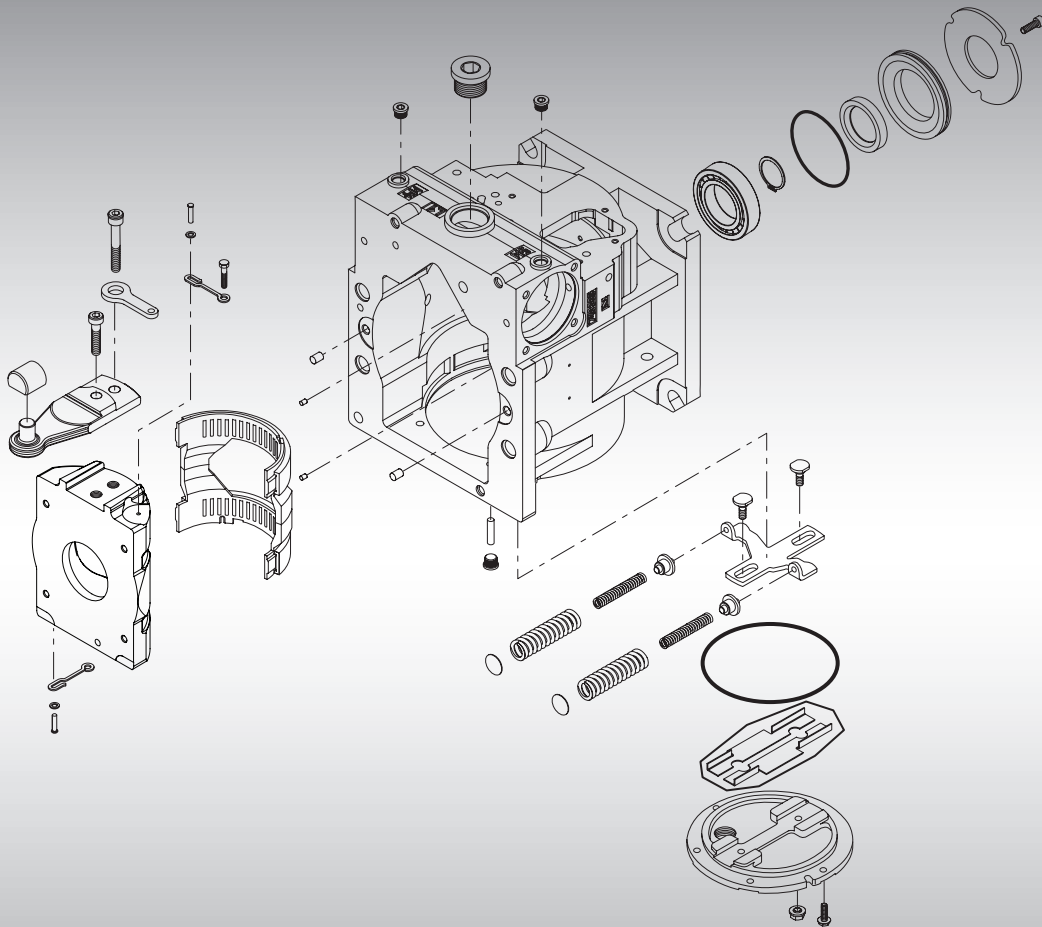




Parts Manual

Series 90

180cc Axial Piston Pump







Contents

General information	Service parts identification.....	4
	Nameplate	4
	Date code.....	5
	Service bulletins	5
	Procedure to identify a part	5
	Order code.....	7
Variable displacement pump	Common parts	8-9
	Special hardware.....	10-29
	Displacement limitation	30-37
	End cap	38-41
	Charging system.....	42-43
	Auxiliary mounting.....	44-51
	Charge pressure setting.....	52-53
	Shaft.....	52-53
	Control	54-71
	Filtration	72-73
	High pressure protection	74-77
	Orifice	76-85
	Overhaul seal kit.....	85
Service bulletin	SB-1995-007 (charge pump design change).....	86-87
	SB-1996-004 (side cover design change)	88
	SB-1999-065 (hydraulic control gasket)	89-90
	SB-2006-010 (charge pump shaft)	91
	SB-2009-074 (A pad flange/seal)	92
	SB-2009-075 (B pad flange/seal).....	93
	SB-2002-076 (C pad flange/seal).....	94
	SB-2011-032 (pump redesign).....	95-96
	SB-2012-039 (lip seal)	97
	SB-2015-038 (gerotor pin).....	98



General information

Service parts 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, 180 cc variable displacement pumps.

The parts listed include all parts which may be used when performing either “Minor Repairs”, “Major Repairs” or “Conversions” on the Series 90, 180 cc pump.

Nameplate

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

Model Number

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

Model Code

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

Serial Number

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

The letter code indicates the location of original manufacture (assembly). “A” indicates the unit was originally assembled in Ames, Iowa, USA. “N” indicates the unit was originally assembled in Neumunster, Germany.

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

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

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





General information

Date code

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

EXAMPLE: The service part desired is Item E10

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
80	E10	92-19		746107	Side cover	1
	G30	89-41	92-18	340133	Side cover (SB-1992-003)	1

All units using this order code with a date code of 89-41 and up to and including 92-18, must use part number "340133". All units with a date code of 92-19 and newer must use part number "746107."

Service bulletins

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

Procedure to identify a part

General

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

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

A part number that has another number following it in parentheses is done to make this a world wide manual. The first number is sold in Germany. The number in parentheses is sold in the United States. (Example: 001149 (9004201-6200), customers would order 9004201-6200 if ordering the part in the United States.)

Example of a Part Identification

The nameplate on a Series 90 pump has an Order Code of 90L180 MA 1 CD 80 S 3 F1 H 03 NNN 35 35 24. Use the following procedures to determine the part number of the drive shaft used on this pump.

1) Referring to the input shaft module in the Order Code (see page 7), the input shaft option for this pump is identified by the code "F1". (90L180 MA 1 CD 80 S 3 **F1** H 03 NNN 35 35 24)

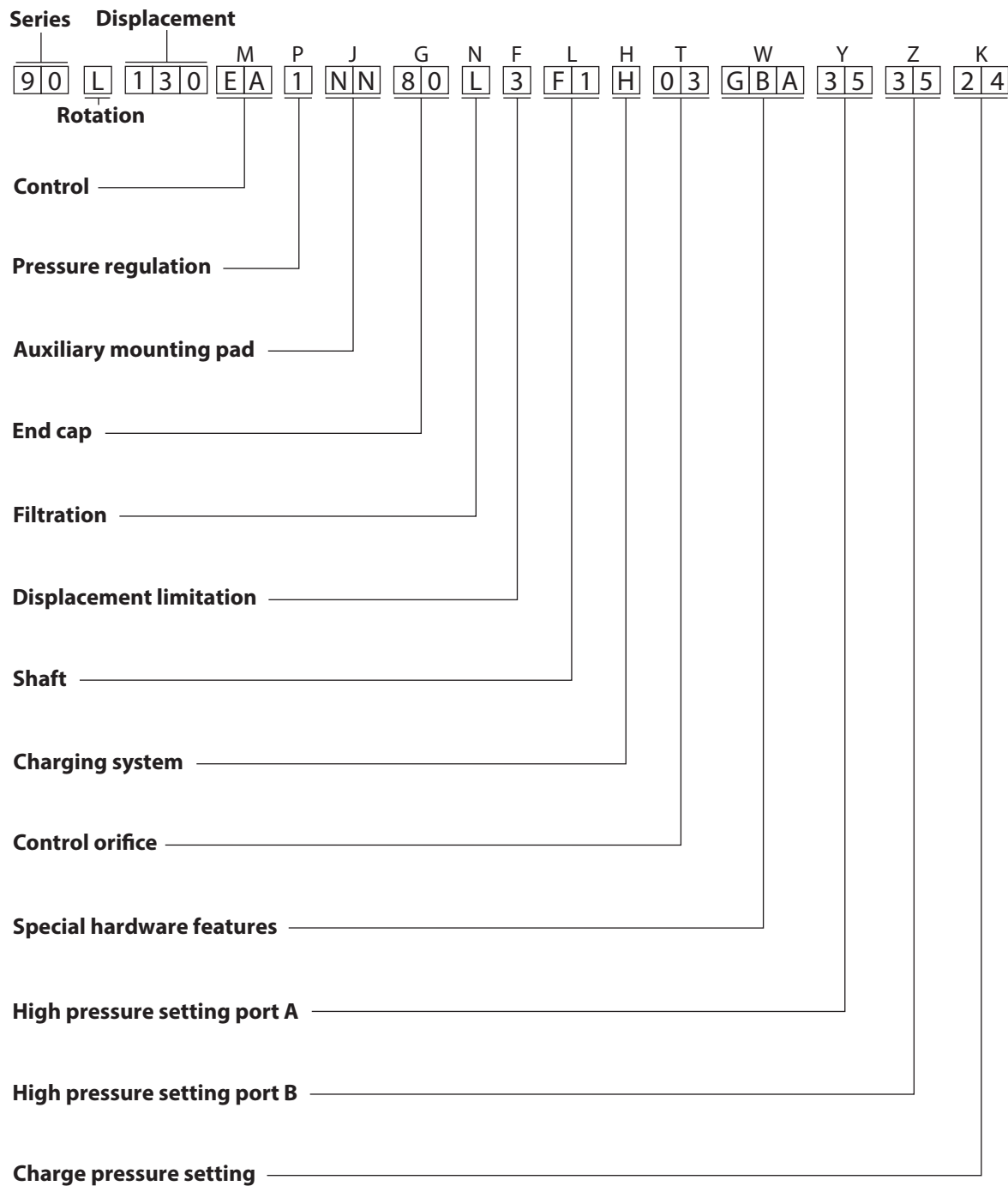
2) Referring to the Service Parts List, find the shaft group. Next find the order code that relates to this unit, which is "F1". The shaft is found to be item L100 and part number 11004306.



Notes



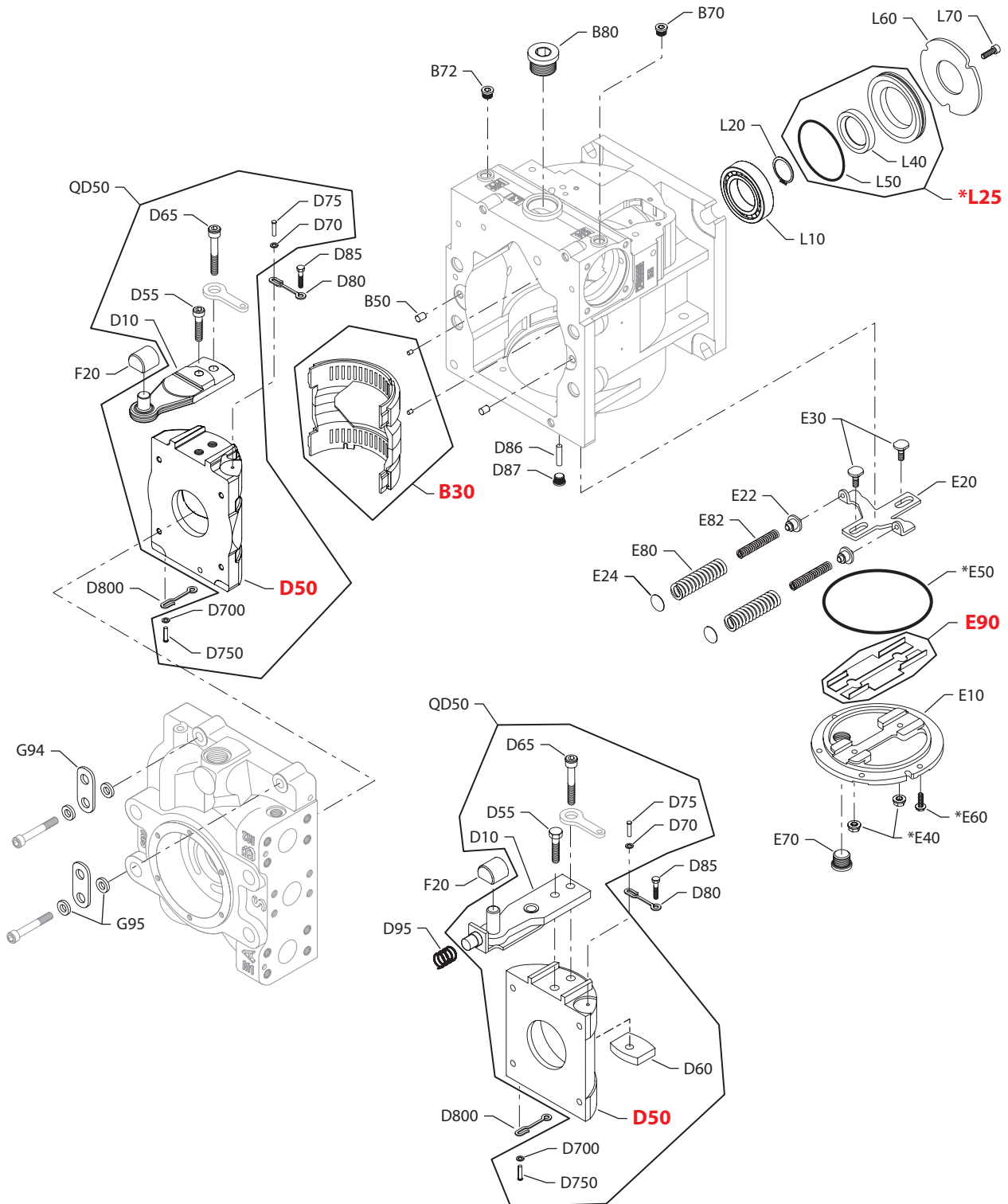
Order Code



P100 713E



Variable displacement pump



Swashplate design
prior to 11-40

E100 090E

* = included in overhaul seal kit Q210

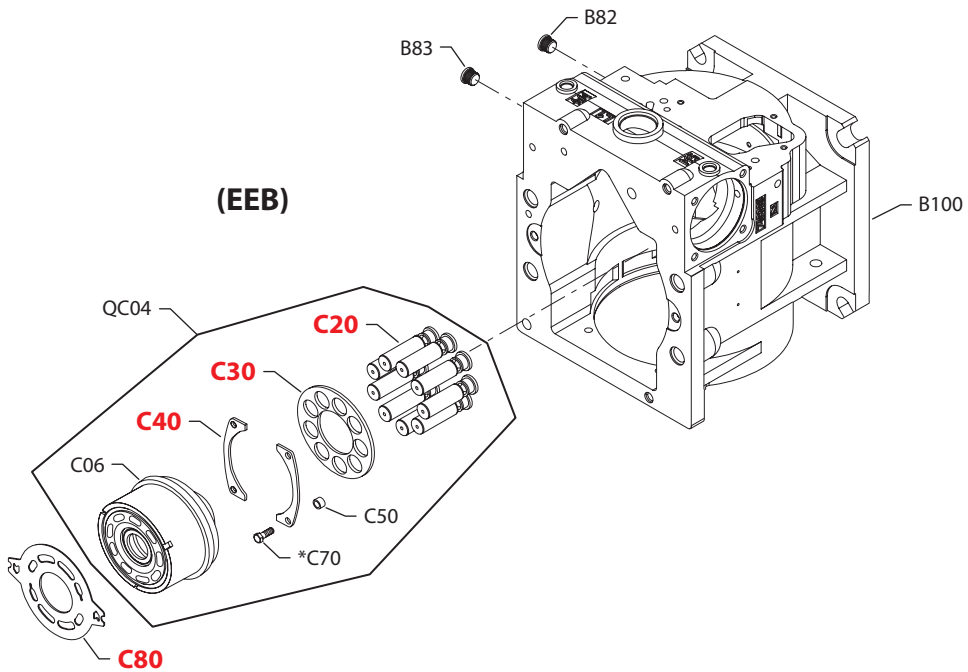
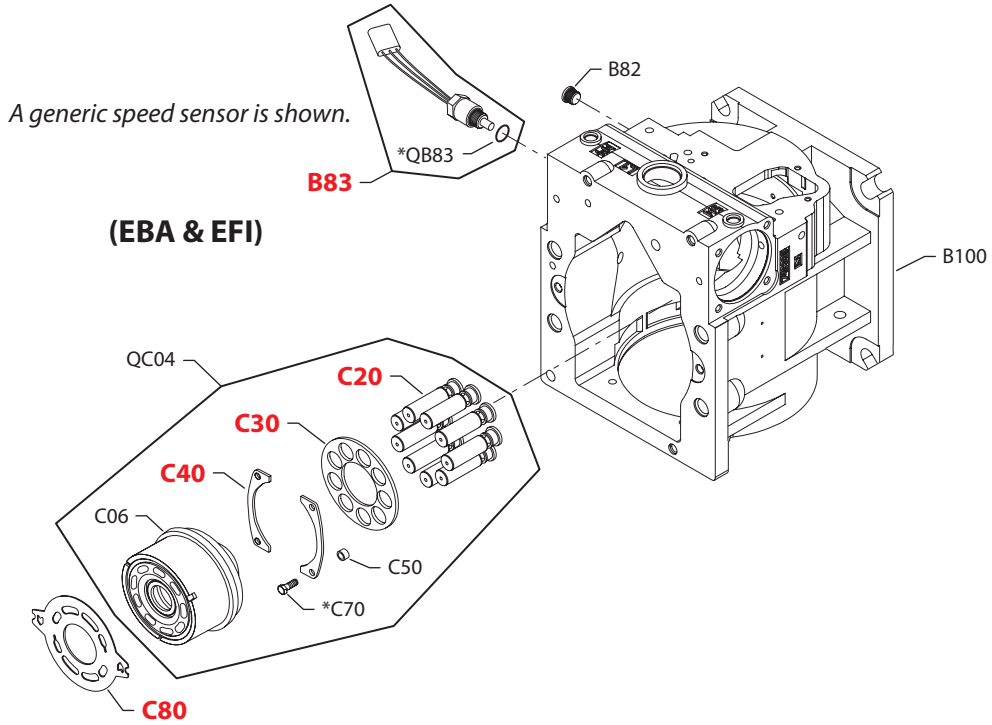
Enlarged **bold** type item numbers are recommended part to stock for servicing.


Variable displacement pump
Common parts

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	B30	94-20		746313	Cradle bearing assembly	1
	B50	94-20		9004800-3708	Pin	2
	B70	94-20		140644	Plug assembly	1
	B72	94-20		140644	Plug assembly	1
	B80	94-20		676734 (9005110-9500)	Plug assembly	1
	D10	11-40		11061195	Servo arm assembly	1
	D10	94-20	11-39	746339	Servo arm assembly (SB-2011-032)	1
	D50	11-40		11094403	Swashplate	1
	D50	94-20	11-39	521426	Swashplate	1
	D55	11-40		519150	Screw, socket head, M8	1
	D55	94-20	11-39	746362	Screw, hex head, M12 (SB-2011-032)	1
	D60	94-20	11-39	745703	Swashplate guide (SB-2011-032)	1
	D65	94-20		504494	Screw, M12	1
	D70	94-20		127464	Washer	1
	D75	94-20		333369	Spiral head pin	1
	D80	94-20		700948	Cage locator link	1
	D85	94-20		500449	Screw	1
	D86	94-20		770594	Pin	1
	D87	94-20		11040532	Plug assembly	1
	D95	94-20	11-39	746396	Spring (SB-2011-032)	1
	D700	94-20		127464	Washer	1
	D750	94-20		333369	Spiral head pin	1
	D800	94-20		700948	Cage locator link	1
	E10	96-08		501579	Side cover (SB-1996-004)	1
	E20	94-20		746420	Leveler	1
	E22	94-20		746438	Spring seat	2
	E24	94-20		359067	Shim	2
	E30	96-08		11056592	Guide post (SB-1996-004)	2
	E40	94-20		042432	Seal nut	2
	E50	94-20		517380	O-ring	1
	E60	94-20		517231	Screw	6
	E70	94-20		676734 (9005110-9500)	Plug assembly	1
	E80	94-20		746453	Spring	2
	E90	96-08		513891	Insert assembly (SB-1996-004)	1
	F20	94-20		11116308	Slider block	1
	G94	94-20		8800565	Lifting bracket	2
	G95	94-20		505479	Washer	4
	L10	94-20		11018485	Roller bearing	1
	L20	94-20		392233	Retaining ring	1
	L25	94-20		11053971	Seal carrier assembly (SB-2012-039)	1
	L40	12-17		519021	Lip seal (SB-2012-039)	1
	L40	94-20	12-16	9008000-0114	Lip seal	1
	L50	94-20		509353	O-ring	1
	L60	94-20		516769	Retainer plate	1
	L70	94-20		009159	Screw	3
	QD50	11-40		11097626	Swashplate kit (SB-2011-032)	1
	QD50	94-20	11-39	11107093	Swashplate kit	1



Variable displacement pump



E100 104E

* = included in overhaul seal kit Q210

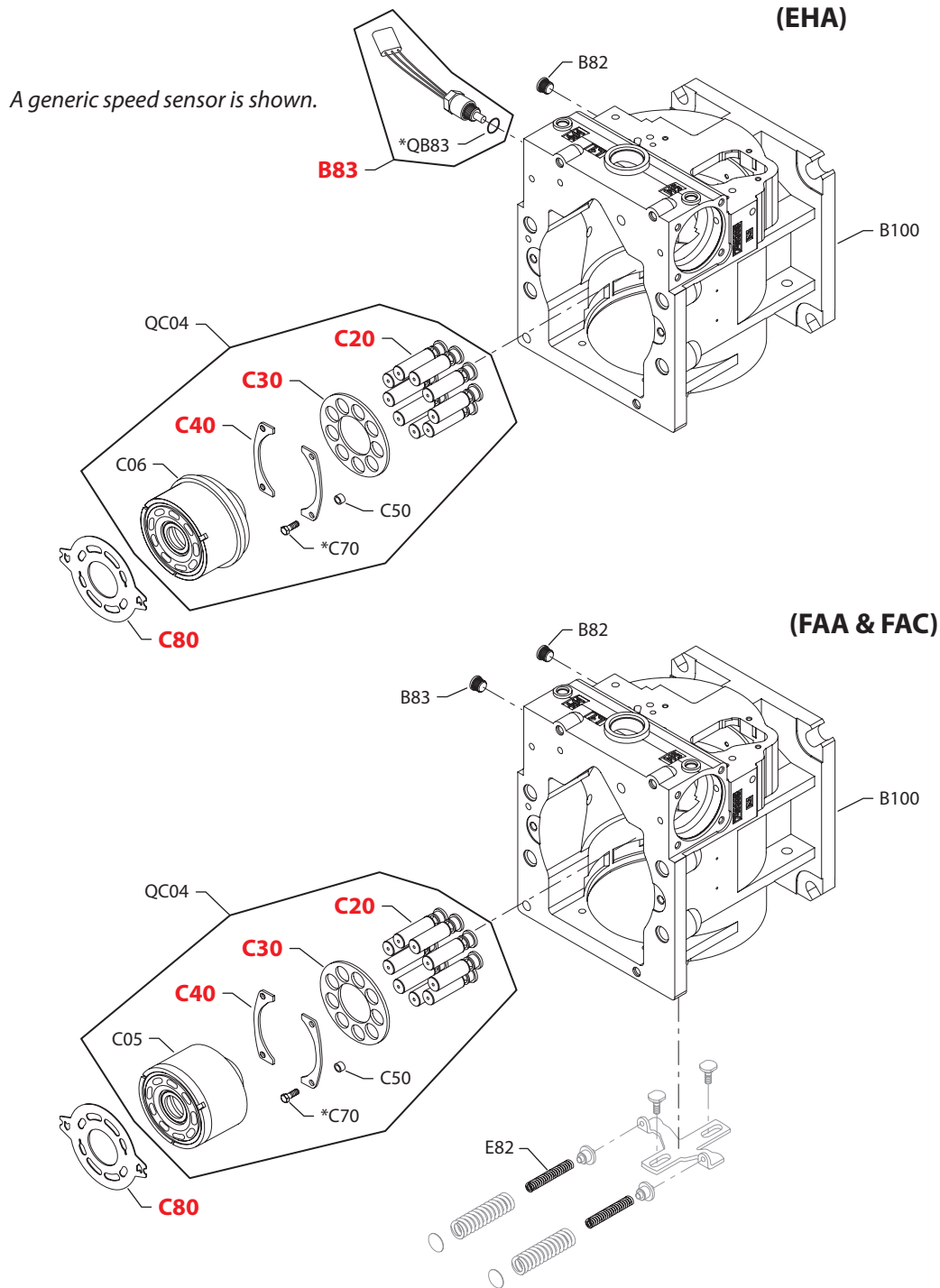
Enlarged **bold** type item numbers are recommended part to stock for servicing.


Variable displacement pump
Special hardware

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit	
EBA	B82	00-13		140644	Plug assembly	1	
	B83	00-13		KPPG13408	Speed sensor	1	
	B100	11-40		11097202	Housing assembly	1	
	B100	00-13	11-39	519646	Housing assembly (SB-2011-032)	1	
	C06	00-13		519582	Cylinder block assembly with speed ring	1	
	C20	00-13		755181	Piston/slipper assembly	9	
	C30	00-13		11067353	Slipper guide	1	
	C40	00-13		313452	Slipper guide bearing	2	
	C50	00-13		313460	Spacer	4	
	C70	00-13		308643	Screw	4	
	C80	00-13		518939	Valve plate	1	
	QB83	00-13		085043 (9004201-3700)	O-ring	1	
	QC04	00-13		11097627	Cylinder block kit with speed ring	1	
	EEB	B82	00-13		140644	Plug assembly	1
B83		00-13		140644	Plug assembly	1	
B100		11-40		11097202	Housing assembly	1	
B100		00-13	11-39	519646	Housing assembly (SB-2011-032)	1	
C06		00-13		519582	Cylinder block assembly with speed ring	1	
C20		00-13		755181	Piston/slipper assembly	9	
C30		00-13		11067353	Slipper guide	1	
C40		00-13		313452	Slipper guide bearing	2	
C50		00-13		313460	Spacer	4	
C70		00-13		308643	Screw	4	
C80		00-13		518939	Valve plate	1	
QC04		00-13		11097627	Cylinder block kit with speed ring	1	
EFI		B82	06-17		140644	Plug assembly	1
		B83	06-17		KPPG156	Speed sensor	1
	B100	11-40		11097202	Housing assembly	1	
	B100	06-17	11-39	519646	Housing assembly (SB-2011-032)	1	
	C06	06-17		519582	Cylinder block assembly with speed ring	1	
	C20	06-17		755181	Piston/slipper assembly	9	
	C30	06-17		11067353	Slipper guide	1	
	C40	06-17		313452	Slipper guide bearing	2	
	C50	06-17		313460	Spacer	4	
	C70	06-17		308643	Screw	4	
	C80	06-17		518942	Valve plate, CCW	1	
	C80	06-17		518941	Valve plate, CW	1	
	QB83	06-17		085043 (9004201-3700)	O-ring	1	
	QC04	06-17		11097627	Cylinder block kit with speed ring	1	



Variable displacement pump



* = included in overhaul seal kit Q210

E101 801E
 Enlarged **bold** type item numbers are recommended part to stock for servicing.

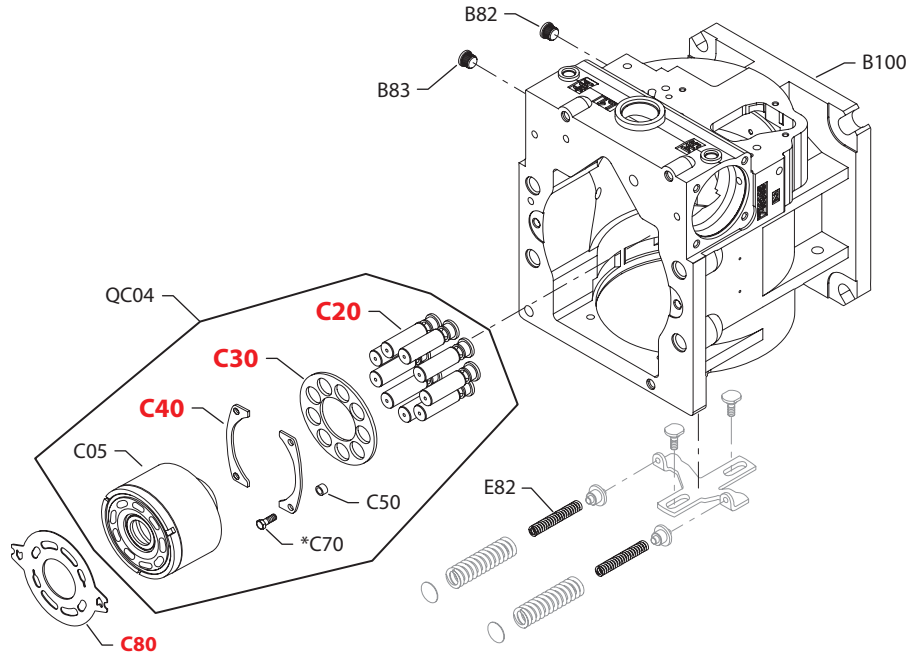
Variable displacement pump
Special hardware

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
EHA	B82	06-17		140644	Plug assembly	1
	B83	06-17		KPPG16408	Speed sensor	1
	B100	11-40		11097202	Housing assembly	1
	B100	06-17	11-39	519646	Housing assembly (SB-2011-032)	1
	C06	06-17		519582	Cylinder block assembly with speed ring	1
	C20	06-17		755181	Piston/slipper assembly	9
	C30	06-17		11067353	Slipper guide	1
	C40	06-17		313452	Slipper guide bearing	2
	C50	06-17		313460	Spacer	4
	C70	06-17		308643	Screw	4
	C80	06-17		518939	Valve plate	1
	QB83	00-13		85043 (9004201-3700)	O-ring	1
	QC04	06-17		11097627	Cylinder block kit with speed ring	1
	FAA	B82	11-40		140644	Plug assembly
B83		11-40		140644	Plug assembly	1
B100		11-40		11097202	Housing assembly	1
B100		04-49	11-39	789438	Housing assembly (SB-2011-032)	1
C05		04-49		11125340	Cylinder block assembly	1
C20		04-49		755181	Piston/slipper assembly	9
C30		04-49		11067353	Slipper guide	1
C40		04-49		313452	Slipper guide bearing	2
C50		04-49		313460	Spacer	4
C70		04-49		308643	Screw	4
C80		04-49		518939	Valve plate	1
E82		04-49		755553	Spring	2
QC04		04-49		518355	Cylinder block kit	1
FAC		B82	11-40		140644	Plug assembly
	B83	11-40		140644	Plug assembly	1
	B100	11-40		11097202	Housing assembly	1
	B100	95-04	11-39	789438	Housing assembly (SB-2011-032)	1
	C05	95-04		11125340	Cylinder block assembly	1
	C20	95-04		755181	Piston/slipper assembly	9
	C30	95-04		11067353	Slipper guide	1
	C40	95-04		313452	Slipper guide bearing	2
	C50	95-04		313460	Spacer	4
	C70	95-04		308643	Screw	4
	C80	95-04		755983	Valve plate	1
	E82	95-04		755553	Spring	2
	QC04	95-04		518355	Cylinder block kit	1

