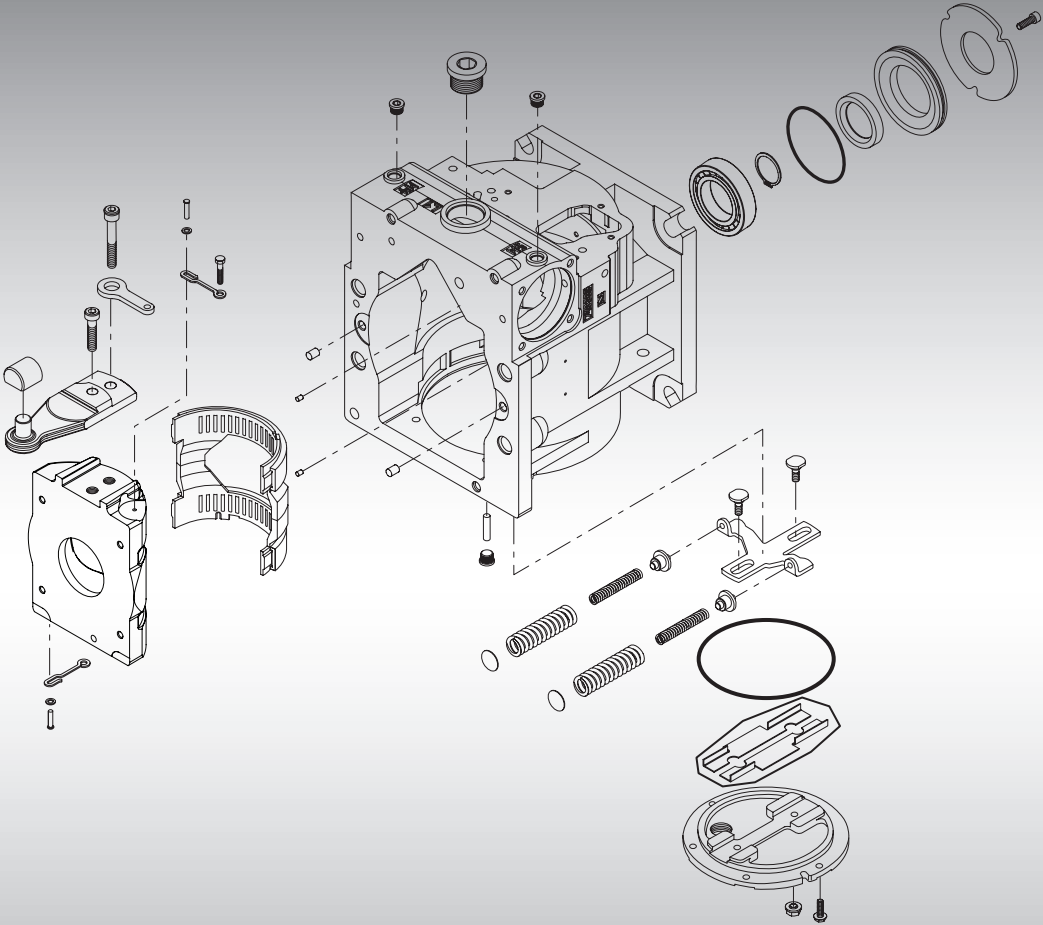




Parts Manual

Series 90

250cc Axial Piston Pump







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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, 250 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, 250 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 90L250 KA 1 BC 80 T 4 C8 K 03 NNN 42 42 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 "C8. (90L250 KA 1 BC 80 T 4 **C8** K 03 NNN 42 42 24)

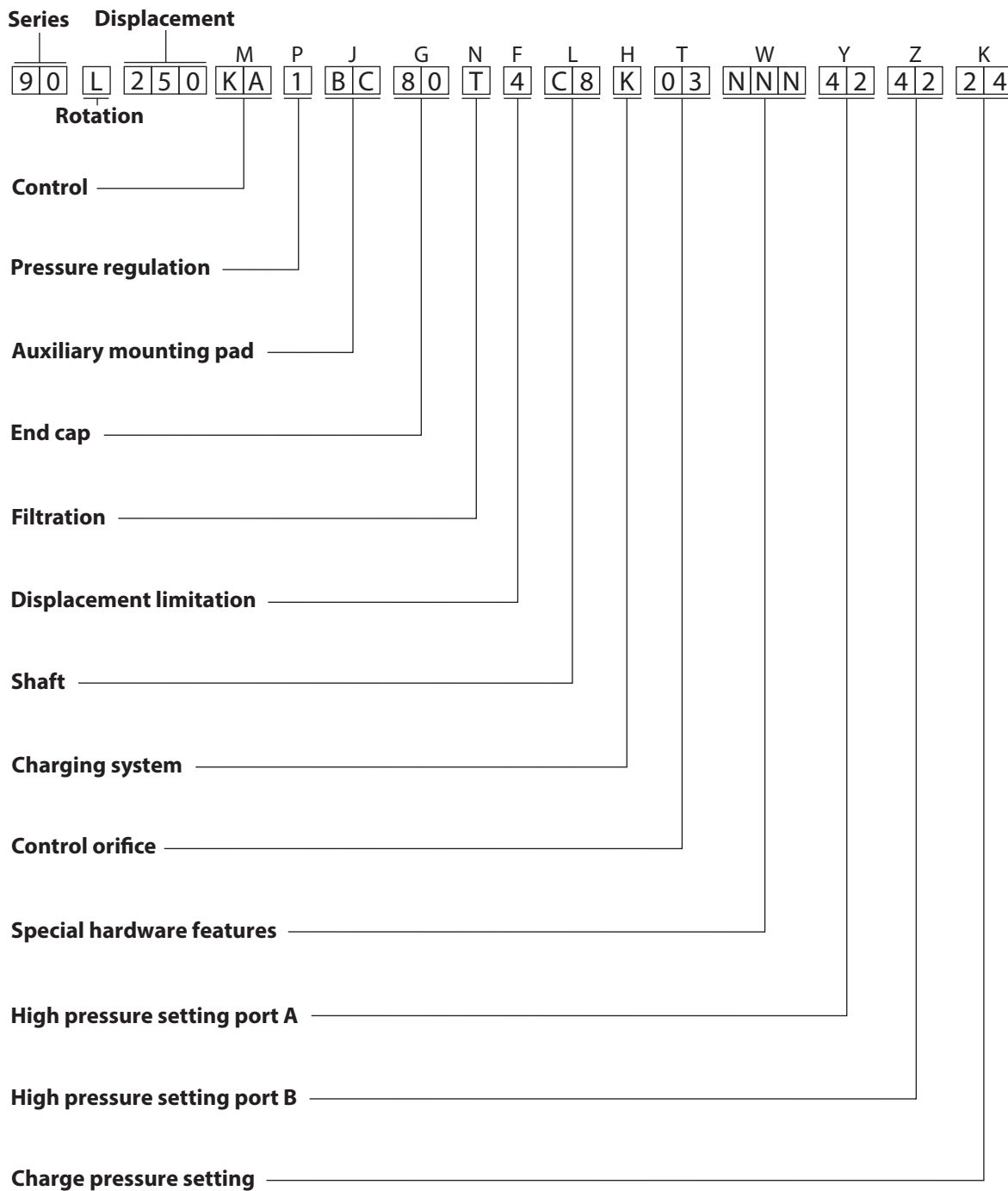
2) Referring to the Service Parts List, find the shaft group. Next find the order code that relates to this unit, which is "C8". The shaft is found to be item L100 and part number 504338.



Notes



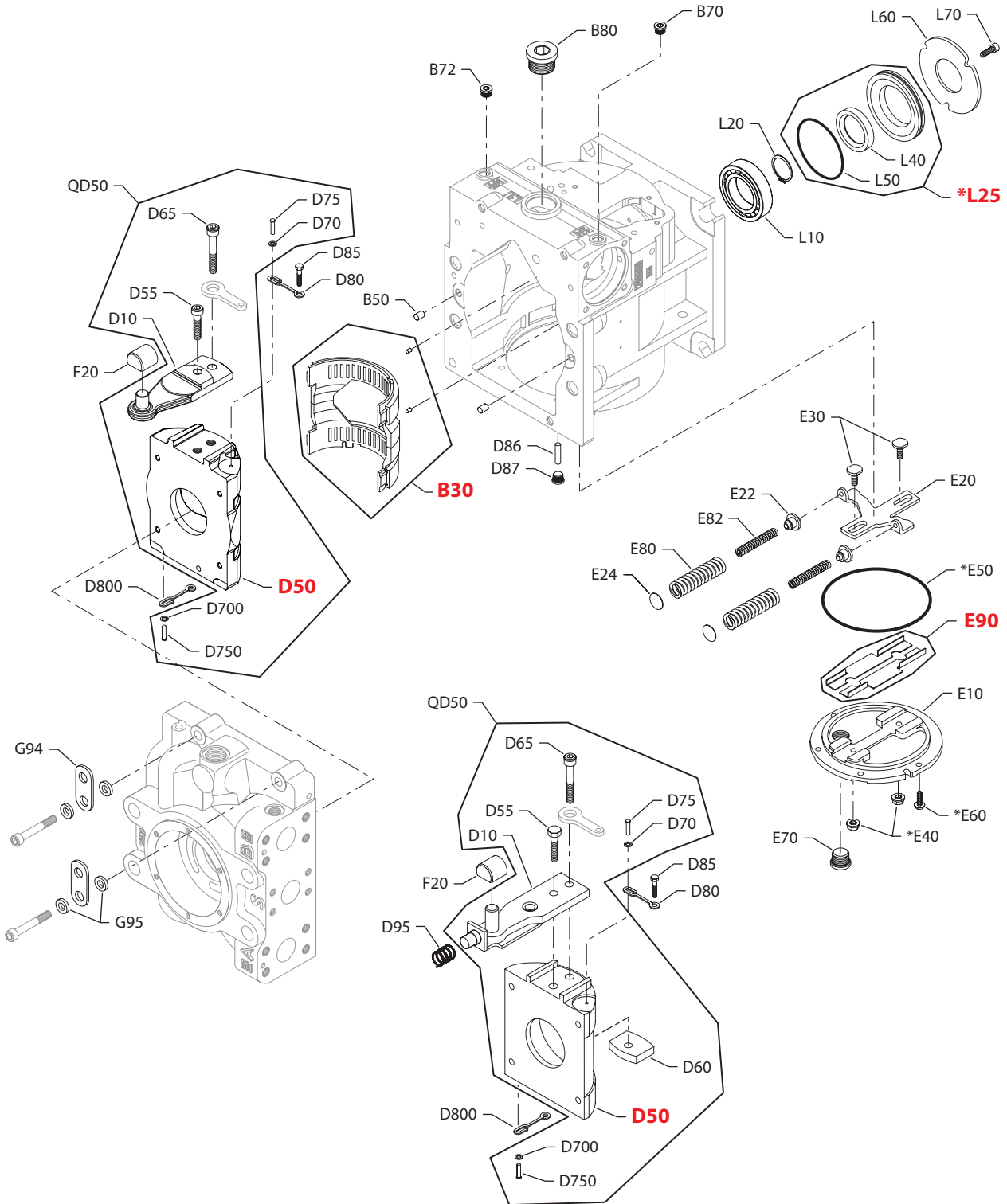
Order Code



P108 522E



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.

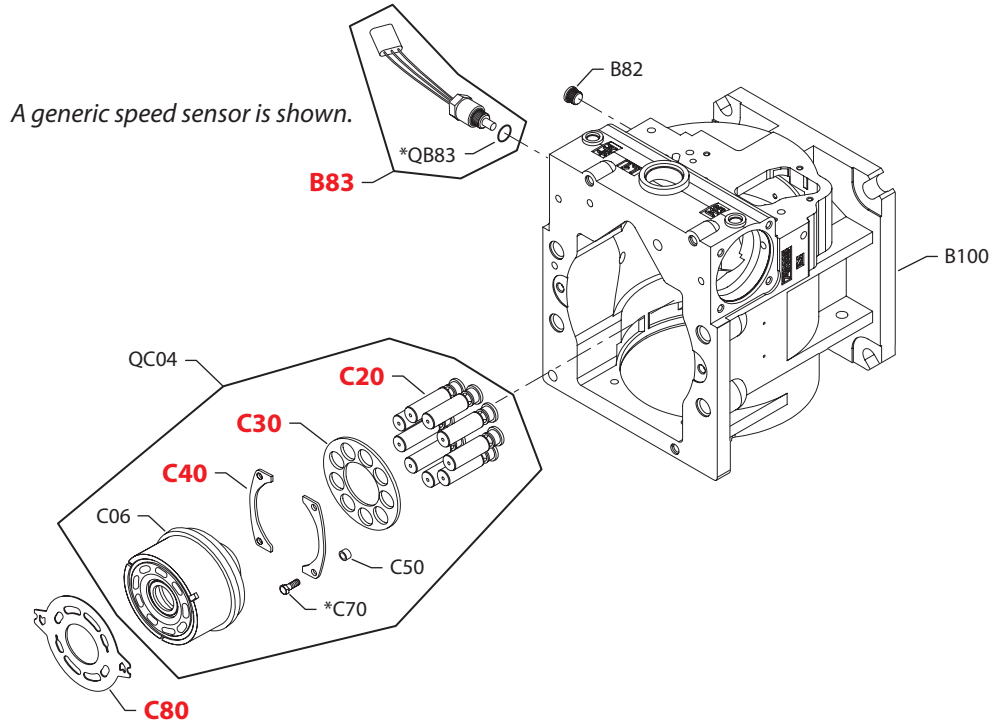

Variable displacement pump
Common parts

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	B30	95-28		746313	Cradle bearing assembly	1
	B50	95-28		9004800-3708	Pin	2
	B70	95-28		140644	Plug assembly	1
	B72	95-28		140644	Plug assembly	1
	B80	95-28		676734 (9005110-9500)	Plug assembly	1
	D10	11-40		11061195	Servo arm assembly	1
	D10	95-28	11-39	746339	Servo arm assembly (SB-2011-032)	1
	D50	11-40		11088847	Swashplate	1
	D50	95-28	11-39	521428	Swashplate	1
	D55	11-40		519150	Screw, socket head	1
	D55	95-28	11-39	746362	Screw, hex head (SB-2011-032)	1
	D60	95-28	11-39	745703	Swashplate guide (SB-2011-032)	1
	D65	95-28		504494	Screw	1
	D70	95-28		127464	Washer	1
	D75	95-28		333369	Spiral head pin	1
	D80	95-28		700948	Cage locator link	1
	D85	95-28		500449	Screw	1
	D86	95-28		770594	Pin	1
	D87	95-28		11040532	Plug assembly	1
	D95	95-28	11-39	746396	Spring (SB-2011-032)	1
	D700	95-28		127464	Washer	1
	D750	95-28		333369	Spiral head pin	1
	D800	95-28		700948	Cage locator link	1
	E10	96-08		501579	Side cover (SB-1996-004)	1
	E20	95-28		746420	Leveler	1
	E22	95-28		746438	Spring seat	2
	E24	95-28		359067	Shim	2
	E30	97-08		11056592	Guide post (SB-1996-004)	2
	E40	95-28		042432	Seal nut	2
	E50	95-28		517380	O-ring	1
	E60	95-28		517231	Screw	6
	E70	95-28		676734 (9005110-9500)	Plug assembly	1
	E80	95-28		746453	Spring	2
	E82	95-28		755553	Spring	2
	E90	96-08		513891	Insert assembly (SB-1996-004)	1
	F20	95-28		11116308	Slider block	1
	G94	95-28		8800565	Lifting bracket	2
	G95	95-28		505479	Washer	4
	L10	95-28		11018485	Roller bearing	1
	L20	95-28		392233	Retaining ring	1
	L25	95-28		11053971	Seal carrier assembly (SB-2012-039)	1
	L40	12-17		519021	Lip seal (SB-2012-039)	1
	L40	95-28	12-16	9008000-0114	Lip seal	1
	L50	95-28		509353	O-ring	1
	L60	95-28		516769	Retainer plate	1
	L70	95-28		009159	Screw	3
	QD50	11-40		11097784	Swashplate kit (SB-2011-032)	1
	QD50	94-20	11-39	11107094	Swashplate kit	1

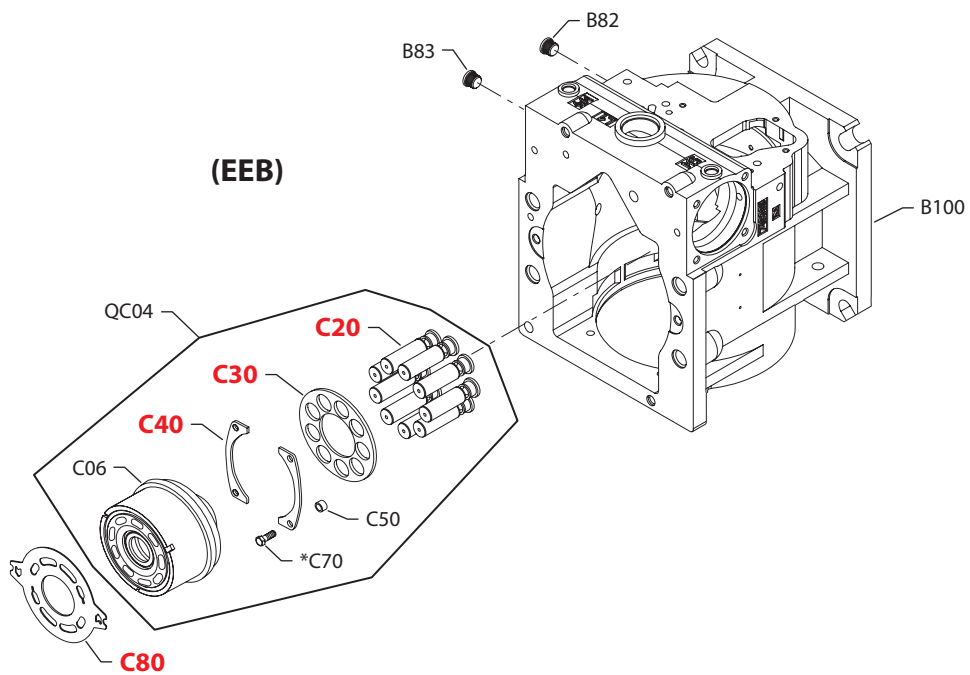


Variable displacement pump

(EDI & EFI)



