 | 96-46 | | 046151 (9005100-5600) | Plug assembly | 1 |
| | N35A | 96-46 | | 085043 (9004201-3700) | O-ring | 1 |
| | N36 | 96-46 | | 046151 (9005100-5600) | Plug assembly | 1 |
| | N36A | 96-46 | | 085043 (9004201-3700) | O-ring | 1 |
| | N40 | 96-46 | | 9700810 | Filter, short | 1 |
| L | N00M | 87-02 | | 8510199 | Intergal filtration kit | 1 |
| | N10 | 87-02 | | 8801072 | Filter manifold assembly | 1 |
| | N15 | 87-02 | | 001172 (9004201-9000) | O-ring | 1 |
| | N20 | 95-18 | | 5000222 | Nut (SB-1994-036) | 1 |
| | N20 | 87-02 | 95-17 | 700492 (9002863-1600) | Nut | 1 |
| | N25 | 87-02 | | 700302 (8800180) | Tube | 1 |
| | N35 | 87-02 | | 046151 (9005100-5600) | Plug assembly | 1 |
| | N35A | 87-02 | | 085043 (9004201-3700) | O-ring | 1 |
| | N36 | 87-02 | | 046151 (9005100-5600) | Plug assembly | 1 |
| | N36A | 87-02 | | 085043 (9004201-3700) | O-ring | 1 |
| | N40 | 87-02 | | 317883 (8700068) | Filter, long | 1 |

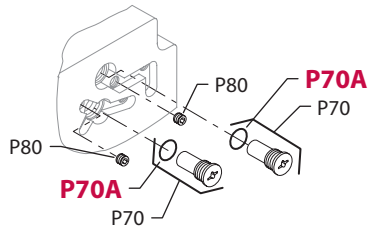


E100 815E

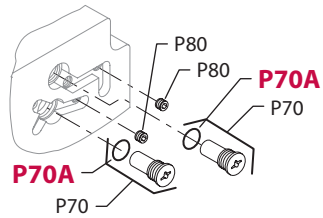
Enlarged **bold** type item numbers are recommended part to stock for servicing.

FILTRATION

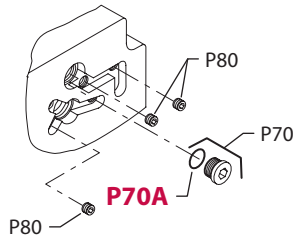
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit | |
|------------|------|------------|----------|-----------------------|--------------------------|-------------------------------------|---|
| P | N00M | 87-02 | | 8510199 | Intergal filtration kit | 1 | |
| | N10 | 87-02 | | 8801072 | Filter manifold assembly | 1 | |
| | N15 | 87-02 | | 001172 (9004201-9000) | O-ring | 1 | |
| | N20 | 95-18 | | 5000222 | Nut (SB-1994-036) | 1 | |
| | N20 | 87-02 | 95-17 | 700492 (9002863-1600) | Nut | 1 | |
| | N25 | 87-02 | | 700302 (8800180) | Tube | 1 | |
| | N35 | 87-02 | | 046151 (9005100-5600) | Plug assembly | 1 | |
| | N35A | 87-02 | | 085043 (9004201-3700) | O-ring | 1 | |
| | N36 | 87-02 | | 046151 (9005100-5600) | Plug assembly | 1 | |
| | N36A | 87-02 | | 085043 (9004201-3700) | O-ring | 1 | |
| | N40 | 87-02 | | 9700810 | Filter, short | 1 | |
| | R | N00R | 87-02 | | 8002N00R-A | Remote filtration kit (SB-1988-024) | 1 |
| | | N10 | 87-02 | | 8801071 | Filter manifold assembly | 1 |
| N15 | | 87-02 | | 001172 (9004201-9000) | O-ring | 1 | |
| N20 | | 87-02 | | 700492 (9002863-1600) | Nut | 1 | |
| N25 | | 87-02 | | 700310 (8800210) | Tube | 1 | |
| N36 | | 87-02 | | 046151 (9005100-5600) | Plug assembly | 1 | |
| N36A | | 87-02 | | 085043 (9004201-3700) | O-ring | 1 | |
| S | | N10 | 87-02 | | 5000230 | Reducer assembly | 1 |
| | N10A | 87-02 | | 001172 (9004201-9000) | O-ring | 1 | |
| | N37 | 87-02 | | 515965 (9005110-5600) | Plug assembly | 1 | |
| | N37A | 87-02 | | 085043 (9004201-3700) | O-ring | 1 | |
| U | N10 | 96-16 | | 8100629 | Filter manifold assembly | 1 | |
| | N15 | 96-16 | | 001172 (9004201-9000) | O-ring | 1 | |
| | N20 | 96-16 | | 700492 (9002863-1600) | Nut | 1 | |
| | N25 | 96-16 | | 700310 (8800210) | Tube | 1 | |
| | N36 | 96-16 | | 046151 (9005100-5600) | Plug assembly | 1 | |
| | N36A | 96-16 | | 085043 (9004201-3700) | O-ring | 1 | |
| | N41 | 96-16 | | 8700127 | Diagnostic receptical | 1 | |
| | N41A | 96-16 | | 085043 (9004201-3700) | O-ring | 1 | |
| | N45 | 96-16 | | 8700128 | Dust cover | 1 | |
| | V | | | | None | | |
| X | N00M | 01-01 | | 8510199 | Intergal filtration kit | 1 | |
| | N10 | 01-01 | | 8801072 | Filter manifold assembly | 1 | |
| | N15 | 01-01 | | 001172 (9004201-9000) | O-ring | 1 | |
| | N20 | 01-01 | | 5000222 | Nut (SB-1994-036) | 1 | |
| | N25 | 01-01 | | 700302 (8800180) | Tube | 1 | |
| | N35 | 01-01 | | 046151 (9005100-5600) | Plug assembly | 1 | |
| | N35A | 01-01 | | 085043 (9004201-3700) | O-ring | 1 | |
| | N36 | 01-01 | | 046151 (9005100-5600) | Plug assembly | 1 | |
| | N36A | 01-01 | | 085043 (9004201-3700) | O-ring | 1 | |
| | N40 | 87-02 | | 9700810 | Filter, short | 1 | |



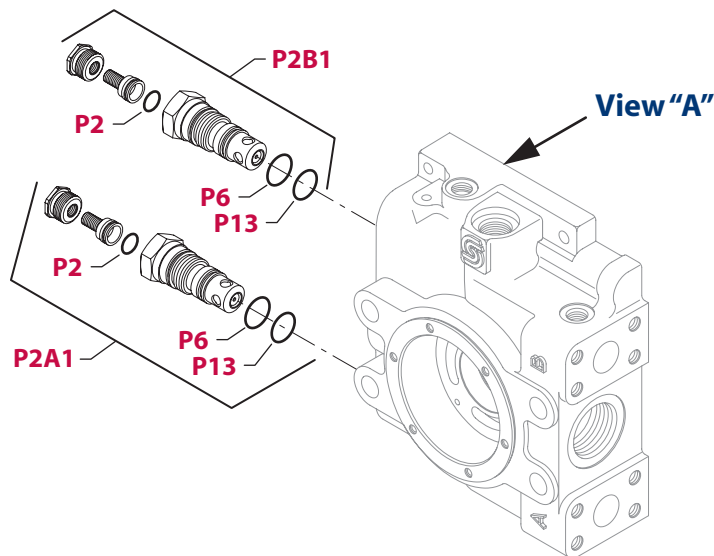
View "A" with
pressure limiters,
left hand rotation,
Options 1, 5, & 6



View "A" with
pressure limiters,
right hand rotation,
Options 1, 5, & 6



View "A" without
pressure limiters,
left/right hand rotation
Option 2 & 7

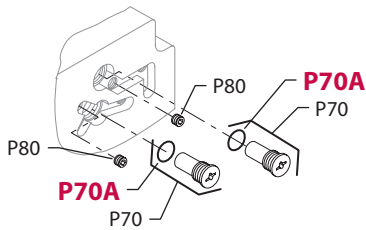


E100 816E

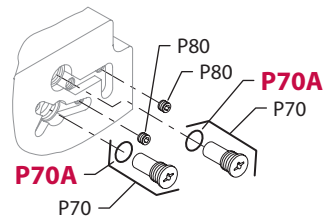
Enlarged **bold** type item
numbers are recommended
part to stock for servicing.

HIGH PRESSURE REGULATION

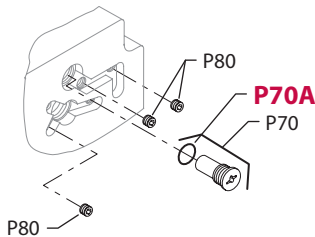
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|-----------------------|--------------------------|--------------------|
| | P2 | 87-02 | | 141564 (9004100-0170) | O-ring | 2 |
| | P6 | 87-02 | | 000836 (9004100-0200) | O-ring | 2 |
| | P13 | 87-02 | | 544742 (9004105-0190) | O-ring | 2 |
| 1 | P2A1 | 87-02 | | 8510022-1 | Multi-function valve kit | 1 |
| | P2B1 | 87-02 | | 8510022-1 | Multi-function valve kit | 1 |
| | P70 | 87-02 | | 8800188 | Check valve | 2 |
| | P70A | 87-02 | | 001123 (9004201-2500) | O-ring | 2 |
| | P80 | 87-02 | | 9005475-0004 | Special plug | 2 |
| 2 | P2A1 | 87-02 | | 8510022-2 | Multi-function valve kit | 1 |
| | P2B1 | 87-02 | | 8510022-2 | Multi-function valve kit | 1 |
| | P70 | 87-02 | | 327007 (9005110-4400) | Plug (SB-1989-003) | 1 |
| | P70A | 87-02 | | 001123 (9004201-2500) | O-ring | 1 |
| | P80 | 87-02 | | 9005475-0004 | Special plug | 3 |
| 4 | P2A1 | 87-02 | | 8510022-7 | Multi-function valve kit | 1 |
| | P2B1 | 87-02 | | 8510022-7 | Multi-function valve kit | 1 |
| 5 | P2A1 | 87-02 | | 8510240 | Multi-function valve kit | 1 |
| | P2B1 | 87-02 | | 8510240 | Multi-function valve kit | 1 |
| | P70 | 87-02 | | 8800188 | Check valve | 2 |
| | P70A | 87-02 | | 001123 (9004201-2500) | O-ring | 2 |
| | P80 | 87-02 | | 9005475-0004 | Special plug | 2 |
| 6 | P2A1 | 87-02 | | 8510022-6 | Multi-function valve kit | 1 |
| | P2B1 | 87-02 | | 8510022-6 | Multi-function valve kit | 1 |
| | P70 | 87-02 | | 8800188 | Check valve | 2 |
| | P70A | 87-02 | | 001123 (9004201-2500) | O-ring | 2 |
| | P80 | 87-02 | | 9005475-0004 | Special plug | 2 |
| 7 | P2A1 | 87-02 | | 8510022-7 | Multi-function valve kit | 1 |
| | P2B1 | 87-02 | | 8510022-7 | Multi-function valve kit | 1 |
| | P70 | 87-02 | | 327007 (9005110-4400) | Plug (SB-1989-003) | 1 |
| | P70A | 87-02 | | 001123 (9004201-2500) | O-ring | 1 |
| | P80 | 87-02 | | 9005475-0004 | Special plug | 3 |
| A | P2A1 | 87-02 | | ? (8801145) | Multi-function valve kit | 1 |
| | P2B1 | 87-02 | | ? (8801145) | Multi-function valve kit | 1 |