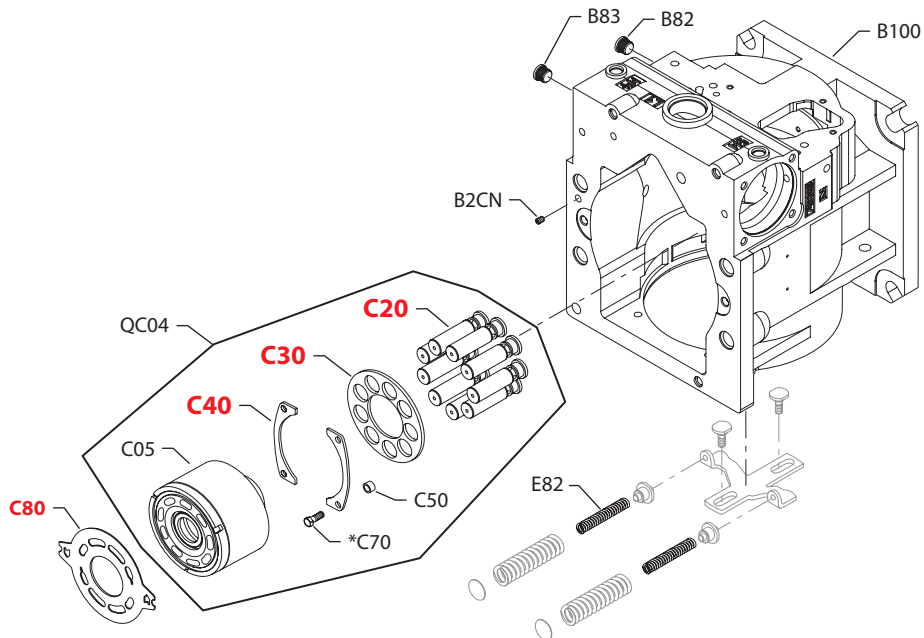


Variable displacement pump

(FAP & FTA)



(FAT)



E101 802E

* = included in overhaul seal kit Q210

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

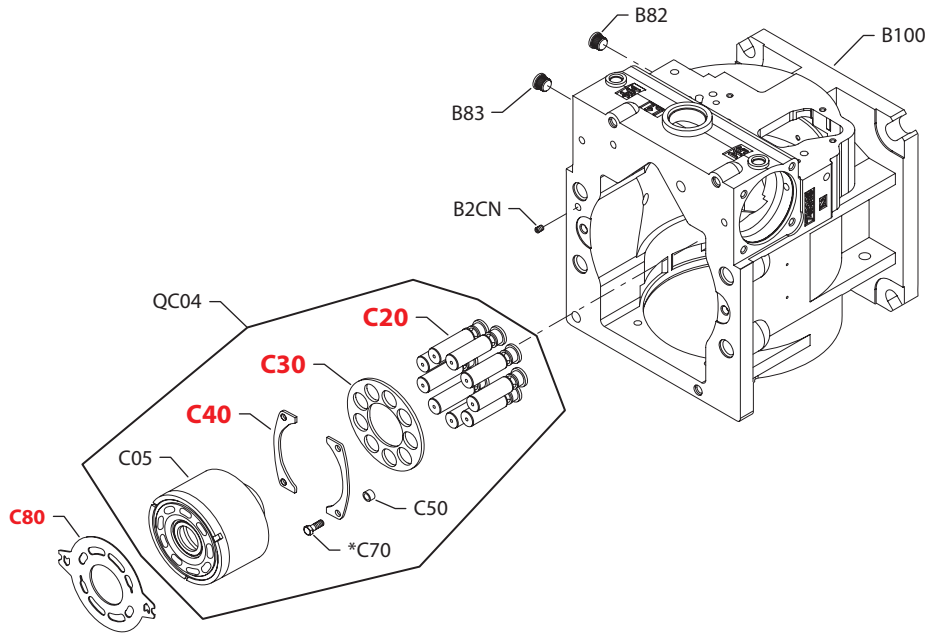

Variable displacement pump
Special hardware

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit	
FAP	B82	11-40		140644	Plug assembly	1	
	B83	11-40		140644	Plug assembly	1	
	B100	11-40		11097202	Housing assembly	1	
	B100	06-09	11-39	789438	Housing assembly (SB-2011-032)	1	
	C05	06-09		11125340	Cylinder block assembly	1	
	C20	06-09		755181	Piston/slipper assembly	9	
	C30	06-09		11067353	Slipper guide	1	
	C40	06-09		313452	Slipper guide bearing	2	
	C50	06-09		313460	Spacer	4	
	C70	06-09		308643	Screw	4	
	C80	06-09		518941	Valve plate, CW	1	
	E82	06-09		755553	Spring	2	
	QC04	06-09		518355	Cylinder block kit	1	
	FAT	B2CN	98-13		042465	Set screw	1
		B82	98-13		140644	Plug assembly	1
B83		98-13		140644	Plug assembly	1	
B100		11-40		11097202	Housing assembly	1	
B100		98-13	11-39	519646	Housing assembly (SB-2011-032)	1	
C05		98-13		11125340	Cylinder block assembly	1	
C20		98-13		755181	Piston/slipper assembly	9	
C30		98-13		11067353	Slipper guide	1	
C40		98-13		313452	Slipper guide bearing	2	
C50		98-13		313460	Spacer	4	
C70		98-13		308643	Screw	4	
C80		98-13		518940	Valve plate	1	
E82		98-13		755553	Spring	2	
QC04		98-13		518355	Cylinder block kit	1	
FTA		B82	14-02		140644	Plug assembly	1
	B83	14-02		140644	Plug assembly	1	
	B100	14-02		11097202	Housing assembly	1	
	C05	14-02		11125340	Cylinder block assembly	1	
	C20	14-02		755181	Piston/slipper assembly	9	
	C30	14-02		11067353	Slipper guide	1	
	C40	14-02		313452	Slipper guide bearing	2	
	C50	14-02		313460	Spacer	4	
	C70	14-02		308643	Screw	4	
	C80	14-02		755983	Valve plate	1	
	E82	14-02		755553	Spring	2	
	QC04	14-02		518355	Cylinder block kit	1	

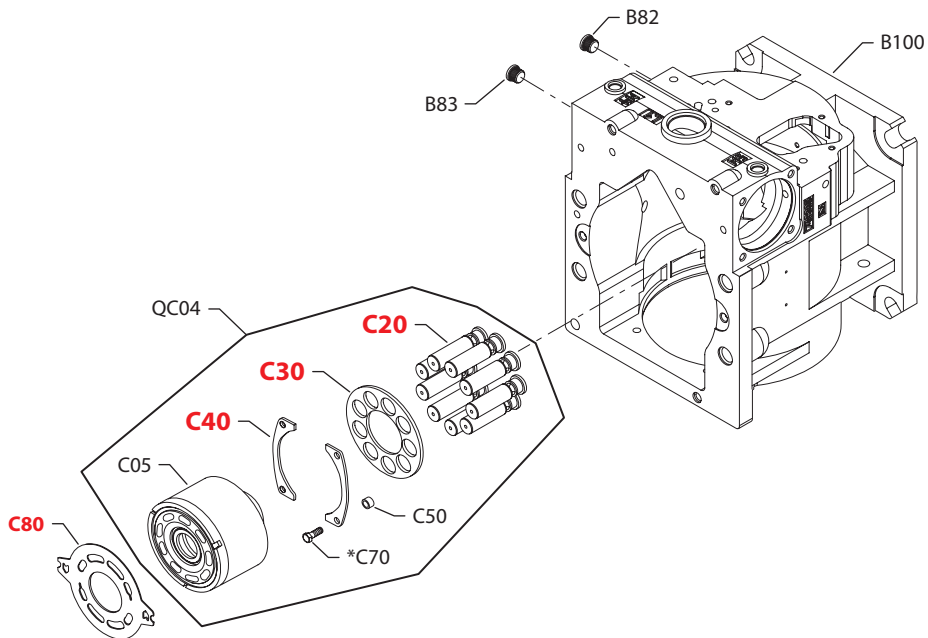


Variable displacement pump

(GBG)



(GBX & GCA)



E101 803E

* = included in overhaul seal kit Q210

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

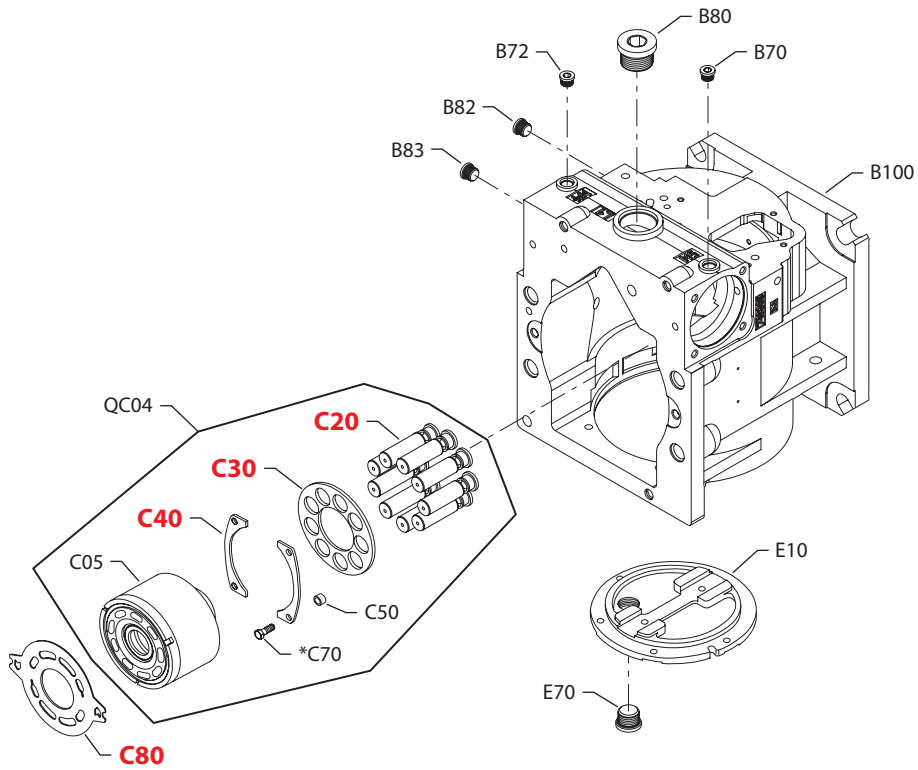

Variable displacement pump
Special hardware

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit	
GBG	B2CN	04-49		042465	Set screw	1	
	B82	04-49		140644	Plug assembly	1	
	B83	04-49		140644	Plug assembly	1	
	B100	11-40		11097202	Housing assembly	1	
	B100	04-49	11-39	519646	Housing assembly (SB-2011-032)	1	
	C05	04-49		11125340	Cylinder block assembly	1	
	C20	04-49		755181	Piston/slipper assembly	9	
	C30	04-49		11067353	Slipper guide	1	
	C40	04-49		313452	Slipper guide bearing	2	
	C50	04-49		313460	Spacer	4	
	C70	04-49		308643	Screw	4	
	C80	04-49		518939	Valve plate	1	
	QC04	04-49		518355	Cylinder block kit	1	
	GBX	B82	11-40		140644	Plug assembly	1
B83		11-40		140644	Plug assembly	1	
B100		11-40		11097202	Housing assembly	1	
B100		94-20	11-39	789438	Housing assembly (SB-2011-032)	1	
C05		94-20		11125340	Cylinder block assembly	1	
C20		94-20		755181	Piston/slipper assembly	9	
C30		94-20		11067353	Slipper guide	1	
C40		94-20		313452	Slipper guide bearing	2	
C50		94-20		313460	Spacer	4	
C70		94-20		308643	Screw	4	
C80		94-20		518939	Valve plate	1	
QC04		94-20		518355	Cylinder block kit	1	
GCA		B82	11-40		140644	Plug assembly	1
		B83	11-40		140644	Plug assembly	1
	B100	11-40		11097202	Housing assembly	1	
	B100	94-20	11-39	789438	Housing assembly (SB-2011-032)	1	
	C05	94-20		11125340	Cylinder block assembly	1	
	C20	94-20		755181	Piston/slipper assembly	9	
	C30	94-20		11067353	Slipper guide	1	
	C40	94-20		313452	Slipper guide bearing	2	
	C50	94-20		313460	Spacer	4	
	C70	94-20		308643	Screw	4	
	C80	94-20		755983	Valve plate	1	
	QC04	94-20		518355	Cylinder block kit	1	

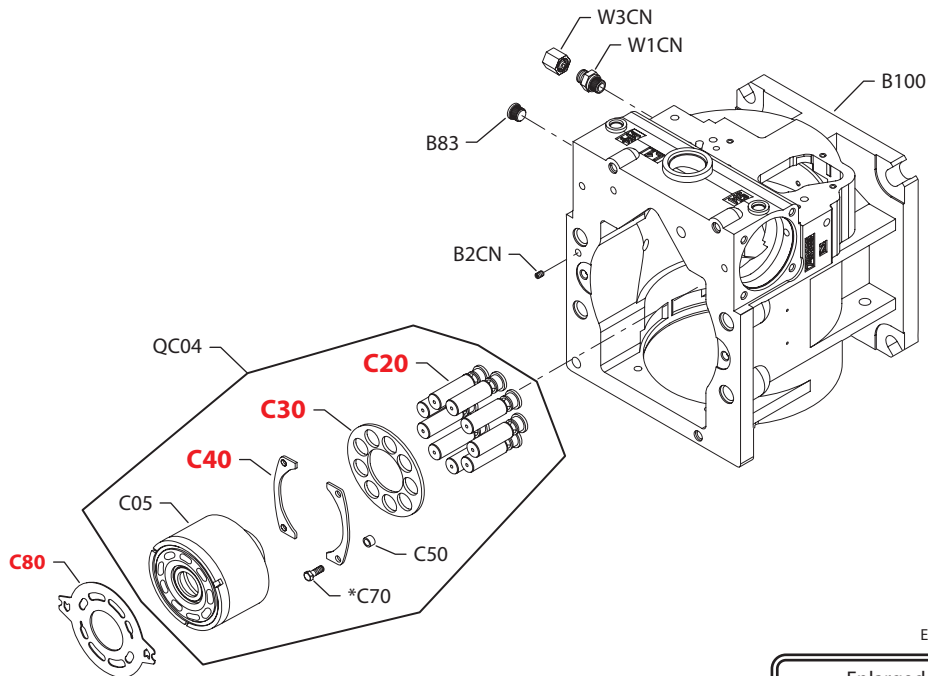


Variable displacement pump

(GCE & GCF)



(GCG)



* = included in overhaul seal kit Q210

E101 799E

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

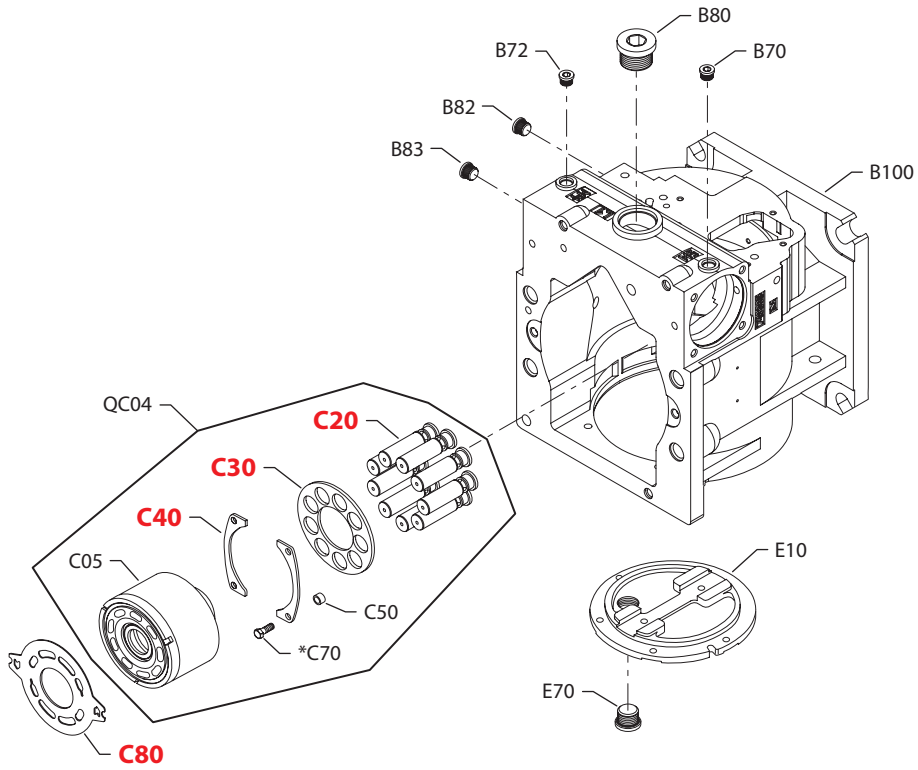

Variable displacement pump
Special hardware

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
GCE	B70	12-18		623173	Plug assembly, M14	1
	B72	12-18		623173	Plug assembly, M14	1
	B80	12-18		11115267	Plug assembly, M52	1
	B82	12-18		623173	Plug assembly, M14	1
	B83	12-18		623173	Plug assembly, M14	1
	B100	12-18		11115183	Housing assembly, metric	1
	C05	12-18		11125340	Cylinder block assembly	1
	C20	12-18		755181	Piston/slipper assembly	9
	C30	12-18		11067353	Slipper guide	1
	C40	12-18		313452	Slipper guide bearing	2
	C50	12-18		313460	Spacer	4
	C70	12-18		308643	Screw	4
	C80	12-18		755983	Valve plate	1
	E70	12-18		11115267	Plug assembly, M52	1
	QC04	12-18		11145675	Cylinder block kit	1
	GCF	B70	12-18		623173	Plug assembly, M14
B72		12-18		623173	Plug assembly, M14	1
B80		12-18		11115267	Plug assembly, M52	1
B82		12-18		623173	Plug assembly, M14	1
B83		12-18		623173	Plug assembly, M14	1
B100		12-18		11115183	Housing assembly, metric	1
C05		12-18		11125340	Cylinder block assembly	1
C20		12-18		755181	Piston/slipper assembly	9
C30		12-18		11067353	Slipper guide	1
C40		12-18		313452	Slipper guide bearing	2
C50		12-18		313460	Spacer	4
C70		12-18		308643	Screw	4
C80		12-18		755983	Valve plate	1
E70		12-18		11115267	Plug assembly, M52	1
QC04		12-18		11145675	Cylinder block kit	1
GCG		B2CN	04-46		042465	Set screw
	B83	04-46		140644	Plug assembly	1
	B100	04-46		11097202	Housing assembly	1
	C05	04-46		11125340	Cylinder block assembly	1
	C20	04-46		755181	Piston/slipper assembly	9
	C30	04-46		11067353	Slipper guide	1
	C40	04-46		313452	Slipper guide bearing	2
	C50	04-46		313460	Spacer	4
	C70	04-46		308643	Screw	4
	C80	04-46		755983	Valve plate	1
	QC04	04-46		518355	Cylinder block kit	1
	W1CN	04-46		723726	Connector	1
	W3CN	04-46		574095	Cap	1

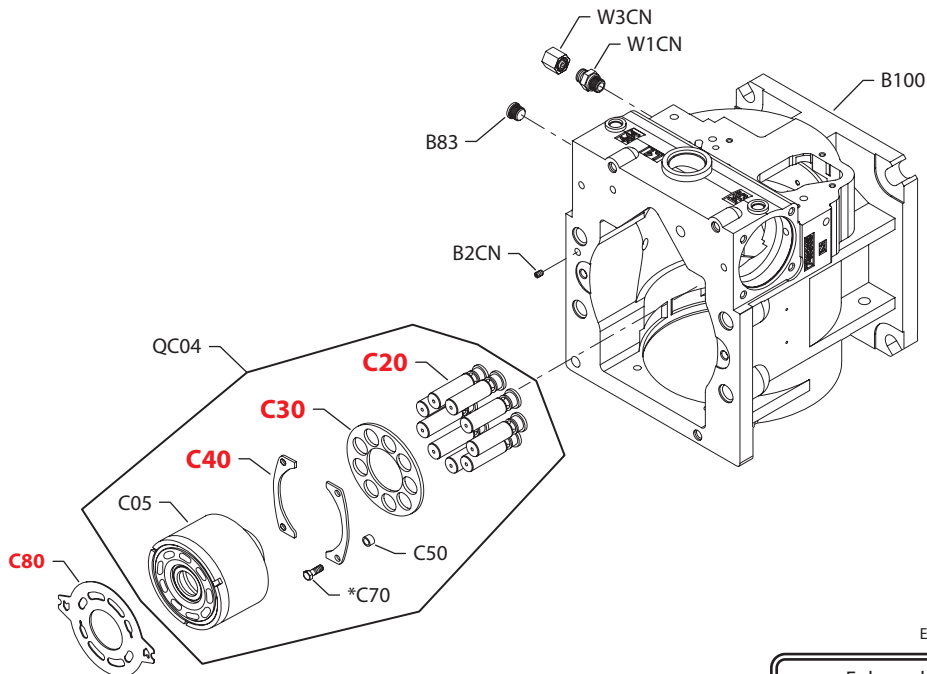


Variable displacement pump

(GCP & GLA)



(GCH)



* = included in overhaul seal kit Q210

E101 799E

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

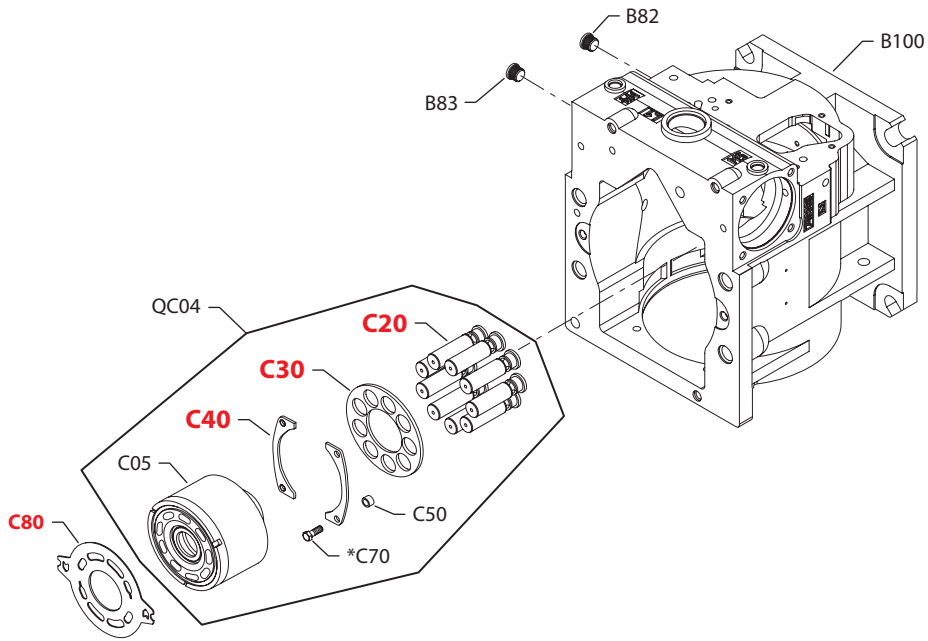

Variable displacement pump
Special hardware

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
GCH	B2CN	13-02		042465	Set screw	1
	B83	13-02		140644	Plug assembly	1
	B100	13-02		11097202	Housing assembly	1
	C05	13-02		11125340	Cylinder block assembly	1
	C20	13-02		755181	Piston/slipper assembly	9
	C30	13-02		11067353	Slipper guide	1
	C40	13-02		313452	Slipper guide bearing	2
	C50	13-02		313460	Spacer	4
	C70	13-02		308643	Screw	4
	C80	13-02		755983	Valve plate	1
	QC04	13-02		518355	Cylinder block kit	1
	W1CN	13-02		723726	Connector	1
	W3CN	13-02		574095	Cap	1
GCP	B82	11-40		140644	Plug assembly	1
	B83	11-40		140644	Plug assembly	1
	B100	11-40		11097202	Housing assembly	1
	B100	95-06	11-39	789438	Housing assembly (SB-2011-032)	1
	C05	94-20		11149151	Cylinder block assembly	1
	C20	94-20		755181	Piston/slipper assembly	9
	C30	94-20		11067353	Slipper guide	1
	C40	94-20		313452	Slipper guide bearing	2
	C50	94-20		313460	Spacer	4
	C70	94-20		308643	Screw	4
	C80	94-20		755983	Valve plate	1
	QC04	94-20		518355	Cylinder block kit	1
	GLA	B82	11-40		140644	Plug assembly
B83		11-40		140644	Plug assembly	1
B100		11-40		11097202	Housing assembly	1
B100		06-17	11-39	789438	Housing assembly (SB-2011-032)	1
C05		06-17		11125340	Cylinder block assembly	1
C20		06-17		755181	Piston/slipper assembly	9
C30		06-17		11067353	Slipper guide	1
C40		06-17		313452	Slipper guide bearing	2
C50		06-17		313460	Spacer	4
C70		06-17		308643	Screw	4
C80		06-17		518942	Valve plate, CCW	1
C80		06-17		518941	Valve plate, CW	1
QC04		06-17		518355	Cylinder block kit	1



Variable displacement pump

(GLP, GTB, HCA & JBA)



E103 436E

* = included in overhaul seal kit Q210

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

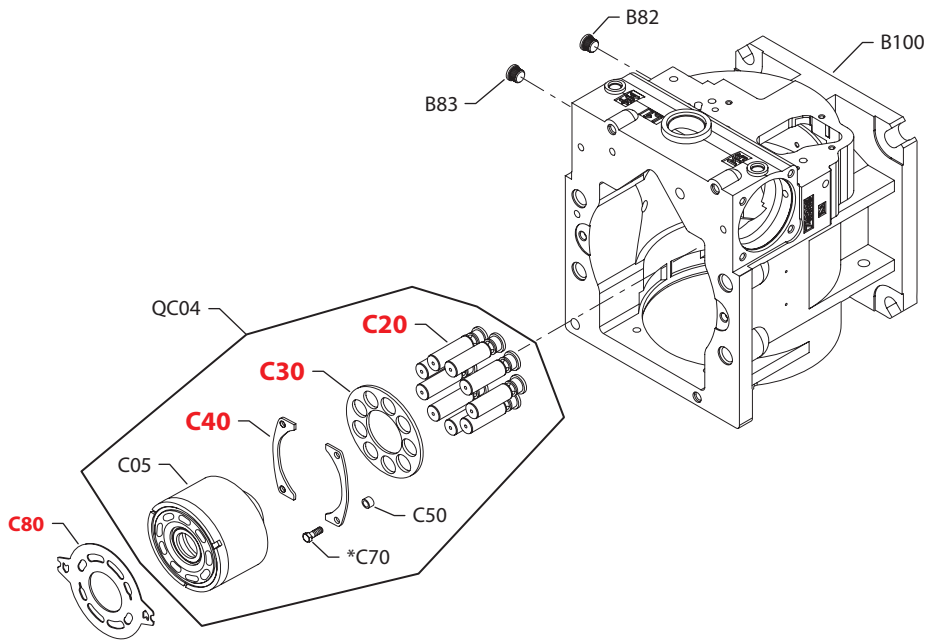

Variable displacement pump
Special hardware

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit	
GLP	B82	11-40		140644	Plug assembly	1	
	B83	11-40		140644	Plug assembly	1	
	B100	11-40		11097202	Housing assembly	1	
	B100	06-17	11-39	789438	Housing assembly (SB-2011-032)	1	
	C05	06-17		11125340	Cylinder block assembly	1	
	C20	06-17		755181	Piston/slipper assembly	9	
	C30	06-17		11067353	Slipper guide	1	
	C40	06-17		313452	Slipper guide bearing	2	
	C50	06-17		313460	Spacer	4	
	C70	06-17		308643	Screw	4	
	C80	06-17		518942	Valve plate, CCW	1	
	C80	06-17		518941	Valve plate, CW	1	
	QC04	06-17		518355	Cylinder block kit	1	
	GTB	B82	15-41		140644	Plug assembly	1
B83		15-41		140644	Plug assembly	1	
B100		15-41		11097202	Housing assembly	1	
C05		15-41		11125340	Cylinder block assembly	1	
C20		15-41		755181	Piston/slipper assembly	9	
C30		15-41		11067353	Slipper guide	1	
C40		15-41		313452	Slipper guide bearing	2	
C50		15-41		313460	Spacer	4	
C70		15-41		308643	Screw	4	
C80		15-41		518939	Valve plate	1	
QC04		15-41		518355	Cylinder block kit	1	
HCA		B82	94-20		140644	Plug assembly	1
		B83	94-20		140644	Plug assembly	1
		B100	11-40		11097202	Housing assembly	1
	B100	94-20	11-39	519646	Housing assembly (SB-2011-032)	1	
	C05	94-20		11125340	Cylinder block assembly	1	
	C20	94-20		755181	Piston/slipper assembly	9	
	C30	94-20		11067353	Slipper guide	1	
	C40	94-20		313452	Slipper guide bearing	2	
	C50	94-20		313460	Spacer	4	
	C70	94-20		308643	Screw	4	
	C80	94-20		518939	Valve plate	1	
	QC04	94-20		518355	Cylinder block kit	1	
	JBA	B82	11-40		140644	Plug assembly	1
		B83	11-40		140644	Plug assembly	1
B100		11-40		11097202	Housing assembly	1	
B100		06-17	11-39	789438	Housing assembly (SB-2011-032)	1	
C05		06-17		11125340	Cylinder block assembly	1	
C20		06-17		755181	Piston/slipper assembly	9	
C30		06-17		11067353	Slipper guide	1	
C40		06-17		313452	Slipper guide bearing	2	
C50		06-17		313460	Spacer	4	
C70		06-17		308643	Screw	4	
C80		06-17		518939	Valve plate	1	
QC04		06-17		518355	Cylinder block kit	1	



Variable displacement pump

(JCE, NNA & NNN)



E103 436E

* = included in overhaul seal kit Q210

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

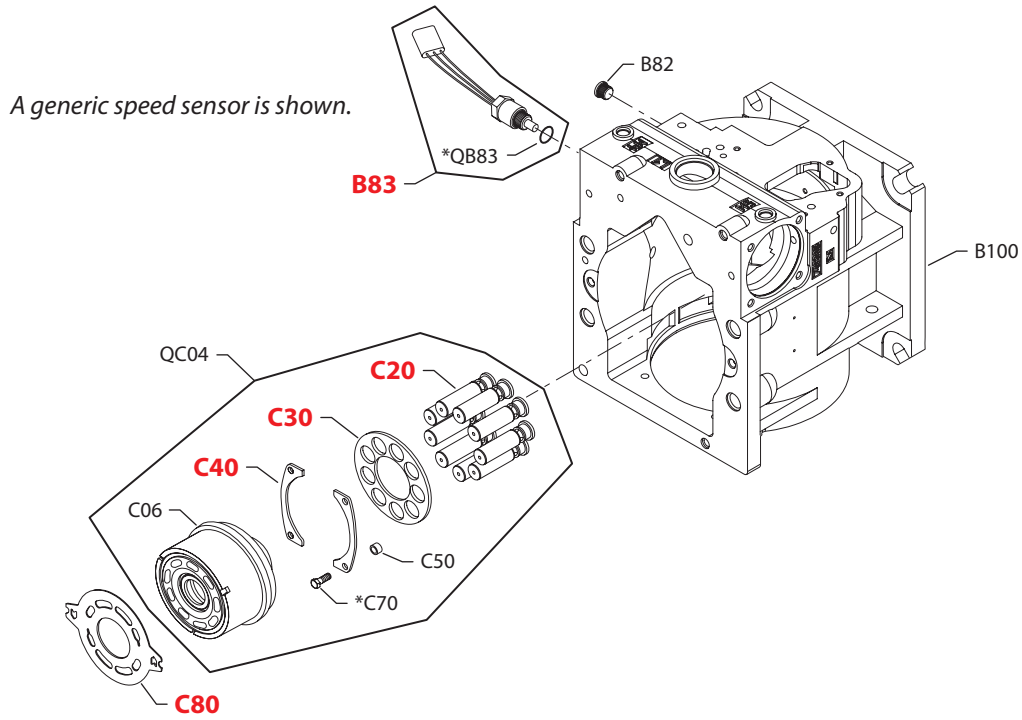

Variable displacement pump
Special hardware

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit	
JCE	B82	11-40		140644	Plug assembly	1	
	B83	11-40		140644	Plug assembly	1	
	B100	11-40		11097202	Housing assembly	1	
	B100	09-39	11-39	789438	Housing assembly (SB-2011-032)	1	
	C05	06-17		11125340	Cylinder block assembly	1	
	C20	06-17		755181	Piston/slipper assembly	9	
	C30	06-17		11067353	Slipper guide	1	
	C40	06-17		313452	Slipper guide bearing	2	
	C50	06-17		313460	Spacer	4	
	C70	06-17		308643	Screw	4	
	C80	06-17		518939	Valve plate	1	
	QC04	06-17		518355	Cylinder block kit	1	
	NNA	B82	13-34		140644	Plug assembly	
		B83	13-34		140644	Plug assembly	1
B100		13-34		11097202	Housing assembly	1	
C05		13-34		11125340	Cylinder block assembly	1	
C20		13-34		755181	Piston/slipper assembly	9	
C30		13-34		11067353	Slipper guide	1	
C40		13-34		313452	Slipper guide bearing	2	
C50		13-34		313460	Spacer	4	
C70		13-34		308643	Screw	4	
C80		13-34		755983	Valve plate	1	
QC04		13-34		518355	Cylinder block kit	1	
NNN		B82	11-40		140644	Plug assembly	
		B83	11-40		140644	Plug assembly	1
		B100	11-40		11097202	Housing assembly	1
	B100	94-20	11-39	789438	Housing assembly (SB-2011-032)	1	
	C05	94-20		11125340	Cylinder block assembly	1	
	C20	94-20		755181	Piston/slipper assembly	9	
	C30	94-20		11067353	Slipper guide	1	
	C40	94-20		313452	Slipper guide bearing	2	
	C50	94-20		313460	Spacer	4	
	C70	94-20		308643	Screw	4	
	C80	94-20		518939	Valve plate	1	
	QC04	94-20		518355	Cylinder block kit	1	