(EEB)



E100 104E

* = included in overhaul seal kit Q210

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

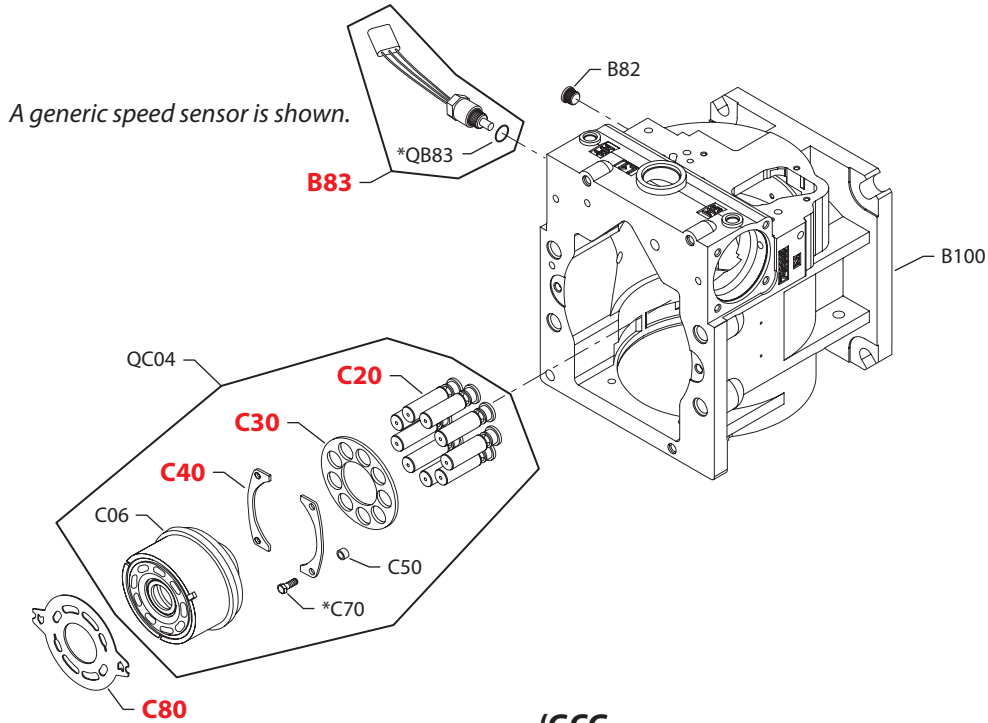

Variable displacement pump
Special hardware

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit	
EDI	B82	00-29		140644	Plug assembly	1	
	B83	00-29		KPPG15408	Speed sensor	1	
	B100	11-40		11088644	Housing assembly	1	
	B100	00-29	11-39	515967	Housing assembly (SB-2011-032)	1	
	C06	00-29		519889	Cylinder block assembly with speed ring	1	
	C20	00-29		504501	Piston/slipper assembly	9	
	C30	00-29		11067354	Slipper guide	1	
	C40	00-29		504377	Slipper guide bearing	2	
	C50	00-29		504378	Spacer	4	
	C70	00-29		308643	Screw	4	
	C80	00-29		504278	Valve plate, CCW, 90L250	1	
	C80	00-29		504287	Valve plate, CW, 90R250	1	
	QB83	00-29		085043 (9004201-3700)	O-ring	1	
	QC04	00-29		11097868	Cylinder block kit with speed ring	1	
EEB	B82	10-34		140644	Plug assembly	1	
	B83	10-34		140644	Plug assembly	1	
	B100	11-40		11088644	Housing assembly	1	
	B100	10-34	11-39	515967	Housing assembly (SB-2011-032)	1	
	C06	10-34		519889	Cylinder block assembly	1	
	C20	10-34		504501	Piston/slipper assembly	9	
	C30	10-34		11067354	Slipper guide	1	
	C40	10-34		504377	Slipper guide bearing	2	
	C50	10-34		504378	Spacer	4	
	C70	10-34		308643	Screw	4	
	C80	10-34		507346	Valve plate	1	
	QC04	10-34		11097868	Cylinder block kit	1	
	EFI	B82	00-07		140644	Plug assembly	1
		B83	99-20		KPPG156	Speed sensor	1
B100		11-40		11088644	Housing assembly	1	
B100		00-07	11-39	515967	Housing assembly (SB-2011-032)	1	
C06		99-20		519889	Cylinder block assembly	1	
C20		99-20		504501	Piston/slipper assembly	9	
C30		99-20		11067354	Slipper guide	1	
C40		99-20		504377	Slipper guide bearing	2	
C50		99-20		504378	Spacer	4	
C70		99-20		308643	Screw	4	
C80		99-20		504278	Valve plate, CCW, 90L250	1	
C80		99-20		504287	Valve plate, CW, 90R250	1	
QB83		99-20		085043 (9004201-3700)	O-ring	1	
QC04		99-20		11097868	Cylinder block kit	1	

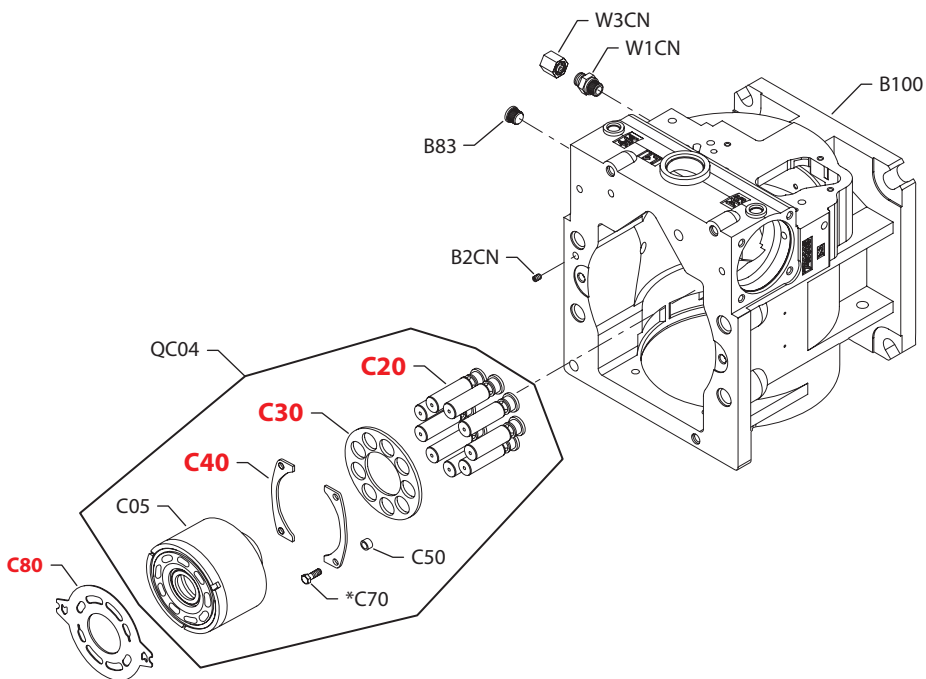


Variable displacement pump

(EFN & EHA)



(GCG)



E101 791E

* = included in overhaul seal kit Q210

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

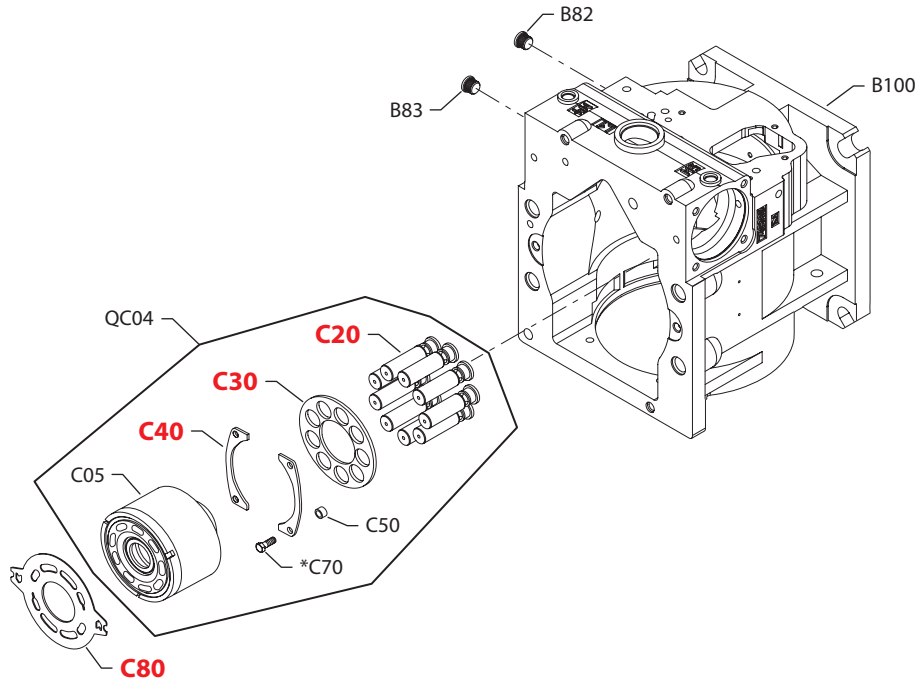

Variable displacement pump
Special hardware

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit	
EFN	B82	01-34		140644	Plug assembly	1	
	B83	01-34		KPPG136	Speed sensor	1	
	B100	11-40		11088644	Housing assembly	1	
	B100	01-34	11-39	515967	Housing assembly (SB-2011-032)	1	
	C06	01-34		519889	Cylinder block assembly with speed ring	1	
	C20	01-34		504501	Piston/slipper assembly	9	
	C30	01-34		11067354	Slipper guide	1	
	C40	01-34		504377	Slipper guide bearing	2	
	C50	01-34		504378	Spacer	4	
	C70	01-34		308643	Screw	4	
	C80	01-34		504278	Valve plate, CCW, 90L250	1	
	C80	01-34		504287	Valve plate, CW, 90R250	1	
	QB83	01-34		085043 (9004201-3700)	O-ring	1	
	QC04	01-34		11097868	Cylinder block kit with speed ring	1	
	EHA	B82	06-27		140644	Plug assembly	1
B83		06-27		KPPG16408	Speed sensor	1	
B100		11-40		11088644	Housing assembly	1	
B100		06-27	11-39	515967	Housing assembly (SB-2011-032)	1	
C06		06-27		519889	Cylinder block assembly with speed ring	1	
C20		06-27		504501	Piston/slipper assembly	9	
C30		06-27		11067354	Slipper guide	1	
C40		06-27		504377	Slipper guide bearing	2	
C50		06-27		504378	Spacer	4	
C70		06-27		308643	Screw	4	
C80		06-27		507346	Valve plate	1	
QB83		06-27		085043 (9004201-3700)	O-ring	1	
QC04		06-27		11097868	Cylinder block kit with speed ring	1	
GCG		B2CN	05-06		042465	Set screw	1
		B83	05-06		140644	Plug assembly	1
	B100	11-40		11088644	Housing assembly	1	
	B100	05-06	11-39	515967	Housing assembly (SB-2011-032)	1	
	C05	05-06		11147681	Cylinder block assembly	1	
	C20	05-06		504501	Piston/slipper assembly	9	
	C30	05-06		11067354	Slipper guide	1	
	C40	05-06		504377	Slipper guide bearing	2	
	C50	05-06		504378	Spacer	4	
	C70	05-06		308643	Screw	4	
	C80	05-06		507346	Valve plate	1	
	QC04	05-06		519279	Cylinder block kit	1	
	W1CN	05-06		723726	Connector	1	
	W3CN	05-06		574095	Cap	1	



Variable displacement pump

(GCP, GCX & GLA)



* = included in overhaul seal kit Q210

E101 799E

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

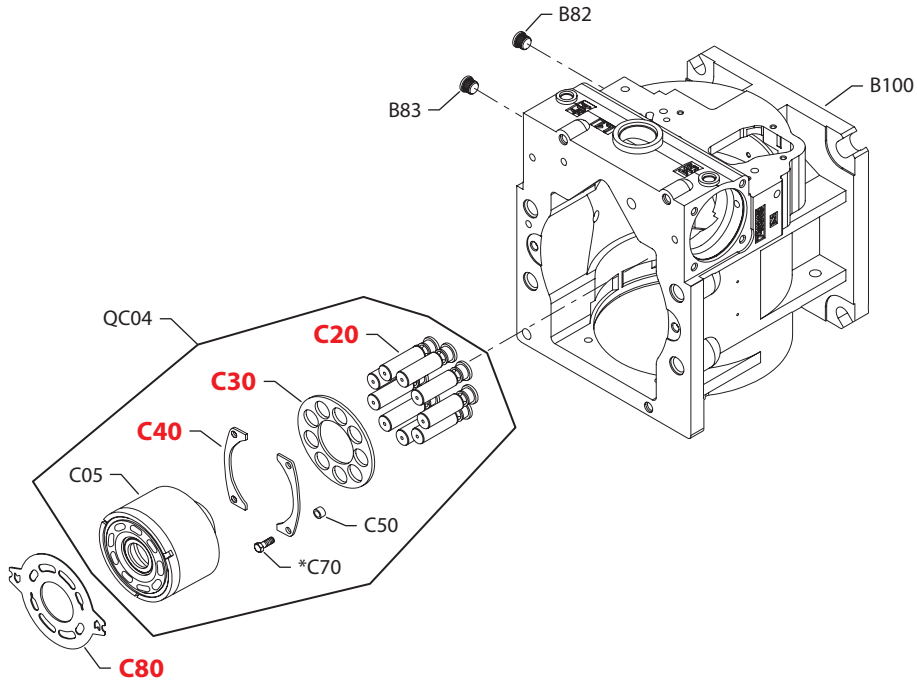

Variable displacement pump
Special hardware

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit	
GCP	B82	00-07		140644	Plug assembly	1	
	B83	95-28		140644	Plug assembly	1	
	B100	11-40		11088644	Housing assembly	1	
	B100	00-07	11-39	515967	Housing assembly (SB-2011-032)	1	
	C05	95-28		11147681	Cylinder block assembly	1	
	C20	95-28		504501	Piston/slipper assembly	9	
	C30	95-28		11067354	Slipper guide	1	
	C40	95-28		504377	Slipper guide bearing	2	
	C50	95-28		504378	Spacer	4	
	C70	95-28		308643	Screw	4	
	C80	95-28		507346	Valve plate	1	
	QC04	95-28		519279	Cylinder block kit	1	
	GCX	B82	00-38		140644	Plug assembly	1
		B83	00-38		140644	Plug assembly	1
B100		11-40		11088644	Housing assembly	1	
B100		00-38	11-39	515967	Housing assembly (SB-2011-032)	1	
C05		00-38		11147681	Cylinder block assembly	1	
C20		00-38		504501	Piston/slipper assembly	9	
C30		00-38		11067354	Slipper guide	1	
C40		00-38		504377	Slipper guide bearing	2	
C50		00-38		504378	Spacer	4	
C70		00-38		308643	Screw	4	
C80		00-38		507346	Valve plate	1	
QC04		00-38		519279	Cylinder block kit	1	
GLA		B82	00-07		140644	Plug assembly	1
		B83	98-25		140644	Plug assembly	1
	B100	11-40		11088644	Housing assembly	1	
	B100	00-07	11-39	515967	Housing assembly (SB-2011-032)	1	
	C05	98-25		11147681	Cylinder block assembly	1	
	C20	98-25		504501	Piston/slipper assembly	9	
	C30	98-25		11067354	Slipper guide	1	
	C40	98-25		504377	Slipper guide bearing	2	
	C50	98-25		504378	Spacer	4	
	C70	98-25		308643	Screw	4	
	C80	00-29		504278	Valve plate, CCW, 90L250	1	
	C80	00-29		504287	Valve plate, CW, 90R250	1	
	QC04	98-25		519279	Cylinder block kit	1	



Variable displacement pump

(NHP, NNA & NNN)



E101 799E

* = included in overhaul seal kit Q210

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

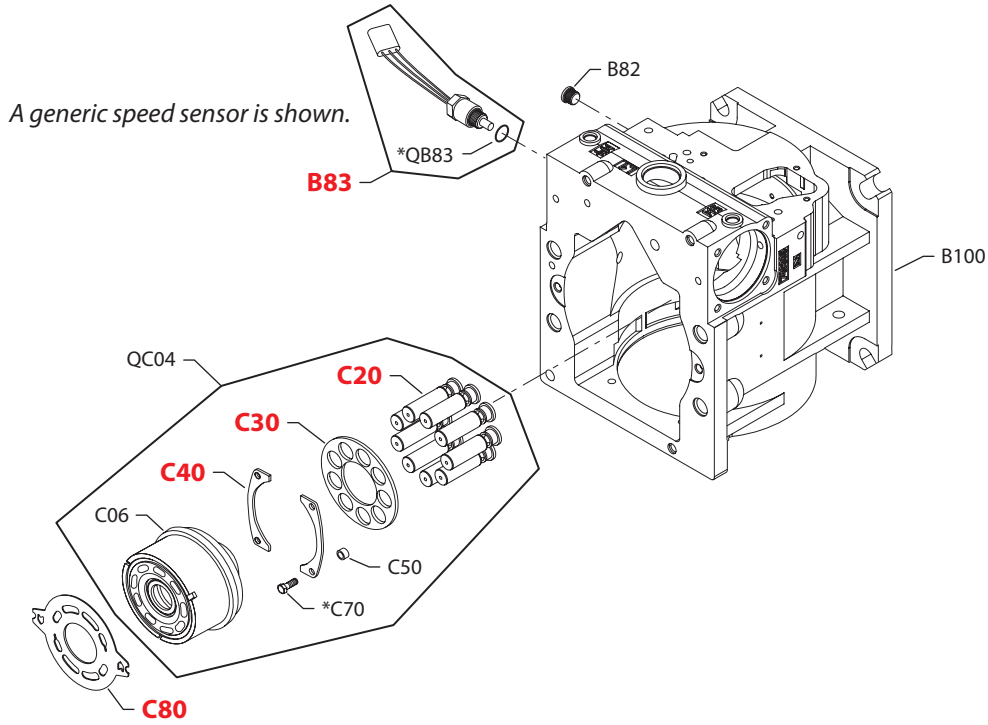

Variable displacement pump
Special hardware

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
NHP	B82	12-39		140644	Plug assembly	1
	B83	12-39		140644	Plug assembly	1
	B100	12-39		11118129	Housing assembly	1
	C05	12-39		11147681	Cylinder block assembly	1
	C20	12-39		504501	Piston/slipper assembly	9
	C30	12-39		11067354	Slipper guide	1
	C40	12-39		504377	Slipper guide bearing	2
	C50	12-39		504378	Spacer	4
	C70	12-39		308643	Screw	4
	C80	12-39		507346	Valve plate	1
	QC04	12-39		519279	Cylinder block kit	1
	NNA	B82	12-36		140644	Plug assembly
B83		12-39		140644	Plug assembly	1
B100		12-36		11088644	Housing assembly	1
C05		12-39		11147681	Cylinder block assembly	1
C20		12-39		504501	Piston/slipper assembly	9
C30		12-39		11067354	Slipper guide	1
C40		12-39		504377	Slipper guide bearing	2
C50		12-39		504378	Spacer	4
C70		12-39		308643	Screw	4
C80		12-39		507346	Valve plate	1
QC04		12-39		519279	Cylinder block kit	1
NNN		B82	00-07		140644	Plug assembly
	B83	95-28		140644	Plug assembly	1
	B100	11-40		11088644	Housing assembly	1
	B100	00-07	11-39	515967	Housing assembly (SB-2011-032)	1
	C05	95-28		11147681	Cylinder block assembly	1
	C20	95-28		504501	Piston/slipper assembly	9
	C30	95-28		11067354	Slipper guide	1
	C40	95-28		504377	Slipper guide bearing	2
	C50	95-28		504378	Spacer	4
	C70	95-28		308643	Screw	4
	C80	95-28		507346	Valve plate	1
	QC04	95-28		519279	Cylinder block kit	1