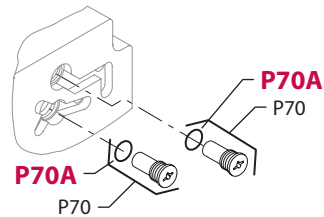
View "A" with
pressure limiters,
left hand rotation,
Options G, H, & P



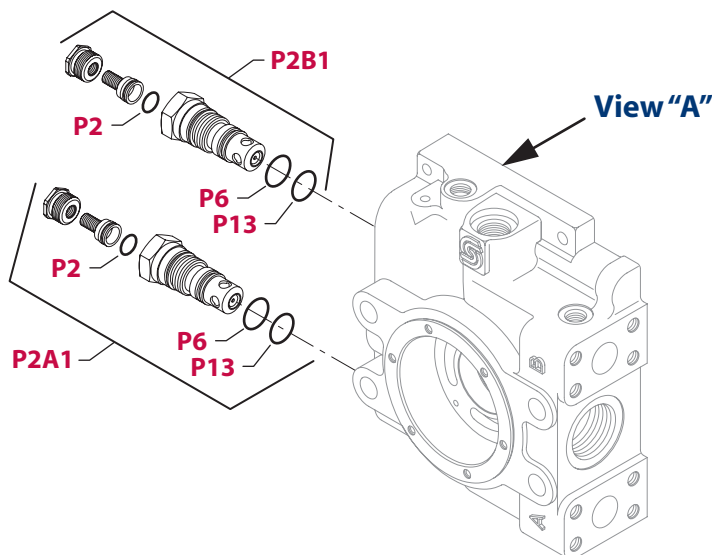
View "A" with
pressure limiters,
right hand rotation,
Options G, H, & P



View "A" with
pressure limiter port A,
HPRV port B,
right hand rotation
Option B



View "A" with
pressure limiters,
left hand rotation,
Option M



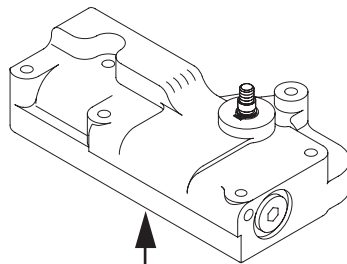
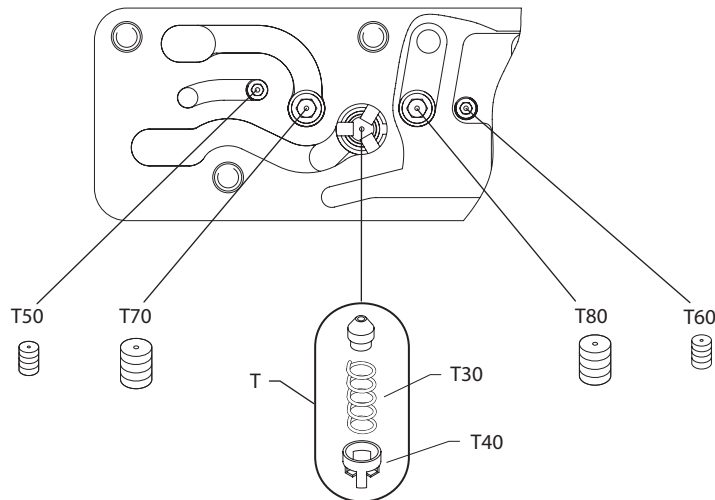
E100 817E

Enlarged **bold** type item numbers are recommended part to stock for servicing.

HIGH PRESSURE REGULATION

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|-----------------------|--------------------------|--------------------|
| | P2 | 87-02 | | 141564 (9004100-0170) | O-ring | 2 |
| | P6 | 87-02 | | 000836 (9004100-0200) | O-ring | 2 |
| | P13 | 87-02 | | 544742 (9004105-0190) | O-ring | 2 |
| B | P2A1 | 95-22 | | 8510022-1 | Multi-function valve kit | 1 |
| | P2B1 | 95-22 | | 8510022-7 | Multi-function valve kit | 1 |
| | P70 | 95-22 | | 8800188 | Check valve | 1 |
| | P70A | 95-22 | | 001123 (9004201-2500) | O-ring | 1 |
| | P80 | 95-22 | | 9005475-0004 | Special plug | 3 |
| G | P2A1 | 97-06 | | 8510196 | Multi-function valve kit | 1 |
| | P2B1 | 97-06 | | 8510196 | Multi-function valve kit | 1 |
| | P70 | 97-06 | | 8800188 | Check valve | 2 |
| | P70A | 97-06 | | 001123 (9004201-2500) | O-ring | 2 |
| | P80 | 97-06 | | 9005475-0004 | Special plug | 2 |
| H | P2A1 | 97-40 | | 8510275 | Multi-function valve kit | 1 |
| | P2B1 | 97-40 | | 8510022-1 | Multi-function valve kit | 1 |
| | P70 | 97-40 | | 8800188 | Check valve | 2 |
| | P70A | 97-40 | | 001123 (9004201-2500) | O-ring | 2 |
| | P80 | 97-40 | | 9005475-0004 | Special plug | 2 |
| J | P2A1 | 97-40 | | 8510273 | Multi-function valve kit | 1 |
| | P2B1 | 97-40 | | 8510273 | Multi-function valve kit | 1 |
| M | P2A1 | 98-11 | | 8510022-1 | Multi-function valve kit | 1 |
| | P2B1 | 98-11 | | 8510022-1 | Multi-function valve kit | 1 |
| | P70 | 98-11 | | 8800188 | Check valve | 2 |
| | P70A | 98-11 | | 001123 (9004201-2500) | O-ring | 2 |
| p | P2A1 | 99-26 | | 8510389 | Multi-function valve kit | 1 |
| | P2B1 | 99-26 | | 8510389 | Multi-function valve kit | 1 |
| | P70 | 99-26 | | 8800188 | Check valve | 2 |
| | P70A | 99-26 | | 001123 (9004201-2500) | O-ring | 2 |
| | P80 | 99-26 | | 9005475-0004 | Special plug | 2 |

View "A"



View "A"

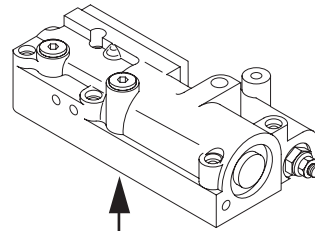
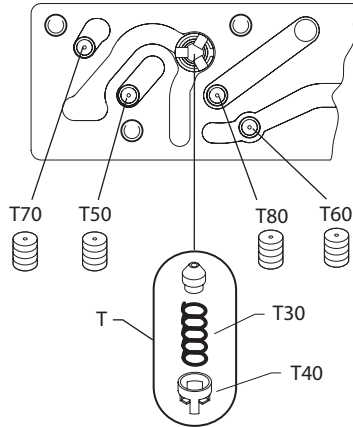
E100 699E

Enlarged **bold** type item numbers are recommended part to stock for servicing.

ORIFICE

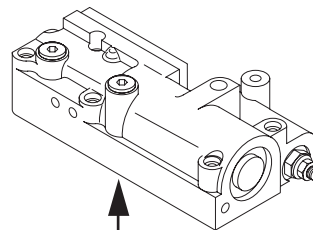
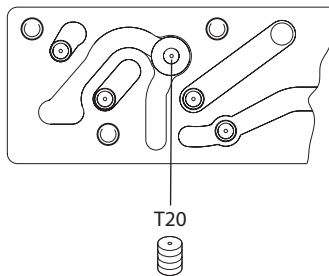
| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|------------------|-----------------------------|--------------------|
| 00 | | | | None | | |
| 01 | T | 87-42 | | 8002T001-A | Control orifice kit, .018" | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| 02 | T | 87-42 | | 8002T002-A | Control orifice kit, .026" | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| 03 | T | 87-42 | | 8002T003-A | Control orifice kit, .032" | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| 04 | T | 87-42 | | 8002T004-A | Control orifice kit, .040" | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| 05 | T | 87-42 | | 8002T005-A | Control orifice kit, .054" | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| 06 | T | 87-42 | | 8002T006-A | Control orifice kit, .062" | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| 09 | T | 87-42 | | 8002T009-A | Control orifice kit, .092" | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| 22 | T | 87-42 | | 8002T022-A | Control orifice kit, .022" | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| 23 | T | 87-42 | | 8002T003-A | Control orifice kit, .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 |
| 26 | T | 87-42 | | 8002T003-A | Control orifice kit, .032" | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T50 | 87-42 | | 598292 | Orifice plug, 0.8mm, M5 x 6 | 1 |
| | T60 | 87-42 | | 598292 | Orifice plug, 0.8mm, M5 x 6 | 1 |

View "A"



View "A"

View "A"



View "A"

Option '71'

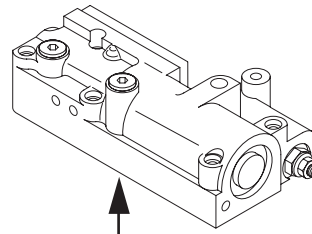
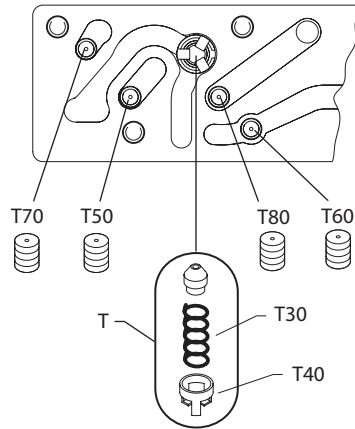
E100 818E

Enlarged **bold** type item numbers are recommended part to stock for servicing.

