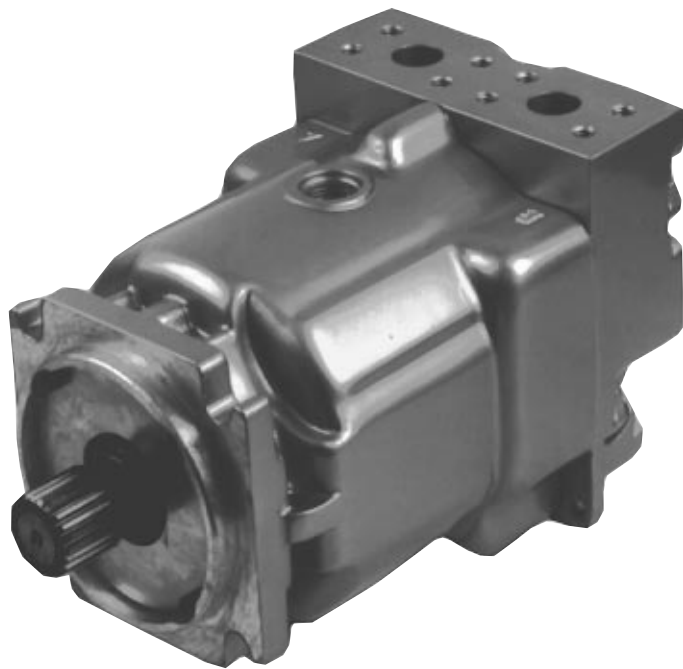

Series 90



75 cc - Axial Piston

Motor

Service Parts Manual

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Service Parts Identification

The following information and procedure is used to identify the module group, item number, manufactured date, part number, and part name of the parts included in the Series 90 Motors.

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

- Nameplate -

Each motor will have a nameplate affixed to the housing. The name plate will include the following information.

Model Code
The Sauer-Sundstrand model code completely defines the specific unit and must be used when ordering the complete unit for the first time or for ordering parts to service the product.

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

Serial Number
The Sauer-Sundstrand serial number is used to identify the manufacturing location, manufacturing date and the unit sequence in the build. The serial number is also used to identify the unit's warranty time period.

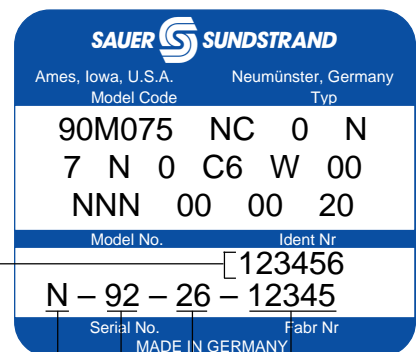
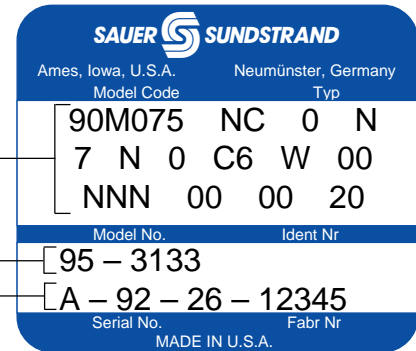
Identification Number
Motors manufactured in Germany will have an identification number instead of a model number.

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 Neumünster, Germany.

The first number (2 digits) indicates the year of manufacture. ("92" would indicate the unit was manufactured in 1992)

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 via the nameplate to determine which service part number you need to order.

EXAMPLE: The service part desired is Item H10N.

<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
N	H10N	89-38 →	8800668	Loop flush defeat spool	1
	"	87-02 → 89-37	8800021	Loop flush defeat spool (SB-8920)	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 up must use part number "8800668".

Service Bulletins

A Service Bulletin Number (SB- _ _ _ _) may follow the "Description" of the part you desire. You must read that Service Bulletin prior to ordering that part. A copy of each of 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 Given Part/Part Number

General

The modular design of Series 90 units results in a simplified Service Parts List and Part Identification Procedure.

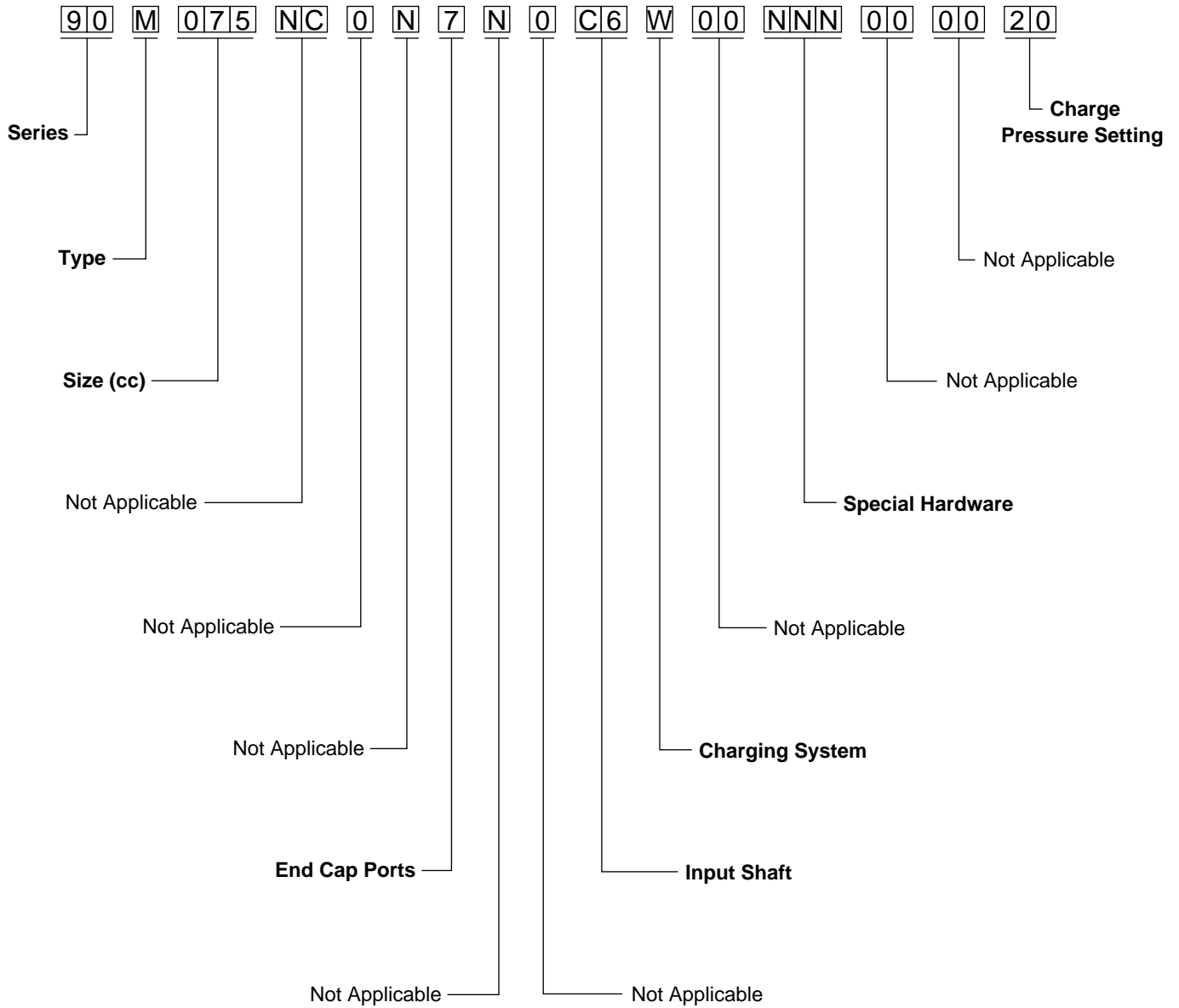
The same item numbers are used for same part description on all units within a product type. (Example: The lip seal - Item Number L40 has the same item number on all motors.)

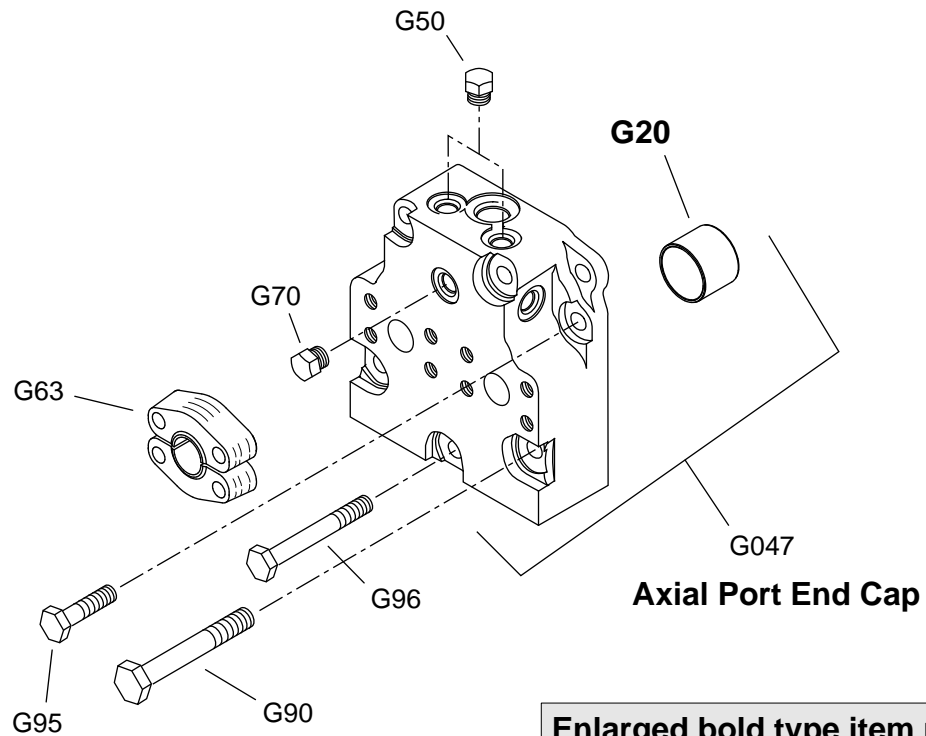
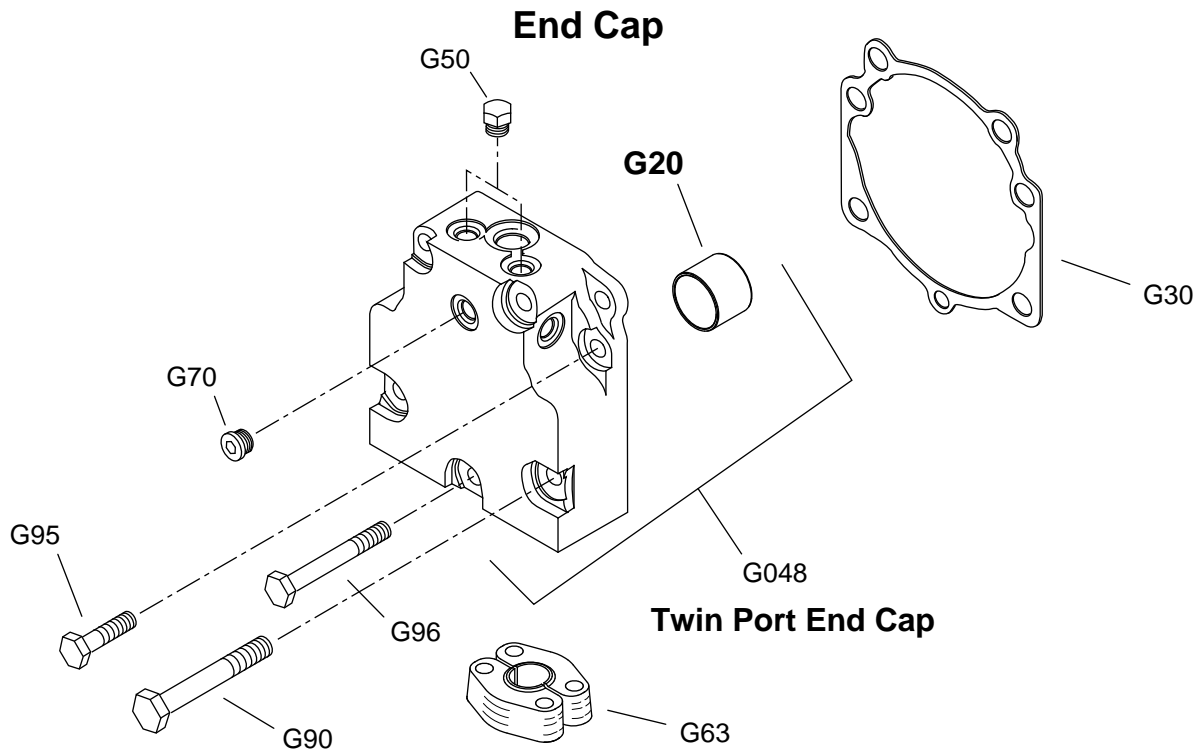
All Item Numbers begin with a letter. The letter identifies a particular module. (Example: any items beginning with "K" relate to the charge relief valve; items beginning with "L" relate to the drive shaft components, etc.)

Example of a Part Identification

The nameplate on a Series 90 motor has an Order Code of 90M075 NC 0 N 7 N 0 C6 W 00 NNN 00 00 20. Use the following procedures to determine the part number of the drive shaft used on this motor.

- 1) Referring to the input shaft module, in the Order Code (see page 5), the input shaft option for this unit is identified by the code "C6" (90M075 NC 0 N 7 N 0 C6 W 00 NNN 00 00 20)
- 2) Referring to the Service Parts List, find the shaft group. Next find the order code that relates to this unit, which is "C6". The shaft is found to be item L1 and part number 8000122.





**Enlarged bold type item numbers
are Recommended parts to be
stocked for servicing.**



75 cc Fixed Displacement Motor

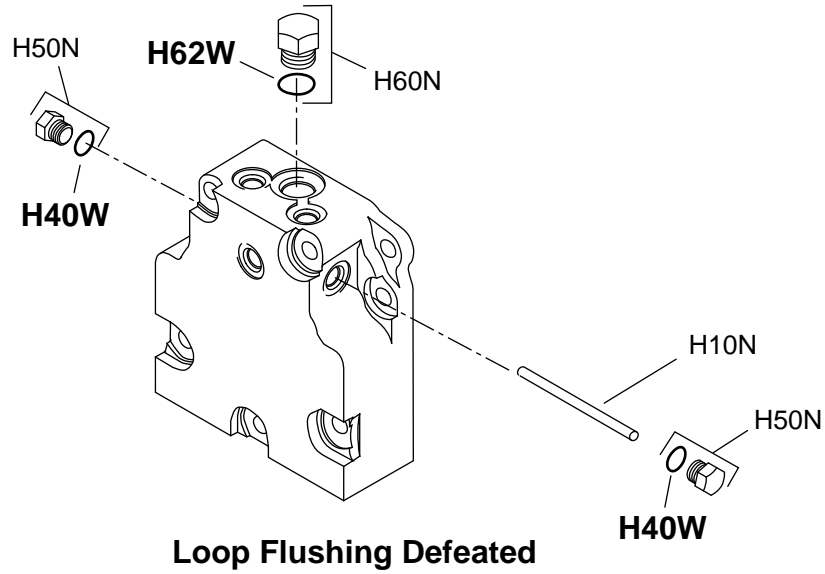
<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
	G30	87-02 →	8100311	End cap gasket	1
	G50	87-02 →	9005100-5600	Plug	2
	G70	87-02 →	9005110-5600	Plug	1
	G90	87-02 →	9007210-1216	Screw	4
	G95	87-02 →	9007210-1209	Screw	2
	G96	87-02 →	9007210-1016	Screw	1

End Cap

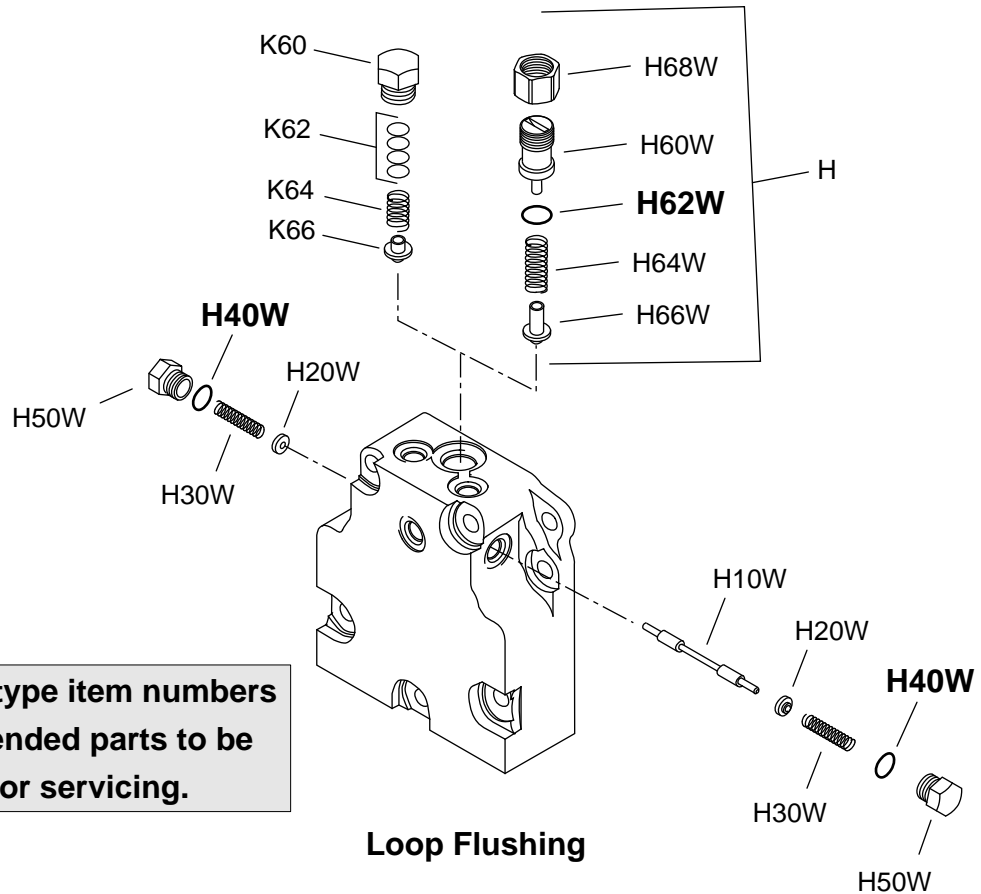
1	G048	89-44 →	8100373	End cap assy., twin ports (SB-8920)	1
	G20	87-02 →	8700013	Journal bearing	1
	G63	87-02 →	8700074	Split clamp (code 61 hose)	4
3	G047	89-44 →	8100374	End cap assy., axial ports (SB-8920)	1
	G20	87-02 →	8700013	Journal bearing	1
	G63	87-02 →	8700074	Split clamp (code 61 hose)	4
7	G047	89-44 →	8100374	End cap assy., axial ports (SB-8920)	1
	G20	87-02 →	8700013	Journal bearing	1
8	G048	89-44 →	8100373	End cap assy., twin ports (SB-8920)	1
	G20	87-02 →	8700013	Journal bearing	1

Bold Items indicate recommended parts to be stocked for servicing

Charging System



Loop Flushing Defeated



Enlarged bold type item numbers are Recommended parts to be stocked for servicing.

