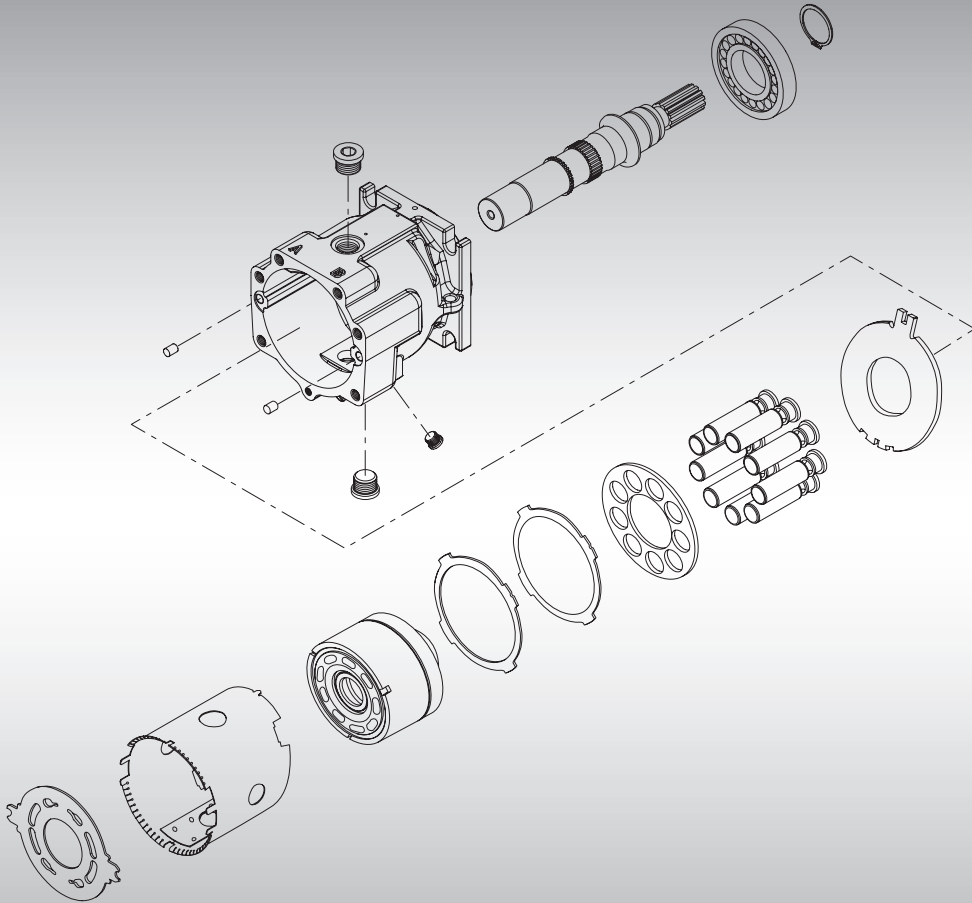




Parts Manual

Series 90 55 cc Axial Piston Motors





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Service Bulletin



General information

Service parts identification

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

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

Nameplate

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

Model Code

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

Model Number

The 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

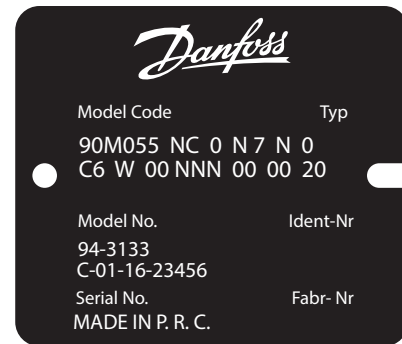
The Danfoss serial number is used to identify the manufacture date and the unit sequence in the build. The serial number is also used to identify the units warranty time period.

The letter code indicates the location of original manufacture (assembly). “C” indicates the unit was originally assembled in China.

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

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

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





General information

Date code

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

EXAMPLE: The service part desired is Item 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: 515965 (9005110-5600), customers would order 9005110-5600 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 90M055 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.

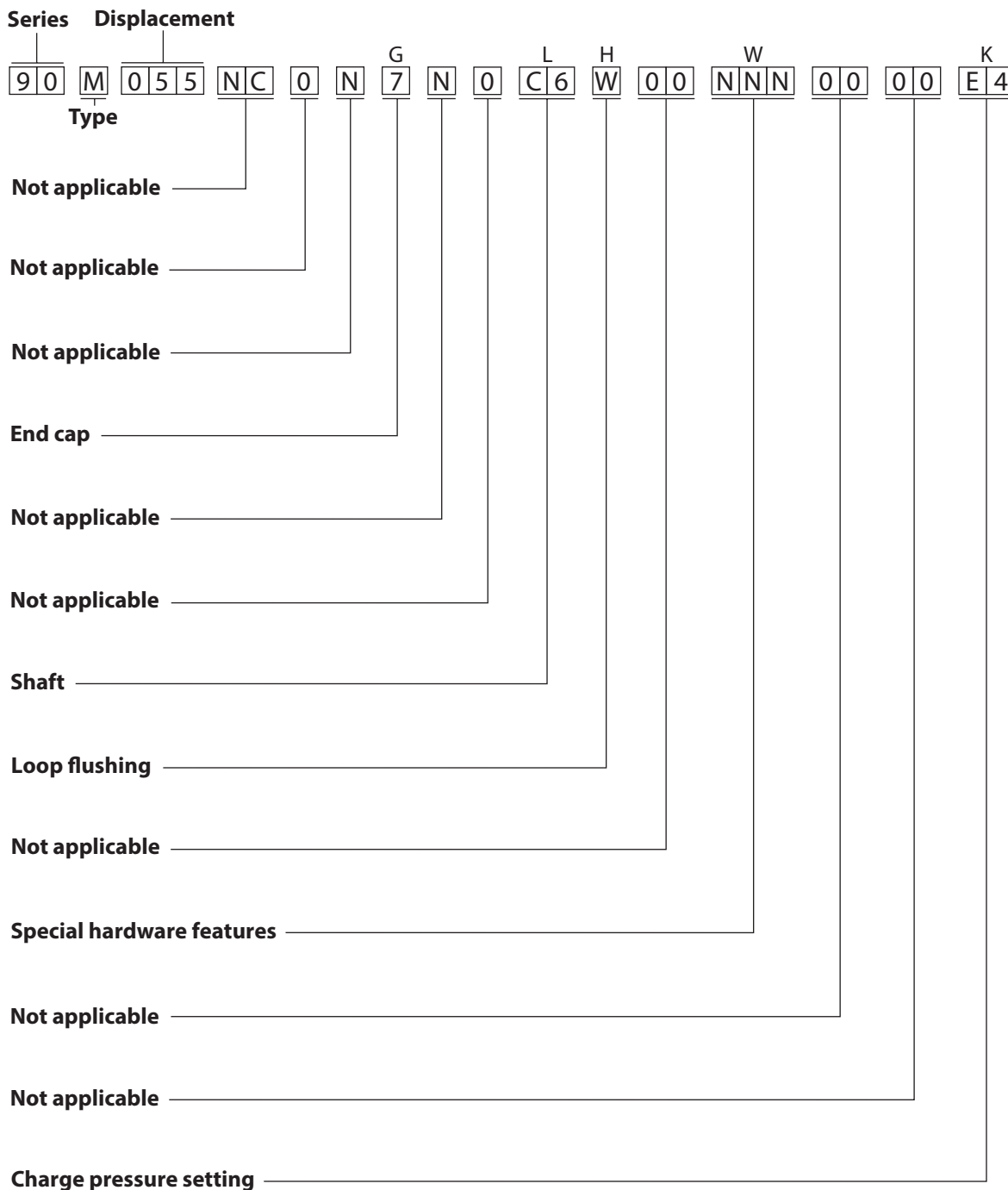
1) Referring to the shaft module in the Order Code (see page 7), the shaft option for this motor is identified by the code "C6". (90M055 NC 0 N 7 N 0 **C6** W 00 NNN 00 00 20.)

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 L100 and part number 8000825.





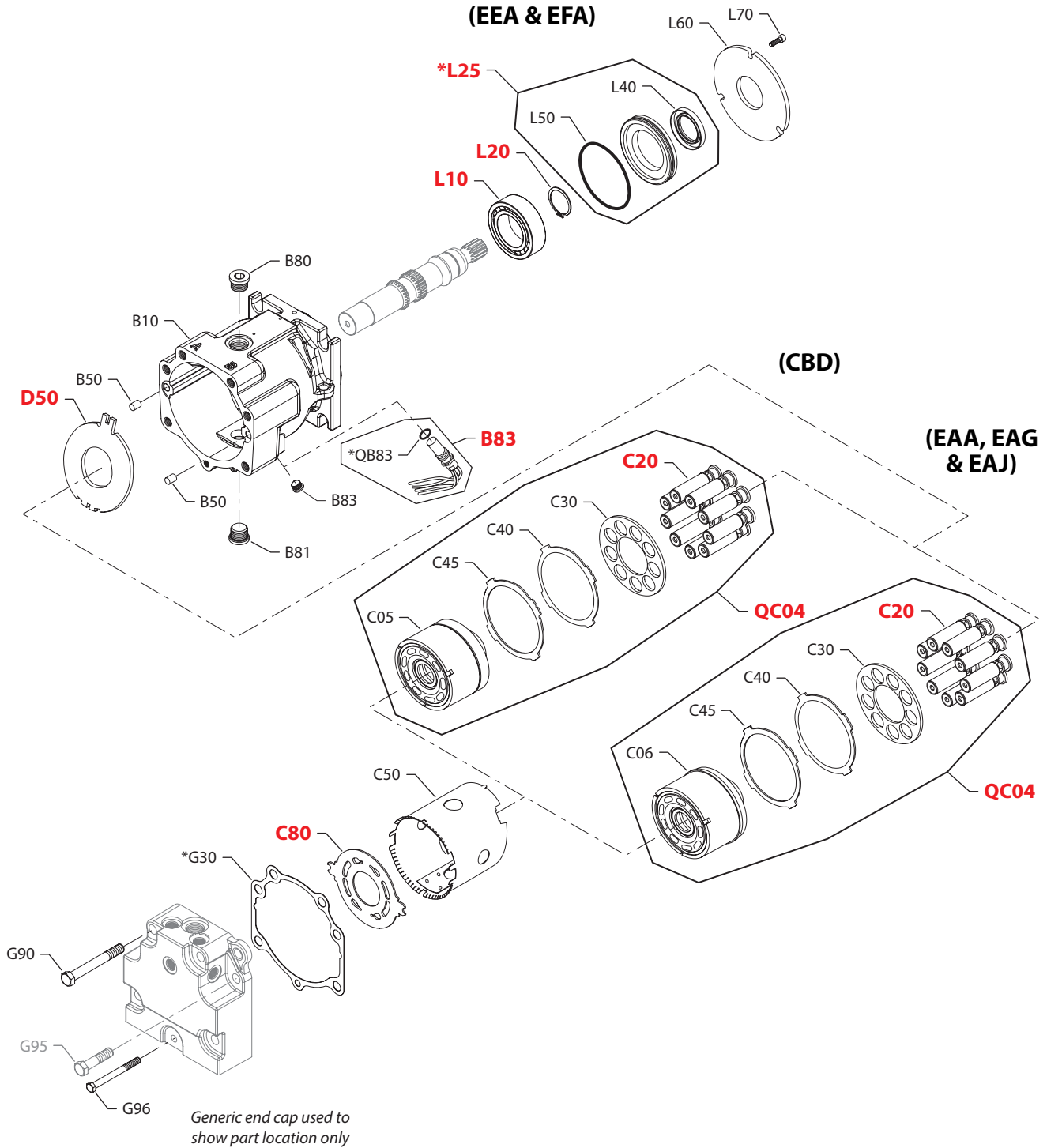
Order code, fixed displacement motor



P100 701E



Fixed displacement motor



* = included in overhaul seal kit Q210

E100 771E

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

Fixed displacement motor
Common parts

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	B10	87-02		8000782	Housing (SB-2004-015)	1
	B50	87-02		001289 (9004800-3708)	Pin	2
	B80	87-02		315325 (9005110-8700)	Plug assembly	1
	B81	87-02		315325 (9005110-8700)	Plug assembly	1
	C30	87-02		11067348	Slipper guide	1
	C40	88-43		11057796	Slipper guide retainer	1
	C45	88-43		11063827	Slipper guide retainer spacer	1
	C50	87-02		8000265	Hold down tube	1
	C80	87-02		329748	Valve plate	1
	D50	87-02		11136441	Thrust plate	1
	G30	87-02		8000721	End cap gasket	1
	G90	05-22		675918 (9007210-1216)	Screw (SB-2004-015)	6
	G90	87-02	05-21	675918 (9007210-1216)	Screw (SB-2004-015)	4
	G95	87-02	05-21	675900 (9007210-1209)	Screw (SB-2004-015)	2
	G96	87-02		9007210-0816	Screw	1
	L10	87-02		5000504	Roller beraing	1
	L20	87-02		9006300-0137	Retaining ring	1
	L25	87-02		11083637	Seal assembly	1
	L40	87-02		11013519	Lip seal	1
	L50	87-02		071845 (9004104-1510)	O-ring	1
	L60	87-02		11083638	Retainer plate	1
	L70	87-02		041160 (9007314-0605)	Screw	3

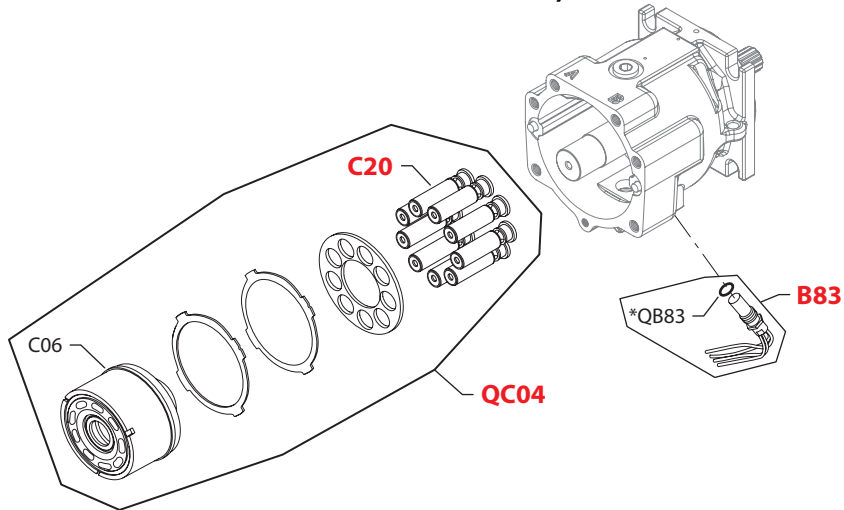
Special hardware

CBD	QC04	87-02		11137419	Cylinder block kit with special spring	1
	C05	87-02		8000801	Cylinder block assembly with special spring	1
	C20	87-02		8000803	Piston assembly (SB-1988-023)	9
	B83	87-02		140644	Plug assembly	1
EAA	QC04	87-02		8510396	Cylinder block kit w/speed ring	1
	C06	87-02		8000336	Cylinder block assembly w/speed ring	1
	C20	87-02		367672	Piston assembly (SB-1988-023)	9
	B83	87-02		KPPG12508	Speed sensor	1
	QB83	87-02		085043 (9004201-3700)	O-ring	1
EAG	QC04	87-02		8510396	Cylinder block kit w/speed ring	1
	C06	87-02		8000336	Cylinder block assembly w/speed ring	1
	C20	87-02		367672	Piston assembly (SB-1988-023)	9
	B83	87-02		KPPG16511	Speed sensor	1
	QB83	87-02		085043 (9004201-3700)	O-ring	1
EAJ	QC04	06-48		8510396	Cylinder block kit w/speed ring	1
	C06	06-48		8000336	Cylinder block assembly w/speed ring	1
	C20	06-48		367672	Piston assembly	9
	B83	06-48		KPPG166	Speed sensor	1
	QB83	06-48		085043 (9004201-3700)	O-ring	1

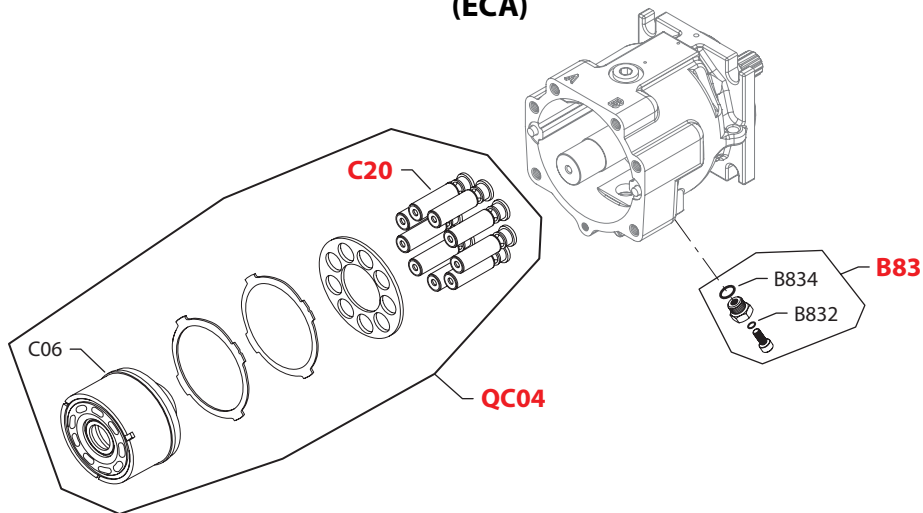


Fixed displacement motor

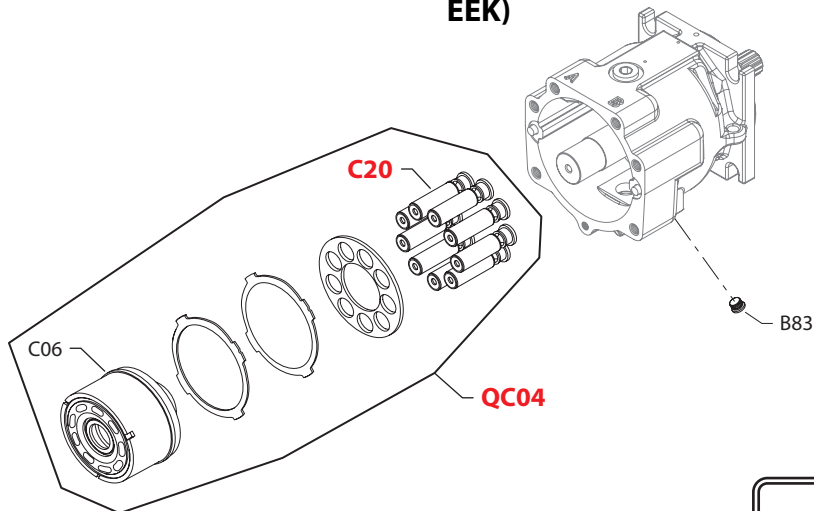
(EAK, EBA, EBF,
EFA & EFC)



(ECA)



(EEA, EEH,
EEK)



* = included in overhaul seal kit Q210

E103 020E

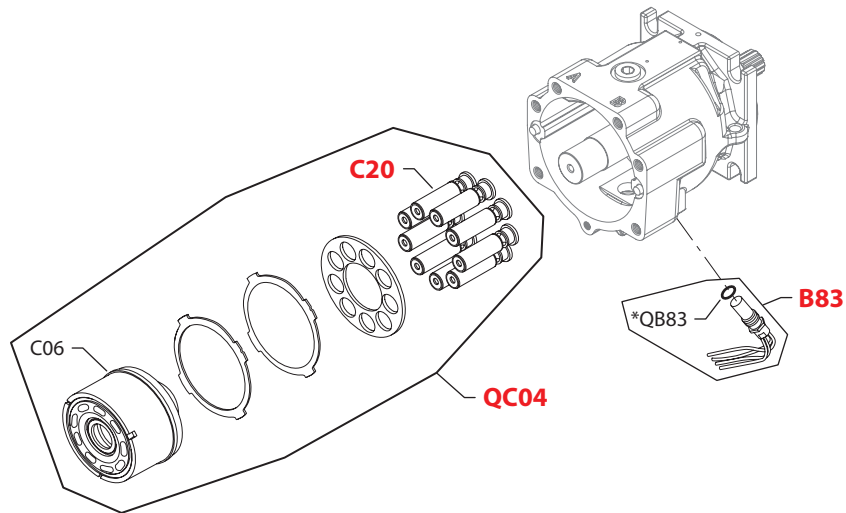
Enlarged **bold** type item numbers are recommended part to stock for servicing.


Fixed displacement motor
Special hardware

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
EAK	C06	14-43		8000336	Cylinder block assembly w/speed ring	1
	C20	14-43		367672	Piston assembly	9
	B83	14-43		KPPG166	Speed sensor	1
	QB83	14-43		085043 (9004201-3700)	O-ring	1
	QC04	14-43		8510396	Cylinder block kit w/speed ring	1
EBA	C06	87-02		8000336	Cylinder block assembly w/speed ring	1
	C20	87-02		367672	Piston assembly (SB-1988-023)	9
	B83	87-02		KPPG13408	Speed sensor	1
	QB83	87-02		085043 (9004201-3700)	O-ring	1
	QC04	87-02		8510396	Cylinder block kit w/speed ring	1
EBF	C06	15-30		8000336	Cylinder block assembly w/speed ring	1
	C20	15-30		367672	Piston assembly	9
	B83	15-30		KPPG1A408	Speed sensor	1
	QB83	15-30		085043 (9004201-3700)	O-ring	1
	QC04	15-30		8510396	Cylinder block kit w/speed ring	1
ECA	C06	87-02		8000809	Cylinder block assembly w/impulse speed ring	1
	C20	87-02		367672	Piston assembly (SB-1988-023)	9
	B83	87-02		8800861	Special plug assembly	1
	B832	87-02		9004101-0110	O-ring	1
	B834	87-02		085043 (9004201-3700)	O-ring	1
	QC04	87-02		11137420	Cylinder block kit w/impulse speed ring	1
EEA	C06	87-02		8000336	Cylinder block assembly w/speed ring	1
	C20	87-02		367672	Piston assembly (SB-1988-023)	9
	B83	87-02		140644	Plug assembly	1
	QC04	87-02		8510396	Cylinder block kit w/speed ring	1
EEH	QC04	87-02		8510396	Cylinder block kit w/speed ring	1
	C06	87-02		8000336	Cylinder block assembly w/speed ring	1
	C20	87-02		367672	Piston assembly (SB-1988-023)	9
	B83	87-02		140644	Plug assembly	1
EEK	QC04	87-02		8510396	Cylinder block kit w/speed ring	1
	C06	87-02		8000336	Cylinder block assembly w/speed ring	1
	C20	87-02		367672	Piston assembly (SB-1988-023)	9
	B83	87-02		140644	Plug assembly	1
EFA	QC04	87-02		8510396	Cylinder block kit w/speed ring	1
	C06	87-02		8000336	Cylinder block assembly w/speed ring	1
	C20	87-02		367672	Piston assembly (SB-1988-023)	9
	B83	87-02		KPPG136	Speed sensor	1
	QB83	87-02		085043 (9004201-3700)	O-ring	1
EFC	QC04	87-02		8510396	Cylinder block kit w/speed ring	1
	C05	87-02		8000336	Cylinder block assembly w/speed ring	1
	C20	87-02		367672	Piston assembly (SB-1988-023)	9
	B83	87-02		KPPG156	Speed sensor	1
	QB83	87-02		085043 (9004201-3700)	O-ring	1



(EFE, EFM, EFS, EGG, EGH, EGJ, EGM & EHD)



* = included in overhaul seal kit Q210

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

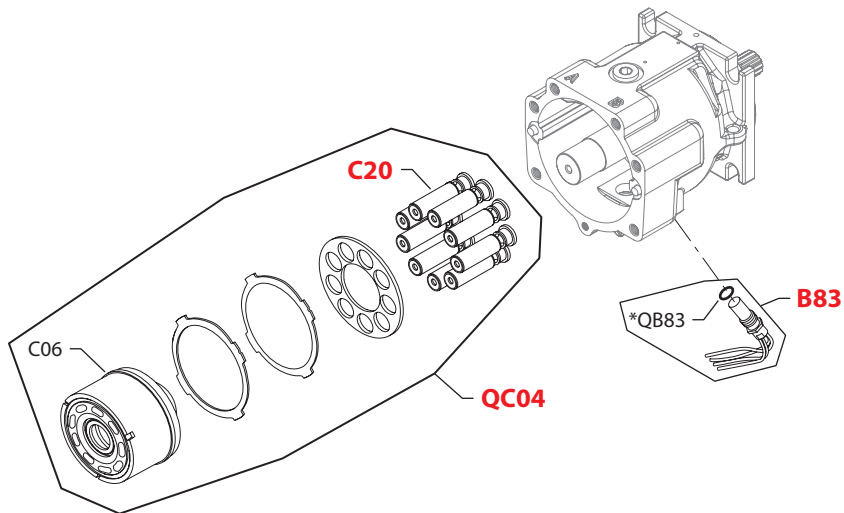

Special hardware

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
EFE	C06	87-02		8000336	Cylinder block assembly w/speed ring	1
	C20	87-02		367672	Piston assembly (SB-1988-023)	9
	B83	87-02		KPPG136	Speed sensor	1
	QB83	87-02		085043 (9004201-3700)	O-ring	1
	QC04	87-02		8510396	Cylinder block kit w/speed ring	1
EFM	C06	87-02		8000336	Cylinder block assembly. w/speed ring	1
	C20	87-02		367672	Piston assembly (SB-1988-023)	9
	B83	87-02		KPPG12730A	Speed sensor	1
	QB83	87-02		085043 (9004201-3700)	O-ring	1
	QC04	87-02		8510396	Cylinder block kit, w/speed ring	1
EFS	C06	87-02	15-22	8000336	Cylinder block assembly. w/speed ring	1
	C20	87-02	15-22	367672	Piston assembly (SB-1988-023)	9
	B83	87-02	15-22	KPPG12703A	Speed sensor	1
	QB83	87-02	15-22	085043 (9004201-3700)	O-ring	1
	QC04	87-02	15-22	8510396	Cylinder block kit, w/speed ring	1
EGG	C06	87-02		8000336	Cylinder block assembly. w/speed ring	1
	C20	87-02		367672	Piston assembly (SB-1988-023)	9
	B83	87-02		KPPG17708	Speed sensor	1
	QB83	87-02		085043 (9004201-3700)	O-ring	1
	QC04	87-02		8510396	Cylinder block kit, w/speed ring	1
EGH	C06	87-02		8000336	Cylinder block assembly. w/speed ring	1
	C20	87-02		367672	Piston assembly (SB-1988-023)	9
	B83	87-02		KPPG13703	Speed sensor	1
	QB83	87-02		085043 (9004201-3700)	O-ring	1
	QC04	87-02		8510396	Cylinder block kit, w/speed ring	1
EGJ	C06	87-02		8000336	Cylinder block assembly. w/speed ring	1
	C20	87-02		367672	Piston assembly (SB-1988-023)	9
	B83	87-02		KPPG19708	Speed sensor	1
	QB83	87-02		085043 (9004201-3700)	O-ring	1
	QC04	87-02		8510396	Cylinder block kit, w/speed ring	1
EGM	C06	14-34		8000336	Cylinder block assembly. w/speed ring	1
	C20	14-34		367672	Piston assembly	9
	B83	14-34		11150658	Speed sensor	1
	QB83	14-34		085043 (9004201-3700)	O-ring	1
	QC04	14-34		8510396	Cylinder block kit, w/speed ring	1
EHD	C06	87-02		8000336	Cylinder block assembly. w/speed ring	1
	C20	87-02		367672	Piston assembly (SB-1988-023)	9
	B83	87-02		KPPG16408	Speed sensor	1
	QB83	87-02		085043 (9004201-3700)	O-ring	1
	QC04	87-02		8510396	Cylinder block kit, w/speed ring	1