Variable displacement pump

(PEA, PEB & PEC)



* = included in overhaul seal kit Q210

E101 792E

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


Variable displacement pump
Special hardware

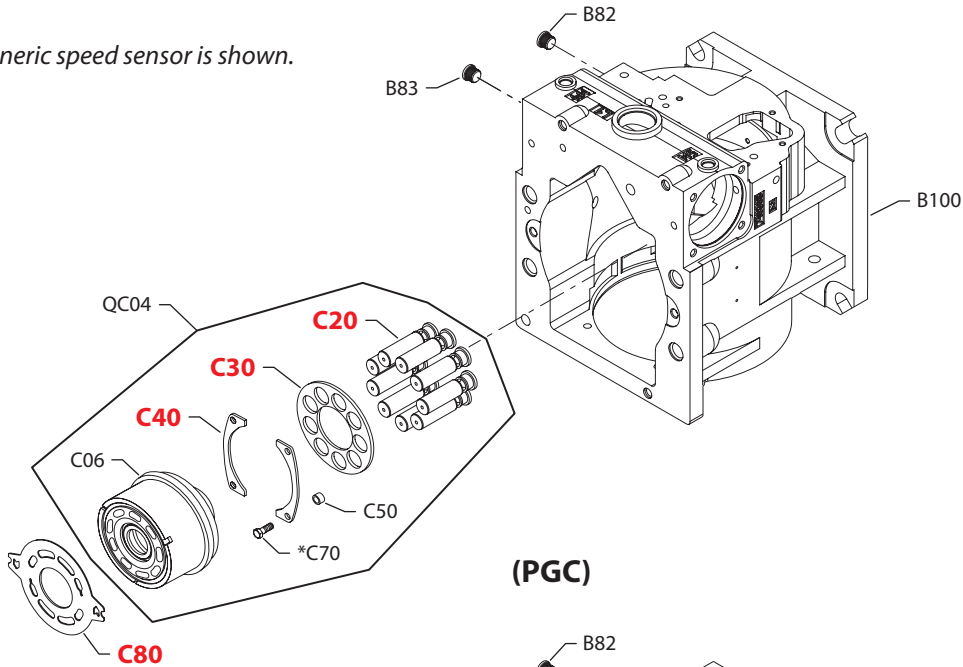
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
PEA	B82	09-24		140644	Plug assembly	1
	B83	09-24		KPPG156	Speed sensor	1
	B100	11-40		11097202	Housing assembly	1
	B100	09-24	11-39	519646	Housing assembly (SB-2011-032)	1
	C06	09-24		519582	Cylinder block assembly with speed ring	1
	C20	09-24		755181	Piston/slipper assembly	9
	C30	09-24		11067353	Slipper guide	1
	C40	09-24		313452	Slipper guide bearing	2
	C50	09-24		313460	Spacer	4
	C70	09-24		308643	Screw	4
	C80	09-24		518939	Valve plate	1
	QB83	09-24		085043 (9004201-3700)	O-ring	1
	QC04	09-24		11097627	Cylinder block kit with speed ring	1
	PEB	B82	14-40		140644	Plug assembly
B83		14-40		KPPG156	Speed sensor	1
B100		14-40		11097202	Housing assembly	1
C06		14-40		519582	Cylinder block assembly with speed ring	1
C20		14-40		755181	Piston/slipper assembly	9
C30		14-40		11067353	Slipper guide	1
C40		14-40		313452	Slipper guide bearing	2
C50		14-40		313460	Spacer	4
C70		14-40		308643	Screw	4
C80		14-40		518941	Valve plate, CW	1
C80		14-40		518942	Valve plate, CCW	1
QB83		14-40		085043 (9004201-3700)	O-ring	1
QC04		14-40		11097627	Cylinder block kit with speed ring	1
PEC		B82	12-45		140644	Plug assembly
	B83	12-45		KPPG156	Speed sensor	1
	B100	12-45		11097202	Housing assembly	1
	C06	12-45		519582	Cylinder block assembly with speed ring	1
	C20	12-45		755181	Piston/slipper assembly	9
	C30	12-45		11067353	Slipper guide	1
	C40	12-45		313452	Slipper guide bearing	2
	C50	12-45		313460	Spacer	4
	C70	12-45		308643	Screw	4
	C80	12-45		755983	Valve plate	1
	QB83	12-45		085043 (9004201-3700)	O-ring	1
	QC04	12-45		11097627	Cylinder block kit with speed ring	1



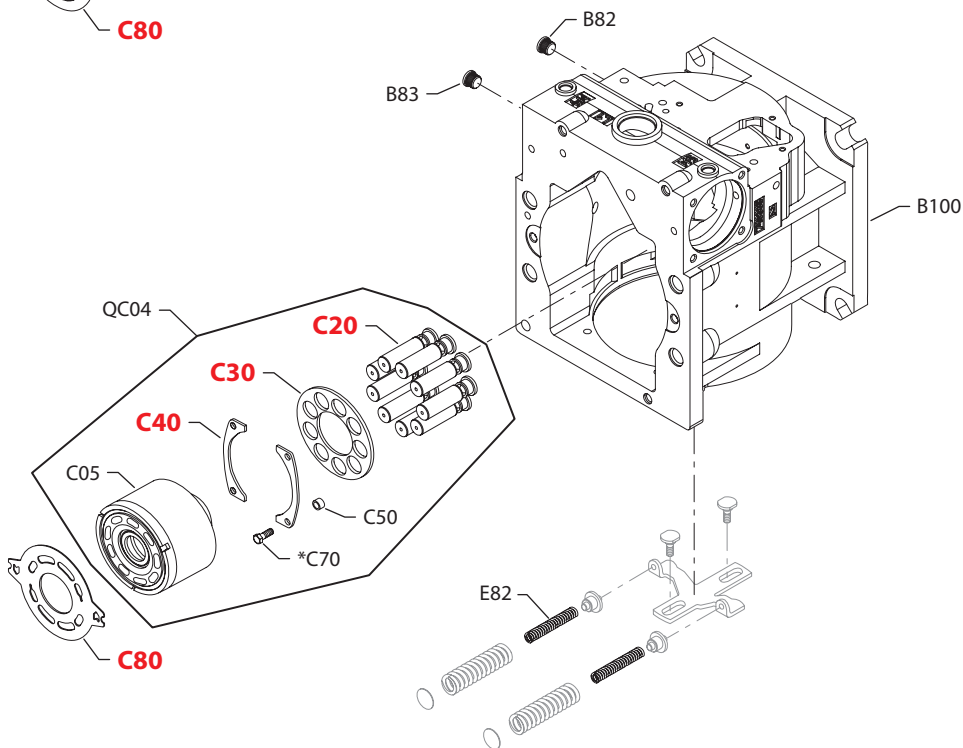
Variable displacement pump

(PGA)

A generic speed sensor is shown.



(PGC)



E103 437E

* = included in overhaul seal kit Q210

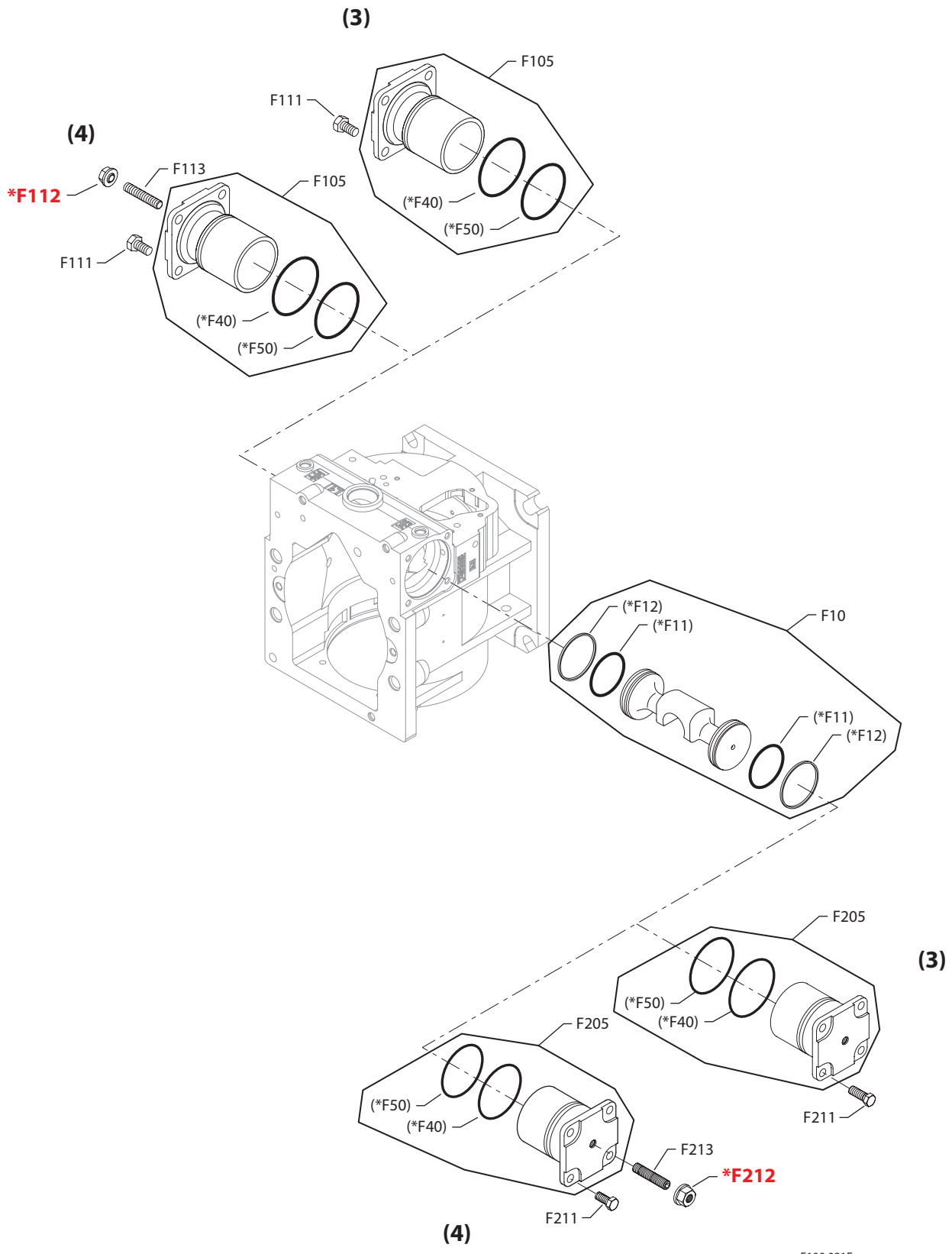
Enlarged **bold** type item numbers are recommended part to stock for servicing.


Variable displacement pump
Special hardware

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit	
PGA	B82	11-40		140644	Plug assembly	1	
	B83	11-40		140644	Plug assembly	1	
	B100	11-40		11097202	Housing assembly	1	
	B100	07-27	11-39	789438	Housing assembly (SB-2011-032)	1	
	C05	07-27		11125340	Cylinder block assembly	1	
	C20	07-27		755181	Piston/slipper assembly	9	
	C30	07-27		11067353	Slipper guide	1	
	C40	07-27		313452	Slipper guide bearing	2	
	C50	07-27		313460	Spacer	4	
	C70	07-27		308643	Screw	4	
	C80	07-27		518939	Valve plate	1	
	QC04	07-27		518355	Cylinder block kit	1	
	PGC	B82	12-45		140644	Plug assembly	1
		B83	12-45		140644	Plug assembly	1
B100		12-45		11097202	Housing assembly	1	
C05		12-45		11125340	Cylinder block assembly	1	
C20		12-45		755181	Piston/slipper assembly	9	
C30		12-45		11067353	Slipper guide	1	
C40		12-45		313452	Slipper guide bearing	2	
C50		12-45		313460	Spacer	4	
C70		12-45		308643	Screw	4	
C80		12-45		755983	Valve plate	1	
E82		12-45		755553	Spring	2	
QC04		12-45		518355	Cylinder block kit	1	



Variable displacement pump



E100 091E

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

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



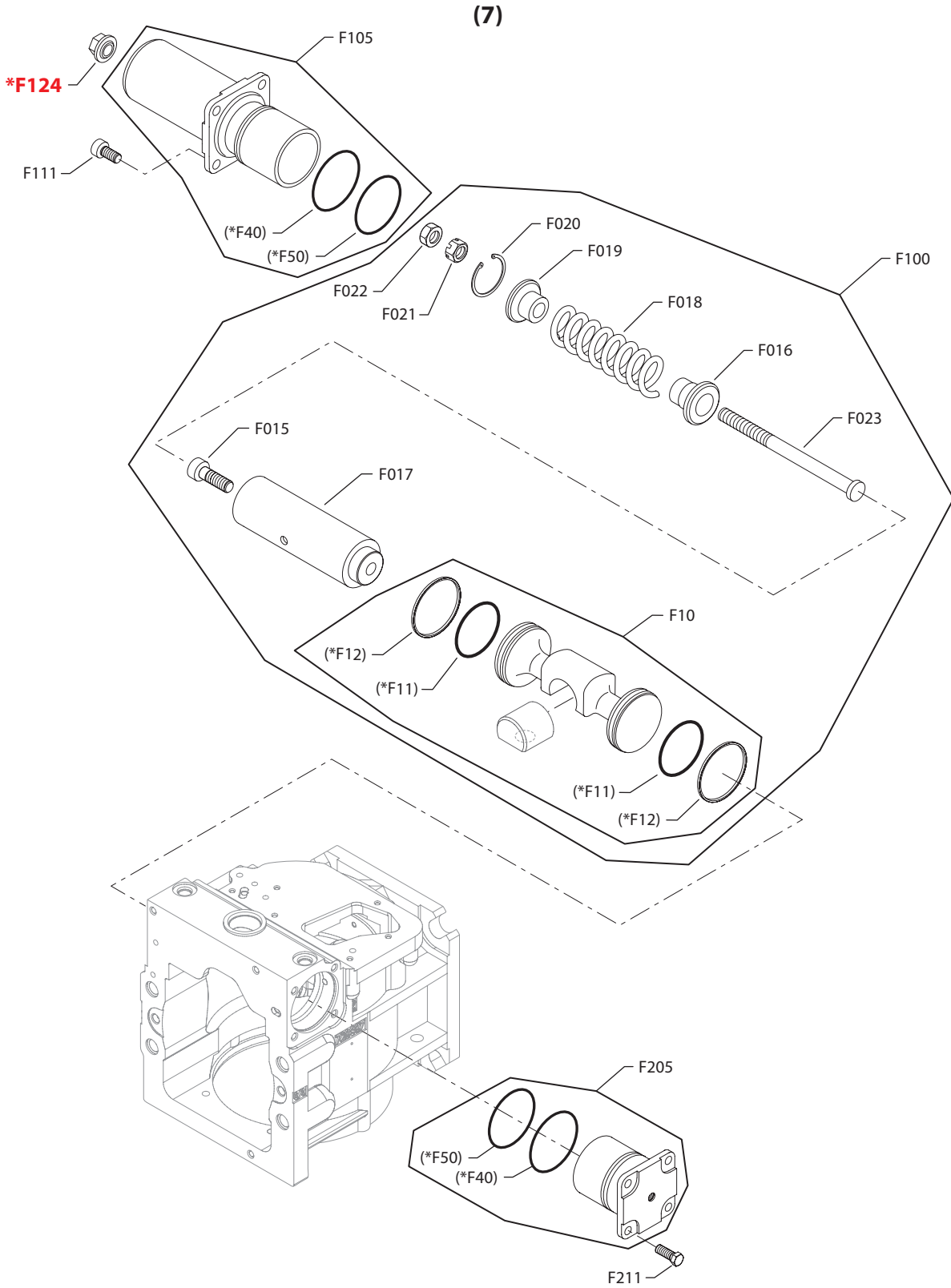
Variable displacement pump

Displacement limitation

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
3	F10	94-20		11046674	Servo piston assembly	1
	F105	94-20		11060184	Servo cyclinder assembly	1
	F111	94-20		507205	Screw	4
	F205	94-20		11060184	Servo cyclinder assembly	1
	F211	94-20		507205	Screw	4
4	F10	94-20		11046674	Servo piston assembly	1
	F105	94-20		11060183	Servo cyclinder assembly	1
	F111	94-20		507205	Screw	4
	F112	94-20		649822	Seal nut	1
	F113	94-20		11000798	Set screw	1
	F205	94-20		11060183	Servo cyclinder assembly	1
	F211	94-20		507205	Screw	4
	F212	94-20		649822	Seal nut	1
	F213	94-20		11000798	Set screw	1



Variable displacement pump



E101 804E

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

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

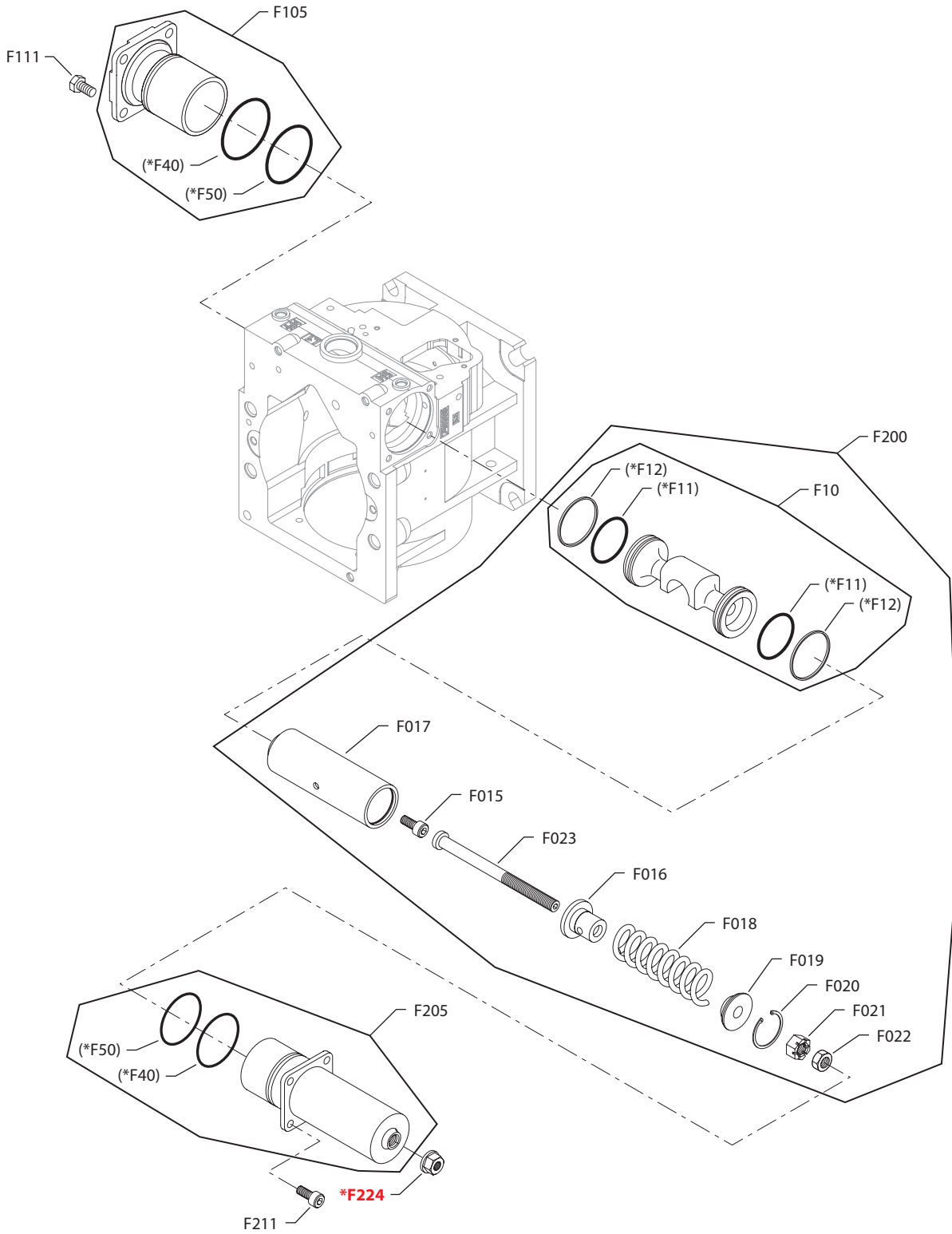

Variable displacement pump
Displacement limitation

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
7	F10	00-09		11046677	Servo piston assembly	1
	F015	00-09		515682	Screw	1
	F016	00-09		515667	Spring guide	1
	F017	00-09		515670	Pre-load tube	1
	F018	00-09		515683	Spring	1
	F019	00-09		515669	Spring seat	1
	F020	00-09		515685	Retaining ring	1
	F021	00-09		515686	Nut	1
	F022	00-09		515687	Nut	1
	F023	00-09		11140222	Screw	1
	F100	00-09		515680	Servo piston assembly	1
	F105	00-09		11060186	Servo cylinder assembly	1
	F111	00-09		513197	Screw	4
	F124	00-09		074542	Seal nut, M16	1
	F205	00-09		11060185	Servo cylinder assembly	1
	F211	00-09		507205	Screw	4



Variable displacement pump

(B)



E101 805E

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

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



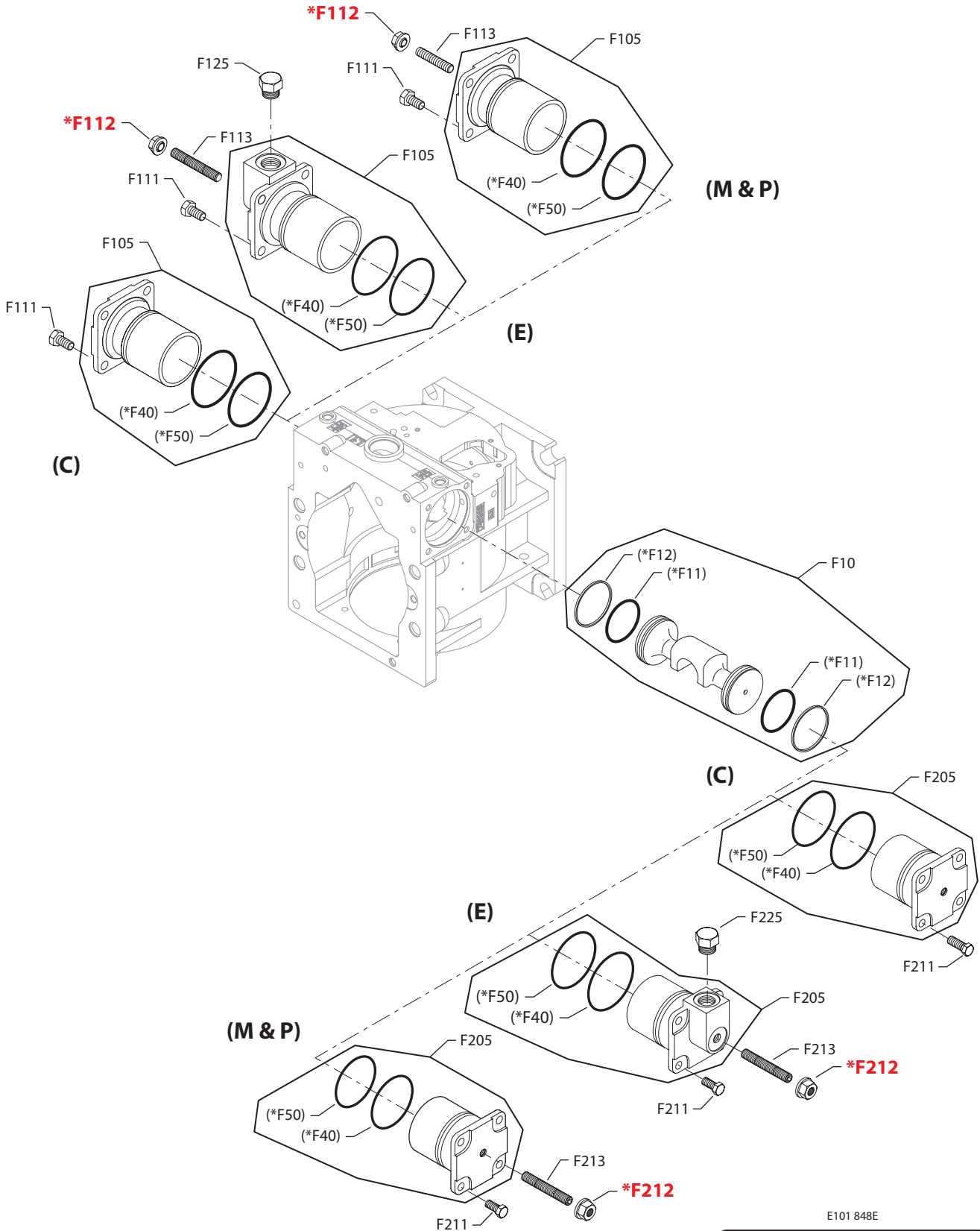
Variable displacement pump

Displacement limitation

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
B	F10	00-09		11046677	Servo piston assembly	1
	F015	00-09		515682	Screw	1
	F016	00-09		515667	Spring guide	1
	F017	00-09		515670	Pre-load tube	1
	F018	00-09		515683	Spring	1
	F019	00-09		515669	Spring seat	1
	F020	00-09		515685	Retaining ring	1
	F021	00-09		515686	Nut	1
	F022	00-09		515687	Nut	1
	F023	00-09		11140222	Screw	1
	F105	00-09		11060185	Servo cyclinder assembly	1
	F111	00-09		507205	Screw	4
	F200	00-09		515680	Servo piston assembly	1
	F205	00-09		11060186	Servo cyclinder assembly	1
	F211	00-09		513197	Screw	4
	F224	00-09		074542	Seal nut, M16	1



Variable displacement pump



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

E101 848E
 Enlarged **bold** type item numbers are recommended part to stock for servicing.