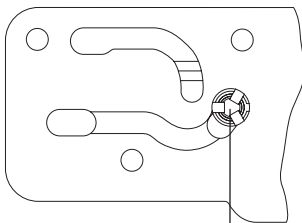
ORIFICE

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|------------------|----------------------------------|----------------------------|
| 28 | T | 87-42 | | 8002T002-A | Control orifice kit, .026" | 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 |
| | T70 | 87-42 | | 704650 | Orifice plug, 0.7mm, M8 x 8 | 1 |
| | T80 | 87-42 | | 704650 | Orifice plug, 0.7mm, M8 x 8 | 1 |
| | 29 | T | 87-42 | | 8002T003-A | Control orifice kit, .032" |
| 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 |
| | | | | | | |
| 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 | T | 87-42 | | 8002T003-A | Control orifice kit, .032" | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T50 | 87-42 | | 598292 | Orifice plug, 0.8mm, M5 x 6 | 1 |
| | T60 | 87-42 | | 598292 | 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 |
| | | | | | | |
| 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 |
| 71 | T20 | 87-42 | | 8800242-0004 | Orifice plug, 0.031, 1/8-27 NPTF | 1 |
| 73 | T | 87-42 | | 8002T022-A | Control orifice kit, .022" | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T50 | 87-42 | | 598292 | Orifice plug, 0.8mm, M5 x 6 | 1 |
| | T60 | 87-42 | | 598292 | 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 |
| | | | | | | |
| A3 | T | 87-42 | | 8002T003-A | Control orifice kit, .032" | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T50 | 87-42 | | 739136 | Orifice plug, 0.7 mm, M6 x 6 | 1 |
| | T60 | 87-42 | | 739136 | Orifice plug, 0.7 mm, M6 x 6 | 1 |

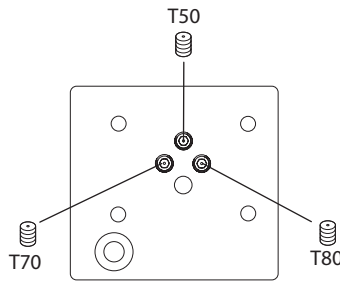
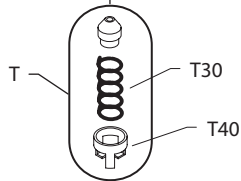
View "A"



View "A"

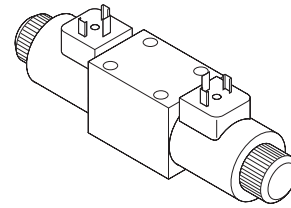


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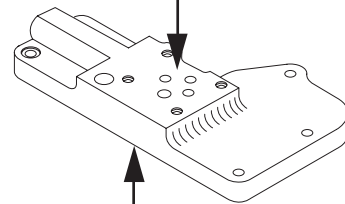


View "B"

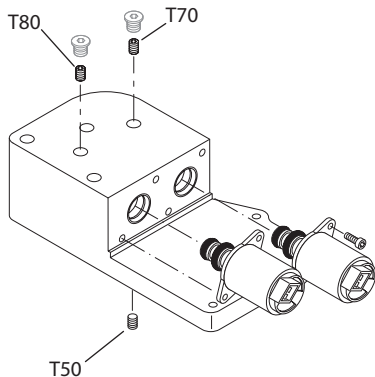
Options 'G1, G4, and G8'



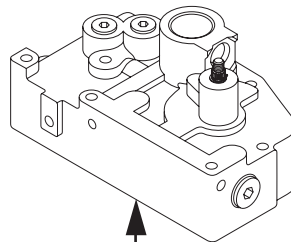
View "B"



View "A"

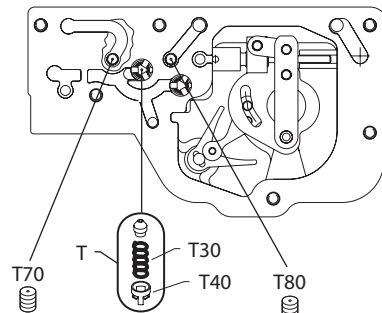


Option 'B1 and B2'



View "A"

Option 'A7'



View "A"

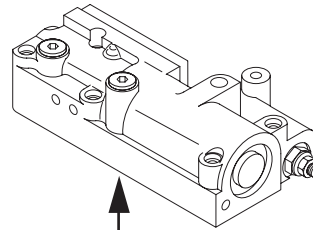
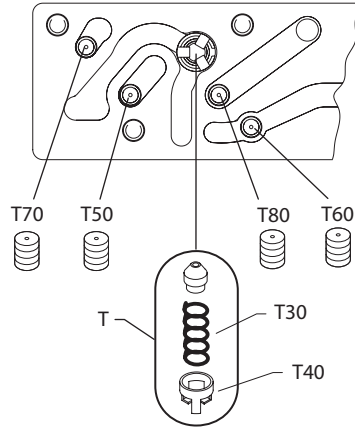
E100 819E

Enlarged **bold** type item numbers are recommended part to stock for servicing.

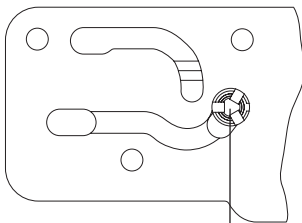
ORIFICE

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|------------------|------------------------------|--------------------|
| A7 | T | 87-42 | | 8002T003-A | Control orifice kit, .032" | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T70 | 87-42 | | 578542 | Orifice plug, 0.8 mm, M6 x 8 | 1 |
| | T80 | 87-42 | | 578542 | Orifice plug, 0.8 mm, M6 x 8 | 1 |
| A8 | T | 87-42 | | 8002T004-A | Control orifice kit, .040" | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T70 | 87-42 | | 755793 | Orifice plug, 1.0 mm, M8 x 8 | 1 |
| | T80 | 87-42 | | 755793 | Orifice plug, 1.0 mm, M8 x 8 | 1 |
| B1 | T50 | 87-42 | | 507042 | Orifice plug, 1.5 mm, M6 x 8 | 1 |
| 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 |
| C3 | T | 87-42 | | 8002T002-A | Control orifice kit, .026" | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T50 | 87-42 | | K06041 | Orifice plug, .052"; M5 x 8 | 1 |
| | T60 | 87-42 | | K06041 | Orifice plug, .052"; M5 x 8 | 1 |
| C5 | T | 87-42 | | 8002T003-A | Control orifice kit, .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 |
| C8 | T | 87-42 | | 8002T002-A | Control orifice kit, .026" | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T90 | 87-42 | | 704650 | Orifice plug, 0.7 mm, M8 x 8 | 1 |
| | T95 | 87-42 | | 704650 | Orifice plug, 0.7 mm, M8 x 8 | 1 |
| G1 | T50 | 87-42 | | 310771 | Orifice plug, 1.2 mm, M6 x 6 | 1 |
| G4 | T | 87-42 | | 8002T001-A | Control orifice kit, .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 |
| G8 | T | 87-42 | | 8002T002-A | Control orifice kit, .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 |

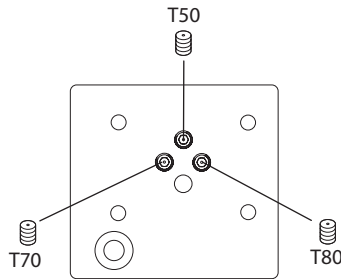
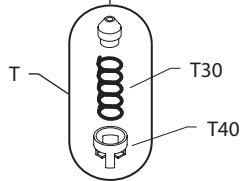
View "A"



View "A"

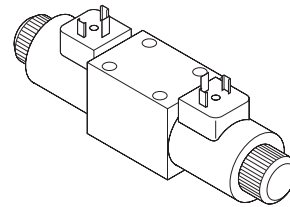


View "A"

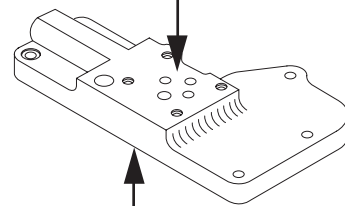


View "B"

Options 'GB and GF'



View "B"



View "A"

E100 820E

Enlarged **bold** type item numbers are recommended part to stock for servicing.

ORIFICE

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|------------------|------------------------------|--------------------|
| GB | T | 87-42 | | 8002T003-A | Control orifice kit, .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 |
| GF | T | 87-42 | | 8002T004-A | Control orifice kit, .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 |
| H1 | T | 87-42 | | 8002T003-A | Control orifice kit, .032" | 1 |
| | T30 | 87-42 | | 679506 (8700007) | Spring | 1 |
| | T40 | 87-42 | | 8801303 | Spring retainer | 1 |
| | T50 | 87-42 | | 714477 | Orifice plug, 0.8mm, M8 x 8 | 1 |
| | T60 | 87-42 | | 714477 | Orifice plug, 0.8mm, M8 x 8 | 1 |

OVERHAUL SEAL KIT

| Order Code | Item | Date Begin | Date End | Part Number | Part Name | Qty. per Model/Kit |
|------------|------|------------|----------|-----------------------|-----------------------------------|--------------------|
| | | 87-42 | | 81020530 | Overhaul seal kit | 1 |
| | C70 | 88-22 | | 9007276-0114 | Screw (SB-1988-016 & SB-1998-041) | 4 |
| | 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 |
| | F11 | 87-02 | | 676569 (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 |
| | 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 |
| | J90 | 87-02 | | 726935 (9004104-0450) | O-ring | 1 |
| | J90 | 87-02 | | 545434 (9004100-0420) | O-ring | 1 |
| | J90 | 87-02 | | 719179 (9004100-0480) | O-ring | 1 |
| | K50 | 87-02 | | 001149 (9004201-6200) | O-ring | 1 |
| | L40 | 87-02 | | 519666 | Lip seal (SB-2005-007) | 1 |
| | L50 | 87-02 | | 071845 (9004104-1510) | O-ring | 1 |
| | M11 | 87-02 | | 8800923 | Control gasket | 1 |
| | M11 | 92-15 | | 8801241 | Control gasket (SB-1999-065) | 1 |
| | M77 | 87-02 | | 8800882 | Manifold gasket | 1 |
| | M95 | 87-42 | | 318337 (9004104-0120) | O-ring | 2 |
| | M96 | 87-42 | | 011304 (9004104-0140) | O-ring | 1 |
| | M96 | 95-26 | | 011296 (9004105-0120) | O-ring | 3 |
| | M97 | 95-26 | | 9004105-0130 | O-ring | 1 |
| | M97 | 87-42 | | 318345 (9004104-0240) | O-ring | 1 |
| | N15 | 87-42 | | 001172 (9004201-9000) | O-ring | 1 |
| | P2 | 87-02 | | 141564 (9004100-0170) | O-ring | 2 |
| | P6 | 87-42 | | 000836 (9004100-0200) | O-ring | 2 |
| | P13 | 87-42 | | 544742 (9004105-0190) | O-ring | 2 |



Series 90 75 cc Axial Piston Pump
Parts Manual
Notes





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.