Loop Flushing



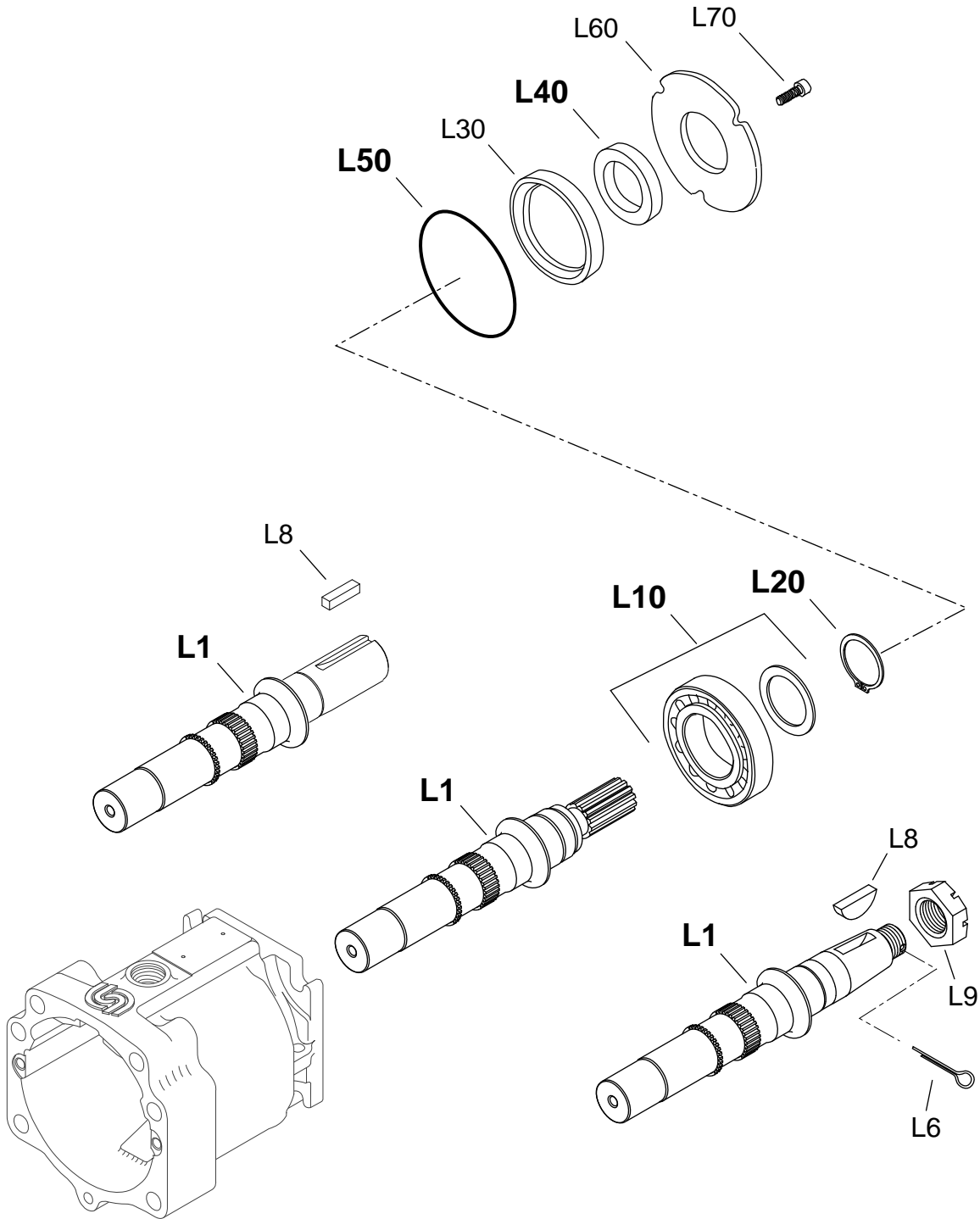
75 cc Fixed Displacement Motor

Charging System

Order Code	Item	Date Code Begin → End	Part Number	Description	Qty. per Model/Kit
N	H10N	89-38 →	8800668	Loop flush defeat spool	1
	"	87-02 → 89-37	8800021	Loop flush defeat spool (SB-8920)	1
	H50N	87-02 →	9005100-5600	Plug assembly	2
	H40W	87-02 →	9004201-3700	O-ring	2
	H60N	87-02 →	9005100-8700	Plug assembly	1
	H62W	87-02 →	9004201-6200	O-ring	2
W	H	89-38 →	8510012	Adj. charge relief kit (SB-8920)	1
	H60W	89-38 →	8800488-1000	Plug assembly (SB-8920)	1
	H62W	89-38 →	9004201-6200	O-ring	1
	H64W	89-38 →	8800476	Spring (SB-8920)	1
	H66W	89-38 →	8800449	Poppet (SB-8920)	1
	H68W	89-38 →	9003575-0101	Nut (SB-8920)	1
	N10W	89-38 →	8800550	Shuttle valve spool (SB-8920)	1
	"	87-02 → 89-37	8800069	Shuttle valve spool	1
	H20W	89-38 →	8800551	Spring guide (SB-8920)	2
	"	87-02 → 89-37	8800265	Spring guide	2
	H30W	89-38 →	4350286	Spring (SB-8920)	2
	"	87-02 → 89-37	8800067	Spring	2
	H40W	87-02 →	9004201-3700	O-ring	2
	H50W	89-38 →	9005475-0097	Plug (SB-8920)	2
	"	87-02 → 89-37	9005475-0069	Plug	2
	K60	87-02 → 89-37	8800481	Plug assembly (SB-8920)	1
	K62	87-02 → 89-37	8800259-0001	Shim, .010" (SB-8920)	1
	"	87-02 → 89-37	8800259-0002	Shim, .020"	1
	"	87-02 → 89-37	8800259-0003	Shim, .030"	1
	"	87-02 → 89-37	8800259-0004	Shim, .040"	1
	K64	87-02 → 89-37	8800146	Spring (SB-8920)	1
	K66	87-02 → 89-37	8800238	Poppet (SB-8920)	1

Bold Items indicate recommended parts to be stocked for servicing

Shaft



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75 cc Fixed Displacement Motor

Shaft Seal

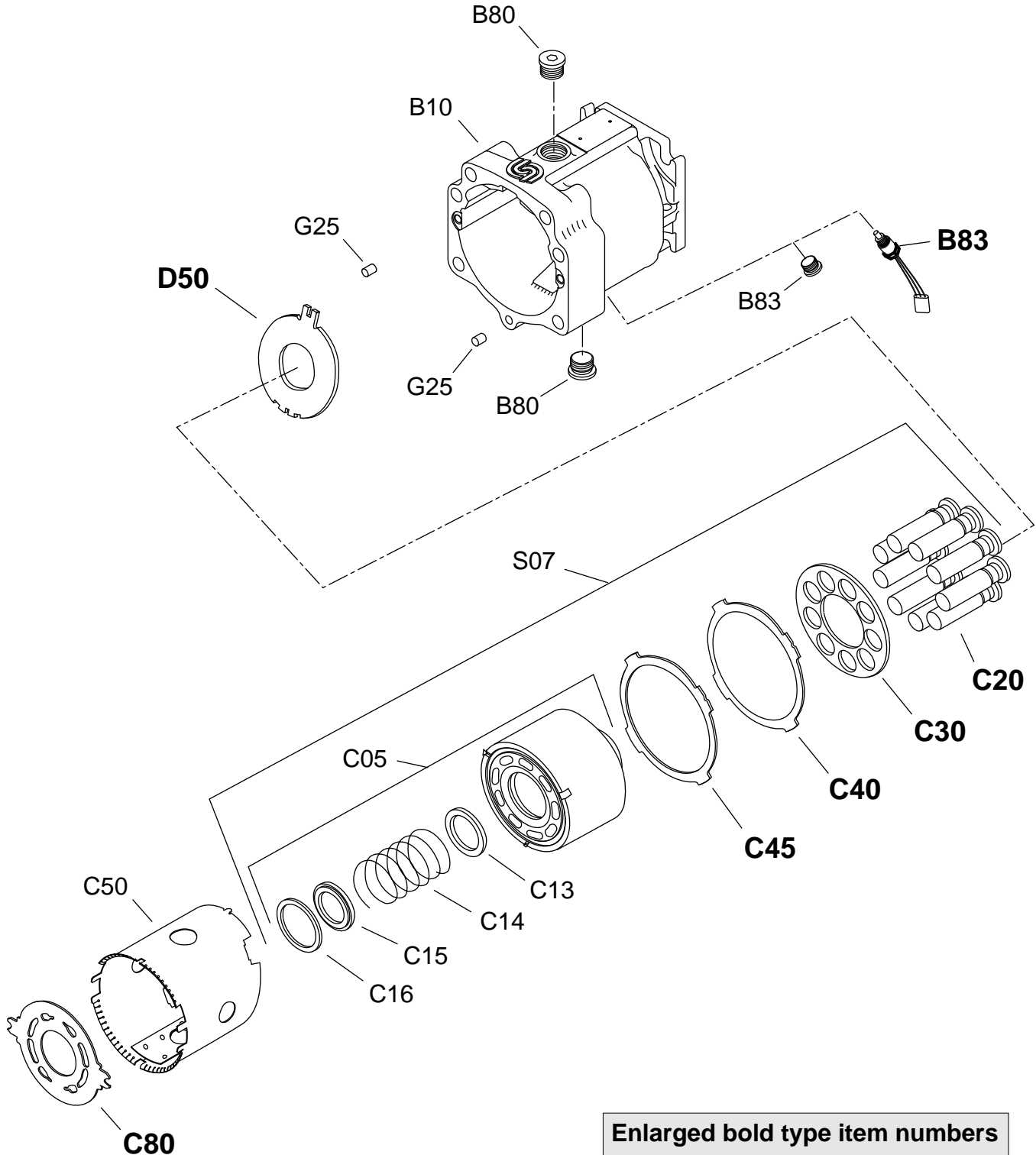
<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin → End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
	L10	87-02 →	684076	Roller bearing	1
	L20	87-02 →	9006300-0156	Retaining ring	1
	L30	87-02 →	776971	Seal carrier (SB-9311)	1
	L40	87-02 →	9008000-0115	Lip seal	1
	L50	87-02 →	9004104-1530	O-ring	1
	L60	87-02 →	776955	Retainer plate (SB-9311)	1
	L70	87-02 →	9007314-0605	Screw	3

Shaft

C6	L1	87-02 →	8100304	Shaft, 21 tooth, 16/32 pitch	1
C7	L1	87-02 →	8100257	Shaft, 23 tooth, 16/32 pitch	1
K2	L1	87-02 →	8100309	Shaft, 1.50 straight key	1
	L7	87-02 →	9003261-3724	Square key, .375 x 1.5"	1
S1	L1	87-02 →	8100256	Shaft, 14 tooth, 12/24 pitch	1
T2	L1	87-02 →	8100415	Shaft, 1.375 D/1.5 taper	1
	L6	87-02 →	9004600-1230	Cotter pin	1
	L8	87-02 →	9003310-3724	Woodruff key, .3730 x 1.5"	1
	L9	87-02 →	9700169	Slotted nut	1

Bold Items indicate recommended parts to be stocked for servicing

Special Hardware



**Enlarged bold type item numbers
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stocked for servicing.**



75 cc Fixed Displacement Motor

Order Code	Item	Date Code Begin → End	Part Number	Description	Qty. per Model/Kit
	B10	88-43 →	8100465	Housing (SB-8818)	1
	"	87-02 → 88-42	8100252	Housing	1
	B80	87-02 →	9005110-9000	Plug	2
	C20	87-02 →	708230	Welded piston (SB-8823)	9
	C30	87-02 →	8100007	Slipper guide	1
	C40	87-02 →	8100271	Slipper guide retainer	1
	C45	87-02 →	8100272	Slipper guide retainer shim	1
	C50	87-02 →	8100475	Hold down tube	1
	C80	88-43 →	8100278	Valve plate (SB-8818)	1
	"	87-02 → 88-42	8100095	Valve plate	1
	D50	87-02 →	8100156	Thrust plate	1
	G25	87-02 →	9004800-3708	Pin (SB-8818)	2
	"	87-02 → 88-42	9004800-2512	Pin	2
	S07	93-07 →	81030S07	Cylinder block kit w/o speed ring	1
	C05	93-07 →	8100267	Cylinder block assy. w/o speed ring	1
	C13	93-07 →	8100103	Spring seat	1
	C14	93-07 →	8100074	Cylinder block spring	1
	C15	93-07 →	8100127	Spring retainer	1
	C16	93-07 →	9006275-0027	Retaining ring	1
	C20	93-07 →	708230	Welded piston	9
	C30	93-07 →	8100007	Slipper guide	1
	C40	93-07 →	8100271	Slipper guide retainer	1
	C45	93-07 →	8100272	Slipper guide retainer shim	1

Special Hardware

EAA	C05	87-02 →	8100525	Cylinder block assembly w/speed ring	1
	B83	87-02 →	KPPC125	Speed sensor	1
EBA	C05	87-02 →	8100525	Cylinder block assembly w/speed ring	1
	B83	87-02 →	KPPB134	Speed sensor	1
NNN	C05	87-02 →	8100267	Cylinder block assy. w/o speed ring	1
	B83	87-02 →	9005110-5600	Plug assembly	1

Overhaul Seal Kit

	S30	89-17 →	81030S30	Overhaul seal kit, 055 MF	1
	G30	87-02 →	8100311	End cap gasket	1
	H40W	87-02 →	9004201-3700	O-ring	2
	H62W	89-38 →	9004201-6200	O-ring	1
	L40	87-02 →	9008000-0115	Lip seal	1
	L50	87-02 →	9004104-1530	O-ring	1

