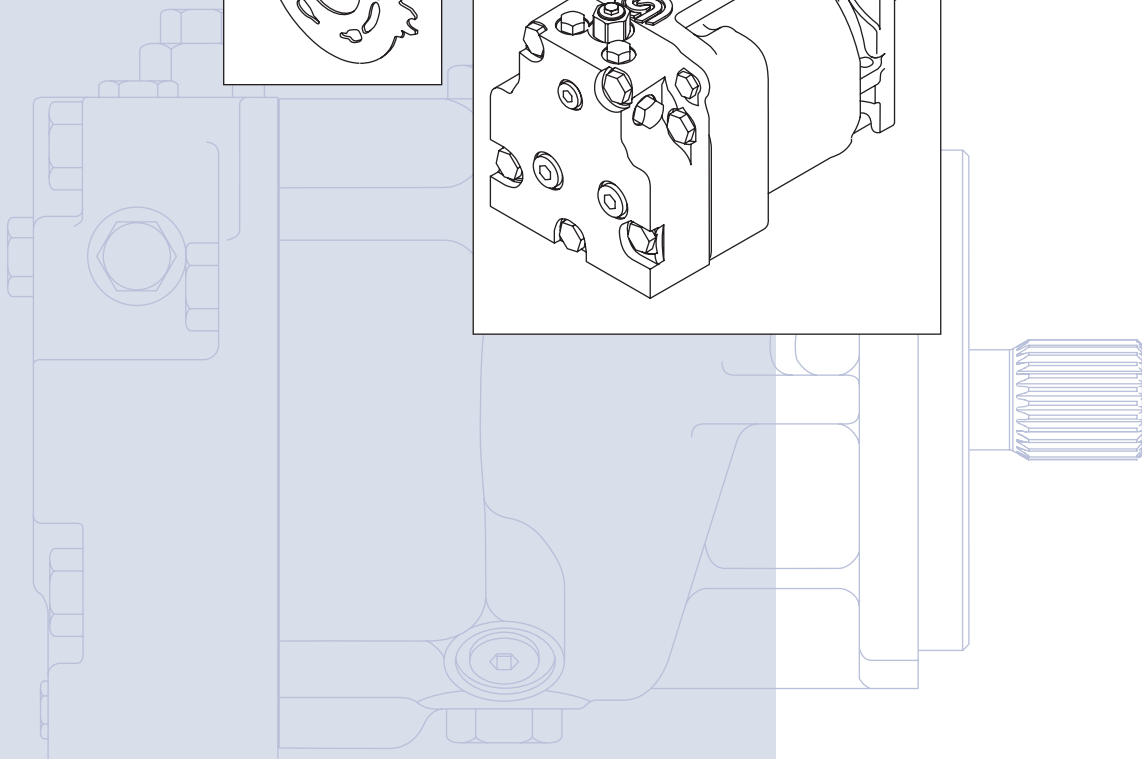
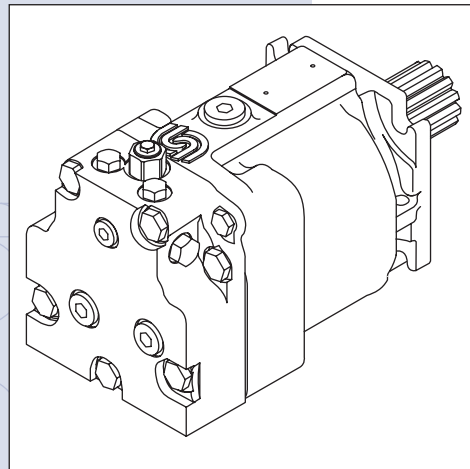
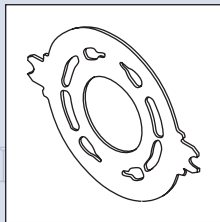
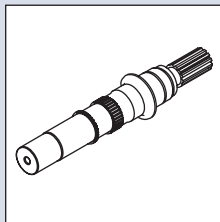
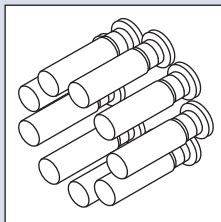


Series 90
100 cc Axial Piston
Motor

Parts Manual





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Front cover illustrations: P100 609, P100 682, P100 630, P100 700



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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, 100 cc motors.

The parts listed include all parts which may be used when performing either "Minor Repairs," "Major Repairs" or "Conversions" on the Series 90, 100 cc motor.

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

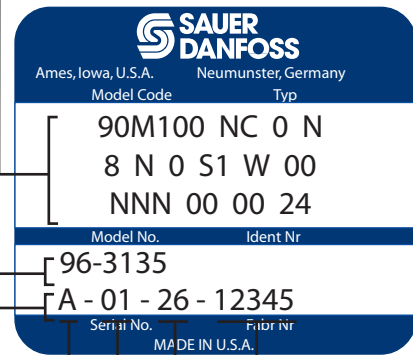
The Sauer-Danfoss serial number is used to identify the manufacture date and the unit sequence in the build. The serial number is also used to identify the units warranty time period.

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 H10

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Usage
N	H10	89-38		8800668	Loop flushing spool, defeated	1
	H10	87-02	89-37	8800021	Loop flushing spool, defeated (SB-1989-020)	1

All units using this order code with a date code of 87-02 and up to and including 89-37, must use part number "8800021". All units with a date code of 89-38 and newer must use part number "8800668".

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 motors.)

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

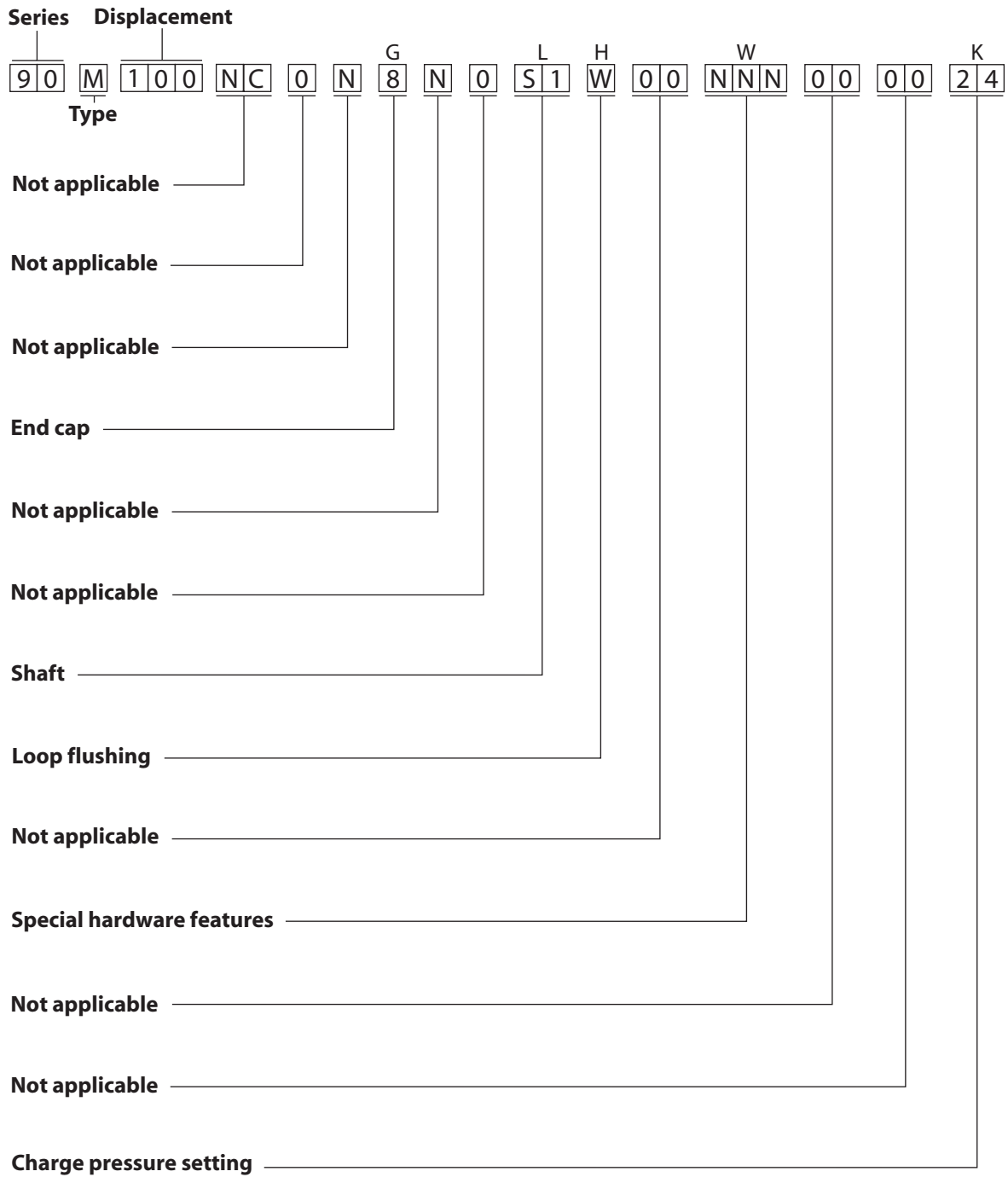
The nameplate on a Series 90 motor has an Order Code of 90M100 NC 0 N 8 N 0 S1 W 00 NNN 00 00 24. Use the following procedures to determine the part number of the drive shaft used on this motor.

- 1) Referring to the output shaft module in the Order Code (see page 7), the output shaft option for this motor is identified by the code "S1": (90M100 NC 0 N 8 N 0 S1 W 00 NNN 00 00 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 8200358.