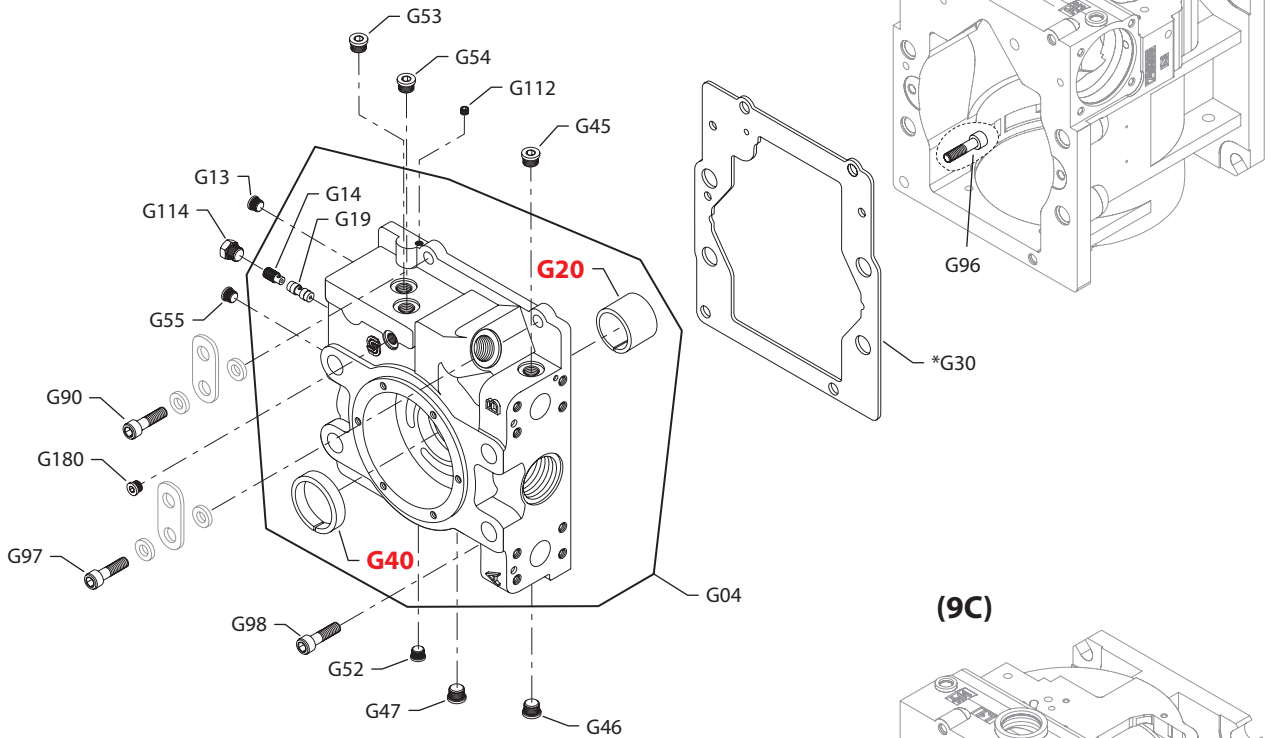

Variable displacement pump
Displacement limitation

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
C	F10	97-13		11046679	Servo piston assembly	1
	F105	97-13		11060705	Servo cyclinder assembly	1
	F111	97-13		308643	Screw	4
	F205	97-13		11060705	Servo cyclinder assembly	1
	F211	97-13		308643	Screw	4
E	F10	11-51		11046674	Servo piston assembly	1
	F105	11-51		11108107	Servo cyclinder assembly	1
	F111	11-51		507205	Screw	4
	F112	11-51		649822	Seal nut, M14	1
	F113	11-51		11000798	Set screw	1
	F125	11-51		731943	Plug assembly, M22	1
	F205	11-51		11108107	Servo cyclinder assembly	1
	F211	11-51		507205	Screw	4
	F212	11-51		649822	Seal nut, M14	1
	F213	11-51		11000798	Set screw	1
	F225	11-51		731943	Plug assembly, M22	1
	M	F10	97-13		11046679	Servo piston assembly
F105		97-13		11060706	Servo cyclinder assembly	1
F111		97-13		308643	Screw	4
F112		97-13		649822	Seal nut, M14	1
F113		97-13		11000798	Set screw	1
F205		97-13		11060706	Servo cyclinder assembly	1
F211		97-13		308643	Screw	4
F212		97-13		649822	Seal nut, M14	1
F213		97-13		11000798	Set screw	1
P	F10	00-05		11046674	Servo piston assembly	1
	F105	00-05		11060183	Servo cyclinder assembly	1
	F111	00-05		507205	Screw	4
	F112	00-05		649822	Seal nut, M14	1
	F113	00-05		516127	Set screw	1
	F205	00-05		11060183	Servo cyclinder assembly	1
	F211	00-05		507205	Screw	4
	F212	00-05		649822	Seal nut, M14	1
	F213	00-05		516127	Set screw	1

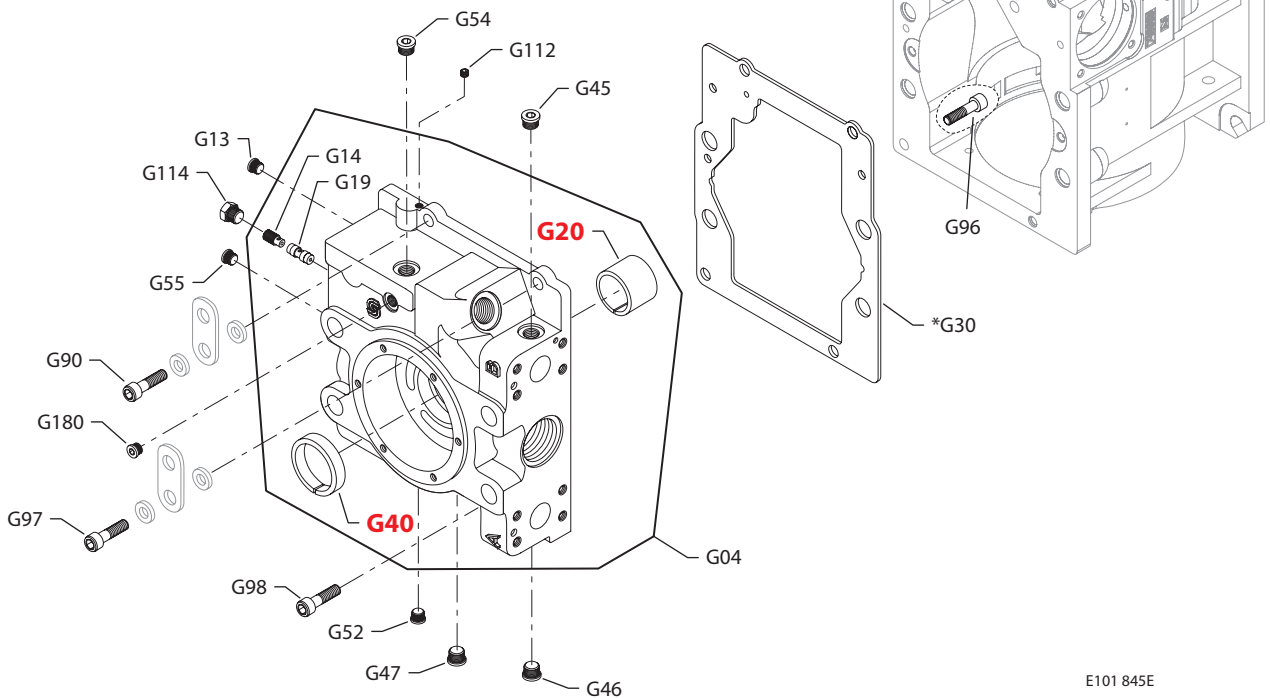


Variable displacement pump

(8C)



(9C)



* = included in overhaul seal kit Q210

E101 845E

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

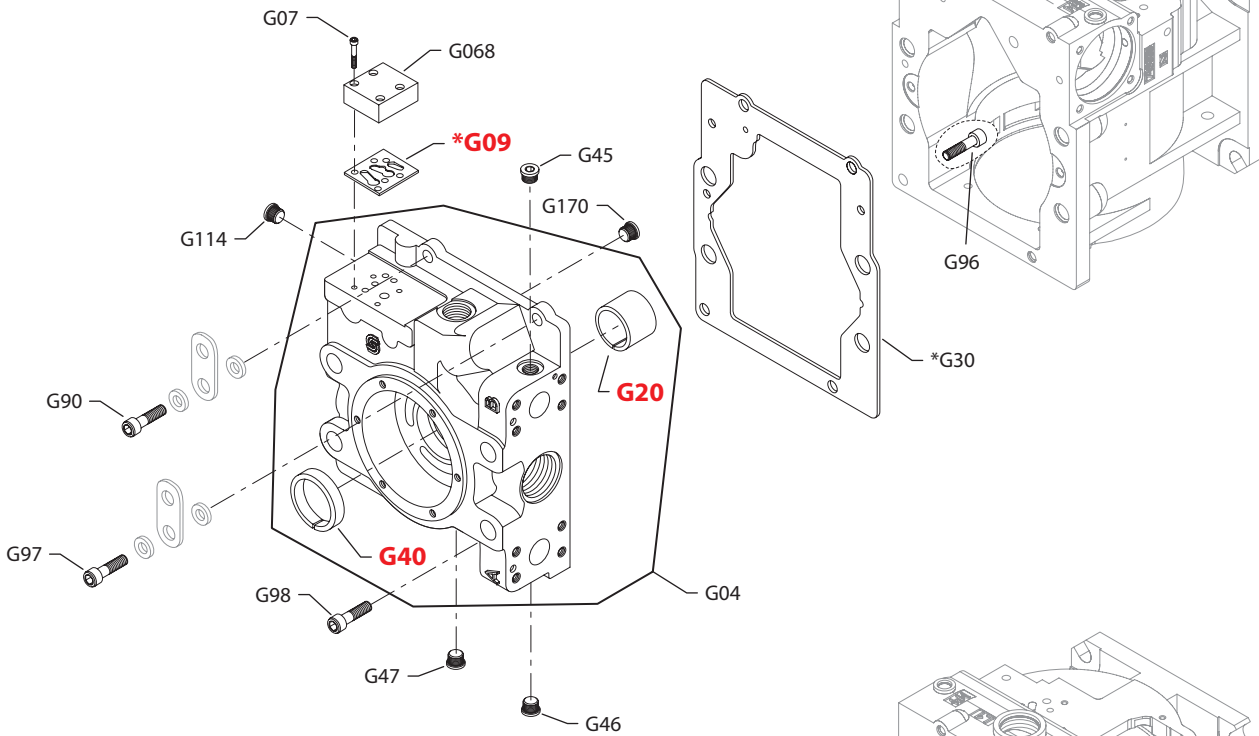

Variable displacement pump
End cap

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
8C	G04	11-32		503019/P	End cap assembly, twin ports	1
	G13	11-32		11040532	Plug assembly	1
	G14	11-32		765750	Orifice plug	1
	G19	11-32		759415	Spool	1
	G20	11-32		303693	Journal bearing	1
	G30	11-32		511809	End cap gasket	1
	G40	11-32		303651	Bushing	1
	G45	11-32		140644	Plug assembly	1
	G46	11-32		140644	Plug assembly	1
	G47	11-32		140644	Plug assembly	1
	G52	11-32		11040532	Plug assembly	1
	G53	11-32		140644	Plug assembly	1
	G54	11-32		140644	Plug assembly	1
	G55	11-32		11040532	Plug assembly	1
	G90	11-32		290502	Screw, M12 x 40	1
	G96	11-32		290502	Screw, M12 x 40	1
	G97	11-32		290502	Screw, M12 x 40	1
	G98	11-32		290502	Screw, M12 x 40	1
	G112	11-32		787838	Set screw	1
	G114	11-32		9005100-3700	Plug assembly	1
G180	11-32		11040532	Plug assembly	1	
9C	G04	12-18		11115118	End cap assembly, twin ports	1
	G13	12-18		11040532	Plug assembly	1
	G14	12-18		765750	Orifice plug	1
	G19	12-18		759415	Spool	1
	G20	12-18		303693	Journal bearing	1
	G30	12-18		511809	End cap gasket	1
	G40	12-18		303651	Bushing	1
	G45	12-18		623173	Plug assembly, M14	1
	G46	12-18		623173	Plug assembly, M14	1
	G47	12-18		623173	Plug assembly, M14	1
	G52	12-18		11040532	Plug assembly	1
	G54	12-18		623173	Plug assembly, M14	1
	G55	12-18		11040532	Plug assembly	1
	G90	12-18		290502	Screw, M12 x 40	1
	G96	12-18		290502	Screw, M12 x 40	1
	G97	12-18		290502	Screw, M12 x 40	1
	G98	12-18		290502	Screw, M12 x 40	1
	G112	12-18		787838	Set screw	1
	G114	12-18		9005100-3700	Plug assembly	1
	G180	12-18		11040532	Plug assembly	1

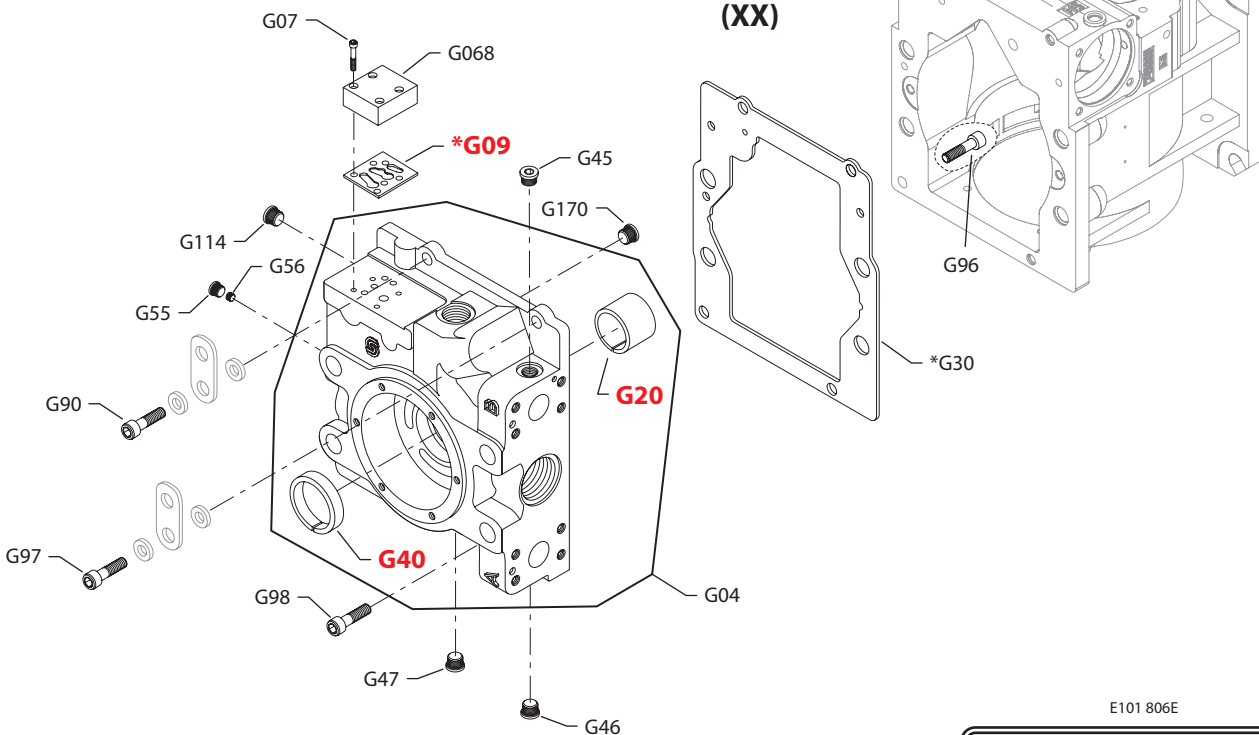


Variable displacement pump

(8 & 80)



(XX)



* = included in overhaul seal kit Q210

E101 806E

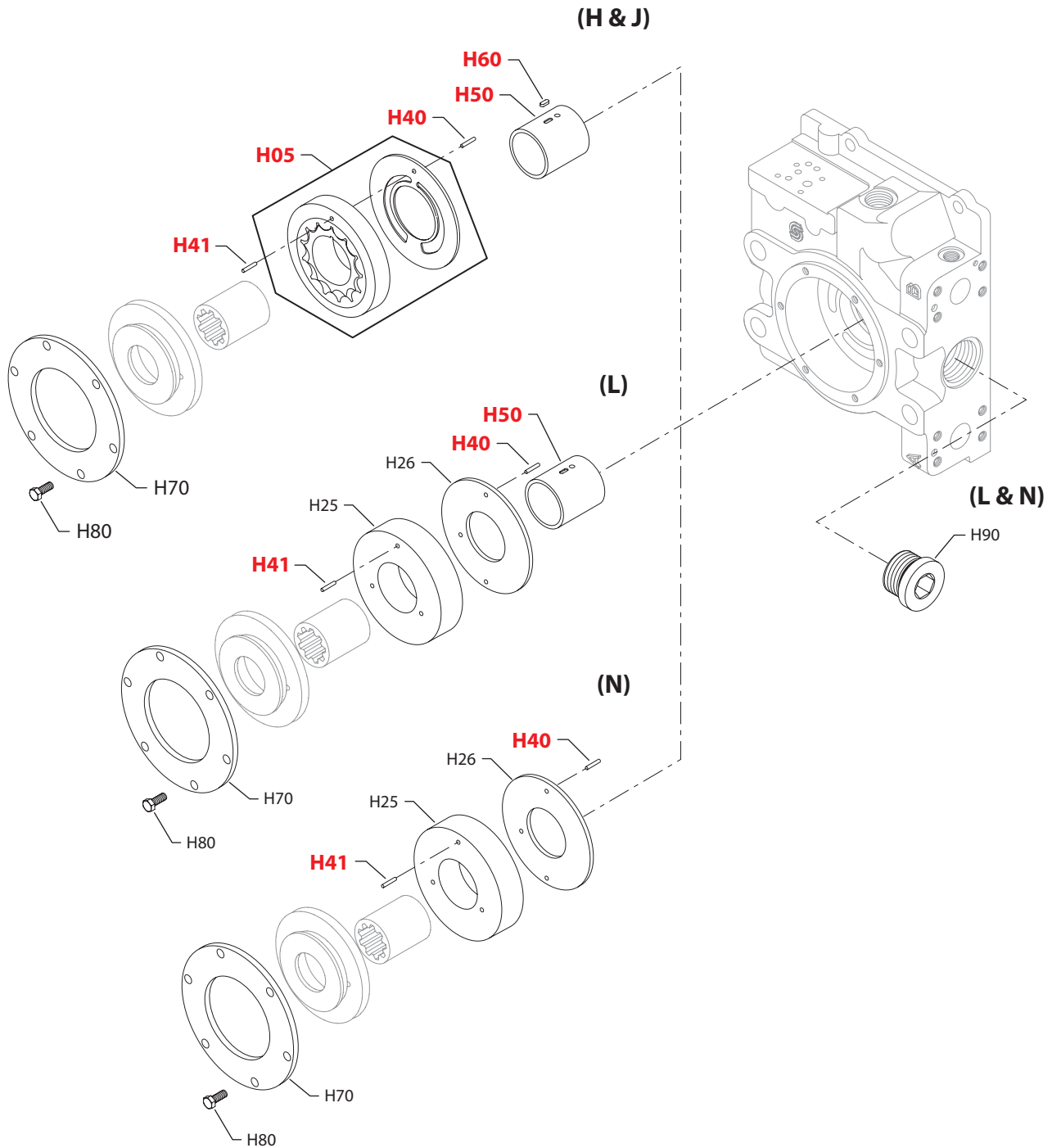
Enlarged **bold** type item numbers are recommended part to stock for servicing.


Variable displacement pump
End cap

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
8 & 80	G04	94-20		11004673	End cap assembly, twin ports	1
	G068	94-20		11140729	Valve housing assembly	1
	G07	94-20		694356	Screw	1
	G09	94-20		689117	Gasket	1
	G20	94-20		303693	Journal bearing	1
	G30	94-20		511809	End cap gasket	1
	G40	94-20		303651	Bushing	1
	G45	94-20		140644	Plug assembly	1
	G46	94-20		140644	Plug assembly	1
	G47	94-20		140644	Plug assembly	1
	G90	94-20		675900	Screw	1
	G96	94-20		290502	Screw	1
	G97	94-20		290502	Screw	1
	G98	94-20		290502	Screw	1
	G114	94-20		140644	Plug assembly	1
	G170	12-23		327007 (9005110-4400)	Plug assembly	1
	XX	G04	09-27		11067910	End cap assembly, twin ports
G068		09-27		11140729	Valve housing assembly	1
G07		09-27		694356	Screw	1
G09		09-27		689117	Gasket	1
G20		09-27		11073987	Journal bearing	1
G30		09-27		511809	End cap gasket	1
G40		09-27		303651	Bushing	1
G45		09-27		140644	Plug assembly	1
G46		09-27		140644	Plug assembly	1
G47		09-27		140644	Plug assembly	1
G55		09-27		327007 (9005110-4400)	Plug assembly	1
G56		09-27		775312	Set screw	1
G57		09-27		11068189	Orifice plug	1
G90		09-27		675900	Screw	1
G96		09-27		290502	Screw	1
G97		09-27		290502	Screw	1
G98		09-27		290502	Screw	1
G114	09-27		140644	Plug assembly	1	
G170	12-23		327007 (9005110-4400)	Plug assembly	1	



Variable displacement pump



E101 807E

* = included in overhaul seal kit Q210

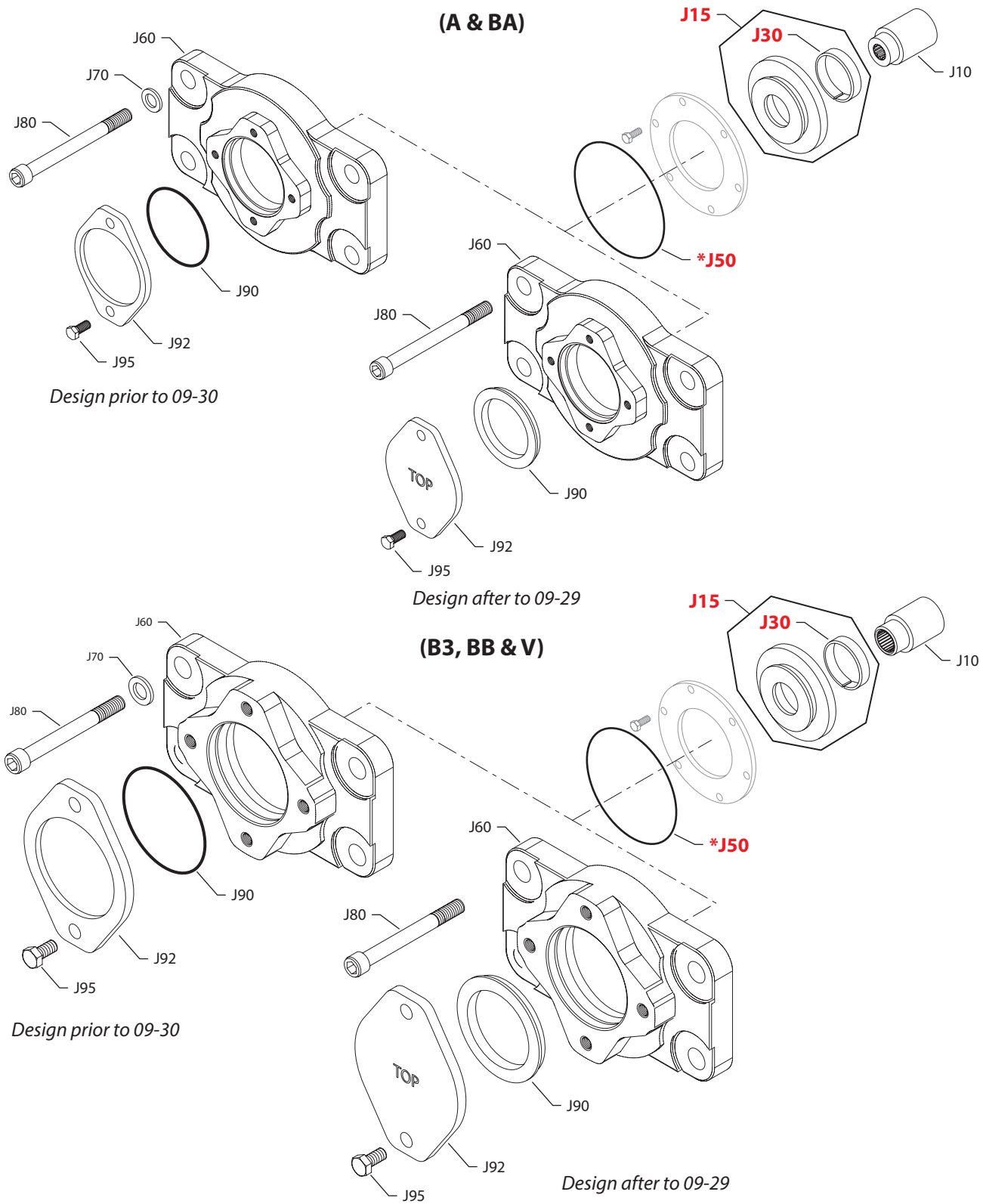
Enlarged **bold** type item numbers are recommended part to stock for servicing.


Variable displacement pump
Charging system

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
H	H05	94-20		503517	Charge pump set, 34 cc (SB-1995-007)	1
	H40	94-20		11152775	Pin, 20mm (SB-2015-038)	1
	H41	94-20		11152775	Pin, 20mm (SB-2015-038)	1
	H50	94-20		11002443	Charge pump shaft (SB-2006-010)	1
	H60	94-20		734608	Key	1
	H70	94-20		509361	Retaining plate	1
	H80	94-20		378083	Screw	6
	J	H05	94-20		503518	Charge pump set, 47 cc (SB-1995-007)
H40		94-20		11152775	Pin, 20mm (SB-2015-038)	1
H41		94-20		11152775	Pin, 20mm (SB-2015-038)	1
H50		94-20		11002443	Charge pump shaft (SB-2006-010)	1
H60		94-20		734608	Key	1
H70		94-20		509361	Retaining plate	1
H80		94-20		378083	Screw	6
L		H25	94-20		11077719	Spacer
	H26	94-20		711218	Distance plate	1
	H40	94-20		11152775	Pin, 20mm (SB-2015-038)	1
	H41	94-20		11152775	Pin, 20mm (SB-2015-038)	1
	H50	94-20		11002443	Charge pump shaft (SB-2006-010)	1
	H70	94-20		509361	Retaining plate	1
	H80	94-20		378083	Screw	6
	H90	94-20		676734 (9005110-9500)	Plug assembly	1
	N	H25	94-20		11077719	Spacer
H26		94-20		711218	Distance plate	1
H40		94-20		11152775	Pin, 20mm (SB-2015-038)	1
H41		94-20		11152775	Pin, 20mm (SB-2015-038)	1
H70		94-20		509361	Retaining plate	1
H80		94-20		378083	Screw	6
H90		94-20		676734 (9005110-9500)	Plug assembly	1



Variable displacement pump



E100 093E

* = included in overhaul seal kit Q210

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

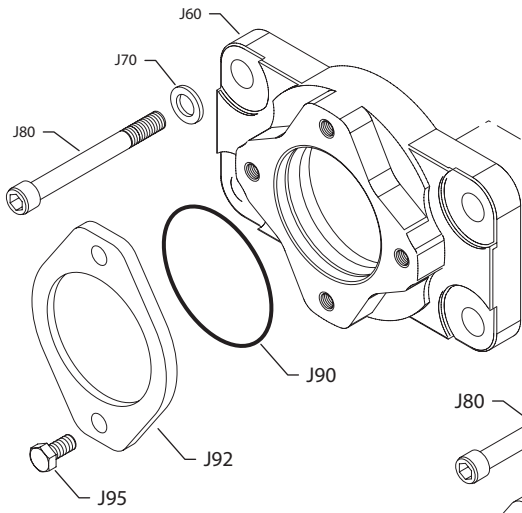
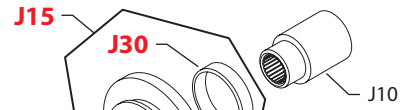

Variable displacement pump
Auxiliary mounting

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
A & AB	J10	94-20		11053336	Coupling, 9 tooth	1
	J15	94-20		501402	Cover assembly, CW	1
	J15	94-20		501401	Cover assembly, CCW	1
	J30	94-20		303651	Bushing	1
	J50	94-20		505068	O-ring	1
	J60	09-30		520949	Flange adaptor, SAE A	1
	J60	94-20	09-29	505136	Flange adaptor, SAE A (SB-2009-074)	1
	J70	94-20	09-29	279729	Washer (SB-2009-074)	4
	J80	89-46		750414	Screw	4
	J90	09-30		4800482	A pad seal	1
	J90	94-20	09-29	726950 (9004104-0420)	O-ring (SB-2009-074)	1
	J92	09-30		4460586	Cover plate	1
	J92	94-20	09-29	545475 (9802336)	Cover plate (SB-2009-074)	1
	J95	94-20		9007200-3714	Screw	2
	B3	J10	15-41		11053289	Coupling, 13 tooth
J15		15-41		501402	Cover assembly, CW	1
J15		15-41		501401	Cover assembly, CCW	1
J30		15-41		303651	Bushing	1
J50		15-41		505068	O-ring	1
J60		15-41		11153463	Flange adaptor, SAE B, metric	1
J80		15-41		750414	Screw	4
J90		15-41		8801061	B pad seal	1
J92		15-41		8801059	Cover plate	1
J95		15-41		370320	Screw, M12	2
BB & V		J10	94-20		11053334	Coupling, 15 tooth
	J15	94-20		501402	Cover assembly, CW	1
	J15	94-20		501401	Cover assembly, CCW	1
	J30	94-20		303651	Bushing	1
	J50	94-20		505068	O-ring	1
	J60	09-30		520950	Flange adaptor, SAE B	1
	J60	94-20	09-29	505132	Flange adaptor, SAE B (SB-2009-075)	1
	J70	94-20	09-29	279729	Washer (SB-2009-075)	4
	J80	89-46		750414	Screw	4
	J90	09-30		8801061	B pad seal	1
	J90	94-20	09-29	726935 (9004104-0450)	O-ring (SB-2009-075)	1
	J92	09-30		8801059	Cover plate	1
	J92	94-20	09-29	4460370	Cover plate (SB-2009-075)	1
	J95	94-20		9007200-5021	Screw	2

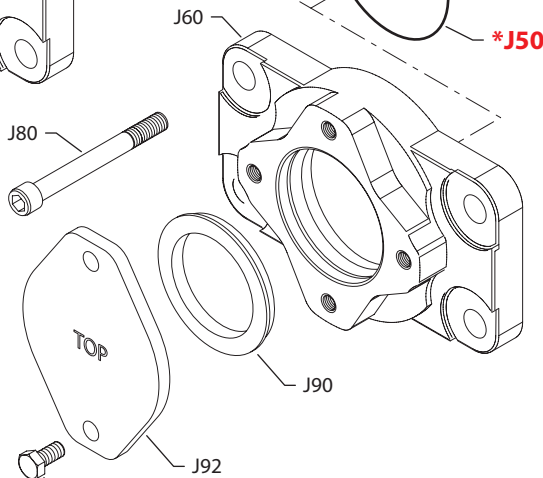


Variable displacement pump

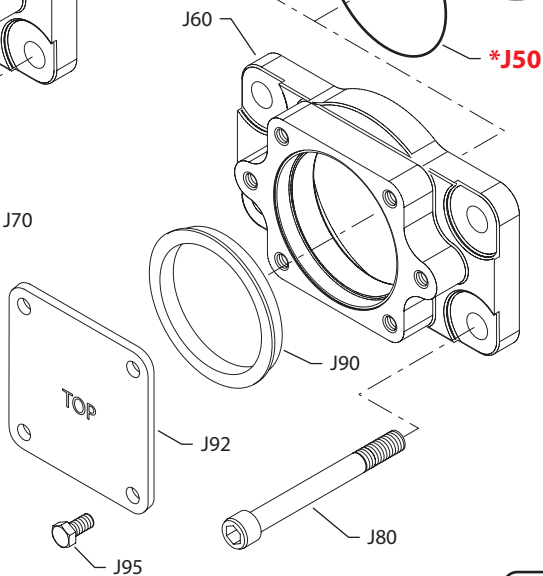
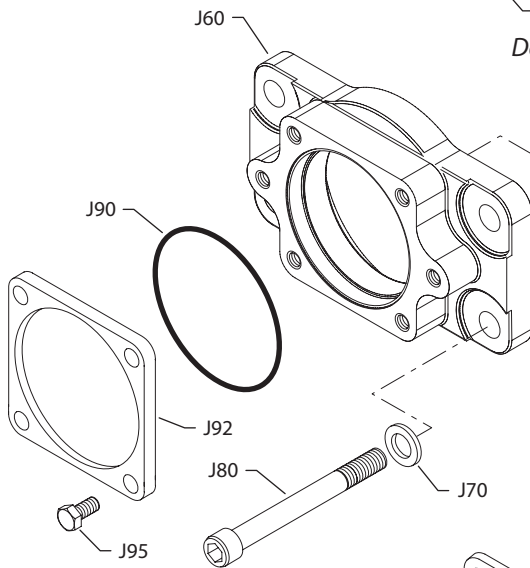
(B & BC)



Design prior to 09-30



Design after to 09-29
(C, CD & CK)



* = included in overhaul seal kit Q210

E101 808E

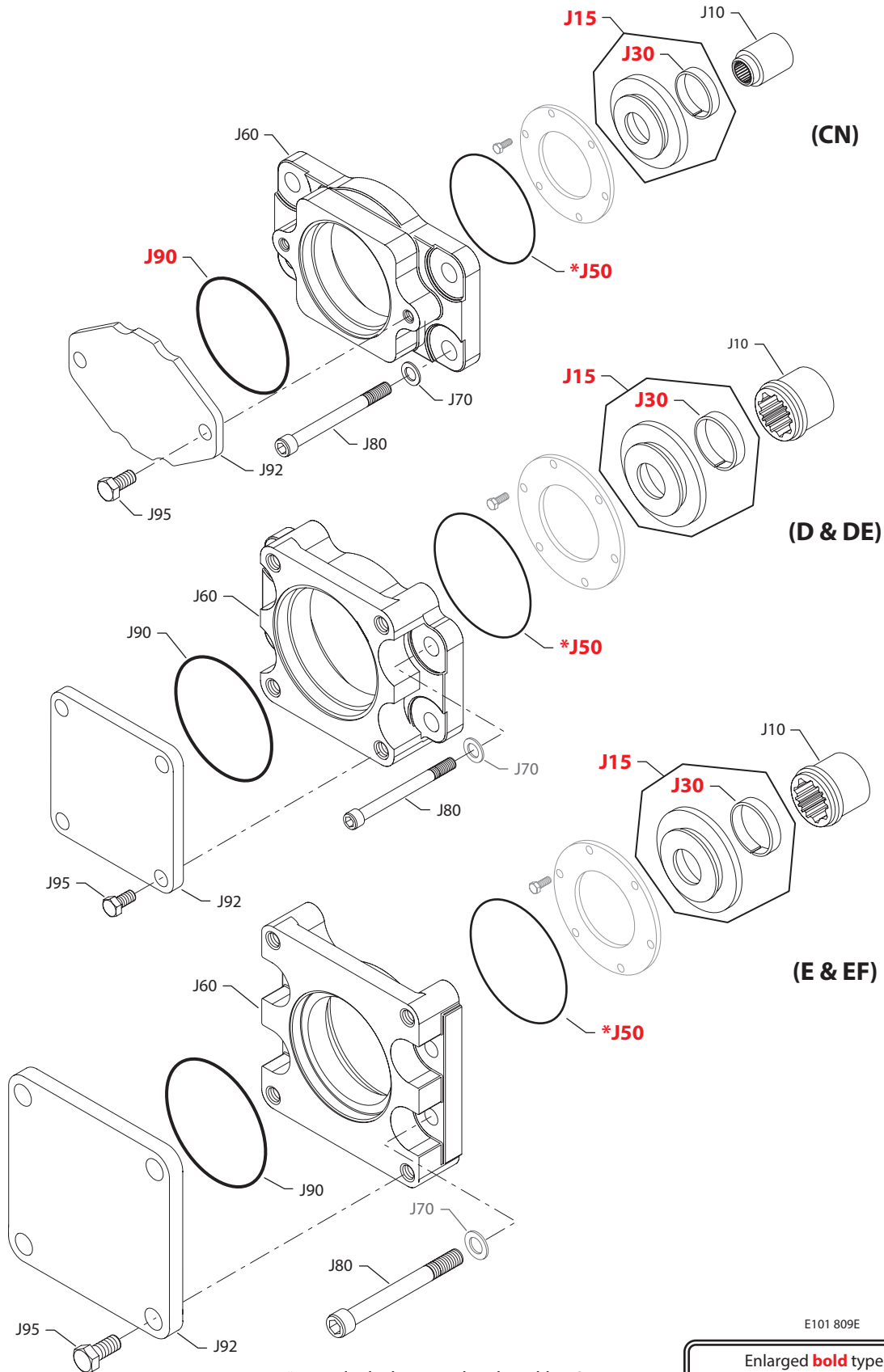
Enlarged **bold** type item numbers are recommended part to stock for servicing.