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)

| Obsolated Charge Pump Parts | | | Unit Size | Chg. 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 |

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.

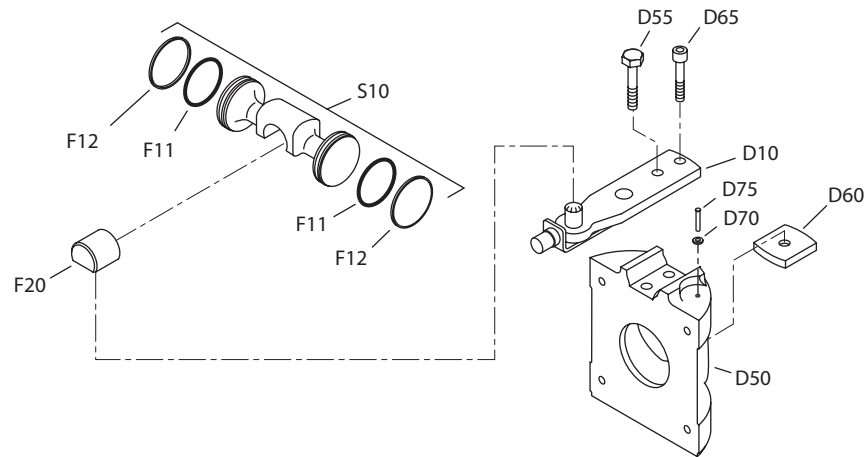
Also, the new servo arm is actually a press fit into a groove in the new swashplate. This situation requires special tooling for assembly, therefore, pre-assembled kits will be created for 55, 75, and 100 cc pumps. The kits will work in any vintage pump.

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

PRODUCTS AFFECTED

Series 90 pumps

SUBJECT

Change to fixed clearance slipper hold down

DESCRIPTION

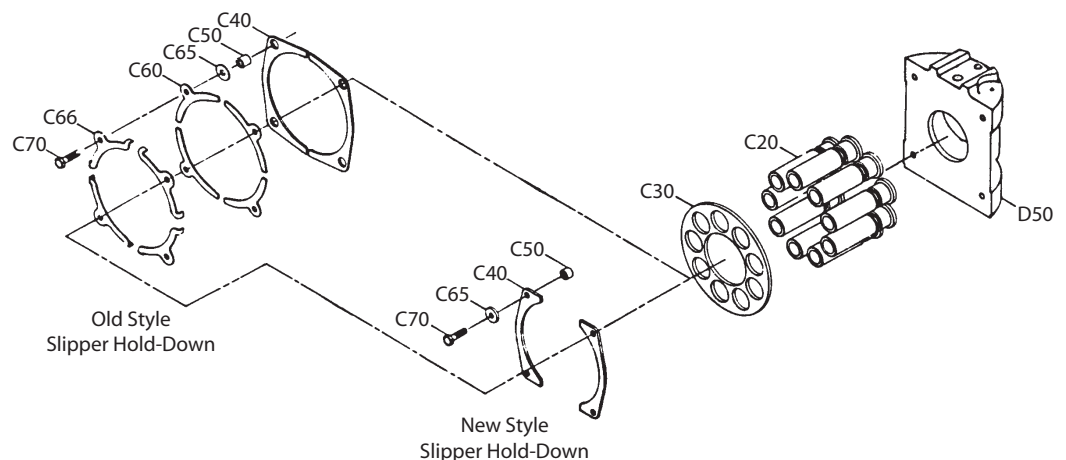
As a product improvement, Sauer-Danfoss has simplified the design of the series 90 pump slipper hold down mechanism. The hold down changes from spring loaded with a fixed maximum clearance design.

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.

PRODUCTS AFFECTED

Series 90 pumps and motors

SUBJECT

Piston improvement

DESCRIPTION

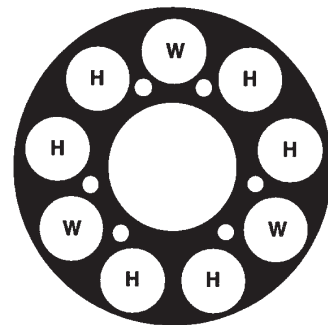
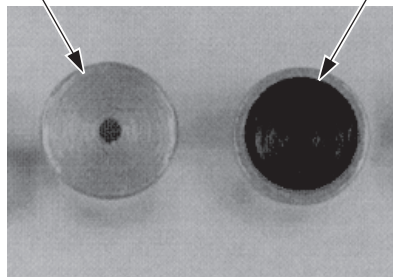
Product Information Bulletin PIB-8801 (March, 1988) announced the incorporation of fabricated (welded) piston assemblies, replacing non-fabricated (hollow) piston assemblies, in the cylinder blocks of all Series 90 pumps and motors. This change increases the overall efficiency of the Series 90 product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

Welded Piston Assembly

Hollow Piston Assembly



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

PRODUCTS AFFECTED

Series 90 pumps

SUBJECT

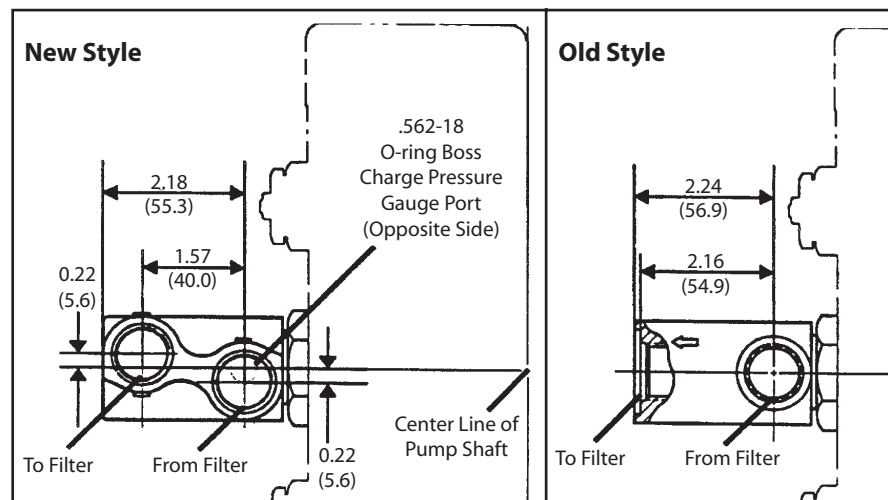
Remote pressure filtration adapter change

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 filtration. (option R)

SERIAL NUMBERS

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

PART NUMBERS AFFECTED

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

PARTS DISPOSITION

■ Interchangeable

PRODUCTS AFFECTED

Series 90 pumps

SUBJECT

Incorporation of adjustable charge relief valve

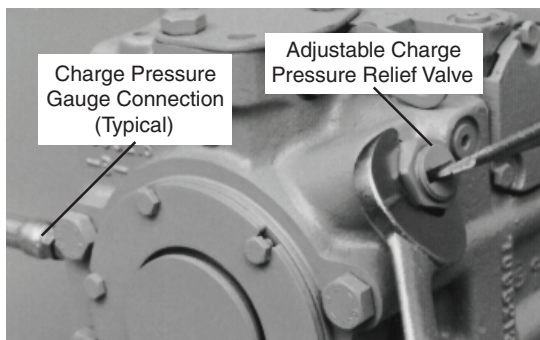
DESCRIPTION

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].

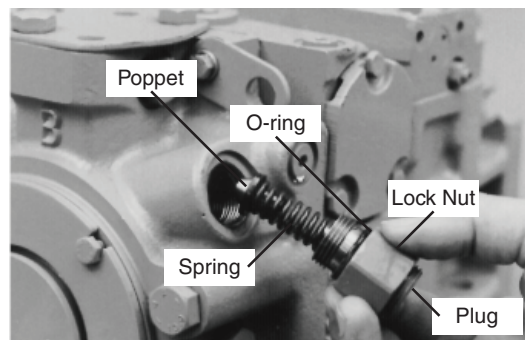
Note: This improvement changes the design of the charge relief valve poppet and plug. The new style charge relief may protrude from the pump end cap approximately 0.27 in [6.9 mm] farther than the shim adjustable r

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)

PRODUCTS AFFECTED

Series 90 pumps

SUBJECT

Swashplate leveler spring seat change and servo pressure relief valve deletion

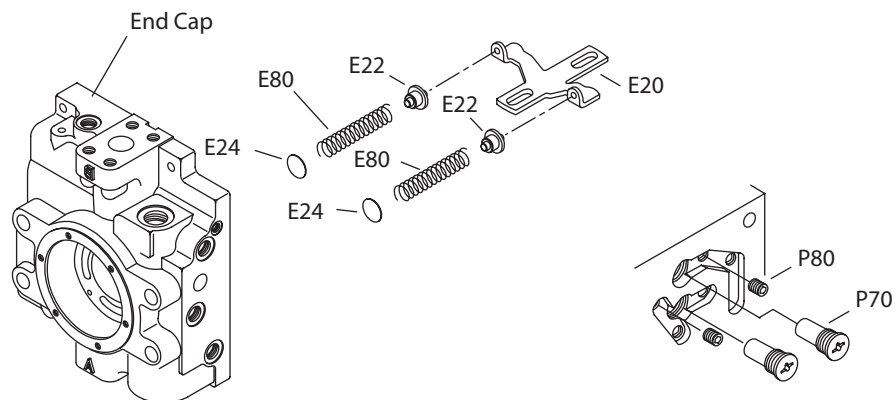
DESCRIPTION

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-xxxx. 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