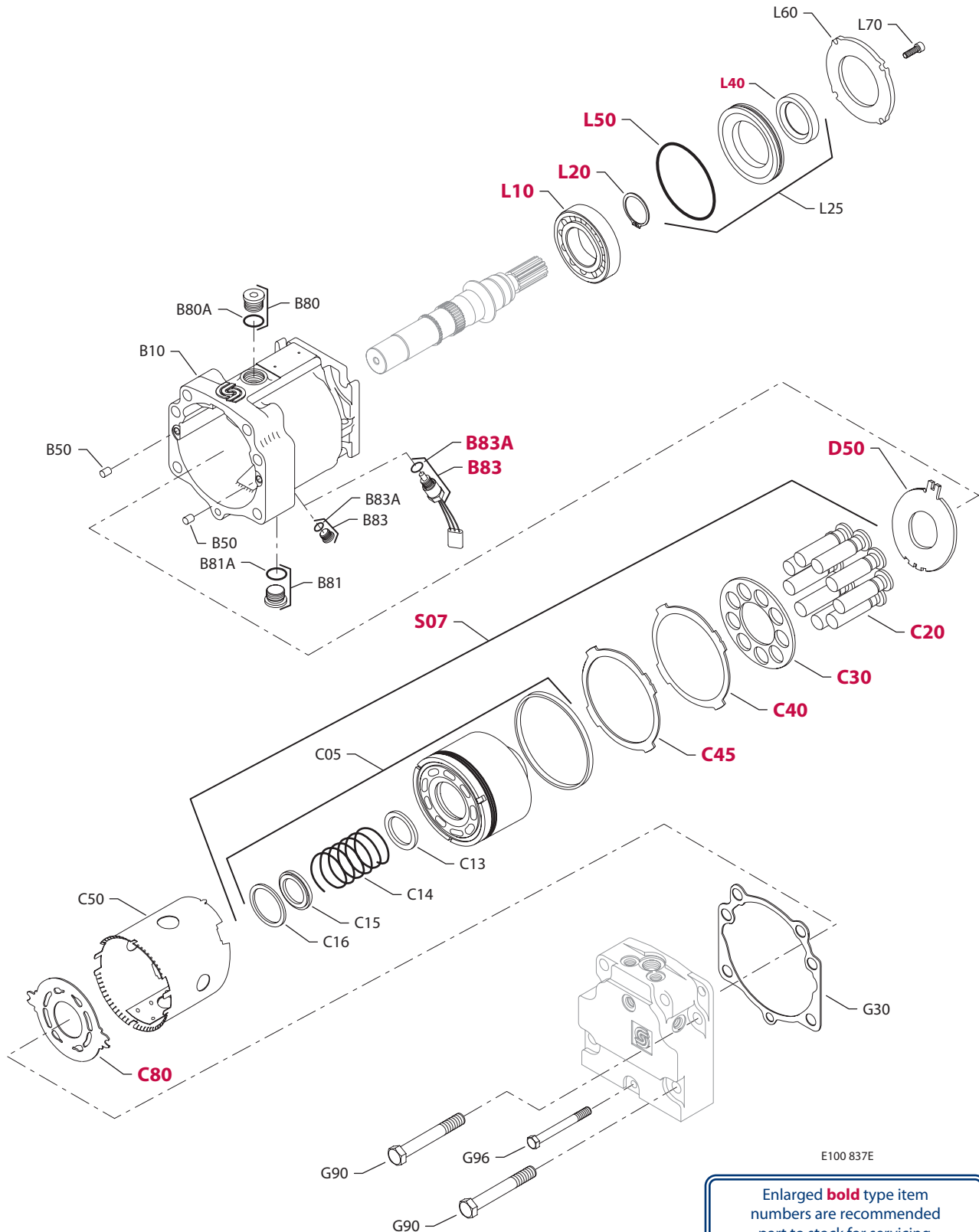


Series 90 100 cc Axial Piston Motor
Parts Manual
Notes





P100 709E



E100 837E

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

COMMON PARTS

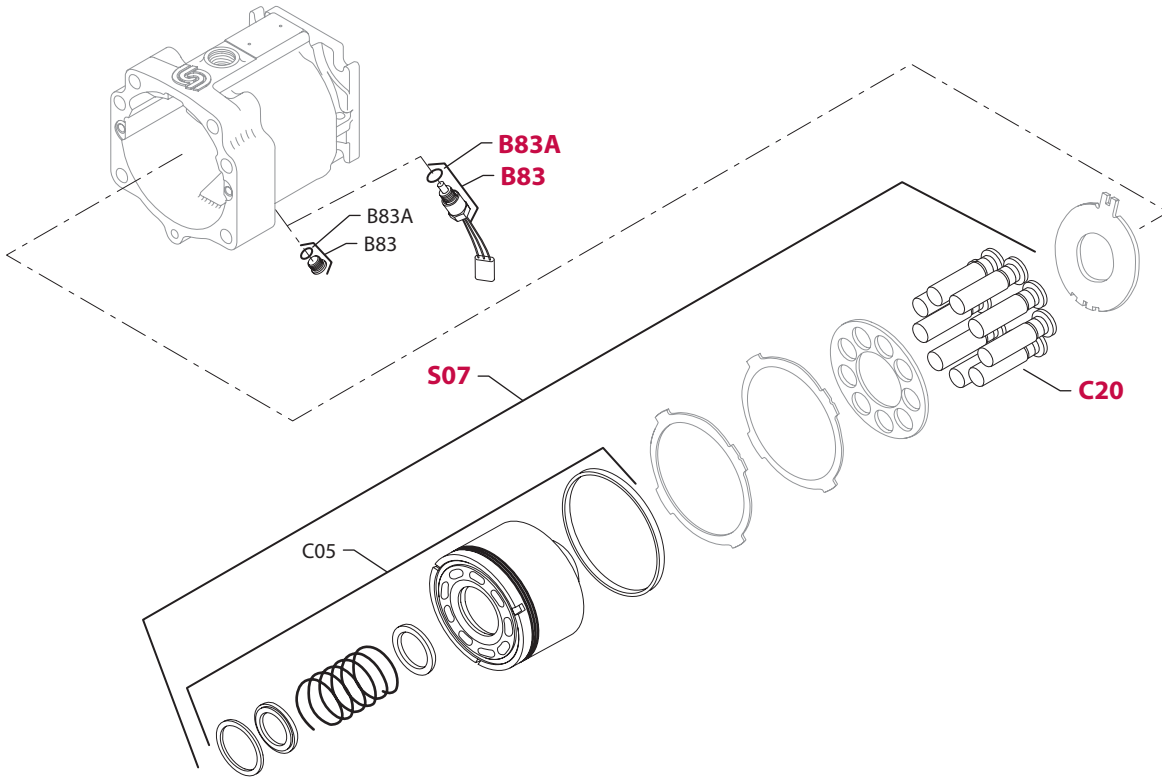
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	B10	88-23		8200561	Housing (SB-1988-018, 1999-036, and 2003-010)	1
	B50	88-23		9004800-3708	Pin (SB-1988-018)	2
	B50	87-07	88-22	9004800-3116	Pin	2
	B80	87-07		664524 (9005110-9000)	Plug assembly	1
	B80A	87-07		001156 (9004201-7500)	O-ring	1
	B81	87-07		664524 (9005110-9000)	Plug assembly	1
	B81A	87-07		001156 (9004201-7500)	O-ring	1
	C13	87-07		8200567	Spring seat	1
	C14	87-07		734590 (8200210)	Cylinder block spring	1
	C15	87-07		672881 (8200028)	Spring retainer	1
	C16	87-07		9006275-0026	Retaining ring	1
	C30	87-07		735498	Slipper guide	1
	C40	87-07		683607	Slipper guide retainer	1
	C45	87-07		505368	Slipper guide retainer spacer	1
	C50	87-07		8200237	Hold down tube	1
	C80	88-23		324137	Valve plate (SB-2002-048)	1
	C80	87-07	88-22	8200103	Valve plate (SB-1988-018)	1
	D50	88-23		505350	Thrust plate (SB-1988-0018)	1
	G30	87-07		8200511	End cap gasket (SB-2001-011)	1
	G90	04-15		675918 (9007210-1217)	Screw (SB-2003-010)	6
	G90	87-07	04-14	675918 (9007210-1217)	Screw (SB-2003-010)	4
	G95	87-07	04-14	675900 (9007210-1209)	Screw (SB-2003-010)	2
	G96	87-07		701474 (9007210-1017)	Screw	1
	L10	87-07		5000506	Roller beraing	1
	L20	87-07		9006300-0175	Retaining ring	1
	L25	87-07		8200309	Seal assembly	1
	L40	87-07		9008000-0114	Lip seal	1
	L50	87-07		327627 (9004104-1540)	O-ring	1
	L60	87-07		516768	Retainer plate	1
	L70	87-07		041160 (9007314-0605)	Screw	4

SPECIAL HARDWARE

CAA	S07	94-14		8510370	Cylinder block kit, w/o speed ring (SB-2005-005)	1
	C05	94-14		8200570	Cylinder block assembly w/o speed ring (SB-2005-005)	1
	C20	94-14		8200031	Piston assembly, hollow (SB-1988-023)	9
	B83	94-14		515965 (9005110-5600)	Plug assembly	1
	B83A	94-14		085043 (9004201-3700)	O-ring	1

EAA	S07	94-14		8510395	Cylinder block kit, w/speed ring (SB-2005-005)	1
	C05	94-14		8200574	Cylinder block assembly w/speed ring (SB-2005-005)	1
	C20	94-14		364000	Piston assembly, welded (SB-1988-023)	9
	B83	94-14		KPPG12508	Speed sensor	1
	B83A	94-14		085043 (9004201-3700)	O-ring	1

EAF	S07	98-02		8510395	Cylinder block kit, w/speed ring (SB-2005-005)	1
	C05	98-02		8200574	Cylinder block assembly w/speed ring (SB-2005-005)	1
	C20	98-02		364000	Piston assembly, welded (SB-1988-023)	9
	B83	98-02		KPPG13808	Speed sensor	1
	B83A	98-02		085043 (9004201-3700)	O-ring	1