Variable displacement pump
Auxiliary mounting

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
B & BC	J10	94-20		11053289	Coupling, 13 tooth	1
	J15	94-20		501402	Cover assembly, CW	1
	J15	94-20		501401	Cover assembly, CCW	1
	J30	94-20		303651	Bushing	1
	J50	94-20		505068	O-ring	1
	J60	09-30		520950	Flange adaptor, SAE B	1
	J60	94-20	09-29	505132	Flange adaptor, SAE B (SB-2009-075)	1
	J70	94-20	09-29	279729	Washer (SB-2009-075)	4
	J80	89-46		750414	Screw	4
	J90	09-30		8801061	B pad seal	1
	J90	94-20	09-29	726935 (9004104-0450)	O-ring (SB-2009-075)	1
	J92	09-30		8801059	Cover plate	1
	J92	94-20	09-29	4460370	Cover plate (SB-2009-075)	1
	J95	94-20		9007200-5021	Screw	2
	C & CD	J10	94-20		11053291	Coupling, 14 tooth
J15		94-20		501402	Cover assembly, CW	1
J15		94-20		501401	Cover assembly, CCW	1
J30		94-20		303651	Bushing	1
J50		94-20		505068	O-ring	1
J60		09-30		520951	Flange adaptor, SAE C	1
J60		94-20	09-29	505139	Flange adaptor, SAE C (SB-2009-076)	1
J70		94-20	09-29	279729	Washer (SB-2009-076)	4
J80		89-46		750414	Screw	4
J90		09-30		11081805	C pad seal	1
J90		94-20	09-29	726943 (9004104-0490)	O-ring (SB-2009-076)	1
J92		09-30		8801060	Cover plate	1
J92		94-20	09-29	307363 (8800406)	Cover plate (SB-2009-076)	1
J95		94-20		9007200-5021	Screw	4
CK		J10	94-20		506548	Coupling, 25 tooth
	J15	94-20		501402	Cover assembly, CW	1
	J15	94-20		501401	Cover assembly, CCW	1
	J30	94-20		303651	Bushing	1
	J50	94-20		505068	O-ring	1
	J60	09-30		520951	Flange adaptor, SAE C	1
	J60	94-20	09-29	505139	Flange adaptor, SAE C (SB-2009-076)	1
	J70	94-20	09-29	279729	Washer (SB-2009-076)	4
	J80	89-46		750414	Screw	4
	J90	09-30		11081805	C pad seal	1
	J90	94-20	09-29	726943 (9004104-0490)	O-ring (SB-2009-076)	1
	J92	09-30		8801060	Cover plate	1
	J92	94-20	09-29	307363 (8800406)	Cover plate (SB-2009-076)	1
	J95	94-20		9007200-5021	Screw	4



Variable displacement pump



* = included in overhaul seal kit Q210

E101 809E

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



Variable displacement pump

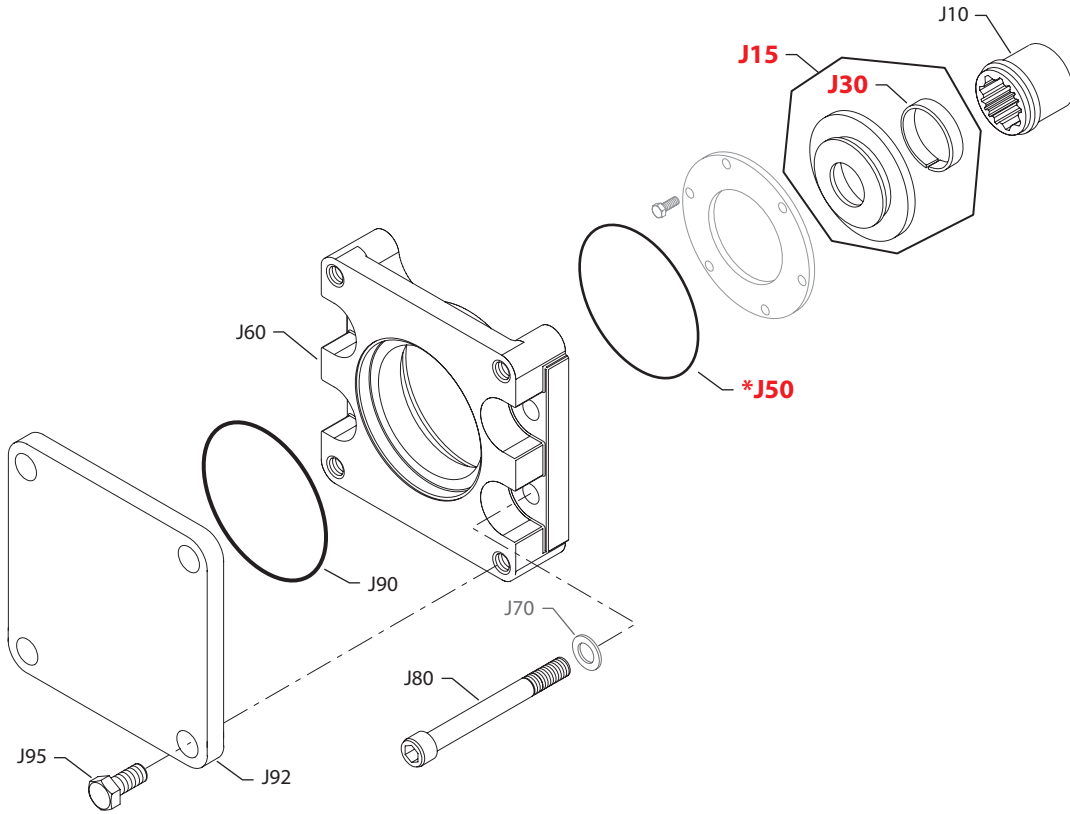
Auxiliary mounting

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit	
CN	J10	94-20	12-37	11053291	Coupling, 14 tooth	1	
	J15	94-20	12-37	501402	Cover assembly, CW	1	
	J15	94-20	12-37	501401	Cover assembly, CCW	1	
	J30	94-20	12-37	303651	Bushing	1	
	J50	94-20	12-37	505068	O-ring	1	
	J60	09-30	12-37	11039178	Flange adaptor, SAE C	1	
	J60	94-20	09-29	508406	Flange adaptor, SAE C (SB-2009-076)	1	
	J70	94-20	09-29	279729	Washer (SB-2009-076)	4	
	J80	89-46	12-37	750414	Screw	4	
	J90	09-30	12-37	11081805	C pad seal	1	
	J90	94-20	09-29	726943 (9004104-0490)	O-ring (SB-2009-076)	1	
	J92	09-30	12-37	11048554	Cover plate	1	
	J92	94-20	09-29	307363 (8800406)	Cover plate (SB-2009-076)	1	
	J95	94-20	12-37	9007200-6222	Screw	2	
	D & DE	J10	94-20		11053290	Coupling, 13 tooth	1
J15		94-20		503663	Cover assembly, CW	1	
J15		94-20		503666	Cover assembly, CCW	1	
J30		94-20		303651	Bushing	1	
J50		94-20		505068	O-ring	1	
J60		94-20		505140	Flange adaptor, SAE D	1	
J70		94-20	15-46	279729	Washer	4	
J80		94-20		750414	Screw	4	
J90		94-20		726927	O-ring	1	
J92		94-20		338400	Cover plate	1	
J95		94-20		9007200-7524	Screw	4	
E & EF		J10	94-20		11053290	Coupling, 13 tooth	1
		J15	94-20		503663	Cover assembly, CW	1
		J15	94-20		503666	Cover assembly, CCW	1
		J30	94-20		303651	Bushing	1
	J50	94-20		505068	O-ring	1	
	J60	94-20		505141	Flange adaptor, SAE E	1	
	J70	94-20	15-46	279729	Washer	4	
	J80	94-20		750414	Screw	4	
	J90	94-20		505068	O-ring	1	
	J92	94-20		750422	Cover plate	1	
	J95	94-20		9007200-7524	Screw	4	

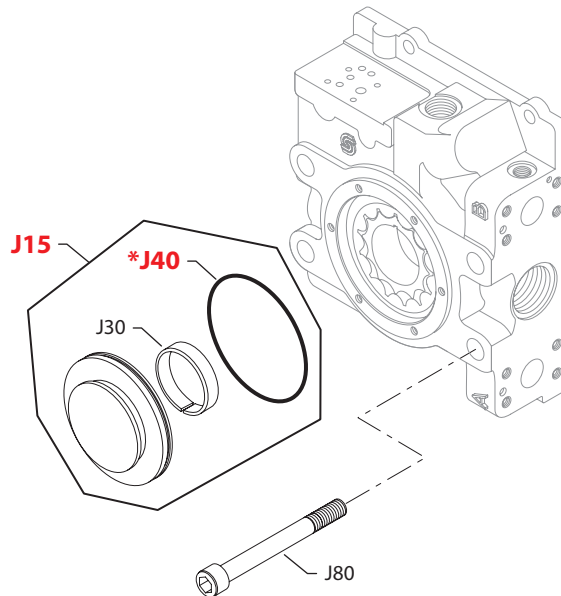


Variable displacement pump

(EG & H)



(N & NN)



* = included in overhaul seal kit Q210

E101 810E

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

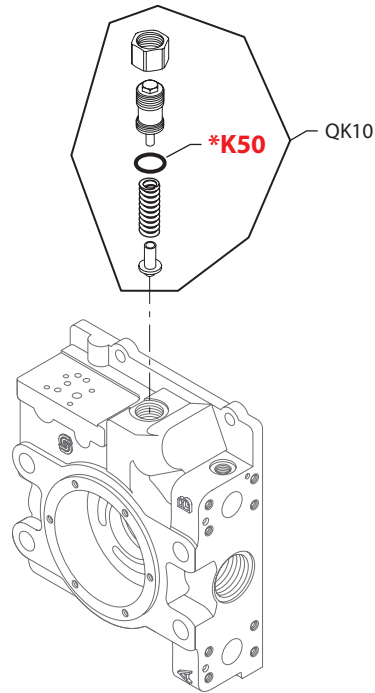

Variable displacement pump
Auxiliary mounting

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit	
EG & H	J10	94-20		11053335	Coupling, 27 tooth	1	
	J15	94-20		503663	Cover assembly, CW	1	
	J15	94-20		503666	Cover assembly, CCW	1	
	J30	94-20		303651	Bushing	1	
	J50	94-20		505068	O-ring	1	
	J60	94-20		505141	Flange adaptor, SAE E	1	
	J70	94-20	15-46	279729	Washer	4	
	J80	94-20		750414	Screw	4	
	J90	94-20		505068	O-ring	1	
	J92	94-20		750422	Cover plate	1	
	J95	94-20		9007200-7524	Screw	4	
	N & NN	J15	94-20		501400	Cover assembly	1
		J30	94-20		303651	Bushing	1
J40		94-20		916940	O-ring	1	
J80		94-20		308734	Screw	4	

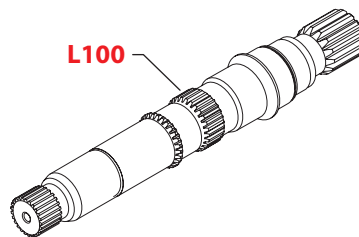


Variable displacement pump

(18-42 & XX)



(C8, D5, D8, F1 & F5)



E101 811E

* = included in overhaul seal kit Q210

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



Variable displacement pump

Charge pressure relief

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
18-32 & XX	QK10	94-20		8510272	Charge relief valve kit, 18-32 bar	1
	K50	94-20		001156 (9004201-7500)	O-ring	1
34-42	QK10	94-20		8510390	Charge relief valve kit, 34-36 bar	1
	K50	94-20		001156 (9004201-7500)	O-ring	1

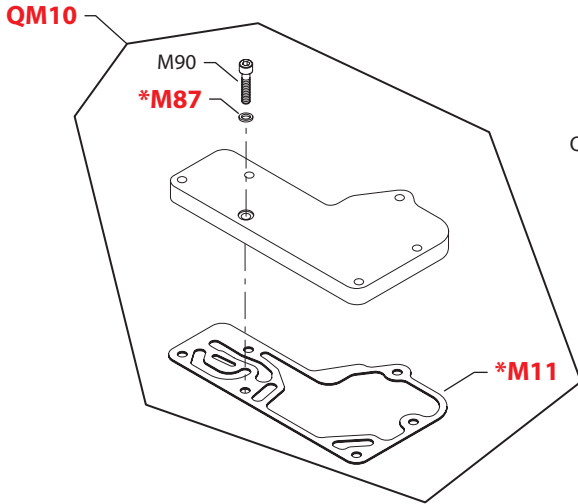
Shaft

C8	L100	94-20		11004305	Shaft, 27 tooth spline	1
D5	L100	12-17		11114883	Shaft, 24 tooth spline, tapped, M16	1
D8	L100	12-17		11004304	Shaft, 27 tooth spline, tapped, M10	1
F1	L100	94-20		11004306	Shaft, 13 tooth spline	1
F5	L100	94-20		11004303	Shaft, 13 tooth spline, tapped, 5/8-11	1

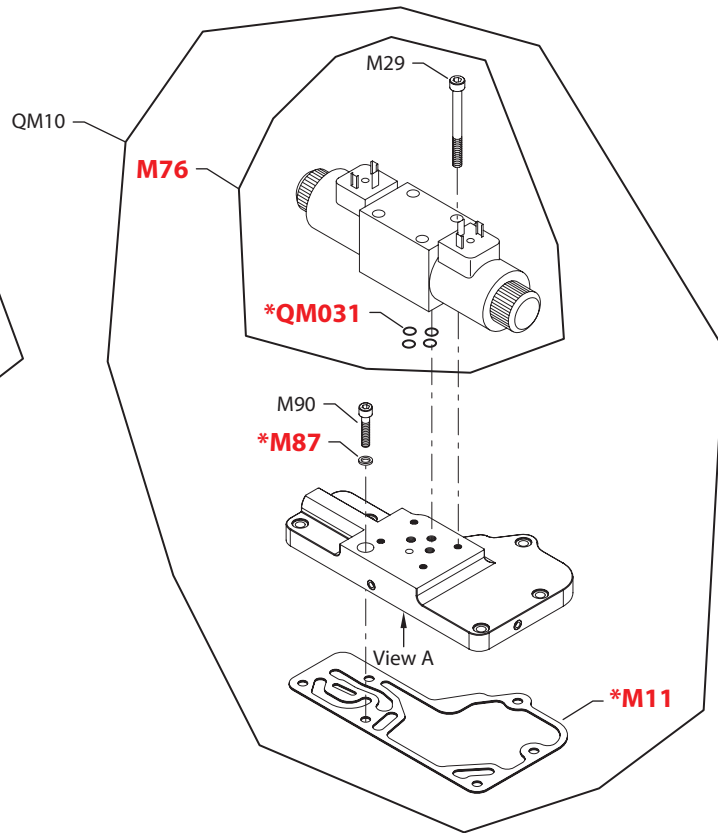


Variable displacement pump

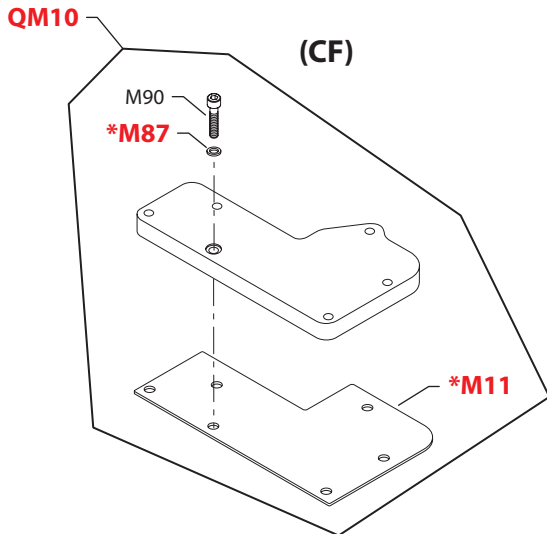
(CA & CB)



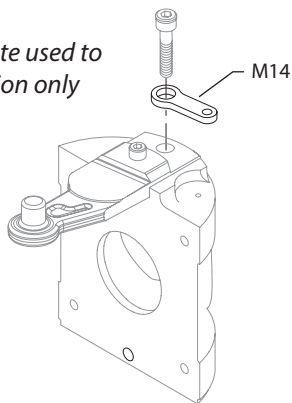
(DC & DD)



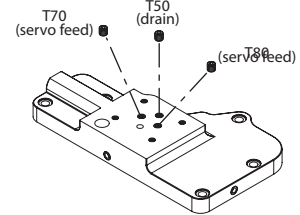
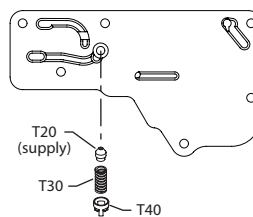
(CF)



Generic swashplate used to show link location only



View "A"



Possible orifice locations

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

E101 812E

* = included in control seal kit QM210

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

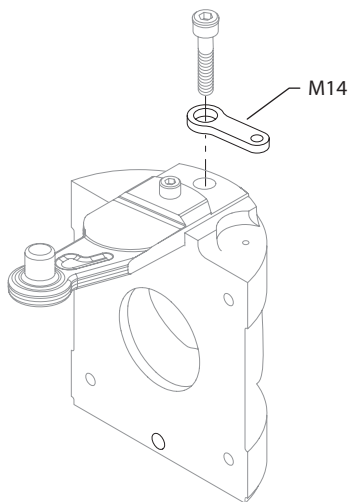
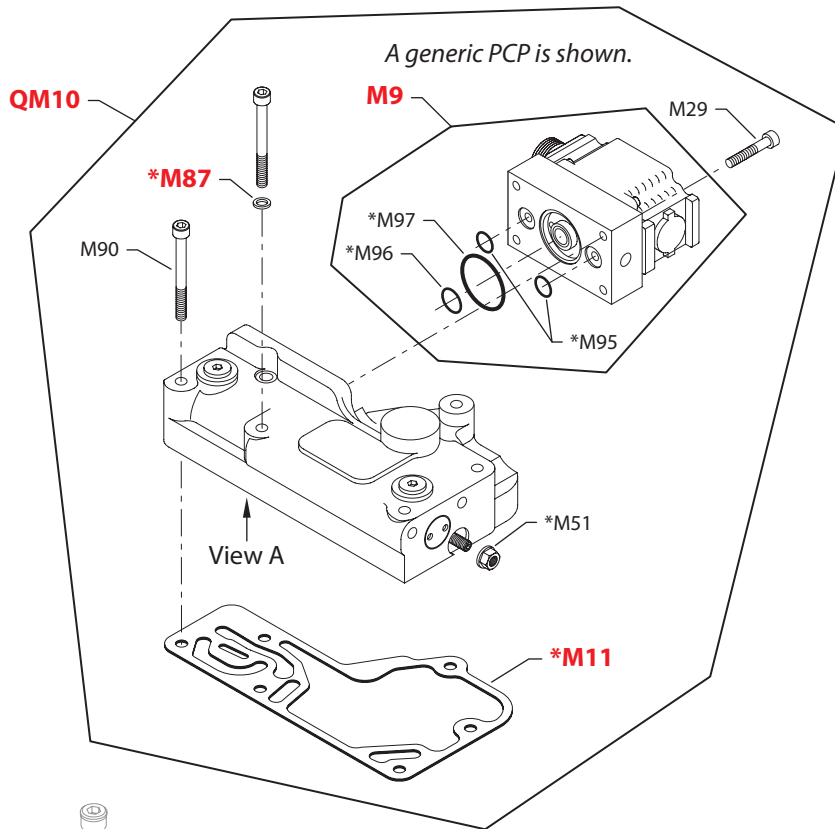

Variable displacement pump
Control

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
CA	M11	94-20		8800923	Control gasket	1
	M87	94-20	12-23	592386	Seal washer	1
	M90	94-20		693341 (9007314-0606)	Screw	6
	QM10	94-20		11098677	Control cover plate kit	1
	QM210	94-20		11096320	Control seal kit	1
CB	M11	94-20		8800923	Control gasket	1
	M14	94-20		11070308	Feedback link	1
	M87	94-20	12-23	592386	Seal washer	1
	M90	94-20		693341 (9007314-0606)	Screw	6
	QM10	94-20		11098677	Control cover plate kit	1
	QM210	94-20		11096320	Control seal kit	1
CF	M11	94-20		509718	Control gasket	1
	M14	94-20		11070308	Feedback link	1
	M87	94-20	12-23	592386	Seal washer	1
	M90	94-20		693341 (9007314-0606)	Screw	6
	QM10	94-20		11098675	Control cover plate kit	1
	QM210	94-20		11097122	Control seal kit	1
DC	M11	94-20		8800923	Control gasket	1
	M87	94-20	12-23	592386	Seal washer	1
	M90	94-20		693341 (9007314-0606)	Screw	6
	QM10	94-20		8102M0DC-A	3-position control kit, 12 volt	1
	QM031	94-20		11099647	Valve seal kit	1
	QM210	94-20		11096172	Control seal kit	1
DD	M11	94-20		8800923	Control gasket	1
	M87	94-20	12-23	592386	Seal washer	1
	M90	94-20		693341 (9007314-0606)	Screw	6
	QM10	94-20		8102M0DD-A	3-position control kit, 24 volt	1
	QM031	94-20		11099647	Valve seal kit	1
	QM210	94-20		11096172	Control seal kit	1

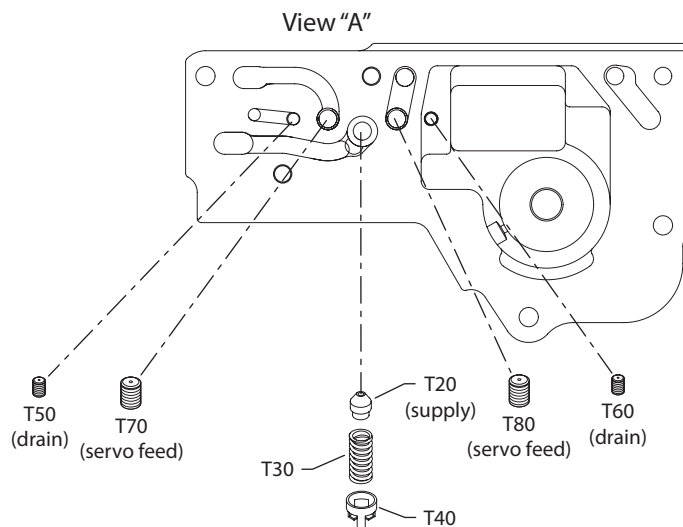


Variable displacement pump

(EA)



Generic washplate used to show link location only



Possible orifice locations

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

* = included in control seal kit QM210

E101 813E

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

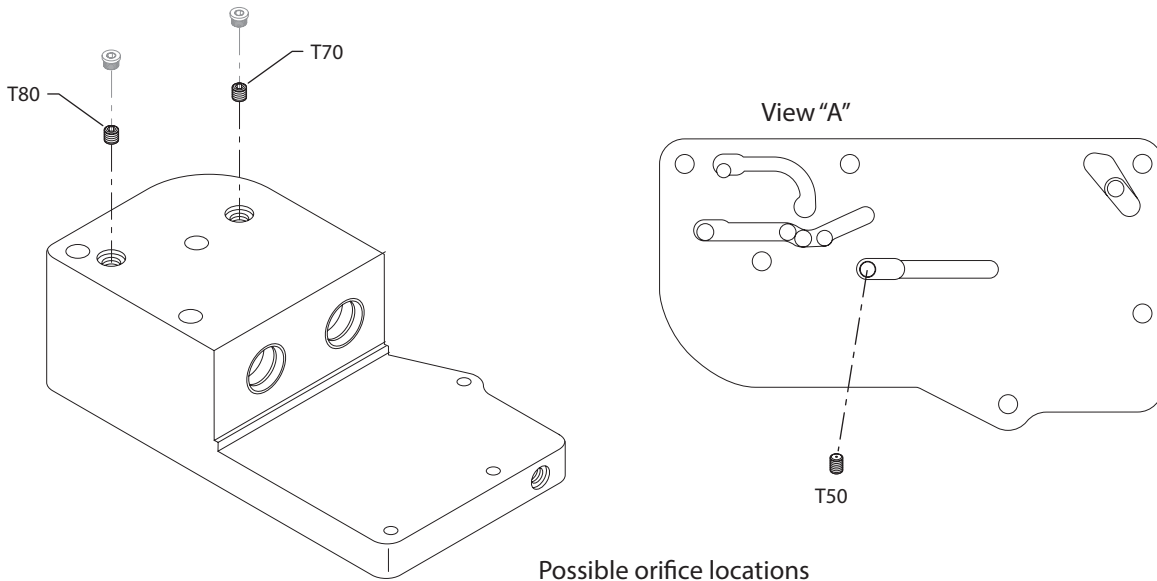
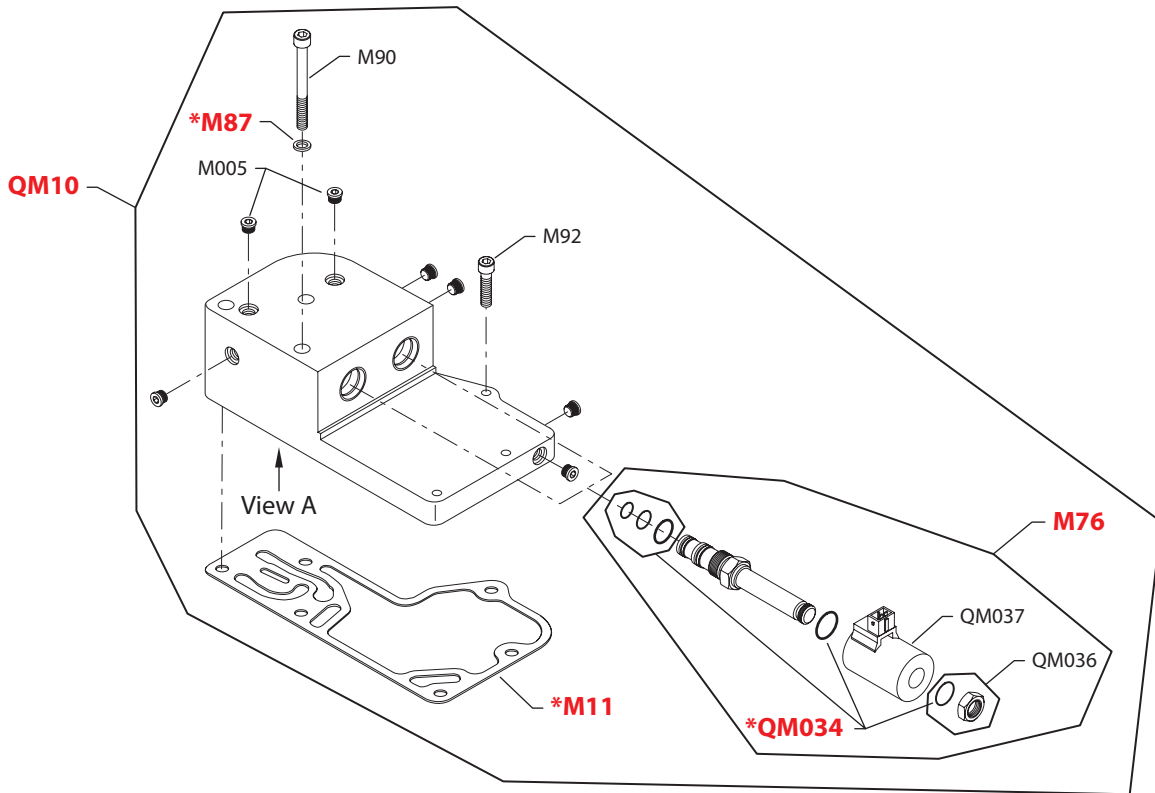

Variable displacement pump
Control

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
EA	M9	94-20		MCV110A1017	PCP, MS connector	1
	M11	94-20		8800923	Control gasket	1
	M14	94-20		11070308	Feedback link	1
	M29	94-20		K07067	Screw	4
	M51	94-20		9003509-0008	Seal nut	1
	M87	94-20	12-23	592386	Seal washer	1
	M90	94-20		692889 (9007314-0611)	Screw	6
	M95	94-20		318337 (9004104-0120)	O-ring	2
	M96	94-20		011304 (9004104-0140)	O-ring	1
	M97	94-20		318345 (9004104-0240)	O-ring	1
	QM10	94-20		8510153	EDC1 kit, MS connector	1
	QM210	94-20		11096174	Control seal kit	1



Variable displacement pump

(FG & FH)



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

* = included in control seal kit QM210

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


Variable displacement pump
Control

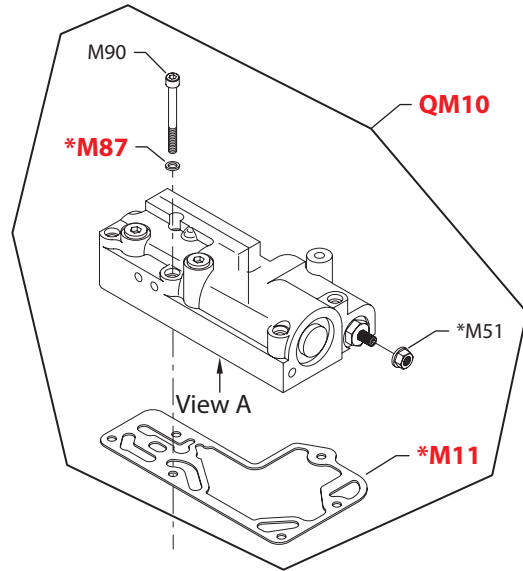
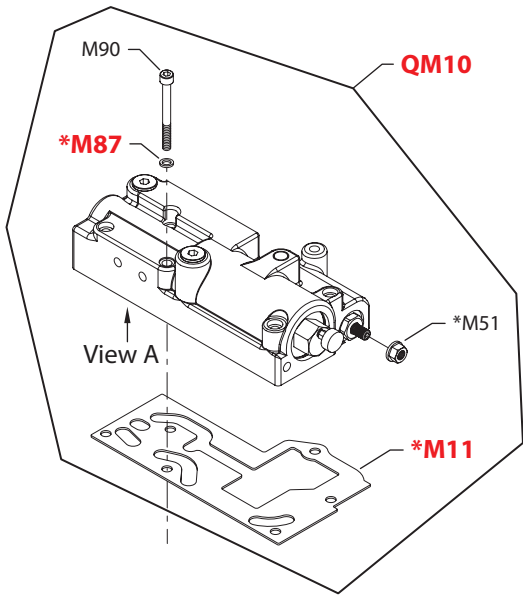
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit	
FG	M11	94-20		8800923	Control gasket	1	
	M76	94-20		516006	Pressure reducing valve, 12 volt	2	
	M87	94-20	12-23	592386	Seal washer	1	
	M90	94-20		9007314-0614	Screw	3	
	M92	94-20		693341	Screw	3	
	M005	94-20		11040532	Plug assembly	2	
	QM10	94-20		11026563	Control kit, NFPE, 12 volt	1	
	QM034	94-20		11100185	Valve seal kit	2	
	QM036	94-20		518088	Nut/O-ring kit	2	
	QM037	94-20		516003	Coil, 12 volt	2	
	QM210	94-20		11100001	Control seal kit	1	
	FH	M11	94-20		8800923	Control gasket	1
		M76	94-20		515617	Pressure reducing valve, 24 volt	2
M87		94-20	12-23	592386	Seal washer	1	
M90		94-20		9007314-0614	Screw	3	
M92		94-20		693341	Screw	3	
M005		94-20		11040532	Plug assembly	2	
QM10		94-20		11026569	Control kit, NFPE, 24 volt	1	
QM034		94-20		11100185	Valve seal kit	2	
QM036		94-20		518088	Nut/O-ring kit	2	
QM037		94-20		516004	Coil, 24 volt	2	
QM210		94-20		11100001	Control seal kit	1	