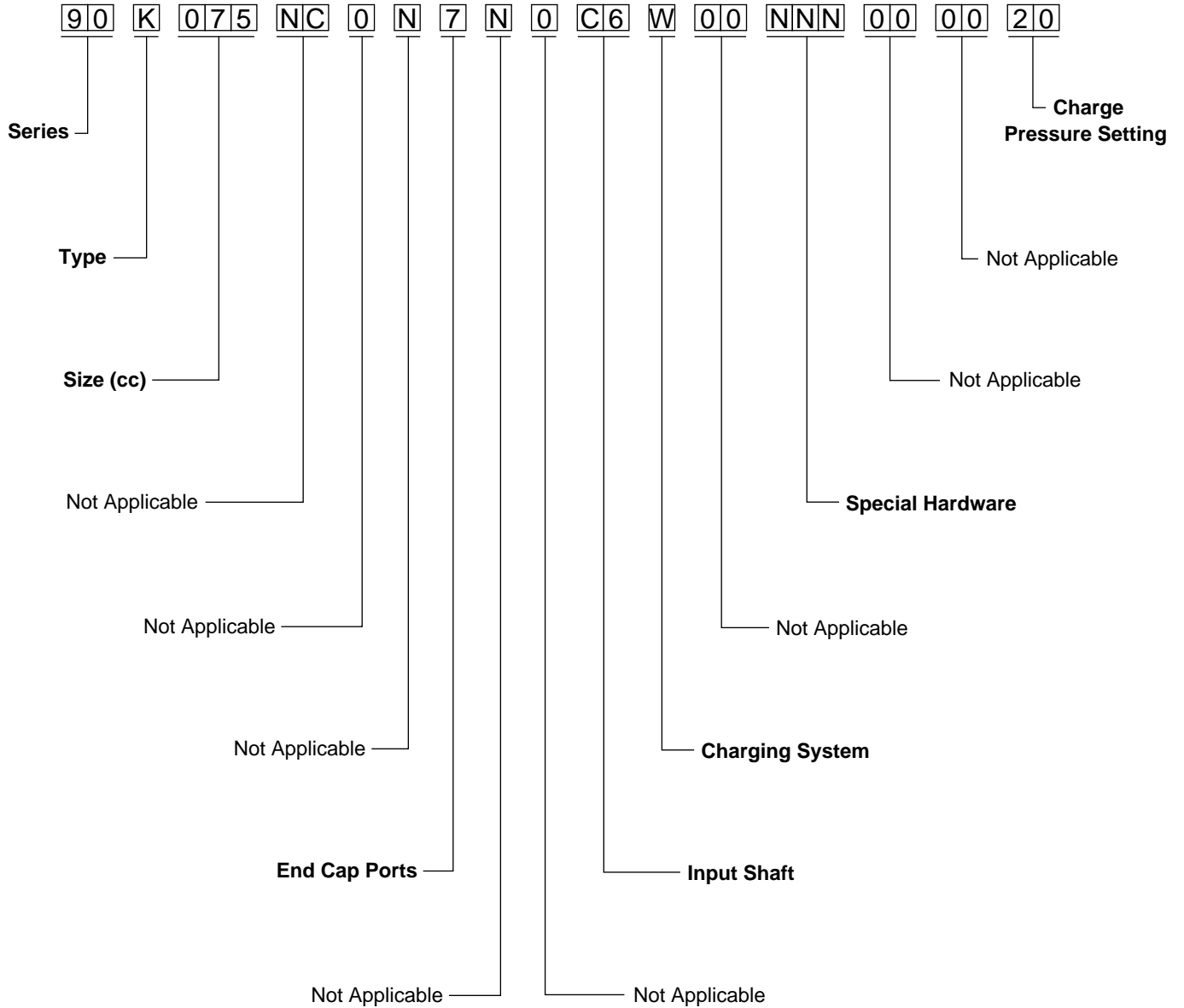
Bold Items indicate recommended parts to be stocked for servicing

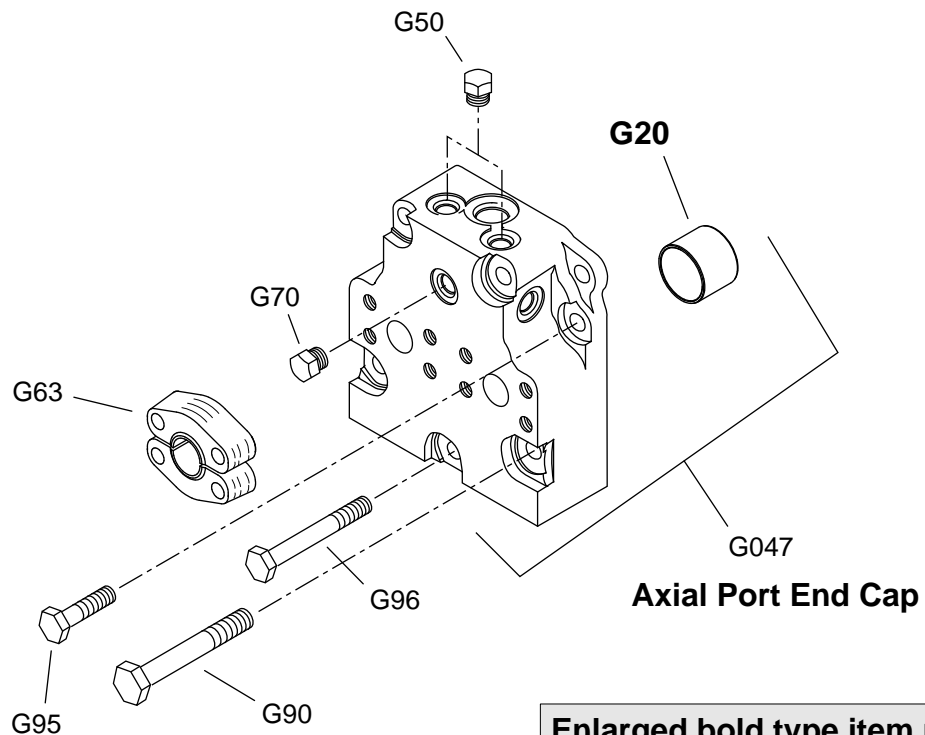
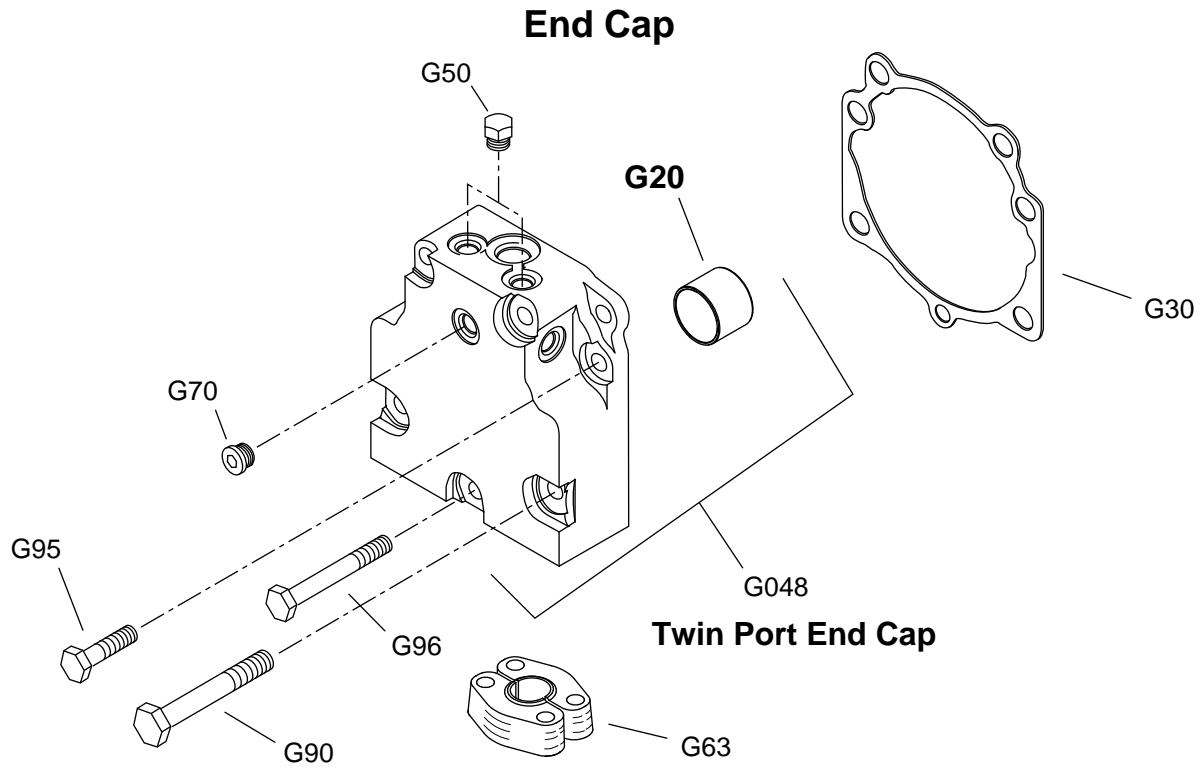


Notes



75 cc Fixed Displacement Cartridge Motor





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75 cc Fixed Displacement Cartridge Motor

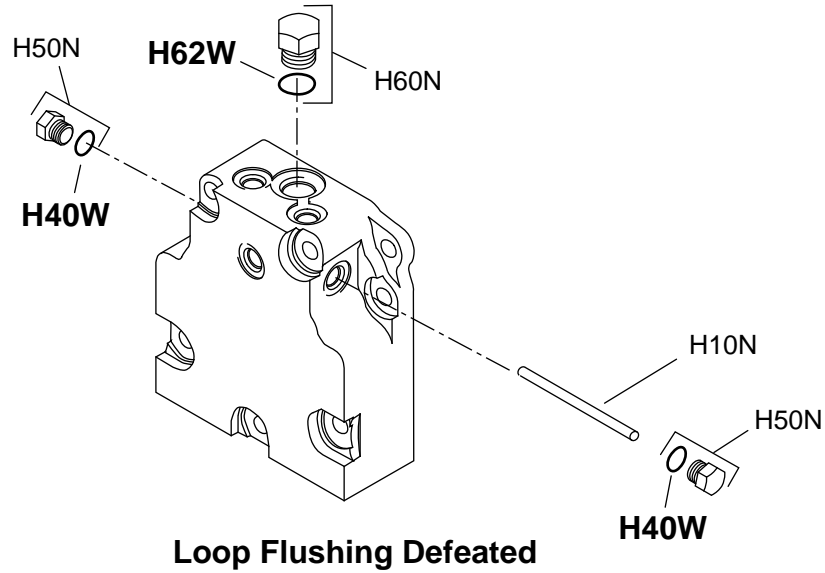
<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
	G30	93-07 →	8100311	End cap gasket	1
	G50	93-07 →	9005100-5600	Plug	2
	G70	93-07 →	9005110-5600	Plug	1
	G90	93-07 →	9007210-1216	Screw	4
	G95	93-07 →	9007210-1209	Screw	2
	G96	93-07 →	9007210-1016	Screw	1

End Cap

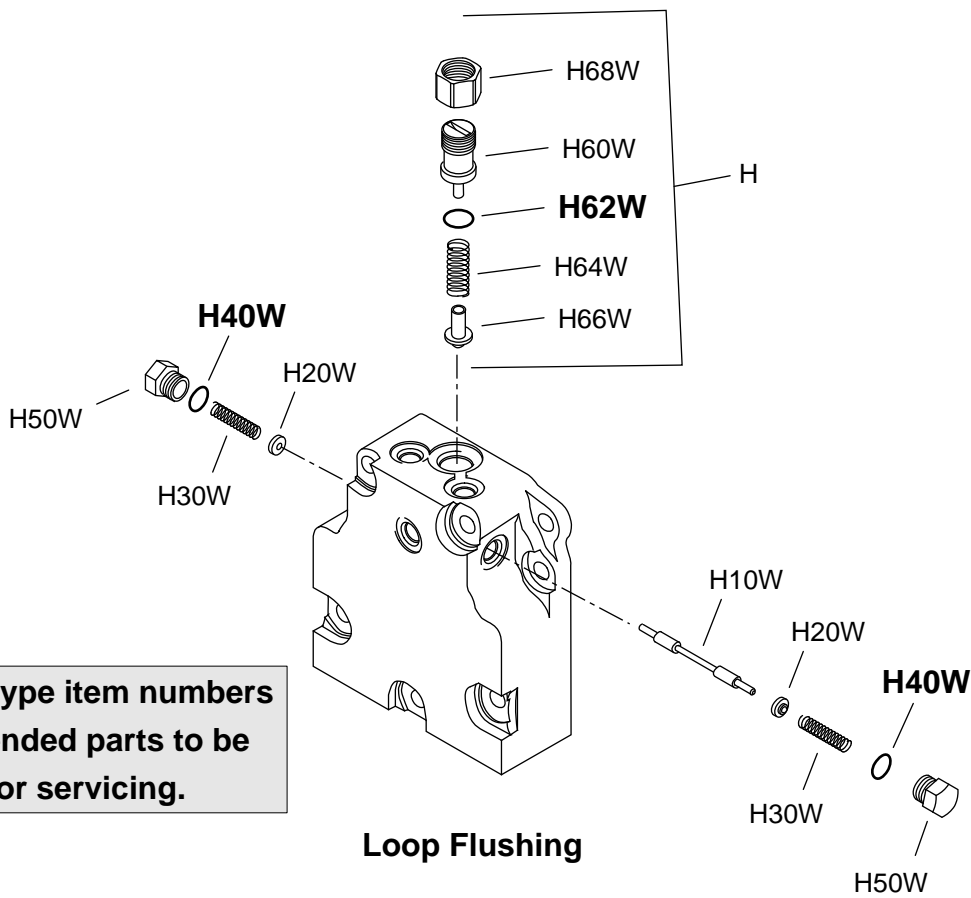
1	G048	93-07 →	8100373	End cap assy., twin ports	1
	G20	93-07 →	8700013	Journal bearing	1
	G63	93-07 →	8700074	Split clamp (code 61 hose)	4
3	G047	93-07 →	8100374	End cap assy., axial ports	1
	G20	93-07 →	8700013	Journal bearing	1
	G63	93-07 →	8700074	Split clamp (code 61 hose)	4
7	G047	93-07 →	8100374	End cap assy., axial ports	1
	G20	93-07 →	8700013	Journal bearing	1
8	G048	93-07 →	8100373	End cap assy., twin ports	1
	G20	93-07 →	8700013	Journal bearing	1

Bold Items indicate recommended parts to be stocked for servicing

Charging System



Loop Flushing Defeated



Loop Flushing

Enlarged bold type item numbers are Recommended parts to be stocked for servicing.



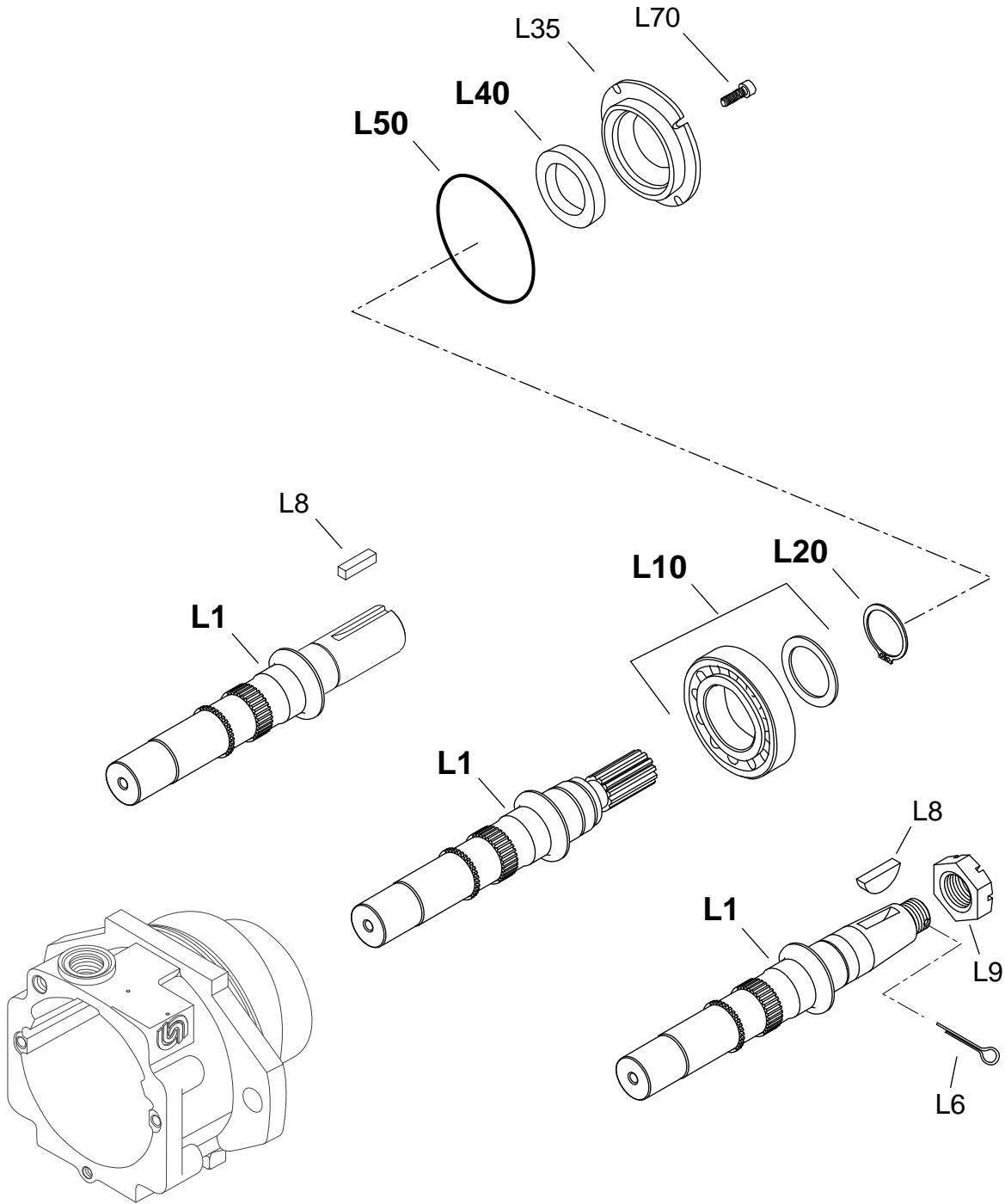
75 cc Fixed Displacement Cartridge Motor

Charging System

<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
N	H10N	93-07 →	8800668	Loop flush defeat spool	1
	H50N	93-07 →	9005100-5600	Plug assembly	2
	H40W	93-07 →	9004201-3700	O-ring	2
	H60N	93-07 →	9005100-8700	Plug assembly	1
	H62W	93-07 →	9004201-6200	O-ring	1
W	H	93-07 →	8510012	Adj. charge relief kit	1
	H60W	93-07 →	8800488-1000	Plug assembly	1
	H62W	93-07 →	9004201-6200	O-ring	1
	H64W	93-07 →	8800476	Spring	1
	H66W	93-07 →	8800449	Poppet	1
	H68W	93-07 →	9003575-0101	Nut	1
	N10W	93-07 →	8800550	Shuttle valve spool	1
	H20W	93-07 →	8800551	Spring guide	2
	H30W	93-07 →	4350286	Spring	2
	H40W	93-07 →	9004201-3700	O-ring	2
	H50W	93-07 →	9005475-0097	Plug	2