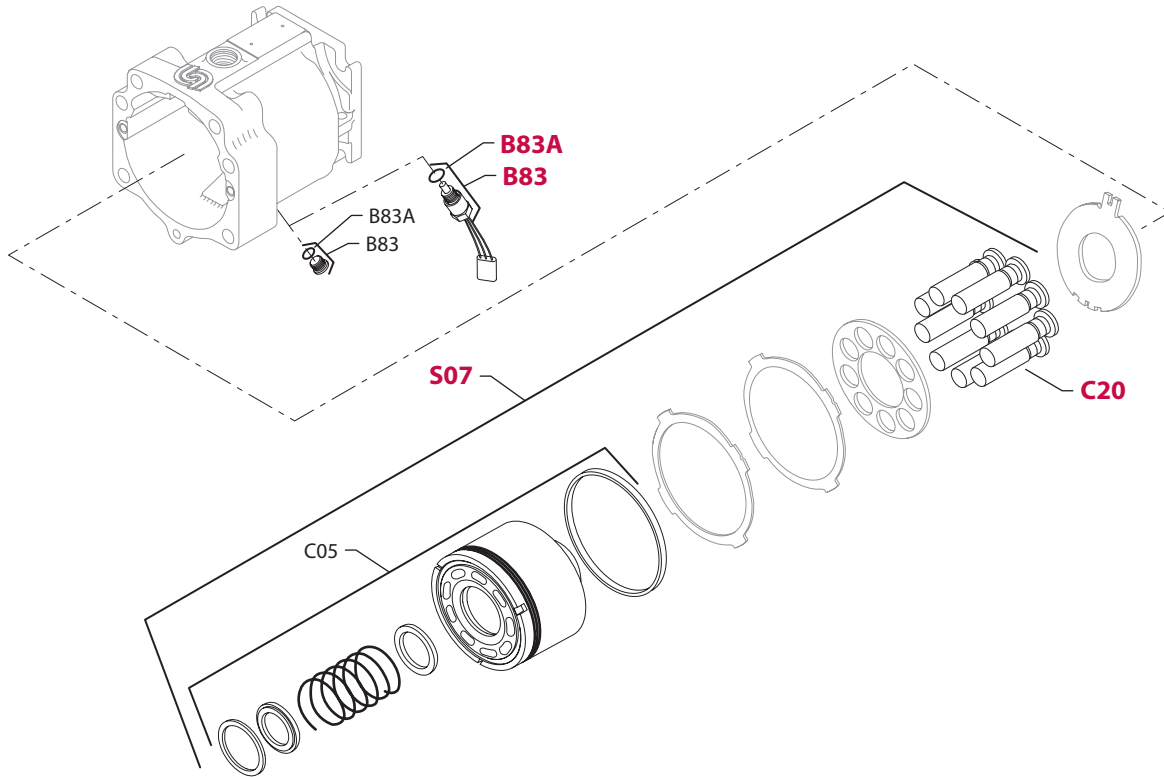


E100 838E

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
EAH	S07	06-12		8510395	Cylinder block kit, w/speed ring	1
	C05	06-12		8200574	Cylinder block assembly w/speed ring	1
	C20	06-12		364000	Piston assembly, welded (SB-1988-023)	9
	B83	06-12		KPPG13808	Speed sensor	1
	B83A	06-12		085043 (9004201-3700)	O-ring	1
EAK	S07	06-12		8510395	Cylinder block kit, w/speed ring	1
	C05	06-12		8200574	Cylinder block assembly w/speed ring	1
	C20	06-12		364000	Piston assembly, welded (SB-1988-023)	9
	B83	06-12		10105722	Speed sensor	1
	B83A	06-12		085043 (9004201-3700)	O-ring	1
EBA	S07	94-14		8510395	Cylinder block kit, w/speed ring (SB-2005-005)	1
	C05	94-14		8200574	Cylinder block assembly w/speed ring (SB-2005-005)	1
	C20	94-14		364000	Piston assembly, welded (SB-1988-023)	9
	B83	94-14		KPPG13408	Speed sensor	1
	B83A	94-14		085043 (9004201-3700)	O-ring	1
EBB	S07	94-23		8510395	Cylinder block kit, w/speed ring (SB-2005-005)	1
	C05	94-23		8200574	Cylinder block assembly w/speed ring (SB-2005-005)	1
	C20	94-23		364000	Piston assembly, welded (SB-1988-023)	9
	B83	94-23		KPPG14408	Speed sensor	1
	B83A	94-23		085043 (9004201-3700)	O-ring	1
EEA	S07	94-36		8510395	Cylinder block kit, w/speed ring (SB-2005-005)	1
	C05	94-36		8200574	Cylinder block assembly w/speed ring (SB-2005-005)	1
	C20	94-36		364000	Piston assembly, welded (SB-1988-023)	9
	B83	94-36		515965 (9005110-5600)	Plug assembly	1
	B83A	94-36		085043 (9004201-3700)	O-ring	1
EFA	S07	94-36		8510395	Cylinder block kit, w/speed ring (SB-2005-005)	1
	C05	94-36		8200574	Cylinder block assembly w/speed ring (SB-2005-005)	1
	C20	94-36		364000	Piston assembly, welded (SB-1988-023)	9
	B83	94-36		KPPG136	Speed sensor	1
	B83A	94-36		085043 (9004201-3700)	O-ring	1
EFB	S07	95-28		8510395	Cylinder block kit, w/speed ring (SB-2005-005)	1
	C05	95-28		8200574	Cylinder block assembly w/speed ring (SB-2005-005)	1
	C20	95-28		364000	Piston assembly, welded (SB-1988-023)	9
	B83	95-28		KPPG136	Speed sensor	1
	B83A	95-28		085043 (9004201-3700)	O-ring	1
EFJ	S07	99-40		8510395	Cylinder block kit, w/speed ring (SB-2005-005)	1
	C05	99-40		8200574	Cylinder block assembly w/speed ring (SB-2005-005)	1
	C20	99-40		364000	Piston assembly, welded (SB-1988-023)	9
	B83	99-40		KPPG176	Speed sensor	1
	B83A	99-40		085043 (9004201-3700)	O-ring	1

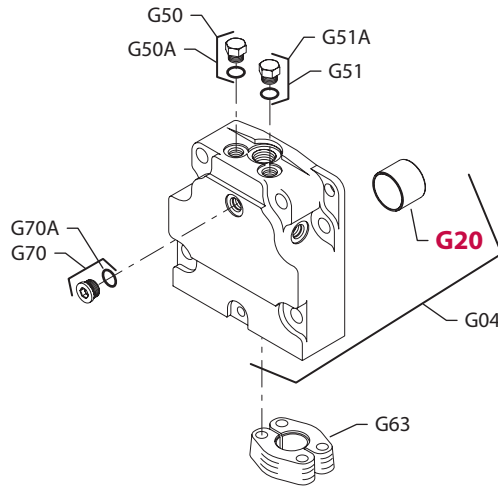


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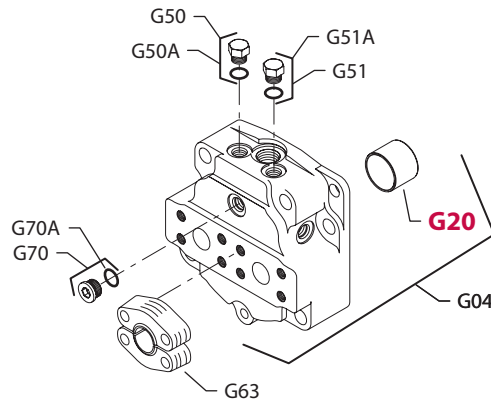
Enlarged **bold** type item numbers are recommended part to stock for servicing.

SPECIAL HARDWARE

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
EGH	S07	05-16		8510395	Cylinder block kit, w/speed ring (SB-2005-005)	1
	C05	05-16		8200574	Cylinder block assembly w/speed ring (SB-2005-005)	1
	C20	05-16		364000	Piston assembly, welded (SB-1988-023)	9
	B83	05-16		KPPG13703	Speed sensor	1
	B83A	05-16		085043 (9004201-3700)	O-ring	1
EHD	S07	06-32		8510395	Cylinder block kit, w/speed ring (SB-2005-005)	1
	C05	06-32		8200574	Cylinder block assembly w/speed ring (SB-2005-005)	1
	C20	06-32		364000	Piston assembly, welded (SB-1988-023)	9
	B83	06-32		KPPG16408	Speed sensor	1
	B83A	06-32		085043 (9004201-3700)	O-ring	1
JAF	S07	06-12		8510370	Cylinder block kit, w/o speed ring (SB-2005-005)	1
	C05	06-12		8200570	Cylinder block assembly, w/o speed ring (SB-2005-005)	1
	C20	06-12		364000	Piston assembly, welded (SB-1988-023)	9
	B83	06-12		515965 (9005110-5600)	Plug assembly	1
	B83A	06-12		085043 (9004201-3700)	O-ring	1
JAH	S07	06-12		8510370	Cylinder block kit, w/o speed ring (SB-2005-005)	1
	C05	06-12		8200570	Cylinder block assembly, w/o speed ring (SB-2005-005)	1
	C20	06-12		364000	Piston assembly, welded (SB-1988-023)	9
	B83	06-12		515965 (9005110-5600)	Plug assembly	1
	B83A	06-12		085043 (9004201-3700)	O-ring	1
LAB	S07	05-21		8510395	Cylinder block kit, w/speed ring (SB-2005-005)	1
	C05	05-21		8200574	Cylinder block assembly w/speed ring (SB-2005-005)	1
	C20	05-21		364000	Piston assembly, welded (SB-1988-023)	9
	B83	05-21		KPPG14408	Speed sensor	1
	B83A	05-21		085043 (9004201-3700)	O-ring	1
LAC	S07	05-21		8510395	Cylinder block kit, w/speed ring (SB-2005-005)	1
	C05	05-21		8200574	Cylinder block assembly w/speed ring (SB-2005-005)	1
	C20	05-21		364000	Piston assembly, welded (SB-1988-023)	9
	B83	05-21		515965 (9005110-5600)	Plug assembly	1
	B83A	05-21		085043 (9004201-3700)	O-ring	1
NNN	S07	87-02		8510370	Cylinder block kit, w/o speed ring (SB-2005-005)	1
	C05	87-02		8200570	Cylinder block assembly, w/o speed ring (SB-2005-005)	1
	C20	94-36		364000	Piston assembly, welded (SB-1988-023)	9
	B83	94-36		515965 (9005110-5600)	Plug assembly	1
	B83A	94-36		085043 (9004201-3700)	O-ring	1