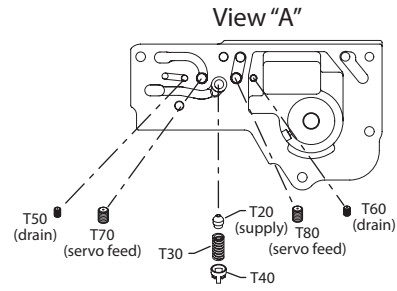
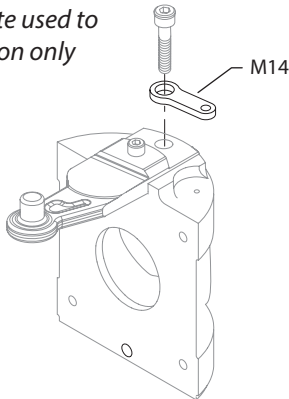
Variable displacement pump

(H9 & HD)

(HF, HM & HS)



Generic washplate used to show link location only



Possible orifice locations

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

E100 100E

* = included in control seal kit QM210

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

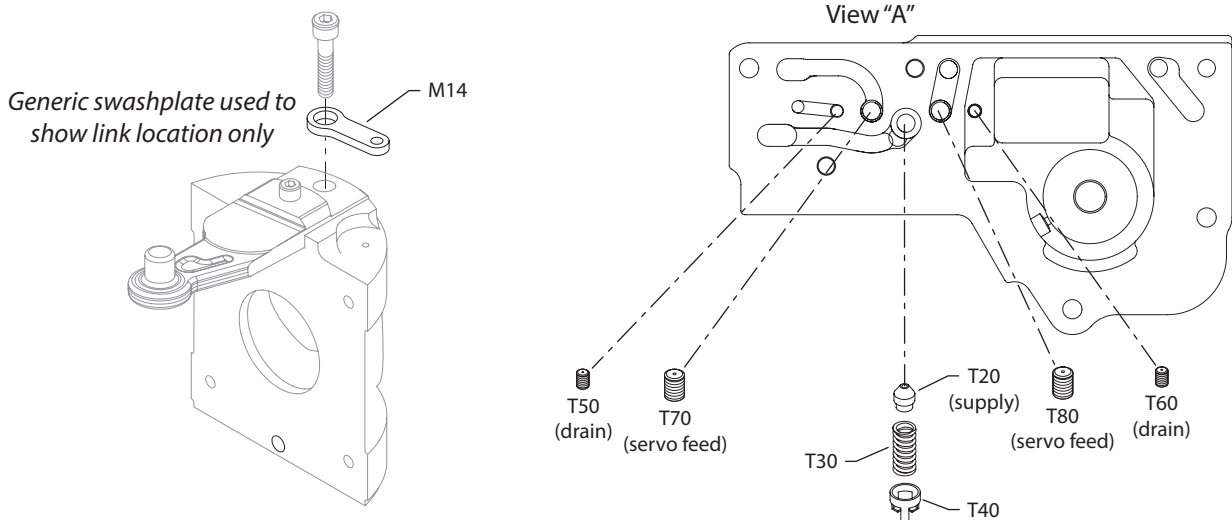
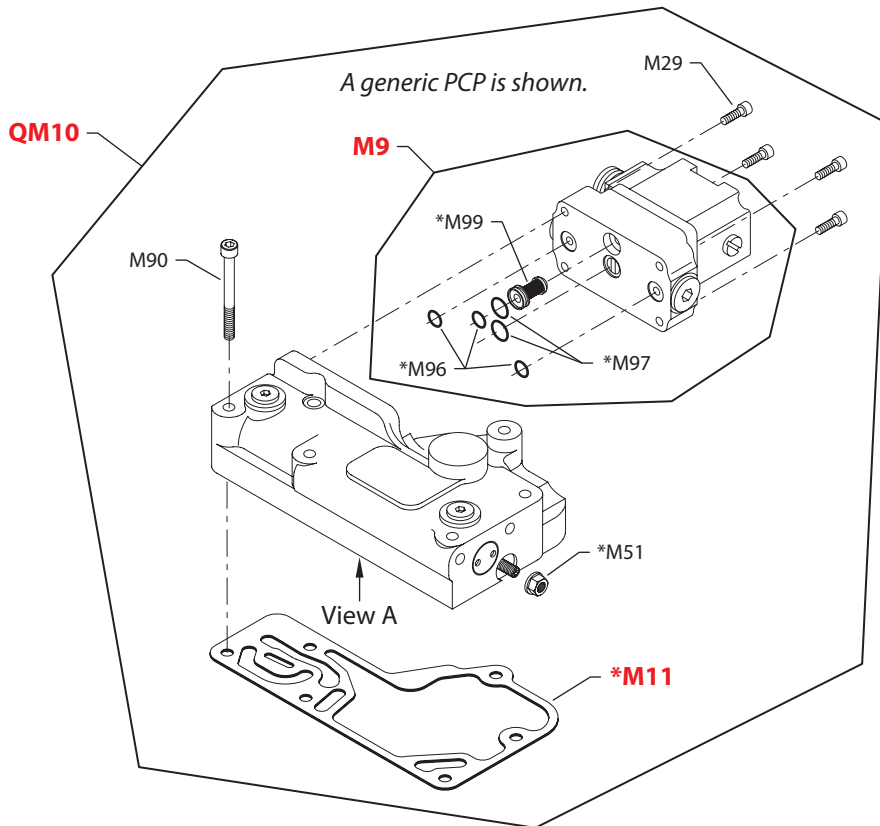

Variable displacement pump
Control

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
H9	M11	12-18		501665	Control gasket	1
	M14	12-18		11070308	Feedback link	1
	M51	12-18		9003509-0008	Seal nut	1
	M87	12-18	12-52	592386	Seal washer	1
	M90	12-18		692889 (9007314-0611)	Screw	6
	QM10	12-18		11115361	HDC kit, 6-18 bar, metric	1
	QM210	12-18		11096265	Control seal kit	1
	HD	M11	94-20		501665	Control gasket
M14		94-20		11070308	Feedback link	1
M51		94-20		9003509-0008	Seal nut	1
M87		94-20	12-23	592386	Seal washer	1
M90		94-20		692889 (9007314-0611)	Screw	6
QM10		94-20		11098674	HDC kit, 6-18 bar	1
QM210		94-20		11096265	Control seal kit	1
HF		M11	94-20		8801241	Control gasket (SB-1999-065)
	M14	94-20		11070308	Feedback link	1
	M51	94-20		9003509-0008	Seal nut	1
	M87	94-20	12-23	592386	Seal washer	1
	M90	94-20		692889 (9007314-0611)	Screw	6
	QM10	94-20		8510157	HDC kit, 3-11 bar	1
	QM210	94-20		11096266	Control seal kit	1
	HM	M11	98-27		8801241	Control gasket
M14		98-27		11070308	Feedback link	1
M51		98-27		9003509-0008	Seal nut	1
M87		98-27	12-23	592386	Seal washer	1
M90		98-27		692889 (9007314-0611)	Screw	6
QM10		98-27		11013637	HDC kit, 1.1 - 6.7 bar	1
QM210		98-27		11096266	Control seal kit	1
HS		M11	05-43		8801241	Control gasket
	M14	05-43		11070308	Feedback link	1
	M51	05-43		9003509-0008	Seal nut	1
	M87	05-43	12-23	592386	Seal washer	1
	M90	05-43		692889 (9007314-0611)	Screw	6
	QM10	05-43		11020565	HDC kit, 6 - 18 bar	1
	QM210	05-43		11096266	Control seal kit	1



Variable displacement pump

(K8, KA, KE & KN)



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

Possible orifice locations

* = included in control seal kit QM210

E100 926E

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

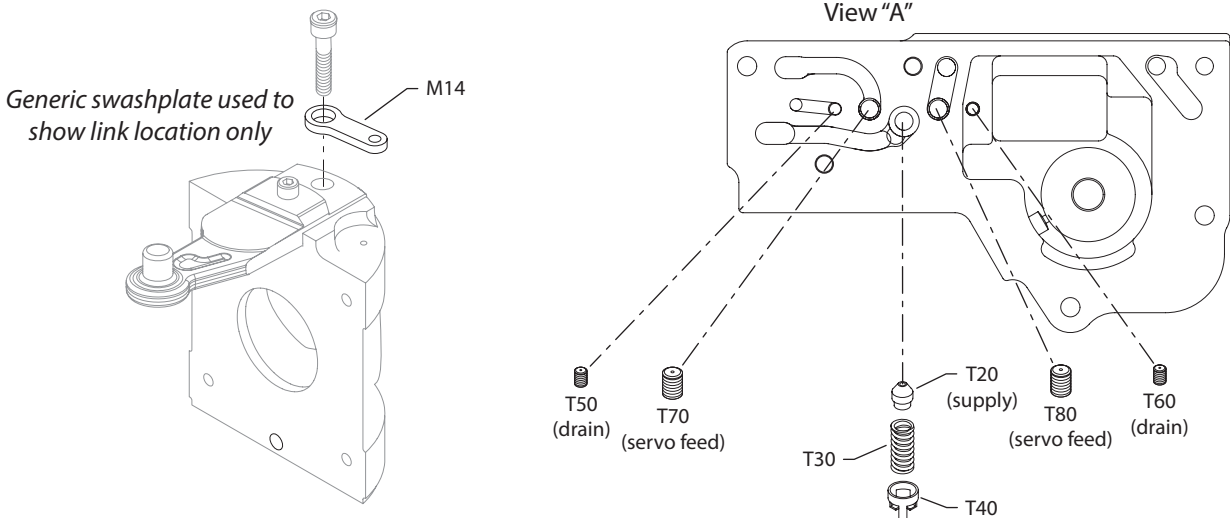
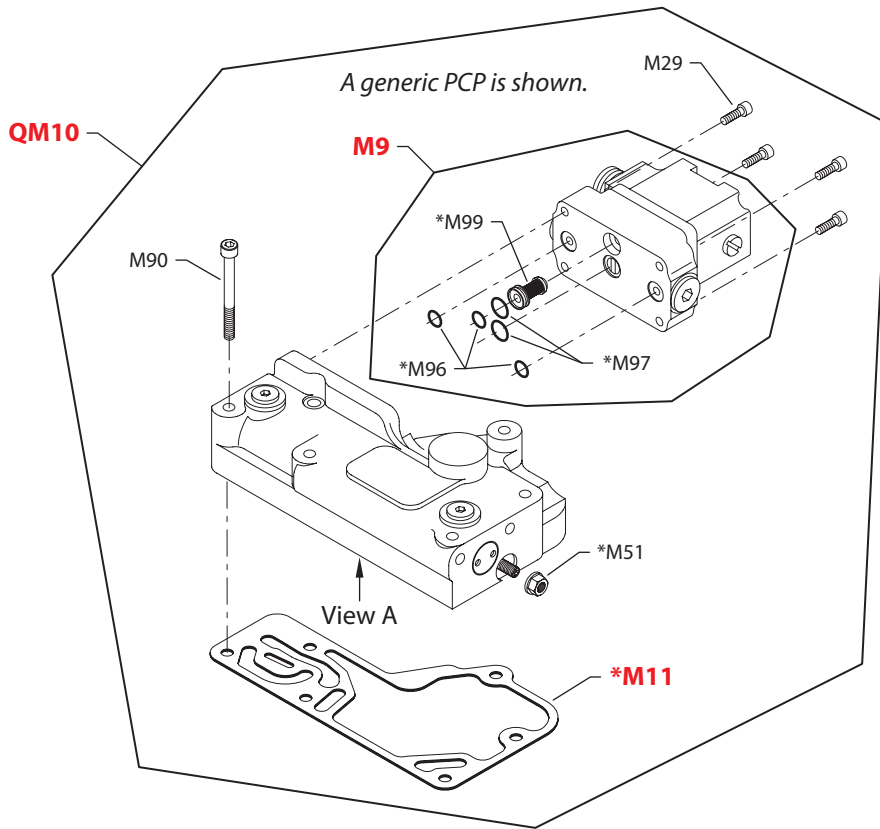

Variable displacement pump
Control

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit	
K8	M9	15-28		11101106	PCP, MS connector	1	
	M11	15-28		8800923	Control gasket	1	
	M14	15-28		11070308	Feedback link	1	
	M29	15-28		K07067	Screw	4	
	M51	15-28		9003509-0008	Seal nut	1	
	M90	15-28		692889 (9007314-0611)	Screw	6	
	M96	15-28		011296 (9004105-0120)	O-ring	3	
	M97	15-28		9004105-0130	O-ring	2	
	M99	15-28		K08572	Filter assembly	1	
	QM10	15-28		11168552	EDC3 kit, MS connector	1	
	QM210	15-28		11095724	Control seal kit	1	
KA	M9	94-20		MCV116G4201	PCP, MS connector	1	
	M11	94-20		8800923	Control gasket	1	
	M14	94-20		11070308	Feedback link	1	
	M29	94-20		K07067	Screw	4	
	M51	94-20		9003509-0008	Seal nut	1	
	M87	94-20	12-23	592386	Seal washer	1	
	M90	94-20		692889 (9007314-0611)	Screw	6	
	M96	94-20		011296 (9004105-0120)	O-ring	3	
	M97	94-20		9004105-0130	O-ring	2	
	M99	94-20		K08572	Filter assembly	1	
	QM10	94-20		8510155	EDC3 kit, MS connector	1	
	QM210	94-20		11095724	Control seal kit	1	
	KE	M9	13-43		MCV116F3118	PCP, Deutsch connector	1
M11		13-43		8800923	Control gasket	1	
M14		13-43		11070308	Feedback link	1	
M29		13-43		K07067	Screw	4	
M51		13-43		9003509-0008	Seal nut	1	
M90		13-43		692889 (9007314-0611)	Screw	6	
M96		13-43		011296 (9004105-0120)	O-ring	3	
M97		13-43		9004105-0130	O-ring	2	
M99		13-43		K08572	Filter assembly	1	
QM10		13-43		11099382	EDC3 kit, Deutsch connector	1	
QM210		13-43		11095724	Control seal kit	1	
KN		M9	94-20		MCV116A3501	PCP, MS connector	1
		M11	94-20		8800923	Control gasket	1
	M14	94-20		11070308	Feedback link	1	
	M29	94-20		K07067	Screw	4	
	M51	94-20		9003509-0008	Seal nut	1	
	M87	94-20	12-23	592386	Seal washer	1	
	M90	94-20		692889 (9007314-0611)	Screw	6	
	M96	94-20		011296 (9004105-0120)	O-ring	3	
	M97	94-20		9004105-0130	O-ring	2	
	M99	94-20		K08572	Filter assembly	1	
	QM10	94-20		8510185	EDC3 kit, MS connector	1	
	QM210	94-20		11095724	Control seal kit	1	



Variable displacement pump

(KP & KT)



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

Possible orifice locations

* = included in control seal kit QM210

E100 926E

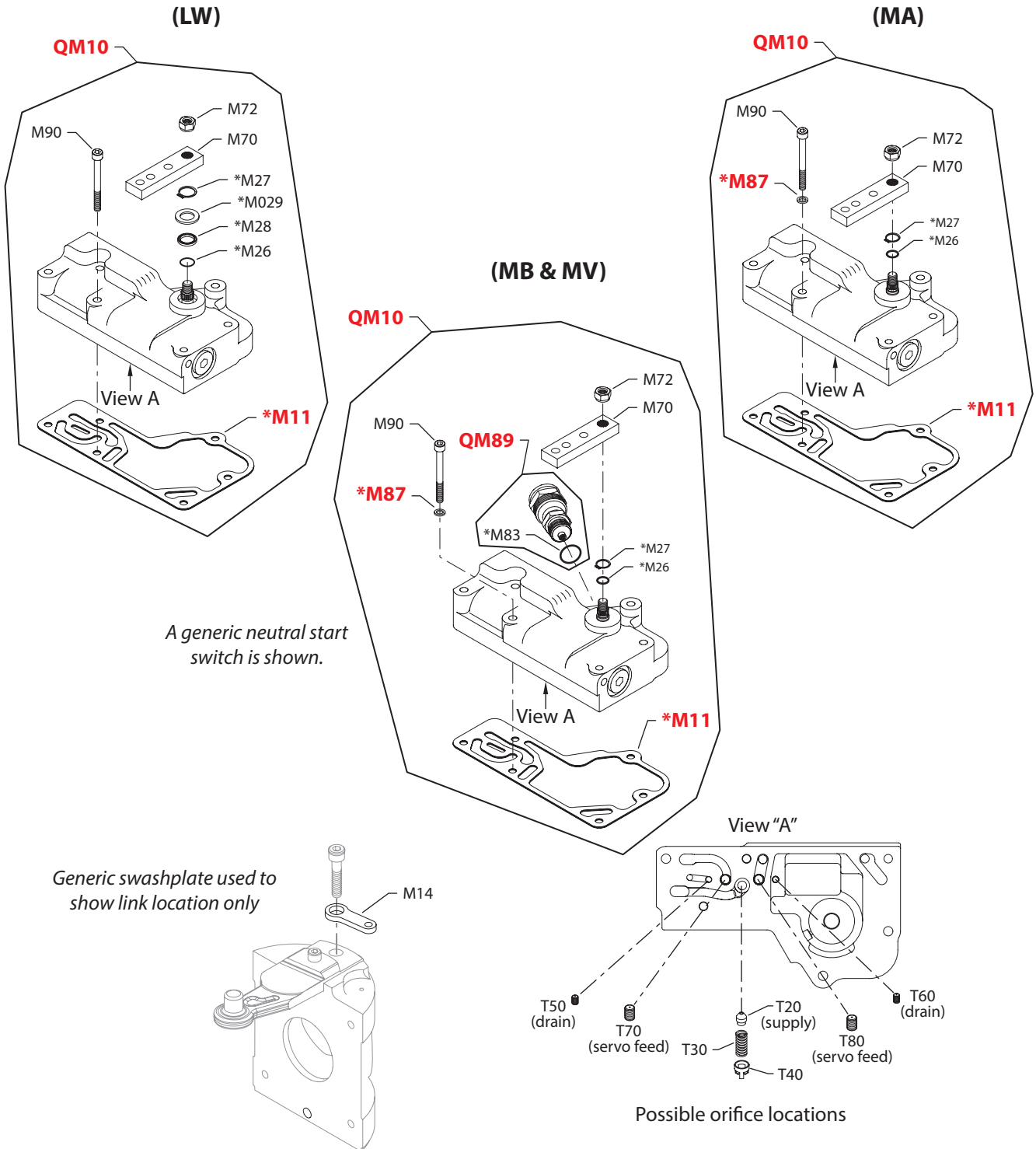
Enlarged **bold** type item numbers are recommended part to stock for servicing.


Variable displacement pump
Control

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit	
KP	M9	94-20		MCV116G4204	PCP, Weather-Pac connector	1	
	M11	94-20		8800923	Control gasket	1	
	M14	94-20		11070308	Feedback link	1	
	M29	94-20		K07067	Screw	4	
	M51	94-20		9003509-0008	Seal nut	1	
	M87	94-20	12-23	592386	Seal washer	1	
	M90	94-20		692889 (9007314-0611)	Screw	6	
	M96	94-20		011296 (9004105-0120)	O-ring	3	
	M97	94-20		9004105-0130	O-ring	2	
	M99	94-20		K08572	Filter assembly	1	
	QM10	94-20		8510156	EDC3 kit, Weather-Pac connector	1	
	QM210	94-20		11095724	Control seal kit	1	
	KT	M9	94-20		MCV116G4214	PCP, Deutsch connector	1
		M11	94-20		8800923	Control gasket	1
M14		94-20		11070308	Feedback link	1	
M29		94-20		K07067	Screw	4	
M51		94-20		9003509-0008	Seal nut	1	
M87		94-20	12-23	592386	Seal washer	1	
M90		94-20		692889 (9007314-0611)	Screw	6	
M96		94-20		011296 (9004105-0120)	O-ring	3	
M97		94-20		9004105-0130	O-ring	2	
M99		94-20		K08572	Filter assembly	1	
QM10		94-20		8510268	EDC3 kit, Weather-Pac connector	1	
QM210		94-20		11095724	Control seal kit	1	



Variable displacement pump



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

* = included in control seal kit QM210

E101 816E

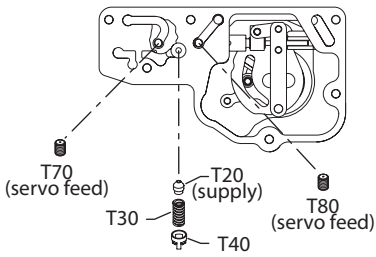
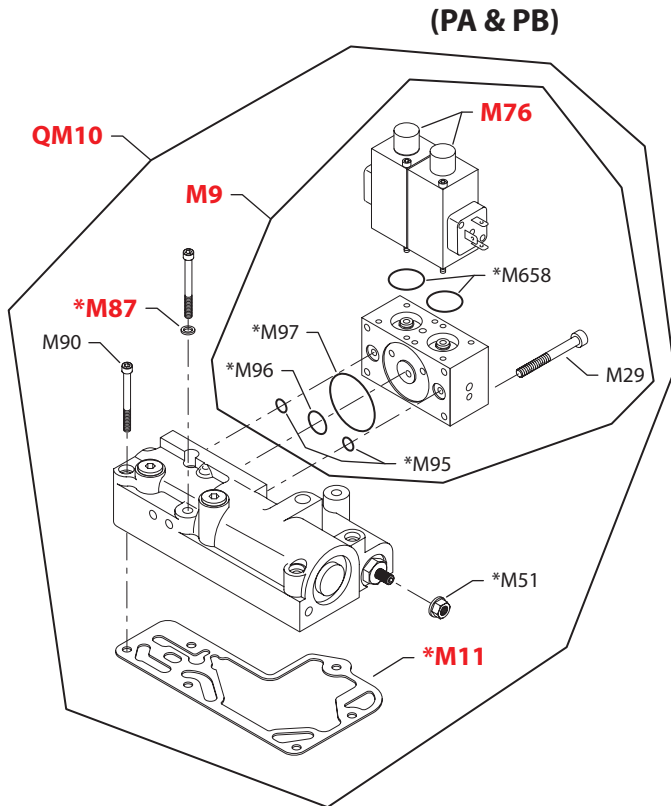
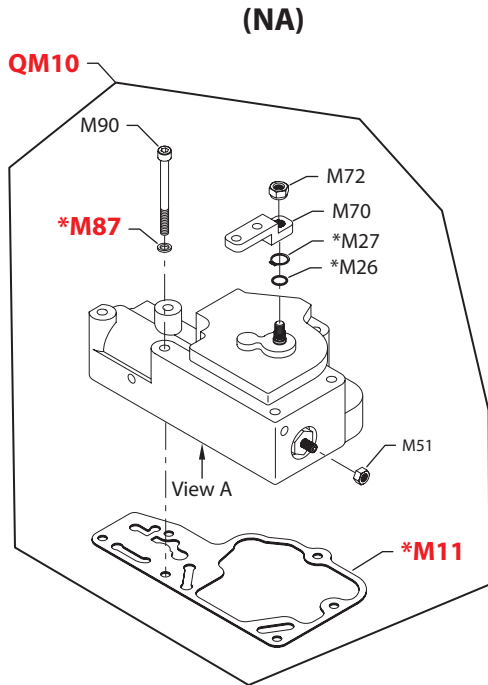
Enlarged **bold** type item numbers are recommended part to stock for servicing.

Variable displacement pump
Control

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
LW	M11	12-11		8800923	Control gasket	1
	M14	12-11		11072308	Feedback link	1
	M26	12-11		144725 (9004105-0110)	O-ring	1
	M27	12-11		042507	Retaining ring	1
	M28	12-11		510690	Lip seal	1
	M029	12-11		512047	Washer	1
	M70	12-11		9800916	Control handle	1
	M72	12-11		040642 (9003513-0800)	Nut	1
	M90	12-11		692889 (9007314-0611)	Screw	6
	QM10	12-11		11112426	Control kit	1
QM210	12-11		11110668	Control seal kit	1	
MA	M11	94-20		8800923	Control gasket	1
	M14	94-20		11072308	Feedback link	1
	M26	94-20		144725 (9004105-0110)	O-ring	1
	M27	94-20		9006300-0044	Retaining ring	1
	M70	94-20		9800916	Control handle	1
	M72	94-20		040642 (9003513-0800)	Nut	1
	M87	94-20	12-23	592386	Seal washer	1
	M90	94-20		692889 (9007314-0611)	Screw	6
	QM10	94-20		8510158	Control kit	1
	QM210	94-20		11096274	Control seal kit	1
MB	M11	94-20		8800923	Control gasket	1
	M14	94-20		11072308	Feedback link	1
	M26	94-20		144725 (9004105-0110)	O-ring	1
	M27	94-20		9006300-0044	Retaining ring	1
	M70	94-20		9800916	Control handle	1
	M72	94-20		040642 (9003513-0800)	Nut	1
	M83	94-20		001131 (9004201-5000)	O-ring	1
	M87	94-20	12-23	592386	Seal washer	1
	M90	94-20		692889 (9007314-0611)	Screw	6
	QM10	94-20		8510186	Control kit with neutral start switch	1
	QM89	94-20		80020540	Neutral start switch	1
	QM210	94-20		11096274	Control seal kit	1
	MV	M11	94-20		8800923	Control gasket
M14		94-20		11072308	Feedback link	1
M26		94-20		144725 (9004105-0110)	O-ring	1
M27		94-20		9006300-0044	Retaining ring	1
M70		94-20		9800916	Control handle	1
M72		94-20		040642 (9003513-0800)	Nut	1
M83		94-20		001131 (9004201-5000)	O-ring	1
M87		94-20	12-23	592386	Seal washer	1
M90		94-20		692889 (9007314-0611)	Screw	6
QM10		94-20		11098659	Control kit with neutral start switch	1
QM89		94-20		8510170	Neutral start switch	1
QM210		94-20		11096274	Control seal kit	1

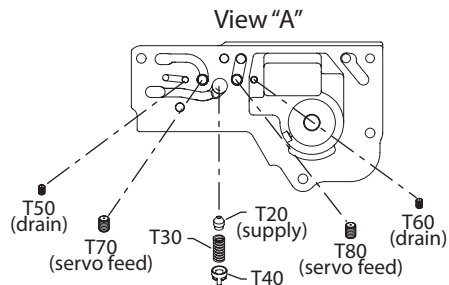
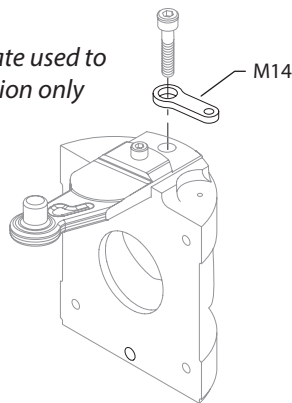


Variable displacement pump



Possible orifice locations

Generic swashplate used to show link location only



Possible orifice locations

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

E101 817E

* = included in control seal kit QM210

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

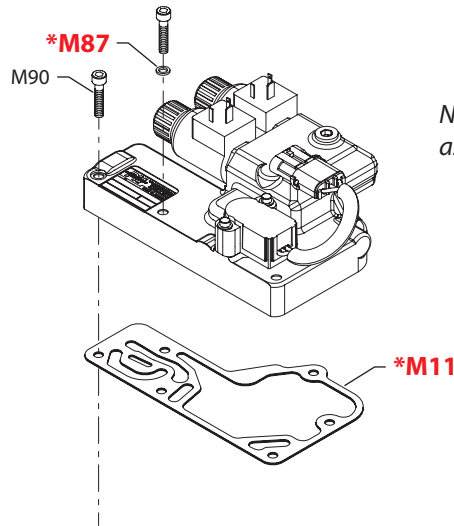

Variable displacement pump
Control

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit	
NA	M11	95-46		504733	Control gasket	1	
	M14	95-46		11072308	Feedback link	1	
	M26	95-46		144725 (9004105-0110)	O-ring	1	
	M27	95-46		9006300-0044	Retaining ring	1	
	M51	95-46		345462	Nut	1	
	M70	95-46		769075	Control handle	1	
	M72	95-46		040642 (9003513-0800)	Nut	1	
	M87	95-46	12-23	592386	Seal washer	1	
	M90	95-46		9007314-0614	Screw	6	
	QM10	95-46		11098672	Control kit	1	
	QM210	95-46		11096273	Control seal kit	1	
	PA	M9	98-27		782037	PDC, 12 volt	1
M11		98-27		8801241	Gasket	1	
M14		98-27		11072308	Feedback link	1	
M29		98-27		035592	Screw	4	
M51		98-27		9003509-0008	Seal nut	1	
M76		98-27		11001795	Solenoid, 12 volt	2	
M87		98-27	12-23	592386	Seal washer	1	
M90		98-27		692889 (9007314-0611)	Screw	6	
M95		98-27		011296 (9004105-0120)	O-ring	2	
M96		98-27		688721 (9004104-0170)	O-ring	1	
M97		98-27		314534 (9004104-0310)	O-ring	1	
M658		98-27		635938 (9004100-0210)	O-ring	2	
QM10		98-27		11098673	Control kit, 12 volt	1	
QM210		98-27		11096251	Control seal kit	1	
PB		M9	94-20		782045	PDC, 24 volt	1
		M11	94-20		8801241	Gasket	1
		M14	94-20		11072308	Feedback link	1
	M29	94-20		035592	Screw	4	
	M51	94-20		9003509-0008	Seal nut	1	
	M76	94-20		11001794	Solenoid, 24 volt	2	
	M87	94-20	12-37	592386	Seal washer	1	
	M90	94-20		692889 (9007314-0611)	Screw	6	
	M95	94-20		011296 (9004105-0120)	O-ring	2	
	M96	94-20		688721 (9004104-0170)	O-ring	1	
	M97	94-20		314534 (9004104-0310)	O-ring	1	
	M658	94-20		635938 (9004100-0210)	O-ring	2	
	QM10	94-20		8510378	Control kit, 24 volt	1	
	QM210	94-20		11096251	Control seal kit	1	



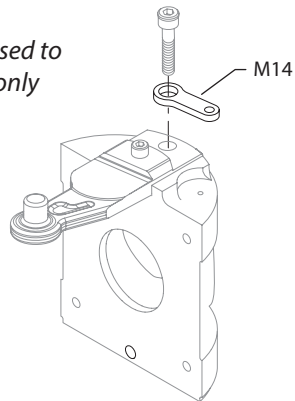
Variable displacement pump

(SA, SB, SD & SE)

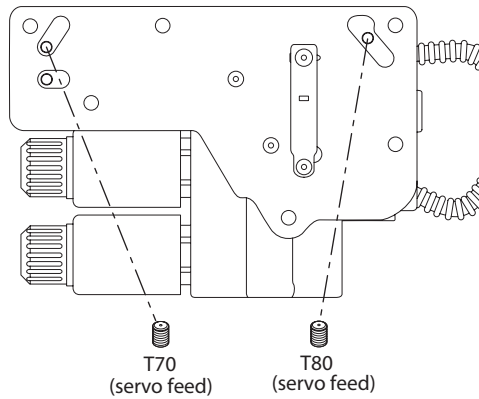


NOTE: This control is not available as a service part

Generic swashplate used to show link location only



View "A"



Possible orifice locations

E101 818E

* = included in control seal kit QM210

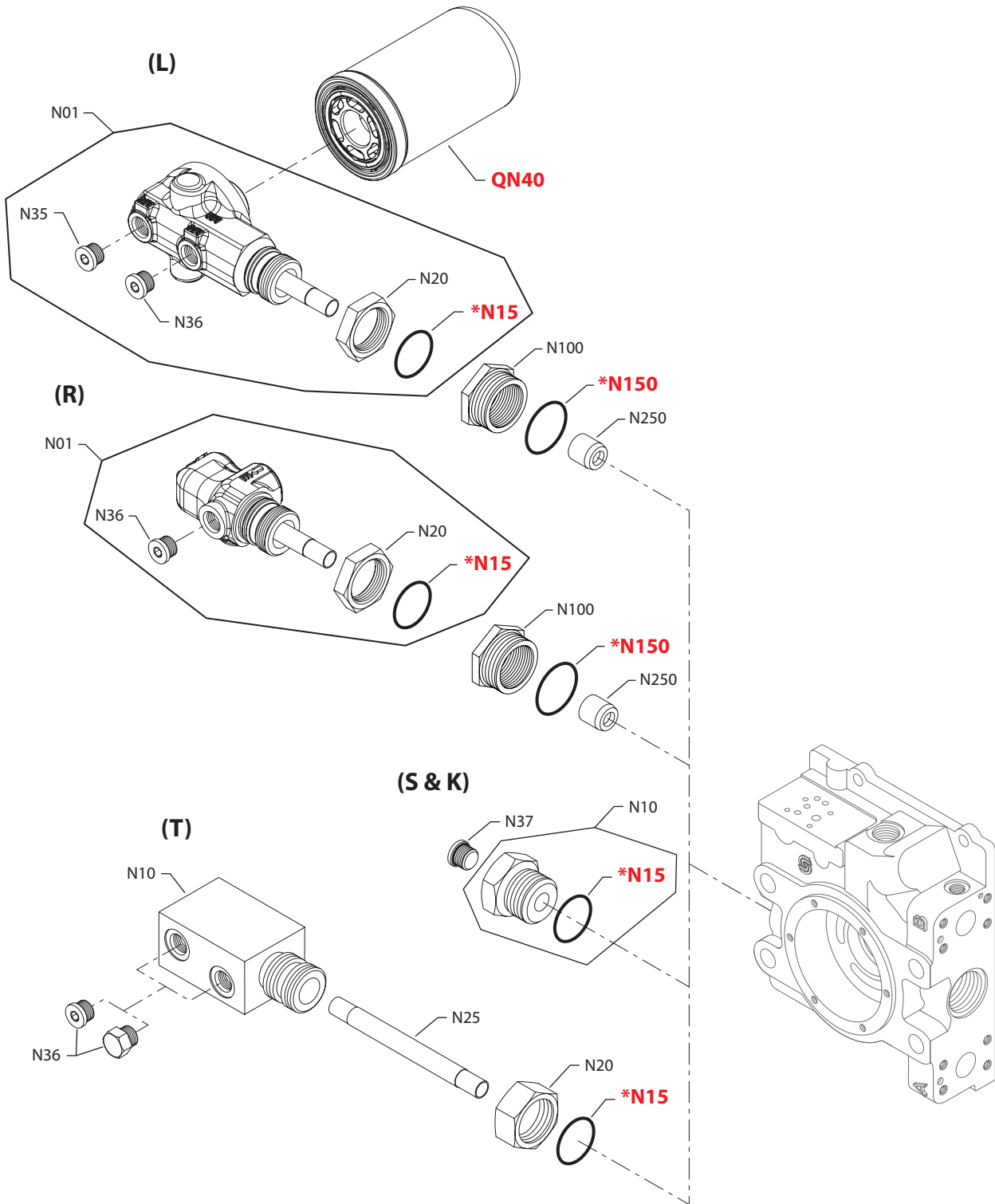
Enlarged **bold** type item numbers are recommended part to stock for servicing.