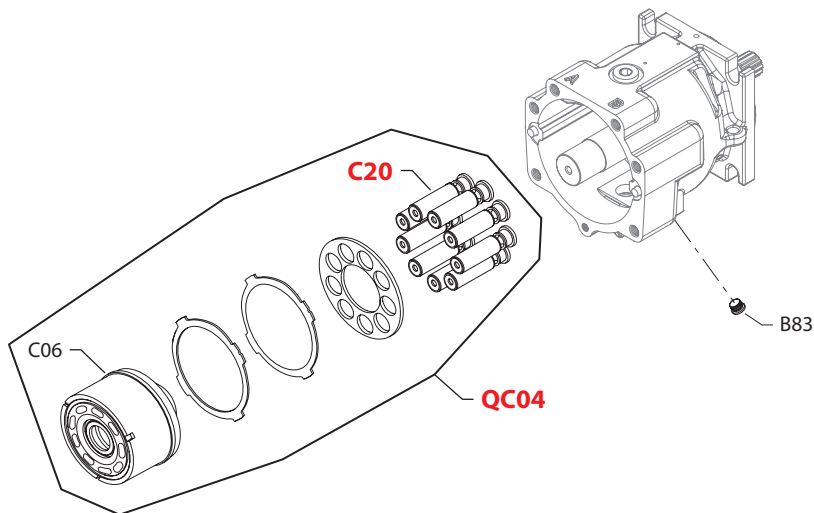


Fixed displacement motor

(EHK)



(JAA, JAD, JAF, JAG, JAH, JAK, JAL, JCA & JCB)



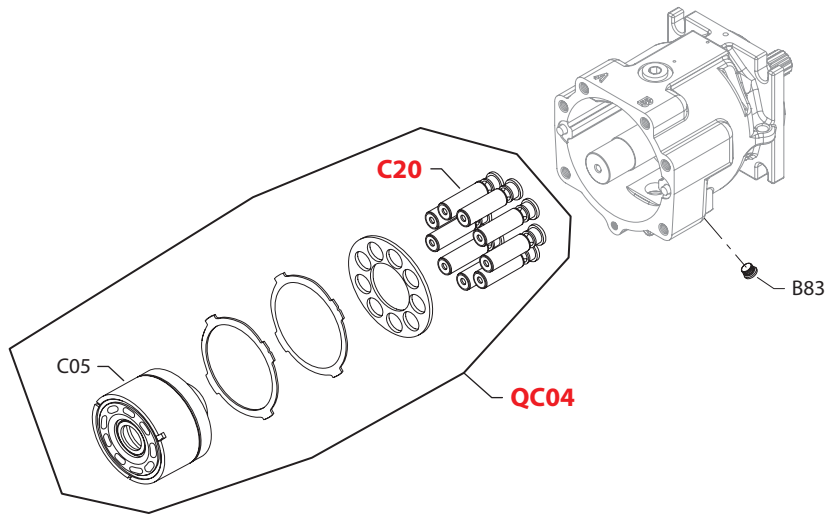
E103 021E

* = included in overhaul seal kit Q210

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


Fixed displacement motor
Special hardware

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
EHK	C06	87-02	15-22	8000336	Cylinder block assembly. w/speed ring	1
	C20	87-02	15-22	367672	Piston assembly (SB-1988-023)	9
	B83	87-02	15-22	KPPG19408	Speed sensor	1
	QB83	87-02	15-22	085043 (9004201-3700)	O-ring	1
	QC04	87-02	15-22	8510396	Cylinder block kit, w/speed ring	1
JAA	QC04	08-04		8510361	Cylinder block kit, w/o speed ring	1
	C05	08-04		8000128	Cylinder block assembly. w/o speed ring	1
	C20	08-04		367672	Piston assembly	9
	B83	08-04		140644	Plug assembly	1
JAD	QC04	06-17		8510361	Cylinder block kit, w/o speed ring	1
	C05	06-17		8000128	Cylinder block assembly. w/o speed ring	1
	C20	06-17		367672	Piston assembly	9
	B83	06-17		140644	Plug assembly	1
JAF	QC04	15-03		8510361	Cylinder block kit, w/o speed ring	1
	C05	15-03		8000128	Cylinder block assembly. w/o speed ring	1
	C20	15-03		367672	Piston assembly	9
	B83	15-03		140644	Plug assembly	1
JAG	QC04	06-12		8510361	Cylinder block kit, w/o speed ring	1
	C05	06-12		8000128	Cylinder block assembly. w/o speed ring	1
	C20	06-17		367672	Piston assembly	9
	B83	06-12		140644	Plug assembly	1
JAH	QC04	06-12		8510361	Cylinder block kit, w/o speed ring	1
	C05	06-12		8000128	Cylinder block assembly. w/o speed ring	1
	C20	06-17		367672	Piston assembly	9
	B83	06-12		140644	Plug assembly	1
JAK	QC04	06-13		8510361	Cylinder block kit, w/o speed ring	1
	C05	06-13		8000128	Cylinder block assembly. w/o speed ring	1
	C20	06-17		367672	Piston assembly	9
	B83	06-13		140644	Plug assembly	1
JAL	QC04	06-17		8510361	Cylinder block kit, w/o speed ring	1
	C05	06-17		8000128	Cylinder block assembly. w/o speed ring	1
	C20	06-17		367672	Piston assembly	9
	B83	06-17		140644	Plug assembly	1
JCA	QC04	09-51		8510361	Cylinder block kit, w/o speed ring	1
	C05	09-51		8000128	Cylinder block assembly. w/o speed ring	1
	C20	09-51		367672	Piston assembly	9
	B83	09-51		140644	Plug assembly	1
JCB	QC04	09-51		8510361	Cylinder block kit, w/o speed ring	1
	C05	09-51		8000128	Cylinder block assembly. w/o speed ring	1
	C20	09-51		367672	Piston assembly	9
	B83	09-51		140644	Plug assembly	1



E103 022E

* = included in overhaul seal kit Q210

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

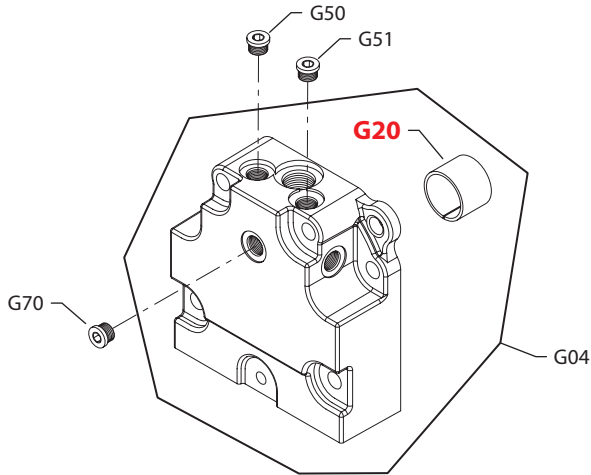

Special hardware

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
MBX	QC04	87-02		11167850	Cylinder block kit, w/o speed ring	1
	C05	87-02		8000128	Cylinder block assembly. w/o speed ring	1
	C20	06-17		11161572	Piston assembly, solid	9
	B83	87-02		140644	Plug assembly	1
MIX	QC04	87-02		11167850	Cylinder block kit, w/o speed ring	1
	C05	87-02		8000128	Cylinder block assembly. w/o speed ring	1
	C20	06-17		11161572	Piston assembly, solid	9
	B83	87-02		140644	Plug assembly	1
NNN	QC04	87-02		8510361	Cylinder block kit, w/o speed ring	1
	C05	87-02		8000128	Cylinder block assembly. w/o speed ring	1
	C20	06-17		367672	Piston assembly	9
	B83	87-02		140644	Plug assembly	1

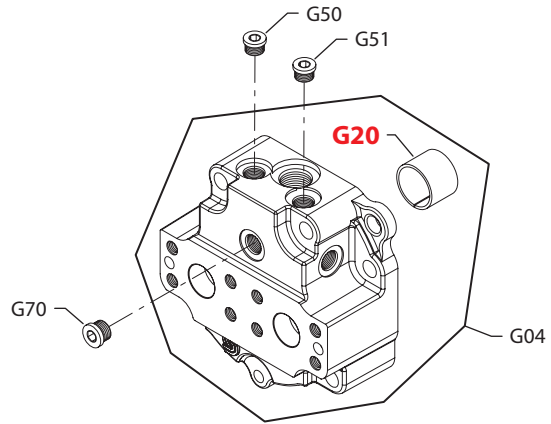


Fixed displacement motor

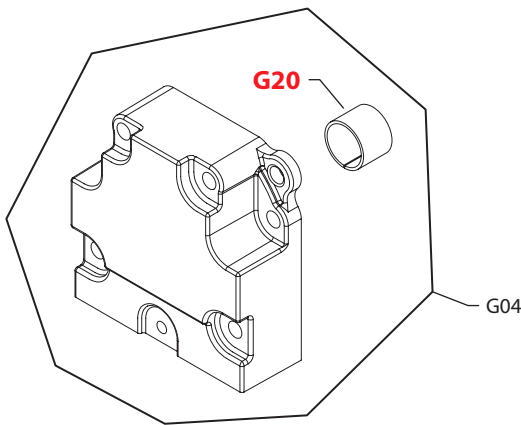
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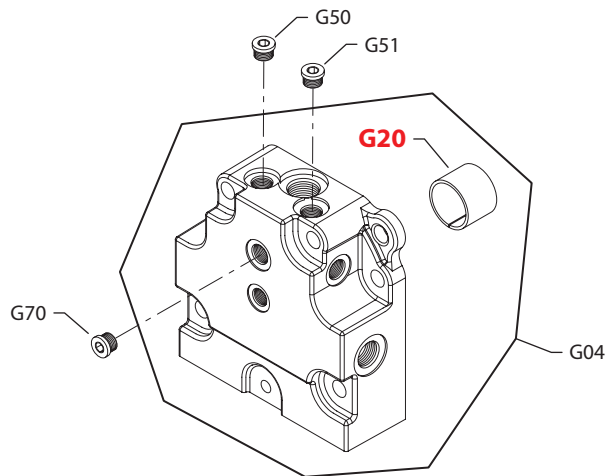
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* = included in overhaul seal kit Q210

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

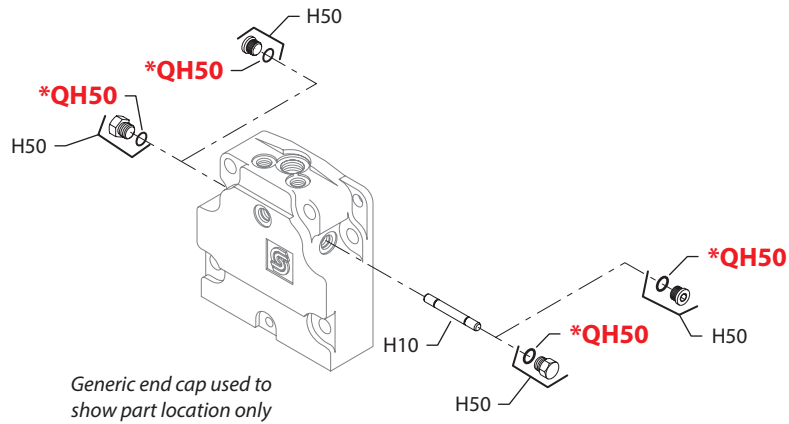

Fixed displacement motor
End cap

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
1	G04	89-38		8000785	End cap assembly, twin ports (SB-1998-007)	1
	G20	87-02		11017371 (8700018)	Journal bearing	1
	G50	87-02		140644	Plug assembly	1
	G51	87-02		140644	Plug assembly	1
	G70	87-02		140644	Plug assembly	1
3	G04	89-38		8000788	End cap assembly, axial ports (SB-1998-007)	1
	G20	87-02		11017371 (8700018)	Journal bearing	1
	G50	87-02		140644	Plug assembly	1
	G51	87-02		140644	Plug assembly	1
	G70	87-02		140644	Plug assembly	1
7	G04	89-38		8000788	End cap assembly, axial ports (SB-1998-007)	1
	G20	87-02		11017371 (8700018)	Journal bearing	1
	G50	87-02		140644	Plug assembly	1
	G51	87-02		140644	Plug assembly	1
	G70	87-02		140644	Plug assembly	1
8	G04	89-38		8000785	End cap assembly, twin ports (SB-1998-007)	1
	G20	87-02		11017371 (8700018)	Journal bearing	1
	G50	87-02		140644	Plug assembly	1
	G51	87-02		140644	Plug assembly	1
	G70	87-02		140644	Plug assembly	1
C	G04	94-19		8000786	End cap assembly, twin ports, without loop flushing	1
	G20	94-19		11017371 (8700018)	Journal bearing	1
D	G04	95-40		8000787	End cap assembly, twin metric ports (SB-1998-007)	1
	G20	95-40		11017371 (8700018)	Journal bearing	1
	G50	95-40		140644	Plug assembly	1
	G51	95-40		140644	Plug assembly	1
	G70	95-40		140644	Plug assembly	1
J	G04	95-40		8000816	End cap assembly, twin metric ports (SB-1998-007)	1
	G20	95-40		11017371 (8700018)	Journal bearing	1
	G50	95-40		140644	Plug assembly	1
	G51	95-40		140644	Plug assembly	1
	G70	95-40		140644	Plug assembly	1
L	G04	95-40		8000531	End cap assembly, twin metric ports (SB-1998-007)	1
	G20	95-40		11017371 (8700018)	Journal bearing	1
	G50	95-40		140644	Plug assembly	1
	G51	95-40		140644	Plug assembly	1
	G70	95-40		140644	Plug assembly	1

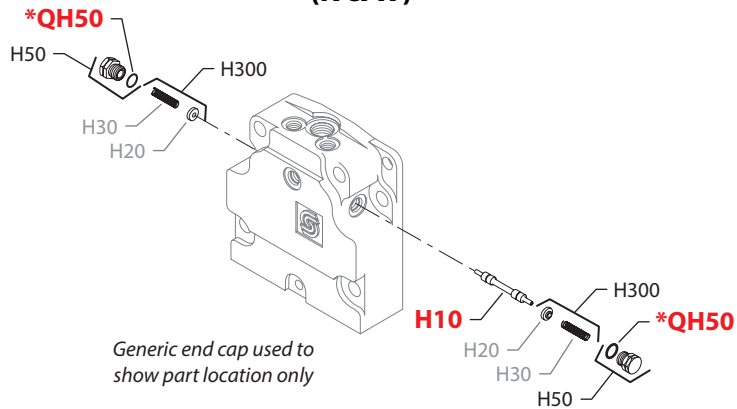


Fixed displacement motor

(N)



(K & W)



E100 773E

* = included in overhaul seal kit Q210

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



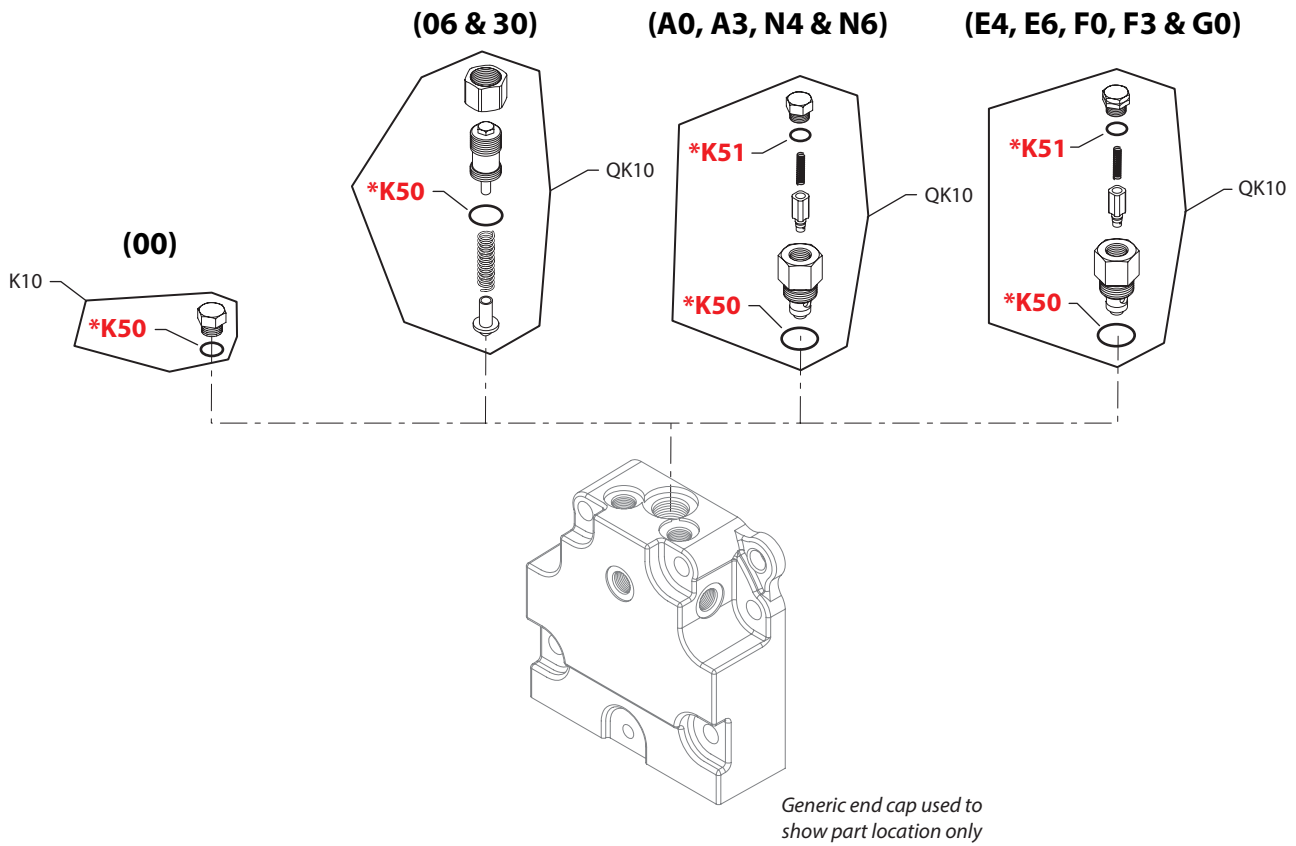
Fixed displacement motor

Loop flushing

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
K	H10	15-18		11162062	Shuttle spool, open center	1
	H50	15-18		518016	Plug assembly	2
	H300	15-18		513596	Spring guide assembly	2
	QH50	15-18		085043 (9004201-3700)	O-ring	2
N	H10	89-38		8800668	Loop flushing spool, defeated	1
	H10	87-02	89-37	308486 (8800021)	Loop flushing spool, defeated (SB-1989-020)	1
	H50	87-02		140644	Plug assembly	2
	QH50	87-02		085043 (9004201-3700)	O-ring	2
W	H10	89-38		11138733	Shuttle spool	1
	H10	87-02	89-37	674473 (8800069)	Loop flushing spool, defeated (SB-1989-020)	1
	H20	87-02	89-37	674481 (8800265)	Spring guide (SB-1989-020)	2
	H30	87-02	89-37	8800067	Spring (SB-1989-020)	2
	H50	89-38		518016	Plug assembly	2
	H50	87-02	89-37	674507 (9005475-0069)	Plug assembly (SB-1989-020)	2
	H300	89-38		513596	Spring guide assembly (SB-2000-047)	2
	QH50	87-02		085043 (9004201-3700)	O-ring	2
X		97-28		none		



Fixed displacement motor



E100 823E

* = included in overhaul seal kit Q210

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

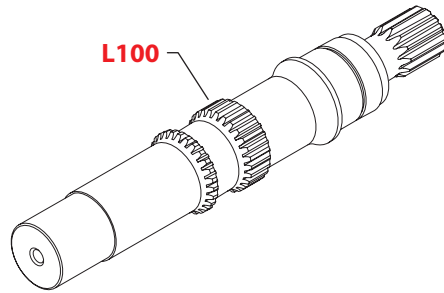

Fixed displacement motor
Charge pressure setting

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
	K50	89-44		001149 (9004201-6200)	O-ring	1
06-30	QK10	90-20		8510012	Adjustable charge relief valve kit (SB-1989-020)	1
	K50	90-20		001149 (9004201-6200)	O-ring	1
A0	QK10	98-19		8510253	Cartridge CPRV kit, 13 bar, 11 L/min	1
	K50	98-19		001149 (9004201-6200)	O-ring	1
	K51	98-19		085043 (9004201-3700)	O-ring	1
A3	QK10	98-19		8510256	Cartridge CPRV kit, 13 bar, 16 L/min	1
	K50	98-19		001149 (9004201-6200)	O-ring	1
	K51	98-19		085043 (9004201-3700)	O-ring	1
E4	QK10	98-19		8510261	Cartridge CPRV kit, 16 bar, 4 L/min	1
	K50	98-19		001149 (9004201-6200)	O-ring	1
	K51	98-19		085043 (9004201-3700)	O-ring	1
E6	QK10	98-19		8510252	Cartridge CPRV kit, 16 bar, 7 L/min	1
	K50	98-19		001149 (9004201-6200)	O-ring	1
	K51	98-19		085043 (9004201-3700)	O-ring	1
F0	QK10	98-19		8510259	Cartridge CPRV kit, 16 bar, 11 L/min	1
	K50	98-19		001149 (9004201-6200)	O-ring	1
	K51	98-19		085043 (9004201-3700)	O-ring	1
F3	QK10	98-19		8510262	Cartridge CPRV kit, 16 bar, 16 L/min	1
	K50	98-19		001149 (9004201-6200)	O-ring	1
	K51	98-19		085043 (9004201-3700)	O-ring	1
G0	QK10	98-19		8510260	Cartridge CPRV kit, 16 bar, 22 L/min	1
	K50	98-19		001149 (9004201-6200)	O-ring	1
	K51	98-19		085043 (9004201-3700)	O-ring	1
N4	QK10	98-19		8510255	Cartridge CPRV kit, 13 bar, 4 L/min	1
	K50	98-19		001149 (9004201-6200)	O-ring	1
	K51	98-19		085043 (9004201-3700)	O-ring	1
N6	QK10	98-19		11097072	Cartridge CPRV kit, 13 bar, 7 L/min	1
	K50	98-19		001149 (9004201-6200)	O-ring	1
	K51	98-19		085043 (9004201-3700)	O-ring	1
NN				none		

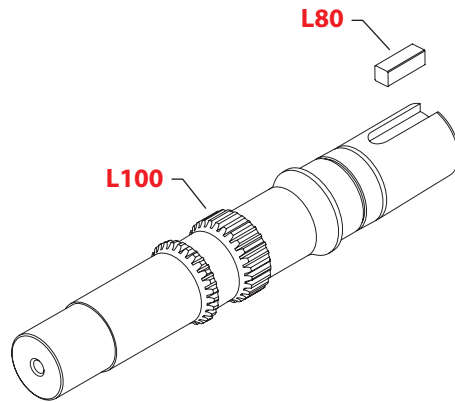


Fixed displacement motor

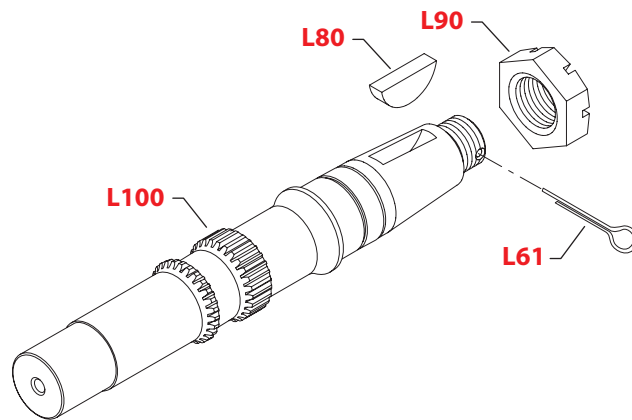
(C6, D9 & S1)



(K1 & K5)



(T1)



E100 774E

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


Fixed displacement motor
Shaft

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
C6	L100	87-02		8000825	Shaft, 21 tooth spline	1
D9	L100	96-43		11014500	Shaft, 21 tooth spline, M10 thread	1
K1	L100	87-02		11014512	Shaft, straight key	1
	L80	87-02		9003261-3124	Key, .3125 x 1.5	1
K5	L100	87-02		11075431	Shaft, straight key	1
	L80	87-02		9003261-3124	Key, .3125 x 1.5	1
S1	L100	87-02		11012275	Shaft, 14 tooth spline	1
T1	L100	87-02		11012276	Shaft, tapered	1
	L61	87-02		716779 (9004600-1230)	Cotter pin	1
	L80	87-02		9003310-3724	Woodruff key, .3730 x 1.5	1
	L90	87-02		5000606	Slotted nut	1