PRODUCTS AFFECTED

Series 90 pumps

SUBJECT

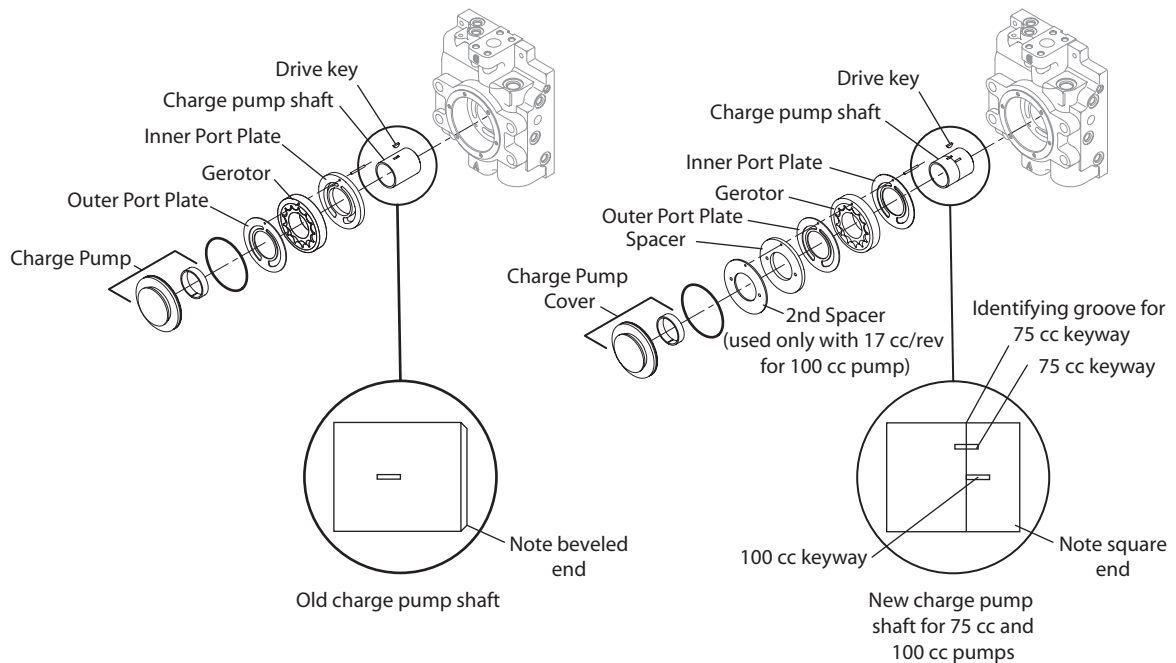
Charge pump design change

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 charge 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

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 charge 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



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: 075 CC

| Item | Description | Pre-block point part number | New part number 92-19 & later |
|----------------------------------|----------------------|-----------------------------|-------------------------------|
| Common parts group, 75 cc | | | |
| B10 | Variable housing | 716621 (O) | 724674 |
| B82 | Plug | n/a | 9005110-5600 |
| End cap, 75 cc | | | |
| G048 | End cap - twin ports | 8100292 (O) | 8100471 |
| G308 | End cap gasket | 8100270 (I) (O) | 8100466 (I) |
| G968 | Screw | 9007314-0604 | 9007314-0804 |
| G046 | End cap - side ports | 8100356 (O) | 8100472 |
| G306 | End cap gasket | 8100212 | 8100448 |
| G906 | Screw | 9007210-0611 | 9007210-0810 |
| G956 | Screw | 9007314-0608 | 9007314-0810 |
| G172 | Plug | n/a | 9005110-4400 |
| G182 | Plug | n/a | 9005110-4400 |
| G93 | Spacer | 8800404 | common part |
| G94 | Lifting bracket | 8800522 | common part |
| G95 | Washer | 9009610-2850 | common part |
| Common parts group, 75 cc | | | |
| B83 | Plug | n/a | 9005110-5600 |

MODELS AFFECTED

All series 90 95-2xxx variable pumps

SERIAL NUMBERS

Changes will take place at the serial number 92-19-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 been changed from oblique to vertical.

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

PARTS DISPOSITION

■ Non-interchangeable

PRODUCTS AFFECTED

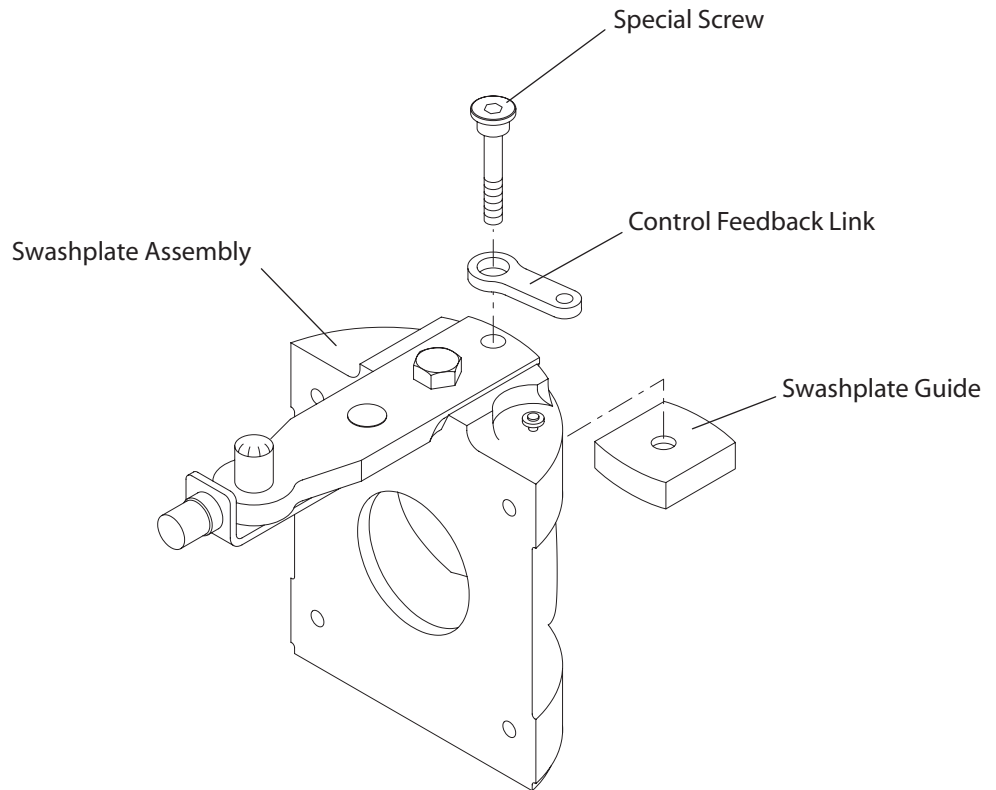
Series 90 - 055, 075, and 100 frame size pumps

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



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

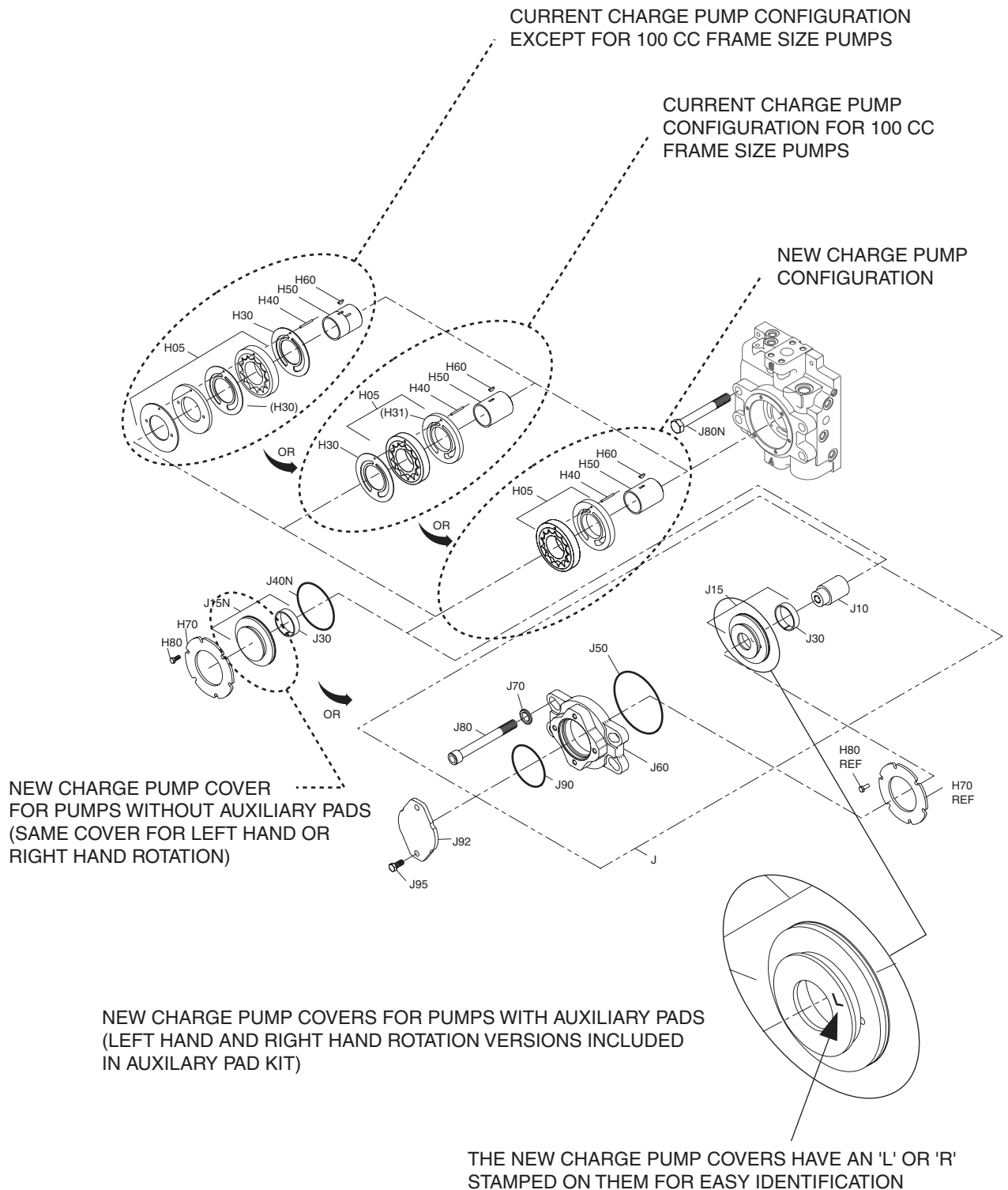
SERIAL NUMBERS
55 cc: A-93-10 & beyond
75 cc: A-93-10 & beyond
100 cc: A93-15 & beyond

PART NUMBERS AFFECTED

| 55 cc | | 75 cc | | 100 cc | | 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 |
| 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-xxxx and beyond. Piece parts are not interchangeable.