Twin port end cap



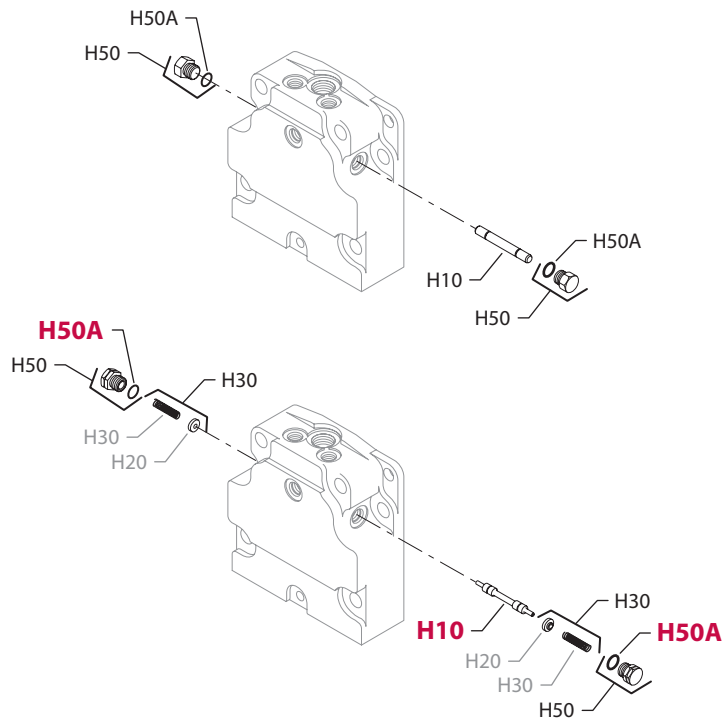
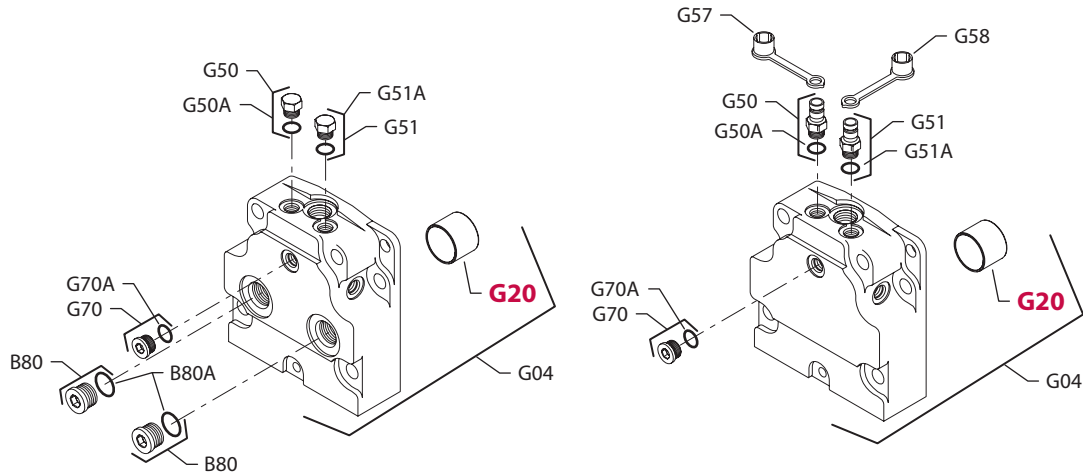
Axial port end cap

E100 821E

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
1	G04	90-20		8200408	End cap assy., twin (SB-1988-018, 1989-020, 1998-007)	1
	G20	87-02		8700030	Journal bearing	1
	G50	87-02		046151 (9005100-5600)	Plug assembly	1
	G50A	87-02		085043 (9004201-3700)	O-ring	1
	G51	87-02		046151 (9005100-5600)	Plug assembly	1
	G51A	87-02		085043 (9004201-3700)	O-ring	1
	G63	87-02		8700074	Split clamp (code 61 hose)	4
	G70	87-02		515965 (9005110-5600)	Plug assembly	1
	G70A	87-02		085043 (9004201-3700)	O-ring	1
3	G04	90-20		8200409	End cap assy., axial (SB-1988-018, 1989-020, 1998-007)	1
	G20	87-02		8700030	Journal bearing	1
	G50	87-02		046151 (9005100-5600)	Plug assembly	1
	G50A	87-02		085043 (9004201-3700)	O-ring	1
	G51	87-02		046151 (9005100-5600)	Plug assembly	1
	G51A	87-02		085043 (9004201-3700)	O-ring	1
	G63	87-02		8700074	Split clamp (code 61 hose)	4
	G70	87-02		515965 (9005110-5600)	Plug assembly	1
	G70A	87-02		085043 (9004201-3700)	O-ring	1
7	G04	90-20		8200409	End cap assy., axial (SB-1988-018, 1989-020, 1998-007)	1
	G20	87-02		8700030	Journal bearing	1
	G50	87-02		046151 (9005100-5600)	Plug assembly	1
	G50A	87-02		085043 (9004201-3700)	O-ring	1
	G51	87-02		046151 (9005100-5600)	Plug assembly	1
	G51A	87-02		085043 (9004201-3700)	O-ring	1
	G70	87-02		515965 (9005110-5600)	Plug assembly	1
	G70A	87-02		085043 (9004201-3700)	O-ring	1
	8	G04	90-20		8200408	End cap assy., twin (SB-1988-018, 1989-020, 1998-007)
G20		87-02		8700030	Journal bearing	1
G50		87-02		046151 (9005100-5600)	Plug assembly	1
G50A		87-02		085043 (9004201-3700)	O-ring	1
G51		87-02		046151 (9005100-5600)	Plug assembly	1
G51A		87-02		085043 (9004201-3700)	O-ring	1
G70		87-02		515965 (9005110-5600)	Plug assembly	1
G70A		87-02		085043 (9004201-3700)	O-ring	1



E100 839E

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

END CAP

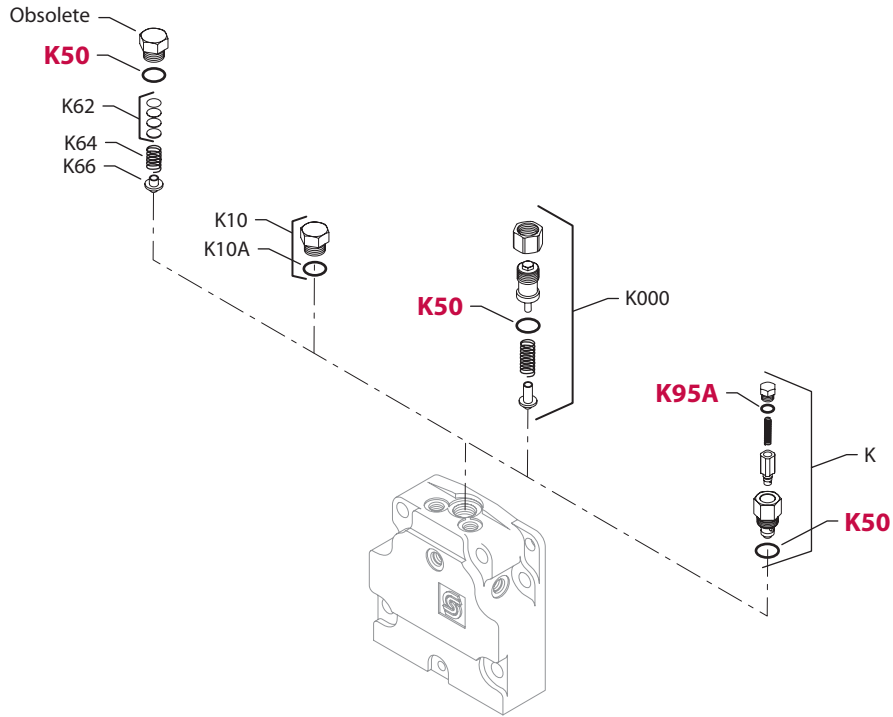
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
E	G04	95-17		8200407	End cap assembly, twin metric ports (SB-1998-007)	1
	G20	95-17		8700030	Journal bearing	1
	G50	95-17		046151 (9005100-5600)	Plug assembly	1
	G50A	95-17		085043 (9004201-3700)	O-ring	1
	G51	95-17		046151 (9005100-5600)	Plug assembly	1
	G51A	95-17		085043 (9004201-3700)	O-ring	1
	G70	95-17		515965 (9005110-5600)	Plug assembly	1
	G70A	95-17		085043 (9004201-3700)	O-ring	1
	G80	95-17		664524 (9005110-9000)	Plug assembly	1
	G80A	95-17		001156 (9004201-7500)	O-ring	1
	G81	95-17		664524 (9005110-9000)	Plug assembly	1
	G81A	95-17		001156 (9004201-7500)	O-ring	1

G	G04	98-02		8200383	End cap assembly, twin metric ports	1
	G20	98-02		8700030	Journal bearing	1
	G50	98-02		8700127	Diagnostic receptacle	1
	G50A	98-02		085043 (9004201-3700)	O-ring	1
	G51	98-02		8700127	Diagnostic receptacle	1
	G51A	98-02		085043 (9004201-3700)	O-ring	1
	G57	98-02		8700128	Dust cover	1
	G58	98-02		8700128	Dust cover	1
	G70	98-02		515965 (9005110-5600)	Plug assembly	1
	G70A	98-02		085043 (9004201-3700)	O-ring	1

LOOP FLUSHING

N	H10	89-38		8800668	Loop flushing spool, defeated	1
	H10	87-07	89-37	308486 (8800021)	Loop flushing spool, defeated (SB-1989-020)	1
	H50	87-07		046151 (9005100-5600)	Plug assembly	2
	H50A	87-07		085043 (9004201-3700)	O-ring	2