Overhaul seal kit

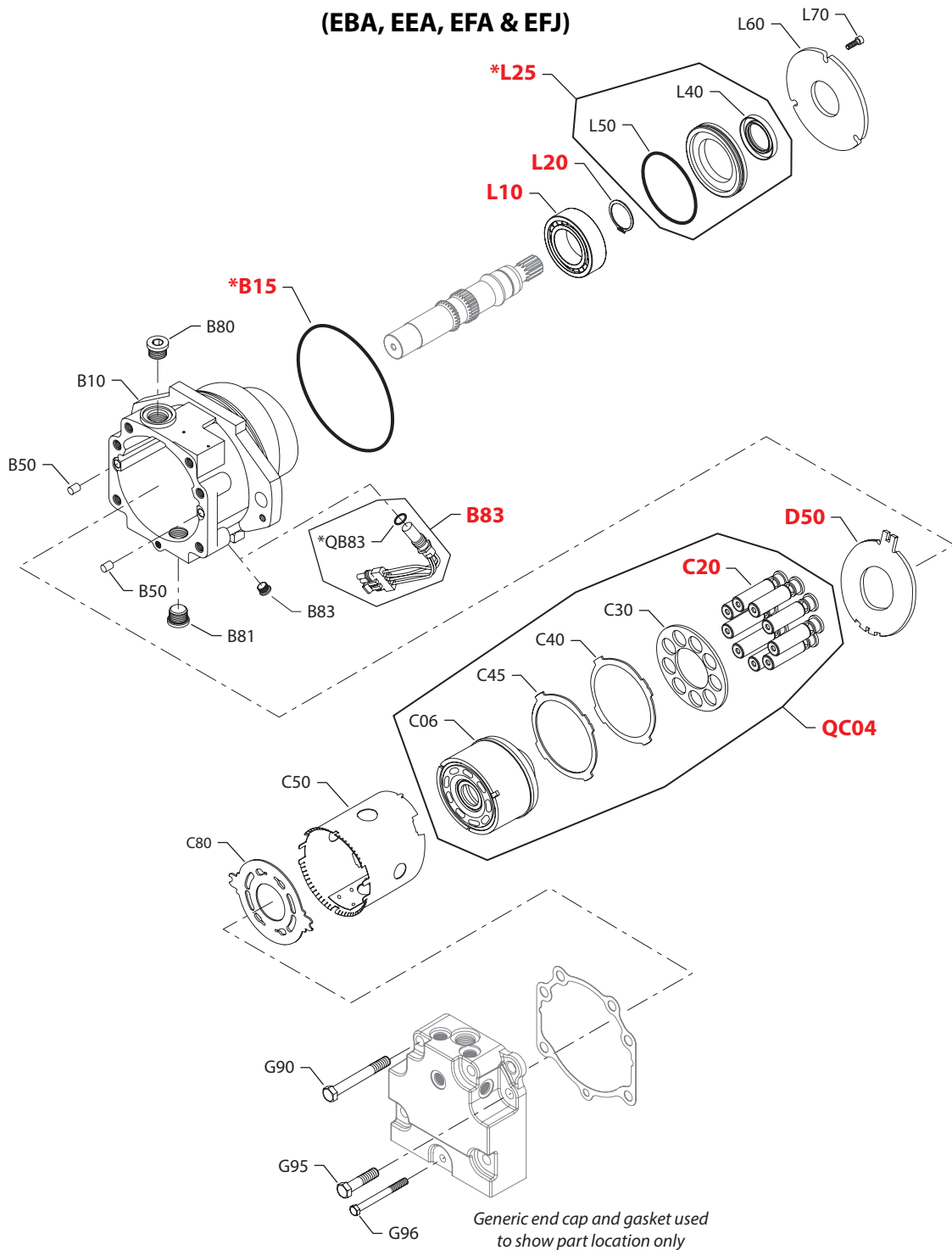
Q210	87-02		11134053	Overhaul seal kit, 90K/M055	1
B15	87-02		729319	O-ring	1
G30	87-02		8000720	End cap gasket, cartridge	1
G30	87-02		8000721	End cap gasket	1
K50	89-38		01149 (9004201-6200)	O-ring, .755 x .097, nitrile, 90D	1
K51	89-38		085043 (9004201-3700)	O-ring, .468 x .078, nitrile, 90D	1
L25	87-02		11083637	Seal carrier assembly	1
QB83	87-02		085043 (9004201-3700)	O-ring, .468 x .078, nitrile, 90D	1
QH50	87-02		085043 (9004201-3700)	O-ring, .468 x .078, nitrile, 90D	2



Notes



Fixed displacement cartridge motor



E100 776E

* = included in overhaul seal kit Q210

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


Fixed displacement cartridge motor
Common parts

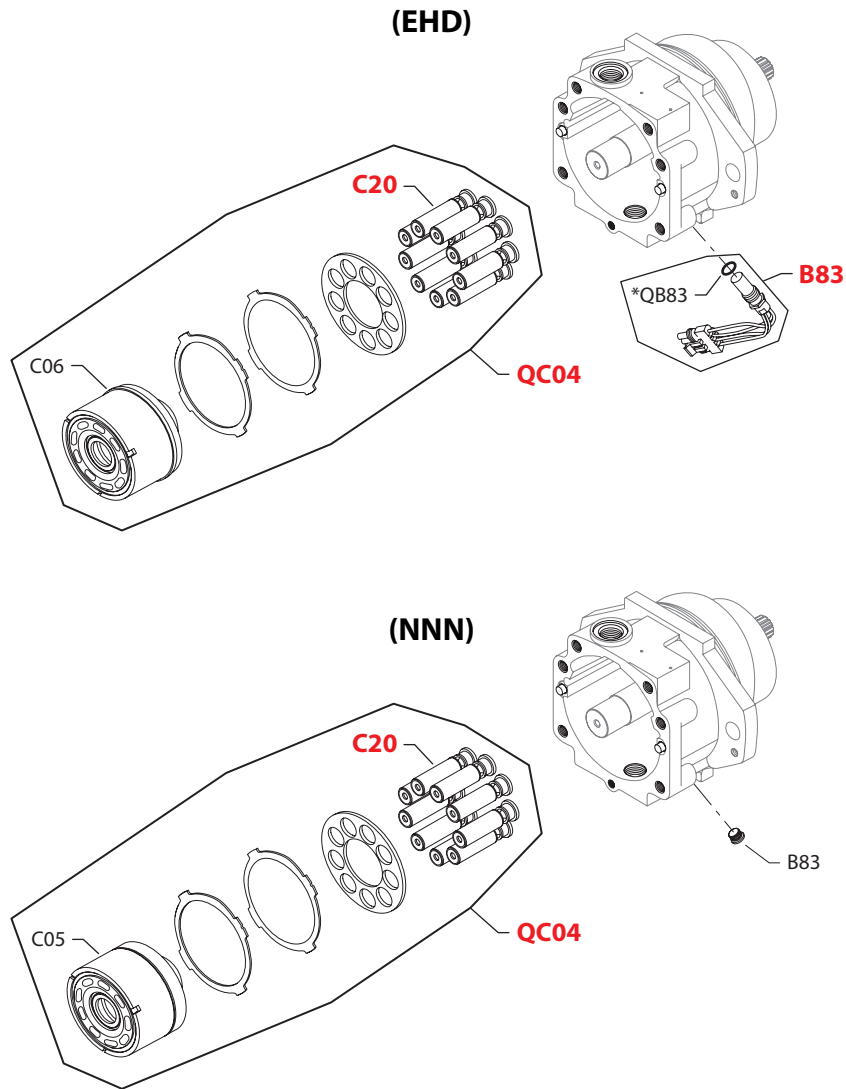
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	B10	92-31		8000264	Housing	1
	B15	92-31		729319	O-ring	1
	B50	92-31		9004800-3708	Pin	2
	B80	92-31		315325 (9005110-8700)	Plug assembly	1
	B81	92-31		315325 (9005110-8700)	Plug assembly	1
	C30	92-31		11067348	Slipper guide	1
	C40	92-31		11057796	Slipper guide retainer	1
	C45	92-31		11063827	Slipper guide retainer spacer	1
	C50	92-31		8000265	Hold down tube	1
	C80	92-31		329748	Valve plate	1
	D50	92-31		11136441	Thrust plate	1
	G90	92-31		9007210-1216	Screw	4
	G95	92-31		675900 (9007210-1209)	Screw	2
	G96	92-31		9007210-0816	Screw	1
	L10	92-31		5000504	Roller beraing	1
	L20	92-31		9006300-0137	Retaining ring	1
	L25	92-31		11083637	Seal assembly	1
	L40	92-31		11013519	Lip seal	1
	L50	92-31		071845 (9004104-1510)	O-ring	1
	L60	92-31		11083638	Retainer plate	1
	L70	92-31		041160 (9007314-0605)	Screw	3

Special hardware

EBA	QC04	92-31		8510396	Cylinder block kit, w/speed ring	1
	C06	92-31		8000336	Cylinder block assembly. w/speed ring	1
	C20	92-31		367672	Piston assembly	9
	B83	92-31		KPPG13408	Speed sensor	1
	QB83	92-31		085043 (9004201-3700)	O-ring	1
EEA	QC04	92-31		8510396	Cylinder block kit, w/speed ring	1
	C06	92-31		8000336	Cylinder block assembly. w/speed ring	1
	C20	92-31		367672	Piston assembly	9
	B83	92-31		140644	Plug assembly	1
EFA	QC04	87-02		8510396	Cylinder block kit, w/speed ring	1
	C06	87-02		8000336	Cylinder block assembly. w/speed ring	1
	C20	87-02		367672	Piston assembly (SB-1988-023)	9
	B83	87-02		KPPG136	Speed sensor	1
	QB83	87-02		085043 (9004201-3700)	O-ring	1
EFJ	QC04	87-02		8510396	Cylinder block kit, w/speed ring	1
	C06	87-02		8000336	Cylinder block assembly. w/speed ring	1
	C20	87-02		367672	Piston assembly (SB-1988-023)	9
	B83	87-02		KPPG176	Speed sensor	1
	QB83	87-02		085043 (9004201-3700)	O-ring	1



Fixed displacement cartridge motor



E103 023E

* = included in overhaul seal kit Q210

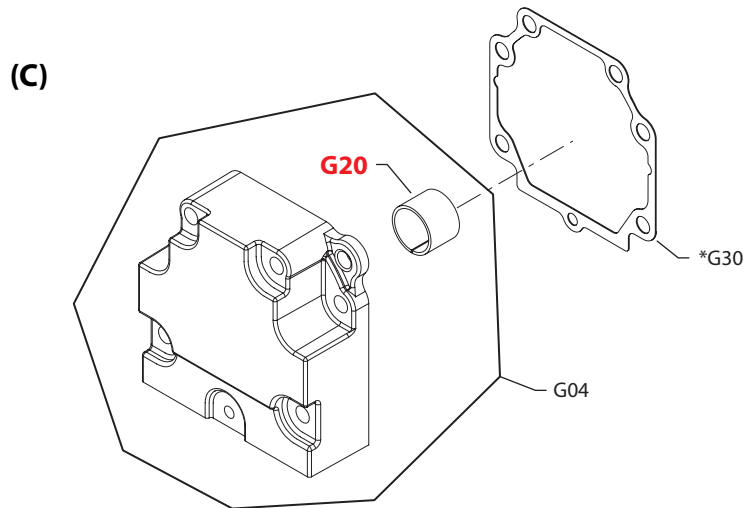
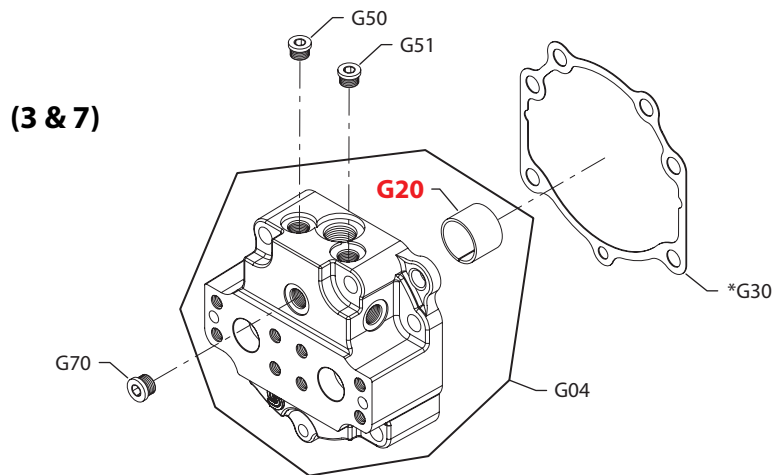
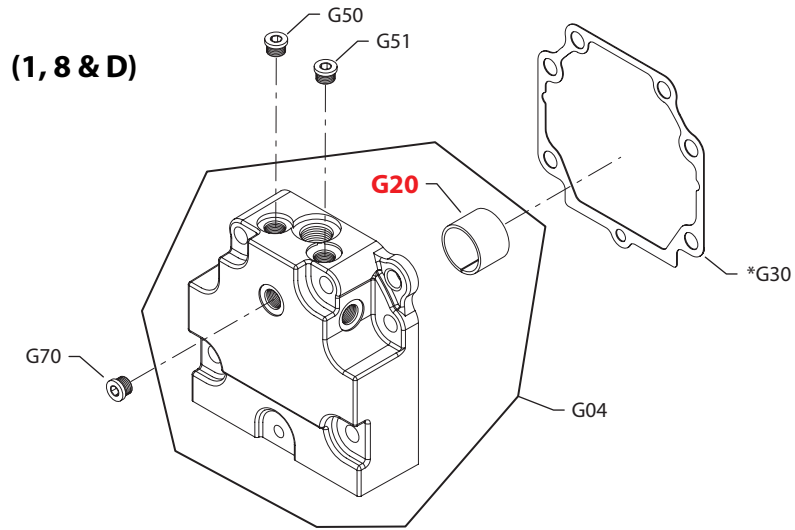
Enlarged **bold** type item numbers are recommended part to stock for servicing.


Fixed displacement cartridge motor
Special hardware

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
EGH	QC04	15-33		8510396	Cylinder block kit, w/speed ring	1
	C06	15-33		8000336	Cylinder block assembly. w/speed ring	1
	C20	15-33		367672	Piston assembly (SB-1988-023)	9
	B83	15-33		KPPG13703	Speed sensor	1
	QB83	15-33		085043 (9004201-3700)	O-ring	1
EHD	QC04	87-02		8510396	Cylinder block kit, w/speed ring	1
	C06	87-02		8000336	Cylinder block assembly. w/speed ring	1
	C20	87-02		367672	Piston assembly (SB-1988-023)	9
	B83	87-02		KPPG16408	Speed sensor	1
	QB83	87-02		085043 (9004201-3700)	O-ring	1
JAG	QC04	12-35		8510361	Cylinder block kit, w/o speed ring	1
	C05	12-35		8000128	Cylinder block assembly. w/o speed ring	1
	C20	12-35		367672	Piston assembly (SB-1988-023)	9
	B83	12-35		140644	Plug assembly	1
NNN	QC04	87-02		8510361	Cylinder block kit, w/o speed ring	1
	C05	87-02		8000128	Cylinder block assembly. w/o speed ring	1
	C20	87-02		367672	Piston assembly (SB-1988-023)	9
	B83	87-02		140644	Plug assembly	1



Fixed displacement cartridge motor



* = included in overhaul seal kit Q210

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

E103 024E

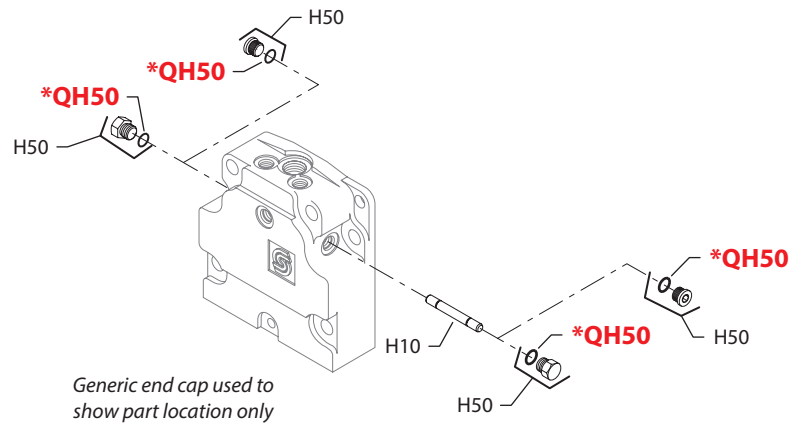

Fixed displacement cartridge motor
End cap

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
1	G04	92-31	15-26	8000785 (8000594)	End cap assembly, twin ports	1
	G20	92-31	15-26	11017371 (8700018)	Journal bearing	1
	G30	92-31	15-26	8000720	End cap gasket	1
	G50	92-31	15-26	140644	Plug assembly	1
	G51	92-31	15-26	140644	Plug assembly	1
	G70	92-31	15-26	140644	Plug assembly	1
	3	G04	92-31	15-26	8000788 (8000595)	End cap assembly, axial ports
G20		92-31	15-26	11017371 (8700018)	Journal bearing	1
G30		92-31	15-26	8000721	End cap gasket	1
G50		92-31	15-26	140644	Plug assembly	1
G51		92-31	15-26	140644	Plug assembly	1
G63		92-31	15-26	314179 (8700074)	Split clamp (code 61 hose)	4
G70		92-31	15-26	140644	Plug assembly	1
7	G04	92-31		8000788 (8000595)	End cap assembly, axial ports	1
	G20	92-31		11017371 (8700018)	Journal bearing	1
	G30	92-31		8000721	End cap gasket	1
	G50	92-31		140644	Plug assembly	1
	G51	92-31		140644	Plug assembly	1
	G70	92-31		140644	Plug assembly	1
	8	G04	92-31		8000785 (8000594)	End cap assembly, twin ports
G20		92-31		11017371 (8700018)	Journal bearing	1
G30		92-31		8000720	End cap gasket	1
G50		92-31		140644	Plug assembly	1
G51		92-31		140644	Plug assembly	1
G70		92-31		140644	Plug assembly	1
C		G04	94-19	15-22	8000786 (8000346)	End cap assembly, twin ports, without loop flushing
	G20	94-19	15-22	11017371 (8700018)	Journal bearing	1
	G30	94-19	15-22	8000720	End cap gasket	1
D	G04	92-31		8000787 (8000593)	End cap assembly, twin metric ports	1
	G20	92-31		11017371 (8700018)	Journal bearing	1
	G30	92-31		8000720	End cap gasket	1
	G50	92-31		140644	Plug assembly	1
	G51	92-31		140644	Plug assembly	1
	G70	92-31		140644	Plug assembly	1

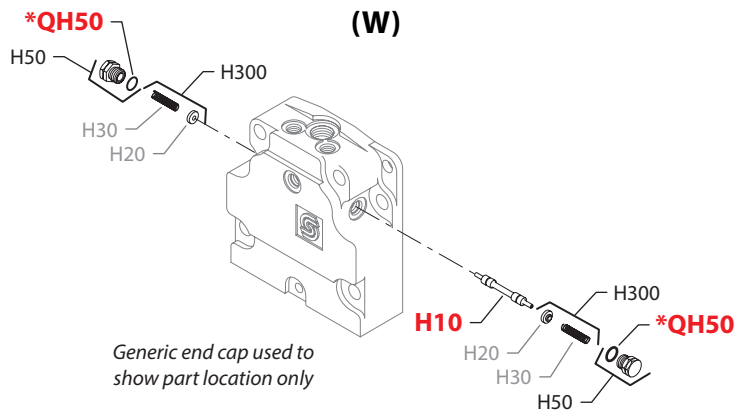


Fixed displacement cartridge motor

(N)



(W)



E100 773E

* = included in overhaul seal kit Q210

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



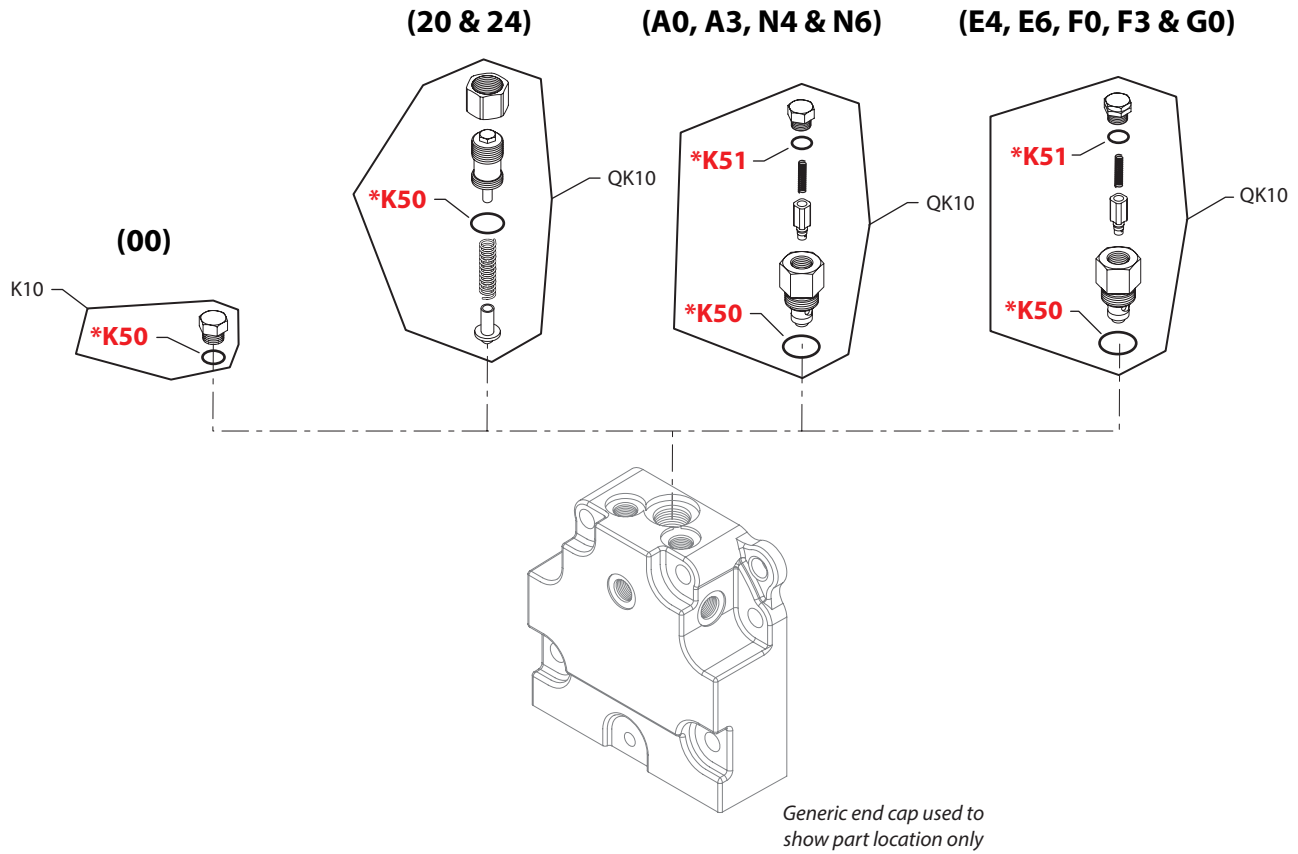
Fixed displacement cartridge motor

Loop flushing

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
N	H10	89-38		740944 (8800668)	Loop flushing spool, defeated	1
	H10	87-02	89-37	308486 (8800021)	Loop flushing spool, defeated (SB-1989-020)	1
	H50	87-02		140644	Plug assembly	2
	QH50	87-02		085043 (9004201-3700)	O-ring	2
W	H10	89-38		365544 (8800550)	Shuttle spool	1
	H10	87-02	89-37	674473 (8800069)	Loop flushing spool, defeated (SB-1989-020)	1
	H20	87-02	89-37	674481 (8800265)	Spring guide (SB-1989-020)	2
	H30	87-02	89-37	8800067	Spring (SB-1989-020)	2
	H50	89-38		518016	Plug assembly	2
	H50	87-02	89-37	674507 (9005475-0069)	Plug assembly (SB-1989-020)	2
	H300	89-38		513596	Spring guide assembly (SB-2000-047)	2
	QH50	87-02		085043 (9004201-3700)	O-ring	2
X		97-28		none		



Fixed displacement cartridge motor



E100 823E

* = included in overhaul seal kit Q210

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

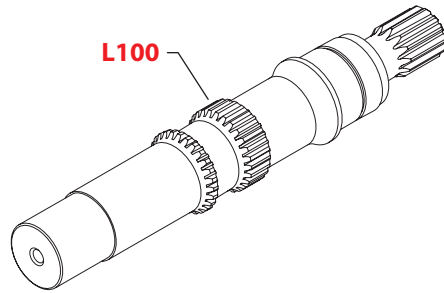
Fixed displacement cartridge motor
Charge pressure setting

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
	K50	89-44		001149 (9004201-6200)	O-ring	1
20-24	QK10	90-20		8510012	Adjustable charge relief valve kit (SB-1989-020)	1
	K50	90-20		001149 (9004201-6200)	O-ring	1
A0	QK10	98-19		8510253	Cartridge CPRV kit, 13 bar, 11 L/min	1
	K50	98-19		001149 (9004201-6200)	O-ring	1
	K51	98-19		085043 (9004201-3700)	O-ring	2
A3	QK10	98-19		8510256	Cartridge CPRV kit, 13 bar, 16 L/min	1
	K50	98-19		001149 (9004201-6200)	O-ring	1
	K51	98-19		085043 (9004201-3700)	O-ring	2
E4	QK10	98-19		8510261	Cartridge CPRV kit, 16 bar, 4 L/min	1
	K50	98-19		001149 (9004201-6200)	O-ring	1
	K51	98-19		085043 (9004201-3700)	O-ring	2
E6	QK10	98-19		8510252	Cartridge CPRV kit, 16 bar, 7 L/min	1
	K50	98-19		001149 (9004201-6200)	O-ring	1
	K51	98-19		085043 (9004201-3700)	O-ring	2
F0	QK10	98-19		8510259	Cartridge CPRV kit, 16 bar, 11 L/min	1
	K50	98-19		001149 (9004201-6200)	O-ring	1
	K51	98-19		085043 (9004201-3700)	O-ring	2
F3	QK10	98-19		8510262	Cartridge CPRV kit, 16 bar, 16 L/min	1
	K50	98-19		001149 (9004201-6200)	O-ring	1
	K51	98-19		085043 (9004201-3700)	O-ring	2
G0	QK10	98-19		8510260	Cartridge CPRV kit, 16 bar, 22 L/min	1
	K50	98-19		001149 (9004201-6200)	O-ring	1
	K51	98-19		085043 (9004201-3700)	O-ring	2
N4	QK10	98-19		8510255	Cartridge CPRV kit, 13 bar, 4 L/min	1
	K50	98-19		001149 (9004201-6200)	O-ring	1
	K51	98-19		085043 (9004201-3700)	O-ring	2
N6	QK10	98-19		11097072	Cartridge CPRV kit, 13 bar, 7 L/min	1
	K50	98-19		001149 (9004201-6200)	O-ring	1
	K51	98-19		085043 (9004201-3700)	O-ring	2
NN				none		