PRODUCTS AFFECTED

Series 90 pump: All frame sizes

SUBJECT

Servo arm interference with speed sensor ring

DESCRIPTION

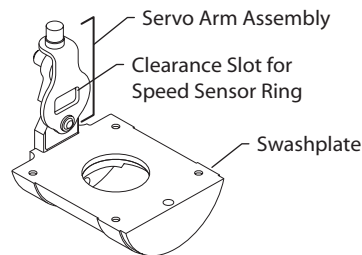
Note: This service bulletin revision adds the 42 cc frame size and the incorporation date of 55 thru 100 cc.

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

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. The 75 cc pumps built in Neumunster 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.

PRODUCTS AFFECTED

Series 90 55-100 cc variable pumps

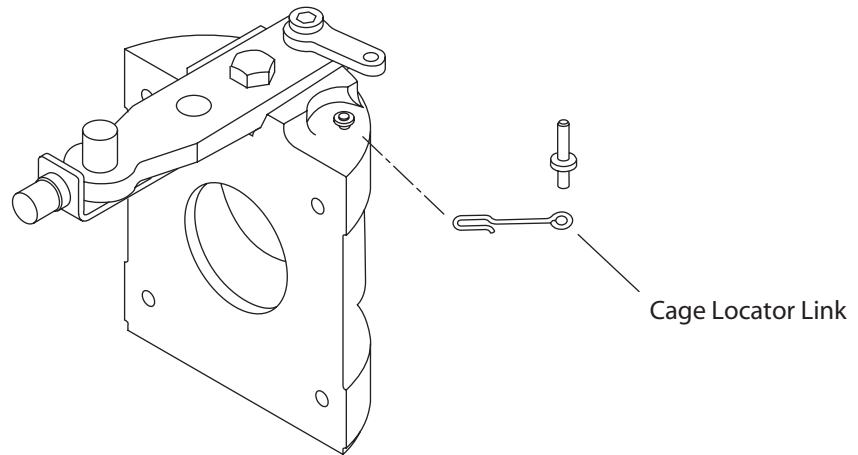
SUBJECT

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

PRODUCTS AFFECTED

Series 90 variable pumps

SUBJECT

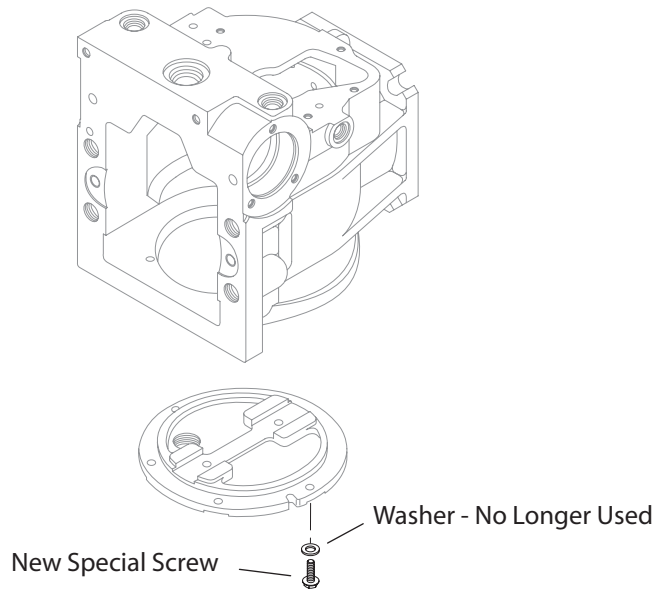
Side cover washer elimination

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

PRODUCTS AFFECTED

Series 90 55 thru 130 cc variable pumps

SUBJECT

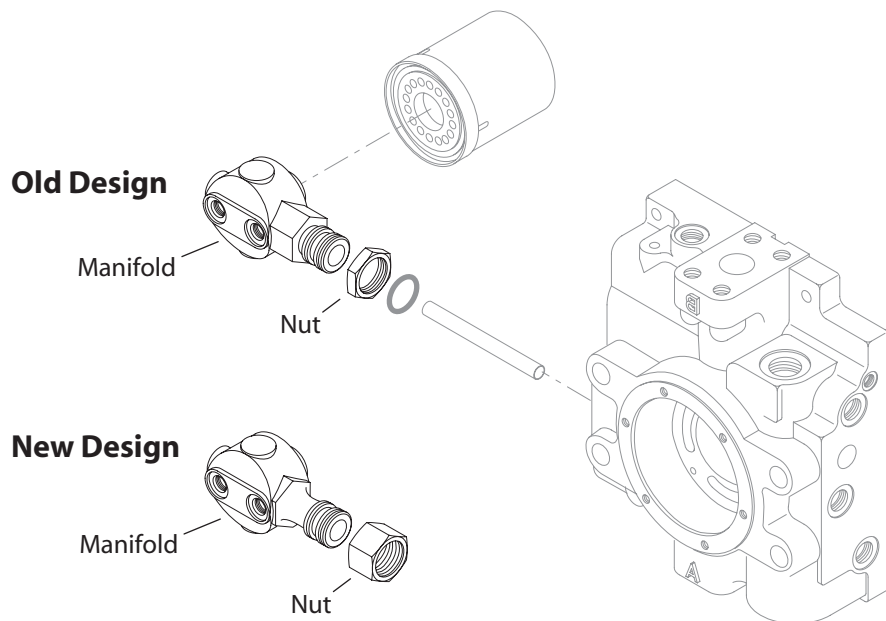
Integral filtration manifold

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 obsolete 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

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

PARTS DISPOSITION

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

PRODUCTS AFFECTED

Series 90 variable pumps - all frame sizes

SUBJECT

Manual displacement control (MDC) with DC electric solenoid override

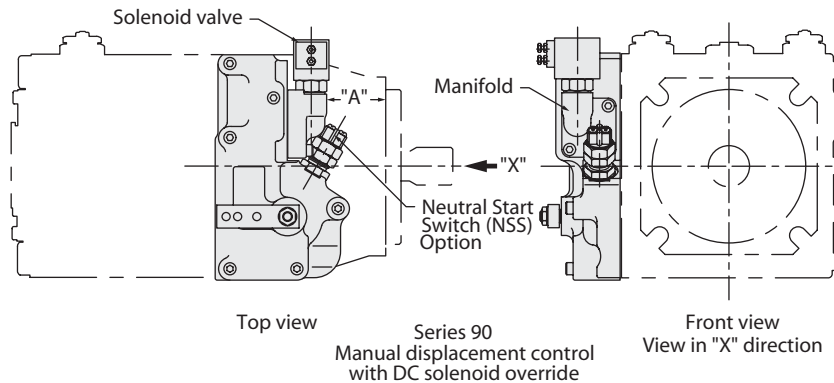
DESCRIPTION

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 obsolete and no longer available as a service part.



| 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] |
| | Future mm [in] | 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 |

PARTS DISPOSITION

■ Interchangeable (new manifold requires longer screws)

PRODUCTS AFFECTED Series 90 75cc variable pumps

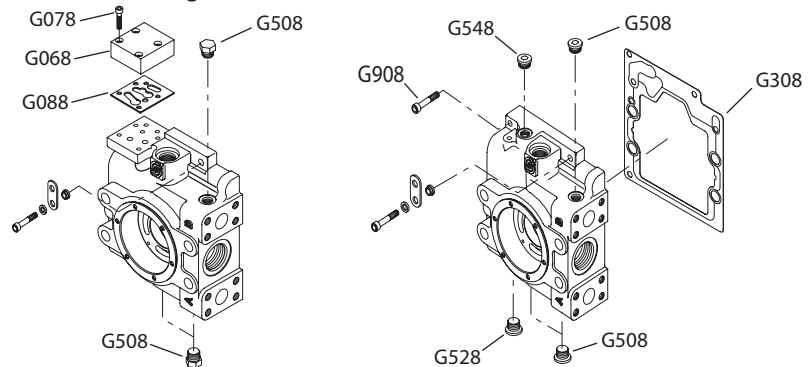
SUBJECT End cap design change

DESCRIPTION As part of our overall 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 of A-96-05-xxxxx and beyond must use the 8100565 gasket. These 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.



MODELS AFFECTED All 75cc variable pumps

SERIAL NUMBERS This change became effective at serial number A-96-05-xxxxx.

PART NUMBERS AFFECTED

| Description | Item | 92-19 to 96-04 | 96-05 & 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

PRODUCTS AFFECTED Series 90 55, 75, and 100 cc variable pumps

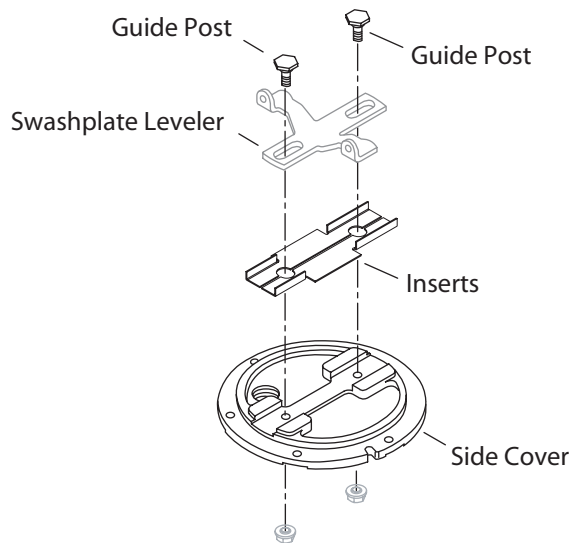
SUBJECT Side cover design change

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

| 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.