W	H10	89-38		8800550	Shuttle spool	1
	H10	89-38	89-37	674473 (8800069)	Loop flushing spool (SB-1989-020)	1
	H20	87-07	89-37	674481 (8800265)	Spring guide (SB-1989-020)	2
	H30	89-38		513596	Spring guide assembly (SB-2000-047)	2
	H30	87-07	89-37	8800067	Spring (SB-1989-020)	2
	H50	89-38		518016	Plug assembly	2
	H50	87-07	89-37	674507 (9005475-0069)	Plug assembly (SB-1989-020)	2
	H50A	87-07		085043 (9004201-3700)	O-ring	2

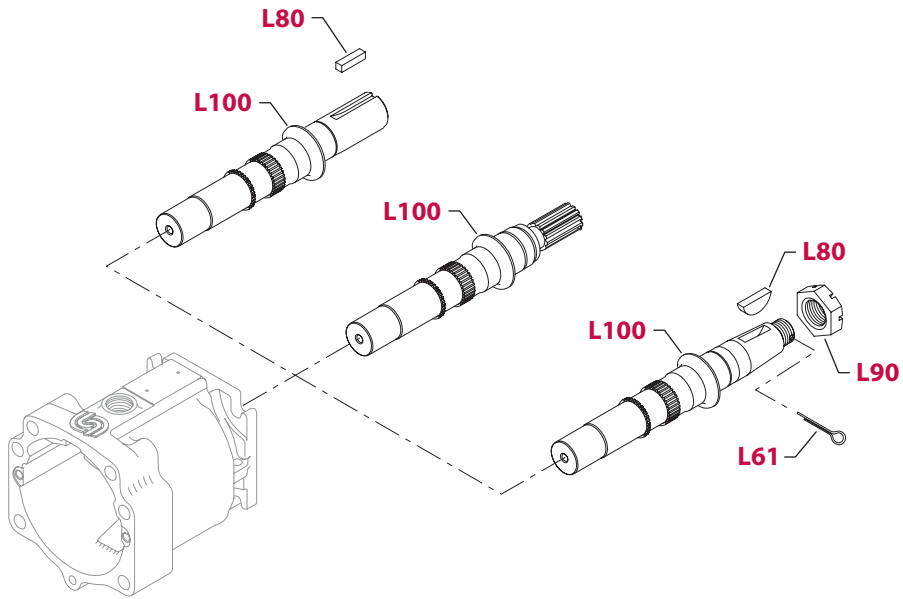


E100 823E

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	K10	89-44		001537 (9005100-8700)	Plug assembly	1
	K10	87-02	89-43	001529 (9005100-7500)	Plug assembly	1
	K10A	89-44		001149 (9004201-6200)	O-ring	1
	K10A	87-02	89-43	001131 (9004201-5000)	O-ring	1
20-24	K000	89-44		8510012	Adjustable charge relief valve kit	1
	K50	89-44		001149 (9004201-6200)	O-ring	1
	K50	87-02	89-43	001131 (9004201-5000)	O-ring	1
	K62	87-02	89-43	314716 (8800259-0001)	Shim, 010" (SB-1989-020)	1
	K62	87-02	89-43	314724 (8800259-0002)	Shim, 020" (SB-1989-020)	1
	K62	87-02	89-43	314732 (8800259-0003)	Shim, 030" (SB-1989-020)	1
	K62	87-02	89-43	314740 (8800259-0004)	Shim, 040" (SB-1989-020)	1
	K64	87-02	89-43	8800146	Spring (SB-1989-020)	1
	K66	87-02	89-43	674465 (8800238)	Poppet (SB-1989-020)	1
A0	K	89-44		8510253	Cartridge CPRV kit, 13 bar, 11 L/min	1
	K50	89-44		001149 (9004201-6200)	O-ring	1
	K95A	89-44		085043 (9004201-3700)	O-ring	2
A3	K	89-44		8510256	Cartridge CPRV kit, 13 bar, 16 L/min	1
	K50	89-44		001149 (9004201-6200)	O-ring	1
	K95A	89-44		085043 (9004201-3700)	O-ring	2
E4	K	89-44		8510261	Cartridge CPRV kit, 16 bar, 4 L/min	1
	K50	89-44		001149 (9004201-6200)	O-ring	1
	K95A	89-44		085043 (9004201-3700)	O-ring	2
E6	K	89-44		8510252	Cartridge CPRV kit, 16 bar, 7 L/min	1
	K50	89-44		001149 (9004201-6200)	O-ring	1
	K95A	89-44		085043 (9004201-3700)	O-ring	2
F0	K	89-44		8510259	Cartridge CPRV kit, 16 bar, 11 L/min	1
	K50	89-44		001149 (9004201-6200)	O-ring	1
	K95A	89-44		085043 (9004201-3700)	O-ring	2
F3	K	89-44		8510262	Cartridge CPRV kit, 16 bar, 16 L/min	1
	K50	89-44		001149 (9004201-6200)	O-ring	1
	K95A	89-44		085043 (9004201-3700)	O-ring	2
G0	K	89-44		8510260	Cartridge CPRV kit, 16 bar, 22 L/min	1
	K50	89-44		001149 (9004201-6200)	O-ring	1
	K95A	89-44		085043 (9004201-3700)	O-ring	2
G3	K	89-44		8510263	Cartridge CPRV kit, 16 bar, 27 L/min	1
	K50	89-44		001149 (9004201-6200)	O-ring	1
	K95A	89-44		085043 (9004201-3700)	O-ring	2



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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	87-07		512024	Shaft, 21 tooth spline, 16/32	1
C7	L100	87-07		8200591	Shaft, 23 tooth spline, 16/32 (SB-1996-018 & 2005-013)	1
F1	L100	87-07		8200597	Shaft, 13 tooth spline, 8/16 (SB-1996-018 & 2005-013)	1
F2	L100	87-07		8200353	Shaft, 13 tooth spline, 8/16, special (SB-1996-018)	1
G7	L100	05-21		8200591	Shaft, 23 tooth spline, 16/32	1
K3	L100	87-07		8200354	Shaft, straight key (SB-1996-018)	1
	L80	87-07		331868 (9003261-3724)	Key, .375 x 1.5	1
S1	L100	87-07		8200358	Shaft, 14 tooth spline, 12/24 (SB-1996-018)	1
S5	L100	87-07		8200356	Shaft, 17 tooth spline, 12/24 (SB-1996-018)	1
T2	L100	87-02		8200357	Shaft, tapered (SB-1996-018)	1
	L61	87-02		9004600-1230	Cotter pin	1
	L80	87-02		047878 (9003310-3724)	Woodruff key, .3730 x 1.5	1
	L90	87-02		5000606	Slotted nut	1

OVERHAUL SEAL KIT

		87-07		82030530	Overhaul seal kit, 90M100	
	G30	87-07		8200511	End cap gasket (SB-2001-011)	1
	H50A	87-07		085043 (9004201-3700)	O-ring	2
	K50	89-44		001149 (9004201-6200)	O-ring	1
	L40	87-07		9008000-0114	Lip seal	1
	L50	87-07		327627 (9004104-1540)	O-ring	1

PRODUCTS AFFECTED

Series 90 fixed motors

SUBJECT

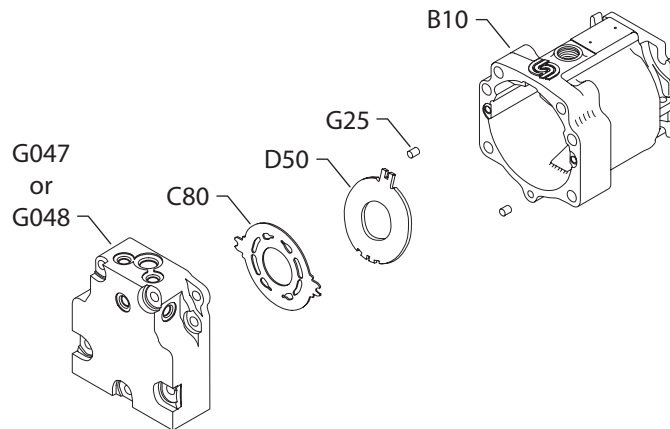
Dowel pin change

DESCRIPTION

A product change has occurred on Series 90 75 cc and 100 cc fixed displacement motors.

The dowel pins (item G25) have increased in diameter from 1/4" to 3/8". With this change, the dowel pin hole diameters in the end cap (item G047 or G048), housing (item B10), and the valve plate (item C80) have also changed. In addition, the thrust plate (item D50) in the 100 cc fixed displacement motor has also changed to fit the new housing.

This change creates spare parts non-interchangeability among all of the above mentioned parts. All of the affected parts remain available for the repair of any vintage Series 90 fixed motor. Refer to the date code portion of the serial number on the name plate of the motor being repaired when ordering parts.



MODELS AFFECTED

All 95-3xxx (75 cc) and 96-3xxx (100cc) series 90 fixed displacement motors

SERIAL NUMBERS

Series 90 75 cc fixed motors, 95-3xxx, changed at serial number A-88-43-xxxx.
 Series 90 100 cc fixed motors, 96-3xxx, changed at serial number A-88-23-xxxx.

PART NUMBERS AFFECTED

Item*	Qty/ Motor	75 cc		100 cc	
		Prior to 88-43	From 88-43	Prior to 88-23	From 88-23
G047	1	8100233	8100306	8200123	8200152
G048	1	8100232	8100279	8200122	8200151
C80	1	8100095	8100278	8200103	8200134
D50	1	No Change	No Change	8200014	8200167
G25	2	9004800-2512	9004800-3708	9004800-3116	9004800-3708
B10	1	8100252	8100465	8200099	333641

PARTS DISPOSITION

■ Non-interchangeable

PRODUCTS AFFECTED

Series 90 pumps and motors

SUBJECT

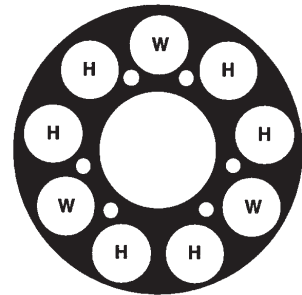
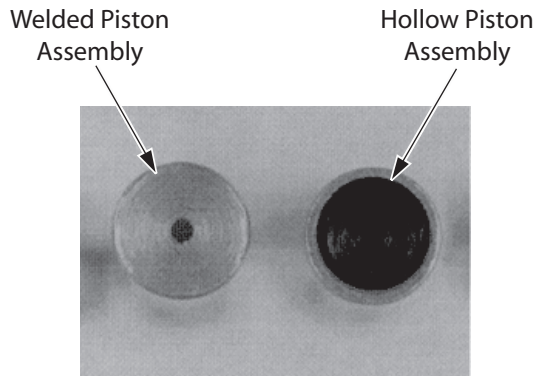
Piston improvement

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).