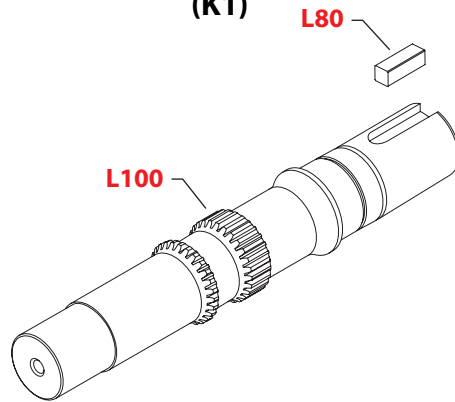


Fixed displacement cartridge motor

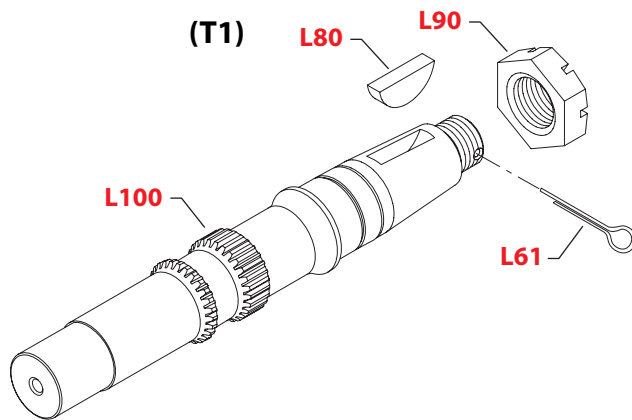
(C6 & S1)



(K1)



(T1)



E100 774E

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

Fixed displacement cartridge motor
Shaft

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
C6	L100	87-02		8000825	Shaft, 21 tooth spline	1
K1	L100	87-02		11014512	Shaft, straight key	1
	L80	87-02		9003261-3124	Key, .3125 x 1.5	1
S1	L100	87-02		11012275	Shaft, 14 tooth spline	1
T1	L100	87-02		11012276	Shaft, tapered	1
	L61	87-02		9004600-1230	Cotter pin	1
	L80	87-02		9003310-3724	Woodruff key, .3730 x 1.5	1
	L90	87-02		5000606	Slotted nut	1

Overhaul seal kit

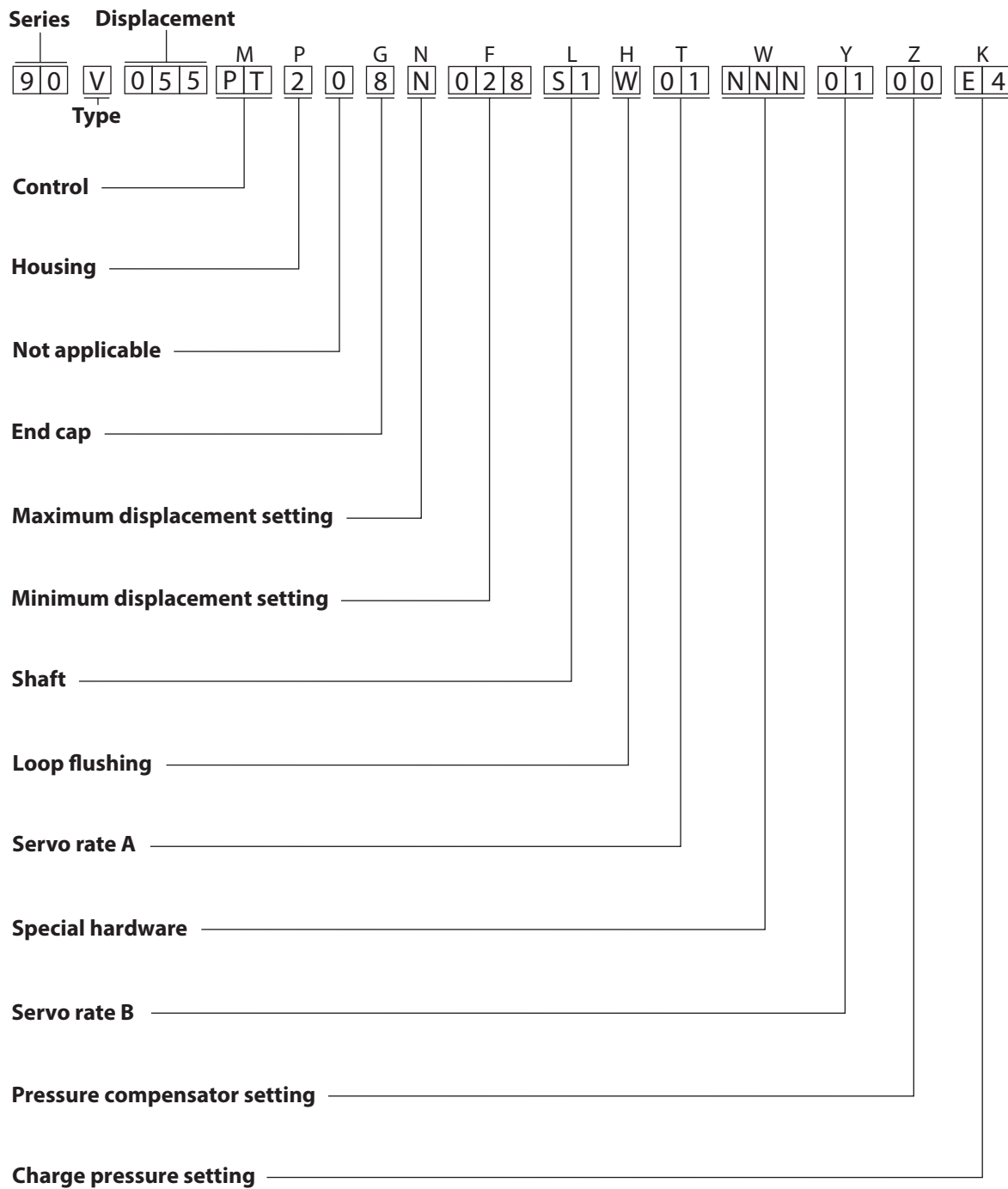
Q210	87-02		11134053	Overhaul seal kit, 90K/M055	1
B15	87-02		729319	O-ring	1
G30	87-02		8000720	End cap gasket, cartridge	1
G30	87-02		8000721	End cap gasket	1
K50	89-38		01149 (9004201-6200)	O-ring, .755 x .097, nitrile, 90D	1
K51	89-38		085043 (9004201-3700)	O-ring, .468 x .078, nitrile, 90D	1
L25	87-02		11083637	Seal carrier assembly	1
QB83	87-02		085043 (9004201-3700)	O-ring, .468 x .078, nitrile, 90D	1
QH50	87-02		085043 (9004201-3700)	O-ring, .468 x .078, nitrile, 90D	2



Notes



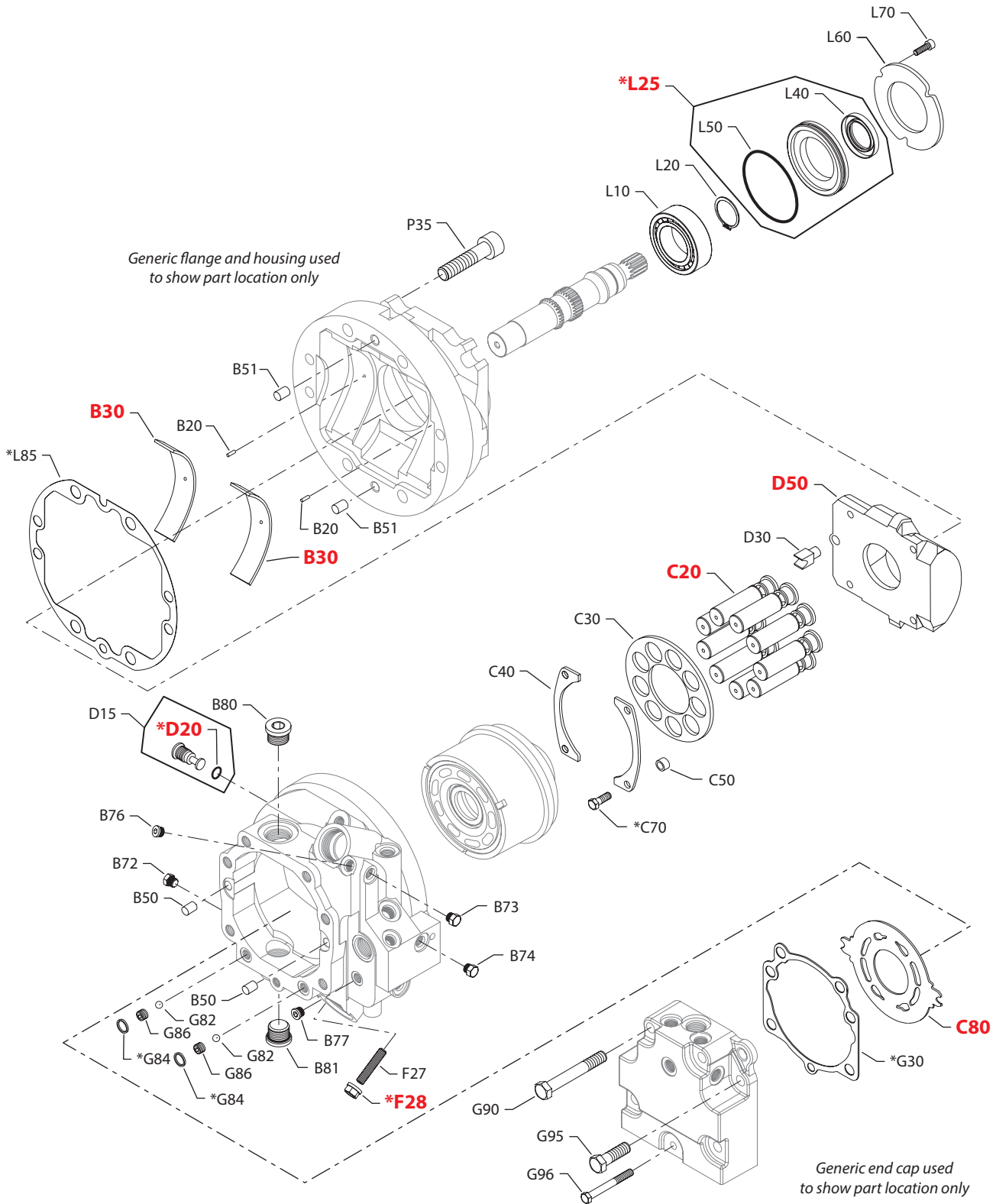
Order code, variable displacement motor



P100 703E



Variable displacement motor



E100 779E

* = included in overhaul seal kit Q210

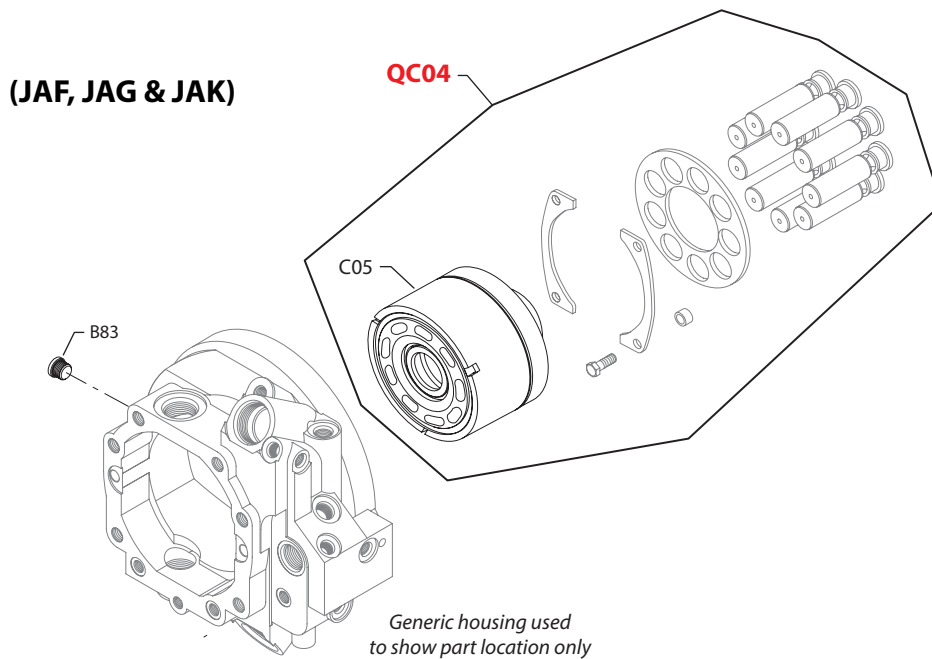
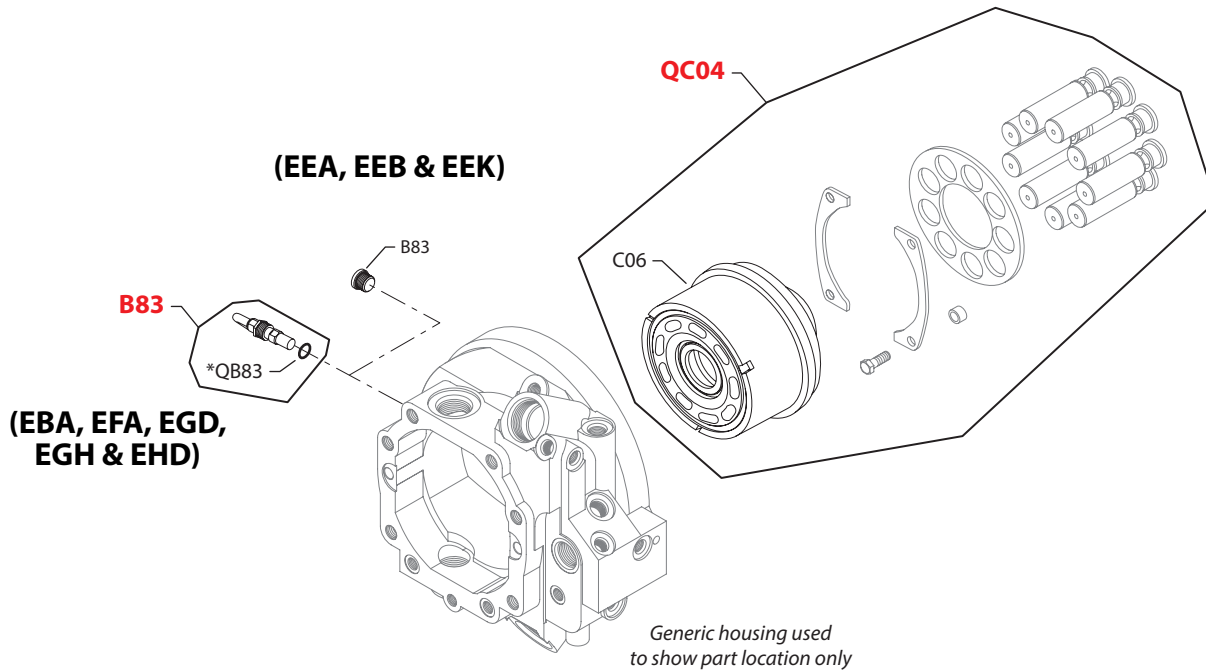
Enlarged **bold** type item numbers are recommended part to stock for servicing.


Variable displacement motor
Common parts

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	B20	90-34		5000621	Grooved pin (SB-2000-046)	1
	B30	90-34		8000539	Cradle bearing	2
	B50	90-34		9004800-3708	Pin	2
	B51	90-34		9004800-3708	Pin	2
	B72	90-34		001511 (9005100-4400)	Plug assembly	1
	B73	90-34		001511 (9005100-4400)	Plug assembly	1
	B74	90-34		001511 (9005100-4400)	Plug assembly	1
	B76	90-34		327007 (9005110-4400)	Plug assembly	1
	B77	90-34		327007 (9005110-4400)	Plug assembly	1
	B80	90-34		315325 (9005110-8700)	Plug assembly	1
	B81	90-34		315325 (9005110-8700)	Plug assembly	1
	C20	90-34		367672	Piston assembly (SB-1988-023)	9
	C30	90-34		11067348	Slipper guide	1
	C40	90-34		8000137	Slipper guide bearing	2
	C50	90-34		11065864	Slipper hold down spacer (SB-1998-041)	4
	C70	90-34		648477	Screw (SB-1998-041)	4
	C80	90-34		329748	Valve plate	1
	D15	90-34		11056875	Hold down pin assembly (SB-1994-024)	1
	D20	90-34		085043 (9004201-3700)	O-ring	1
	D30	90-34		8100406	Hold down arm (SB-1994-015)	1
	D50	90-34		8000618	Swashplate (SB-1994-015 & SB-1998-080)	1
	F27	90-34		330415	Set screw	1
	F28	90-34		076042 (9003509-0012)	Seal nut	1
	G30	90-34		8000231	End cap gasket	1
	G82	90-34		9001214-2800	Ball	2
	G84	90-34		8800865	Crush ring	2
	G86	90-34		11066594	Orifice plug	2
	G90	90-34		9007210-1215	Screw	4
	G95	90-34		9007210-1208	Screw	2
	G96	90-34		9007210-0815	Screw	1
	L10	90-34		5000504	Roller beraing	1
	L20	90-34		9006300-0137	Retaining ring	1
	L25	90-34		11083637	Seal assembly	1
	L40	90-34		11013519	Lip seal	1
	L50	90-34		071845 (9004104-1510)	O-ring	1
	L60	90-34		11083638	Retainer plate	1
	L70	90-34		041160 (9007314-0605)	Screw	3
	L85	90-34		8000240	Front cover gasket	1
	P35	90-34		9007314-1010	Screw	4



Variable displacement motor



E100 780E

* = included in overhaul seal kit Q210

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

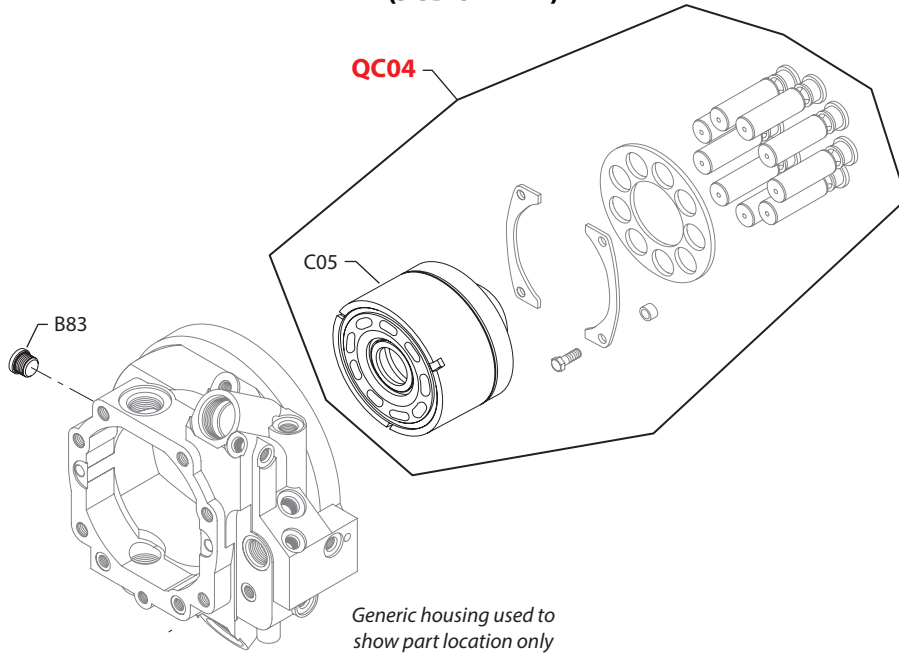

Variable displacement motor
Special hardware

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
EBA	QC04	87-02		8510362	Cylinder block kit, w/speed ring	1
	C06	87-02		8000336	Cylinder block assembly. w/speed ring	1
	B83	87-02		KPPG13408	Speed sensor	1
	QB83	87-02		085043 (9004201-3700)	O-ring	1
EEA	QC04	87-02		8510362	Cylinder block kit, w/speed ring	1
	C06	87-02		8000336	Cylinder block assembly. w/speed ring	1
	B83	87-02		140644	Plug assembly	1
EEB	QC04	90-34		8510362	Cylinder block kit, w/speed ring	1
	C06	90-34		8000336	Cylinder block assembly. w/speed ring	1
	B83	90-34		140644	Plug assembly	1
EEK	QC04	90-34		8510362	Cylinder block kit, w/speed ring	1
	C06	90-34		8000336	Cylinder block assembly. w/speed ring	1
	B83	90-34		140644	Plug assembly	1
EFA	QC04	90-34		8510362	Cylinder block kit, w/speed ring	1
	C06	90-34		8000336	Cylinder block assembly. w/speed ring	1
	B83	90-34		KPPG136	Speed sensor	1
	QB83	90-34		085043 (9004201-3700)	O-ring	1
EGD	QC04	90-34		8510362	Cylinder block kit, w/speed ring	1
	C06	90-34		8000336	Cylinder block assembly. w/speed ring	1
	B83	90-34		KPPG12730A	Speed sensor	1
	QB83	90-34		085043 (9004201-3700)	O-ring	1
EGH	QC04	90-34		8510362	Cylinder block kit, w/speed ring	1
	C06	90-34		8000336	Cylinder block assembly. w/speed ring	1
	B83	90-34		KPPG18708	Speed sensor	1
	QB83	90-34		085043 (9004201-3700)	O-ring	1
EHD	QC04	90-34		8510362	Cylinder block kit, w/speed ring	1
	C06	90-34		8000336	Cylinder block assembly. w/speed ring	1
	B83	90-34		KPPG16408	Speed sensor	1
	QB83	90-34		085043 (9004201-3700)	O-ring	1
JAF	QC04	90-34		8510363	Cylinder block kit, without speed ring	1
	C05	90-34		8000128	Cylinder block assembly	1
	B83	90-34		140644	Plug assembly	1
JAG	QC04	90-34		8510363	Cylinder block kit, without speed ring	1
	C05	90-34		8000128	Cylinder block assembly	1
	B83	90-34		140644	Plug assembly	1
JAK	QC04	90-34		8510363	Cylinder block kit, without speed ring	1
	C05	90-34		8000128	Cylinder block assembly	1
	B83	90-34		140644	Plug assembly	1



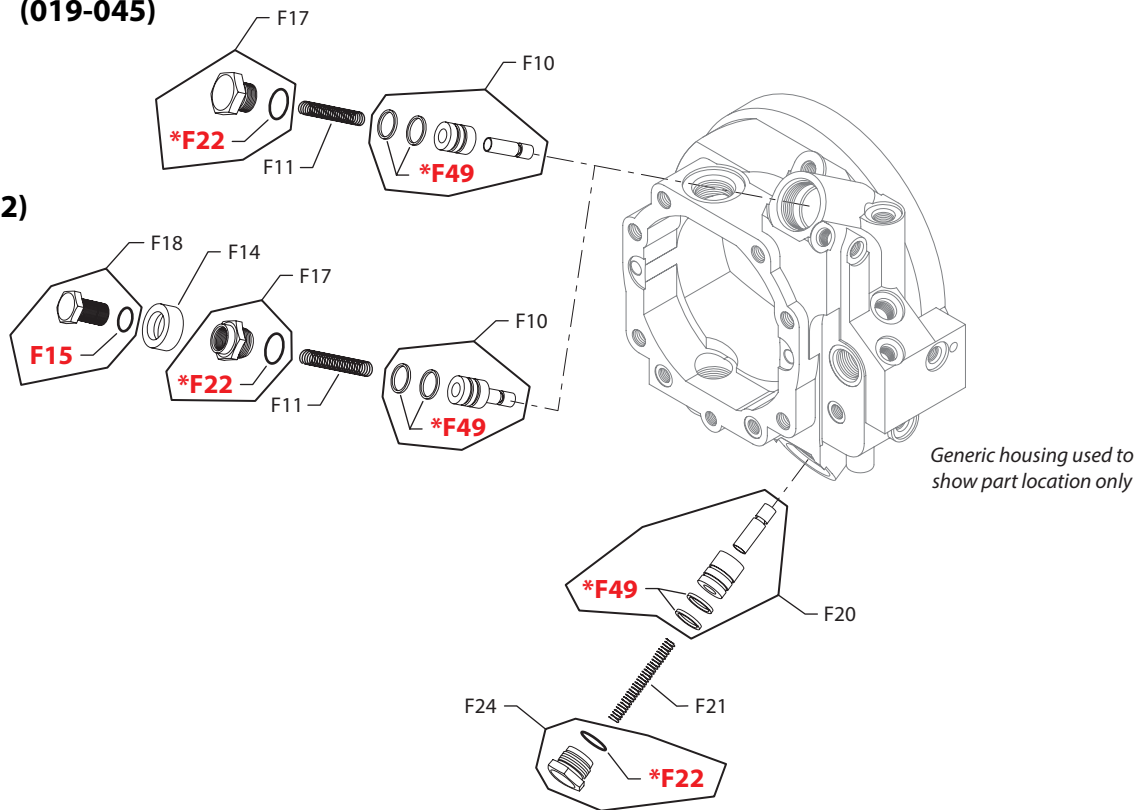
Variable displacement motor

(JCB & NNN)



(019-045)

(M32)



(019-045 & M32)

* = included in overhaul seal kit Q210

E103 025E

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


Variable displacement motor
Special hardware

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
JCB	QC04	90-34		8510363	Cylinder block kit, without speed ring	1
	C05	90-34		8000128	Cylinder block assembly	1
	B83	90-34		140644	Plug assembly	1
NNN	QC04	90-34		8510363	Cylinder block kit, without speed ring	1
	C05	90-34		8000128	Cylinder block assembly	1
	B83	90-34		140644	Plug assembly	1