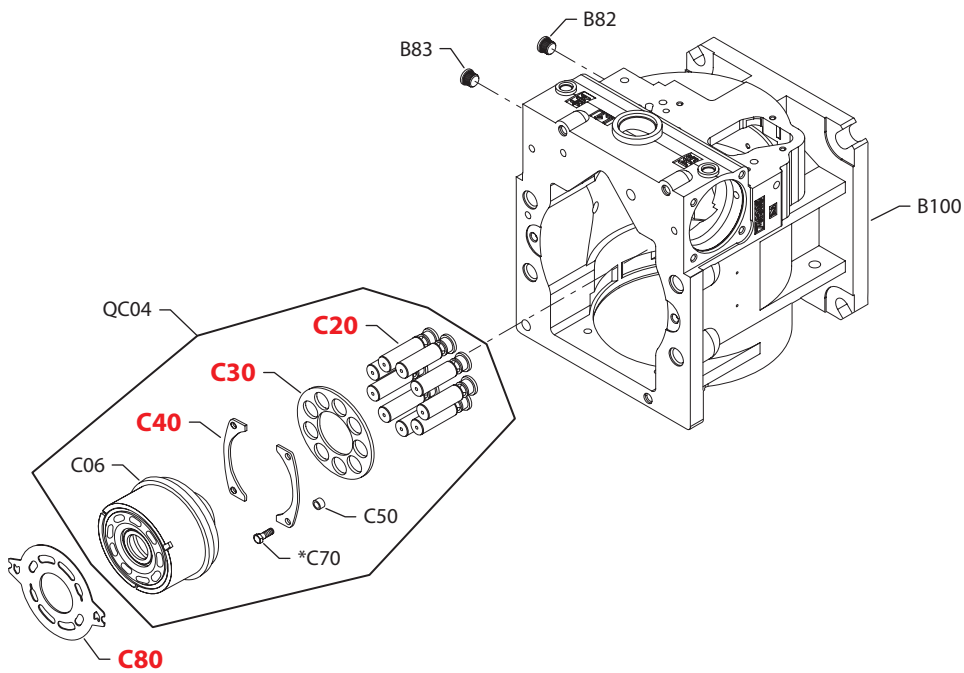


Variable displacement pump

(PEA)



(PGA)



E100 104E

* = included in overhaul seal kit Q210

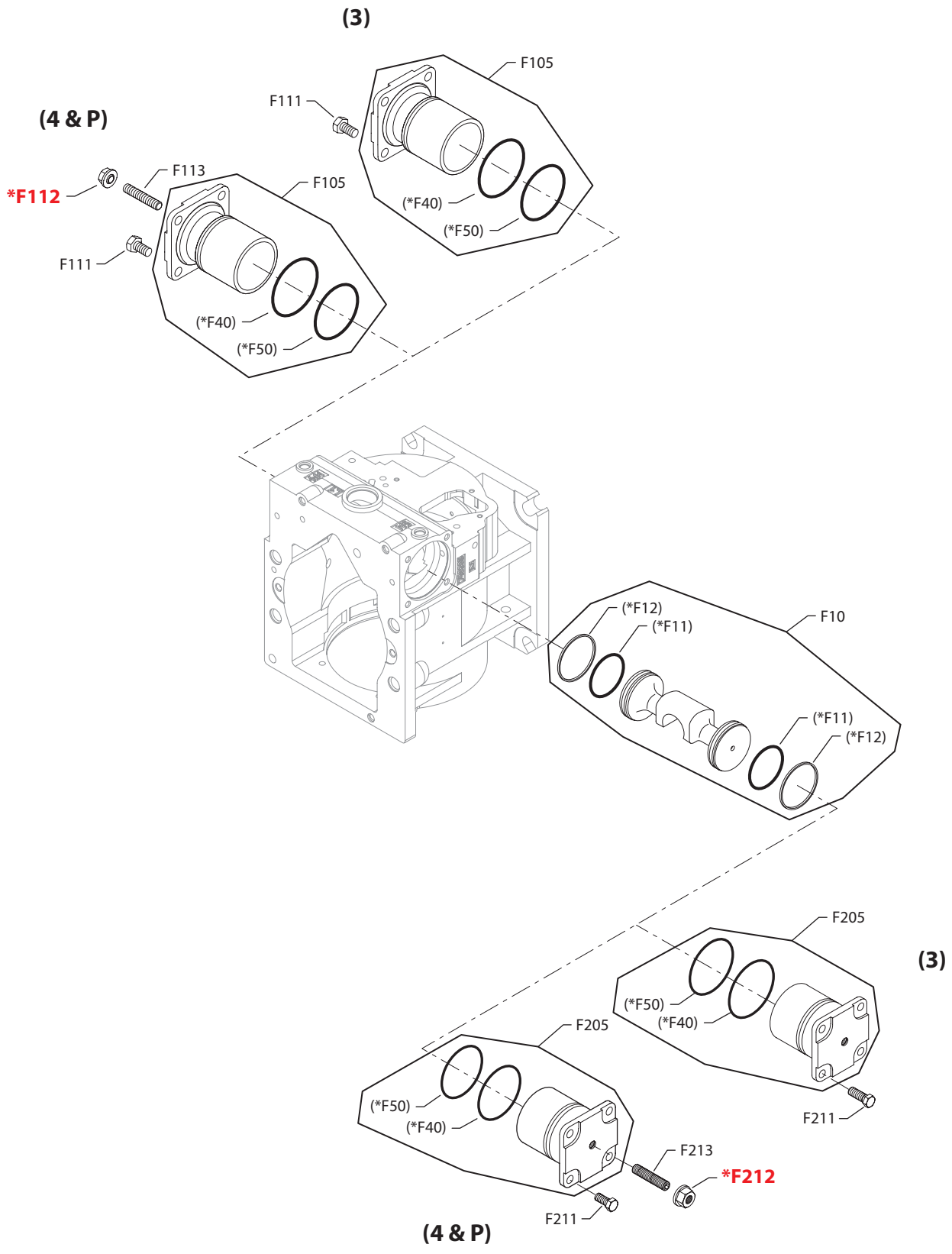
Enlarged **bold** type item numbers are recommended part to stock for servicing.


Variable displacement pump
Special hardware

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
PEA	B82	08-37		140644	Plug assembly	1
	B83	08-37		KPPG156	Speed sensor	1
	B100	11-40		11088644	Housing assembly	1
	B100	08-37	11-39	515967	Housing assembly (SB-2011-032)	1
	C06	08-37		519889	Cylinder block assembly with speed ring	1
	C20	08-37		504501	Piston/slipper assembly	9
	C30	08-37		11067354	Slipper guide	1
	C40	08-37		504377	Slipper guide bearing	2
	C50	08-37		504378	Spacer	4
	C70	08-37		308643	Screw	4
	C80	08-37		507346	Valve plate	1
	QB83	08-37		085043 (9004201-3700)	O-ring	1
	QC04	08-37		11097868	Cylinder block kit with speed ring	1
	PGA	B82	08-37		140644	Plug assembly
B83		08-37		140644	Plug assembly	1
B100		11-40		11088644	Housing assembly	1
B100		08-37	11-39	515967	Housing assembly (SB-2011-032)	1
C05		08-37		11147681	Cylinder block assembly	1
C20		08-37		504501	Piston/slipper assembly	9
C30		08-37		11067354	Slipper guide	1
C40		08-37		504377	Slipper guide bearing	2
C50		08-37		504378	Spacer	4
C70		08-37		308643	Screw	4
C80		08-37		507346	Valve plate	1
QC04		08-37		519279	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.

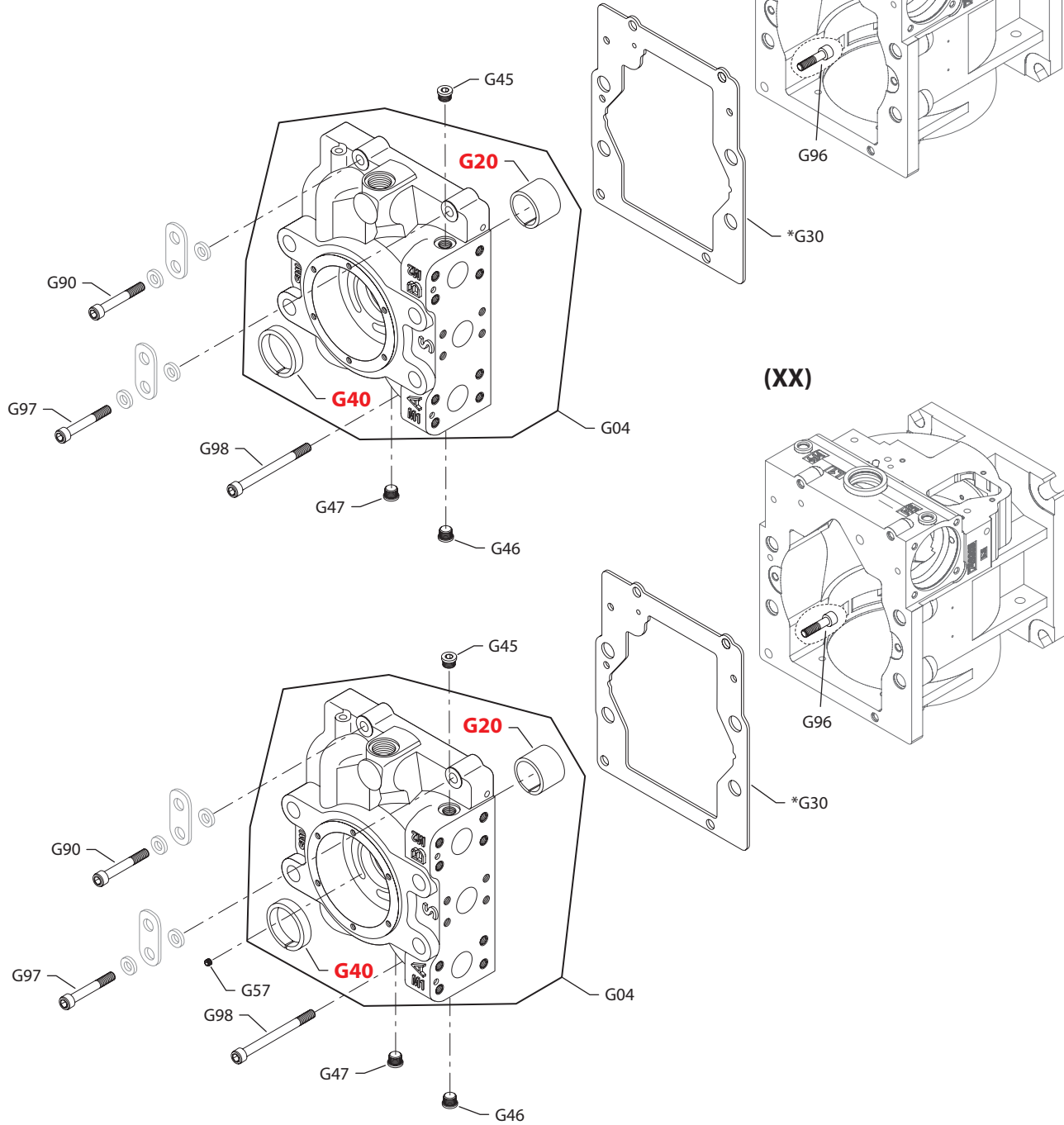

Variable displacement pump
Displacement limitation

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
3	F10	95-28		11046679	Servo piston assembly	1
	F105	95-28		11060705	Servo cyclinder assembly	1
	F111	95-28		308643	Screw	4
	F205	95-28		11060705	Servo cyclinder assembly	1
	F211	95-28		308643	Screw	4
4	F10	95-28		11046679	Servo piston assembly	1
	F105	95-28		11060706	Servo cyclinder assembly	1
	F111	95-28		308643	Screw	4
	F112	95-28		649822	Seal nut	1
	F113	95-28		11000798	Set screw	1
	F205	95-28		11060706	Servo cyclinder assembly	1
	F211	95-28		308643	Screw	4
	F212	95-28		649822	Seal nut	1
	F213	95-28		11000798	Set screw	1
	P	F10	95-28		11046679	Servo piston assembly
F105		95-28		11060706	Servo cyclinder assembly	1
F111		95-28		308643	Screw	4
F112		95-28		649822	Seal nut	1
F113		95-28		516127	Set screw	1
F205		95-28		11060706	Servo cyclinder assembly	1
F211		95-28		308643	Screw	4
F212		95-28		649822	Seal nut	1
F213		95-28		516127	Set screw	1



Variable displacement pump

(8 & 80)



E100 092E

* = included in overhaul seal kit Q210

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



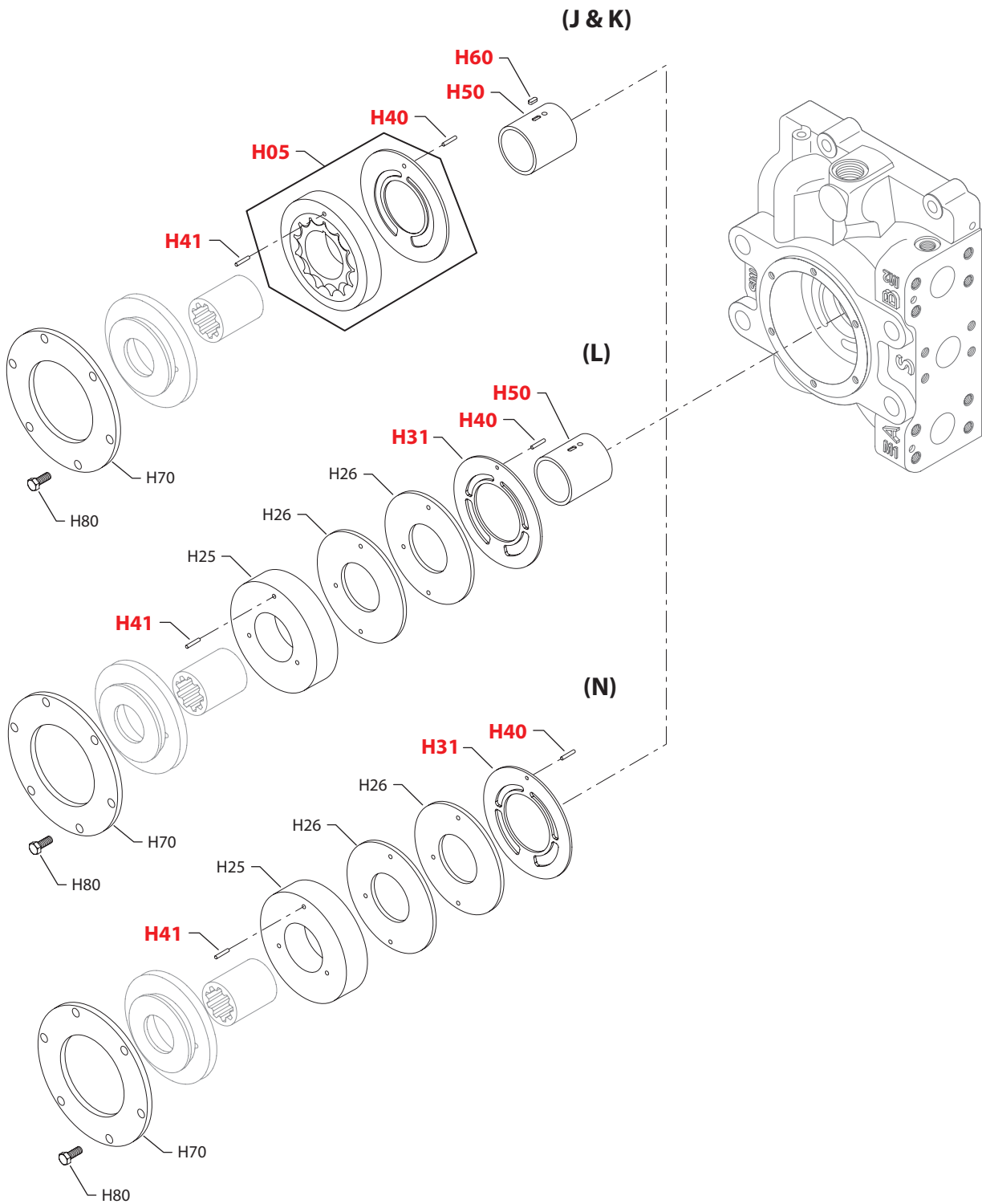
Variable displacement pump

End cap

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
8 & 80	G04	95-28		519034	End cap assembly, twin ports	1
	G20	95-28		504503	Journal bearing	1
	G30	95-28		511809	End cap gasket	1
	G40	95-28		303651	Bushing	1
	G45	95-28		140644	Plug assembly	1
	G46	95-28		140644	Plug assembly	1
	G47	95-28		140644	Plug assembly	1
	G90	95-28		356220	Screw	1
	G96	95-28		290502	Screw	1
	G97	95-28		356220	Screw	1
	G98	95-28		505261	Screw	1
	XX	G04	09-27		11068492	End cap assembly, twin ports
G20		09-27		11068455	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
G57		09-27		11068189	Orifice plug	1
G90		09-27		356220	Screw	1
G96		09-27		290502	Screw	1
G97		09-27		356220	Screw	1
G98		09-27		505261	Screw	1