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 fixed displacement motors

SUBJECT

Incorporation of adjustable charge relief valve

DESCRIPTION

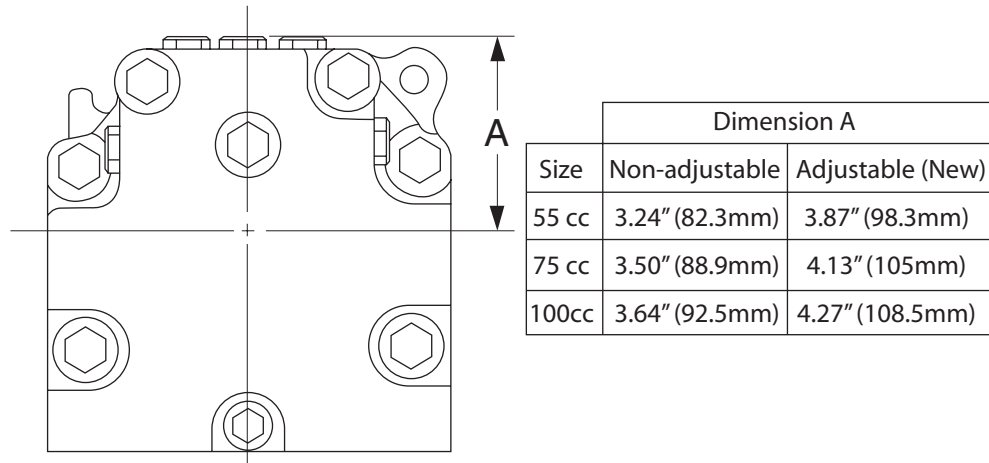
As a product improvement, Sauer-Danfoss is incorporating an externally adjustable charge relief valve on all series 90 fixed displacement motors. This design replaces the previous shimmed relief valve. The new design valve provides a range of pressure adjustment from 10 to 32 bar.

The diameter of the loop flushing shuttle spool increases from .25" (6.35mm) to .375" (9.53mm) at the same incorporation date as the charge relief valve change.

This is a non-interchangeable change. Adjustable style charge relief valves can not be added to motors manufactured before this incorporation date. Old style end caps, which house the charge relief and loop flushing valves, will not be available as service parts. If new end caps are required, new style charge relief and loop flushing parts must also be installed.

Charge relief valve adjustment procedures can be found in the Series 90 Service Manual (BLN-9947 Rev. B). Charge pressure increases/decreases at the rate of 78 psi (5.4 bar) per turn clockwise/counterclockwise.

The new style charge relief plug protrudes from the motor end cap approximately .63" (16mm) farther than the shimmed design. New dimensions from the center line to the top of the charge relief valve plug are shown below.



MODELS AFFECTED

All 94-3xxx, 95-3xxx, and 96-3xxx fixed displacement motors

SERIAL NUMBERS AFFECTED

All 55 cc motors (94-3xxx) will change at s/n A-89-38-xxxxx

All 75 cc motors (95-3xxx) will change at s/n A-89-44-xxxxx

PART NUMBERS AFFECTED

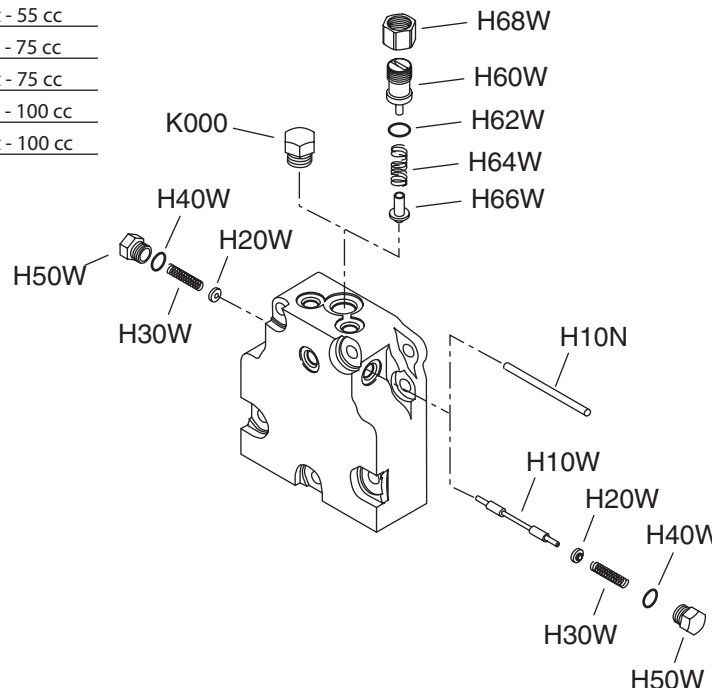
All 100 cc motors (96-3xxx) will change at s/n A-90-20-xxxxx
Charge relief and loop flushing hardware for old vintage motors can be found in the Series 90 Parts Manual (520L0890). The new part numbers are as follows:

New charge relief and loop flushing hardware

Item	Part number	Description	Qty
K90	9003575-0101	Nut	1
K10	8800488-1000	Plug assembly	1
K50	9004201-6200	O-ring	1
K70	8800476	Spring	1
K80	8800449	Poppet	1
K000	9005100-8700	Plug assembly	1
H10W	8800550	Shuttle valve spool	1
H20W	8800551	Washer	2
H30W	364950	Spring	2
H40W	9004201-3700	O-ring	2
H50W	9005475-0097	Plug assembly	2
H10N	8800552	Loop flushing spool, defeated	1

New end caps

Part number	Description
8000196	Twin port - 55 cc
8000197	Axial port - 55 cc
8100373	Twin port - 75 cc
8100374	Axial port - 75 cc
8200188	Twin port - 100 cc
8200189	Axial port - 100 cc



PARTS DISPOSITION

■ Non-interchangeable



PRODUCTS AFFECTED Series 90 55 - 100 cc fixed and variable motors

SUBJECT Motor shaft change

DESCRIPTION As a product improvement, Sauer-Danfoss is changing the design of the output shaft used in 55 thru 100 cc fixed and variable motors.

The surface finish for the rear shaft bearing has been improved.

The new style shaft can be used in place of the old style shaft. The old style shafts are obsolete and no longer available as a service part.

MODELS AFFECTED All 943xxx, 944xxxx, 953xxxx, 954xxxx, and 963xxxx motors

SERIAL NUMBERS This change became effective at serial number A-97-02-xxxxx and beyond

PART NUMBERS AFFECTED

55 cc Motors			75 cc Motors		
Shaft code/type	Old p/n	New p/n	Shaft code/type	Old p/n	New p/n
'C6"/mf	8000122	8000501	'C6"/mf	8100304	8100595
"K1"/mf	8000176	8000502	"C7"/mf	8100257	8100596
"S1"/mf	8000113	8000503	"K2"/mf	8100309	8100597
"S1"/mv	8000226	8000505	"K2"/mv	8100584	8100601
"S7"/mv	8000238	8000506	"S1"/mf	8100256	8100598
"T1"/mf	8000209	8000504	"S1"/mv	8100396	8100604
			"S3"/mf	8100239	8100599
100 cc Motors			"S7"/mv	8100445	8100602
Shaft code/type	Old p/n	New p/n	"T2"/mf	8100415	8100600
'C7"/mf	8200111	8200351			
"F1"/mf	8200109	8200352			
"F2"/mf	8200204	8200353			
"K3"/mf	8200165	8200354			
"S1"/mf	8200206	8200358			
"S3"/mf	8200110	8200355			
"S5"/mf	8200311	8200356			
"T2"/mf	8200201	8200357			

PARTS DISPOSITION ■ Interchangeable

PRODUCTS AFFECTED

Series 90 55cc, 75cc, and 100cc fixed displacement motors, and 55cc and 75cc variable displacement motors

SUBJECT

Charge relief seat

DESCRIPTION

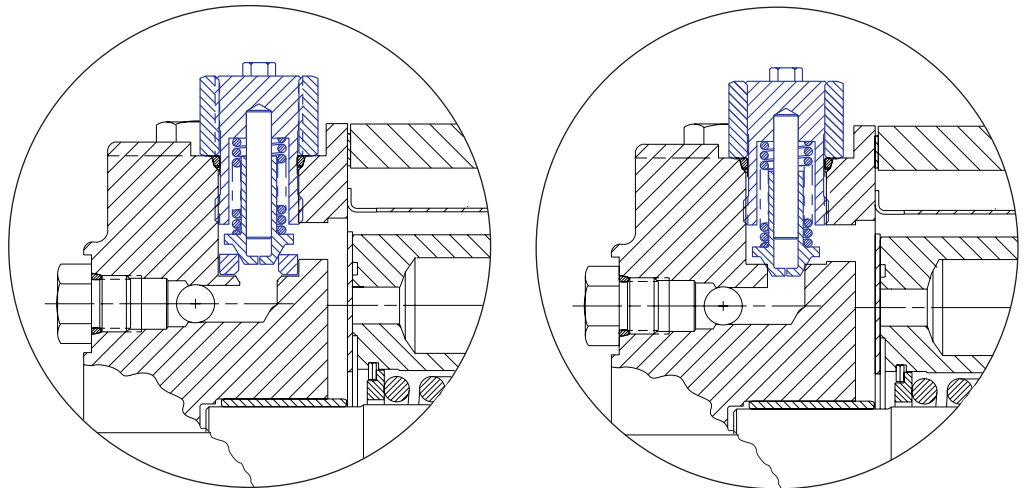
Sauer-Danfoss has initiated a change to the end caps used on series 90 55cc, 75cc, and 100cc fixed displacement motors, and the series 90 55cc and 75cc variable displacement motors.