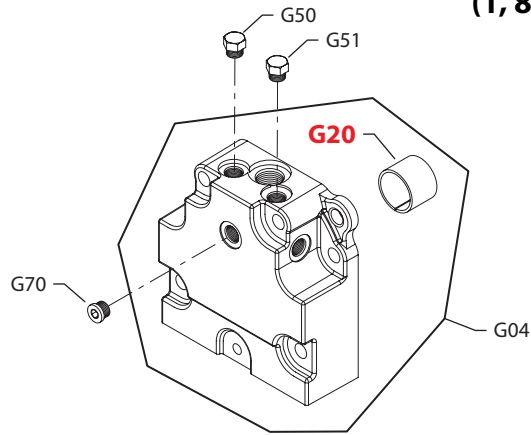
Minimum displacement

019 - 045	F10	90-34		8100441	Servo piston assembly	1
	F11	90-34		8800619	Spring	1
	F17	90-34		11056796	Plug. special assembly	1
	F20	90-34		8100441	Servo piston assembly	1
	F21	90-34		8100435	Spring	1
	F22	90-34		038281	O-ring	2
	F24	90-34		11056796	Plug. special assembly	1
	F49	90-34		8700089	Piston seal ring	4
M32	F10	99-24	13-26	8801165	Servo piston assembly	1
	F11	99-24	13-26	8801161	Spring	1
	F14	99-24	13-26	8801214	Servo shield	1
	F15	99-24	13-26	012559 (9004202-6200)	O-ring	1
	F17	99-24	13-26	11056797	Fitting assembly	1
	F18	99-24	13-26	11056777	Servo plug assembly	1
	F20	99-24	13-26	8801165	Servo piston assembly	1
	F21	99-24	13-26	8801160	Spring	1
	F22	99-24	13-26	038281	O-ring	2
	F24	99-24	13-26	11056783	Plug. special	1
	F49	99-24	13-26	8700089	Piston seal ring	4

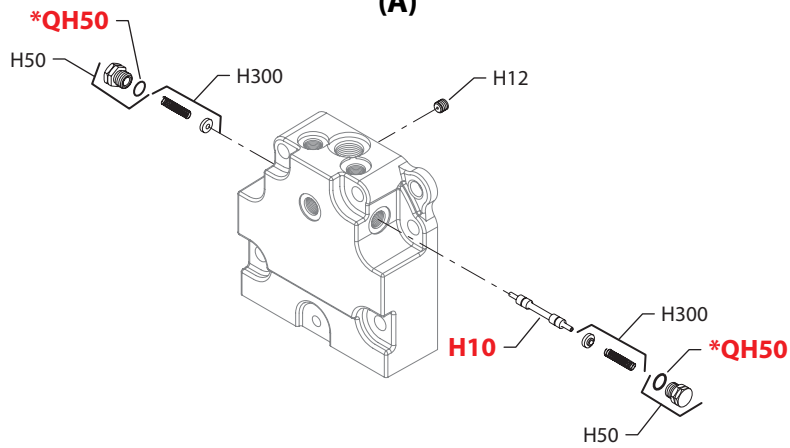


Variable displacement motor

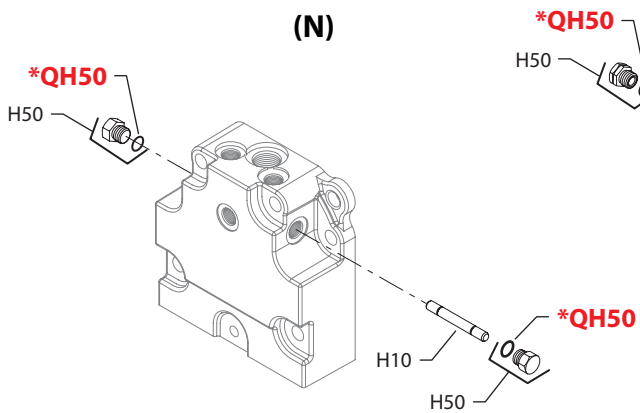
(1, 8 & R)



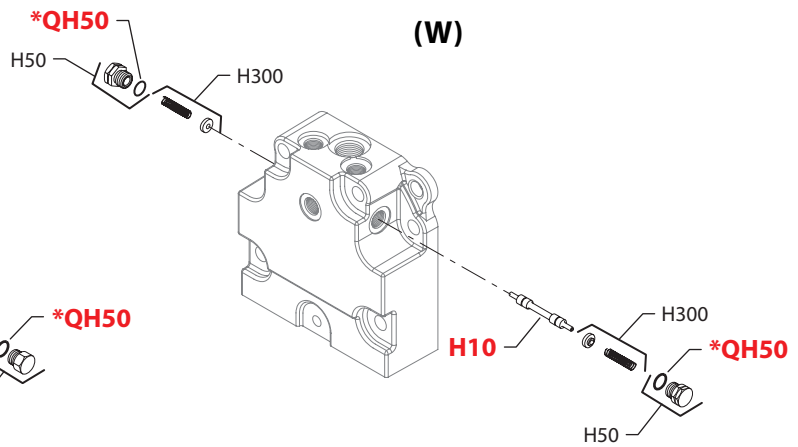
(A)



(N)



(W)



E100 782E

* = included in overhaul seal kit Q210

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


Variable displacement motor
End cap

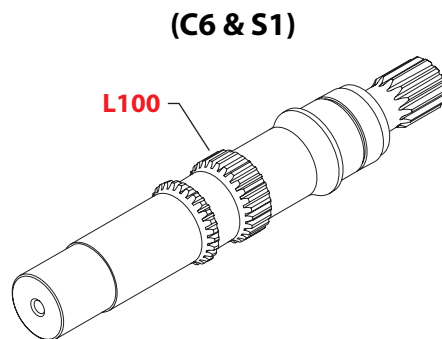
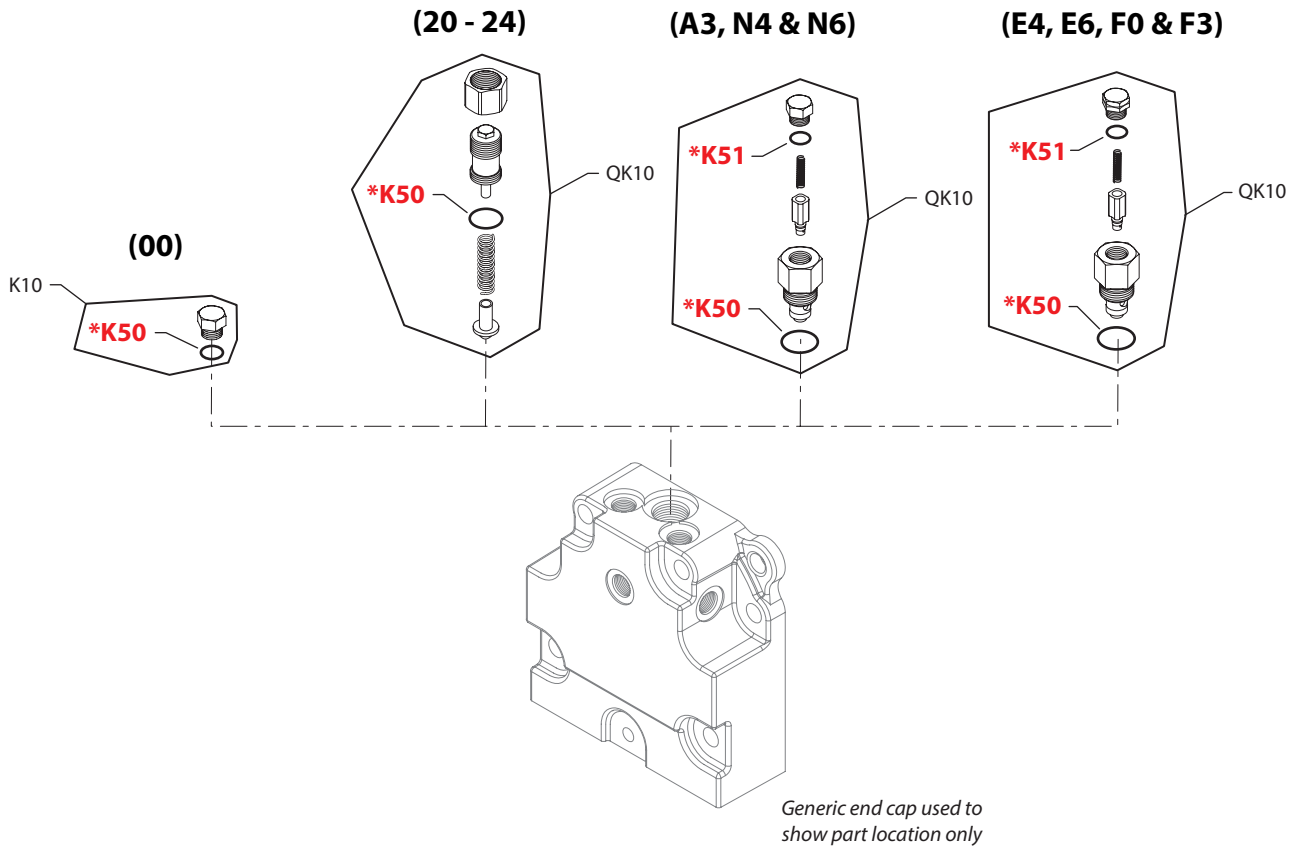
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
1	G04	90-34		8000599	End cap assembly, twin ports	1
	G20	90-34		8700018	Journal bearing	1
	G50	90-34		046151 (9005100-5600)	Plug assembly	1
	G51	90-34		046151 (9005100-5600)	Plug assembly	1
	G70	90-34		140644	Plug assembly	1
8	G04	90-34		8000599	End cap assembly, twin ports	1
	G20	90-34		8700018	Journal bearing	1
	G50	90-34		046151 (9005100-5600)	Plug assembly	1
	G51	90-34		046151 (9005100-5600)	Plug assembly	1
	G70	90-34		140644	Plug assembly	1
R	G04	90-34		8000598	End cap assembly, metric twin ports	1
	G20	90-34		8700018	Journal bearing	1
	G50	90-34		046151 (9005100-5600)	Plug assembly	1
	G51	90-34		046151 (9005100-5600)	Plug assembly	1
	G70	90-34		140644	Plug assembly	1

Loop flushing

A	H10	94-18		365544 (8800550)	Shuttle spool	1
	H12	94-18		11061992	Orifice plug, 2.4mm	1
	H50	90-34		518016	Plug assembly	2
	H300	90-34		513596	Spring guide assembly (SB-2000-047)	2
	QH50	90-34		085043 (9004201-3700)	O-ring	2
N	H10	90-34		740944 (8800668)	Loop flushing spool, defeated	1
	H50	90-34		046151 (9005100-5600)	Plug assembly	2
	QH50	90-34		085043 (9004201-3700)	O-ring	2
W	H10	90-34		365544 (8800550)	Shuttle spool	1
	H50	90-34		518016	Plug assembly	2
	H300	90-34		513596	Spring guide assembly (SB-2000-047)	2
	QH50	90-34		085043 (9004201-3700)	O-ring	2



Variable displacement motor



* = included in overhaul seal kit Q210

E100 830E

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


Variable displacement motor
Charge pressure setting

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
00	K10	90-34		001537 (9005100-8700)	Plug assembly	1
	K50	90-34		001149 (9004201-6200)	O-ring	1
20-24	QK10	90-34		8510012	Adjustable charge relief valve kit (SB-1989-020)	1
	K50	90-34		001149 (9004201-6200)	O-ring	1
A3	QK10	90-34		8510256	Cartridge CPRV kit, 13 bar, 16 L/min	1
	K50	90-34		001149 (9004201-6200)	O-ring	1
	K51	90-34		085043 (9004201-3700)	O-ring	2
E4	QK10	90-34		8510261	Cartridge CPRV kit, 16 bar, 4 L/min	1
	K50	90-34		001149 (9004201-6200)	O-ring	1
	K51	90-34		085043 (9004201-3700)	O-ring	2
E6	QK10	90-34		8510252	Cartridge CPRV kit, 16 bar, 7 L/min	1
	K50	90-34		001149 (9004201-6200)	O-ring	1
	K51	90-34		085043 (9004201-3700)	O-ring	2
F0	QK10	90-34		8510259	Cartridge CPRV kit, 16 bar, 11 L/min	1
	K50	90-34		001149 (9004201-6200)	O-ring	1
	K51	90-34		085043 (9004201-3700)	O-ring	2
F3	QK10	90-34		8510262	Cartridge CPRV kit, 16 bar, 16 L/min	1
	K50	90-34		001149 (9004201-6200)	O-ring	1
	K51	90-34		085043 (9004201-3700)	O-ring	2
N4	QK10	90-34		8510255	Cartridge CPRV kit, 13 bar, 4 L/min	1
	K50	90-34		001149 (9004201-6200)	O-ring	1
	K51	90-34		085043 (9004201-3700)	O-ring	2
N6	QK10	90-34		11097072	Cartridge CPRV kit, 13 bar, 7 L/min	1
	K50	90-34		001149 (9004201-6200)	O-ring	1
	K51	90-34		085043 (9004201-3700)	O-ring	2

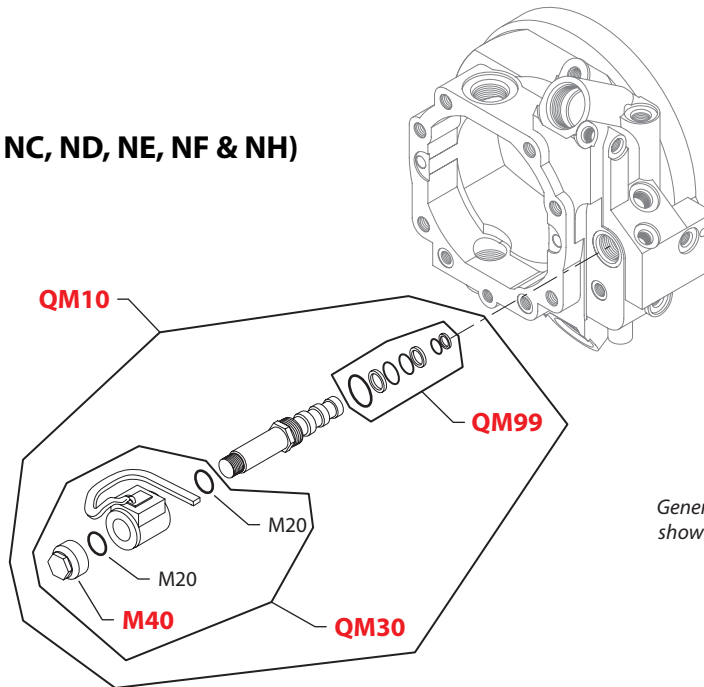
Shaft

C6	L100	98-19		11014230	Shaft, 21 tooth spline	1
S1	L100	90-34		11014229	Shaft, 14 tooth spline	1



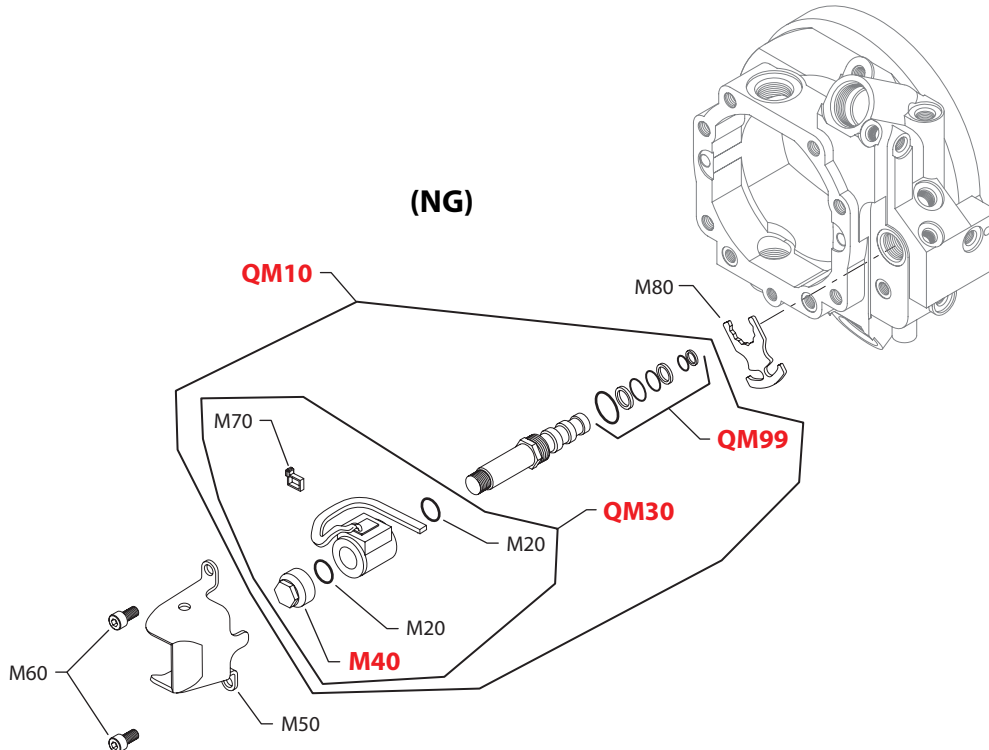
Variable displacement motor

(NA, NB, NC, ND, NE, NF & NH)



Generic housing used to show part location only

(NG)



E100 784E

* = included in overhaul seal kit Q210

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


Variable displacement motor
Control

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
NA	M20	90-34		5000512	O-ring	2
	M40	90-34		5000511	Coil nut, special	1
	QM10	90-34		8510218	Solenoid control valve kit, (SB-1998-084)	1
	QM30	90-34		11137412	Coil kit, 12V, MS connector	1
	QM99	90-34		8700133	Seal kit	1
NB	M20	90-34		5000512	O-ring	2
	M40	90-34		5000511	Coil nut, special	1
	QM10	90-34		8510216	Solenoid control valve kit, (SB-1998-084)	1
	QM30	90-34		8510212	Coil kit, 12V, Packard connector	1
	QM99	90-34		8700133	Seal kit	1
NC	M20	90-34		5000512	O-ring	2
	M40	90-34		5000511	Coil nut, special	1
	QM10	90-34		8510219	Solenoid control valve kit, (SB-1998-084)	1
	QM30	90-34		8510215	Coil kit, 24V, MS connector	1
	QM99	90-34		8700133	Seal kit	1
ND	M20	90-34		5000512	O-ring	2
	M40	90-34		5000511	Coil nut, special	1
	QM10	90-34		8510217	Solenoid control valve kit, (SB-1998-084)	1
	QM30	90-34		8510213	Coil kit, 24V, Packard connector	1
	QM99	90-34		8700133	Seal kit	1
NE	M20	90-34		5000512	O-ring	2
	M40	90-34		5000511	Coil nut, special	1
	QM10	90-34		8510250	Solenoid control valve kit, 12V, M-Pack 150.2 connector	1
	QM30	90-34		11137413	Coil, 12V, M-Pack 150.2 connector	1
	QM99	90-34		8700133	Seal kit	1
NG	M20	90-34		5000512	O-ring	2
	M40	90-34		5000511	Coil nut, special	1
	M50	90-34		8100714	Solenoid cover	1
	M60	90-34		5000514	Screw	2
	M70	90-34		5000509	Cable tie	1
	M80	90-34		8100781	Solenoid locking plate	1
	QM10	90-34		8510284	Solenoid control valve kit, 12V, Packard conn.,special	1
	QM30	90-34		8510283	Coil kit, 12V, Packard connector	1
	QM99	90-34		8700133	Seal kit	1
NH	M20	90-34		5000512	O-ring	2
	M40	90-34		5000511	Coil nut, special	1
	QM10	90-34		11018154	Solenoid control valve kit, 12V, Deutsch connector	1
	QM30	90-34		11018155	Coil kit, 12V, Deutsch connector	1
	QM99	90-34		8700133	Seal kit	1

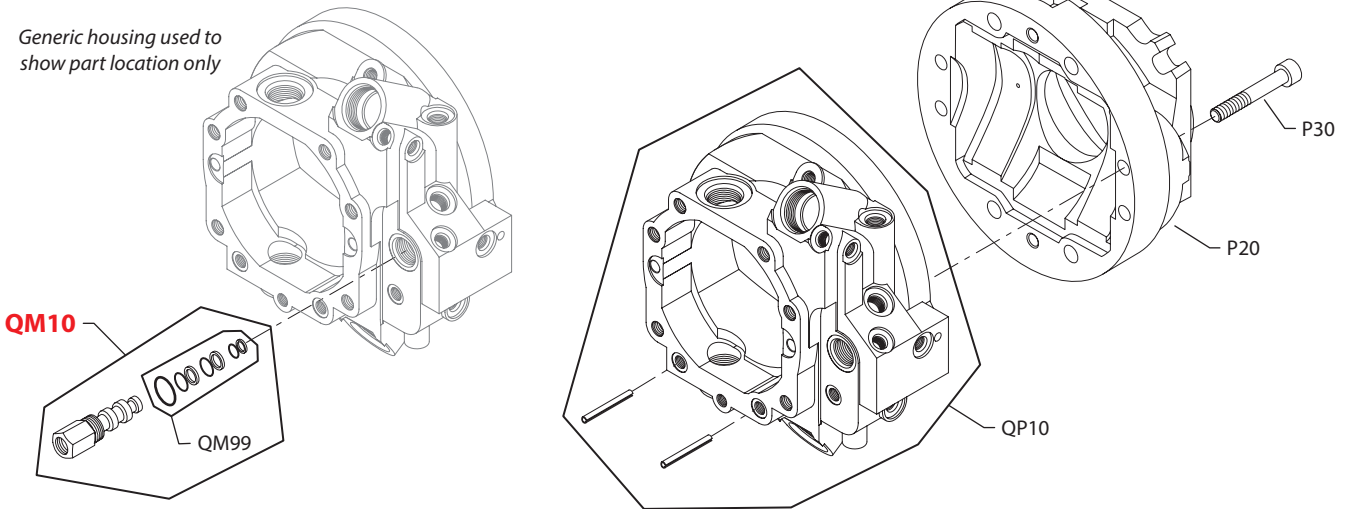


Variable displacement motor

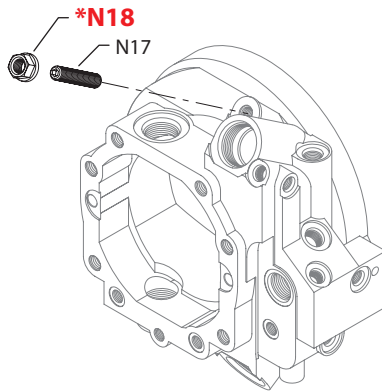
(PT & PX)

(2)

Generic housing used to show part location only

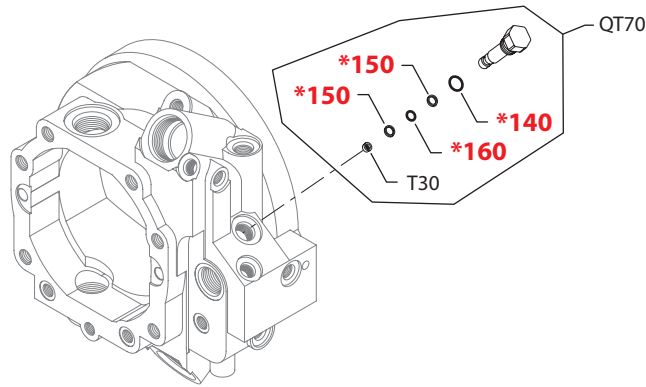
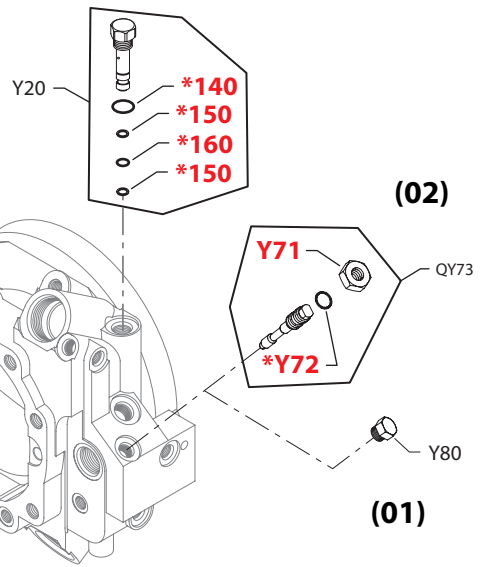


(A-N)



(01 & 02)

(01)



E100 785E

* = included in overhaul seal kit Q210

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


Variable displacement motor
Control

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
PT	QM10	90-34		11137416	Control valve	1
	QM99	90-34		8510178	Seal kit	1
PX	QM10	90-34		11137417	Control valve	1
	QM99	90-34		11141761	Seal kit	1

Maximum displacement

A-N	N17	90-34		330415	Set screw, M12 X 60	1
	N18	90-34		076042 (9003509-0012)	Seal nut, M12	1

Housing

2	P20	90-34		8000234	Front cover	1
	P30	90-34		654053 (9007314-1012)	Screw	4
	QP10	90-34		8510057	Housing assembly	1

Servo rate, A

01	QT70	90-34		8510077	Orifice valve assembly	1
	T30	90-34		8800532	Filter screen	1
	140	90-34		085043 (9004201-3700)	O-ring	1
	150	90-34		9006150-0100	Back up ring	2
	160	90-34		732479 (9004105-0100)	O-ring	1