Variable displacement pump



E101 793E

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

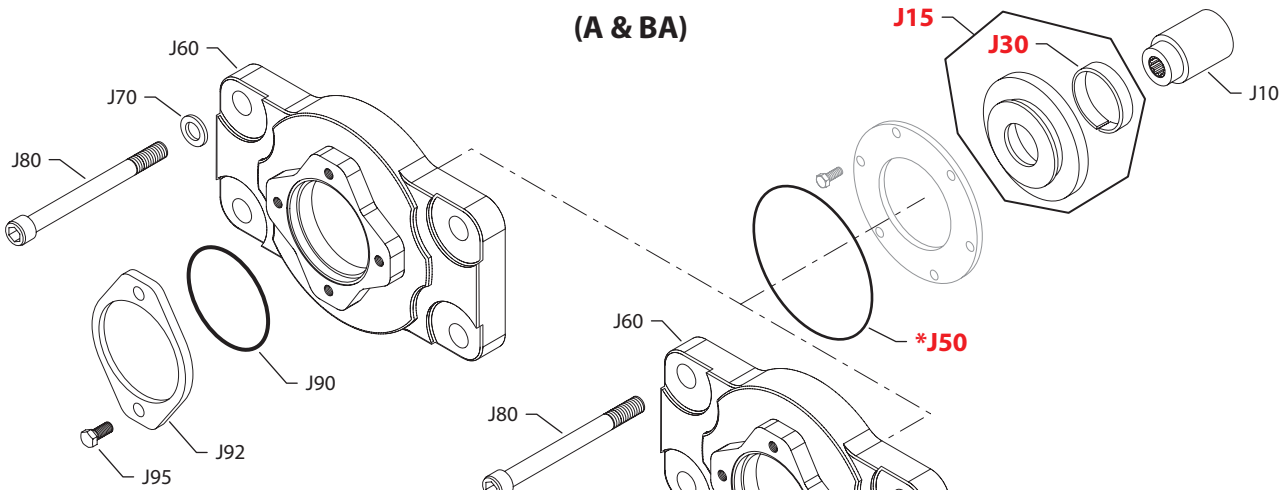

Variable displacement pump
Charging system

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
J	H05	95-28		504557	Charge pump set, 47 cc	1
	H40	95-28		11152778	Pin, 26mm (SB-2015-038)	1
	H41	95-28		11152778	Pin, 26mm (SB-2015-038)	1
	H50	95-28		518691	Charge pump shaft (SB-2002-040)	1
	H60	95-28		734608	Key	1
	H70	95-28		509361	Retaining plate	1
	H80	95-28		378083	Screw	6
	K	H05	95-28		505410	Charge pump set, 65 cc
H40		95-28		11152778	Pin, 26mm (SB-2015-038)	1
H41		95-28		11152778	Pin, 26mm (SB-2015-038)	1
H50		95-28		518691	Charge pump shaft (SB-2002-040)	1
H60		95-28		734608	Key	1
H70		95-28		509361	Retaining plate	1
H80		95-28		378083	Screw	6
L		H25	04-49		11077719	Spacer
	H26	04-49		711218	Distance plate	2
	H31	04-49		11078207	Port plate	1
	H40	04-49		11152778	Pin, 26mm (SB-2015-038)	1
	H41	04-49		11152778	Pin, 26mm (SB-2015-038)	1
	H50	04-49		518691	Charge pump shaft	1
	H70	04-49		509361	Retaining plate	1
	H80	04-49		378083	Screw	6
N	H25	04-49		11077719	Spacer	1
	H26	04-49		711218	Distance plate	2
	H31	04-49		11078207	Port plate	1
	H40	04-49		11152778	Pin, 26mm (SB-2015-038)	1
	H41	04-49		11152778	Pin, 26mm (SB-2015-038)	1
	H70	04-49		509361	Retaining plate	1
	H80	04-49		378083	Screw	6



Variable displacement pump

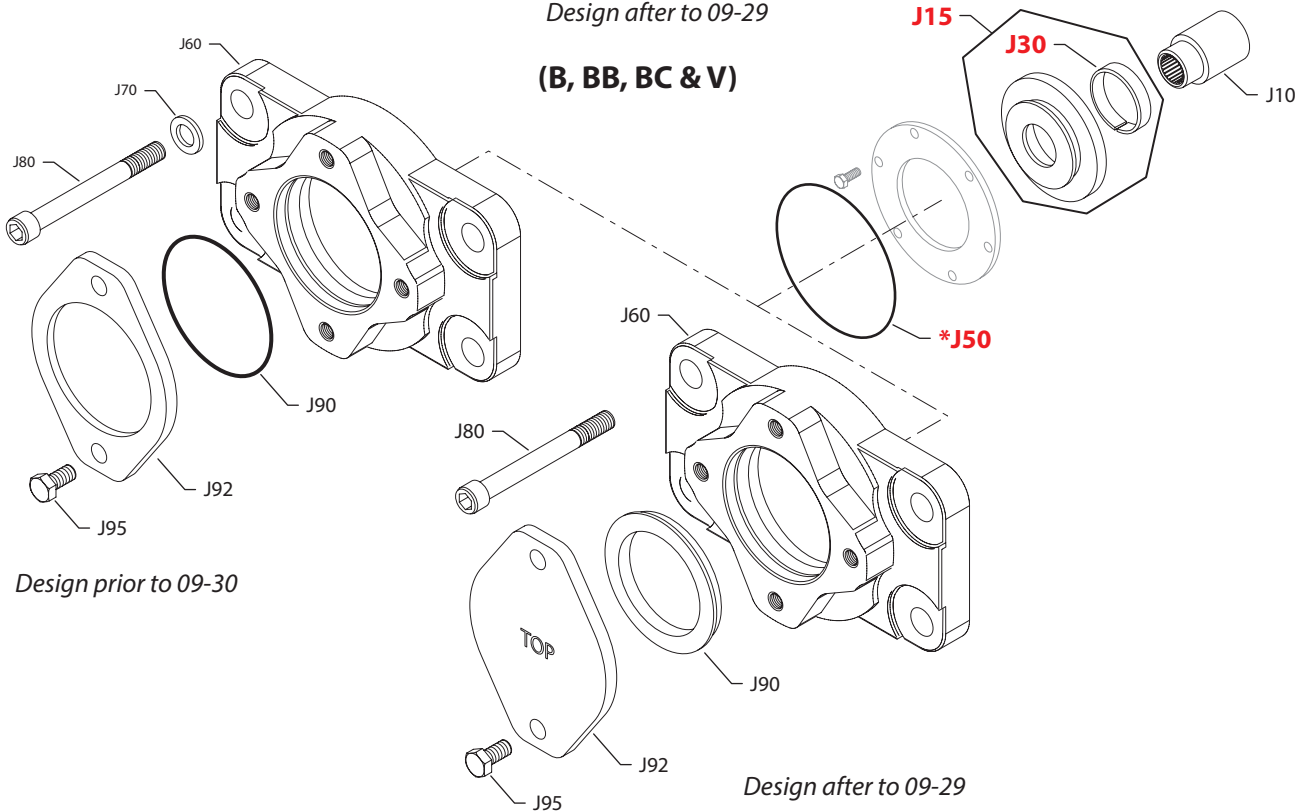
(A & BA)



Design prior to 09-30

Design after to 09-29

(B, BB, BC & V)



Design prior to 09-30

Design after to 09-29

* = included in overhaul seal kit Q210

E100 093E

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

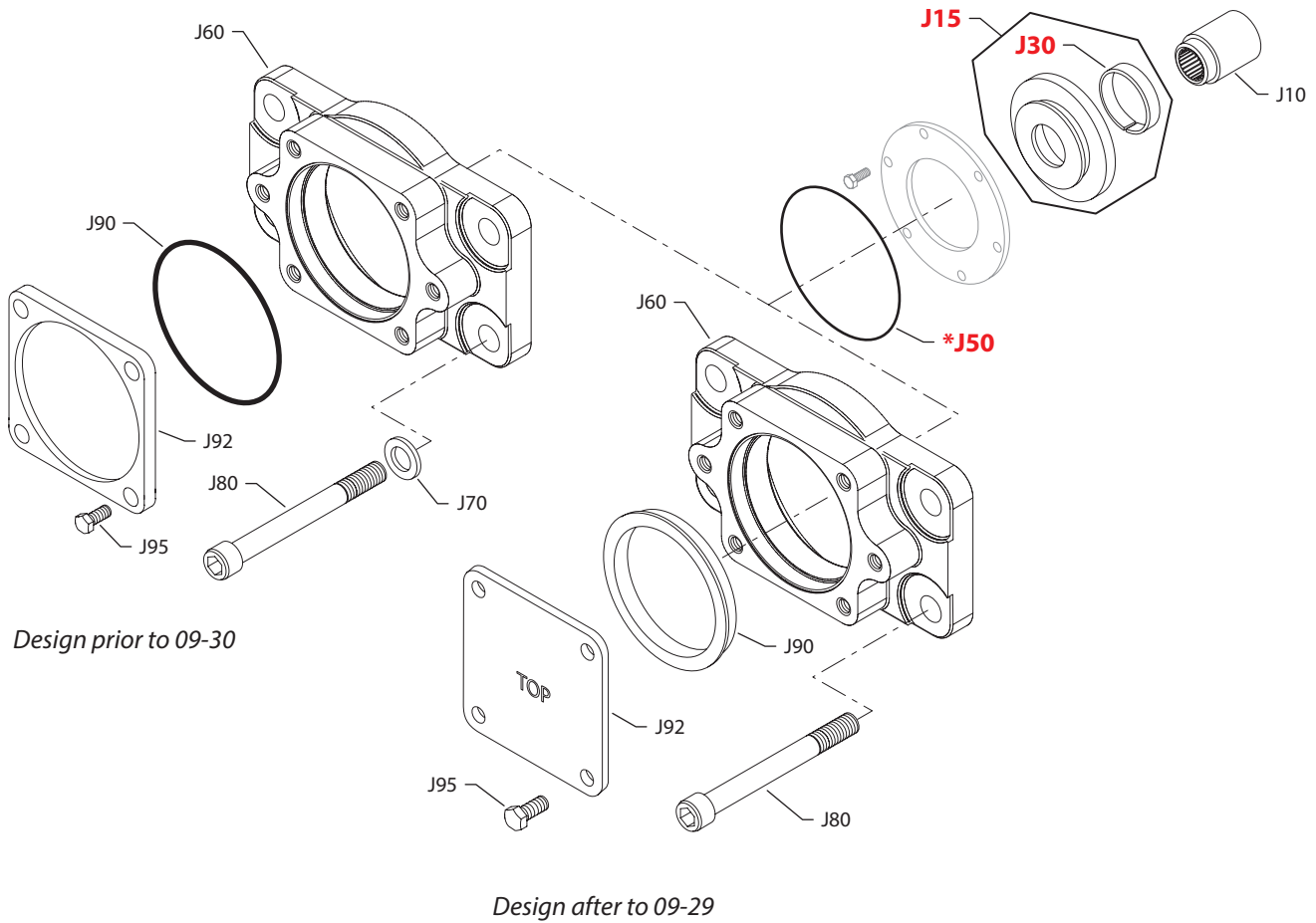

Variable displacement pump
Auxiliary mounting

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
AB & A	J10	95-28		11053336	Coupling, 9 tooth	1
	J15	95-28		501402	Cover assembly, CW	1
	J15	95-28		501401	Cover assembly, CCW	1
	J30	95-28		303651	Bushing	1
	J50	95-28		505068	O-ring	1
	J60	09-30		520949	Flange adaptor, SAE A	1
	J60	95-28	09-29	505136	Flange adaptor, SAE A (SB-2009-074)	1
	J70	95-28	09-29	279729	Washer (SB-2009-074)	4
	J80	89-46		505260	Screw	4
	J90	09-30		4800482	A pad seal	1
	J90	95-28	09-29	726950 (9004104-0420)	O-ring (SB-2009-074)	1
	J92	09-30		4460586	Cover plate	1
	J92	95-28	09-29	545475 (9802336)	Cover plate (SB-2009-074)	1
	J95	95-28		9007200-3714	Screw	2
	BB & V	J10	95-28		11053334	Coupling, 15 tooth
J15		95-28		501402	Cover assembly, CW	1
J15		95-28		501401	Cover assembly, CCW	1
J30		95-28		303651	Bushing	1
J50		95-28		505068	O-ring	1
J60		09-30		520950	Flange adaptor, SAE B	1
J60		95-28	09-29	505132	Flange adaptor, SAE B (SB-2009-075)	1
J70		95-28	09-29	279729	Washer (SB-2009-075)	4
J80		89-46		505260	Screw	4
J90		09-30		8801061	B pad seal	1
J90		95-28	09-29	726935 (9004104-0450)	O-ring (SB-2009-075)	1
J92		09-30		8801059	Cover plate	1
J92		95-28	09-29	4460370	Cover plate (SB-2009-075)	1
J95		95-28		9007200-5021	Screw	2
BC & B		J10	95-28		11053289	Coupling, 13 tooth
	J15	95-28		501402	Cover assembly, CW	1
	J15	95-28		501401	Cover assembly, CCW	1
	J30	95-28		303651	Bushing	1
	J50	95-28		505068	O-ring	1
	J60	09-30		520950	Flange adaptor, SAE B	1
	J60	95-28	09-29	505132	Flange adaptor, SAE B (SB-2009-075)	1
	J70	95-28	09-29	279729	Washer (SB-2009-075)	4
	J80	89-46		505260	Screw	4
	J90	09-30		8801061	B pad seal	1
	J90	95-28	09-29	726935 (9004104-0450)	O-ring (SB-2009-075)	1
	J92	09-30		8801059	Cover plate	1
	J92	95-28	09-29	4460370	Cover plate (SB-2009-075)	1
	J95	95-28		9007200-5021	Screw	2



Variable displacement pump

(C, C1, C5 & CD)