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Shaft



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75 cc Fixed Displacement Cartridge Motor

Shaft Seal

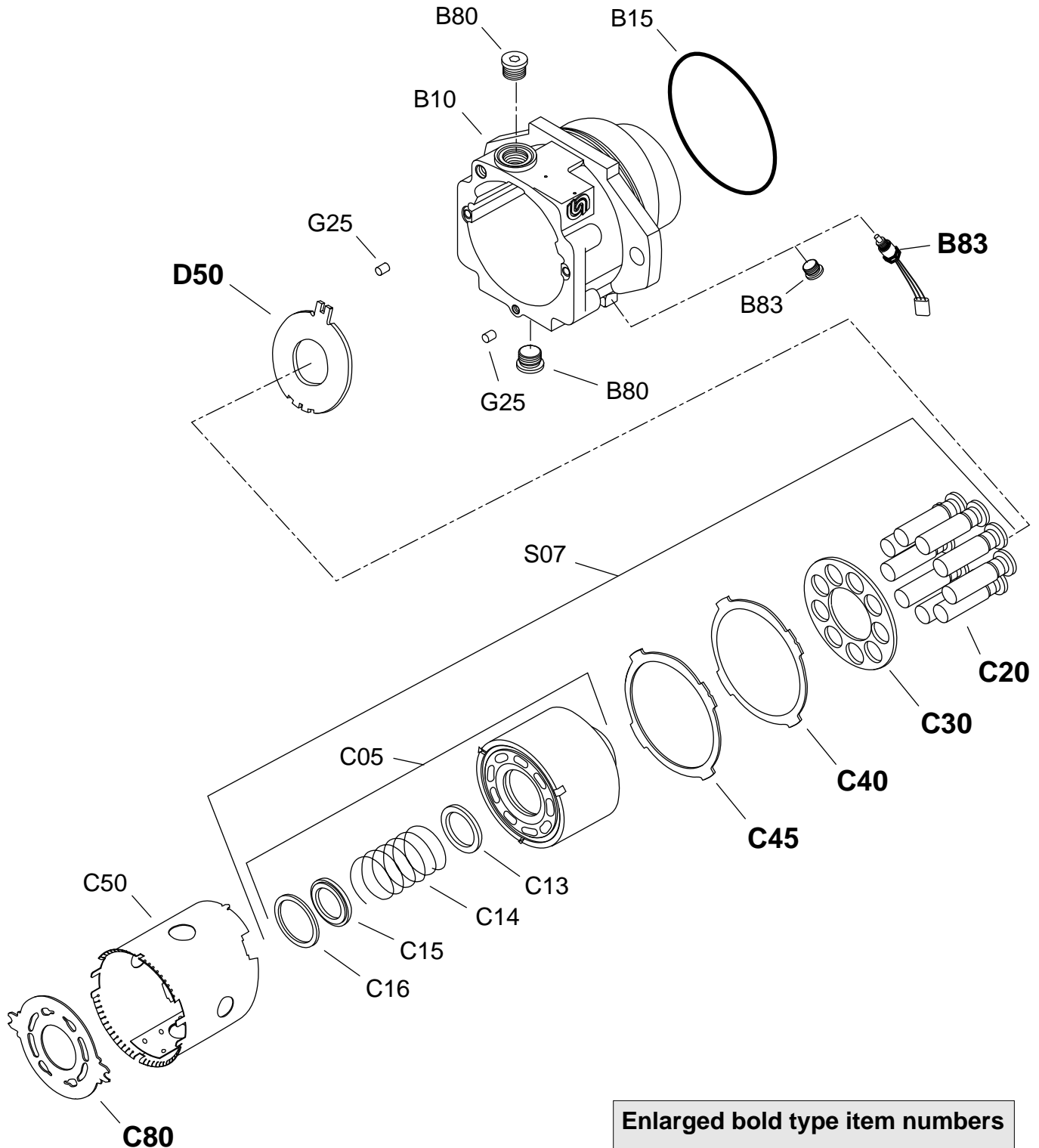
<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
	L10	93-07 →	684076	Roller bearing	1
	L20	93-07 →	9006300-0156	Retaining ring	1
	L35	93-07 →	8100477	Seal carrier	1
	L40	93-07 →	9008000-0115	Lip seal	1
	L50	93-07 →	9004104-1520	O-ring	1
	L70	93-07 →	9007314-0605	Screw	3

Shaft

C6	L1	93-07 →	8100304	Shaft, 21 tooth, 16/32 pitch	1
C7	L1	93-07 →	8100257	Shaft, 23 tooth, 16/32 pitch	1
K2	L1	93-07 →	8100309	Shaft, 1.50 straight key	1
	L7	93-07 →	9003261-3724	Square key, .375 x 1.5"	1
S1	L1	93-07 →	8100256	Shaft, 14 tooth, 12/24 pitch	1
T2	L1	93-07 →	8100415	Shaft, 1.375 D/1.5 taper	1
	L6	93-07 →	9004600-1230	Cotter pin	1
	L8	93-07 →	9003310-3724	Woodruff key, .3730 x 1.5"	1
	L9	93-07 →	9700169	Slotted nut	1

Bold Items indicate recommended parts to be stocked for servicing

Special Hardware



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stocked for servicing.**



75 cc Fixed Displacement Cartridge Motor

Order Code	Item	Date Code Begin → End	Part Number	Description	Qty. per Model/Kit
	B10	93-07 →	8100474	Housing	1
	B15	93-07 →	502205	O-ring	1
	B80	93-07 →	9005110-9000	Plug	2
	C20	93-07 →	708230	Welded piston (SB-8823)	9
	C30	93-07 →	8100007	Slipper guide	1
	C40	93-07 →	8100271	Slipper guide retainer	1
	C45	93-07 →	8100272	Slipper guide retainer shim	1
	C50	93-07 →	8100475	Hold down tube	1
	C80	93-07 →	8100278	Valve plate (SB-8818)	1
	D50	93-07 →	8100156	Thrust plate	1
	G25	93-07 →	9004800-3708	Pin	2
	S07	93-07 →	81030S07	Cylinder block kit w/o speed ring	1
	C05	93-07 →	8100267	Cylinder block assy. w/o speed ring	1
	C13	93-07 →	8100103	Spring seat	1
	C14	93-07 →	8100074	Cylinder block spring	1
	C15	93-07 →	8100127	Spring retainer	1
	C16	93-07 →	9006275-0027	Retaining ring	1
	C20	93-07 →	708230	Welded piston	9
	C30	93-07 →	8100007	Slipper guide	1
	C40	93-07 →	8100271	Slipper guide retainer	1
	C45	93-07 →	8100272	Slipper guide retainer shim	1

Special Hardware

EAA	C05	93-07 →	8100525	Cylinder block assembly w/speed ring	1
	B83	93-07 →	KPPC125	Speed sensor	1
EBA	C05	93-07 →	8100525	Cylinder block assembly w/speed ring	1
	B83	93-07 →	KPPB134	Speed sensor	1
NNN	C05	93-07 →	8100267	Cylinder block assy. w/o speed ring	1
	B83	93-07 →	9005110-5600	Plug assembly	1

Overhaul Seal Kit

	S30	93-07 →	81030S30	Overhaul seal kit, 055 MF	1
	G30	93-07 →	8100311	End cap gasket	1
	H40W	93-07 →	9004201-3700	O-ring	2
	H62W	93-07 →	9004201-6200	O-ring	1
	L40	93-07 →	9008000-0115	Lip seal	1
	L50	93-07 →	9004104-1520	O-ring	1

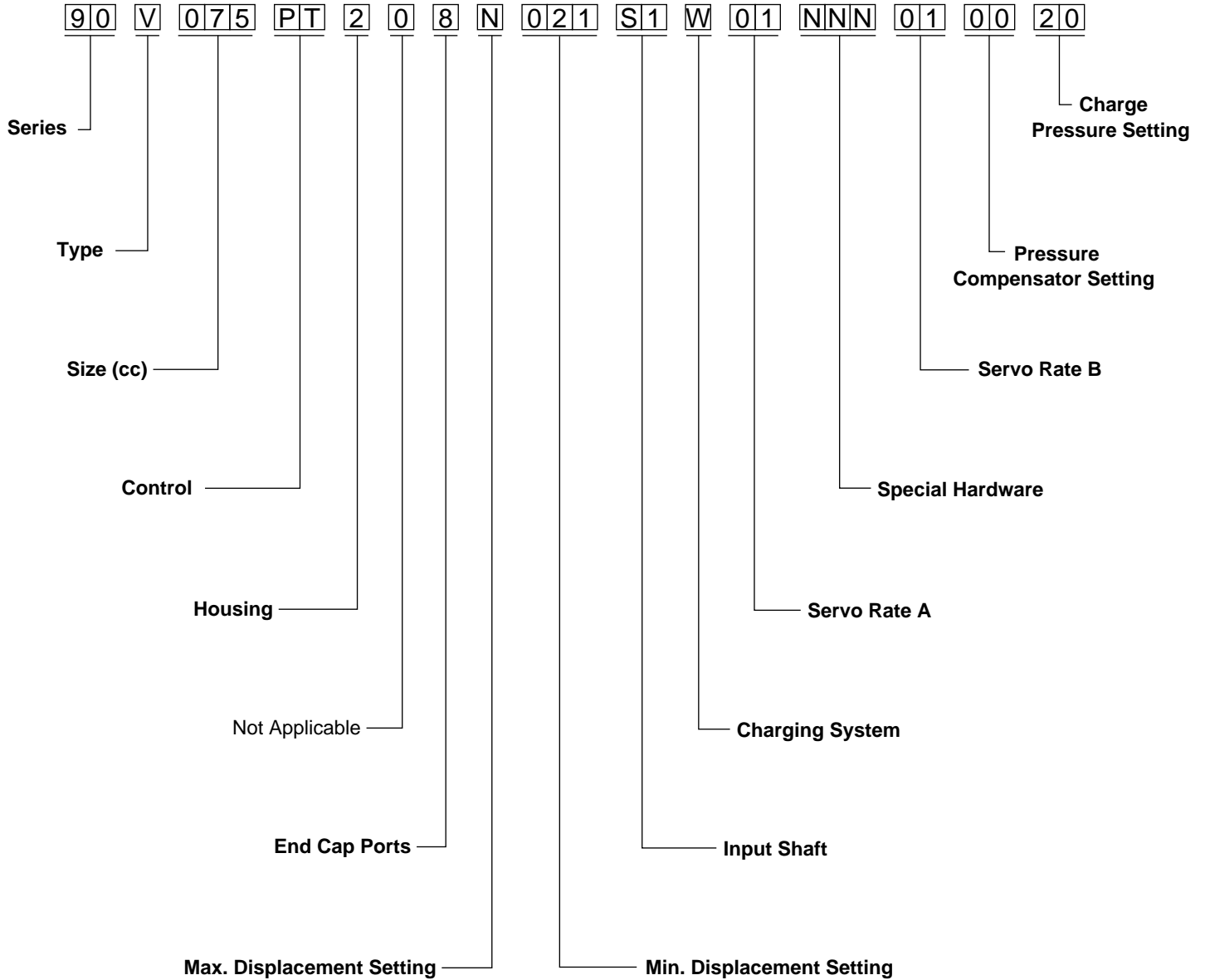
Bold Items indicate recommended parts to be stocked for servicing



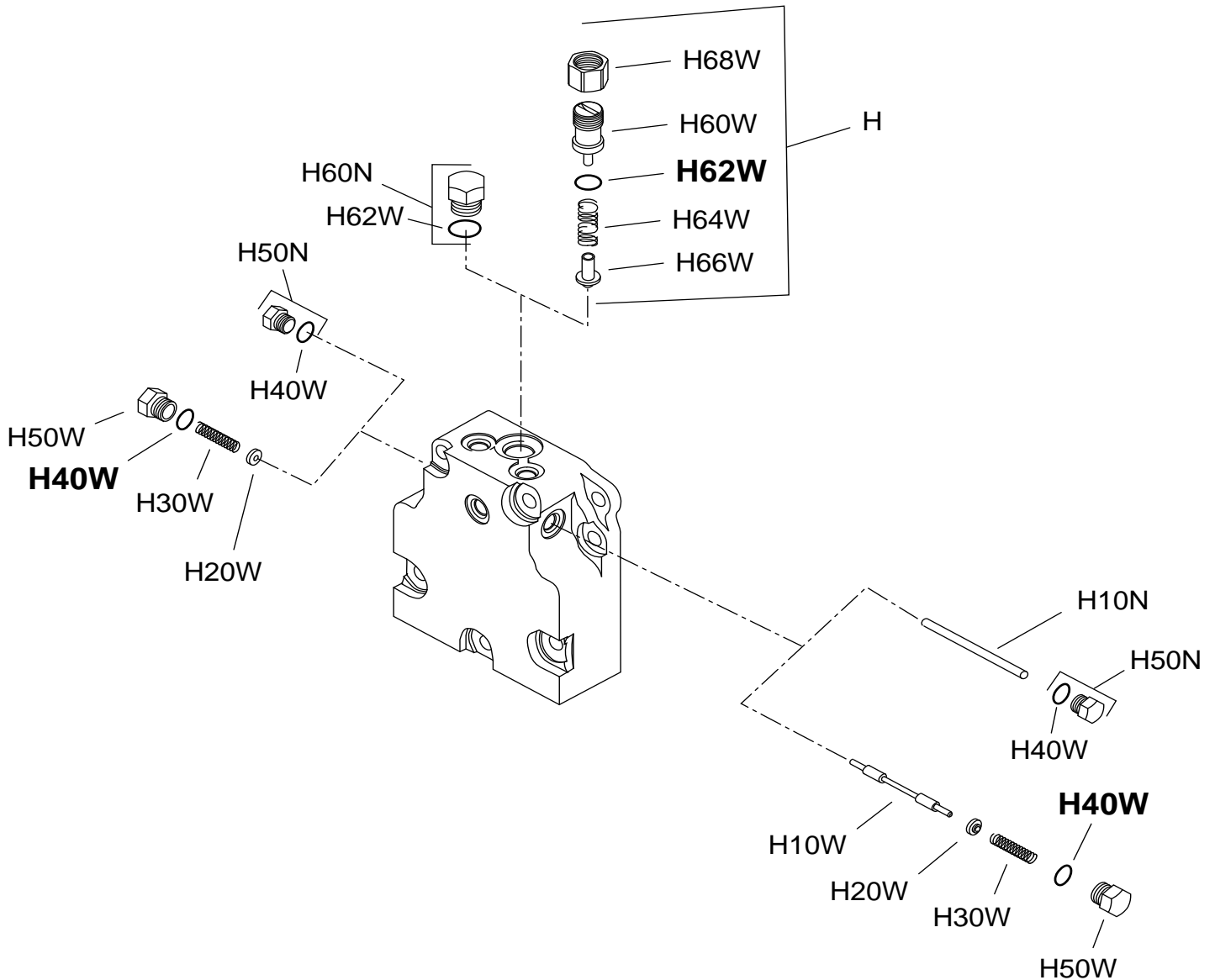
Notes



75 cc Variable Displacement Motor



End Cap/Charging System



**Enlarged bold type item numbers
are Recommended parts to be
stocked for servicing.**



75 cc Variable Displacement Motor

Order Code	Item	Date Code Begin → End	Part Number	Description	Qty. per Model/Kit
	G30	90-22 →	8100430	End cap gasket	1
	G50	90-22 →	9005100-5600	Plug	2
	G70	90-22 →	9005110-5600	Plug	1
	G80	90-22 →	9004700-1928	Slotted pin	2
	G82	90-22 →	9001214-2800	Ball	2
	G84	90-22 →	8800865	Crush ring	2
	G86	90-22 →	8100392	Pipe plug	2
	G90	90-22 →	9007210-1216	Screw	4
	G95	90-22 →	9007210-1209	Screw	2
	G96	90-22 →	9007210-1016	Screw	1