PRODUCTS AFFECTED

Series 90 55, 75, and 100 cc variable pumps

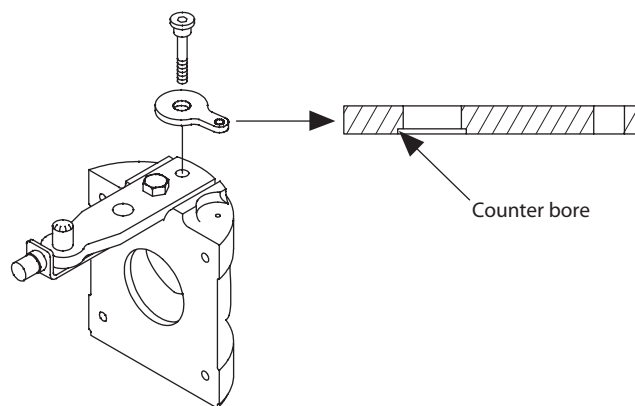
SUBJECT

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 effective at serial number A-96-12-xxxxx

PART NUMBERS AFFECTED

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

PARTS DISPOSITION

■ Interchangeable

PRODUCTS AFFECTED

Series 90 55, 75, and 100 cc variable pumps

SUBJECT

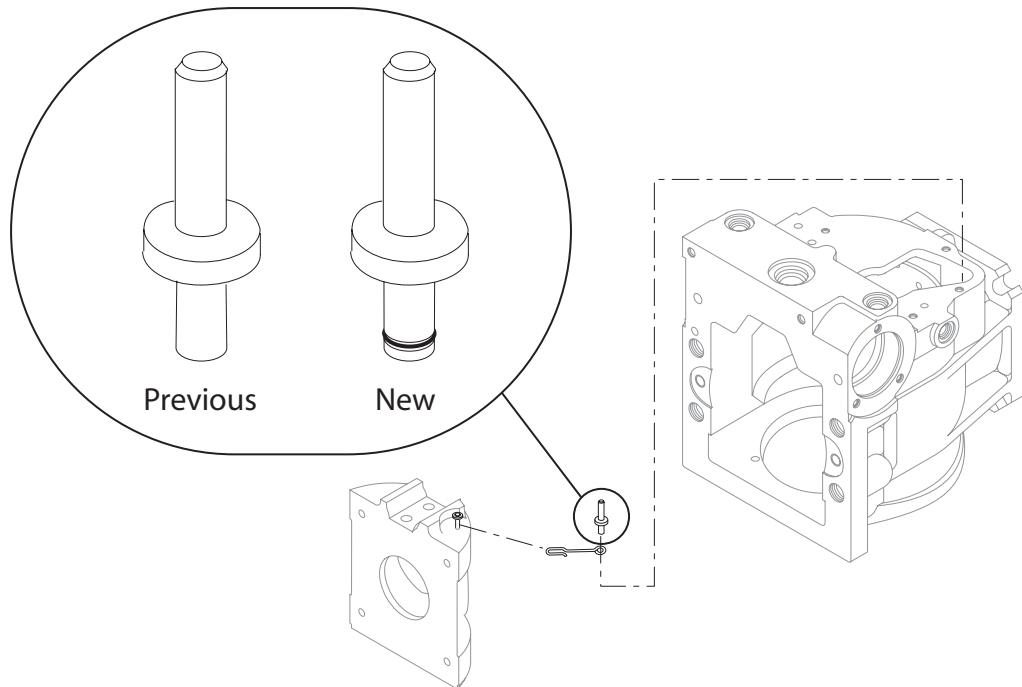
Swashplate bearing cage locator pin

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

| | <u>Prior of 98-24</u> | <u>98-24 and beyond</u> |
|-----------------|-----------------------|-------------------------|
| Pin part number | 8100235 | 8801135 |

PARTS DISPOSITION

■ Interchangeable

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

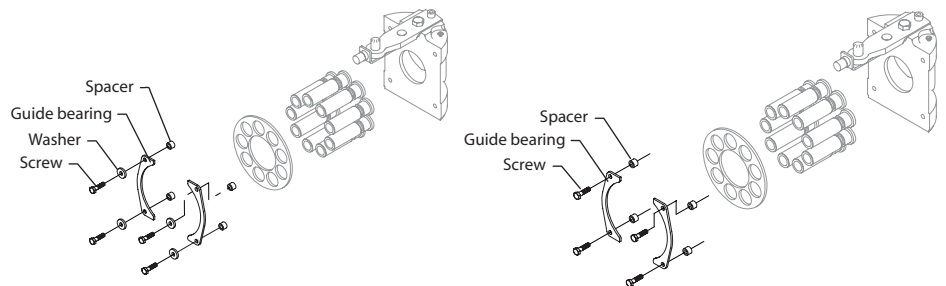
Sauer-Danfoss has initiated a change to the piston hold down mechanism used on series 90 55, 75, and 100 cc variable displacement pump and the series 90 55 and 75 cc variable displacement motors.

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.



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

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

PRODUCTS AFFECTED

Series 90 55, 75, and 100 cc variable pumps

SUBJECT

Charge pump shaft part number change

DESCRIPTION

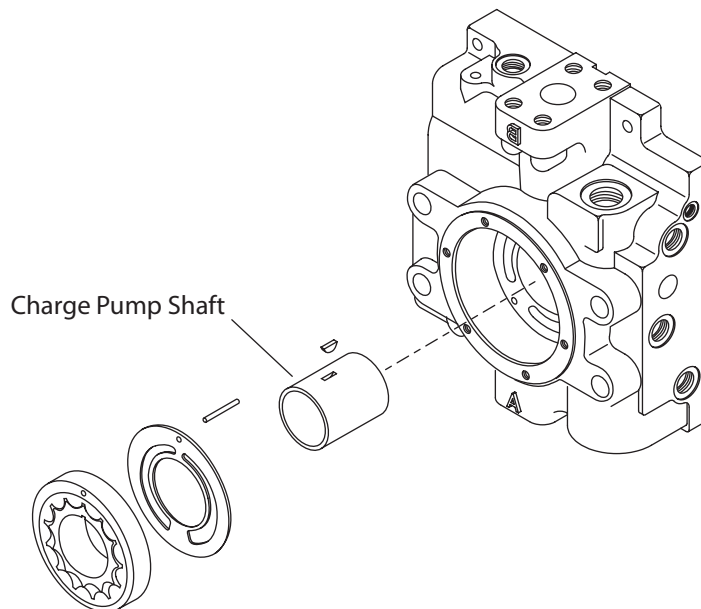
As a product improvement, Sauer-Danfoss has modified the design of the charge pump shaft used in series 90 55, 75 and 100 cc pumps. This change affects all charge pump sizes (11, 14, 17, 20, 26, and 31 cc) available in the series 90 displacement range.

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.





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 - 26 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

PRODUCTS AFFECTED

Series 90 75cc variable pumps

SUBJECT

Large end cap screw change

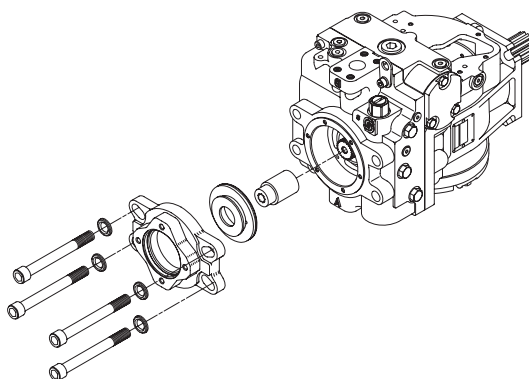
DESCRIPTION

Sauer-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.

Sauer-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, Sauer-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

Sauer-Danfoss Ames production: A-98-44-xxxxx.
 Sauer-Danfoss Neumunster production: N-00-05-xxxxx.

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 |

Note: Auxiliary drive kits include both screws: 8102J00A-A, 8102J00B-A, 8102J00T-A, and 8102J00V-A.

PRODUCTS AFFECTED

Series 90 75cc variable pumps

SUBJECT

Eliminate potential interference between speed ring and spring seats and springs

DESCRIPTION

Sauer-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.

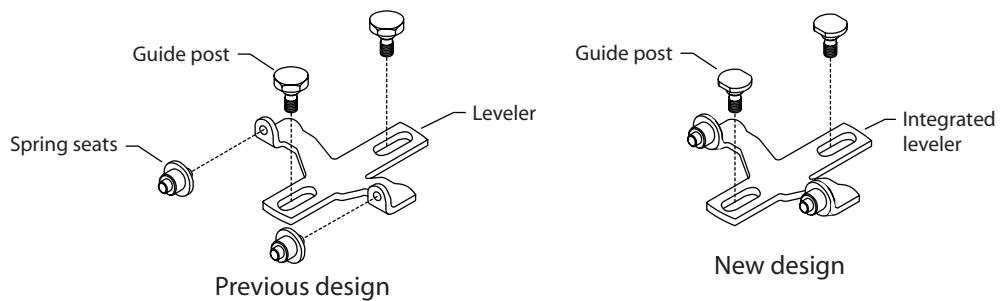
This new design eliminates the potential for the spring seats to separate from the leveler during assembly and servicing.