E100 094E

* = included in overhaul seal kit Q210

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



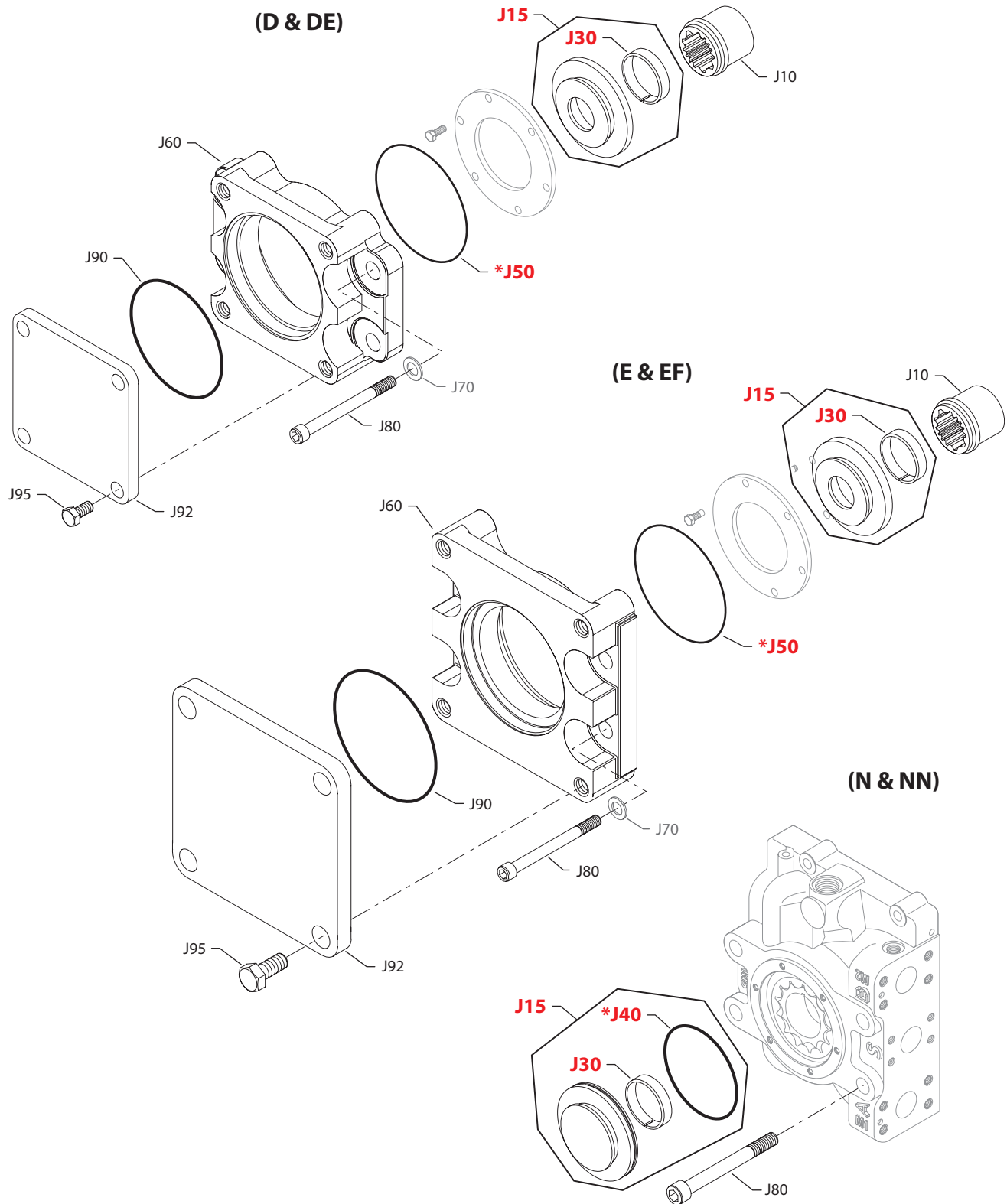
Variable displacement pump

Auxiliary mounting

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
C1	J10	06-25		11053337	Coupling, 17 tooth	1
	J15	95-28		503399	Cover assembly, CW	1
	J15	95-28		503397	Cover assembly, CCW	1
	J30	95-28		303651	Bushing	1
	J50	95-28		505068	O-ring	1
	J60	09-30		520951	Flange adaptor, SAE C	1
	J60	95-28	09-29	505139	Flange adaptor, SAE C (SB-2009-076)	1
	J70	95-28	09-29	279729	Washer (SB-2009-076)	4
	J80	89-46		505260	Screw	4
	J90	09-30		11081805	C pad seal	1
	J90	95-28	09-29	726943 (9004104-0490)	O-ring (SB-2009-076)	1
	J92	09-30		8801060	Cover plate	1
	J92	95-28	09-29	307363 (8800406)	Cover plate (SB-2009-076)	1
	J95	95-28		9007200-5021	Screw	4
	C5	J10	13-01		11053291	Coupling, 14 tooth
J15		13-01		501402	Cover assembly, CW	1
J15		13-01		501401	Cover assembly, CCW	1
J30		13-01		303651	Bushing	1
J50		13-01		505068	O-ring	1
J60		13-01		11117178	Flange adaptor, SAE C, special	1
J80		13-01		505260	Screw	4
J90		13-01		11081805	C pad seal	1
J92		13-01		8801060	Cover plate	1
J95		13-01		9007200-5021	Screw	4
CD & C		J10	95-28		11053291	Coupling, 14 tooth
	J15	95-28		501402	Cover assembly, CW	1
	J15	95-28		501401	Cover assembly, CCW	1
	J30	95-28		303651	Bushing	1
	J50	95-28		505068	O-ring	1
	J60	09-30		520951	Flange adaptor, SAE C	1
	J60	95-28	09-29	505139	Flange adaptor, SAE C (SB-2009-076)	1
	J70	95-28	09-29	279729	Washer (SB-2009-076)	4
	J80	89-46		505260	Screw	4
	J90	09-30		11081805	C pad seal	1
	J90	95-28	09-29	726943 (9004104-0490)	O-ring (SB-2009-076)	1
	J92	09-30		8801060	Cover plate	1
	J92	95-28	09-29	307363 (8800406)	Cover plate (SB-2009-076)	1
	J95	95-28		9007200-5021	Screw	4



Variable displacement pump



E100 096E

* = included in overhaul seal kit Q210

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



Variable displacement pump

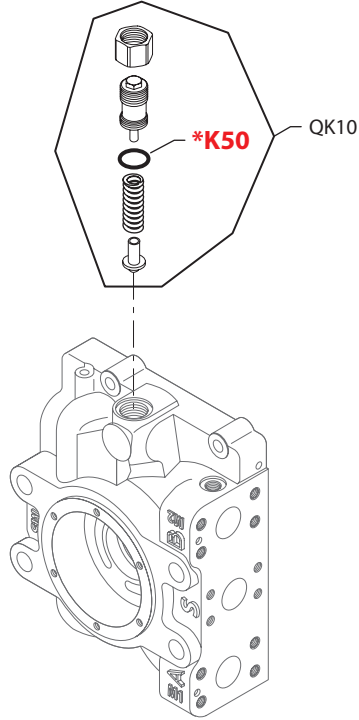
Auxiliary mounting

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit	
D & DE	J10	95-28		11053290	Coupling, 13 tooth	1	
	J15	95-28		503663	Cover assembly, CW	1	
	J15	95-28		503666	Cover assembly, CCW	1	
	J30	95-28		303651	Bushing	1	
	J50	95-28		505068	O-ring	1	
	J60	95-28		505140	Flange adaptor, SAE D	1	
	J70	95-28	15-46	279729	Washer	4	
	J80	95-28		505260	Screw	4	
	J90	95-28		726927	O-ring	1	
	J92	95-28		338400	Cover plate	1	
	J95	95-28		9007200-7524	Screw	4	
	E & EF	J10	95-28		11053290	Coupling, 13 tooth	1
		J15	95-28		503663	Cover assembly, CW	1
J15		95-28		503666	Cover assembly, CCW	1	
J30		95-28		303651	Bushing	1	
J50		95-28		505068	O-ring	1	
J60		95-28		505141	Flange adaptor, SAE E	1	
J70		95-28	15-46	279729	Washer	4	
J80		95-28		505260	Screw	4	
J90		95-28		505068	O-ring	1	
J92		95-28		750422	Cover plate	1	
J95		95-28		9007200-7524	Screw	4	
EG & H		J10	95-28		11053335	Coupling, 27 tooth	1
		J15	95-28		503663	Cover assembly, CW	1
	J15	95-28		503666	Cover assembly, CCW	1	
	J30	95-28		303651	Bushing	1	
	J50	95-28		505068	O-ring	1	
	J60	95-28		505141	Flange adaptor, SAE E	1	
	J70	95-28	15-46	279729	Washer	4	
	J80	95-28		505260	Screw	4	
	J90	95-28		505068	O-ring	1	
	J92	95-28		750422	Cover plate	1	
	J95	95-28		9007200-7524	Screw	4	
	N & NN	J15	95-28		501400	Cover assembly	1
		J30	95-28		303651	Bushing	1
J40		95-28		916940	O-ring	1	
J80		95-28		505422	Screw	4	

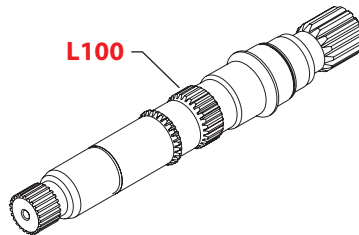


Variable displacement pump

(18-36)



(C8 & F1)



E100 098E

* = 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	QK10	95-28		8510272	Charge relief valve kit, 18-32 bar	1
	K50	95-28		001156 (9004201-7500)	O-ring	1
36	QK10	95-28		8510390	Charge relief valve kit, 34-36 bar	1
	K50	95-28		001156 (9004201-7500)	O-ring	1

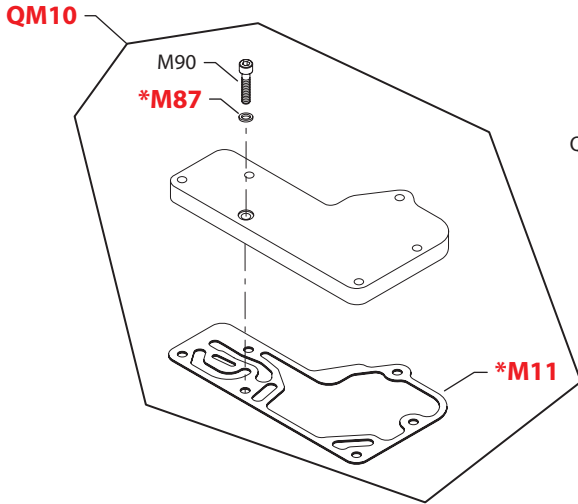
Shaft

C8	L100	95-28		504338	Shaft, 27 tooth spline	1
F1	L100	95-28		504411	Shaft, 13 tooth spline	1

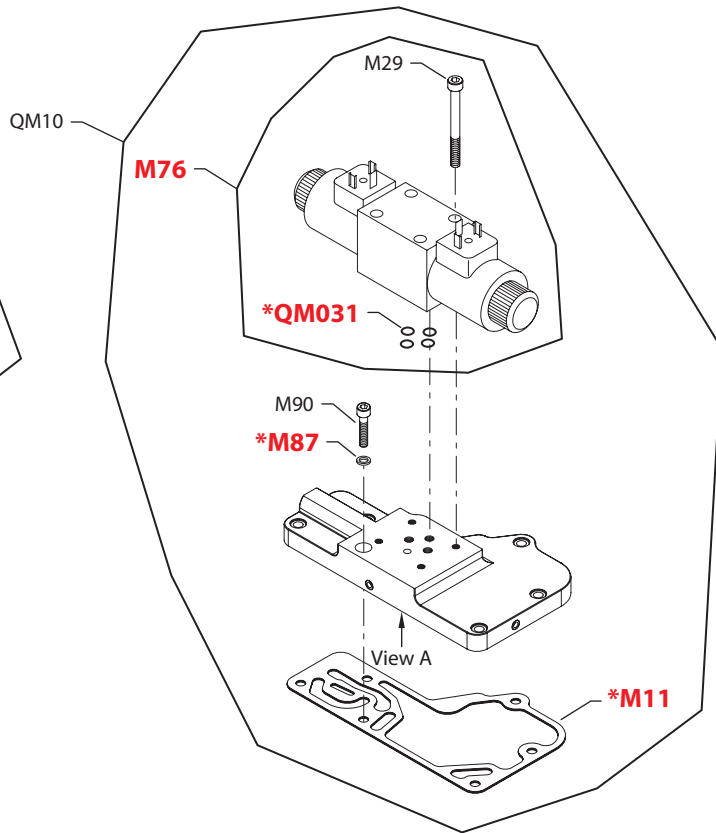


Variable displacement pump

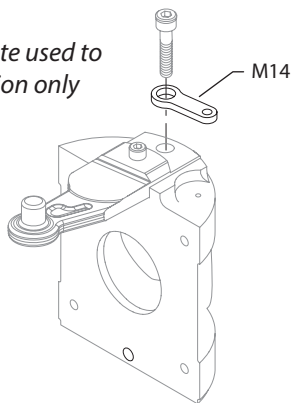
(CA & CB)



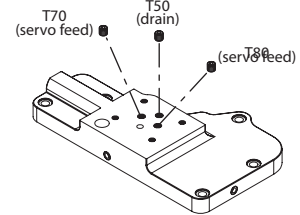
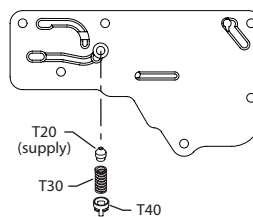
(DD)



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.

E100 099E

* = included in control seal kit QM210

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


Variable displacement pump
Control

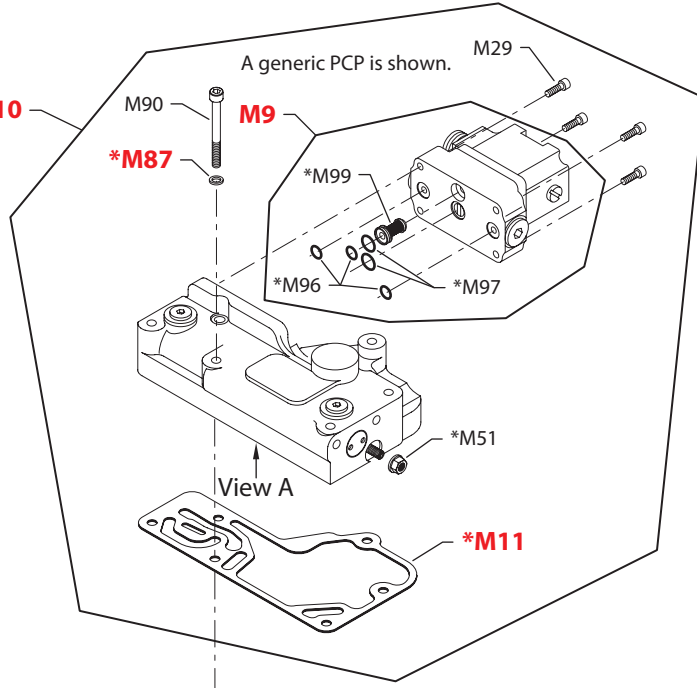
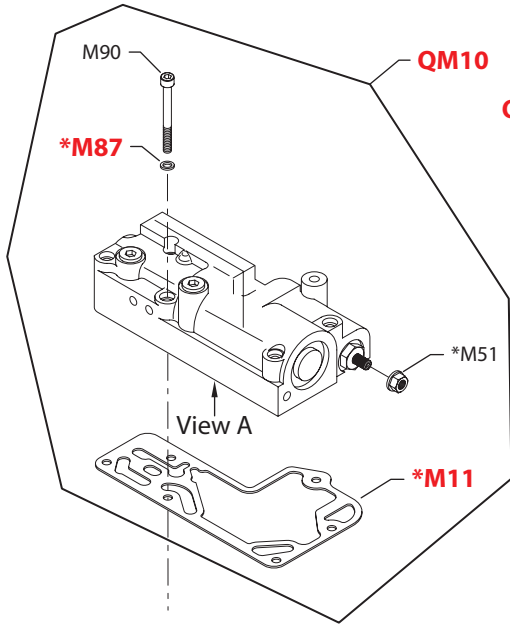
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
CA	M11	13-42		8800923	Control gasket	1
	M90	13.42		693341 (9007314-0606)	Screw	6
	QM10	13.42		11098677	Control cover plate kit	1
	QM210	13-42		11096320	Control seal kit	1
CB	M11	95-28		8800923	Control gasket	1
	M14	95-28		11070308	Feedback link	1
	M87	95-28	12-23	592386	Seal washer	1
	M90	95-28		693341 (9007314-0606)	Screw	6
	QM10	95-28		11098677	Control cover plate kit	1
	QM210	95-28		11096320	Control seal kit	1
CF	M11	95-28		509718	Control gasket	1
	M14	95-28		11070308	Feedback link	1
	M87	95-28	12-23	592386	Seal washer	1
	M90	95-28		693341 (9007314-0606)	Screw	6
	QM10	95-28		11098675	Control cover plate kit	1
	QM210	95-28		11097122	Control seal kit	1
DD	M11	95-28		8800923	Control gasket	1
	M87	95-28	12-23	592386	Seal washer	1
	M90	95-28		693341 (9007314-0606)	Screw	6
	QM10	95-28		8102M0DD-A	3-position control kit, 24 volt	1
	QM031	95-28		11099647	Valve seal kit	1
	QM210	95-28		11096172	Control seal kit	1



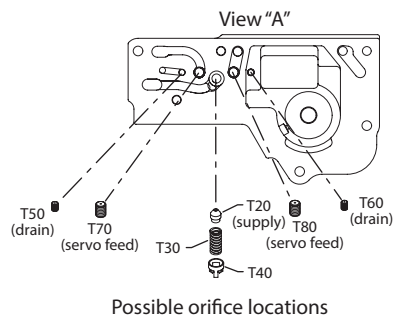
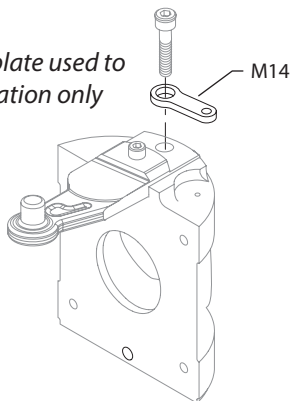
Variable displacement pump

(HF, HM & HS)

(K7 & K8)



Generic swashplate used to show link location only



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 Q210

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

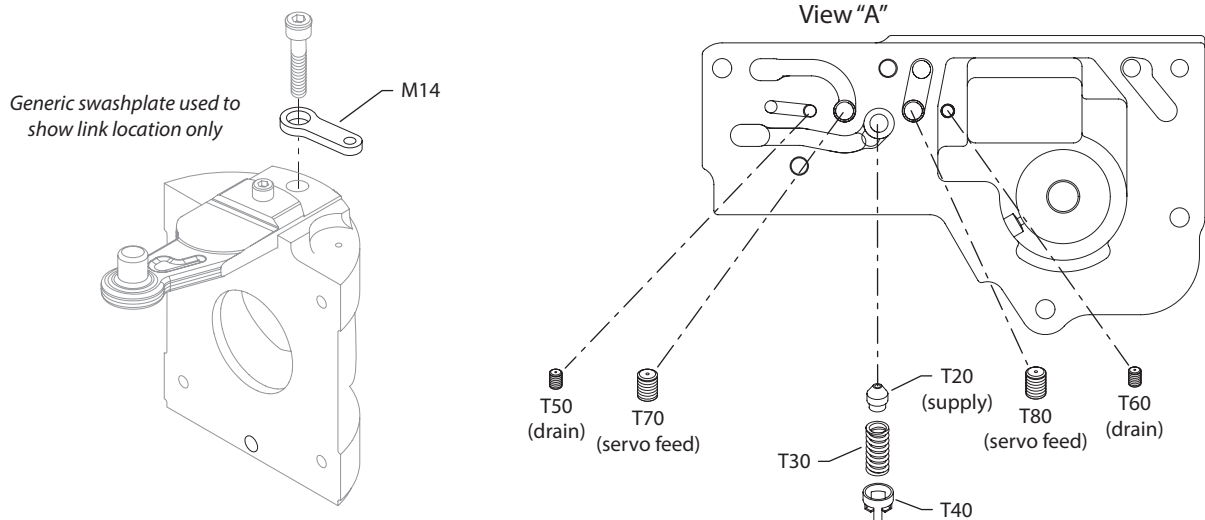
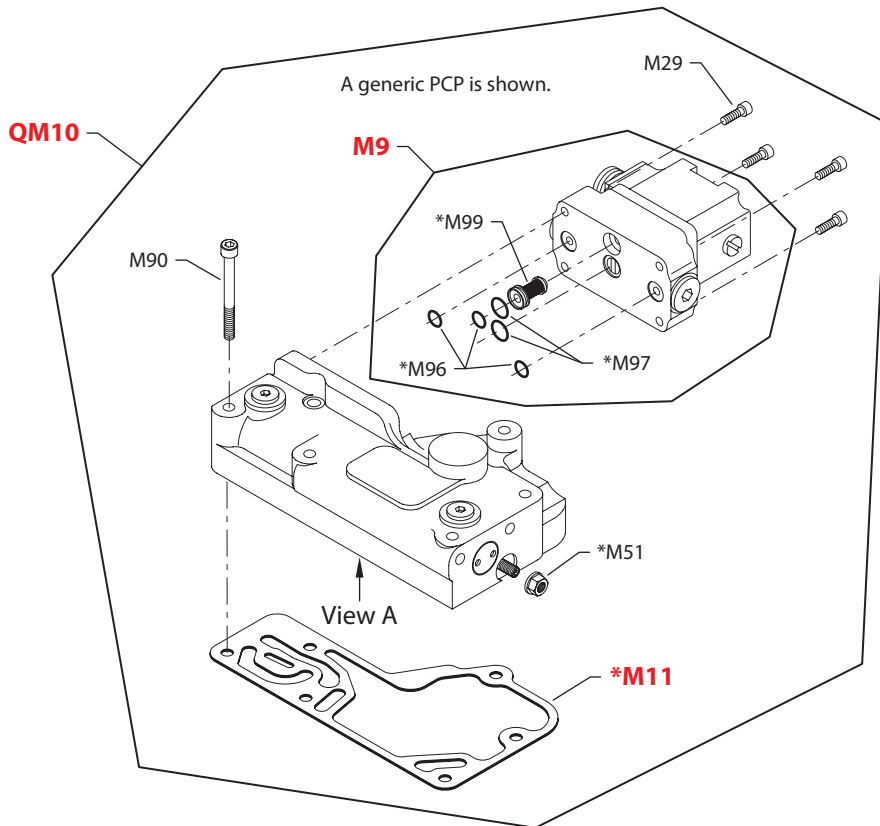