End Cap

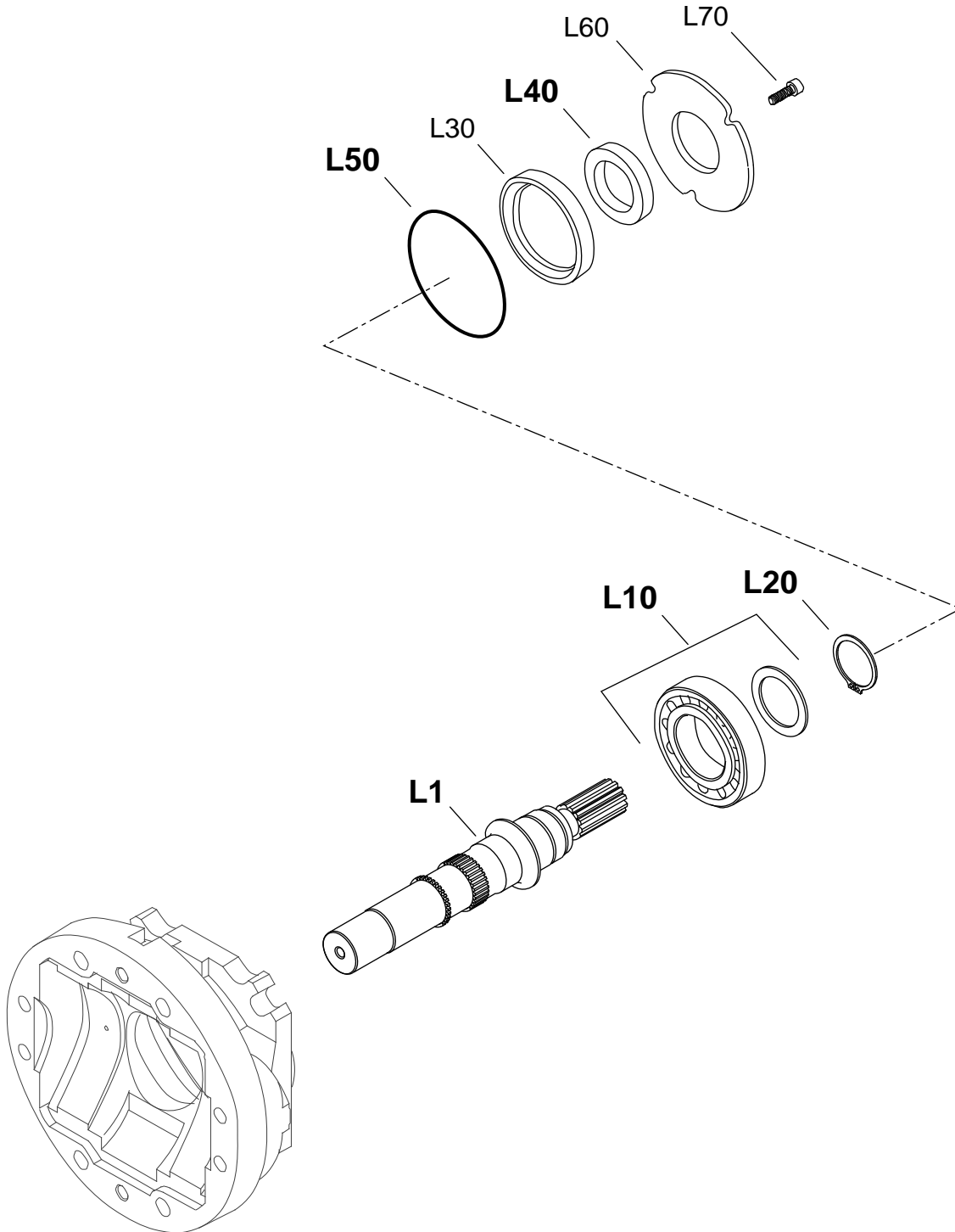
1	G048	90-22 →	8100442	End cap assembly, twin port	1
	G20	90-22 →	8700013	Journal bearing	1
	G63	90-22 →	8700074	Split clamp (code 61 hose)	4
8	G048	90-22 →	8100442	End cap assembly, twin port	1
	G20	90-22 →	8700013	Journal bearing	1

Charging System

N	H10N	90-22 →	8800668	Loop flush defeat spool	1
	H50N	90-22 →	9005100-5600	Plug assembly	2
	H40W	90-22 →	9004201-3700	O-ring	2
	H60N	90-22 →	9005100-8700	Plug assembly	1
	H62W	90-22 →	9004201-6200	O-ring	1
W	H	90-22 →	8510012	Adj. charge relief kit	1
	H60W	90-22 →	8800488-1000	Plug assembly	1
	H62W	90-22 →	9004201-6200	O-ring	1
	H64W	90-22 →	8800476	Spring	1
	H66W	90-22 →	8800449	Poppet	1
	H68W	90-22 →	9003575-0101	Nut	1
	N10W	90-22 →	8800550	Shuttle valve spool	1
	H20W	90-22 →	8800551	Spring guide	2
	H30W	90-22 →	4350286	Spring	2
	H40W	90-22 →	9004201-3700	O-ring	2
	H50W	90-22 →	9005475-0097	Plug	2

Bold Items indicate recommended parts to be stocked for servicing

Shaft



**Enlarged bold type item numbers
are Recommended parts to be
stocked for servicing.**



75 cc Variable Displacement Motor

Shaft Seal

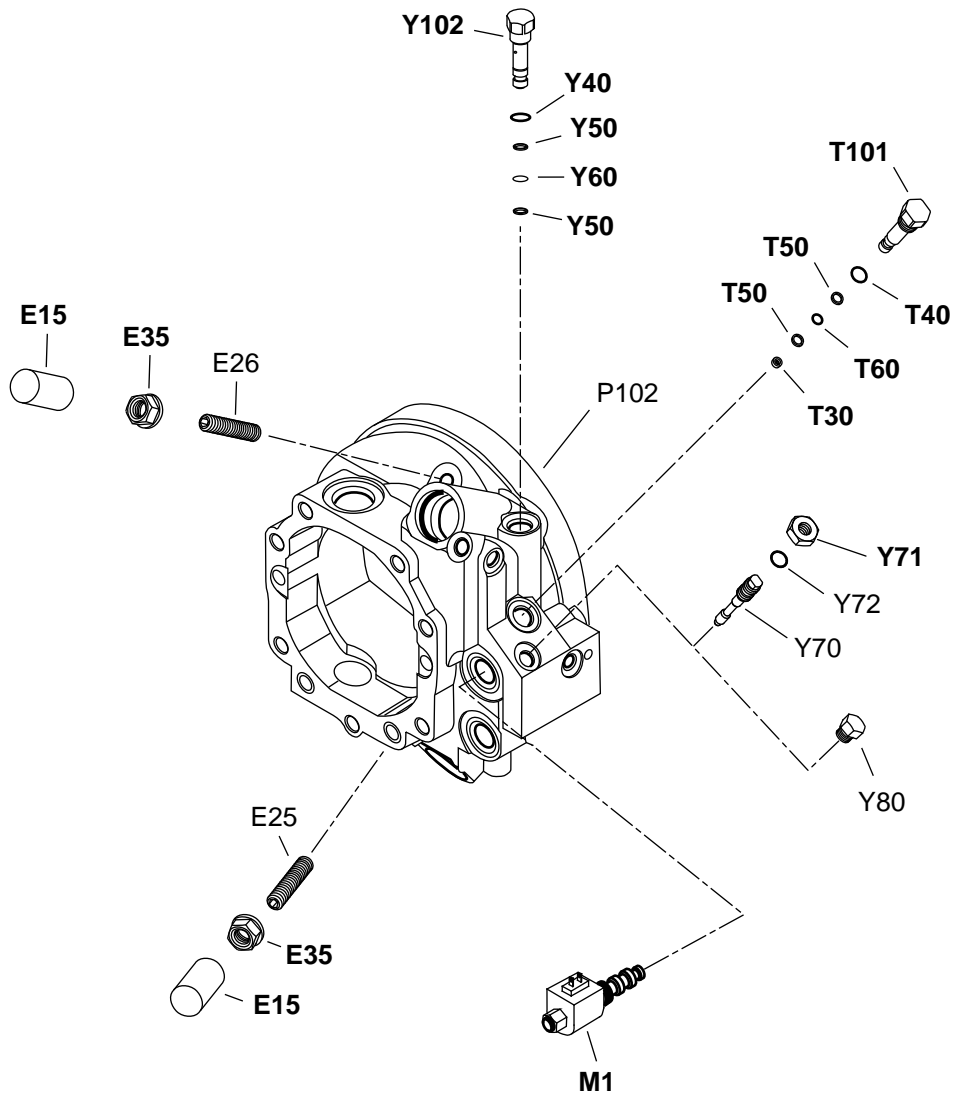
<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
	L10	90-22 →	684076	Roller bearing	1
	L20	90-22 →	9006300-0156	Retaining ring	1
	L30	90-22 →	776971	Seal carrier (SB-9311)	1
	L40	90-22 →	9008000-0115	Lip seal	1
	L50	90-22 →	9004104-1530	O-ring	1
	L60	90-22 →	776955	Retainer plate (SB-9311)	1
	L70	90-22 →	9007314-0605	Screw	3

Shaft

S1	L1	90-22 →	8100396	Shaft, 14 tooth, 12/24 pitch	1
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Bold Items indicate recommended parts to be stocked for servicing

Control



**Enlarged bold type item numbers
are Recommended parts to be
stocked for servicing**



75 cc Variable Displacement Motor

Control

Order Code	Item	Date Code Begin → End	Part Number	Description	Qty. per Model/Kit
NA	M1	90-22 →	8700103-0003	Solenoid valve, 12v., MS conn.	1
NB	M1	90-22 →	8700103-0001	Solenoid valve, 12v., Packard conn.	1
NC	M1	90-22 →	8700103-0004	Solenoid valve, 24v., MS conn.	1
ND	M1	90-22 →	8700103-0002	Solenoid valve, 24v., Packard conn.	1
PT	M1	90-22 →	8700088	Control valve, hyd. actuated 2 pos.	1
	E15	90-22 →	750679	Plastic cap	2
	E26	90-22 →	9007712-1216	Set screw	1
	E35	90-22 →	9003509-0012	Seal nut	2

Maximum Displacement

A-N	E25	90-22 →	9007712-1216	Set screw	1
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Housing

2	P102	90-22 →	8510059	Housing assembly	1
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Servo Rate 'A'

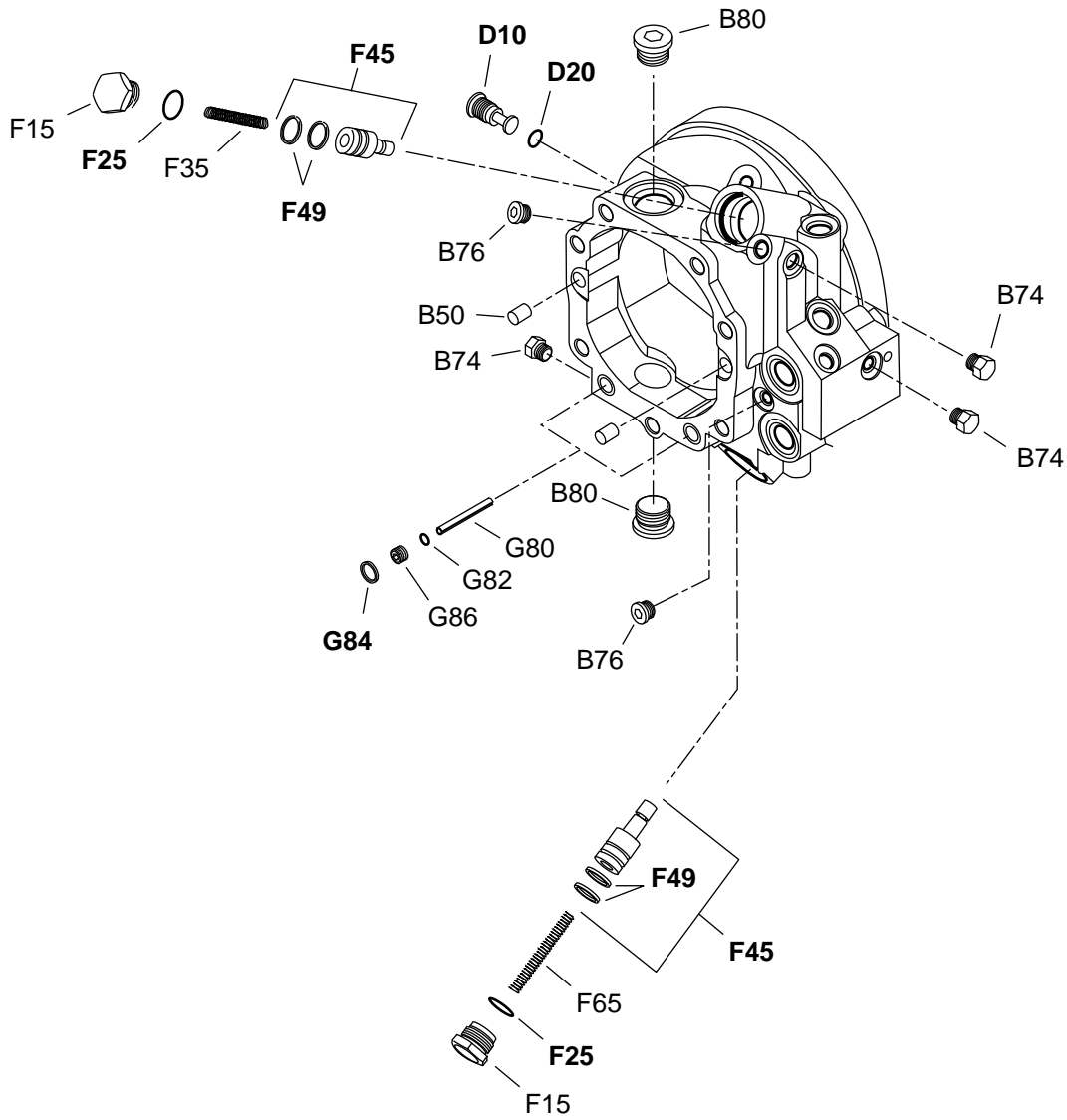
1	T101	90-22 →	8510077	Orifice plug, .021"	1
	T30	90-22 →	8800532	Filter screen	1
	T40	90-22 →	9004201-3700	O-ring	1
	T50	90-22 →	9006150-0100	Back-up ring	2
	T60	90-22 →	9004105-0100	O-ring	1

Servo Rate 'B'

	Y40	90-22 →	9004201-3700	O-ring	1
	Y50	90-22 →	9006150-0100	Back-up ring	2
	Y60	90-22 →	9004105-0100	O-ring	1
1	Y102	90-22 →	8510074	Orifice plug, .021" (fast)	1
	Y80	90-22 →	9005100-4400	Plug	1
2	Y102	90-22 →	8510075	Orifice valve assembly	1
	Y70	90-22 →	8510076	Orifice valve assembly	1
	Y71	90-22 →	5000120	Seal nut	1
	Y72	90-22 →	9004201-2500	O-ring	1

Bold Items indicate recommended parts to be stocked for servicing

Common Parts



**Enlarged bold type item numbers
are Recommended parts to be
stocked for servicing**



75 cc Variable Displacement Motor

Common Housing Parts

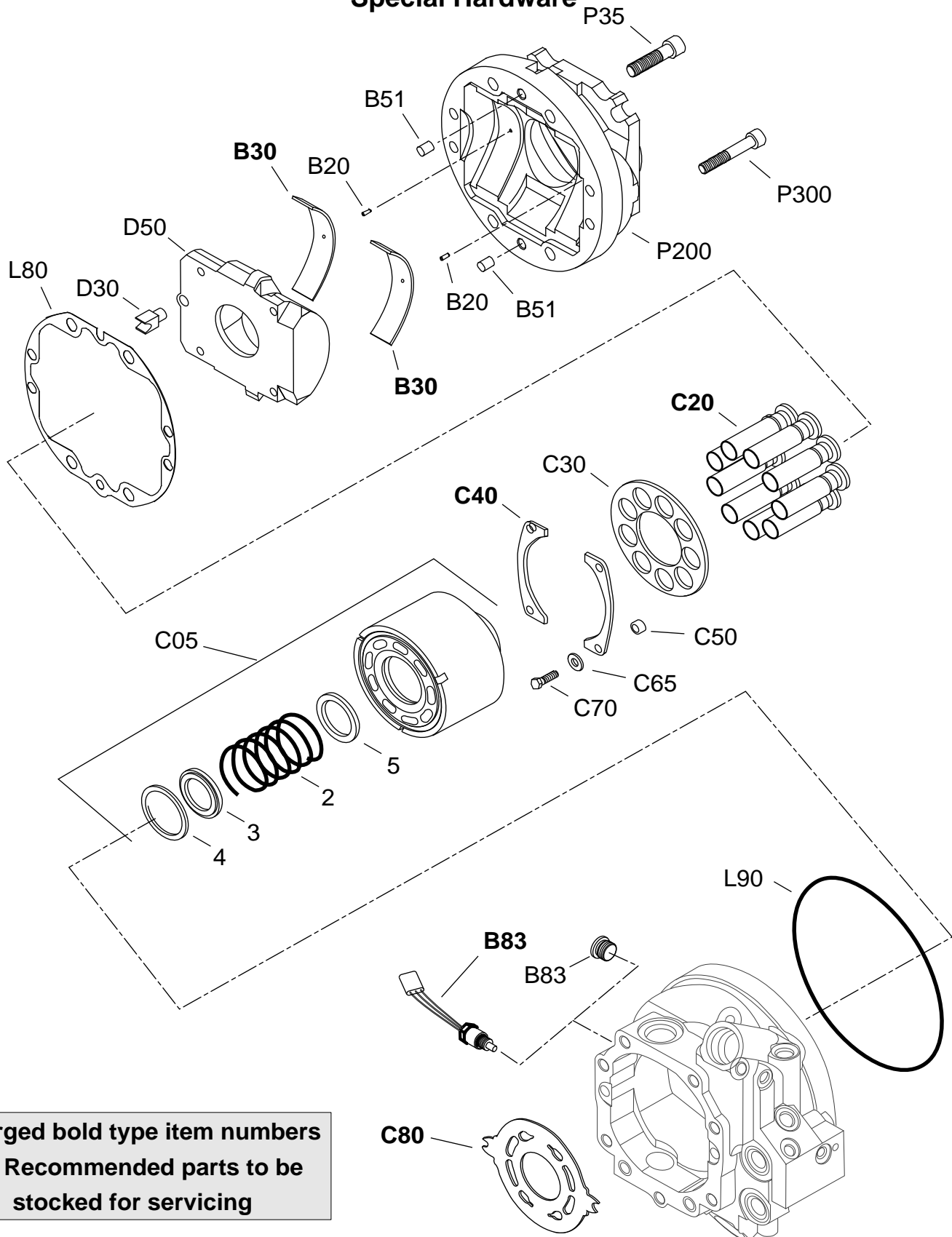
<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
	B50	90-22 →	9004800-3708	Pin	2
	B74	90-22 →	9005100-4400	Plug	3
	B76	90-22 →	9005110-4400	Plug	2
	B80	90-22 →	9005110-9000	Plug	2
	D10	90-22 →	8800758	Hold down pin	1
	D20	90-22 →	9004201-3700	O-ring	1
	F15	90-22 →	9005475-0099	Plug	2
	F25	90-22 →	38281	O-ring	2
	F35	90-22 →	8800619	Spring	1
	F45	90-22 →	8100441	Servo piston assembly	2
	F49	90-22 →	8700089	Piston seal ring	4
	F65	90-22 →	8100435	Spring	1