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 replaced 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, Sauer-Sundstrand 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 | 8000510 | 8000575 |

PARTS DISPOSITION

■ Interchangeable - Only when the new guide posts and leveler are used

PRODUCTS AFFECTED

Series 90 55, 75, and 100 cc variable pumps

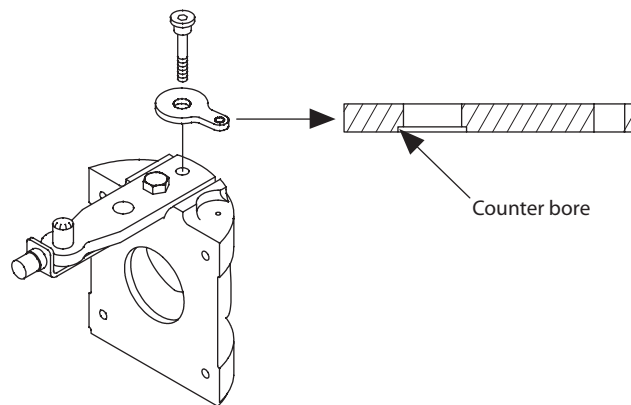
SUBJECT

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

PRODUCTS AFFECTED

Series 90 variable pumps

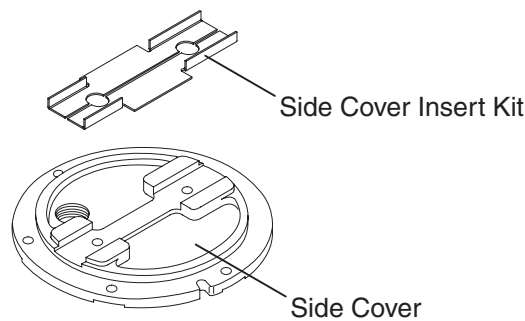
SUBJECT

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

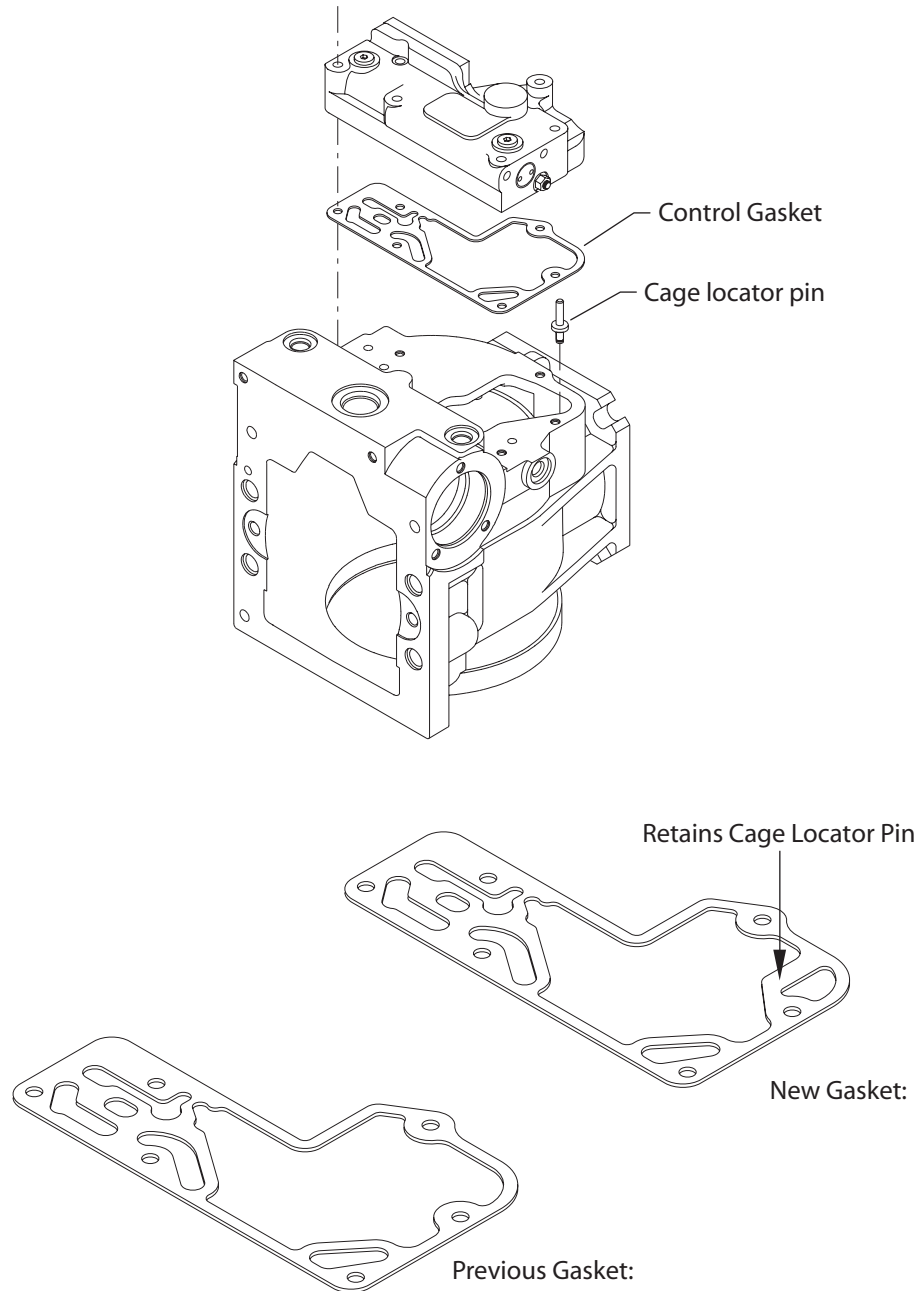
| | |
|--------------------------|--|
| PRODUCTS AFFECTED | Series 90 75, 100, 130, 180, and 250cc variable displacement pumps |
| SUBJECT | Hydraulic displacement control gasket and swashplate bearing locator pin retention |
| DESCRIPTION | <p>The Series 90 75cc, 100cc, 130cc, 180cc, and 250cc variable displacement pumps utilize a common gasket to seal the joint between the displacement control housing and main pump housing.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> |
| 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 |

PARTS DISPOSITION

■ Interchangeable



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 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

Sauer-Danfoss Ames 100cc production with serial number A-00-23-xxxx up to and including A-00-34-xxxx.

Sauer-Danfoss Neumunster, Germany production with serial number N-00-23-xxxx up to and including A-00-39-xxxx.

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

PRODUCTS AFFECTED

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

SUBJECT

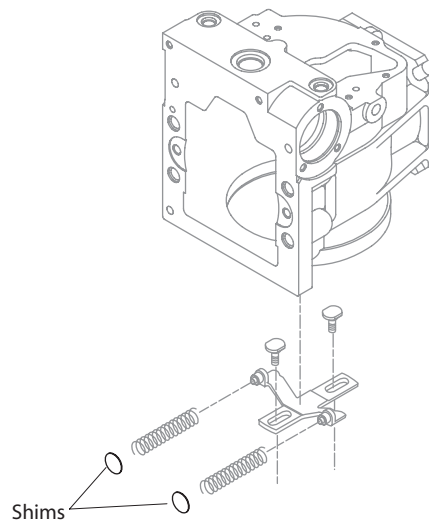
Common leveler spring shim.

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 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

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

PRODUCTS AFFECTED

Series 90 55, 75, and 100 cc pumps

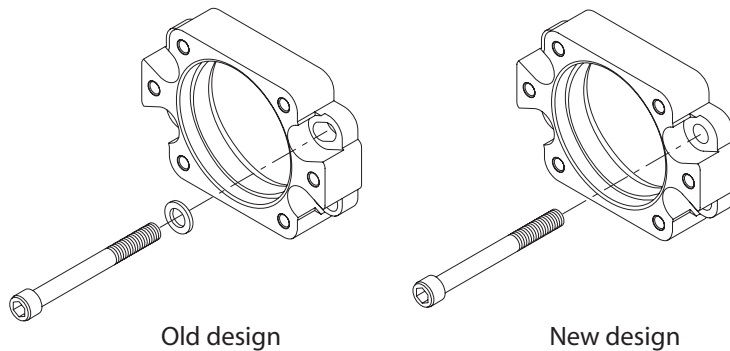
SUBJECT

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.



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

PRODUCTS AFFECTED

Series 90 55 and 75 cc pumps

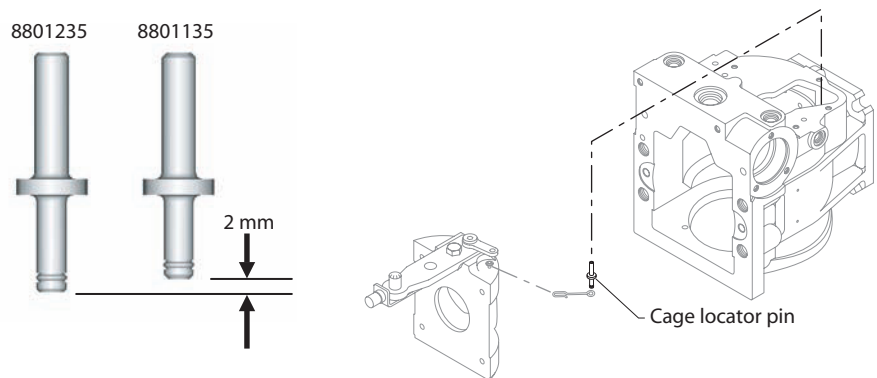
SUBJECT

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



PRODUCTS AFFECTED

Series 90 75 cc 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 commonized 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 |
| 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

PRODUCTS AFFECTED

Series 90 42 thru 100 cc pumps

SUBJECT

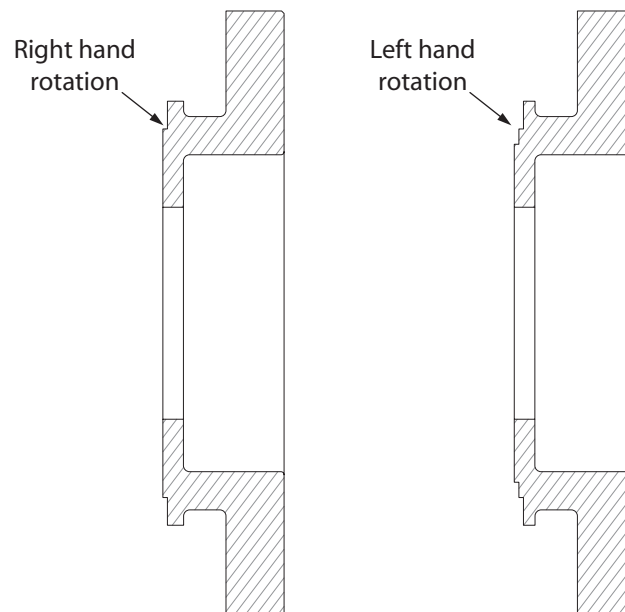
Auxiliary flange charge pump cover

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 with auxiliary pad options.

SERIAL NUMBERS

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

**PART NUMBERS
AFFECTED**

None

PARTS DISPOSITION

■ Interchangeable



Series 90 75 cc Axial Piston Pump
Parts Manual
Notes





OUR PRODUCTS

Hydrostatic transmissions
Hydraulic power steering
Electric power steering
Electrohydraulic power steering
Closed and open circuit axial piston pumps and motors
Gear pumps and motors
Bent axis motors
Orbital motors
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Directional spool valves
Cartridge valves
Hydraulic integrated circuits
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Fan drive systems
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Displays
Sensors

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