Variable displacement pump
Control

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit	
HF	M11	95-28		8801241	Control gasket (SB-1999-065)	1	
	M14	95-28		11070308	Feedback link	1	
	M51	95-28		9003509-0008	Seal nut	1	
	M87	95-28	12-23	592386	Seal washer	1	
	M90	95-28		692889 (9007314-0611)	Screw	6	
	QM10	95-28		8510157	HDC kit, 3-11 bar	1	
	QM210	95-28		11096266	Control seal kit	1	
	HM	M11	95-28		8801241	Control gasket	1
M14		95-28		11070308	Feedback link	1	
M51		95-28		9003509-0008	Seal nut	1	
M87		95-28	12-23	592386	Seal washer	1	
M90		95-28		692889 (9007314-0611)	Screw	6	
QM10		95-28		11013637	HDC kit, 1.1 - 6.7 bar	1	
QM210		95-28		11096266	Control seal kit	1	
HS		M11	95-28		8801241	Control gasket	1
	M14	95-28		11070308	Feedback link	1	
	M51	95-28		9003509-0008	Seal nut	1	
	M87	95-28	12-23	592386	Seal washer	1	
	M90	95-28		692889 (9007314-0611)	Screw	6	
	QM10	95-28		11020565	HDC kit, 6 - 18 bar	1	
	QM210	95-28		11096266	Control seal kit	1	
	K7	M9	14-31		11101116	PCP, MS connector	1
M11		14-31		8800923	Control gasket	1	
M14		14-31		11070308	Feedback link	1	
M29		14-31		K07067	Screw	4	
M51		14-31		9003509-0008	Seal nut	1	
M90		14-31		692889 (9007314-0611)	Screw	6	
M96		14-31		011296 (9004105-0120)	O-ring	3	
M97		14-31		9004105-0130	O-ring	2	
M99		14-31		K08572	Filter assembly	1	
QM10		14-31		11139997	EDC kit, MS connector	1	
QM210		14-31		11095724	Control seal kit	1	
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	



Variable displacement pump

(KA, KE, KN & KP)



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

E100 926E

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


Variable displacement pump
Control

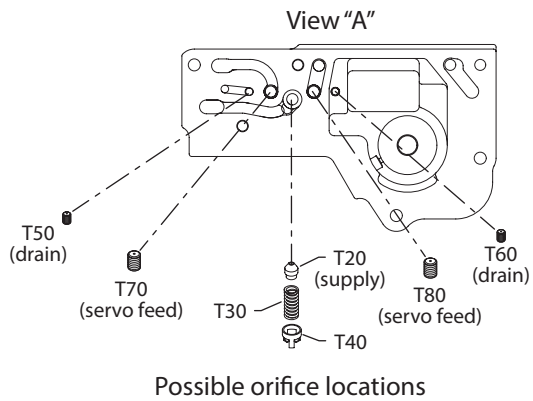
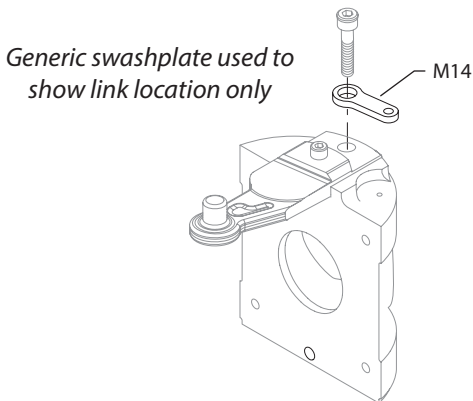
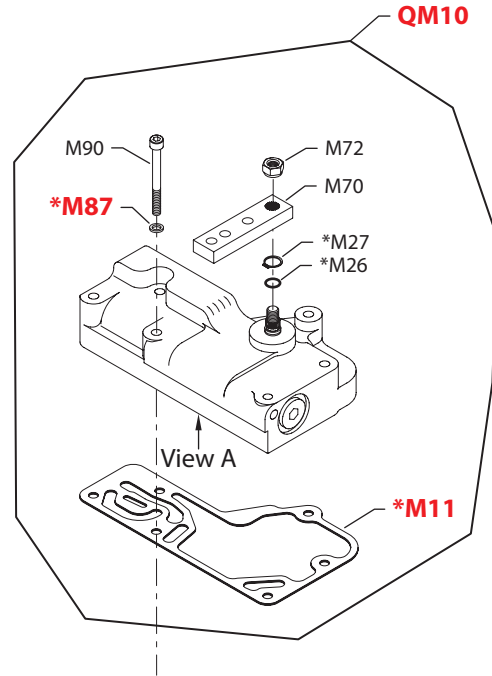
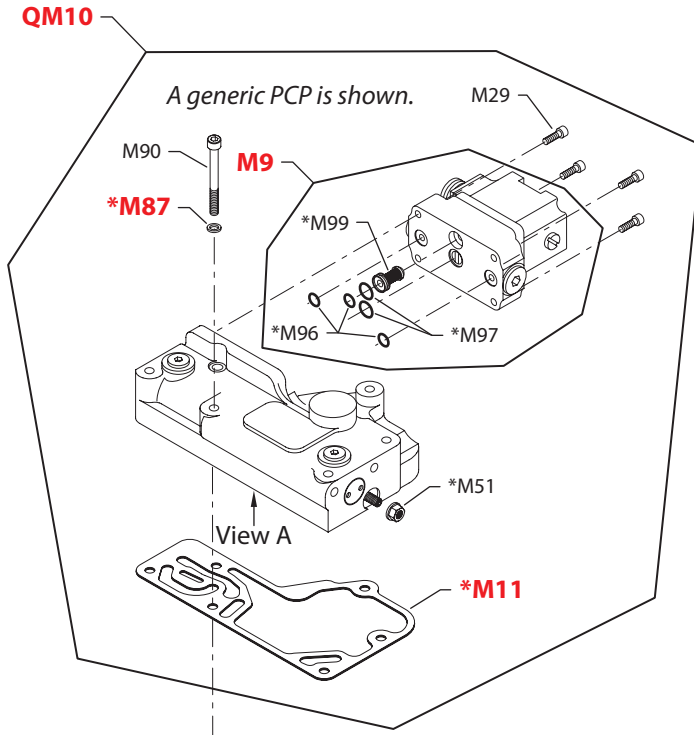
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit	
KA	M9	95-28		MCV116G4201	PCP, MS connector	1	
	M11	95-28		8800923	Control gasket	1	
	M14	95-28		11070308	Feedback link	1	
	M29	95-28		K07067	Screw	4	
	M51	95-28		9003509-0008	Seal nut	1	
	M87	95-28	12-23	592386	Seal washer	1	
	M90	95-28		692889 (9007314-0611)	Screw	6	
	M96	95-28		011296 (9004105-0120)	O-ring	3	
	M97	95-28		9004105-0130	O-ring	2	
	M99	95-28		K08572	Filter assembly	1	
	QM10	95-28		8510155	EDC3 kit, MS connector	1	
	QM210	95-28		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	95-28		MCV116A3501	PCP, MS connector	1
		M11	95-28		8800923	Control gasket	1
	M14	95-28		11070308	Feedback link	1	
	M29	95-28		K07067	Screw	4	
	M51	95-28		9003509-0008	Seal nut	1	
	M87	95-28	12-23	592386	Seal washer	1	
	M90	95-28		692889 (9007314-0611)	Screw	6	
	M96	95-28		011296 (9004105-0120)	O-ring	3	
	M97	95-28		9004105-0130	O-ring	2	
	M99	95-28		K08572	Filter assembly	1	
	QM10	95-28		8510185	EDC3 kit, MS connector	1	
	QM210	95-28		11095724	Control seal kit	1	
	KP	M9	95-28		MCV116G4204	PCP, Weather-Pac connector	1
M11		95-28		8800923	Control gasket	1	
M14		95-28		11070308	Feedback link	1	
M29		95-28		K07067	Screw	4	
M51		95-28		9003509-0008	Seal nut	1	
M87		95-28	12-23	592386	Seal washer	1	
M90		95-28		692889 (9007314-0611)	Screw	6	
M96		95-28		011296 (9004105-0120)	O-ring	3	
M97		95-28		9004105-0130	O-ring	2	
M99		95-28		K08572	Filter assembly	1	
QM10		95-28		8510156	EDC3 kit, Weather-Pac connector	1	
QM210		95-28		11095724	Control seal kit	1	



Variable displacement pump

(KT)

(MA)



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 794E

* = included in control seal kit Q210

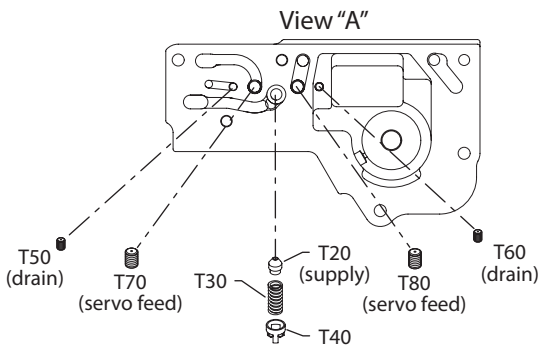
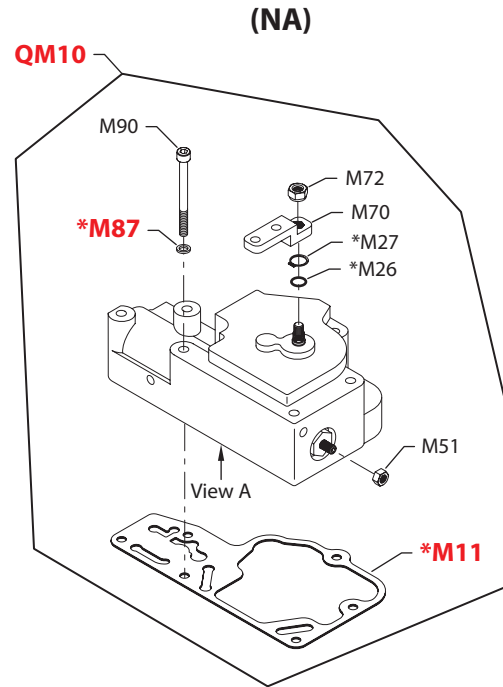
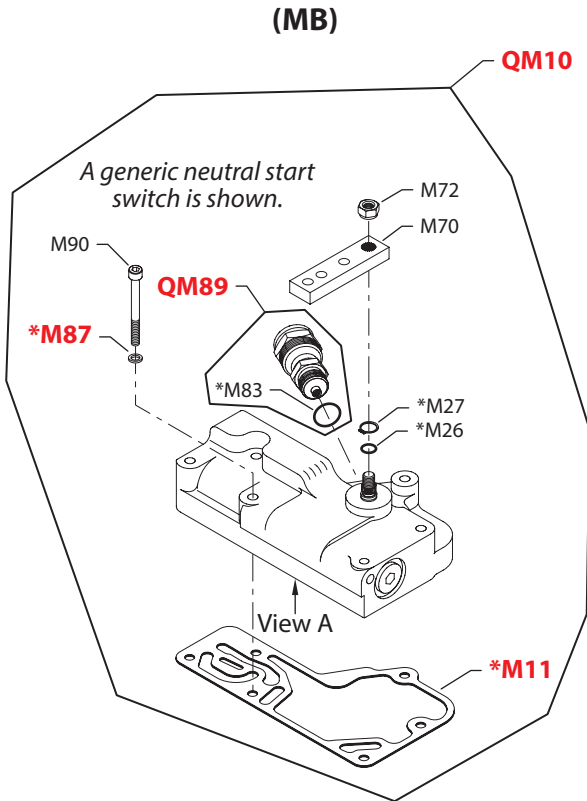
Enlarged **bold** type item numbers are recommended part to stock for servicing.


Variable displacement pump
Control

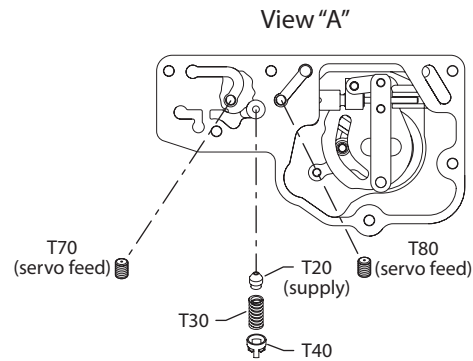
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit	
KT	M9	95-28		MCV116G4214	PCP, Deutsch connector	1	
	M11	95-28		8800923	Control gasket	1	
	M14	95-28		11070308	Feedback link	1	
	M29	95-28		K07067	Screw	4	
	M51	95-28		9003509-0008	Seal nut	1	
	M87	95-28	12-23	592386	Seal washer	1	
	M90	95-28		692889 (9007314-0611)	Screw	6	
	M96	95-28		011296 (9004105-0120)	O-ring	3	
	M97	95-28		9004105-0130	O-ring	2	
	M99	95-28		K08572	Filter assembly	1	
	QM10	95-28		8510268	EDC3 kit, Weather-Pac connector	1	
	QM210	95-28		11095724	Control seal kit	1	
	MA	M11	95-28		8800923	Control gasket	1
		M14	95-28		11072308	Feedback link	1
M26		95-28		144725 (9004105-0110)	O-ring	1	
M27		95-28		9006300-0044	Retaining ring	1	
M70		95-28		9800916	Control handle	1	
M72		95-28		040642 (9003513-0800)	Nut	1	
M87		95-28	12-23	592386	Seal washer	1	
M90		95-28		692889 (9007314-0611)	Screw	6	
QM10		95-28		8510158	Control kit	1	
QM210		95-28		11096274	Control seal kit	1	



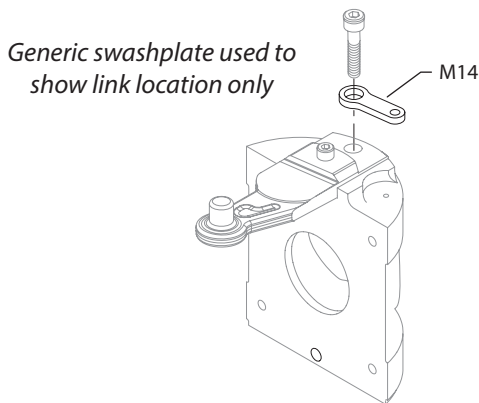
Variable displacement pump



Possible orifice locations



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 795E

* = included in control seal kit Q210

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


Variable displacement pump
Control

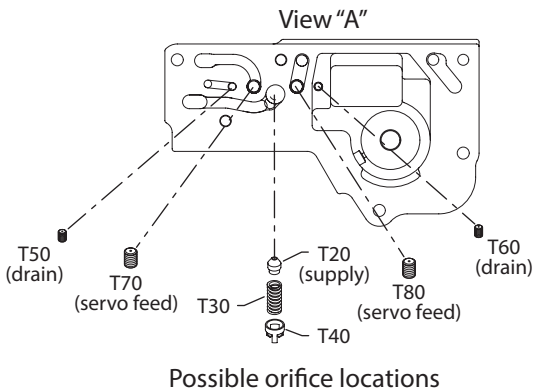
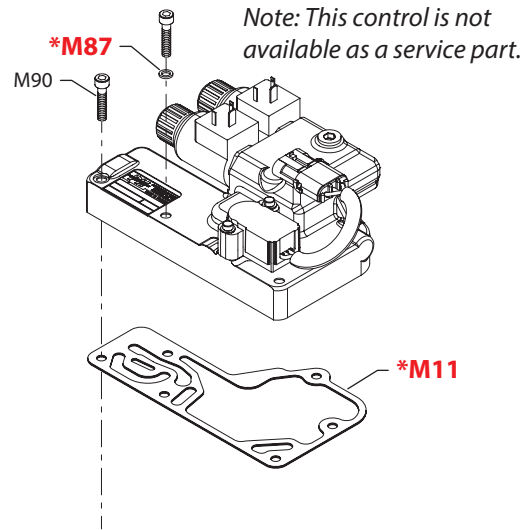
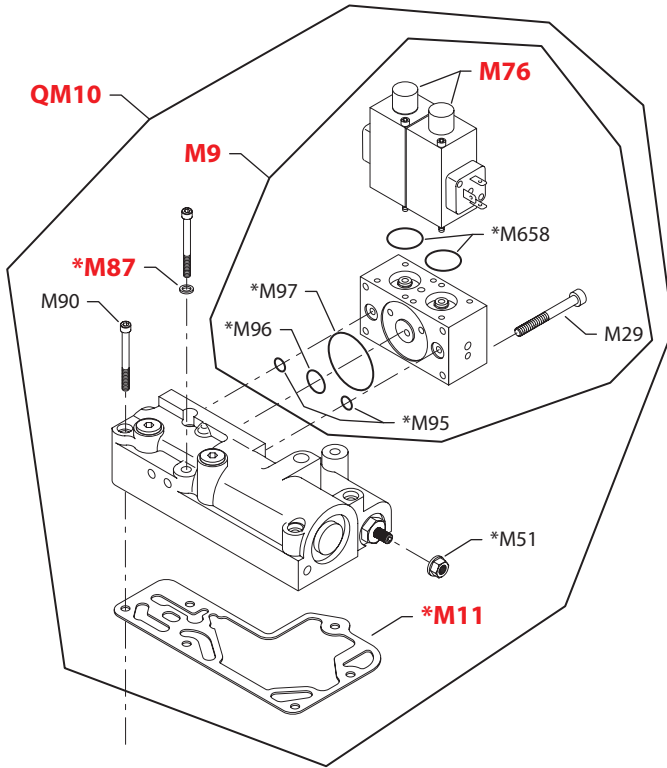
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
MB	M11	95-28		8800923	Control gasket	1
	M14	95-28		11072308	Feedback link	1
	M26	95-28		144725 (9004105-0110)	O-ring	1
	M27	95-28		9006300-0044	Retaining ring	1
	M70	95-28		9800916	Control handle	1
	M72	95-28		040642 (9003513-0800)	Nut	1
	M83	95-28		001131 (9004201-5000)	O-ring	1
	M87	95-28	12-23	592386	Seal washer	1
	M90	95-28		692889 (9007314-0611)	Screw	6
	QM10	95-28		8510186	Control kit with neutral start switch	1
	QM89	95-28		80020540	Neutral start switch	1
	QM210	95-28		11096274	Control seal kit	1
	NA	M11	95-46		504733	Control gasket
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