Overhaul Seal Kit

	S30	90-22 →	81040S30	Overhaul seal kit, 90V/C075	1
	C70	90-22 →	9007276-0099	Screw	4
	D20	90-22 →	9004201-3700	O-ring	1
	E35	90-22 →	9003509-0012	Seal nut	2
	F25	90-22 →	38281	O-ring	2
	G30	90-22 →	8100430	End cap gasket	1
	G84	90-22 →	8800865	Crush ring	2
	L40	90-22 →	9008000-0115	Lip seal	1
	L50	90-22 →	9004104-1530	O-ring	1
	L80	90-22 →	8100423	Front cover gasket	1
	L90	90-22 →	9004104-1710	O-ring	1
	P800	90-22 →	9004100-1720	O-ring	1
	T40	90-22 →	9004201-3700	O-ring	1
	T50	90-22 →	9006150-0100	Back-up ring	1
	T60	90-22 →	9004105-0100	O-ring	1
	Y40	90-22 →	9004201-3700	O-ring	1
	Y50	90-22 →	9006150-0100	Back-up ring	2
	Y60	90-22 →	9004105-0100	O-ring	1

Bold Items indicate recommended parts to be stocked for servicing

Special Hardware



**Enlarged bold type item numbers
are Recommended parts to be
stocked for servicing**



75 cc Variable Displacement Motor

Order Code	Item	Date Code Begin → End	Part Number	Description	Qty. per Model/Kit
	B20	90-22 →	9004875-0126	Pin	2
	B30	90-22 →	8100433-0001	Cradle bearing	2
	B51	90-22 →	9004800-3708	Pin	2
	C20	90-22 →	708230	Piston assembly	9
	C30	90-22 →	8100007	Slipper retainer	1
	C40	90-22 →	8100294	Slipper guide bearing	2
	C50	90-22 →	8100450	Spacer	4
	C65	90-22 →	9009625-0129	Washer	4
	C70	90-22 →	9007276-0099	Screw	4
	C80	90-22 →	8100278	Valve plate	1
	D30	90-22 →	8810406	Hold down arm	1
	D50	90-22 →	8100431	Swashplate	1
	L80	90-22 →	8100423	Front cover gasket	1
	L90	90-22 →	9004104-1710	O-ring	1
	P35	90-22 →	9007314-1211	Screw	4
	P200	90-22 →	8100425	Front cover	1
	P300	90-22 →	9007314-1014	Screw	4

Special Hardware

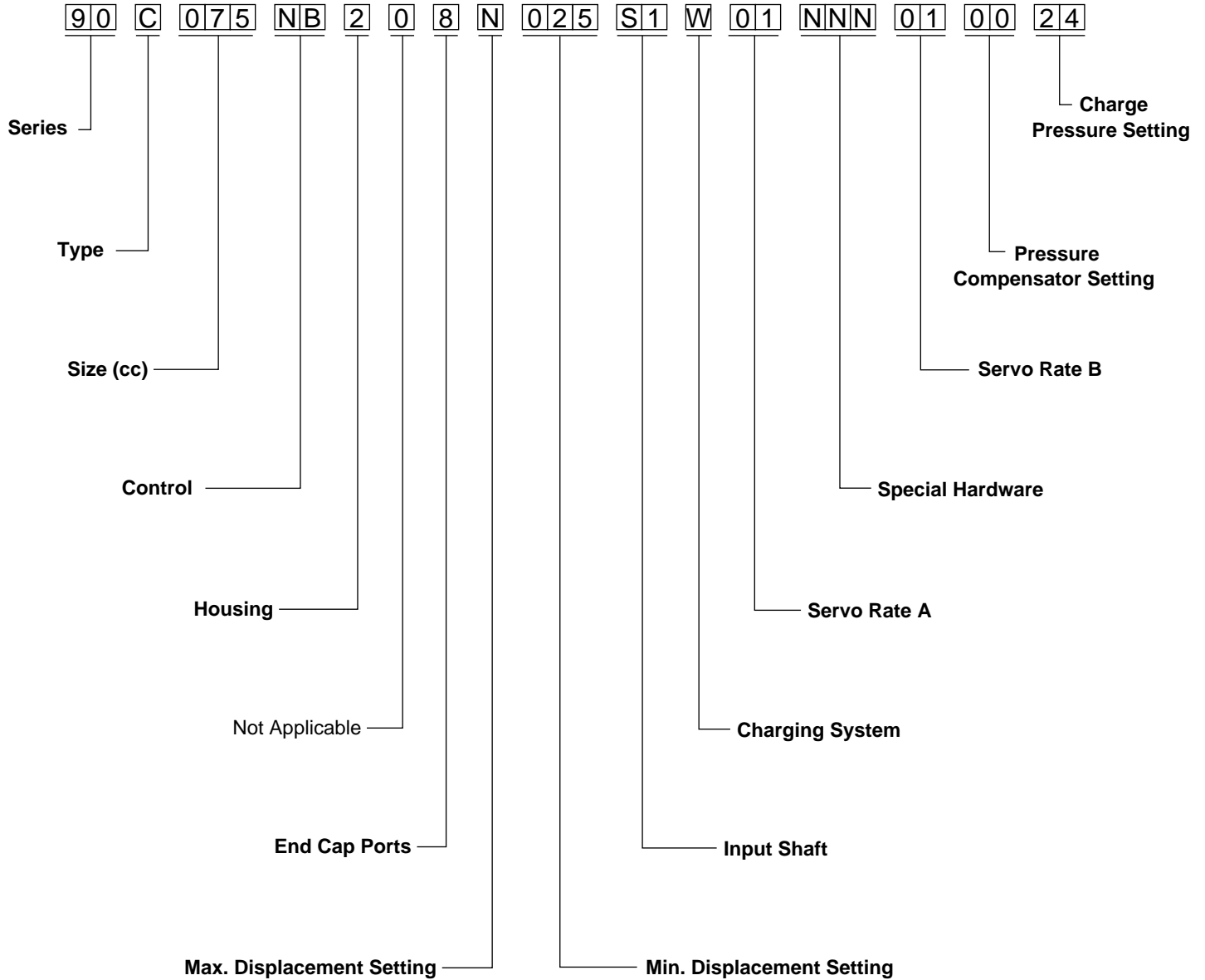
EBA	B83	94-10 →	KPPB134	Speed sensor	1
	C05	94-10 →	8100525	Cylinder block assy., w/speed ring	1
NNN	B83	90-22 →	9005110-5600	Plug	1
	C05	90-22 →	8100267	Cylinder block assy., w/o speed ring	1

Bold Items indicate recommended parts to be stocked for servicing

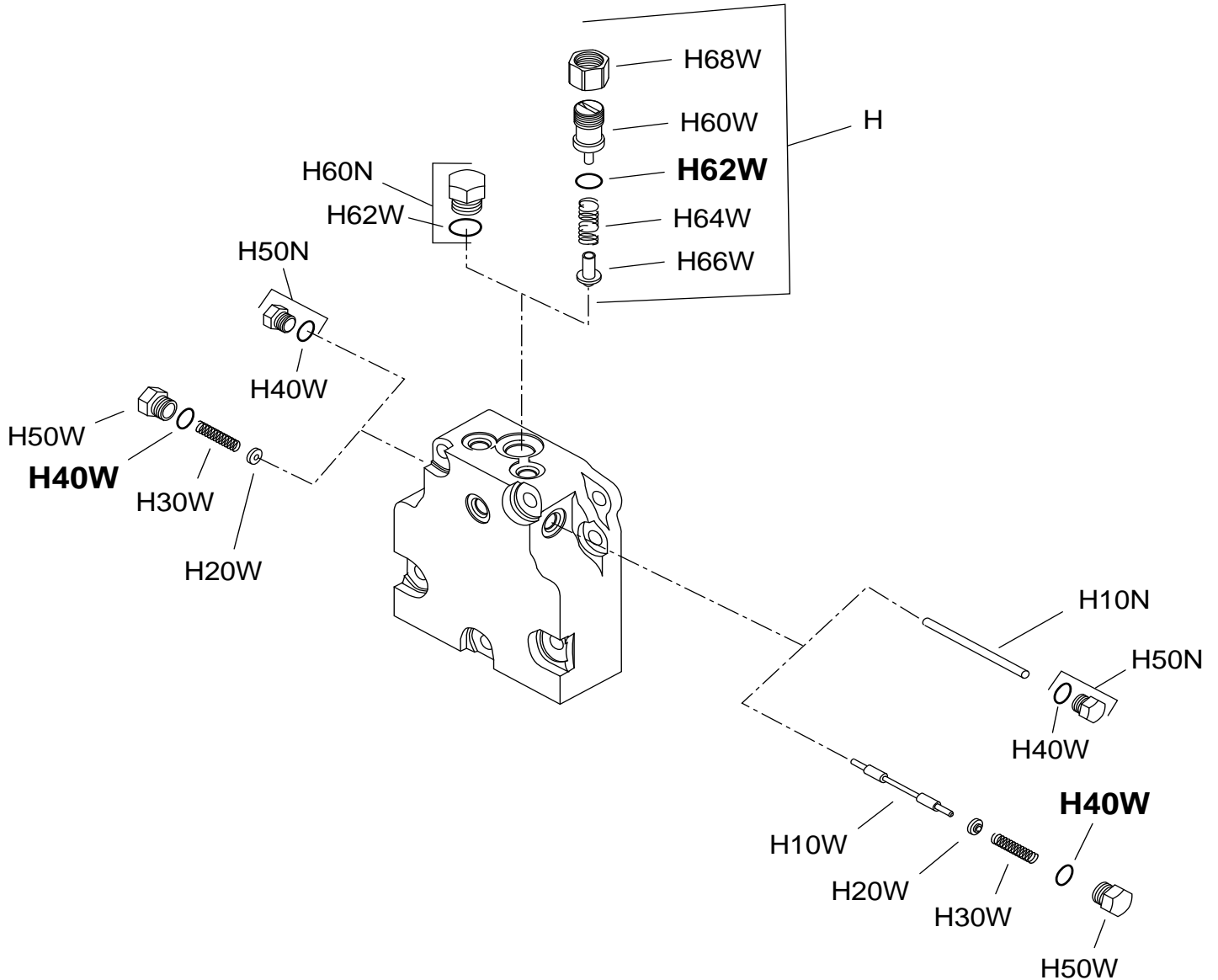


Notes

75 cc Variable Displacement Cartridge Motor



End Cap/Charging System



**Enlarged bold type item numbers
are Recommended parts to be
stocked for servicing.**



75 cc Variable Displacement Cartridge Motor

<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
	G30	90-22 →	8100430	End cap gasket	1
	G50	90-22 →	9005100-5600	Plug	2
	G70	90-22 →	9005110-5600	Plug	1
	G80	90-22 →	9004700-1928	Slotted pin	2
	G82	90-22 →	9001214-2800	Ball	2
	G84	90-22 →	8800865	Crush ring	2
	G86	90-22 →	8100392	Pipe plug	2
	G90	90-22 →	9007210-1216	Screw	4
	G95	90-22 →	9007210-1209	Screw	2
	G96	90-22 →	9007210-1016	Screw	1

End Cap

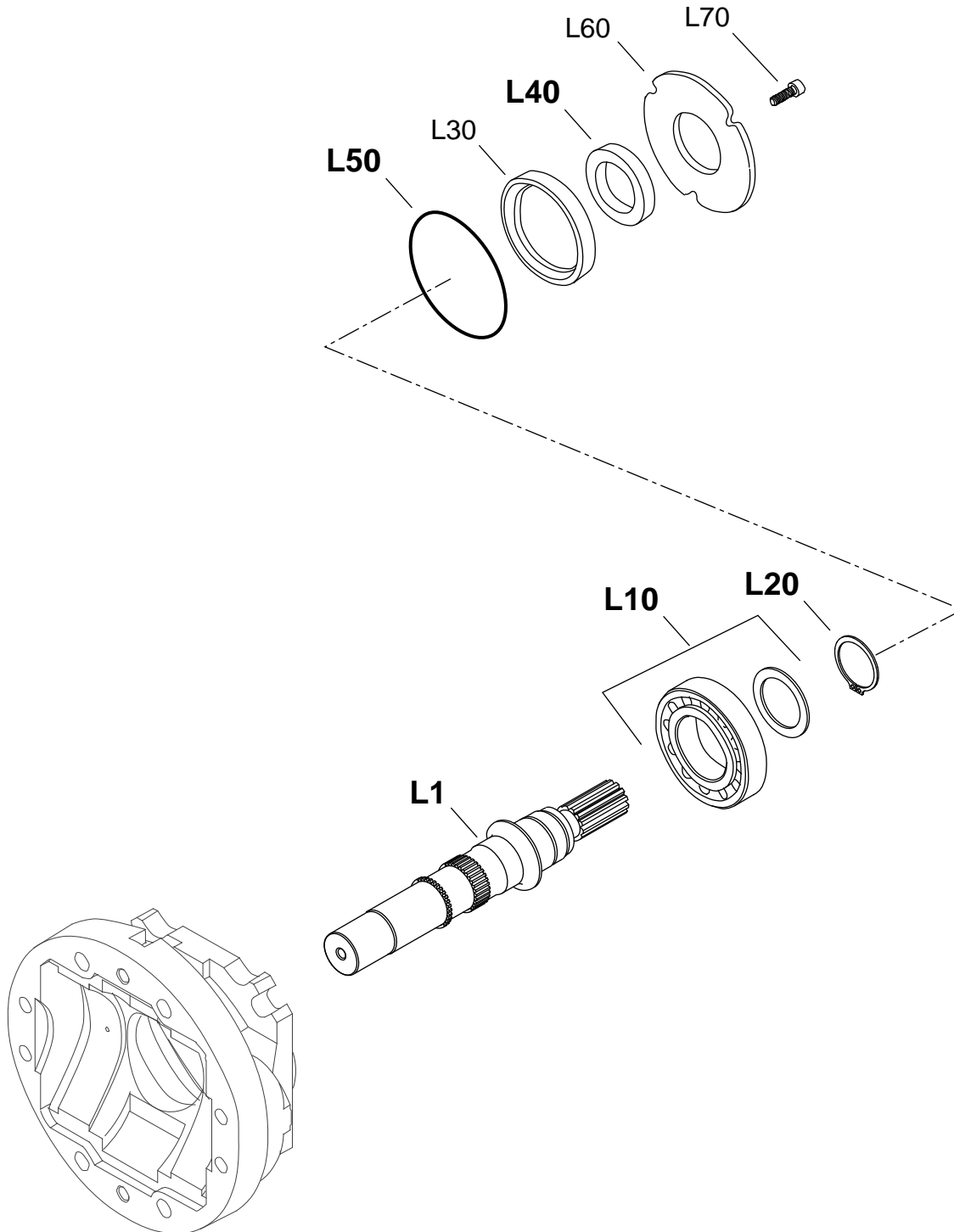
1	G048	90-22 →	8100442	End cap assembly, twin port	1
	G20	90-22 →	8700013	Journal bearing	1
	G63	90-22 →	8700074	Split clamp (code 61 hose)	4
8	G048	90-22 →	8100442	End cap assembly, twin port	1
	G20	90-22 →	8700013	Journal bearing	1

Charging System

N	H10N	90-22 →	8800668	Loop flush defeat spool	1
	H50N	90-22 →	9005100-5600	Plug assembly	2
	H40W	90-22 →	9004201-3700	O-ring	2
	H60N	90-22 →	9005100-8700	Plug assembly	1
	H62W	90-22 →	9004201-6200	O-ring	1
W	H	90-22 →	8510012	Adj. charge relief kit	1
	H60W	90-22 →	8800488-1000	Plug assembly	1
	H62W	90-22 →	9004201-6200	O-ring	1
	H64W	90-22 →	8800476	Spring	1
	H66W	90-22 →	8800449	Poppet	1
	H68W	90-22 →	9003575-0101	Nut	1
	N10W	90-22 →	8800550	Shuttle valve spool	1
	H20W	90-22 →	8800551	Spring guide	2
	H30W	90-22 →	4350286	Spring	2
	H40W	90-22 →	9004201-3700	O-ring	2
	H50W	90-22 →	9005475-0097	Plug	2