Currently, the end caps used on these motors contain a pressed in insert, which serves as a seat for the charge pressure relief valve assembly. The insert was originally introduced to provide a suitable wear surface for the charge pressure relief valve poppet.

Since the original design, a number of changes to the charge pressure relief valve design have reduced the severity of the wear characteristics between the poppet and relief seat. These changes have now made it possible to remove the insert from the end cap assembly. The design of the motor end cap has been modified in a manner that allows the charge relief poppet to seat directly against the casting machined surface.

The removal of the insert was initially introduced with the series 90 130cc motors in 1995, and with this change a more uniform product family is achieved.

To aid in identifying and tracking this change, Sauer-Danfoss has released new end cap part numbers. The new end cap is directly interchangeable with the previous end cap and with adjustable charge pressure relief valve components. The previous end cap part numbers will no longer be available as service parts. Page 2 of this bulletin provides part number cross-reference information.





MODELS AFFECTED

All 94-3xxx, 943xxxx, 95-3xxx, 953xxxx, 96-3xxx, and 963xxxx fixed displacement motors
 All 94-4xxx, 944xxxx, 95-4xxx, 954xxxx variable displacement motors

SERIAL NUMBERS AFFECTED

Change became effective with s/n A-98-34-xxxxx and beyond

PART NUMBERS AFFECTED

Motor type	Displacement	Order code	Porting	Split flange thread	Prior to 98-34	Current
Fixed	55 cc	D	Twin	Metric	8000417	8000593
Fixed	55 cc	1 & 8	Twin	English	8000196	8000594
Fixed	55 cc	3 & 7	Axial	English	8000197	8000596
Variable	55 cc	R	Twin	Metric	8000356	8000598
Variable	55 cc	1 & 8	Twin	English	8000335	8000599
Fixed	75 cc	D	Twin	Metric	8100576	8100731
Fixed	75 cc	1 & 8	Twin	English	8100373	8100733
Fixed	75 cc	3 & 7	Axial	English	8100374	8100734
Variable	75 cc	1 & 8	Twin	English	8100442	8100737
Fixed	100 cc	E	Twin	English	8200319	8200407
Fixed	100 cc	1 & 8	Twin	English	8200188	8200408
Fixed	100 cc	3 & 7	Axial	English	8200189	8200409

PARTS DISPOSITION

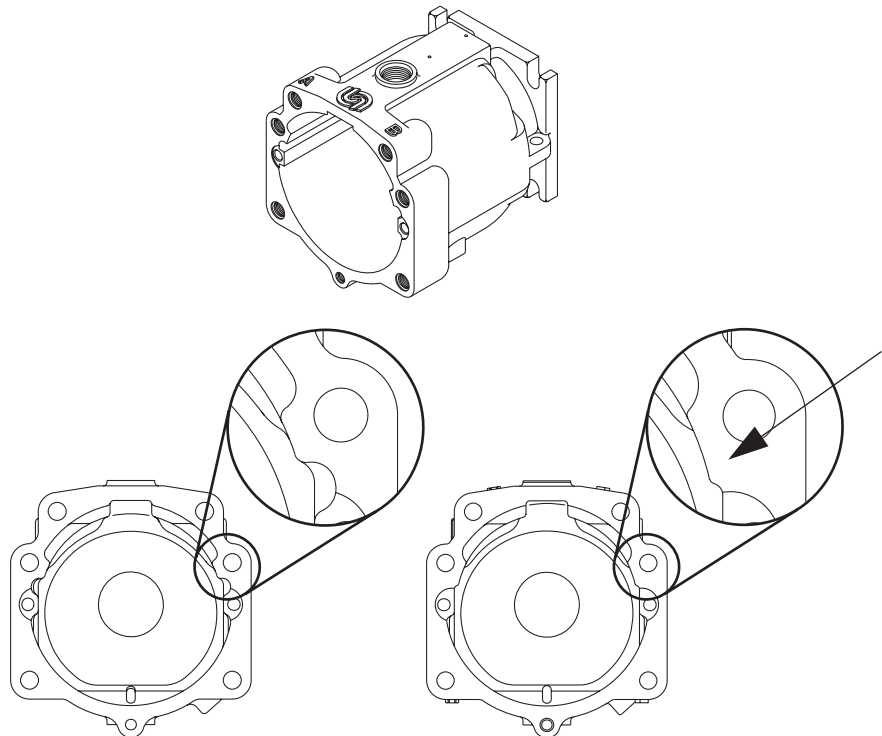
■ Interchangeable

PRODUCTS AFFECTED Series 90100cc fixed displacement motors

SUBJECT Motor housing change

DESCRIPTION Sauer-Danfoss has introduced a design change to the motor housings used on all series 90 100cc fixed displacement motors. The housing strength has been increased in the area of the casting ribs, by increasing the size of the rib. This change will reduce the potential for cracking the rib of the housing when tightening the two shorter end cap bolts.

To assist in identifying this change, Sauer-Danfoss has released a new housing part number. The new housing is completely interchangeable with the previous housing. The previous housing has been obsoleted and is no longer available.



MODELS AFFECTED All 96-3xxx, and 963xxxx fixed displacement motors.

SERIAL NUMBERS Sauer-Danfoss Ames Production - Effective on motor serial number A-99-44-xxxxx
 Sauer-Danfoss Neumunster Production - Effective on motor serial number N-99-45-xxxxx.
 Sauer-Danfoss Shanghai Production- effective during the fourth quarter of 2000.

PART NUMBERS AFFECTED

Description	Previous Housing	New Housing
motor housing - MF	8200230	8200447

PARTS DISPOSITION ■ Interchangeable

PRODUCTS AFFECTED

Series 90 42cc, 55cc, 75cc, and 100cc fixed displacement motors, and 55cc and 75cc variable displacement motors

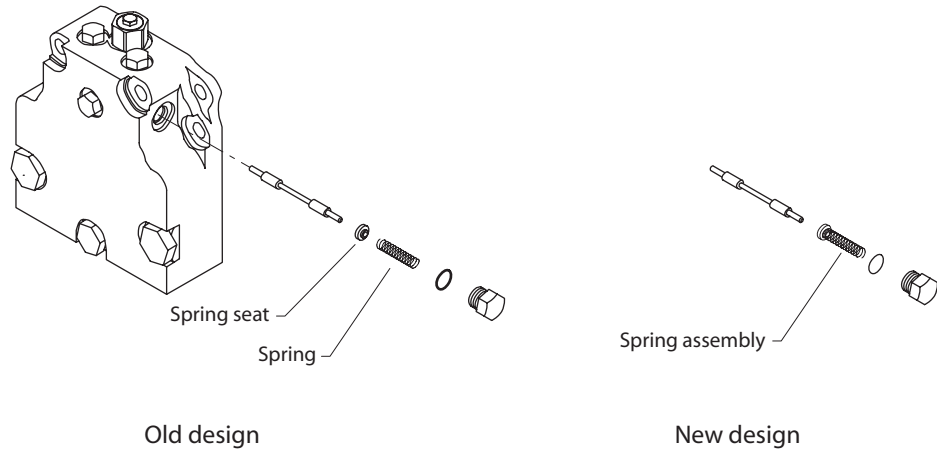
SUBJECT

Loop flushing spring and spring seat change

DESCRIPTION

As a product improvement, Sauer-Danfoss has changed the design of the spring and spring seat for the series 90 42cc, 55cc, 75cc, and 100cc fixed and variable displacement motors. The old design used a separate spring and spring seat. The new design incorporates the two parts into a one piece assembly. This makes the assembly of the spring and spring seat onto the spool much easier than the previous design.

Since the new spring assembly has a high spring rate than the previous spring, this is an interchangeable change only if both springs and spring seats are replaced at the same time. Sauer-Danfoss has issued a new part number for the spring assembly. The previous spring seat and spring remain valid service parts since they are used on other Sauer-Danfoss products.



MODELS AFFECTED

All 93-3xxx, 933xxxx, 94-3xxx, 943xxxx, 95-3xxx, 953xxxx, 96-3xxx, and 963xxxx fixed displacement motors with loop flushing options of A, B, or C.

All 94-4xxx, 944xxxx, 95-4xxx, and 954xxxx variable displacement motors with loop flushing options of A, B, or C.

SERIAL NUMBERS

Sauer-Danfoss Ames, Ia production - Change effective at s/n A-02-03-xxxxx.

Sauer-Danfoss Neumunster, Germany production - Change effective at s/n N-01-08-xxxxx..

PART NUMBERS AFFECTED

Previous spring seat	Previous spring	New spring assembly
8800551	4350286	513596

PARTS DISPOSITION

■ Interchangeable

PRODUCTS AFFECTED

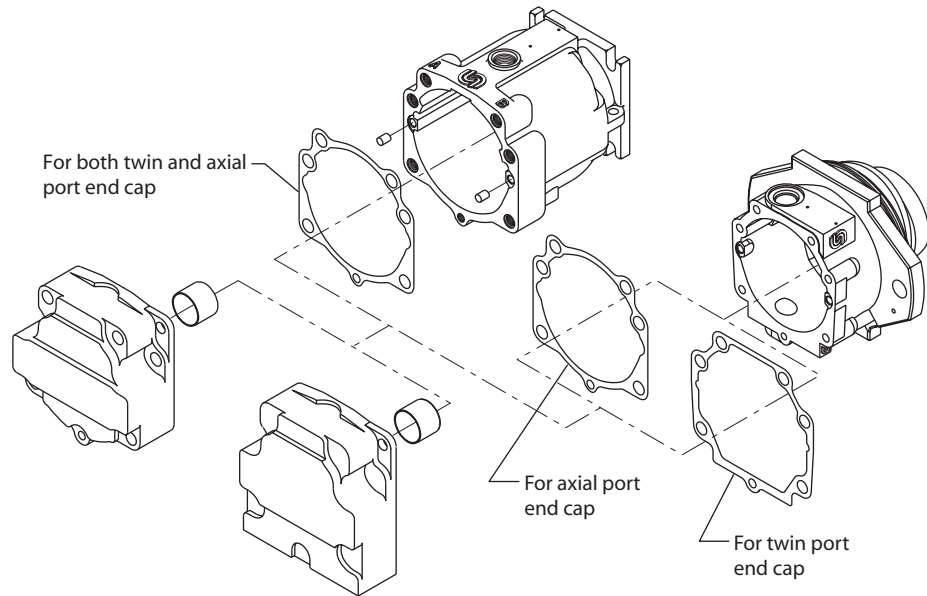
Series 90 55cc, 75cc, and 100cc fixed displacement motors

SUBJECT

Change to end cap gasket material

DESCRIPTION

The end cap gasket material has changed. Sauer-Danfoss has issued new end cap gasket part numbers. The previous part numbers are obsolete. They are no longer available for service.