Servo rate, B

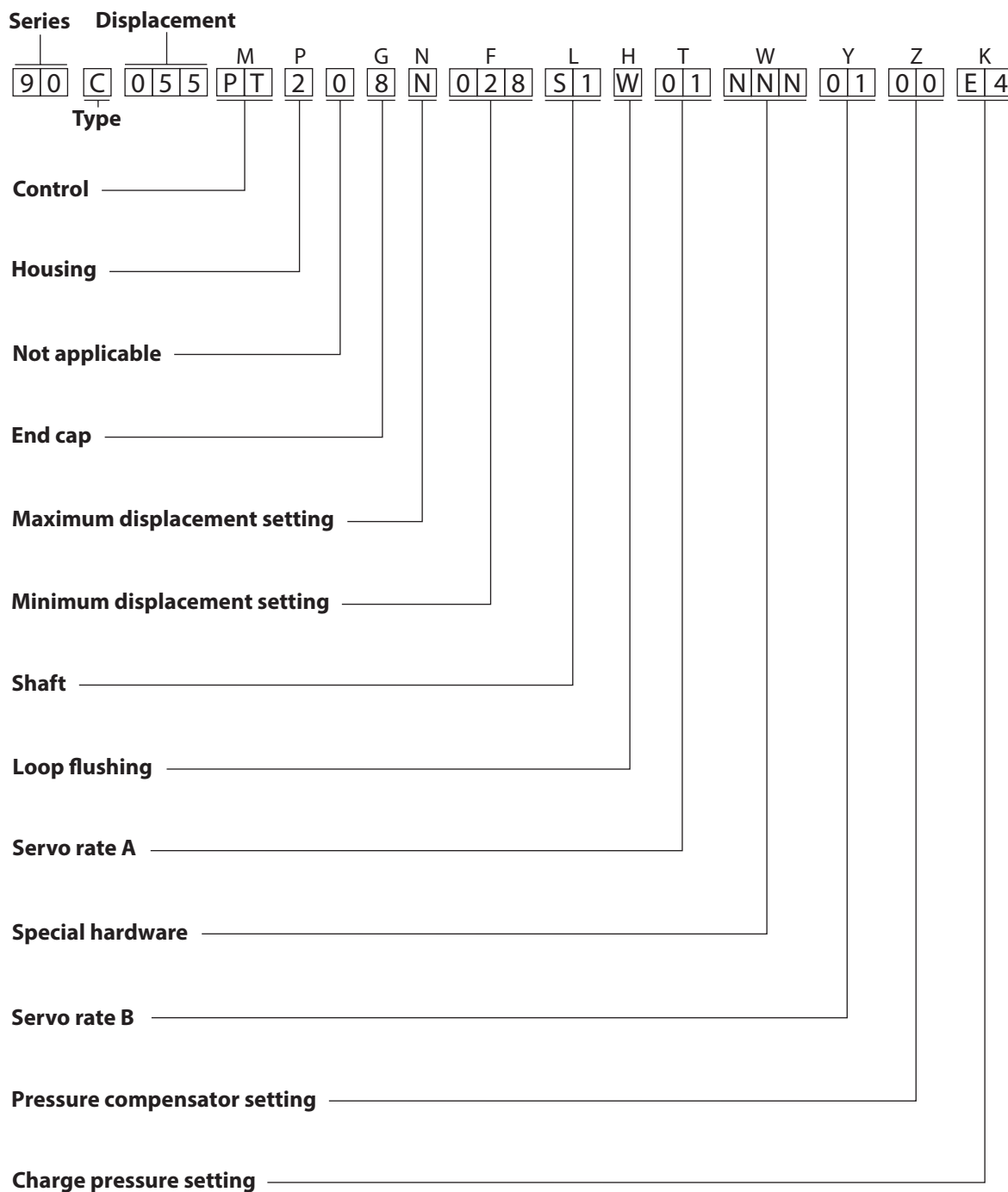
01	Y20	90-34		8510074	Servo orifice assembly, fast	1
	Y80	90-34		001511 (9005100-4400)	Plug assembly	1
	140	90-34		085043 (9004201-3700)	O-ring	1
	150	90-34		9006150-0100	Back up ring	2
	160	90-34		732479 (9004105-0100)	O-ring	1
	02	QY73	90-34		8510076	Orifice valve assembly, slow
Y20		90-34		8510075	Orifice valve assembly, slow	1
Y71		90-34		5000120	Seal nut	1
Y72		90-34		001123 (9004201-2500)	O-ring	1
140		90-34		085043 (9004201-3700)	O-ring	1
150		90-34		9006150-0100	Back up ring	2
160		90-34		732479 (9004105-0100)	O-ring	1


Variable displacement motor
Overhaul seal kit

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	Q210	90-34		11141343	Overhaul seal kit	1
	C70	90-34		648477	Screw, M6 x 16, Scotch Grip	4
	D20	90-34		085043 (9004201-3700)	O-ring, .468 x .078, nitrile, 90D	1
	F22	90-34		038281	O-ring, 1.17 x .116, viton, 90D	2
	F28	90-34		076042 (9003509-0012)	Seal nut, M12	1
	F49	90-34		8700089	Piston seal ring	4
	G30	90-34		8000231	End cap gasket	1
	G84	90-34		8800865	Crush ring	2
	K50	90-34		001149 (9004201-6200)	O-ring, .755 x .097, nitrile, 90D	1
	K51	90-34		085043 (9004201-3700)	O-ring, .468 x .078, nitrile, 90D	1
	L25	90-34		11083637	Seal carrier assembly	1
	L85	90-34		8000240	Front cover gasket	1
	N18	90-34		076042 (9003509-0012)	Seal nut, M12	1
	P80	90-34		9004100-1680	O-ring	1
	QB83	90-34		085043 (9004201-3700)	O-ring, .468 x .078, nitrile, 90D	1
	QH50	90-34		085043 (9004201-3700)	O-ring, .468 x .078, nitrile, 90D	2
	Y71	90-34		5000120	Seal nut	1
	Y72	90-34		001123 (9004201-2500)	O-ring, .351 x .078, nitrile, 90D	1
	140	90-34		085043 (9004201-3700)	O-ring, .468 x .078, nitrile, 90D	2
	150	90-34		9006150-0100	Back up ring, .265 x .053	4
	160	90-34		732479 (9004105-0100)	O-ring, .239 x .070, viton, 90D	2



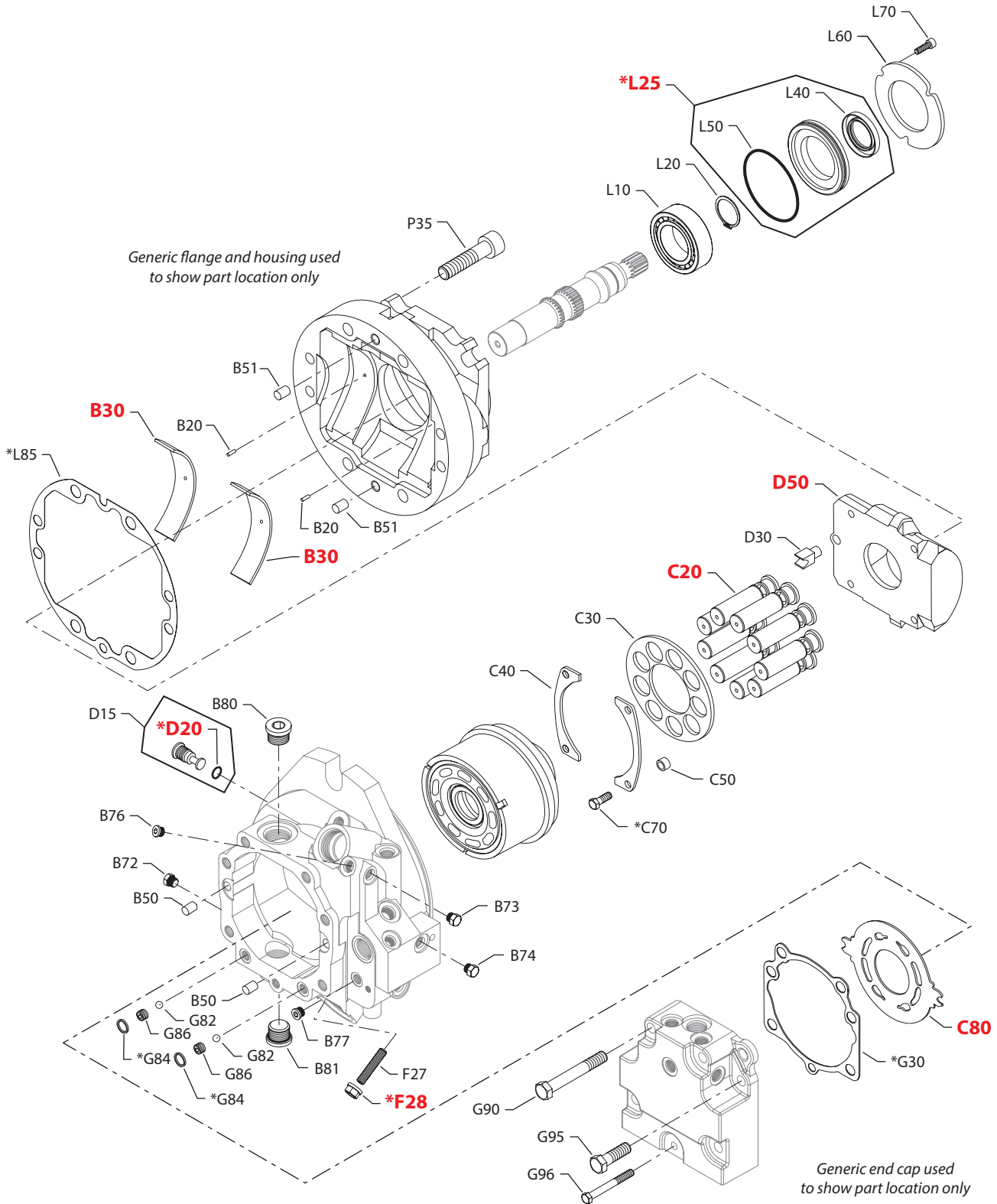
Order code, variable displacement cartridge motor



P100 704E



Variable displacement cartridge motor



E100 786E

* = included in overhaul seal kit Q210

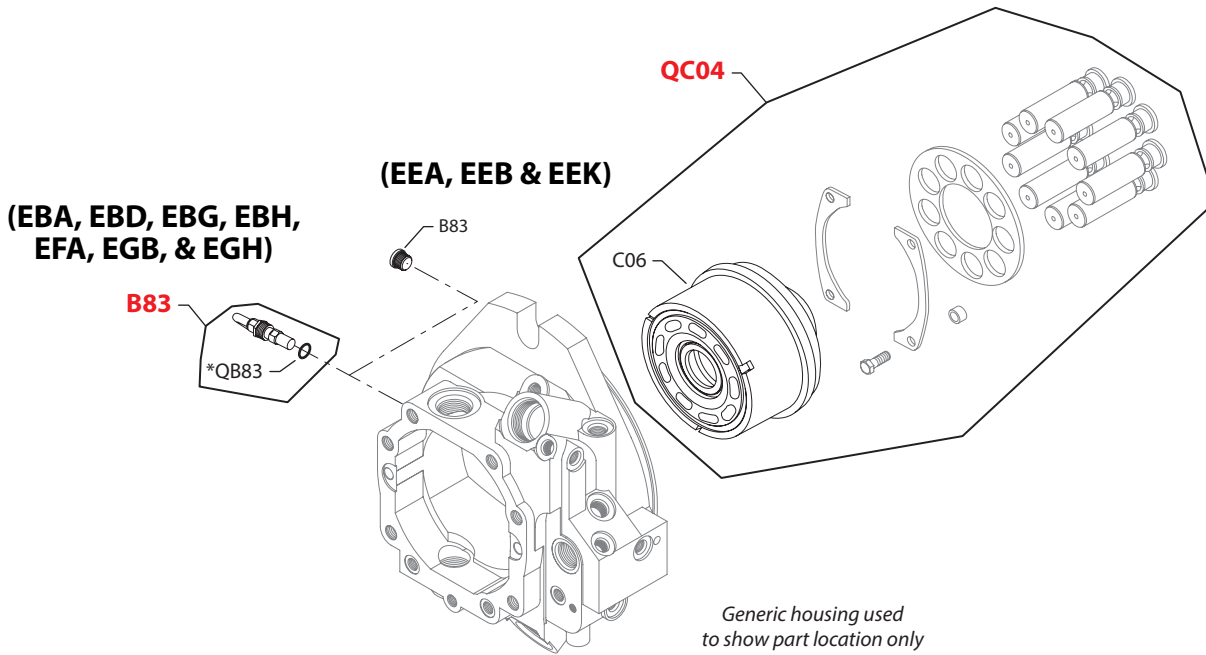
Enlarged **bold** type item numbers are recommended part to stock for servicing.


Variable displacement cartridge motor
Common parts

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	B20	90-34		5000621	Grooved pin (SB-2000-046)	1
	B30	90-34		8000539	Cradle bearing	2
	B50	90-34		9004800-3708	Pin	2
	B51	90-34		9004800-3708	Pin	2
	B72	90-34		001511 (9005100-4400)	Plug assembly	1
	B73	90-34		001511 (9005100-4400)	Plug assembly	1
	B74	90-34		001511 (9005100-4400)	Plug assembly	1
	B76	90-34		327007 (9005110-4400)	Plug assembly	1
	B77	90-34		327007 (9005110-4400)	Plug assembly	1
	B80	90-34		315325 (9005110-8700)	Plug assembly	1
	B81	90-34		315325 (9005110-8700)	Plug assembly	1
	C20	90-34		367672	Piston assembly (SB-1988-023)	9
	C30	90-34		11067348	Slipper guide	1
	C40	90-34		8000137	Slipper guide bearing	2
	C50	90-34		11065864	Slipper hold down spacer (SB-1998-041)	4
	C70	90-34		648477	Screw (SB-1998-041)	4
	C80	90-34		329748	Valve plate	1
	D15	90-34		11056875	Hold down pin assembly (SB-1994-024)	1
	D20	90-34		085043 (9004201-3700)	O-ring	1
	D30	90-34		8100406	Hold down arm (SB-1994-015)	1
	D50	90-34		8000618	Swashplate (SB-1994-015 & SB-1998-080)	1
	F27	90-34		330415	Set screw	1
	F28	90-34		076042 (9003509-0012)	Seal nut	1
	G30	90-34		8000231	End cap gasket	1
	G82	90-34		9001214-2800	Ball	2
	G84	90-34		8800865	Crush ring	2
	G86	90-34		11066594	Orifice plug	2
	G90	90-34		9007210-1215	Screw	4
	G95	90-34		9007210-1208	Screw	2
	G96	90-34		9007210-0815	Screw	1
	L10	90-34		5000504	Roller bearing	1
	L20	90-34		9006300-0137	Retaining ring	1
	L25	90-34		11083637	Seal assembly	1
	L40	90-34		11013519	Lip seal	1
	L50	90-34		071845 (9004104-1510)	O-ring	1
	L60	90-34		11083638	Retainer plate	1
	L70	90-34		041160 (9007314-0605)	Screw	3
	L85	90-34		8000240	Front cover gasket	1
	P35	90-34		9007314-1010	Screw	4



Variable displacement cartridge motor



* = included in overhaul seal kit Q210

E103 026E

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

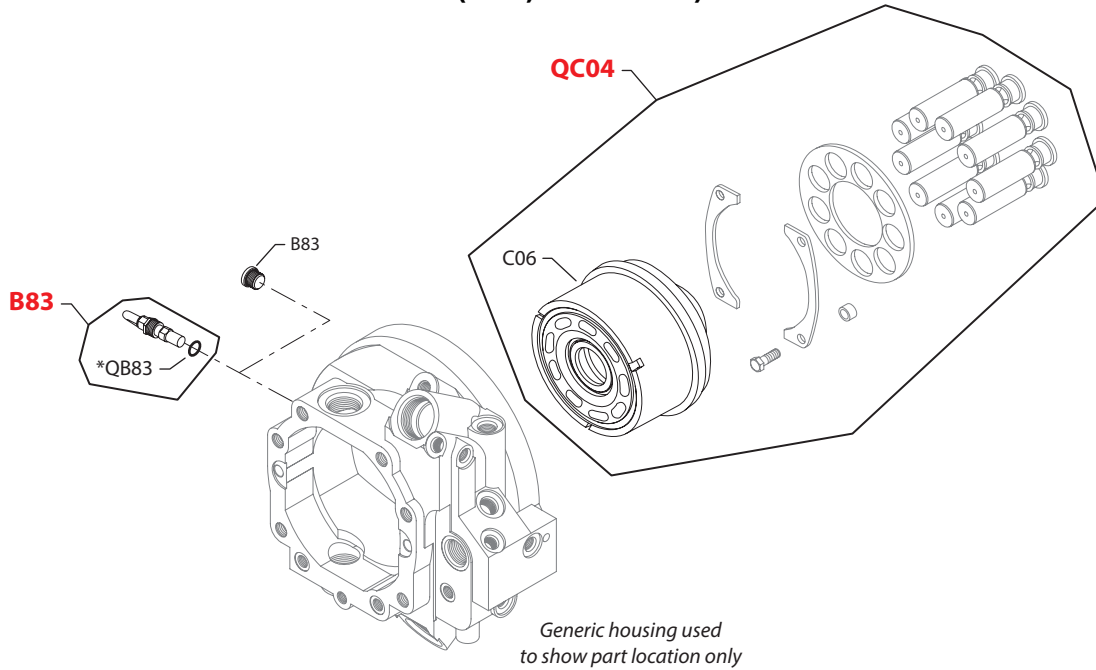

Variable displacement cartridge motor
Special hardware

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
EBA	QC04	87-02		8510362	Cylinder block kit, w/speed ring	1
	C06	87-02		8000336	Cylinder block assembly. w/speed ring	1
	B83	87-02		KPPG13408	Speed sensor	1
	QB83	87-02		085043 (9004201-3700)	O-ring	1
EBD	QC04	90-34		8510362	Cylinder block kit, w/speed ring	1
	C05	90-34		8000336	Cylinder block assembly. w/speed ring	1
	B83	90-34		KPPG12408	Speed sensor	1
	QB83	90-34		085043 (9004201-3700)	O-ring	1
EBG	QC04	90-34		8510362	Cylinder block kit, w/speed ring	1
	C05	90-34		8000336	Cylinder block assembly. w/speed ring	1
	B83	90-34		KPPG15408	Speed sensor	1
	QB83	90-34		085043 (9004201-3700)	O-ring	1
EBH	QC04	90-34		8510362	Cylinder block kit, w/speed ring	1
	C05	90-34		8000336	Cylinder block assembly. w/speed ring	1
	B83	90-34		KPPG18408	Speed sensor	1
	QB83	90-34		085043 (9004201-3700)	O-ring	1
EEA	QC04	87-02		8510362	Cylinder block kit, w/speed ring	1
	C06	87-02		8000336	Cylinder block assembly. w/speed ring	1
	B83	87-02		140644	Plug assembly	1
EEB	QC04	90-34		8510362	Cylinder block kit, w/speed ring	1
	C06	90-34		8000336	Cylinder block assembly. w/speed ring	1
	B83	90-34		140644	Plug assembly	1
EEK	QC04	90-34		8510362	Cylinder block kit, w/speed ring	1
	C06	90-34		8000336	Cylinder block assembly. w/speed ring	1
	B83	90-34		140644	Plug assembly	1
EFA	QC04	90-34		8510362	Cylinder block kit, w/speed ring	1
	C06	90-34		8000336	Cylinder block assembly. w/speed ring	1
	B83	90-34		KPPG136	Speed sensor	1
	QB83	90-34		085043 (9004201-3700)	O-ring	1
EGD	QC04	90-34		8510362	Cylinder block kit, w/speed ring	1
	C06	90-34		8000336	Cylinder block assembly. w/speed ring	1
	B83	90-34		KPPG12730A	Speed sensor	1
	QB83	90-34		085043 (9004201-3700)	O-ring	1
EGH	QC04	90-34		8510362	Cylinder block kit, w/speed ring	1
	C06	90-34		8000336	Cylinder block assembly. w/speed ring	1
	B83	90-34		KPPG18708	Speed sensor	1
	QB83	90-34		085043 (9004201-3700)	O-ring	1

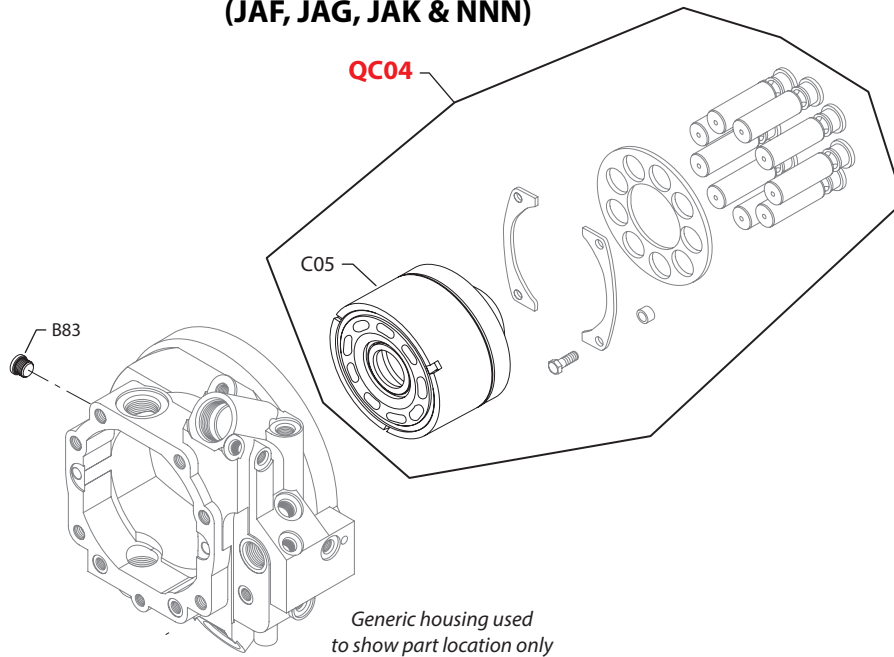


Variable displacement cartridge motor

(EHD, EHE & EHH)



(JAF, JAG, JAK & NNN)



E100 780E

* = included in overhaul seal kit Q210

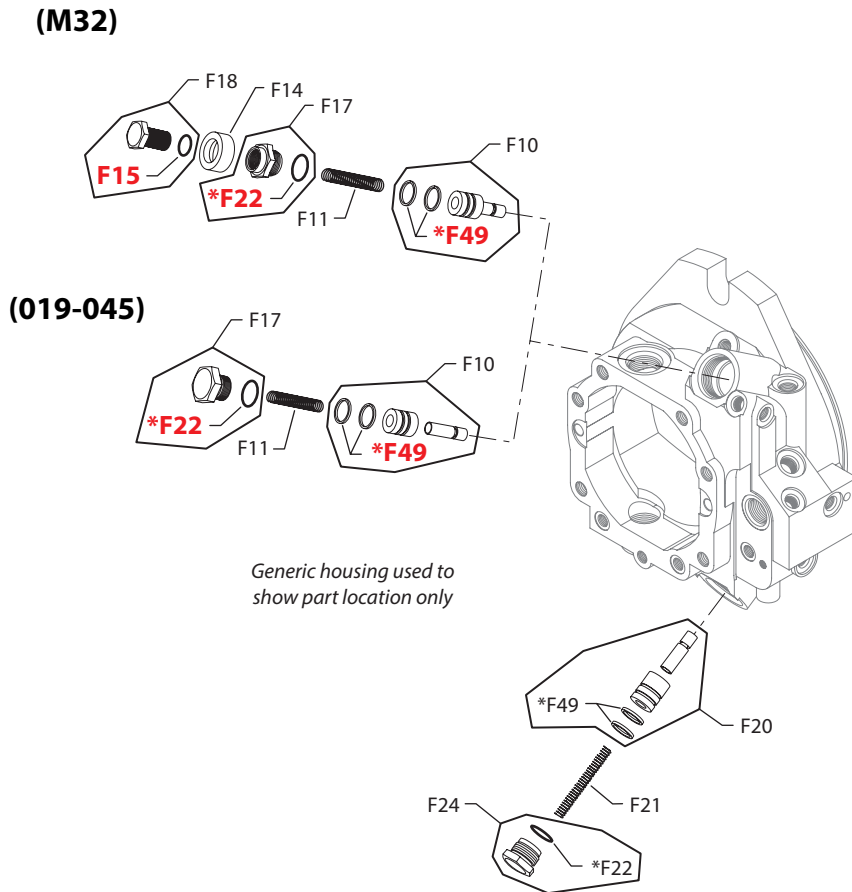
Enlarged **bold** type item numbers are recommended part to stock for servicing.