Variable displacement pump
Control

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
SA	M11	94-20		8800923	Control gasket	1
	M14	94-20		11072308	Feedback link	1
	M87	94-20	12-23	592386	Seal washer	1
	M90	94-20		694356	Screw	6
	QM210	94-20		11096320	Control seal kit	1
SB	M11	94-20		8800923	Control gasket	1
	M14	94-20		11072308	Feedback link	1
	M87	94-20	12-23	592386	Seal washer	1
	M90	94-20		694356	Screw	6
	QM210	94-20		11096320	Control seal kit	1
SD	M11	94-20		8800923	Control gasket	1
	M14	94-20		11072308	Feedback link	1
	M87	94-20	12-23	592386	Seal washer	1
	M90	94-20		694356	Screw	6
	QM210	94-20		11096320	Control seal kit	1
SE	M11	94-20		8800923	Control gasket	1
	M14	94-20		11072308	Feedback link	1
	M87	94-20	12-23	592386	Seal washer	1
	M90	94-20		694356	Screw	6
	QM210	94-20		11096320	Control seal kit	1



Variable displacement pump



E101 819E

* = included in overhaul seal kit Q210

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



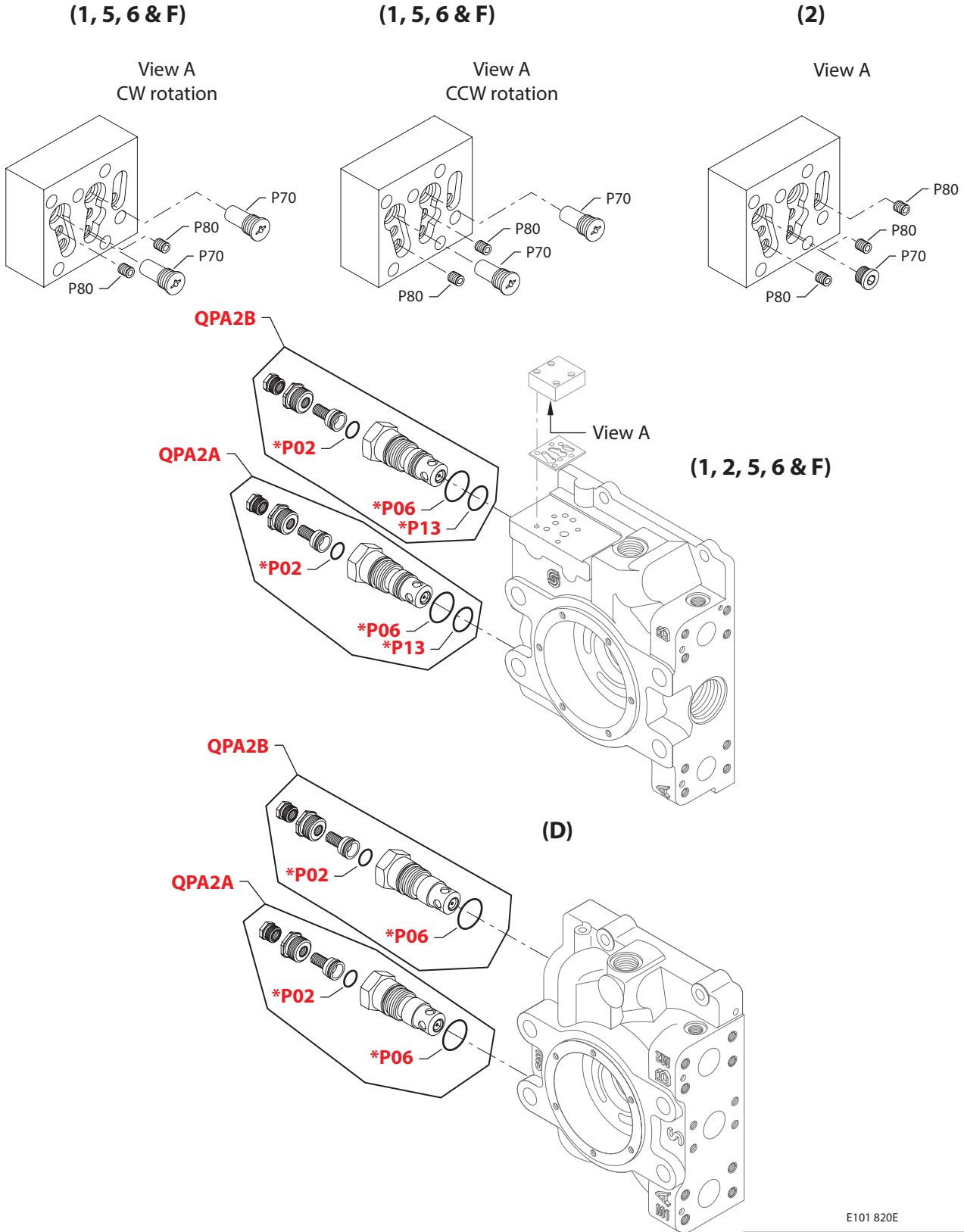
Variable displacement pump

Filtration

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
D				None		
K	N10	12-18		11115186	Reducer fitting assembly, metric	1
	N15	12-18		093823 (9004201-9200)	O-ring	1
	N37	12-18		731943	Plug assembly, M22	1
L	N15	10-44		9004201-9000	O-ring	1
	N20	10-44		11049997	Nut	1
	N35	10-44		140644	Plug assembly	1
	N36	10-44		140644	Plug assembly	1
	N100	10-44		781401	Reducer	1
	N150	10-44		093823 (9004201-9200)	O-ring	1
	N250	10-44		789404	Tube bushing	1
	QN01	10-44		11145361	Filter manifold kit, intergal	1
	QN40	10-44		11004919	Filter	1
R	N01	94-20		11060430	Filter manifold assembly, remote	1
	N15	94-20		9004201-9000	O-ring	1
	N20	94-20		11049997	Nut	1
	N36	94-20		140644	Plug assembly	2
	N100	94-20		781401	Reducer	1
	N150	94-20		093823 (9004201-9200)	O-ring	1
	N250	94-20		789404	Tube bushing	1
S	N10	94-20		757831	Reducer fitting assembly	1
	N15	94-20		093823 (9004201-9200)	O-ring	1
	N37	94-20		140644	Plug assembly	1
T	N10	94-20		507014	Filter manifold	1
	N15	94-20		093823 (9004201-9200)	O-ring	1
	N20	94-20		11139975	Nut	1
	N25	94-20		507016	Tube	1
	N36	94-20		140644	Plug assembly	2



Variable displacement pump



E101 820E

* = included in overhaul seal kit Q210

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

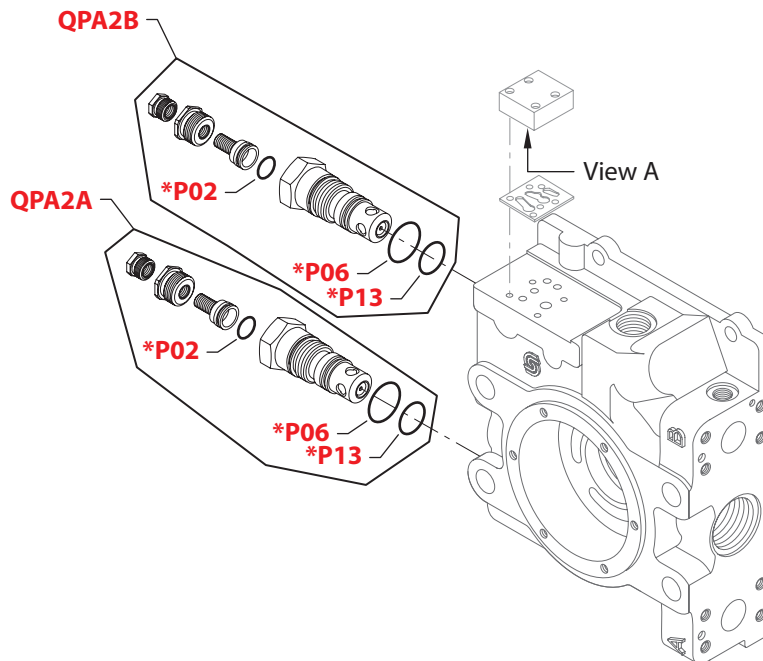
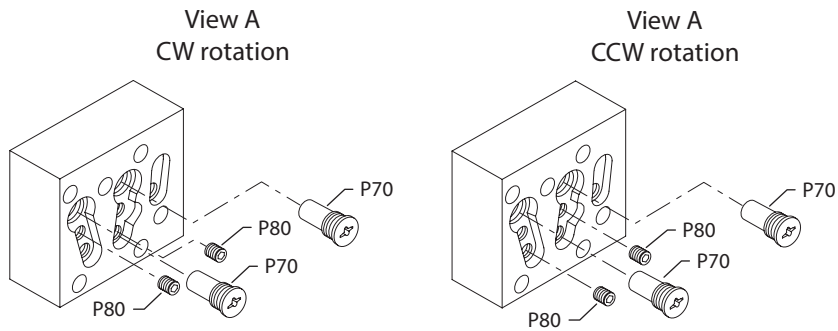

Variable displacement pump
High pressure regulation

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
1	P02	94-20		775080	O-ring	2
	P06	94-20		360784 (9004105-0290)	O-ring	2
	P13	94-20		775155	O-ring	2
	P70	94-20		8800188	Check valve	2
	P80	94-20		9005475-0004	Special plug	2
	QPA2A	94-20		8510023-1	Multi-function valve kit	1
	QPA2B	94-20		8510023-1	Multi-function valve kit	1
	2	P02	94-20		775080	O-ring
P06		94-20		360784 (9004105-0290)	O-ring	2
P13		94-20		775155	O-ring	2
P70		94-20		327007 (9005110-4400)	Plug assembly	1
P80		94-20		9005475-0004	Pipe plug	3
QPA2A		94-20		8510023-2	Multi-function valve kit	1
QPA2B		94-20		8510023-2	Multi-function valve kit	1
5		P02	94-20		775080	O-ring
	P06	94-20		360784 (9004105-0290)	O-ring	2
	P13	94-20		775155	O-ring	2
	P70	94-20		8800188	Check valve	2
	P80	94-20		9005475-0004	Special plug	2
	QPA2A	94-20		8510274	Multi-function valve kit	1
	QPA2B	94-20		8510274	Multi-function valve kit	1
	6	P02	94-20		775080	O-ring
P06		94-20		360784 (9004105-0290)	O-ring	2
P13		94-20		775155	O-ring	2
P70		94-20		8800188	Check valve	2
P80		94-20		9005475-0004	Special plug	2
QPA2A		94-20		8510023-6	Multi-function valve kit	1
QPA2B		94-20		8510023-6	Multi-function valve kit	1
D		P02	94-20		775080	O-ring
	P06	94-20		360784 (9004105-0290)	O-ring	2
	QPA2A	94-20		11086466	Multi-function valve kit	1
	QPA2B	94-20		11086466	Multi-function valve kit	1
F	P02	94-20		775080	O-ring	2
	P06	94-20		360784 (9004105-0290)	O-ring	2
	P13	94-20		775155	O-ring	2
	P70	94-20		8800188	Check valve	2
	P80	94-20		9005475-0004	Special plug	2
	QPA2A	94-20		8510023-2	Multi-function valve kit	1
	QPA2B	94-20		8510023-2	Multi-function valve kit	1

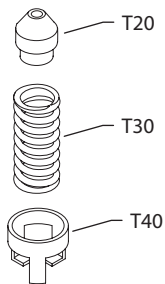


Variable displacement pump

(P)

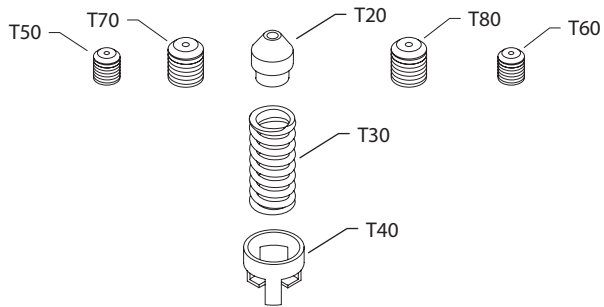


(02, 03, 04, 05,
06, 09 & 22)



See control drawing
for orifice location

(30)



See control drawing
for orifice location

E101 821E

* = included in overhaul seal kit Q210

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



Variable displacement pump

High pressure regulation

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
P	P02	94-20		775080	O-ring	2
	P06	94-20		360784 (9004105-0290)	O-ring	2
	P13	94-20		775155	O-ring	2
	P70	94-20		8800188	Check valve	2
	P80	94-20		9005475-0004	Special plug	2
	QPA2A	94-20		8510292	Multi-function valve kit	1
	QPA2B	94-20		8510292	Multi-function valve kit	1

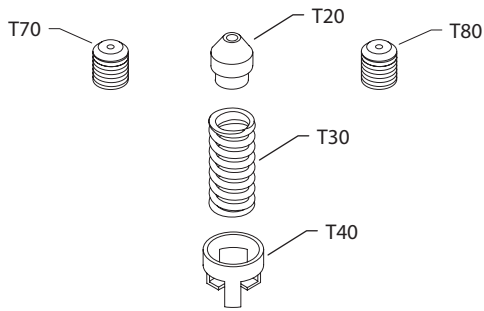
Orifice

00				None		
02	T20	94-20		8801139	Orificed check valve, .026"	1
	T30	94-20		679506 (8700007)	Spring	1
	T40	94-20		8801303	Spring retainer	1
03	T20	94-20		11061958	Orificed check valve, .81mm	1
	T30	94-20		679506 (8700007)	Spring	1
	T40	94-20		8801303	Spring retainer	1
04	T20	94-20		11061970	Orificed check valve, 1.02mm	1
	T30	94-20		679506 (8700007)	Spring	1
	T40	94-20		8801303	Spring retainer	1
05	T20	94-20		11061981	Orificed check valve, 1.37mm	1
	T30	94-20		679506 (8700007)	Spring	1
	T40	94-20		8801303	Spring retainer	1
06	T20	94-20		11061993	Orificed check valve, 1.57mm	1
	T30	94-20		679506 (8700007)	Spring	1
	T40	94-20		8801303	Spring retainer	1
09	T20	94-20		11062006	Orificed check valve, 2.34mm	1
	T30	94-20		679506 (8700007)	Spring	1
	T40	94-20		8801303	Spring retainer	1
22	T20	94-20		8801137	Orificed check valve, .022"	1
	T30	94-20		679506 (8700007)	Spring	1
	T40	94-20		8801303	Spring retainer	1
30	T20	94-20		8801139	Orificed check valve, 0.26"	1
	T30	94-20		679506 (8700007)	Spring	1
	T40	94-20		8801303	Spring retainer	1
	T50	94-20		639153	Orifice plug, 1.3mm, M5 x 6	1
	T60	94-20		639153	Orifice plug, 1.3mm, M5 x 6	1
	T70	94-20		704650	Orifice plug, 0.7mm, M8 x 8	1
	T80	94-20		704650	Orifice plug, 0.7mm, M8 x 8	1
33				None		



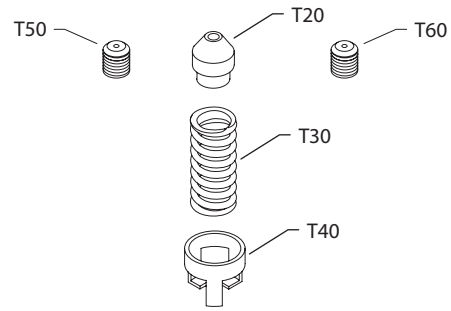
Variable displacement pump

(38 & 54)



See control drawing
for orifice location

(44, 45, 46 & 49)



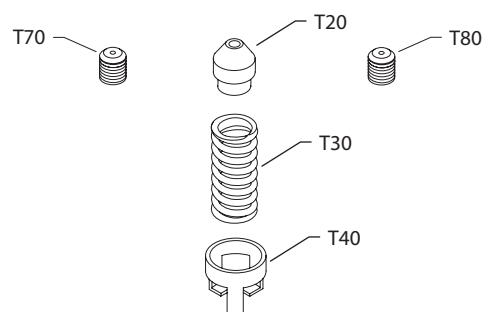
See control drawing
for orifice location

(72)



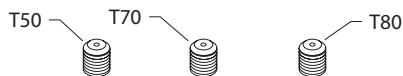
See control drawing
for orifice location

(76)



See control drawing
for orifice location

(82)



See control drawing
for orifice location

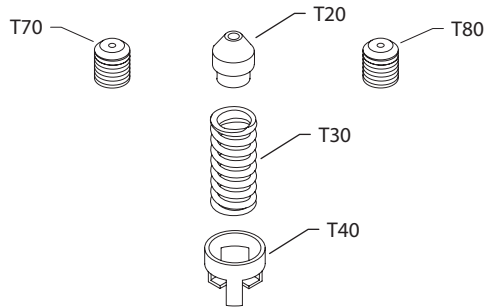

Variable displacement pump
Orifice

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
38	T20	94-20		8801139	Orificed check valve, 0.26"	1
	T30	94-20		679506 (8700007)	Spring	1
	T40	94-20		8801303	Spring retainer	1
	T70	94-20		716837	Orifice plug, 0.6mm, M8 x 8	1
	T80	94-20		716837	Orifice plug, 0.6mm, M8 x 8	1
44	T20	94-20		11061981	Orificed check valve, 1.37mm	1
	T30	94-20		679506 (8700007)	Spring	1
	T40	94-20		8801303	Spring retainer	1
	T50	94-20		598292	Orifice plug, 0.8mm, M5 x 6	1
	T60	94-20		598292	Orifice plug, 0.8mm, M5 x 6	1
45	T20	94-20		11061958	Orificed check valve, 0.81mm	1
	T30	94-20		679506 (8700007)	Spring	1
	T40	94-20		8801303	Spring retainer	1
	T50	94-20		639153	Orifice plug, 1.3mm, M5 x 6	1
	T60	94-20		639153	Orifice plug, 1.3mm, M5 x 6	1
46	T20	94-20		8801139	Orificed check valve, 0.026"	1
	T30	94-20		679506 (8700007)	Spring	1
	T40	94-20		8801303	Spring retainer	1
	T50	94-20		598292	Orifice plug, 0.8mm, M5 x 6	1
	T60	94-20		598292	Orifice plug, 0.8mm, M5 x 6	1
49	T20	94-20		11061958	Orificed check valve, 0.81mm	1
	T30	94-20		679506 (8700007)	Spring	1
	T40	94-20		8801303	Spring retainer	1
	T50	94-20		639120	Orifice plug, 1.0mm, M5 x 6	1
	T60	94-20		639120	Orifice plug, 1.0mm, M5 x 6	1
54	T20	94-20	12-29	11061970	Orificed check valve, 1.02mm	1
	T30	94-20	12-29	679506 (8700007)	Spring	1
	T40	94-20	12-29	8801303	Spring retainer	1
	T70	94-20	12-29	755793	Orifice plug, 1.0mm, M8 x 8	1
	T80	94-20	12-29	755793	Orifice plug, 1.0mm, M8 x 8	1
72	T50	15-32		639120	Orifice plug, 1.0mm, M5 x 6	1
	T60	15-32		639120	Orifice plug, 1.0mm, M5 x 6	1
76	T20	94-20		8801139	Orificed check valve, 0.26"	1
	T30	94-20		679506 (8700007)	Spring	1
	T40	94-20		8801303	Spring retainer	1
	T70	94-20		578542	Orifice plug, 0.8mm, M6 x 8	1
	T80	94-20		578542	Orifice plug, 0.8mm, M6 x 8	1
82	T50	94-20		310771	Orifice plug, 1.2 mm, M6 x 6	1
	T70	94-20		310771	Orifice plug, 1.2 mm, M6 x 6	1
	T80	94-20		310771	Orifice plug, 1.2 mm, M6 x 6	1



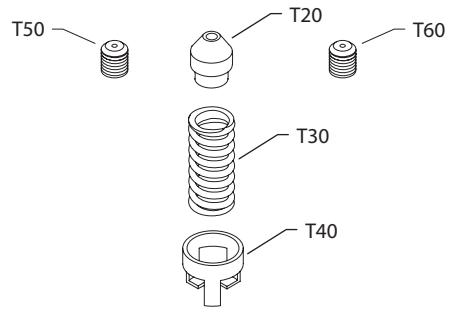
Variable displacement pump

(99 & A7)



See control drawing
for orifice location

(A3, C5 & C6)



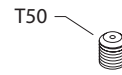
See control drawing
for orifice location

(A4 & B2)



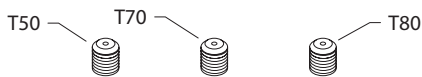
See control drawing
for orifice location

(B1 & B9)



See control drawing
for orifice location

(B5)



See control drawing
for orifice location

(C4)



See control drawing
for orifice location

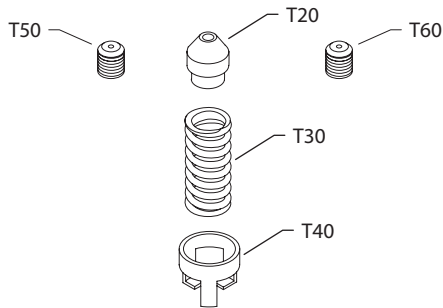

Variable displacement pump
Orifice

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
99	T20	94-20		8801301	Orificed check valve, 0.47"	1
	T30	94-20		679506 (8700007)	Spring	1
	T40	94-20		8801303	Spring retainer	1
	T70	94-20		517572	Orifice plug, 1.5 mm, M6 x 6	1
	T80	94-20		517572	Orifice plug, 1.5 mm, M6 x 6	1
A3	T20	94-20		11061958	Orificed check valve, 0.81 mm	1
	T30	94-20		679506 (8700007)	Spring	1
	T40	94-20		8801303	Spring retainer	1
	T50	94-20		704650	Orifice plug, 0.7 mm, M8 x 8	1
	T60	94-20		704650	Orifice plug, 0.7 mm, M8 x 8	1
A4	T70	94-20		578542	Orifice plug, 0.8 mm, M6 x 8	1
	T80	94-20		578542	Orifice plug, 0.8 mm, M6 x 8	1
A7	T20	94-20		11061958	Orificed check valve, 0.81 mm	1
	T30	94-20		679506 (8700007)	Spring	1
	T40	94-20		8801303	Spring retainer	1
	T70	94-20		578542	Orifice plug, 0.8 mm, M6 x 8	1
	T80	94-20		578542	Orifice plug, 0.8 mm, M6 x 8	1
B1	T50	94-20		507042	Orifice plug, 1.5 mm, M6 x 8	1
B2	T70	94-20		310771	Orifice plug, 1.2 mm, M6 x 6	1
	T80	94-20		310771	Orifice plug, 1.2 mm, M6 x 6	1
B5	T50	94-20		507042	Orifice plug, 1.5 mm, M6 x 8	1
	T70	94-20		518215	Orifice plug, 2.2 mm, M6 x 6	1
	T80	94-20		518215	Orifice plug, 2.2 mm, M6 x 6	1
B9	T50	94-20		516598	Orifice plug, 1.2 mm, M6 x 8	1
C4	T50	94-20		639161	Orifice plug, 1.4 mm, M5 x 6	1
	T60	94-20		639161	Orifice plug, 1.4 mm, M5 x 6	1
C5	T20	94-20		11061958	Orificed check valve, 0.81 mm	1
	T30	94-20		679506 (8700007)	Spring	1
	T40	94-20		8801303	Spring retainer	1
	T50	94-20		639161	Orifice plug, 1.4 mm, M5 x 6	1
	T60	94-20		639161	Orifice plug, 1.4 mm, M5 x 6	1
C6	T20	94-20		11061970	Orificed check valve, 1.02 mm	1
	T30	94-20		679506 (8700007)	Spring	1
	T40	94-20		8801303	Spring retainer	1
	T50	94-20		639161	Orifice plug, 1.4 mm, M5 x 6	1
	T60	94-20		639161	Orifice plug, 1.4 mm, M5 x 6	1



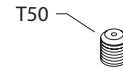
Variable displacement pump

(C7 & GT)



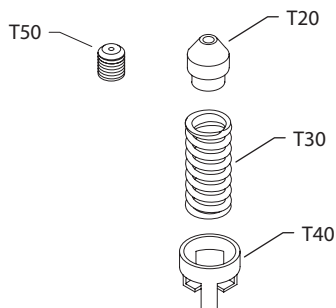
See control drawing
for orifice location

(G1)



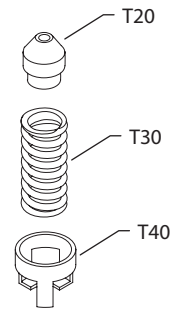
See control drawing
for orifice location

**(G4, G8, GB, GD, GF
& GJ)**



See control drawing
for orifice location

(K1)



See control drawing
for orifice location

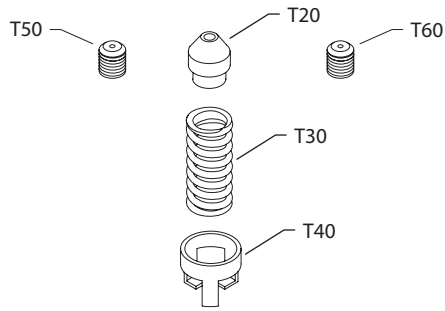

Variable displacement pump
Orifice

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
C7	T20	94-20		11061981	Orificed check valve, 1.02 mm	1
	T30	94-20		679506 (8700007)	Spring	1
	T40	94-20		8801303	Spring retainer	1
	T50	94-20		639161	Orifice plug, 1.4 mm, M5 x 6	1
	T60	94-20		639161	Orifice plug, 1.4 mm, M5 x 6	1
G1	T50	94-20		310771	Orifice plug, 1.2 mm, M6 x 6	1
G4	T20	94-20		8801136	Orificed check valve, .018"	1
	T30	94-20		679506 (8700007)	Spring	1
	T40	94-20		8801303	Spring retainer	1
	T50	94-20		310771	Orifice plug, 1.2 mm, M6 x 6	1
G8	T20	94-20		8801139	Orificed check valve, .026"	1
	T30	94-20		679506 (8700007)	Spring	1
	T40	94-20		8801303	Spring retainer	1
	T50	94-20		310771	Orifice plug, 1.2 mm, M6 x 6	1
GB	T20	94-20		11061958	Orificed check valve, 0.81mm	1
	T30	94-20		679506 (8700007)	Spring	1
	T40	94-20		8801303	Spring retainer	1
	T50	94-20		310771	Orifice plug, 1.2 mm, M6 x 6	1
GD	T20	94-20		11061993	Orificed check valve, 1.57mm	1
	T30	94-20		679506 (8700007)	Spring	1
	T40	94-20		8801303	Spring retainer	1
	T50	94-20		310771	Orifice plug, 1.2 mm, M6 x 6	1
GF	T20	94-20		11061970	Orificed check valve, 1.02mm	1
	T30	94-20		679506 (8700007)	Spring	1
	T40	94-20		8801303	Spring retainer	1
	T50	94-20		310771	Orifice plug, 1.2 mm, M6 x 6	1
GJ	T20	94-20		11061981	Orificed check valve, 1.37mm	1
	T30	94-20		679506 (8700007)	Spring	1
	T40	94-20		8801303	Spring retainer	1
	T50	94-20		310771	Orifice plug, 1.2 mm, M6 x 6	1
GT	T20	94-20		11061958	Orificed check valve, 0.81 mm	1
	T30	94-20		679506 (8700007)	Spring	1
	T40	94-20		8801303	Spring retainer	1
	T50	94-20		714477	Orifice plug, 0.8 mm, M8 x 8	1
	T60	94-20		714477	Orifice plug, 0.8 mm, M8 x 8	1
K1	T20	94-20		11061981	Orificed check valve, 1.37 mm	1
	T30	94-20		679506 (8700007)	Spring	1
	T40	94-20		8801303	Spring retainer	1