Bold Items indicate recommended parts to be stocked for servicing

Shaft



**Enlarged bold type item numbers
are Recommended parts to be
stocked for servicing.**



75 cc Variable Displacement Cartridge Motor

Shaft Seal

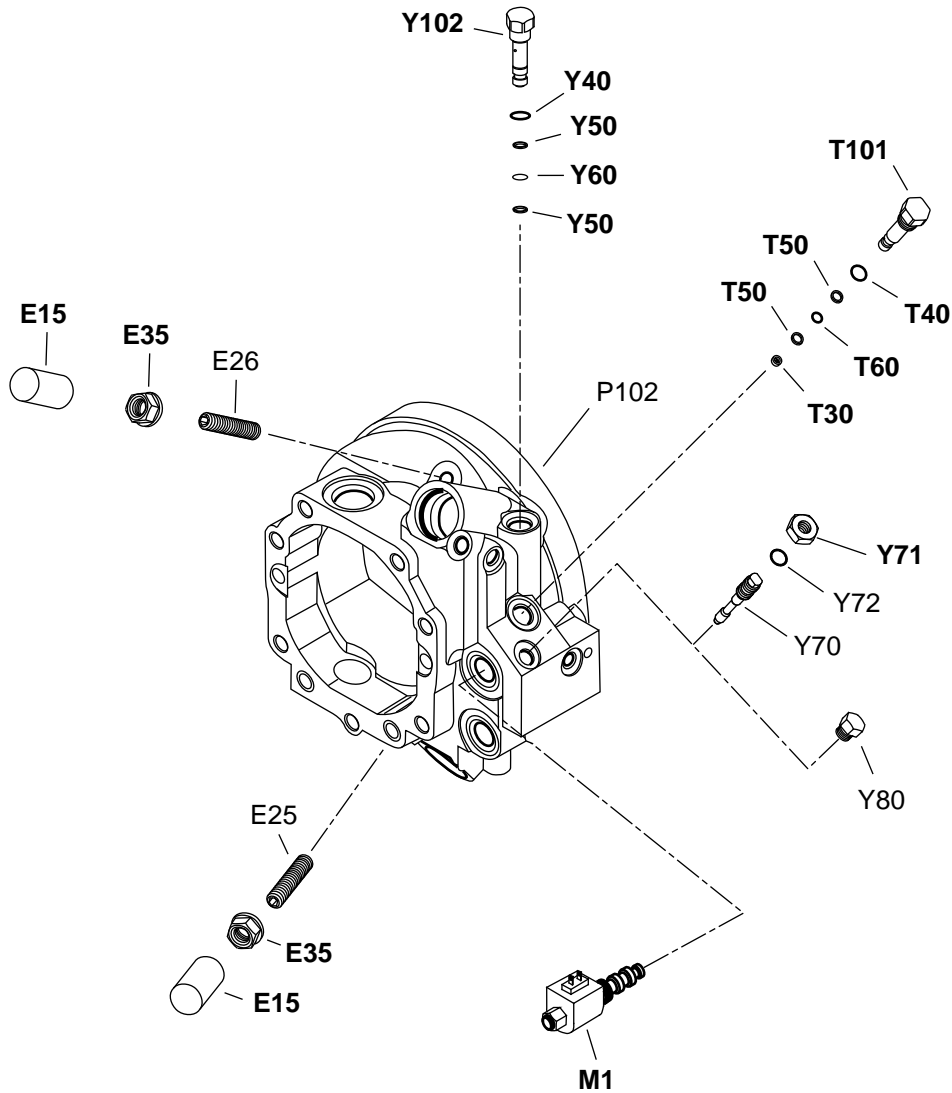
<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
	L10	90-22 →	684076	Roller bearing	1
	L20	90-22 →	9006300-0156	Retaining ring	1
	L30	90-22 →	776971	Seal carrier (SB-9311)	1
	L40	90-22 →	9008000-0115	Lip seal	1
	L50	90-22 →	9004104-1530	O-ring	1
	L60	90-22 →	776955	Retainer plate (SB-9311)	1
	L70	90-22 →	9007314-0605	Screw	3

Shaft

S7	L1	90-22 →	8100445	Shaft, 14 tooth, 12/24 pitch	1
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Bold Items indicate recommended parts to be stocked for servicing

Control



**Enlarged bold type item numbers
are Recommended parts to be
stocked for servicing**



75 cc Variable Displacement Cartridge Motor

Control

Order Code	Item	Date Code Begin → End	Part Number	Description	Qty. per Model/Kit
NA	M1	90-22 →	8700103-0003	Solenoid valve, 12v., MS conn.	1
NB	M1	90-22 →	8700103-0001	Solenoid valve, 12v., Packard conn.	1
NC	M1	90-22 →	8700103-0004	Solenoid valve, 24v., MS conn.	1
ND	M1	90-22 →	8700103-0002	Solenoid valve, 24v., Packard conn.	1
PT	M1	90-22 →	8700088	Control valve, hyd. actuated 2 pos.	1
	E15	90-22 →	750679	Plastic cap	2
	E26	90-22 →	9007712-1216	Set screw	1
	E35	90-22 →	9003509-0012	Seal nut	2

Maximum Displacement

A-N	E25	90-22 →	9007712-1216	Set screw	1
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Housing

2	P102	90-22 →	8510058	Housing assembly	1
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Servo Rate 'A'

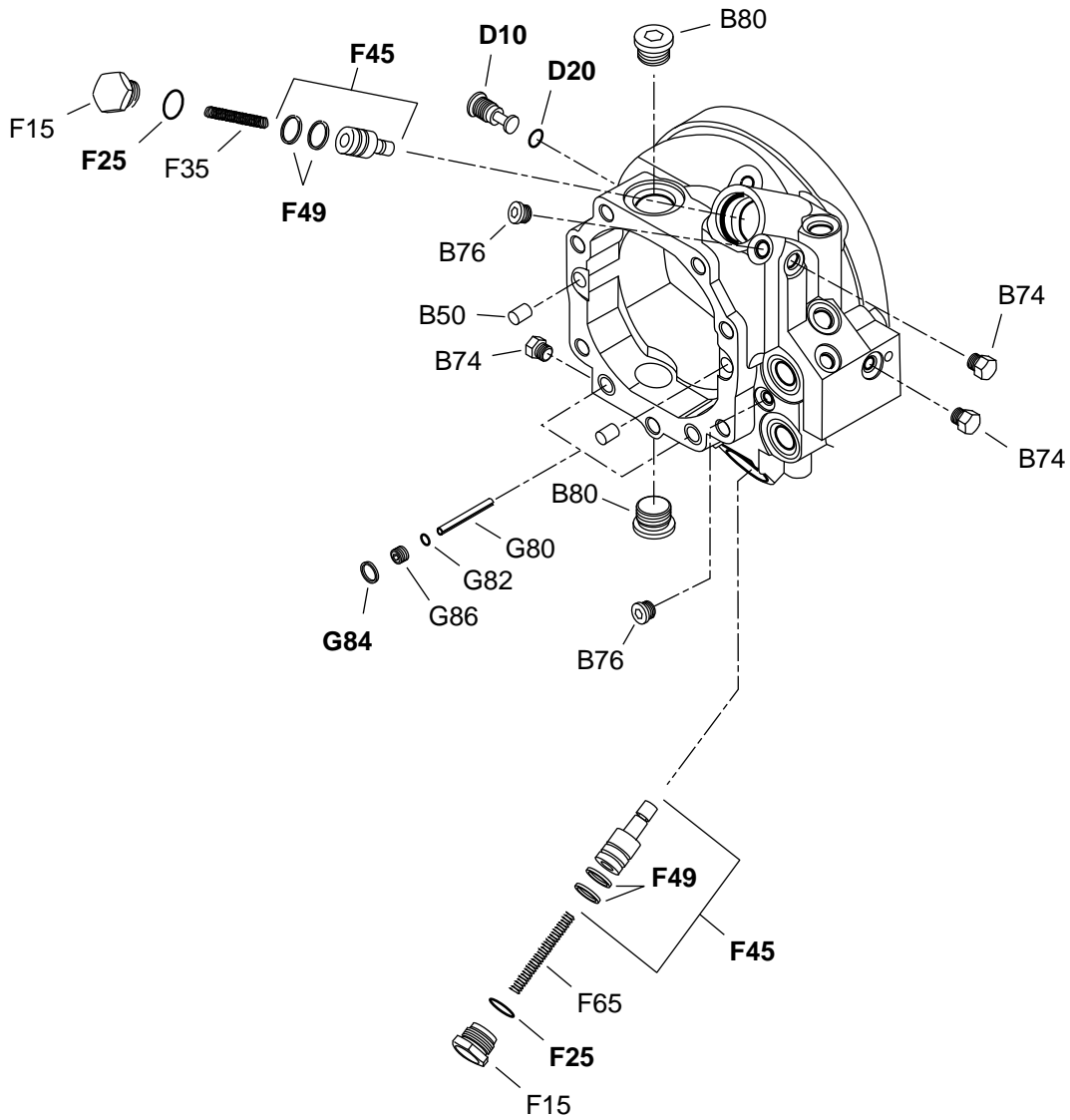
1	T101	90-22 →	8510077	Orifice plug, .021"	1
	T30	90-22 →	8800532	Filter screen	1
	T40	90-22 →	9004201-3700	O-ring	1
	T50	90-22 →	9006150-0100	Back-up ring	2
	T60	90-22 →	9004105-0100	O-ring	1

Servo Rate 'B'

	Y40	90-22 →	9004201-3700	O-ring	1
	Y50	90-22 →	9006150-0100	Back-up ring	2
	Y60	90-22 →	9004105-0100	O-ring	1
1	Y102	90-22 →	8510074	Orifice plug, .021" (fast)	1
	Y80	90-22 →	9005100-4400	Plug	1
2	Y102	90-22 →	8510075	Orifice valve assembly	1
	Y70	90-22 →	8510076	Orifice valve assembly	1
	Y71	90-22 →	5000120	Seal nut	1
	Y72	90-22 →	9004201-2500	O-ring	1

Bold Items indicate recommended parts to be stocked for servicing

Common Housing Parts



**Enlarged bold type item numbers
are Recommended parts to be
stocked for servicing**



75 cc Variable Displacement Cartridge Motor

Common Housing Parts

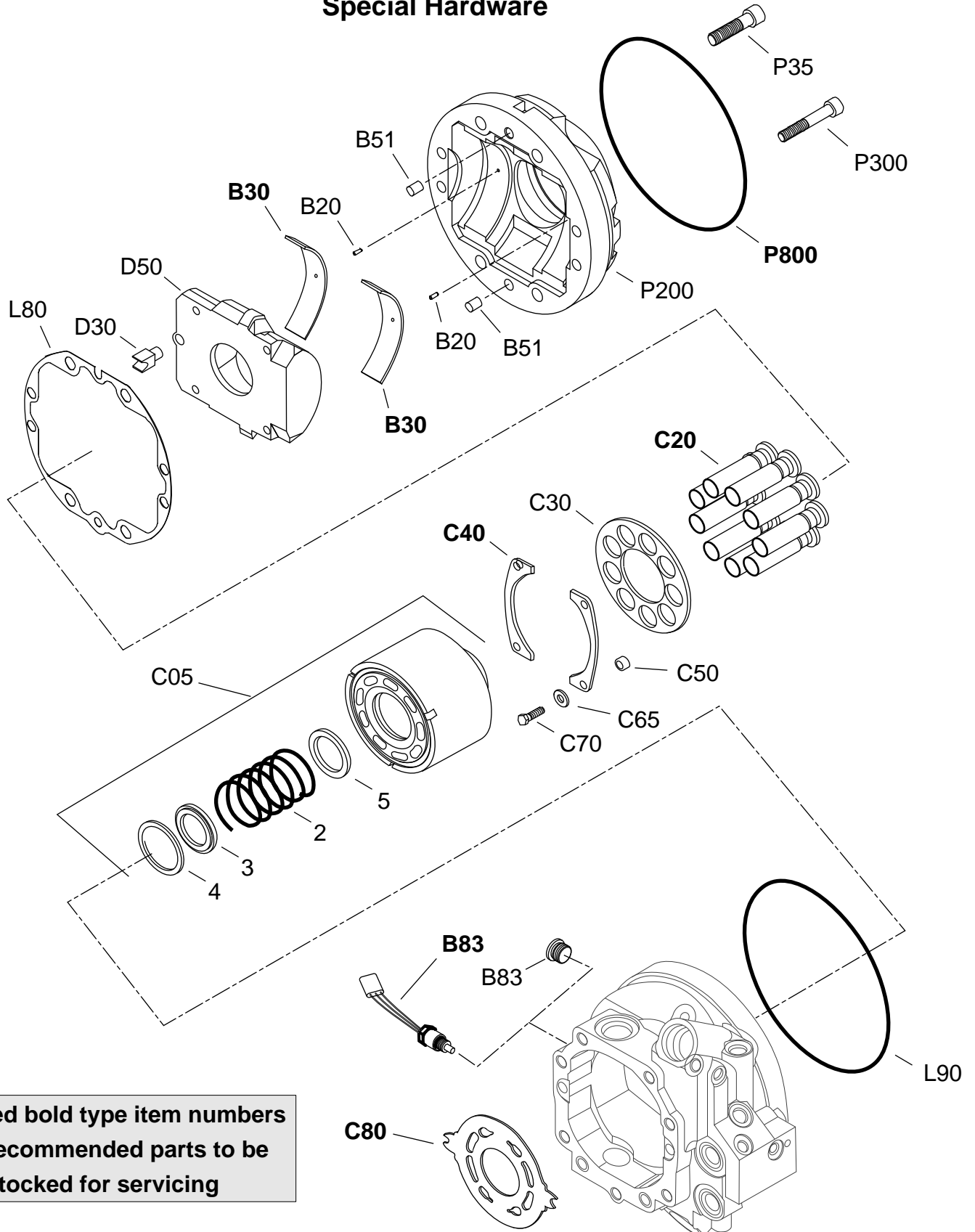
<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
	B50	90-22 →	9004800-3708	Pin	2
	B74	90-22 →	9005100-4400	Plug	3
	B76	90-22 →	9005110-4400	Plug	2
	B80	90-22 →	9005110-9000	Plug	2
	D10	90-22 →	8800758	Hold down pin	1
	D20	90-22 →	9004201-3700	O-ring	1
	F15	90-22 →	9005475-0099	Plug	2
	F25	90-22 →	38281	O-ring	2
	F35	90-22 →	8800619	Spring	1
	F45	90-22 →	8100441	Servo piston assembly	2
	F49	90-22 →	8700089	Piston seal ring	4
	F65	90-22 →	8100435	Spring	1

Overhaul Seal Kit

	S30	90-22 →	81040S30	Overhaul seal kit, 90V/C075	1
	C70	90-22 →	9007276-0099	Screw	4
	D20	90-22 →	9004201-3700	O-ring	1
	E35	90-22 →	9003509-0012	Seal nut	2
	F25	90-22 →	38281	O-ring	2
	G30	90-22 →	8100430	End cap gasket	1
	G84	90-22 →	8800865	Crush ring	2
	L40	90-22 →	9008000-0115	Lip seal	1
	L50	90-22 →	9004104-1530	O-ring	1
	L80	90-22 →	8100423	Front cover gasket	1
	L90	90-22 →	9004104-1710	O-ring	1
	P800	90-22 →	9004100-1720	O-ring	1*
	T40	90-22 →	9004201-3700	O-ring	1
	T50	90-22 →	9006150-0100	Back-up ring	1
	T60	90-22 →	9004105-0100	O-ring	1
	Y40	90-22 →	9004201-3700	O-ring	1
	Y50	90-22 →	9006150-0100	Back-up ring	2
	Y60	90-22 →	9004105-0100	O-ring	1

Bold Items indicate recommended parts to be stocked for servicing

Special Hardware



**Enlarged bold type item numbers
are Recommended parts to be
stocked for servicing**



75 cc Variable Displacement Cartridge Motor

<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
	B20	90-22 →	9004875-0126	Pin	2
	B30	90-22 →	8100433-0001	Cradle bearing	2
	B51	90-22 →	9004800-3708	Pin	2
	C20	90-22 →	708230	Piston assembly	9
	C30	90-22 →	8100007	Slipper retainer	1
	C40	90-22 →	8100294	Slipper guide bearing	2
	C50	90-22 →	8100450	Spacer	4
	C65	90-22 →	9009625-0129	Washer	4
	C70	90-22 →	9007276-0099	Screw	4
	C80	90-22 →	8100278	Valve plate	1
	D30	90-22 →	8100406	Hold down arm	1
	D50	90-22 →	8100431	Swashplate	1
	L80	90-22 →	8100423	Front cover gasket	1
	L90	90-22 →	9004104-1710	O-ring	1
	P35	90-22 →	9007314-1211	Screw	4
	P200	90-22 →	8100424	Front cover	1
	P300	90-22 →	9007314-1013	Screw	4
	P800	90-22 →	9004100-1720	O-ring	1

Special Hardware

EFA	B83	90-22 →	KPPA136	Speed sensor	1
	C05	90-22 →	8100525	Cylinder block assy., w/speed ring	1
NNN	B83	90-22 →	9005110-5600	Plug	1
	C05	90-22 →	8100267	Cylinder block assy., w/o speed ring	1

Bold Items indicate recommended parts to be stocked for servicing

Service Bulletin SB-8818

PRODUCTS AFFECTED: Series 90 Fixed Displacement Motors

SUBJECT: Dowel Pin Change

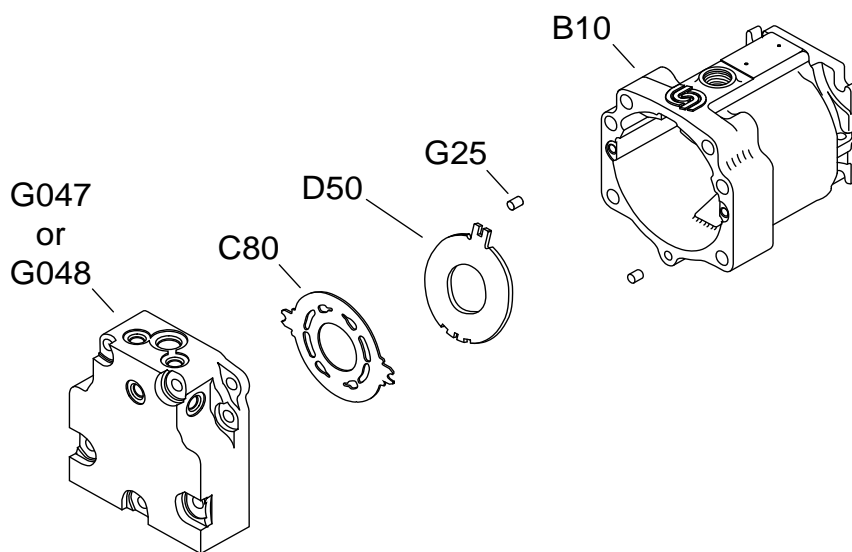
DESCRIPTION:

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.