Variable displacement cartridge motor
Special hardware

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
EHD	QC04	90-34		8510362	Cylinder block kit, w/speed ring	1
	C06	90-34		8000336	Cylinder block assembly. w/speed ring	1
	B83	90-34		KPPG16408	Speed sensor	1
	QB83	90-34		085043 (9004201-3700)	O-ring	1
EHE	QC04	90-34		8510362	Cylinder block kit, w/speed ring	1
	C06	90-34		8000336	Cylinder block assembly. w/speed ring	1
	B83	90-34		KPPG16008	Speed sensor	1
	QB83	90-34		085043 (9004201-3700)	O-ring	1
EHH	QC04	90-34		8510362	Cylinder block kit, w/speed ring	1
	C06	90-34		8000336	Cylinder block assembly. w/speed ring	1
	B83	90-34		KPPG16008	Speed sensor	1
	QB83	90-34		085043 (9004201-3700)	O-ring	1
JAF	QC04	90-34		8510363	Cylinder block kit, without speed ring	1
	C05	90-34		8000128	Cylinder block assembly	1
	B83	90-34		140644	Plug assembly	1
JAG	QC04	90-34		8510363	Cylinder block kit, without speed ring	1
	C05	90-34		8000128	Cylinder block assembly	1
	B83	90-34		140644	Plug assembly	1
JAK	QC04	90-34		8510363	Cylinder block kit, without speed ring	1
	C05	90-34		8000128	Cylinder block assembly	1
	B83	90-34		140644	Plug assembly	1
NNN	QC04	90-34		8510363	Cylinder block kit, without speed ring	1
	C05	90-34		8000128	Cylinder block assembly	1
	B83	90-34		140644	Plug assembly	1



Variable displacement cartridge motor



* = included in overhaul seal kit Q210

E100 781E

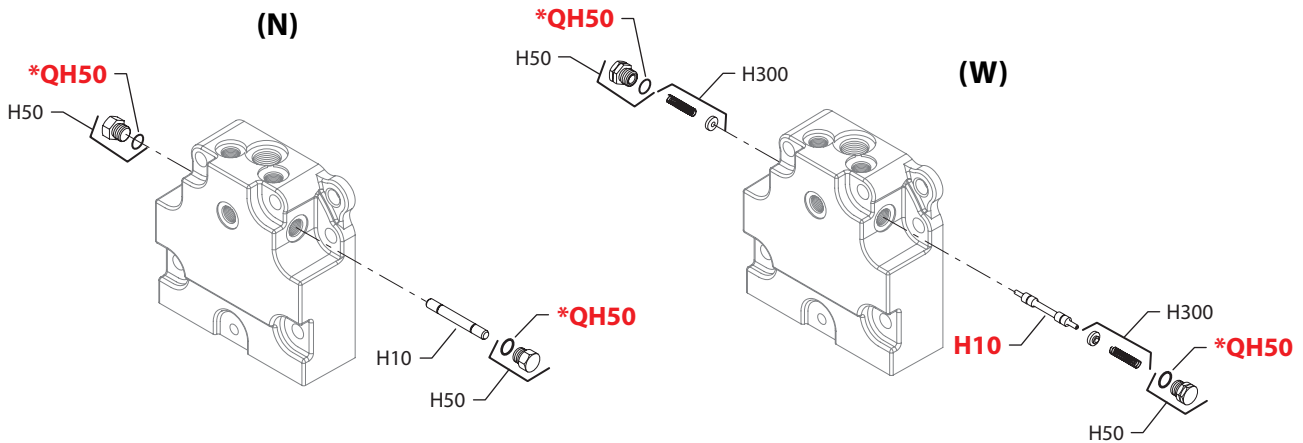
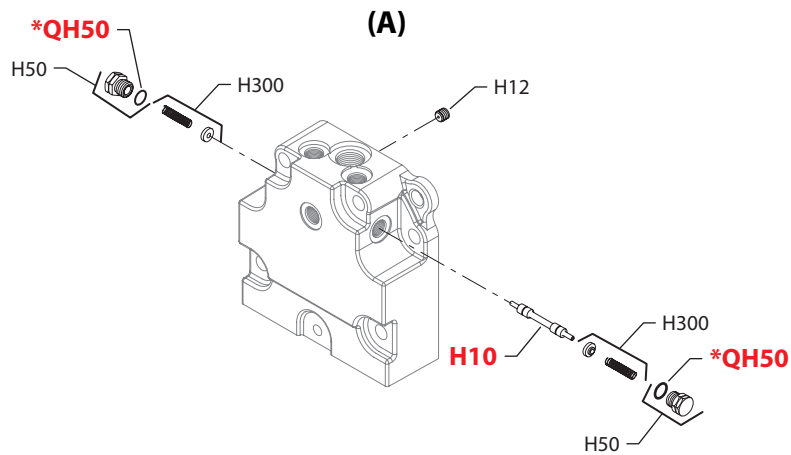
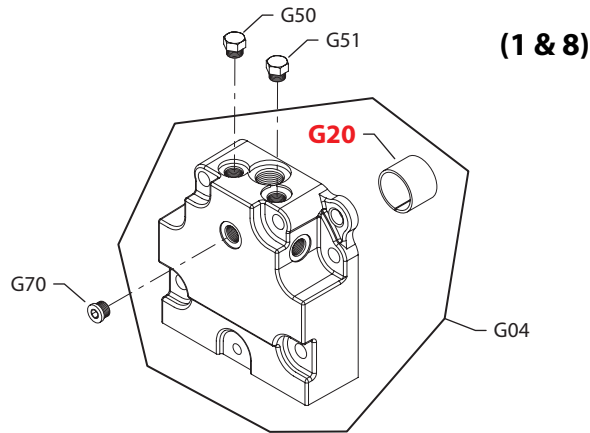
Enlarged **bold** type item numbers are recommended part to stock for servicing.


Variable displacement cartridge motor
Minimum displacement

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
019 - 045	F10	90-34		8100441	Servo piston assembly	1
	F11	90-34		8800619	Spring	1
	F17	90-34		11056796	Plug. special assembly	1
	F20	90-34		8100441	Servo piston assembly	1
	F21	90-34		8100435	Spring	1
	F22	90-34		038281	O-ring	2
	F24	90-34		11056796	Plug. special assembly	1
	F49	90-34		8700089	Piston seal ring	4
	M32	F10	99-24	13-26	8801165	Servo piston assembly
F11		99-24	13-26	8801161	Spring	1
F14		99-24	13-26	8801214	Servo shield	1
F15		99-24	13-26	012559 (9004202-6200)	O-ring	1
F17		99-24	13-26	11056797	Fitting assembly	1
F18		99-24	13-26	11056777	Servo plug assembly	1
F20		99-24	13-26	8801165	Servo piston assembly	1
F21		99-24	13-26	8801160	Spring	1
F22		99-24	13-26	038281	O-ring	2
F24		99-24	13-26	11056783	Plug. special	1
F49		99-24	13-26	8700089	Piston seal ring	4



Variable displacement cartridge motor



E100 782E

* = included in overhaul seal kit Q210

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


Variable displacement cartridge motor
End cap

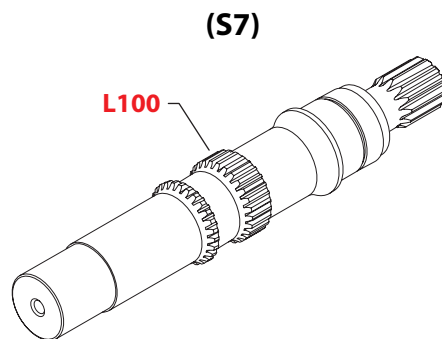
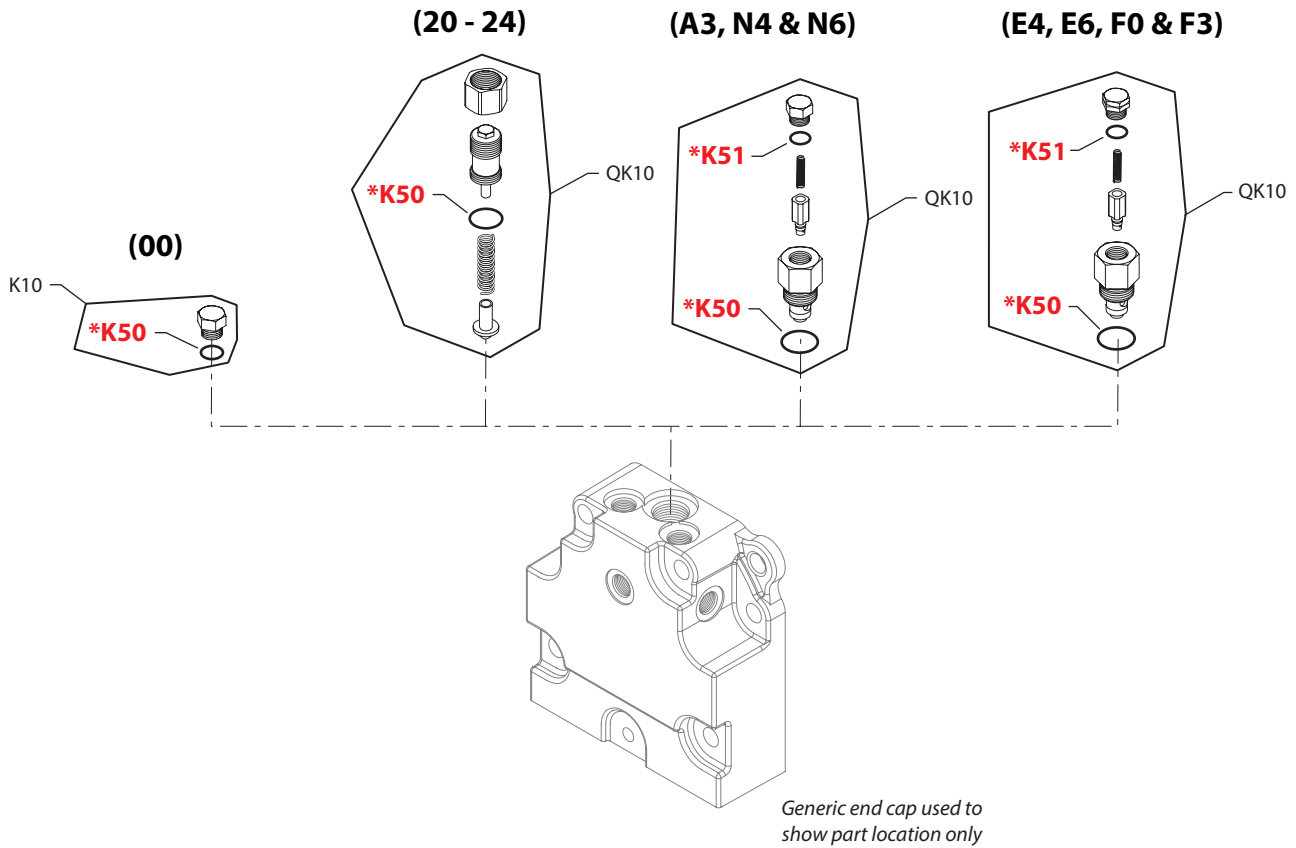
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
1	G04	90-34		8000599	End cap assembly, twin ports	1
	G20	90-34		8700018	Journal bearing	1
	G50	90-34		046151 (9005100-5600)	Plug assembly	1
	G51	90-34		046151 (9005100-5600)	Plug assembly	1
	G70	90-34		140644	Plug assembly	1
8	G04	90-34		8000599	End cap assembly, twin ports	1
	G20	90-34		8700018	Journal bearing	1
	G50	90-34		046151 (9005100-5600)	Plug assembly	1
	G51	90-34		046151 (9005100-5600)	Plug assembly	1
	G70	90-34		140644	Plug assembly	1

Loop flushing

A	H10	94-18		365544 (8800550)	Shuttle spool	1
	H12	94-18		11061992	Orifice plug, 2.4mm	1
	H50	90-34		518016	Plug assembly	2
	H300	90-34		513596	Spring guide assembly (SB-2000-047)	2
	QH50	90-34		085043 (9004201-3700)	O-ring	2
N	H10	90-34		740944 (8800668)	Loop flushing spool, defeated	1
	H50	90-34		046151 (9005100-5600)	Plug assembly	2
	QH50	90-34		085043 (9004201-3700)	O-ring	2
W	H10	90-34		365544 (8800550)	Shuttle spool	1
	H50	90-34		518016	Plug assembly	2
	H300	90-34		513596	Spring guide assembly (SB-2000-047)	2
	QH50	90-34		085043 (9004201-3700)	O-ring	2



Variable displacement cartridge motor



* = included in overhaul seal kit Q210

E100 830E

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


Variable displacement cartridge motor
Charge pressure setting

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
00	K10	90-34		001537 (9005100-8700)	Plug assembly	1
	K50	90-34		001149 (9004201-6200)	O-ring	1
20-24	QK10	90-34		8510012	Adjustable charge relief valve kit (SB-1989-020)	1
	K50	90-34		001149 (9004201-6200)	O-ring	1
A3	QK10	90-34		8510256	Cartridge CPRV kit, 13 bar, 16 L/min	1
	K50	90-34		001149 (9004201-6200)	O-ring	1
	K51	90-34		085043 (9004201-3700)	O-ring	2
E4	QK10	90-34		8510261	Cartridge CPRV kit, 16 bar, 4 L/min	1
	K50	90-34		001149 (9004201-6200)	O-ring	1
	K51	90-34		085043 (9004201-3700)	O-ring	2
E6	QK10	90-34		8510252	Cartridge CPRV kit, 16 bar, 7 L/min	1
	K50	90-34		001149 (9004201-6200)	O-ring	1
	K51	90-34		085043 (9004201-3700)	O-ring	2
F0	QK10	90-34		8510259	Cartridge CPRV kit, 16 bar, 11 L/min	1
	K50	90-34		001149 (9004201-6200)	O-ring	1
	K51	90-34		085043 (9004201-3700)	O-ring	2
F3	QK10	90-34		8510262	Cartridge CPRV kit, 16 bar, 16 L/min	1
	K50	90-34		001149 (9004201-6200)	O-ring	1
	K51	90-34		085043 (9004201-3700)	O-ring	2
N4	QK10	90-34		8510255	Cartridge CPRV kit, 13 bar, 4 L/min	1
	K50	90-34		001149 (9004201-6200)	O-ring	1
	K51	90-34		085043 (9004201-3700)	O-ring	2
N6	QK10	90-34		11097072	Cartridge CPRV kit, 13 bar, 7 L/min	1
	K50	90-34		001149 (9004201-6200)	O-ring	1
	K51	90-34		085043 (9004201-3700)	O-ring	2

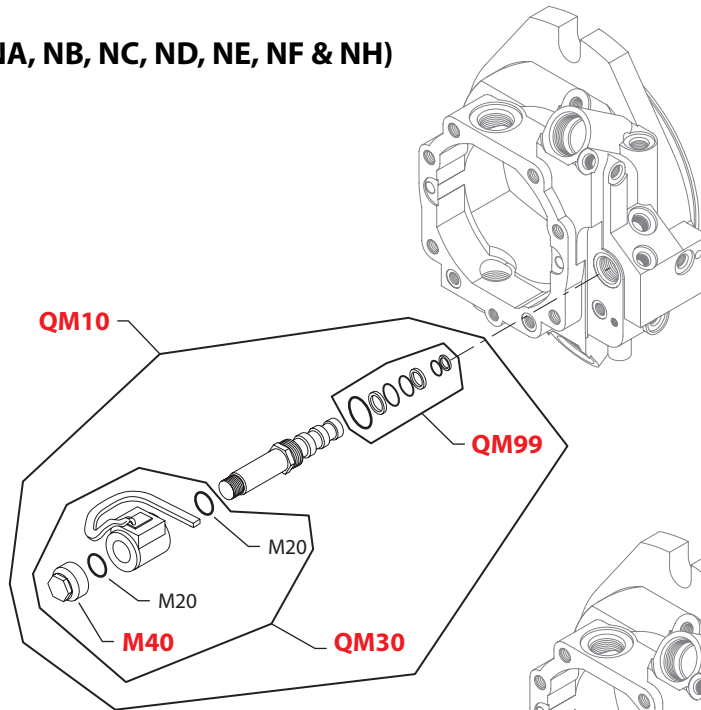
Shaft

S7	L100	90-34		11014231	Shaft, 14 tooth spline	1
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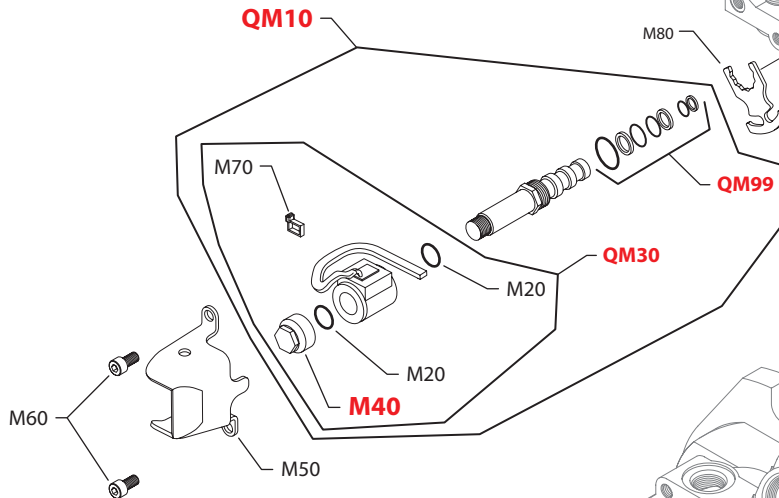
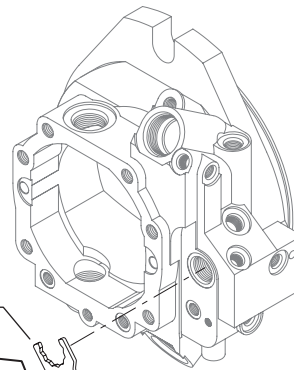
Variable displacement cartridge motor

(NA, NB, NC, ND, NE, NF & NH)

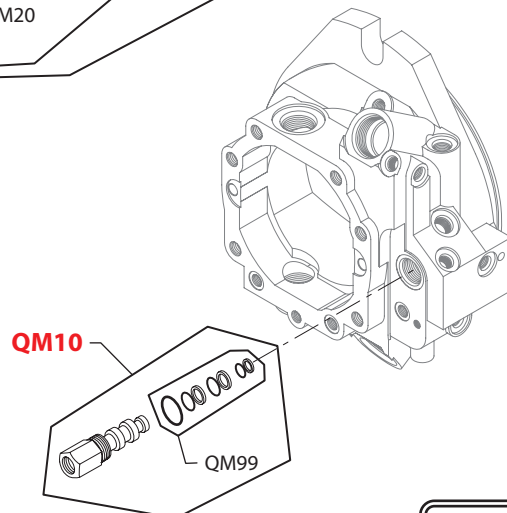


Generic housing used to show part location only

(NG)



(PT)



E103 027E

* = included in overhaul seal kit Q210

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

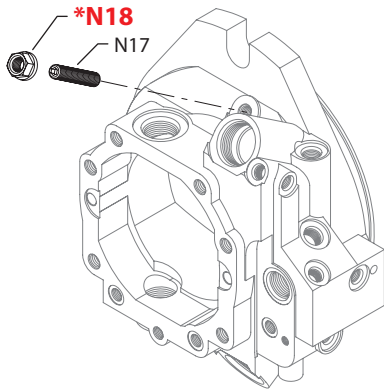
Variable displacement cartridge motor
Control

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
NA	M20	90-34		5000512	O-ring	2
	M40	90-34		5000511	Coil nut, special	1
	QM10	90-34		8510218	Solenoid control valve kit, (SB-1998-084)	1
	QM30	90-34		11137412	Coil kit, 12V, MS connector	1
	QM99	90-34		8700133	Seal kit	1
NB	M20	90-34		5000512	O-ring	2
	M40	90-34		5000511	Coil nut, special	1
	QM10	90-34		8510216	Solenoid control valve kit, (SB-1998-084)	1
	QM30	90-34		8510212	Coil kit, 12V, Packard connector	1
	QM99	90-34		8700133	Seal kit	1
NC	M20	90-34		5000512	O-ring	2
	M40	90-34		5000511	Coil nut, special	1
	QM10	90-34		8510219	Solenoid control valve kit, (SB-1998-084)	1
	QM30	90-34		8510215	Coil kit, 24V, MS connector	1
	QM99	90-34		8700133	Seal kit	1
ND	M20	90-34		5000512	O-ring	2
	M40	90-34		5000511	Coil nut, special	1
	QM10	90-34		8510217	Solenoid control valve kit, (SB-1998-084)	1
	QM30	90-34		8510213	Coil kit, 24V, Packard connector	1
	QM99	90-34		8700133	Seal kit	1
NE	M20	90-34		5000512	O-ring	2
	M40	90-34		5000511	Coil nut, special	1
	QM10	90-34		8510250	Solenoid control valve kit, 12V, M-Pack 150.2 connector	1
	QM30	90-34		11137413	Coil, 12V, M-Pack 150.2 connector	1
	QM99	90-34		8700133	Seal kit	1
NG	M20	90-34		5000512	O-ring	2
	M40	90-34		5000511	Coil nut, special	1
	M50	90-34		8100714	Solenoid cover	1
	M60	90-34		5000514	Screw	2
	M70	90-34		5000509	Cable tie	1
	M80	90-34		8100781	Solenoid locking plate	1
	QM10	90-34		8510284	Solenoid control valve kit, 12V, Packard conn.,special	1
	QM30	90-34		8510283	Coil kit, 12V, Packard connector	1
	QM99	90-34		8700133	Seal kit	1
	NH	M20	90-34		5000512	O-ring
M40		90-34		5000511	Coil nut, special	1
QM10		90-34		11018154	Solenoid control valve kit, 12V, Deutsch connector	1
QM30		90-34		11018155	Coil kit, 12V, Deutsch connector	1
QM99		90-34		8700133	Seal kit	1
PT	QM10	90-34		11137416	Control valve	1
	QM99	90-34		8510178	Seal kit	1

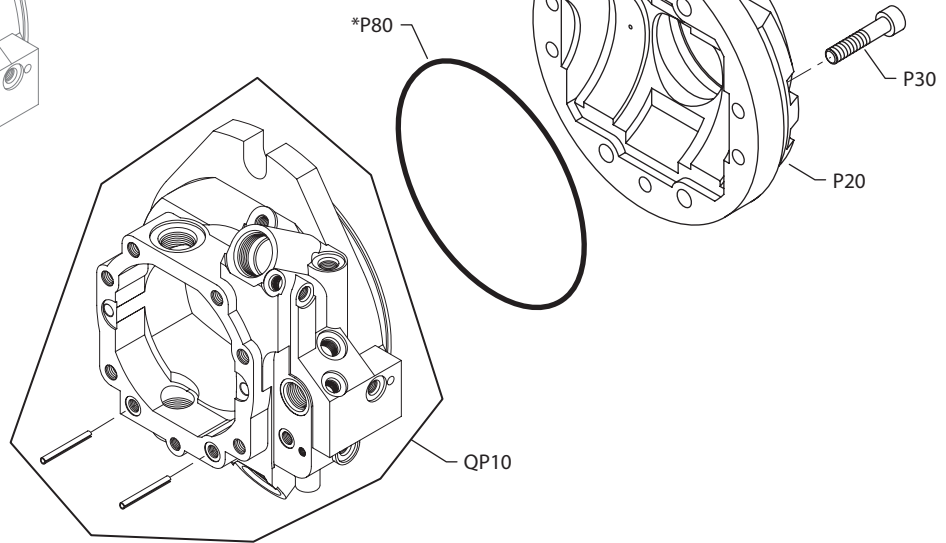


Variable displacement cartridge motor

(A-N)

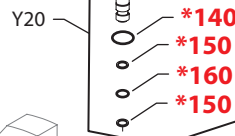
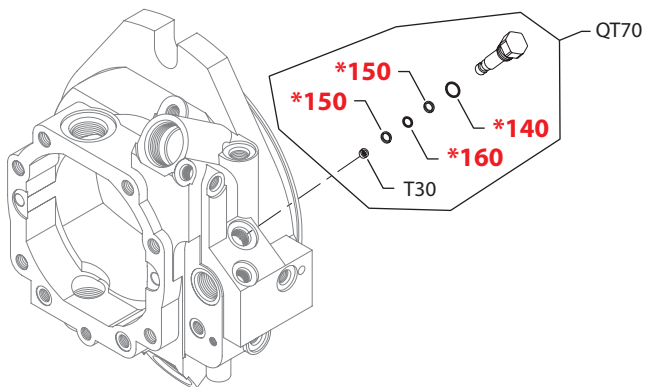


(0)

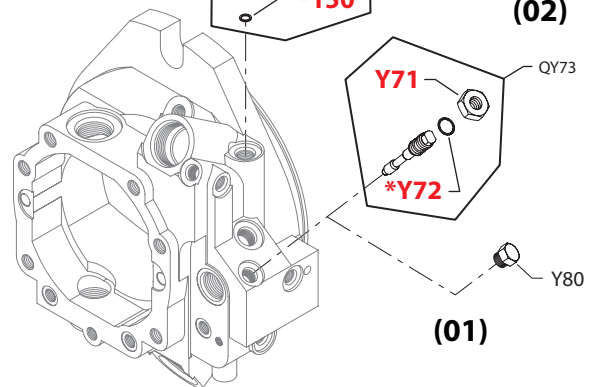


(01 & 02)

(01)



(02)



(01)

E100 789E

* = included in overhaul seal kit Q210

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



Variable displacement cartridge motor

Maximum displacement

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
A-N	N17	90-34		330415	Set screw, M12 X 60	1
	N18	90-34		076042 (9003509-0012)	Seal nut, M12	1

Housing

0	P20	90-34		8000228	Front cover	1
	P30	90-34		654053 (9007314-1012)	Screw	4
	P80	90-34		508347 (9004100-1680)	O-ring	1
	QP10	90-34		8510056	Housing assembly	1

Servo rate, A

01	QT70	90-34		8510077	Orifice valve assembly	1
	T30	90-34		8800532	Filter screen	1
	140	90-34		085043 (9004201-3700)	O-ring	1
	150	90-34		9006150-0100	Back up ring	2
	160	90-34		732479 (9004105-0100)	O-ring	1

Servo rate, B

01	Y20	90-34		8510074	Servo orifice assembly, fast	1
	Y80	90-34		9005100-4400	Plug assembly	1
	140	90-34		085043 (9004201-3700)	O-ring	1
	150	90-34		9006150-0100	Back up ring	2
	160	90-34		732479 (9004105-0100)	O-ring	1
02	QY73	90-34		8510076	Orifice valve assembly, slow	1
	Y20	90-34		8510075	Orifice valve assembly, slow	1
	Y71	90-34		5000120	Seal nut	1
	Y72	90-34		001123 (9004201-2500)	O-ring	1
	140	90-34		085043 (9004201-3700)	O-ring	1
	150	90-34		9006150-0100	Back up ring	2
	160	90-34		732479 (9004105-0100)	O-ring	1


Variable displacement cartridge motor
Overhaul seal kit

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	Q210	90-34		11141343	Overhaul seal kit	1
	C70	90-34		648477	Screw, M6 x 16, Scotch Grip	4
	D20	90-34		085043 (9004201-3700)	O-ring, .468 x .078, nitrile, 90D	1
	F22	90-34		038281	O-ring, 1.17 x .116, viton, 90D	2
	F28	90-34		076042 (9003509-0012)	Seal nut, M12	1
	F49	90-34		8700089	Piston seal ring	4
	G30	90-34		8000231	End cap gasket	1
	G84	90-34		8800865	Crush ring	2
	K50	90-34		001149 (9004201-6200)	O-ring, .755 x .097, nitrile, 90D	1
	K51	90-34		085043 (9004201-3700)	O-ring, .468 x .078, nitrile, 90D	1
	L25	90-34		11083637	Seal carrier assembly	1
	L85	90-34		8000240	Front cover gasket	1
	N18	90-34		076042 (9003509-0012)	Seal nut, M12	1
	P80	90-34		9004100-1680	O-ring	1
	QB83	90-34		085043 (9004201-3700)	O-ring, .468 x .078, nitrile, 90D	1
	QH50	90-34		085043 (9004201-3700)	O-ring, .468 x .078, nitrile, 90D	2
	Y71	90-34		5000120	Seal nut	1
	Y72	90-34		001123 (9004201-2500)	O-ring, .351 x .078, nitrile, 90D	1
	140	90-34		085043 (9004201-3700)	O-ring, .468 x .078, nitrile, 90D	2
	150	90-34		9006150-0100	Back up ring, .265 x .053	4
	160	90-34		732479 (9004105-0100)	O-ring, .239 x .070, viton, 90D	2



Service bulletin: SB-1988-023

Products affected Series 90 pumps and motors

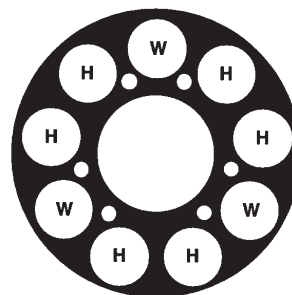
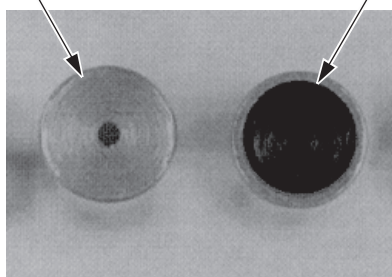
Subject Piston improvement

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

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

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

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



Service bulletin: SB-1989-020

Products affected Series 90 fixed displacement motors

Subject Incorporation of adjustable charge relief valve

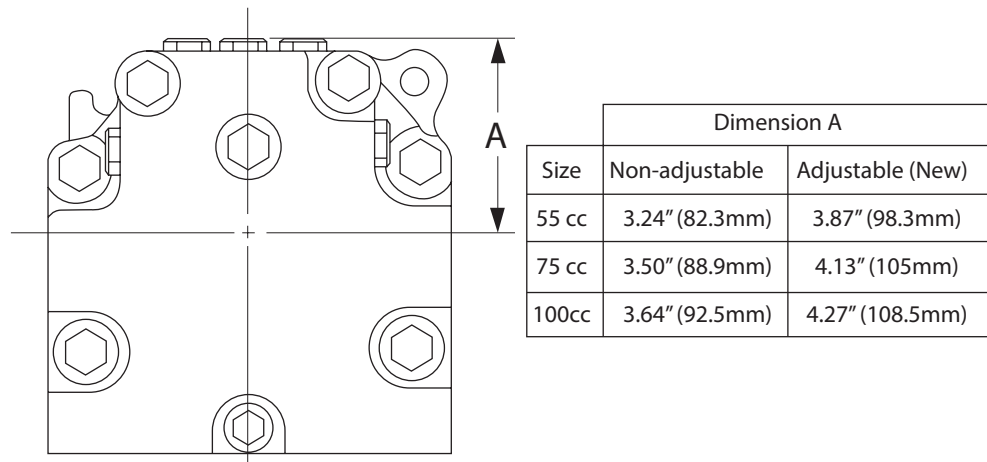
Description As a product improvement, Sauer-Danfoss is incorporating an externally adjustable charge relief valve on all series 90 fixed displacement motors. This design replaces the previous shimmed relief valve. The new design valve provides a range of pressure adjustment from 10 to 32 bar.