MODELS AFFECTED

All 94-3xxx, 943xxxx, 95-3xxx, 953xxxx, 96-3xxx, and 963xxxx fixed displacement motors.

SERIAL NUMBERS

Sauer-Danfoss Ames, Ia production - Change effective at s/n A-01-19-xxxxx.

Sauer-Danfoss Neumunster, Germany production - Change effective at s/n N-01-19-xxxxx..

PART NUMBERS AFFECTED

Frame size	Mounting flange (end cap porting)	Previous end cap gasket	New end cap gasket
55 cc	SAE (all), cartridge (axial)	8000167	8000721
55 cc	Cartridge (twin)	8000603	8000720
75 cc	SAE (all), cartridge (axial)	8100311	8100875
75 cc	Cartridge (twin)	8100749	8100874
100 cc	Sae (all)	8200102	8200511

This change also affects these service kits: 80030S030, 81030S30, and 82030S30

PARTS DISPOSITION

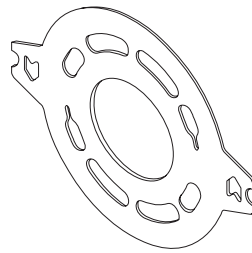
■ Interchangeable



PRODUCTS AFFECTED Series 90 55cc pumps and motors, and 75 - 100 cc motors

SUBJECT Consolidation of valve plate part numbers

DESCRIPTION Sauer-Danfoss has consolidated the part numbers for some of the series 90 pump and motor valve plates. Our plant in Germany has been producing the valve plates for series 90 pumps and motors since August 7, 2001. The U.S. plant has its part number for these valve plates as the German plant has its part number. The U.S. plant will now use the German part number. This obsoletes the U.S. part numbers. Since the parts are the same, the part number are interchangeable.



MODELS AFFECTED All series 90 75 cc pumps and motors, 75 cc motors, and 100 cc motors.

SERIAL NUMBERS This change became effective at s/n A-02-46-xxxxx.

PART NUMBERS AFFECTED

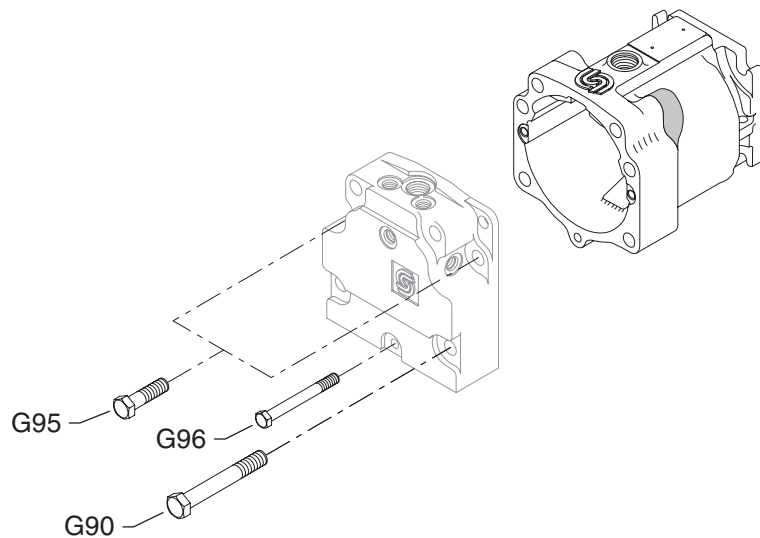
Description	Old part number	New part number
Valve plate, 75 cc pump	8000071	314427
Valve plate, 75 cc motor	8000132	329748
Valve plate, 75 cc motor	8100278	323766
Valve plate, 100 cc motor	8200134	324137

PARTS DISPOSITION ■ Non-interchangeable

PRODUCTS AFFECTED Series 90 100 cc fixed displacement motors

SUBJECT Housing change to accept long screws

DESCRIPTION Sauer-Danfoss has changed the housing used in series 90 100 cc fixed motors. Material was added at the area of the two shorter end cap mounting screws (G95). The hole for these screws is now deeper to accept the longer screw (G90) that is used for the other four large end cap mounting screws. The six larger screws will have the same stretch and therefore the same clamping force for the gasket sealing area. The smaller end cap mounting screw (G96) remains the same. The “old” housing and the short screws will become obsolete and no longer available for service.



MODELS AFFECTED All series 90 100 cc fixed displacement motors

SERIAL NUMBERS US production started on 5 April 2004 (s/n A-04-15-xxxxx)

PART NUMBERS AFFECTED

Description	Old part number	New part number
Housing	8200447	8200509
Screw (G95)	9007210-1609	9007210-1617

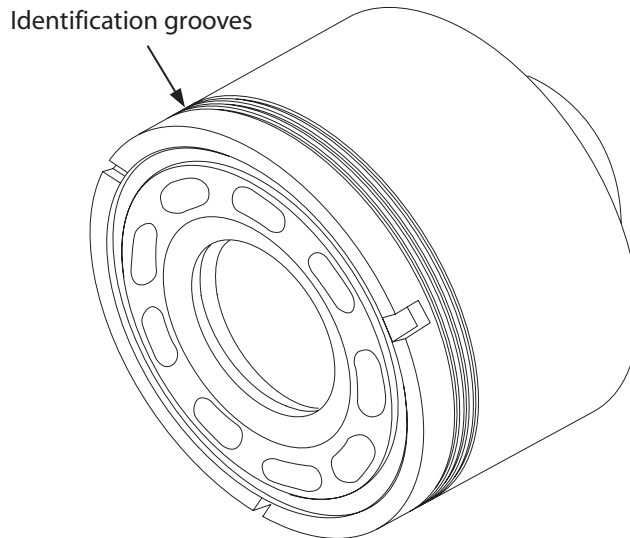
PARTS DISPOSITION ■ Non-interchangeable

PRODUCTS AFFECTED Series 90 100 cc fixed displacement motors

SUBJECT Cylinder block change

DESCRIPTION As a product improvement, Sauer Danfoss has added a special process to the spline area of the cylinder block used in series 90, 100 cc fixed displacement motors. Three identification grooves will be added to these blocks to indicate this change. All other dimensions of the cylinder block remain the same.

Production built variable pumps will still use the standard cylinder blocks, however cylinder block assembly service kits will contain the “special process” cylinder block, whether they will be used in pumps or motors.



MODELS AFFECTED Series 90 100 cc fixed displacement motors.

SERIAL NUMBERS This change became effective at serial number A-05-41-xxxxx.

PART NUMBERS AFFECTED

Old p/n	New p/n
8200124	8200570
82020S05	8510368
82030S05	8510369
82030S07	8510370
8510086	8510371
82020S07	8510372
8200277	8200574

PARTS DISPOSITION ■ Interchangeable

PRODUCTS AFFECTED	Series 90 55 and 100 cc fixed displacement motors
SUBJECT	Shaft material change
DESCRIPTION	As a product improvement, Sauer-Danfoss has changed to a different material on some series 90 fixed motor shafts. The 23 and 13 tooth spline shafts in 100 cc motors, and the 21 tooth spline shaft in 55 cc motors have changed. The part number of the shafts will be changed for tracking purposes. The new shafts are interchangeable with the old. The old shaft part numbers will become obsolete and no longer available for service.
MODELS AFFECTED	Series 90 55 and 100 cc fixed displacement motors.
SERIAL NUMBERS	<p>This change became effective at serial number A-06-06-xxxxx & S-05-49-xxxxx for 23 tooth spline (100 cc)</p> <p>This change became effective at serial number A-05-41-46568 & S-05-41-xxxxx for 13 tooth spline (100 cc)</p> <p>This change became effective at serial number A-06-06-xxxxx & S-05-49-xxxxx for 21 tooth spline (55 cc)</p>
PART NUMBERS AFFECTED	<p>From 8200352 to 8200597 for 13 tooth spline (100 cc)</p> <p>From 8200351 to 8200591 for 23 tooth spline (100 cc)</p> <p>From 8000501 to 8000825 for 21tooth spline (55 cc)</p>
PARTS DISPOSITION	■ Interchangeable



OUR PRODUCTS

Hydrostatic transmissions
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Electric power steering
Electrohydraulic power steering
Closed and open circuit axial piston pumps and motors
Gear pumps and motors
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Microcontrollers and software
Electric motors and inverters
Joysticks and control handles
Displays
Sensors

Sauer-Danfoss Mobile Power and Control Systems – Market Leaders Worldwide

Sauer-Danfoss is a comprehensive supplier providing complete systems to the global mobile market.

Sauer-Danfoss serves markets such as agriculture, construction, road building, material handling, municipal, forestry, turf care, and many others.

We offer our customers optimum solutions for their needs and develop new products and systems in close cooperation and partnership with them.

Sauer-Danfoss specializes in integrating a full range of system components to provide vehicle designers with the most advanced total system design.

Sauer-Danfoss provides comprehensive worldwide service for its products through an extensive network of Global Service Partners strategically located in all parts of the world.

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