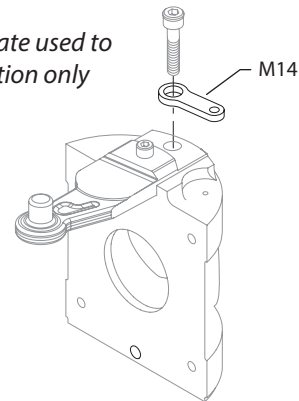
Variable displacement pump

(PB)

(SA & SB)



Generic swashplate used to show link location only



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 Q210

E101 796E

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

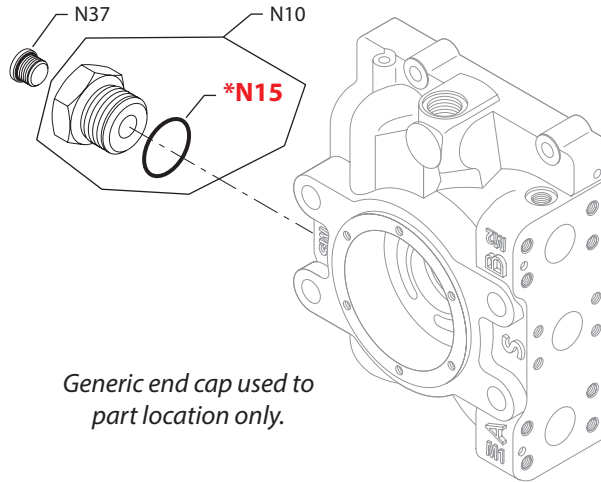

Variable displacement pump
Control

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
PB	M9	95-28		782045	PDC, 24 volt	1
	M11	95-28		8801241	Gasket	1
	M14	95-28		11072308	Feedback link	1
	M29	95-28		035592	Screw	4
	M51	95-28		9003509-0008	Seal nut	1
	M76	95-28		11001794	Solenoid, 24 volt	2
	M87	95-28	12-37	592386	Seal washer	1
	M90	95-28		692889 (9007314-0611)	Screw	6
	M95	95-28		011296 (9004105-0120)	O-ring	2
	M96	95-28		688721 (9004104-0170)	O-ring	1
	M97	95-28		314534 (9004104-0310)	O-ring	1
	M658	95-28		635938 (9004100-0210)	O-ring	2
	QM10	95-28		8510378	Control kit, 24 volt	1
	QM210	95-28		11096251	Control seal kit	1
	SA	M11	95-28		8800923	Control gasket
M14		95-28		11072308	Feedback link	1
M87		95-28	12-23	592386	Seal washer	1
M90		95-28		694356	Screw	6
QM210		95-28		11096320	Control seal kit	1
SB	M11	95-28		8800923	Control gasket	1
	M14	95-28		11072308	Feedback link	1
	M87	95-28	12-23	592386	Seal washer	1
	M90	95-28		694356	Screw	6
	QM210	95-28		11096320	Control seal kit	1



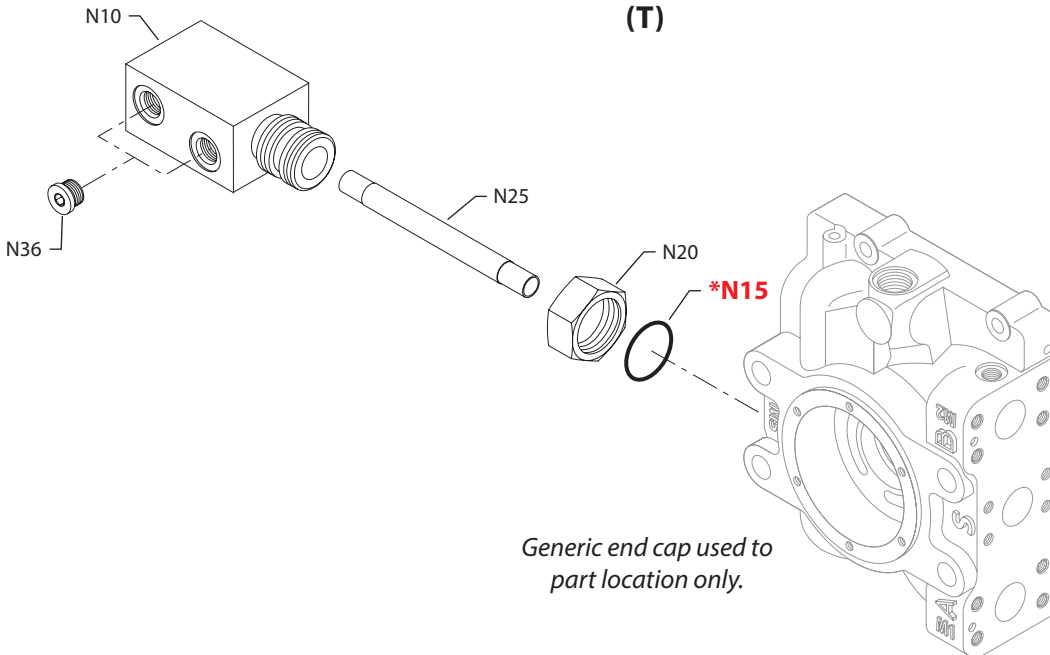
Variable displacement pump

(S)



Generic end cap used to part location only.

(T)



Generic end cap used to part location only.

E100 101E

* = included in overhaul seal kit Q210

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



Variable displacement pump

Filtration

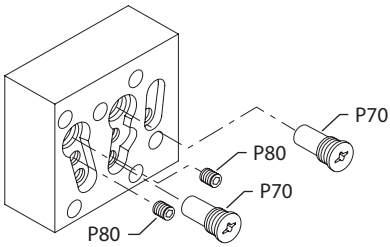
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
D				None		
S	N10	95-28		757831	Reducer fitting assembly	1
	N15	95-28		093823 (9004201-9200)	O-ring	1
	N37	95-28		140644	Plug assembly	1
T	N10	95-28		507014	Filter manifold	1
	N15	95-28		093823 (9004201-9200)	O-ring	1
	N20	95-28		11139975	Nut	1
	N25	95-28		507016	Tube	1
	N36	95-28		140644	Plug assembly	2



Variable displacement pump

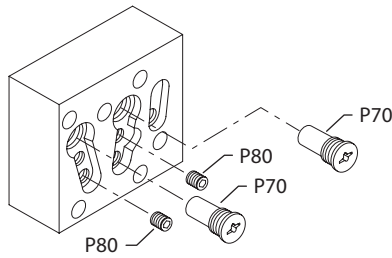
(1, 5, 6 & P)

View A
CW rotation



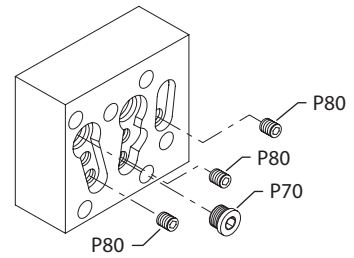
(1, 5, 6 & P)

View A
CCW rotation

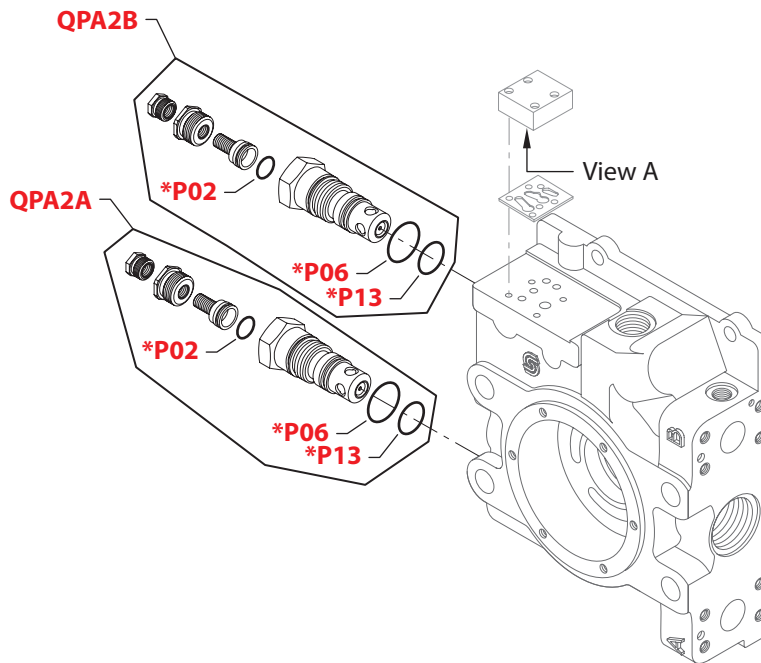


(2)

View A



(1, 2, 5, 6 & P)



E100 102E

* = included in overhaul seal kit Q210

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

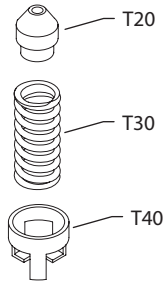

Variable displacement pump
High pressure regulation

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
P		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		8510292	Multi-function valve kit	1
	QPA2B	94-20		8510292	Multi-function valve kit	1



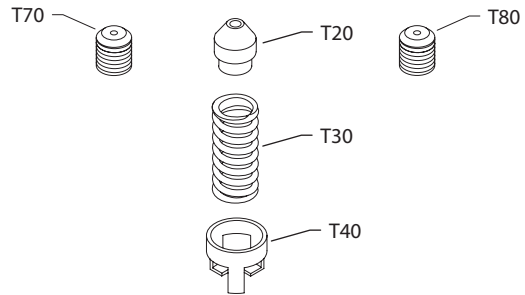
Variable displacement pump

**(01, 02, 03, 04, 05,
06, 09 & 22)**



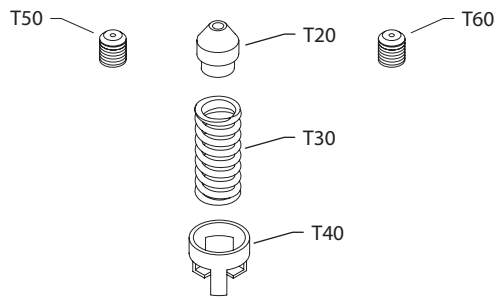
See control drawing
for orifice location

(38)



See control drawing
for orifice location

(26)



See control drawing
for orifice location

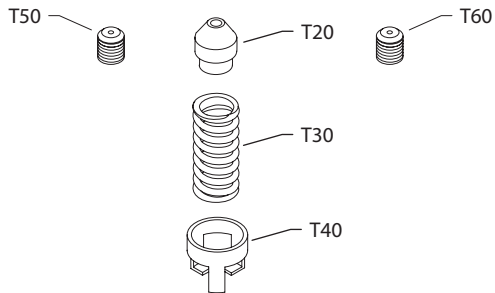

Variable displacement pump
Orifice

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
00				None		
01	T20	95-28		8801136	Orificed check valve, .018"	1
	T30	95-28		679506 (8700007)	Spring	1
	T40	95-28		8801303	Spring retainer	1
02	T20	95-28		8801139	Orificed check valve, .026"	1
	T30	95-28		679506 (8700007)	Spring	1
	T40	95-28		8801303	Spring retainer	1
03	T20	95-28		11061958	Orificed check valve, .81mm	1
	T30	95-28		679506 (8700007)	Spring	1
	T40	95-28		8801303	Spring retainer	1
04	T20	95-28		11061970	Orificed check valve, 1.02mm	1
	T30	95-28		679506 (8700007)	Spring	1
	T40	95-28		8801303	Spring retainer	1
05	T20	95-28		11061981	Orificed check valve, 1.37mm	1
	T30	95-28		679506 (8700007)	Spring	1
	T40	95-28		8801303	Spring retainer	1
06	T20	95-28		11061993	Orificed check valve, 1.57mm	1
	T30	95-28		679506 (8700007)	Spring	1
	T40	95-28		8801303	Spring retainer	1
09	T20	95-28		11062006	Orificed check valve, 2.34mm	1
	T30	95-28		679506 (8700007)	Spring	1
	T40	95-28		8801303	Spring retainer	1
22	T20	95-28		8801137	Orificed check valve, .022"	1
	T30	95-28		679506 (8700007)	Spring	1
	T40	95-28		8801303	Spring retainer	1
26	T20	95-28		11061958	Orificed check valve, 0.81mm	1
	T30	95-28		679506 (8700007)	Spring	1
	T40	95-28		8801303	Spring retainer	1
	T50	95-28		598292	Orifice plug, 0.8mm, M5 x 6	1
	T60	95-28		598292	Orifice plug, 0.8mm, M5 x 6	1
33				None		
38	T20	95-28		8801139	Orificed check valve, 0.26"	1
	T30	95-28		679506 (8700007)	Spring	1
	T40	95-28		8801303	Spring retainer	1
	T70	95-28		716837	Orifice plug, 0.6mm, M8 x 8	1
	T80	95-28		716837	Orifice plug, 0.6mm, M8 x 8	1



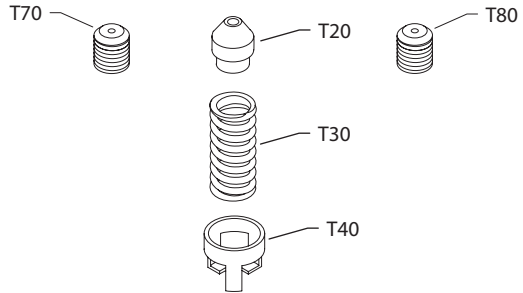
Variable displacement pump

(49, C3, C5 & C6)



See control drawing
for orifice location

(54 & 76)



See control drawing
for orifice location

(72 & C4)



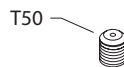
See control drawing
for orifice location

(A4)



See control drawing
for orifice location

(B1)



See control drawing
for orifice location

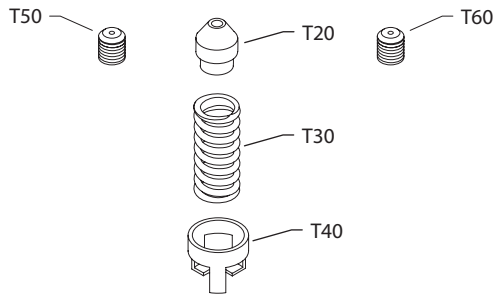

Variable displacement pump
Orifice

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
49	T20	95-28		11061958	Orificed check valve, 0.81mm	1
	T30	95-28		679506 (8700007)	Spring	1
	T40	95-28		8801303	Spring retainer	1
	T50	95-28		639120	Orifice plug, 1.0mm, M5 x 6	1
	T60	95-28		639120	Orifice plug, 1.0mm, M5 x 6	1
	54	T20	95-28	12-29	11061970	Orificed check valve, 1.02mm
T30		95-28	12-29	679506 (8700007)	Spring	1
T40		95-28	12-29	8801303	Spring retainer	1
T70		95-28	12-29	755793	Orifice plug, 1.0mm, M8 x 8	1
T80		95-28	12-29	755793	Orifice plug, 1.0mm, M8 x 8	1
72		T50	95-28		617159	Orifice plug, 1.8mm, M5 x 6
	T60	95-28		617159	Orifice plug, 1.8mm, M5 x 6	1
76	T20	95-28		8801139	Orificed check valve, 0.26"	1
	T30	95-28		679506 (8700007)	Spring	1
	T40	95-28		8801303	Spring retainer	1
	T70	95-28		578542	Orifice plug, 0.8mm, M6 x 8	1
	T80	95-28		578542	Orifice plug, 0.8mm, M6 x 8	1
	A4	T70	95-28		578542	Orifice plug, 0.8mm, M6 x 8
T80		95-28		578542	Orifice plug, 0.8mm, M6 x 8	1
B1	T50	95-28		507042	Orifice plug, 1.5mm, M6 x 8	1
C3	T20	95-28		8801139	Orificed check valve, 0.26"	1
	T30	95-28		679506 (8700007)	Spring	1
	T40	95-28		8801303	Spring retainer	1
	T50	95-28		639153	Orifice plug, 1.3 mm, M5 x 6	1
	T60	95-28		639153	Orifice plug, 1.3 mm, M5 x 6	1
	C4	T50	95-28		639161	Orifice plug, 1.4 mm, M5 x 6
T60		95-28		639161	Orifice plug, 1.4 mm, M5 x 6	1
C5	T20	95-28		11061958	Orificed check valve, 0.81mm	1
	T30	95-28		679506 (8700007)	Spring	1
	T40	95-28		8801303	Spring retainer	1
	T50	95-28		639161	Orifice plug, 1.4 mm, M5 x 6	1
	T60	95-28		639161	Orifice plug, 1.4 mm, M5 x 6	1
	C6	T20	95-28		11061970	Orificed check valve, 1.02mm
T30		95-28		679506 (8700007)	Spring	1
T40		95-28		8801303	Spring retainer	1
T50		95-28		639161	Orifice plug, 1.4 mm, M5 x 6	1
T60		95-28		639161	Orifice plug, 1.4 mm, M5 x 6	1