The part numbers affected are listed on the reverse side of this bulletin.



Service Bulletin SB-8818

MODELS AFFECTED:

All 95-3XXX (75 cc), 96-3XXX (100 cc) Series 90 fixed displacement motors

SERIAL NUMBERS AFFECTED:

Series 90 75 cc fixed motors, 95-3XXX, changed at S/N 88-43-XXXXX
Series 90 100 cc fixed motors, 96-3XXX, changed at S/N 88-23-XXXXX

PART NUMBERS AFFECTED:

<u>Item</u>	<u>Qty/ Motor</u>	72 cc		100 cc	
		<u>Prior to 88-43</u>	<u>From 88-43</u>	<u>Prior to 88-23</u>	<u>From 88-23</u>
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:

- Not Applicable
- Interchangeable
- Non-Interchangeable
- Use Parts in Stock
- Scrap Used Parts
- Return New Parts for Credit
- Order Replacement Parts
- Rework Parts in Stock
- Revise Existing Part Orders
- Scrap New Parts and Supply for Credit

DISTRIBUTION:

- All Product Related Sauer-Sundstrand Distributors
- All Product Related OEM's
- All ASCs
- Non-Restricted Distribution

Service Bulletin SB-8823

PRODUCTS AFFECTED: Series 90 Pumps and Motors

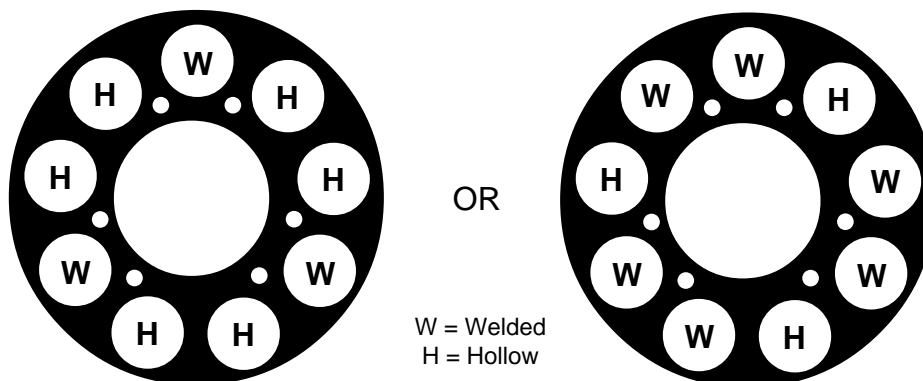
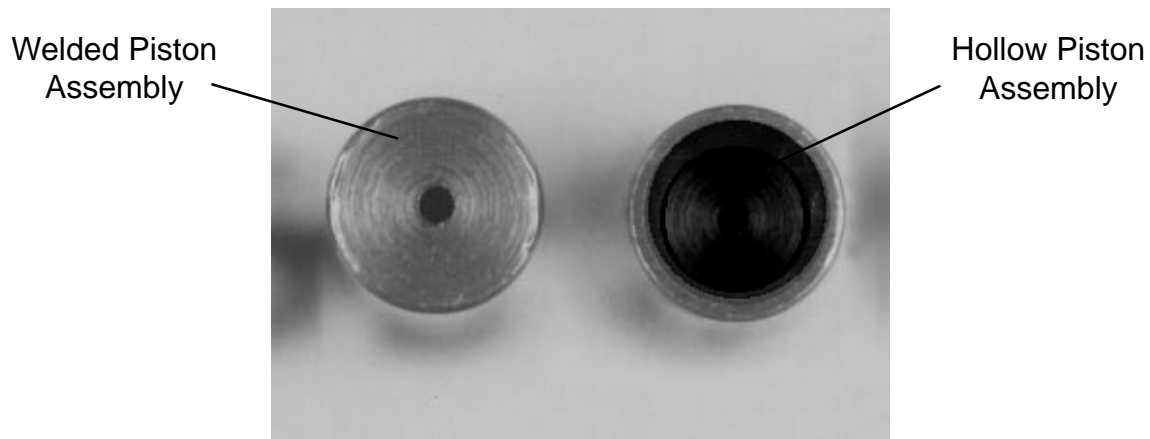
SUBJECT: Piston Improvement

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 service parts. The hollow pistons will be obsoleted. Part numbers for INDIVIDUAL welded piston assemblies are listed on the back side of 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 installed 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 (3).

Service Bulletin SB-8823

MODELS AFFECTED:

All Series 90 Pumps and Motors

93-XXXX
94-XXXX
95-XXXX
96-XXXX

SERIAL NUMBERS AFFECTED:

Welded pistons will be incorporated into all Series 90 pumps and motors by the end of the first quarter of 1989.

PART NUMBERS AFFECTED:

<u>PART NUMBER</u>	<u>DESCRIPTION</u>
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:

- Not Applicable
- Interchangeable (in groups of 3)
- Non-Interchangeable
- Use Parts in Stock
- Scrap Used Parts
- Return New Parts for Credit
- Order Replacement Parts
- Rework Parts in Stock
- Revise Existing Part Orders
- Scrap New Parts and Supply for Credit

DISTRIBUTION:

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- All Product Related OEM's
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Service Bulletin SB-8920

PRODUCTS AFFECTED: Series 90 Fixed Displacement Motors

SUBJECT: Incorporation of Adjustable Charge Relief Valve

DESCRIPTION:

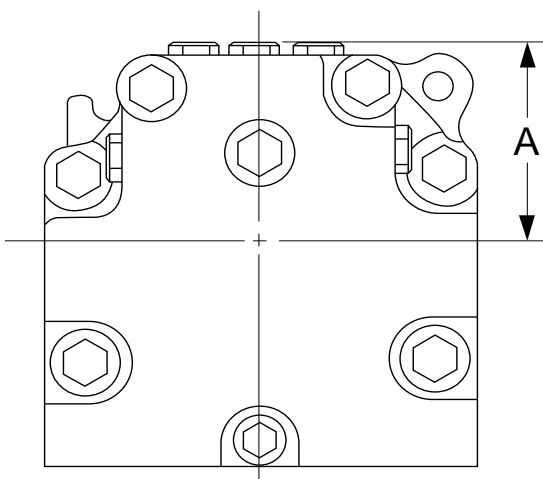
As a product improvement, Sauer-Sundstrand is incorporating an externally adjustable charge relief valve on all Series 90 fixed displacement motors. This design replaces the previous shimmed relief valve. The new design valve provides a range of pressure adjustment from 10 to 32 BAR.

The diameter of the loop flushing shuttle 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 charge relief and loop flushing hardware will remain available as service parts. 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.



Size	Dimension 'A'	
	Non-Adjustable	Adjustable (New)
55 cc	3.24" (82.3mm)	3.87" (98.3mm)
75 cc	3.50" (88.9mm)	4.13" (105mm)
100 cc	3.64" (92.5mm)	4.27" (108.5mm)

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 89-38-xxxxx
 All 75 cc motors (95-3xxx) will change at s/n 89-44-xxxxx
 All 100 cc motors (96-3xxx) will change at s/n 90-20-xxxxx

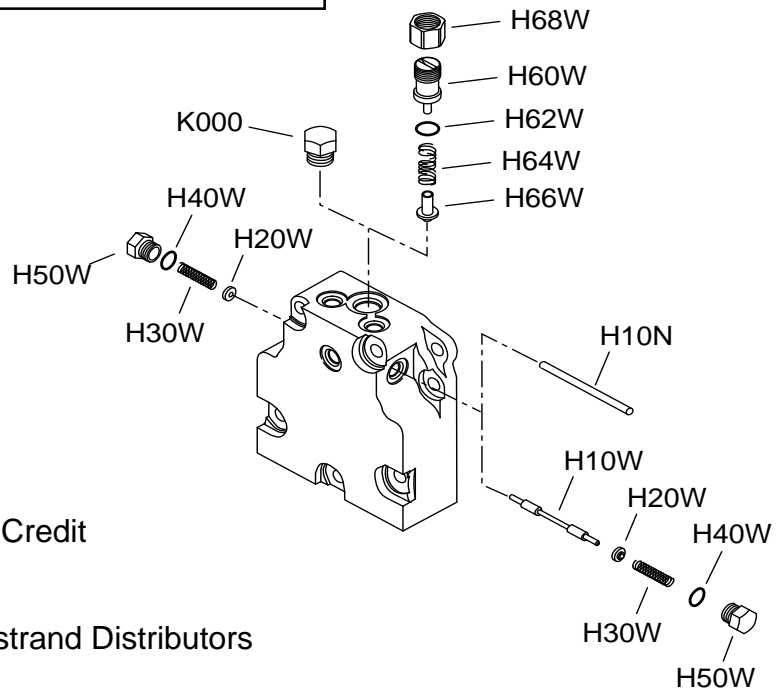
PART NUMBERS AFFECTED:

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	2
H10N	8800552	Loop flushing defeat spool	1

New End Caps	
P/N	Description
8000196	Twin port-55 cc
8000197	Axial port-55 cc
8100373	Twin port-75 cc
8100374	Axial port-75 cc
8200188	Twin port-100cc
8200189	Axial port-100cc

PARTS DISPOSITION:

- Not Applicable
- Interchangeable
- Non-Interchangeable
- Use Parts in Stock
- Scrap Used Parts
- Return New Parts for Credit
- Order Replacement Parts
- Rework Parts in Stock
- Revise Existing Part Orders
- Scrap New Parts and Supply for Credit



DISTRIBUTION:

- All Product Related Sauer-Sundstrand Distributors
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- All ASCs
- Non-Restricted Distribution

Service Bulletin SB-9311

PRODUCTS AFFECTED: Series 90 - 075 Frame Size Pumps and Motors

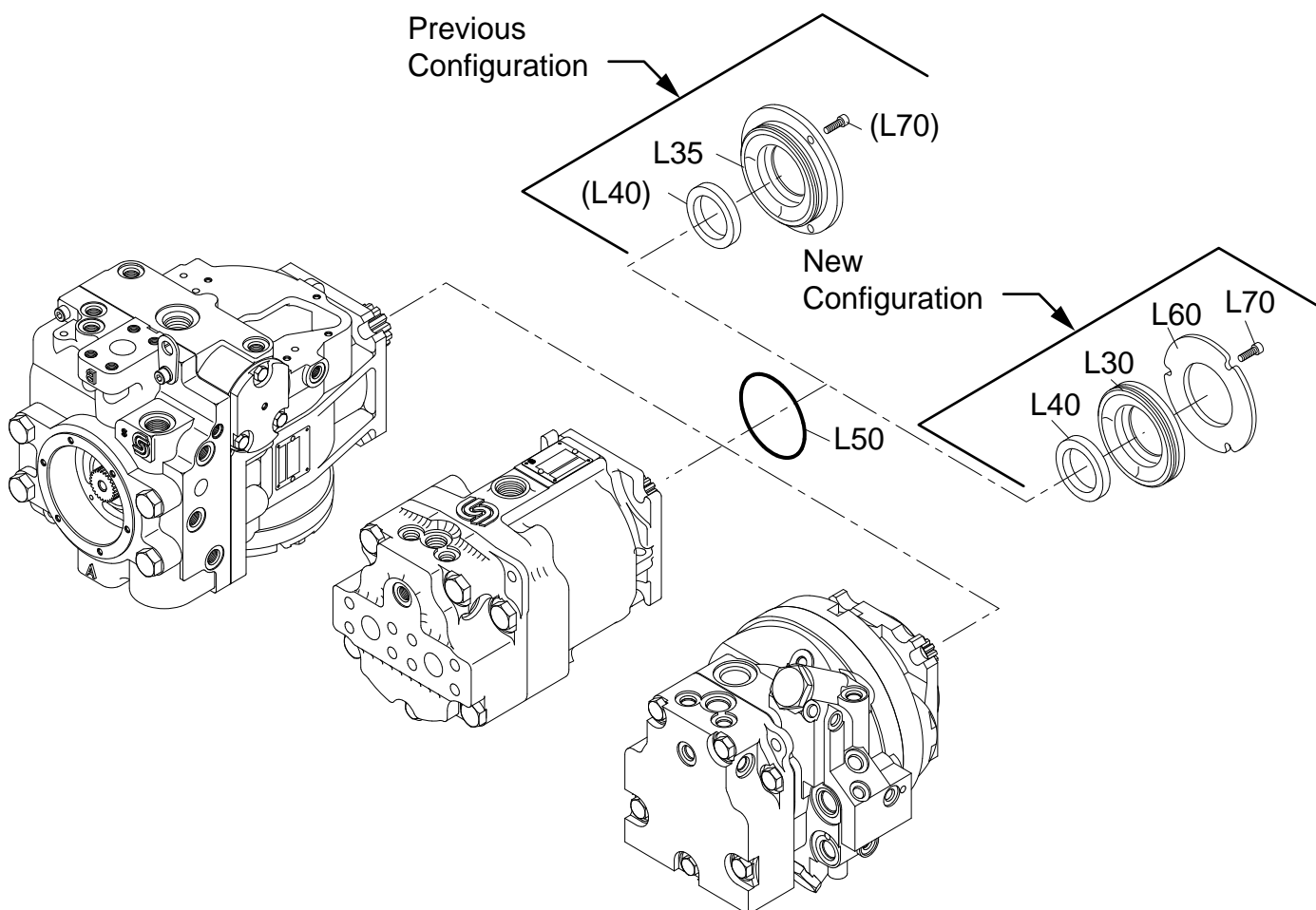
SUBJECT: Shaft Seal Retainer Design

DESCRIPTION:

Current production Series 90 variable pumps, fixed motors, and variable motors utilize a one-piece shaft seal retainer. This part will change to a two-piece design in December, 1993.

This change will provide a common configuration for the seal retainer among all series 90 units.

The old seal carrier (item L35) will be obsoleted. The two-piece seal retainer is interchangeable only if both the seal carrier (item L30) and the retaining plate (item L60) are installed. The shaft lip seal (item L40), O-ring (item L50), and screws (item L70) do not change.



Service Bulletin SB-9311

MODELS AFFECTED:

All Series 90 - 075 variable pumps, fixed motors, and variable motors:
95-2XXXX, 95-3XXXX, and 95-4XXXX

SERIAL NUMBERS AFFECTED:

This change will take place at Serial Number 93-51-XXXXXX.

PART NUMBERS AFFECTED:

Item	Description	Old Part Numbers (Prior to 93-51)	New Part Numbers (93-51 and Up)
L35	Seal Carrier / Retainer	8100298	Not Used
L30	Seal Carrier	Not Used on 075	776971
L60	Retainer Plate	Not Used on 075	776955

PARTS DISPOSITION:

- Not Applicable
- Interchangeable (as an assembly)
- Non-Interchangeable
- Use Parts in Stock
- Scrap Used Parts
- Return New Parts for Credit
- Order Replacement Parts
- Rework Parts in Stock
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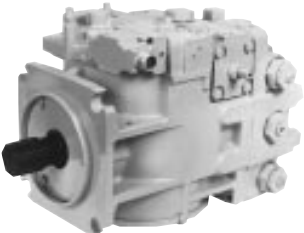
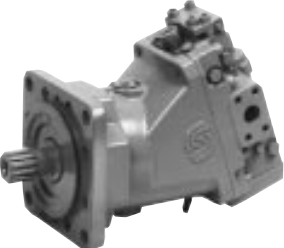

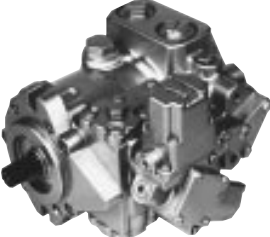
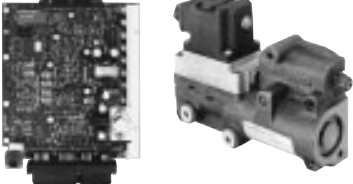
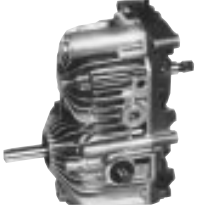

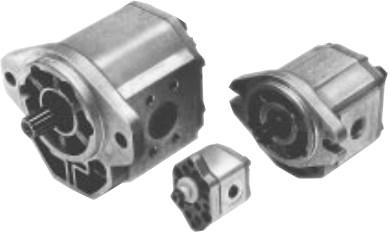

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