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.





Service bulletin: SB-1989-020

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
 All 100 cc motors (96-3xxx) will change at s/n A-90-20-xxxxx

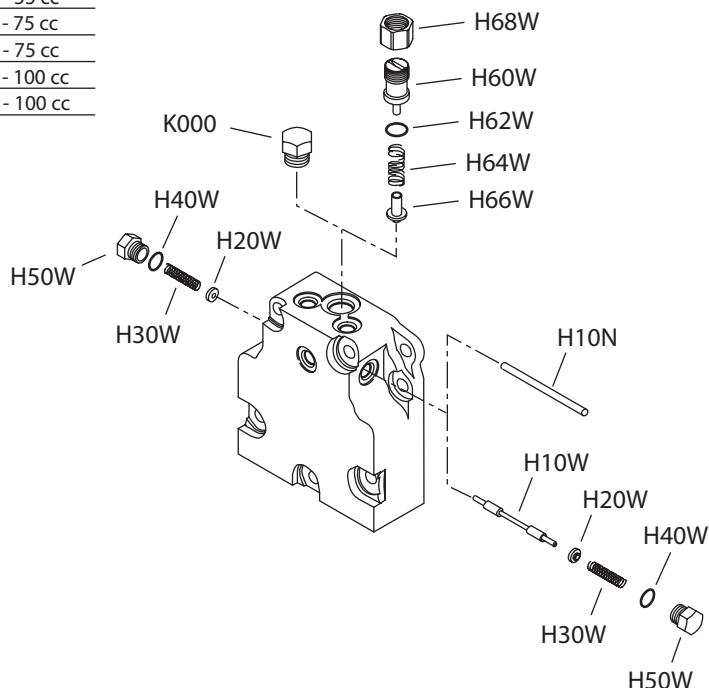
Part numbers affected Charge relief and loop flushing hardware for old vintage motors can be found in the Series 90 Service Parts Manual (520L0890). The new part numbers are as follows:

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



Service bulletin: SB-1994-015

Products affected Series 90 55 cc variable motors

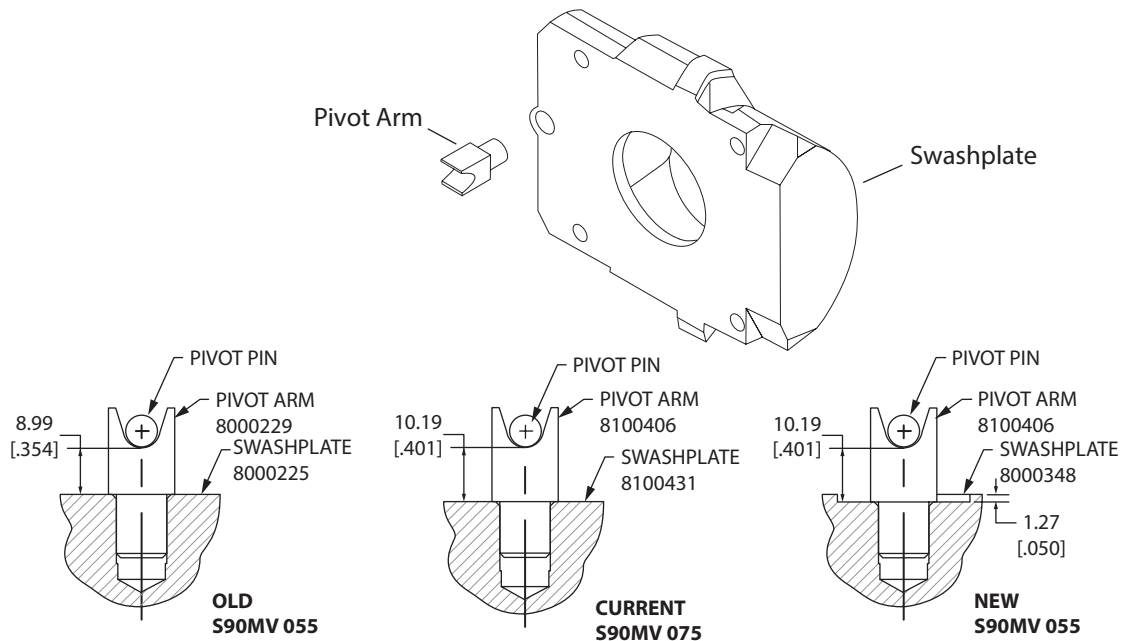
Subject Swashplate and pivot arm change

Description Sauer-Danfoss is changing the design of the 55 cc variable motor swashplate to allow for a common pivot arm to be used for both the 55 cc and the 75 cc variable motor.

The accompanying figures show the current configuration of the swashplate pivot arm and pivot pin for the 55 and 75 frame sizes respectively. The only difference between the two pivot arms is their length.

The new design for the 55 cc moves the difference in dimensions from the pivot arm to the swashplate, which allows a common pivot arm to be used for both 55 and 75 frame sizes.

The old style swashplate and pivot arm will be obsoleted and will not be available as service parts. The new and old style swashplates and pivot arms are not interchangeable as individual parts. If either of these parts must be replaced during repair, both a new style swashplate and pivot arm must be installed.



Models affected All 94-4xxx and 944xxx variable motors

Serial numbers A-94-51-xxxxx

Part numbers affected

Frame size	Old swashplate	Old pivot arm	New swashplate	New pivot arm
55 cc	8000225	8000229	8000348	8100406
75 cc	8100431	8100406	No change	No change

Parts disposition ■ Interchangeable - If BOTH swashplate and holddown arm are changed.

Service bulletin: SB-1994-024

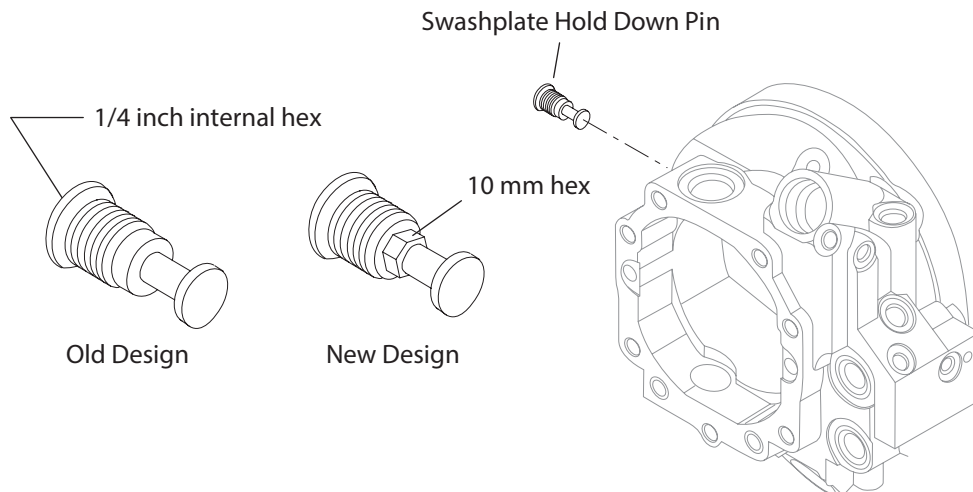
Products affected Series 90 55 and 75 cc variable motors

Subject Swashplate hold down pin

Description As a product improvement, Sauer-Danfoss is changing the design of the swashplate hold down pin used on 55 and 75 cc variable motors.

The previous design used a 1/4 inch internal socket head drive, whereas the new design incorporates a 10 mm drive hex that is not externally accessible. The part number of the hold down pin does not change and is totally interchangeable with the previous design.

Any unit at first repair should be changed to the new style hold down pin. Torque the hold down pin to 27 N·m [20 lbf·ft].



Models affected All 94-4xxx, 944xxxx, 95-4xxx, and 954xxxx variable motors

Serial numbers A-94-10-xxxxx and beyond

Part numbers affected 8800758

Parts disposition ■ Interchangeable



Service bulletin: SB-1998-007

Products affected

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

Subject

Charge relief seat

Description

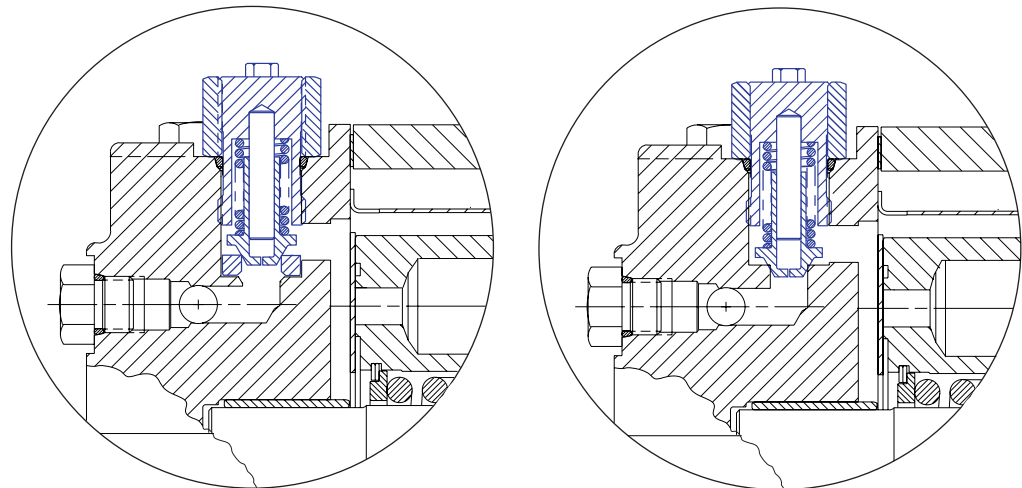
Sauer-Danfoss has initiated a change to the end caps used on series 90 55cc, 75cc, and 100cc fixed displacement motors, and the series 90 55cc and 75cc variable displacement motors.

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.




Service bulletin: SB-1998-007
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



Service bulletin: SB-1998-041

Products affected

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

Subject

Piston hold down mechanism design change

Description

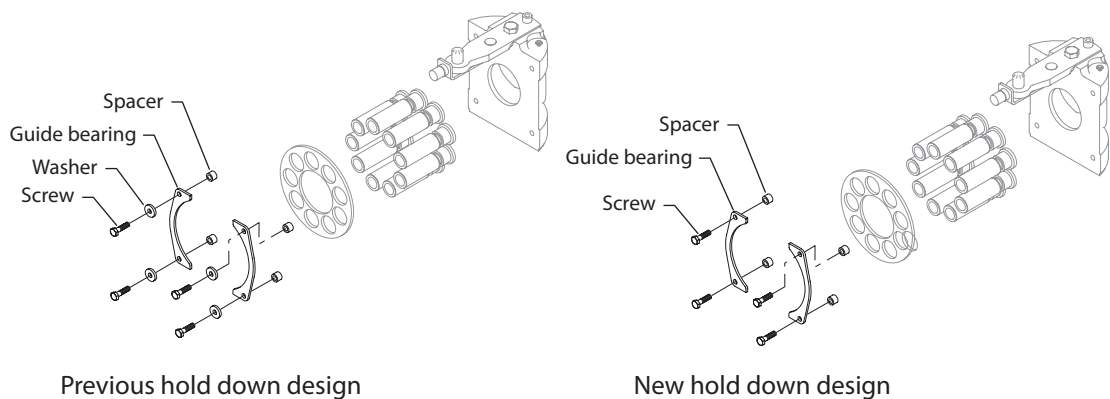
Sauer-Danfoss has initiated a change to the piston hold down mechanism used on series 90 55, 75, and 100 cc variable displacement pump and the series 90 55 and 75 cc variable displacement motors.

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

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

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

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





Service bulletin: SB-1998-041

Models affected

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

Serial numbers

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

Part numbers affected

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

Parts disposition

■ Interchangeable



Service bulletin: SB-1998-080

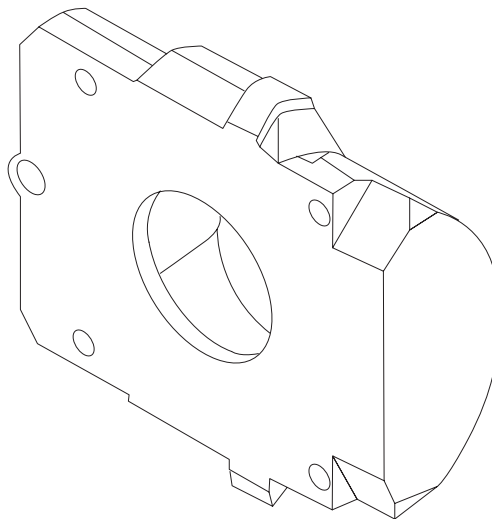
Products affected Series 90 55 and 75 cc variable motors

Subject Motor swashplate change

Description Sauer-Danfoss has initiated a changing to the swashplate used on series 90 55 and 75 cc variable motors.

The process used to develop the required surface hardness of the swashplate has been changed. Due to this change, a slight change in material color may be observed.

In association with this change, Sauer-Danfoss has released new part numbers for the swashplate used in the series 90 55 and 75 cc variable motors. The new swashplate is completely interchangeable with the previous swashplate. The previous swashplate is no longer available as a service part.



Models affected All 94-4xxxx, 944xxxx, 95-4xxx, and 954xxxx variable displacement motors

Serial numbers This change became effective at serial number A-98-49-xxxxx.

Part numbers affected

Motor size	Old swashplate part number	New swashplate part number
55 cc	8000348	8000618
75 cc	8100431	8100773

Parts disposition ■ Interchangeable



Service bulletin: SB-1998-084

Products affected

Series 90 55 and 75 cc variable motors

Subject

Electronic motor displace control valve change

Description

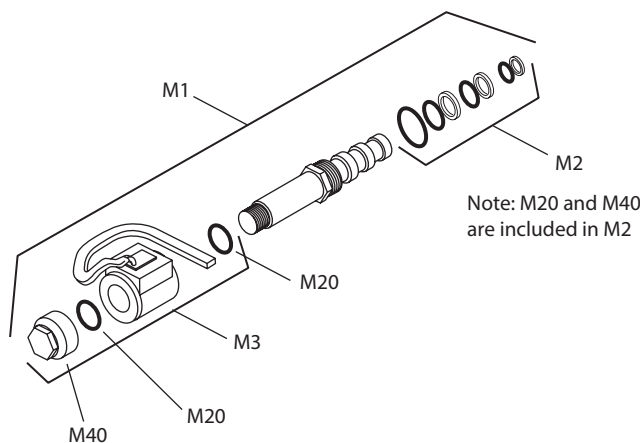
Sauer-Danfoss has introduced several design and serviceability improvements for the electronic motor shift control valve on series 90 55 and 75 cc variable displacement motors. This change affects motors with NA, NB, NC, and ND style controls.

The electronic solenoid coil has been revised to increase the maximum shift force generated by the coil. The cartridge valve assembly has also been revised to improve the resistance to deflections caused by pressure loading.

The cartridge valve may be installed in the motor housing following the procedures outlined in the series 90 pump and motor service manual. The only differences are that a 1-1/8" hex wrench should be used to install the cartridge valve to a torque level of 47 N·m [35 lbf·ft]. An O-ring is placed on the cartridge valve stem, prior to installing the solenoid coil, and then a second O-ring is placed between the coil and new fastening nut. Torque the fastening nut to 9 N·m [7 lbf·ft], using a 3/4" hex wrench.

In conjunction with these design improvements, Sauer-Danfoss will offer three separate service kits. The first is the control assembly kit (M1), which includes the cartridge valve assembly, the solenoid coil, and associated installation hardware. The second is a coil kit (M3), which includes only the solenoid coil and associated installation hardware. The third is an overhaul seal kit (M2) for the cartridge valve assembly. Assembly instructions are also included in all three kits.

The control assembly kit is completely interchangeable with the previous control kit, which has been obsoleted and no longer available as a service part. The new solenoid coil kit is not compatible with controls in motors produced prior to the incorporation date (A-98-46-xxxxx) and should only be used in servicing motors after that date.




Service bulletin: SB-1998-084
Models affected

All 94-4xxx, 944xxxx, 95-4xxx, and 954xxxx variable displacement motors equipped with electrical displacement control valves.

Serial numbers affected

This change became effective at serial number A-98-46-xxxxx.

Part numbers affected

Cartridge valve overhaul seal kit (M2) is 8510206.

Code	Voltage	Connector	Control assembly kit		Coil kit (M3)
			Previous	Current (M1)	
NA	12V	MS	8700103-0003	8510218	8510214
NB	12V	Packard	8700103-0001	8510516	8510212
NC	24V	MS	8700103-0004	8510219	8510215
ND	24V	Packard	8700103-0002	8510217	8510213

Parts disposition

■ Non-interchangeable



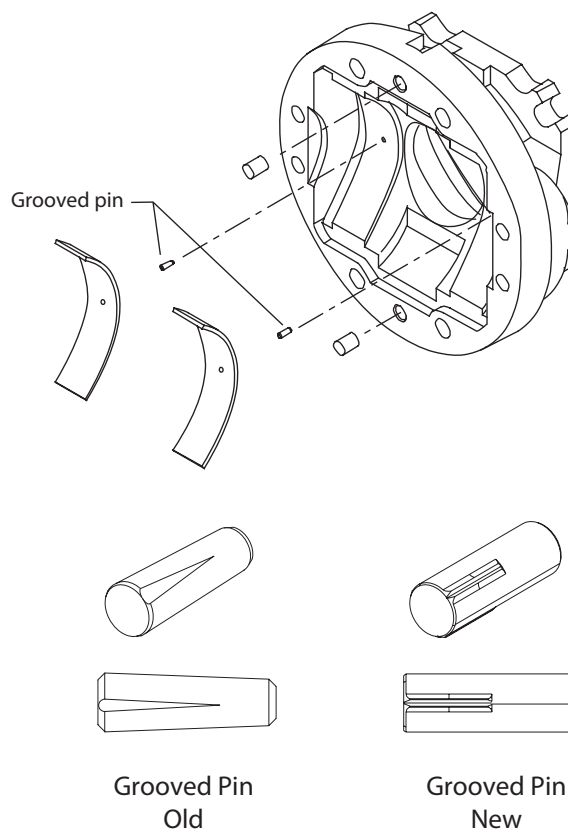
Service bulletin: SB-2000-046

Products affected Series 90 55 and 75 cc variable motors

Subject Swashplate bearing pin change

Description As a product improvement, Sauer-Danfoss has changed the design of the swashplate bearing pin for the series 90 55 and 75 cc variable displacement motors. The old pin was tapered, making it difficult to press into the front cover. It required grease before the swashplate bearings were pressed over them. The new pin is stepped, making it easier to install into the front cover. The swashplate bearings are now a slip fit over the pins, which eliminates the need to grease the pins before the bearings are installed.

This is an interchangeable change. In order to track this change, Sauer-Danfoss has issued a new part number for the pin. The old pin part number is obsolete and no longer available as a service part.



Models affected All 94-4xxx, 944xxxx, 95-4xxx, and 954xxxx variable displacement motors

Serial numbers Change effective at serial number A-01-12-xxxxx.

Part numbers affected

Old pin part number	New pin part number
9004875-0126	5000621

Parts disposition ■ Interchangeable



Service bulletin: SB-2000-047

Products affected

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

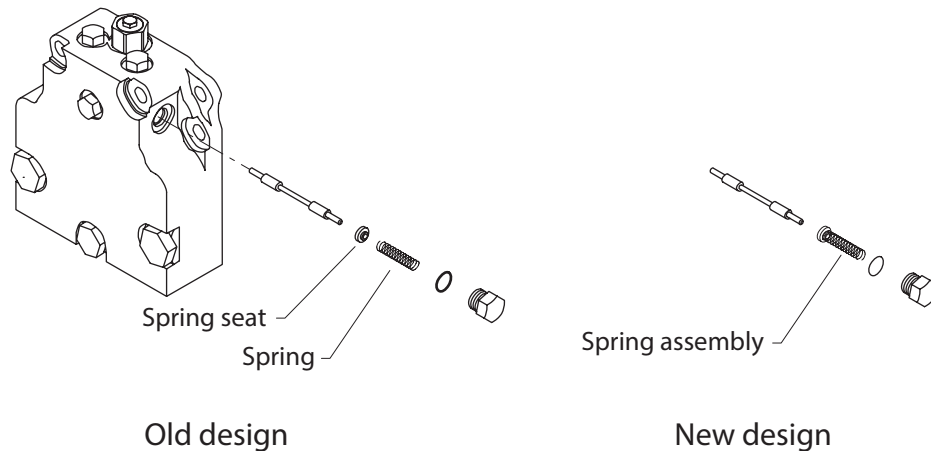
Subject

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

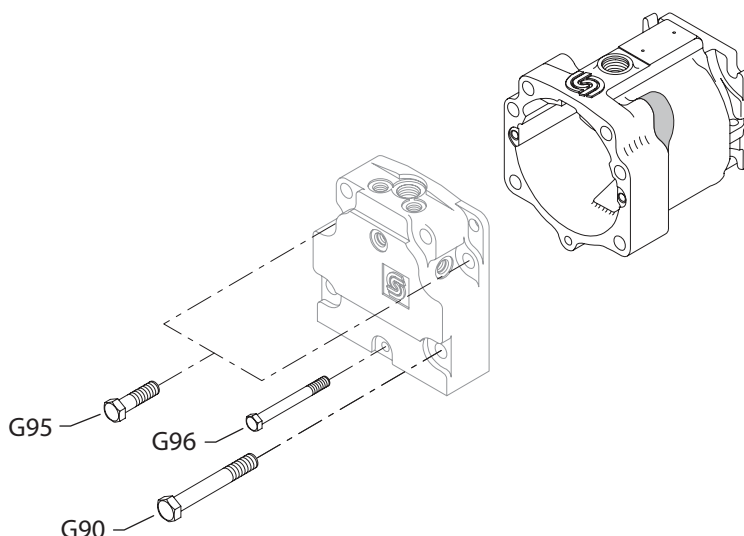


Service bulletin: SB-2004-015

Products affected Series 90 55cc and 75cc fixed displacement motors

Subject Housing change to accept long screws

Description Sauer-Danfoss has changed the housing used in series 90 55cc and 75cc fixed displacement 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 small end cap mounting screw (G96) remains the same. The old housing will become obsolete and no longer available for service.



Models affected All 94-3xxx, 943xxxx, 95-3xxx, and 953xxxx fixed displacement motors.

Serial numbers Sauer-Danfoss Ames, Ia production - Change effective on 55 cc at s/n A-05-22-xxxxx. and 75 cc at s/n A-04-51-xxxxx

Sauer-Danfoss Neumunster, Germany production - Change effective on 55 cc at s/n N-04-47-xxxx and 75 cc at s/n N-04-43-xxxxx

Part numbers affected

Description	Old part number	New part number
55 cc housing	8000436	8000782
75 cc housing	8100465	8100965
Screw	9007210-1209	9007210-1216

Parts disposition ■ Non-interchangeable



Notes



Notes



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www.turollaocg.com

Valmova

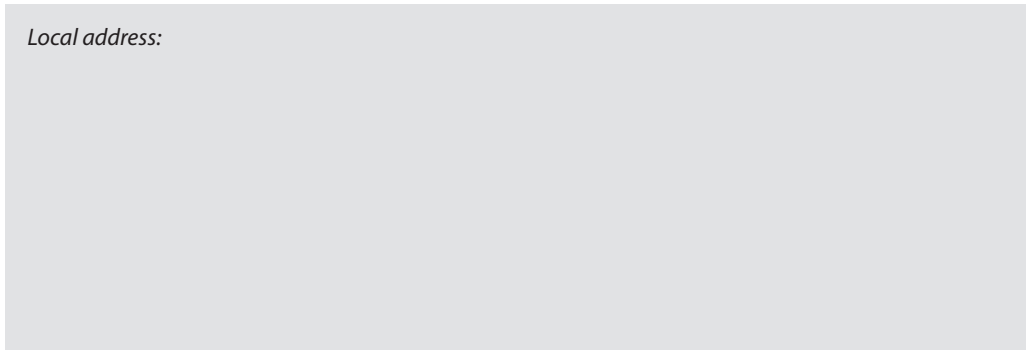
www.valmova.com

Hydro-Gear

www.hydro-gear.com

Daikin-Sauer-Danfoss

www.daikin-sauer-danfoss.com



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