Variable displacement pump

(K4)



See control drawing
for orifice location

(P1)



See control drawing
for orifice location


Variable displacement pump
Orifice

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
K4	T20	94-20		11061981	Orificed check valve, 1.37 mm	1
	T30	94-20		679506 (8700007)	Spring	1
	T40	94-20		8801303	Spring retainer	1
	T50	94-20		598292	Orifice plug, 0.8 mm, M5 x 6	1
	T60	94-20		598292	Orifice plug, 0.8 mm, M5 x 6	1
	P1	T70	94-20		508014	Orifice plug, 1.0 mm, M6 x 8
T80		94-20		508014	Orifice plug, 1.0 mm, M6 x 8	1

Overhaul seal kit

	Q210	94-20		11095663	Service seal kit, base pump, 180cc	1
	C70	94-20		308643	Screw, M8	4
	E40	94-20		042432	Seal nut, M10	2
	E50	94-20		517380	O-ring	1
	E60	94-20		517231	Screw, M10	6
	F11	94-20		000927 (9004100-2260)	O-ring,	2
	F11	94-20		504627	O-ring	2
	F11	94-20		755264	O-ring	2
	F12	94-20		507801	Piston ring	2
	F12	94-20		515689	Piston ring	2
	F12	94-20		507802	Piston ring	2
	F40	94-20		9004104-1520	O-ring	2
	F50	94-20		755272	O-ring	2
	F112	94-20		649822	Seal nut, M14	1
	F124	94-20		074542	Seal nut, M16	1
	F212	94-20		649822	Seal nut, M14	1
	F224	94-20		074542	Seal nut, M16	1
	G09	94-20		689117	Gasket	1
	G30	94-20		511809	End cap gasket	1
	J40	94-20		916940	O-ring	1
	J50	94-20		505068	O-ring	1
	K50	94-20		001156 (9004201-7500)	O-ring	1
	L25	94-20		512637	Shaft seal carrier assembly	1
	N15	94-20		9004201-9000	O-ring	1
	N150	94-20		093823 (9004201-9200)	O-ring	1
	P02	94-20		775080 (9004100-0170)	O-ring	2
	P06	94-20		360784 (9004105-0290)	O-ring	2
	P13	94-20		775155	O-ring	2



Service bulletin: SB-1995-007

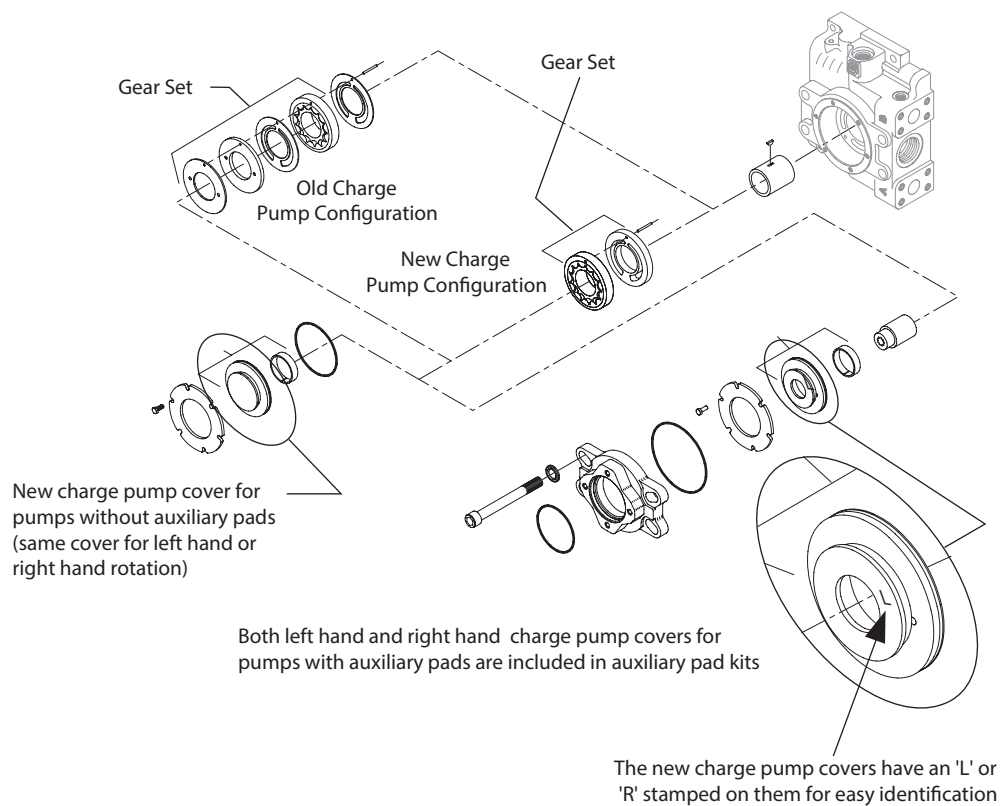
Products affected Series 90 180 variable pumps

Subject Charge pump design change

Description To improve efficiency and reliability, the number of charge pump parts in the Series 90 180cc pump is being reduced. The charge pump design is being changed to make the outer port plate an integral part of the charge pump cover and to eliminate the distance plates.

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

The complete charge pump assembly can be interchanged with corresponding hardware. However, piece parts are not interchangeable.





Service bulletin: SB-1995-007

Models affected All 982xxxx variable pumps

Serial numbers Change occurred at serial number N-94-06-xxxxx.

Part numbers affected

Obsolated Charge Pump Parts			Chg. pump displacement	Auxiliary pad	Rotation	Replacement Kit
Gear Set	Shaft	Cover				
778779	750141	347518	34 cc	No	LH or RH	8510091
		347526		Yes	LH	8510092
		347526		Yes	RH	8510093
750125	750141	347518	47 cc	No	LH or RH	8510094
		347526		Yes	LH	8510095
		347526		Yes	RH	8510096

The following information pertains to "L" charge pump option only:

Old Shaft	Old Cover	Auxiliary pad	Rotation	Replacement cover	Replacement shaft
750141	347518	No	LH or RH	501400	503519
	347526	Yes	LH	501401	
			RH	501402	

Parts disposition ■ Interchangeable - piece parts are not interchangeable



Service Bulletin: SB-1996-004

Products affected

Series 90 42, 130, 180, and 250cc variable pumps

Subject

Side cover design change

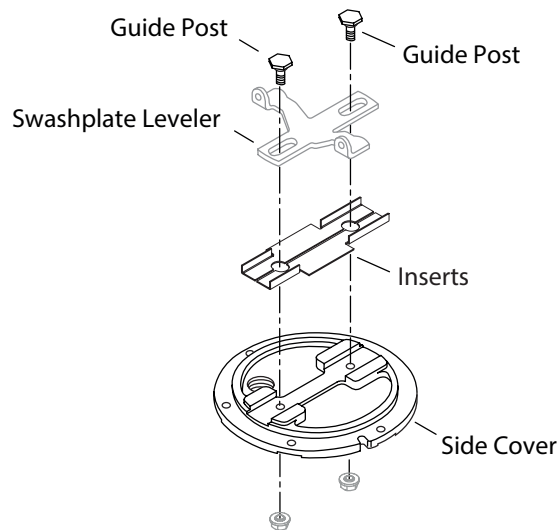
Description

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

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

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

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



Models affected

All series 42, 130, 180, and 250cc variable pumps

Serial numbers

Change occurred at serial number N-96-08-xxxxx.

Part numbers affected

Description	Old part numbers		New part numbers		
	Guide post	Side cover	Insert assy.	Guide post	Replacement kit
42 cc	344465	751305	506916	506369	506380
130 cc	503205	746107	8300004	506368	11027814
180 cc	503205	746404	506914	506368	506290
250 cc	503205	746404	506914	506368	506290

Parts disposition

■ Interchangeable - piece parts are not interchangeable

**Service Bulletin: SB-1999-065A**

Products affected	Series 90 75, 100, 130, 180, and 250cc variable displacement pumps
Subject	Hydraulic displacement control gasket and swashplate bearing locator pin retention
Description	<p>The Series 90 75cc, 100cc, 130cc, 180cc, and 250cc variable displacement pumps utilize a common gasket to seal the joint between the displacement control housing and main pump housing.</p> <p>In November 1998, Sauer-Danfoss introduced a new gasket design for Hydraulic Displacement Controls (HDC - all options), version 2 Electrical Displacement Controls (EDC2 - options EE and EN), and two amp current control (options PA and PB) equipped pumps (see SB-1998-038). The purpose of this gasket is primarily to seal the joint and aid in the retention of the bearing cage locator pin in the main pump housing. Sauer-Danfoss has identified that the new gasket may not adequately aid in the retention of this pin in 75cc pump sizes due to casting and machining tolerances. Installations which are particularly sensitive to pin retention include those oriented with the control on the side or on the bottom when the pump is installed. In these types of installations, it is possible for the pin to come out of its position in the pump housing. This will result in a loss of alignment between the swashplate and swashplate bearing assembly and the potential for erratic pump control and/or system performance.</p> <p>To address this situation, Sauer-Danfoss has introduced a design modification to the control gasket. The modification will insure that the cage locator pin is retained in 75cc pumps in all circumstances, while still maintaining the desired gasket clamp load to avoid leaks.</p> <p>The new gasket is completely interchangeable with the previous gasket. Sauer-Danfoss recommends that the previous control gasket be replaced immediately on 75cc pump assemblies, with controls noted above, in which the control is on the side or on the bottom of the pump. The pump serial numbers involved are A-98-41-xxxxx through A-99-49-xxxxx. It is not required to replace the gasket in pumps with the control in the up position, until the initial servicing of the pump assembly.</p> <p>The 100cc, 130cc, 180cc, and 250cc pumps are not dependent upon the gasket to maintain retention of the bearing cage locator pin and are not affected by the information above.</p> <p>The new gasket has replaced the previous gasket in all new pump assemblies with Hydraulic Displacement Control (HDC), version 2 Electrical Displacement Control (EDC2 - EE and EN), and two amp current (PA and PB) controls. The new gasket has also been placed in all appropriate control kits and overhaul seal kits. Page 3 of this bulletin will assist you in identifying the new gasket from the previous gasket.</p>
Models affected	95-2xxx, 952xxxx, 96-2xxx, 962xxxx, 97-2xxx, 972xxxx, 98-2xxx, 982xxxx, 99-2xxx, and 992xxxx variable displacement pumps equipped with hydraulic displacement controls and specific option electronic displacement control. (EE, EN, PA, PB)
Serial numbers	Sauer-Danfoss Ames 75cc pump production: A-99-50-xxxxx. Sauer-Danfoss Ames 100cc pump production: A-00-25-xxxxx. Sauer-Danfoss Neumunster production: N-00-01-xxxxx.



Service Bulletin: SB-1999-065A

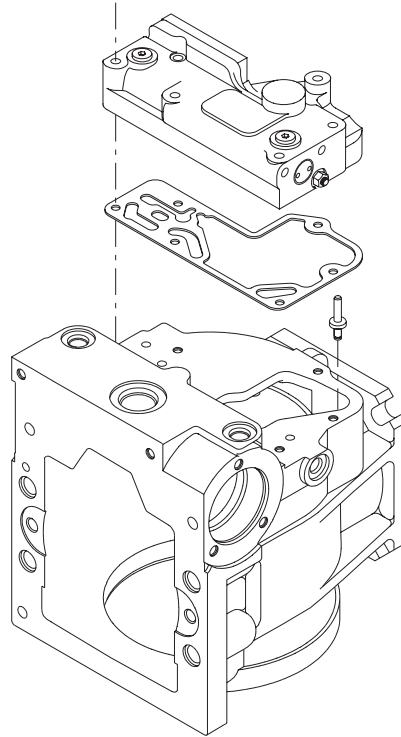
Part numbers affected

Previous gasket	New gasket
511608	8801241

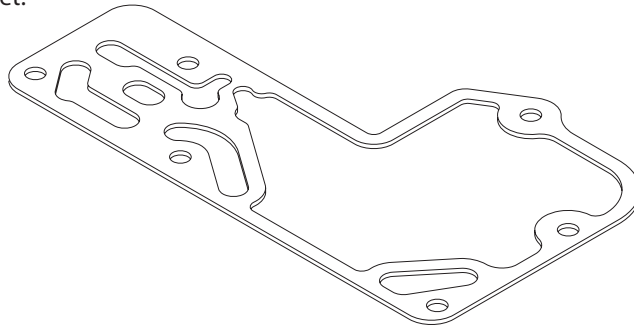
Parts disposition

■ Interchangeable

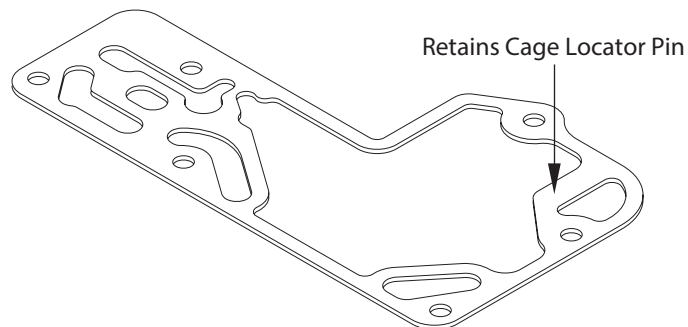
Control Gasket Location:



Previous Gasket:



New Gasket:



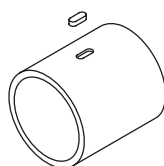


Service Bulletin: SB-1996-010

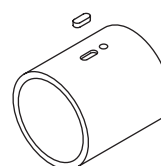
Products affected Series 90 180cc variable pumps

Subject Charge pump shaft

Description As a product improvement, Sauer-Danfoss has changed the charge pump drive shaft. This change will incorporate two drain holes in the shaft. These drain holes will prevent pressure build up at the end of the pump input shaft. Relieving this pressure reduces the axial load on the shaft and increases the life of the front roller bearing. The old charge pump shaft part number will become obsolete and not available for service. The new shaft is a direct replacement and can be used in older 180cc pumps.



Old shaft



New shaft

Models affected All series 180cc variable pumps

Serial numbers Change became effective at serial number N-06-12-xxxxx.

Part numbers affected

Old part number	New part number
513437	11002443

Parts disposition ■ Interchangeable



Service Bulletin: SB-2009-074

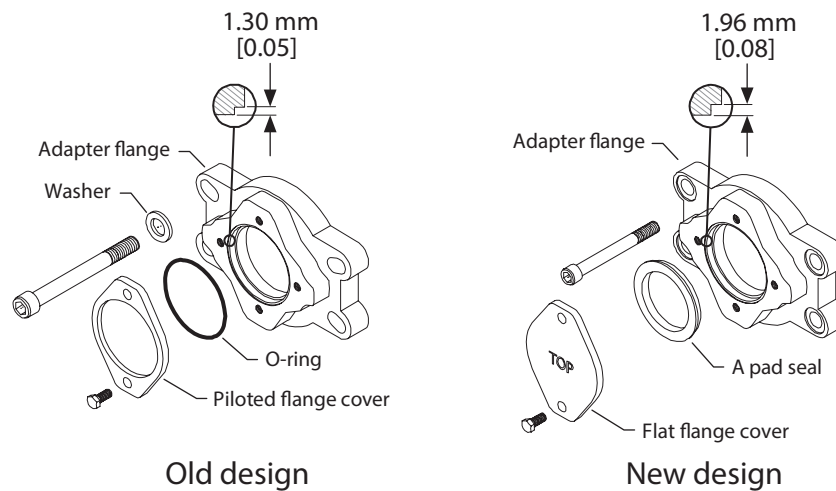
Products affected Series 90 42, 130, 180 and 250cc variable pumps

Subject SAE A auxiliary mounting flange, O-ring seal

Part numbers affected Sauer-Danfoss is pleased to announce a design improvement on the SAE A auxiliary mounting flange adapter on its series 90 pumps. The frame sizes affected by this change are 42, 130, 180 and 250cc. All manufacturing locations producing these pumps will be changed to this configuration.

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

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



Models affected All series 90 42, 130, 180 and 250cc pumps with an SAE A auxiliary mounting flange.

Serial numbers Change became effective at serial number N-09-30-xxxxx. (20 July 2009)

Part numbers affected

Description	Old part number	New part number	Used on
A flange adapter	511040	520944	42cc
A flange adapter	505113	520946	130cc
A flange adapter	505136	520949	180 and 250cc
O-ring	9004104-0420	9004104-1520	all sizes
A pad seal	N/A	4800482	all sizes
Flange cover	9802336	4460586	all sizes

Parts disposition ■ Interchangeable if new O-ring or if the pad seal and new cover are used.



Service Bulletin: SB-2009-075

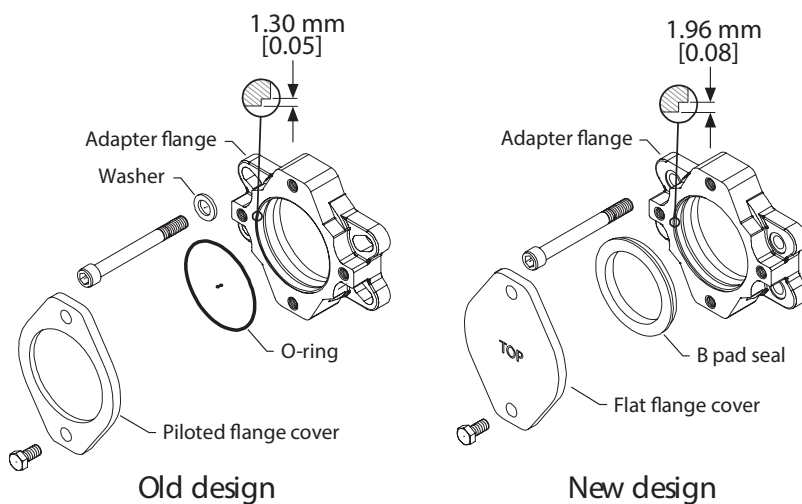
Products affected Series 90 42, 130, 180 and 250cc variable pumps

Subject SAE B auxiliary mounting flange, O-ring seal

Part numbers affected Sauer-Danfoss is pleased to announce a design improvement on the SAE B auxiliary mounting flange adapter on its series 90 pumps. The frame sizes affected by this change are 42, 130, 180 and 250cc. All manufacturing locations producing these pumps will be changed to this configuration.

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

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



Models affected All series 90 42, 130, 180 and 250cc pumps with an SAE B auxiliary mounting flange.

Serial numbers Change became effective at serial number N-09-30-xxxxx. (20 July 2009)

Part numbers affected

Description	Old part number	New part number	Used on
B flange adapter	506778	520945	42cc
B flange adapter	503230	520947	130cc
B flange adapter	11000255	11039180	130cc
B flange adapter	505132	520950	180 and 250cc
O-ring	9004104-0450	9004104-1540	all sizes
B pad seal	N/A	8801061	all sizes
Flange cover	4460370	8801059	all sizes

Parts disposition ■ Interchangeable if new O-ring or if the pad seal and new cover are used.



Service Bulletin: SB-2009-076

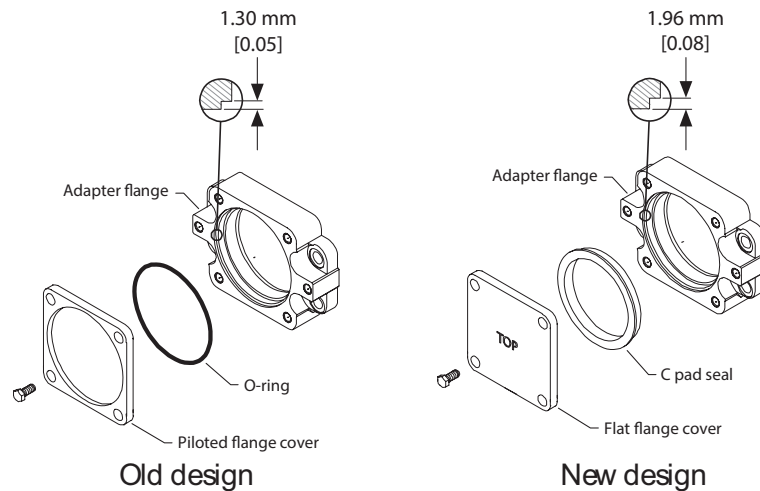
Products affected Series 90 130, 180 and 250cc variable pumps

Subject SAE C auxiliary mounting flange, O-ring seal

Part numbers affected Sauer-Danfoss is pleased to announce a design improvement on the SAE C auxiliary mounting flange adapter on its series 90 pumps. The frame sizes affected by this change are 130, 180 and 250cc. All manufacturing locations producing these pumps will be changed to this configuration.

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

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



All series 90 130, 180 and 250cc pumps with an SAE C auxiliary mounting flange.

Models affected

Change became effective at serial number N-09-30-xxxxx. (20 July 2009)

Serial numbers

Part numbers affected

Description	Old part number	New part number	Used on
C Flange adapter	505116	513617	130 cc
C Flange adapter	508407	11039184	130 cc
C Flange adapter	515116	513617	130 cc
C Flange adapter	505139	520951	180cc and 250cc
C Flange adapter	508406	11039178	180cc and 250cc
O-ring	9004100-0480	9004104-1580	All units
C pad seal	NA	8801062	All units
Flange cover	8800406	8801060	All units

Parts disposition

■ Interchangeable if new O-ring or if the pad seal and new cover are used.

Service Bulletin: SB-2011-032

Products affected Series 90 180cc variable pumps

Subject Pump redesign

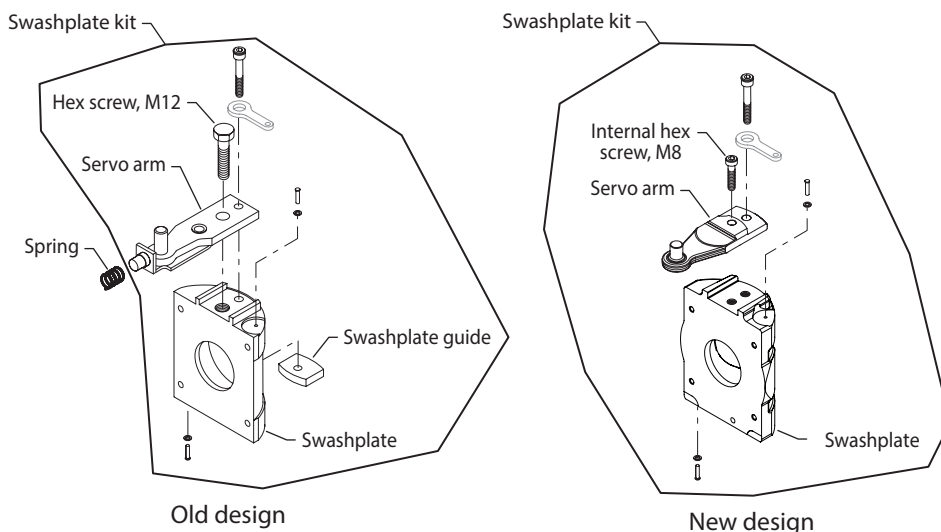
Description As a global improvement, the series 90 180/250cc pumps have redesigned the following components: servo arm, servo arm screw, swashplate guide and pump housing. This is a non-interchangeable change. Model numbers and order codes will not be changed.

A “one piece” servo arm is introduced. The pin that engages the servo piston is now machined as part of the servo arm instead of pressed in. The old servo arm will remain available as a service part for a period of time.

One of the two screws that hold the servo arm to the swashplate has changed from a M12 external hex to a M8 internal hex screw. The old screw will remain available as a service part for a period of time.

The swashplate position is now guided by the fit between the servo arm and the pump housing. A “shelf” on the servo arm fits under a boss in the housing to provide a fixed clearance. The swashplate was previously held down with a spring and bracket, which was riveted to the servo arm. The servo arm to housing clearance now limits lateral movement of the swashplate. The swashplate guide that was bolted to the bottom of the swashplate has been removed. The old swashplate guide will remain available as a service part for a period of time.

The housing is modified internally to provide the servo arm pivot. The old housing will remain available as a service part for a period of time.





Service Bulletin: SB-2011-032

Models affected Series 90, 180cc and 250cc pumps.

Serial numbers This change became effective at serial number A-11-40-xxxxx. (3 Oct 2011)

Part numbers affected

Description	Old part number	New part number
Housing 180cc assy without PPU	789438	11097202
Housing 180cc assy with PPU	519646	11097202
Swashplate 180cc	521426	11094403
Swashplate kit, 180cc	11107093	11097626
Housing 250cc with PPU assy	515967	11088644
Swashplate 250cc	521428	11088847
Swashplate kit, 250cc	11107094	11097784
Servo arm 180/250cc	746339	11061195
Screw, servo arm	746362	519150
Swashplate guide, 180/250cc	745703	not used
Spring	746396	not used

Parts disposition ■ Non-interchangeable



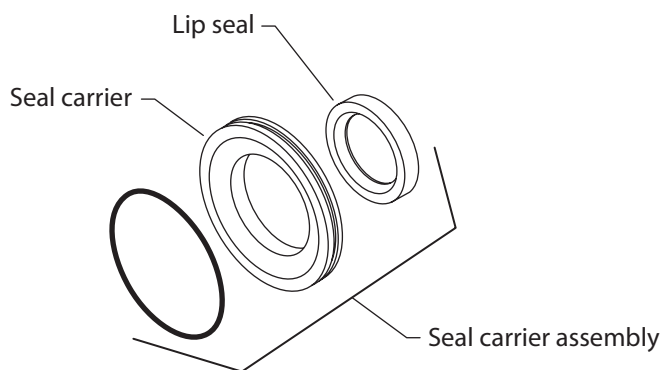
Service Bulletin: SB-2012-039

Products affected Series 90 180 and 250cc pumps

Subject Shaft seal change

Description A supplier change for the shaft seal used in Series 90 180 and 250cc pumps has been made as part of globalization of the entire Sauer-Danfoss product line. The new lip seal has a smaller O.D., and the I.D. of the seal carrier changed accordingly. The old lip seal and seal carrier will become obsolete and not available for service.

The seal carrier assembly part number has changed to better track this change. The new seal carrier assembly is interchangeable, but the piece parts are not.



Models affected Series 90 180 and 250cc pumps

Serial numbers This change became effective at serial number N-12-17-XXXXX (25-Apr-2012)

Part numbers affected

Description	Old part number	New part number
Seal carrier assembly	512637	11053971
Lip seal	9008000-0114	519021

Parts disposition Non-interchangeable
Order replacement parts
Revise existing part orders



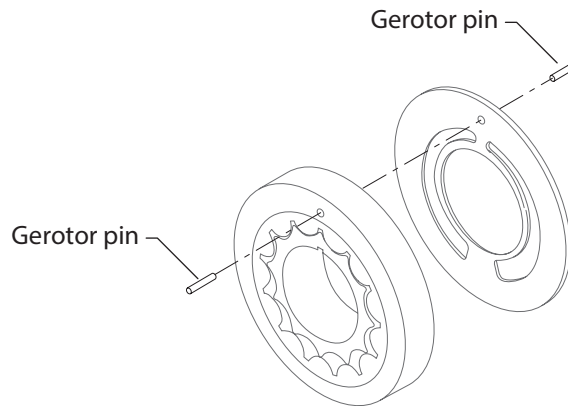
Service Bulletin: SB-2015-038

Products affected Series 90 130, 180 and 250cc pumps

Subject Gerotor pin change

Description As an assembly aid, some of the charge pump gerotor pins used in 130, 180 and 250cc pumps are being changed from one to two pins. This change is being made to reduce the chance of mis-locating the pin in the end cap or gerotor cover during the assembly process.

There will be three new lengths of pins used in these pumps. The new pin lengths will be 16, 20 and 26mm. To aid in the identification of the new pins, the 20mm pins will be yellow/gold in color.



Models affected Series 90, 130, 180 and 250cc pumps

Serial numbers

Frame size	NMS effectivity date
130 cc	N-15-14-xxxxx
180 cc	N-15-04-xxxxx
250 cc	N-15-02-xxxxx

Part numbers affected

Frame size	Old pin (1)		New pin (2)	
	Length	Part number	Length	Part number
130 cc	32mm	308718	16mm	11152774
180 cc	40mm	750133	20mm	11152775
250 cc	55mm	504507	26mm	11152778

Parts disposition Interchangeable
Use parts in stock



Notes



Products we offer:

- Bent Axis Motors
- Closed Circuit Axial Piston Pumps and Motors
- Displays
- Electrohydraulic Power Steering
- Electrohydraulics
- Hydraulic Power Steering
- Integrated Systems
- Joysticks and Control Handles
- Microcontrollers and Software
- Open Circuit Axial Piston Pumps
- Orbital Motors
- PLUS+1® GUIDE
- Proportional Valves
- Sensors
- Steering
- Transit Mixer Drives

Danfoss Power Solutions is a global manufacturer and supplier of high-quality hydraulic and electronic components. We specialize in providing state-of-the-art technology and solutions that excel in the harsh operating conditions of the mobile off-highway market. Building on our extensive applications expertise, we work closely with our customers to ensure exceptional performance for a broad range of off-highway vehicles.

We help OEMs around the world speed up system development, reduce costs and bring vehicles to market faster.
Danfoss – Your Strongest Partner in Mobile Hydraulics.

Go to www.powersolutions.danfoss.com for further product information.

Wherever off-highway vehicles are at work, so is Danfoss.

We offer expert worldwide support for our customers, ensuring the best possible solutions for outstanding performance. And with an extensive network of Global Service Partners, we also provide comprehensive global service for all of our components.

Please contact the Danfoss Power Solution representative nearest you.

Comatrol

www.comatrol.com

Schwarzmueller-Inverter

www.schwarzmueller-inverter.com

Turolla

www.turollaocg.com

Valmova

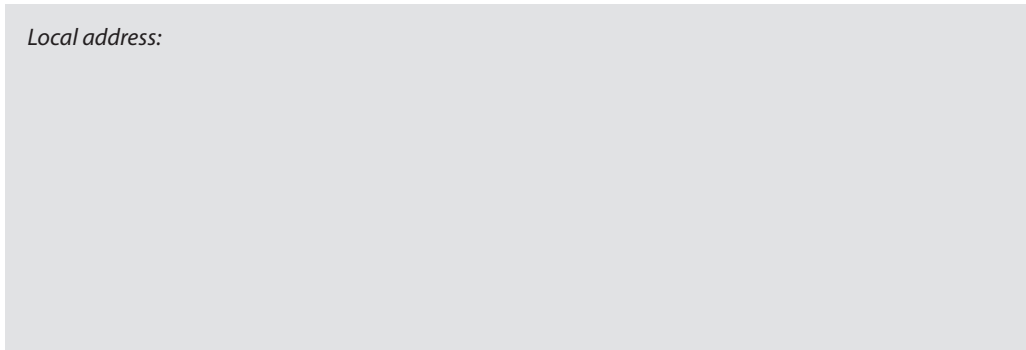
www.valmova.com

Hydro-Gear

www.hydro-gear.com

Daikin-Sauer-Danfoss

www.daikin-sauer-danfoss.com



Local address:

Danfoss Power Solutions US Company
2800 East 13th Street
Ames, IA 50010, USA
Phone: +1 515 239 6000

Danfoss Power Solutions GmbH & Co. OHG
Krokamp 35
D-24539 Neumünster, Germany
Phone: +49 4321 871 0

Danfoss Power Solutions ApS
Nordborgvej 81
DK-6430 Nordborg, Denmark
Phone: +45 7488 4444

Danfoss Power Solutions
Building #22, No. 1000 Jin Hai Rd
Jin Qiao, Pudong New District
Shanghai, China 201206
Phone: +86 21 3418 5200

Danfoss can accept no responsibility for possible errors in catalogues, brochures and other printed material. Danfoss reserves the right to alter its products without notice. This also applies to products already on order provided that such alterations can be made without consequential changes being necessary in specifications already agreed. All trademarks in this material are property of the respective companies. Danfoss and the Danfoss logotype are trademarks of Danfoss A/S. All rights reserved.