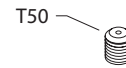
Variable displacement pump

(C7 & K3)



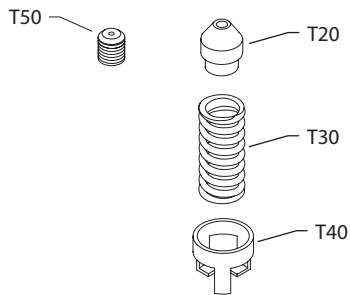
See control drawing
for orifice location

(G1)



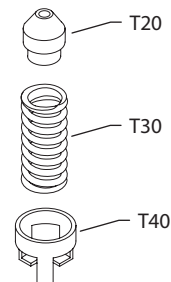
See control drawing
for orifice location

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



See control drawing
for orifice location

(K1)



See control drawing
for orifice location

(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
C7	T20	95-28		11061981	Orificed check valve, 1.02mm	1
	T30	95-28		679506 (8700007)	Spring	1
	T40	95-28		8801303	Spring retainer	1
	T50	95-28		639161	Orifice plug, 1.4 mm, M5 x 6	1
	T60	95-28		639161	Orifice plug, 1.4 mm, M5 x 6	1
G1	T50	95-28		310771	Orifice plug, 1.2 mm, M6 x 6	1
G4	T20	95-28		8801136	Orificed check valve, .018"	1
	T30	95-28		679506 (8700007)	Spring	1
	T40	95-28		8801303	Spring retainer	1
	T50	95-28		310771	Orifice plug, 1.2 mm, M6 x 6	1
G8	T20	95-28		8801139	Orificed check valve, .026"	1
	T30	95-28		679506 (8700007)	Spring	1
	T40	95-28		8801303	Spring retainer	1
	T50	95-28		310771	Orifice plug, 1.2 mm, M6 x 6	1
GB	T20	95-28		11061958	Orificed check valve, 0.81mm	1
	T30	95-28		679506 (8700007)	Spring	1
	T40	95-28		8801303	Spring retainer	1
	T50	95-28		310771	Orifice plug, 1.2 mm, M6 x 6	1
GD	T20	95-28		11061993	Orificed check valve, 1.57mm	1
	T30	95-28		679506 (8700007)	Spring	1
	T40	95-28		8801303	Spring retainer	1
	T50	95-28		310771	Orifice plug, 1.2 mm, M6 x 6	1
GF	T20	95-28		11061970	Orificed check valve, 1.02mm	1
	T30	95-28		679506 (8700007)	Spring	1
	T40	95-28		8801303	Spring retainer	1
	T50	95-28		310771	Orifice plug, 1.2 mm, M6 x 6	1
GJ	T20	95-28		11061981	Orificed check valve, 1.37mm	1
	T30	95-28		679506 (8700007)	Spring	1
	T40	95-28		8801303	Spring retainer	1
	T50	95-28		310771	Orifice plug, 1.2 mm, M6 x 6	1
K1	T20	95-28		11061981	Orificed check valve, 1.37mm	1
	T30	95-28		679506 (8700007)	Spring	1
	T40	95-28		8801303	Spring retainer	1
K3	T20	95-28		11061993	Orificed check valve, 1.57mm	1
	T30	95-28		679506 (8700007)	Spring	1
	T40	95-28		8801303	Spring retainer	1
	T50	95-28		639120	Orifice plug, 1.0 mm, M5 x 6	1
	T60	95-28		639120	Orifice plug, 1.0 mm, M5 x 6	1
P1	T70	94-20		508014	Orifice plug, 1.0 mm, M6 x 8	1
	T80	94-20		508014	Orifice plug, 1.0 mm, M6 x 8	1


Variable displacement pump
Overhaul seal kit

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	Q210	95-28		11095664	Service seal kit, base pump, 250cc	1
	C70	95-28		308643	Screw	4
	E40	95-28		042432	Seal nut, M10	2
	E50	95-28		517380	O-ring	1
	E60	95-28		517231	Screw	6
	F11	95-28		504627	O-ring	2
	F12	95-28		507802	Piston ring	2
	F40	95-28		9004104-1520	O-ring	2
	F50	95-28		755272	O-ring	2
	F112	95-28		649822	Seal nut, M14	1
	F212	95-28		649822	Seal nut, M14	1
	G30	95-28		511809	End cap gasket	1
	J40	95-28		11147582	O-ring	1
	J50	95-28		505068	O-ring	1
	K50	95-28		001156 (9004201-7500)	O-ring	1
	L25	95-28		11053971	Shaft seal carrier assembly	1
	N15	95-28		093823 (9004201-9200)	O-ring	1
	P02	95-28		775080 (9004100-0170)	O-ring	2
	P06	95-28		360784 (9004105-0290)	O-ring	2
	P13	95-28		775155	O-ring	2



Service Bulletin: SB-1996-004

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

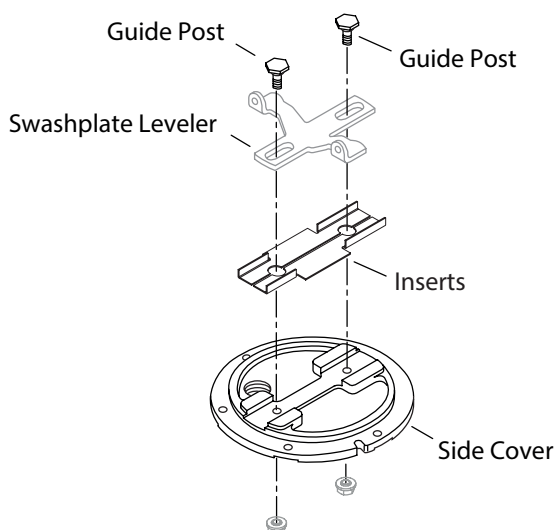
Subject Side cover design change

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 washplate 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-xxxx through A-99-49-xxxx. It is not required to replace the gasket in pumps with the control in the top 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-xxxx. Sauer-Danfoss Ames 100cc pump production: A-00-25-xxxx. Sauer-Danfoss Neumunster production: N-00-01-xxxx.



Service Bulletin: SB-1999-065A

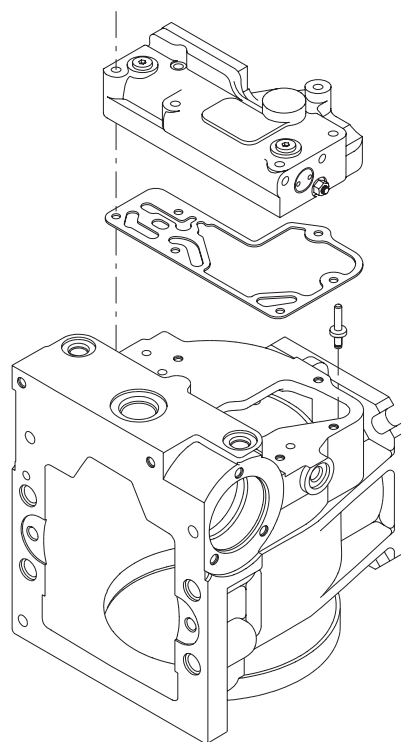
Part numbers affected

Previous gasket	New gasket
511608	8801241

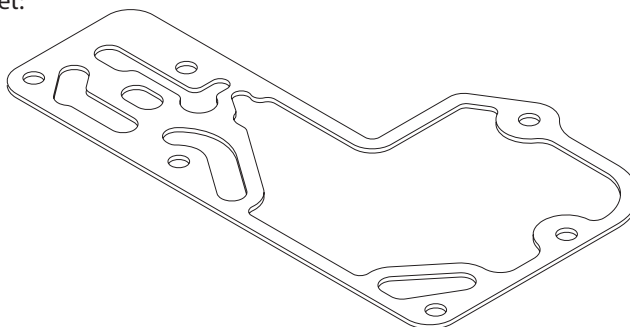
Parts disposition

■ Interchangeable

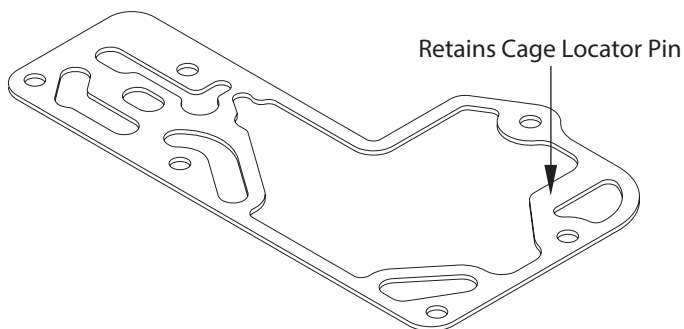
Control Gasket Location:



Previous Gasket:



New Gasket:



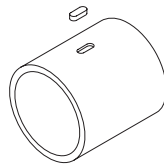


Service Bulletin: SB-2002-040

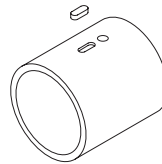
Products affected Series 90 250cc variable pumps

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 250cc pumps.



Old shaft



New shaft

Models affected All series 250cc variable pumps

Serial numbers Change became effective at serial number N-02-41-xxxxx.

Part numbers affected

Old part numbers	New part numbers
513439	518691

Parts disposition ■ Interchangeable



Service Bulletin: SB-2009-074

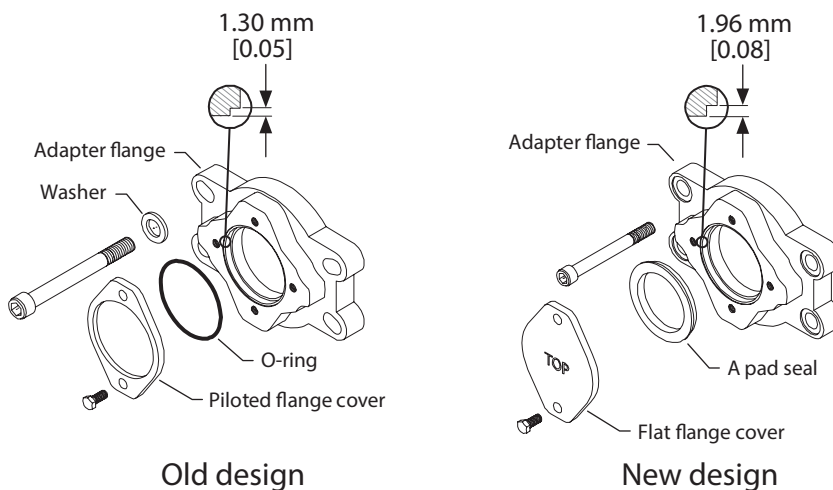
Products affected Series 90 42, 130, 180 and 250cc variable pumps

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

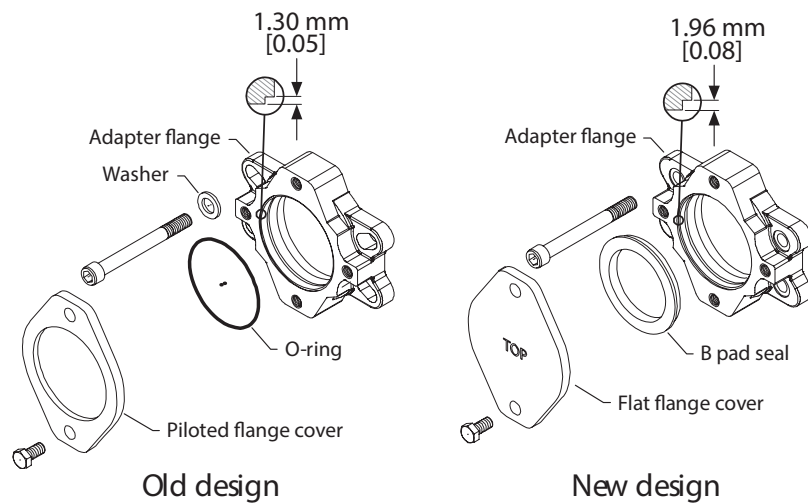
Products affected Series 90 42, 130, 180 and 250cc variable pumps

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

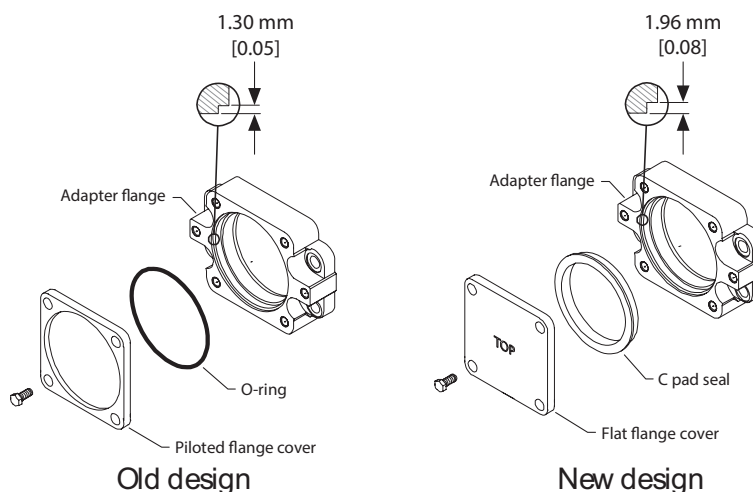
Products affected Series 90 130, 180 and 250cc variable pumps

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 [0.070"] 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).



Models affected All series 90 130, 180 and 250cc pumps with an SAE C 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
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

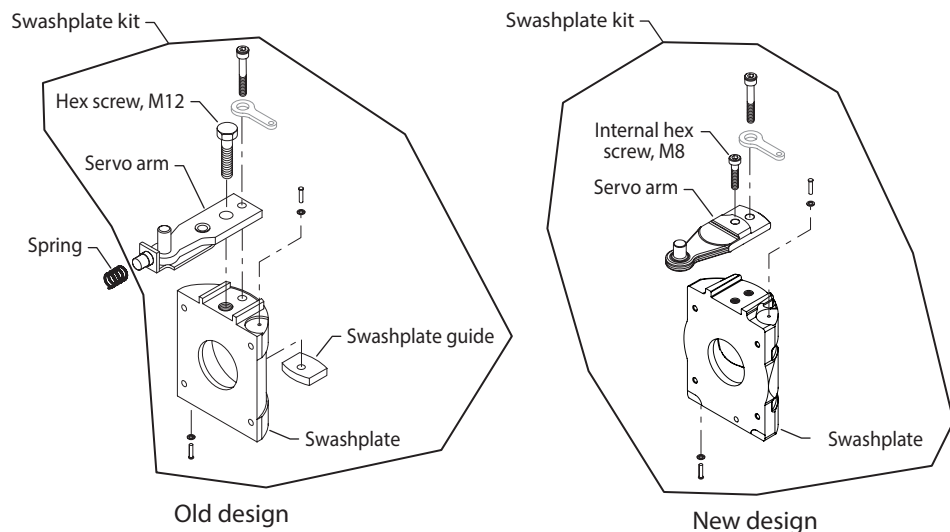
Description As a global improvement, the series 90 180/250cc pumps have redesigned the following components: servo arm, servo arm screw, swashplate guide and pump housing. This is a non-interchangeable change. Model numbers and order codes will not be changed.

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



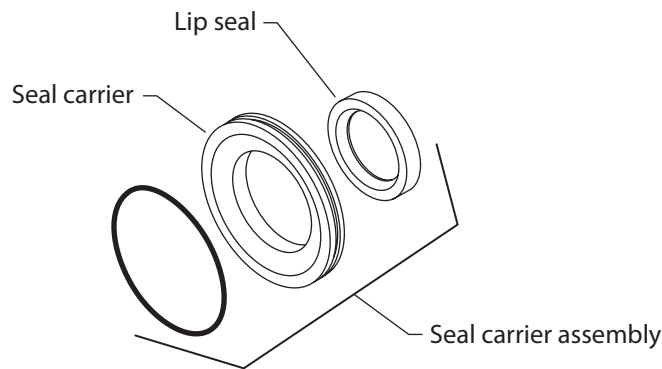
Service Bulletin: SB-2012-039

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



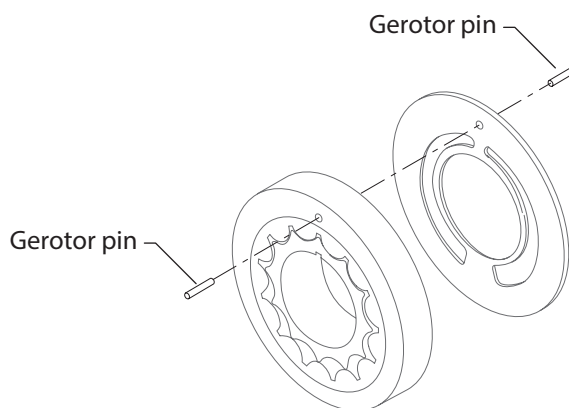
Service Bulletin: SB-2015-038

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



Notes



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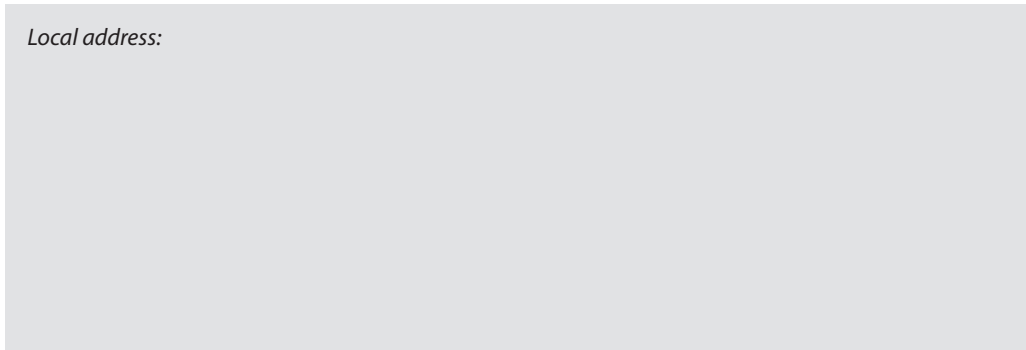
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