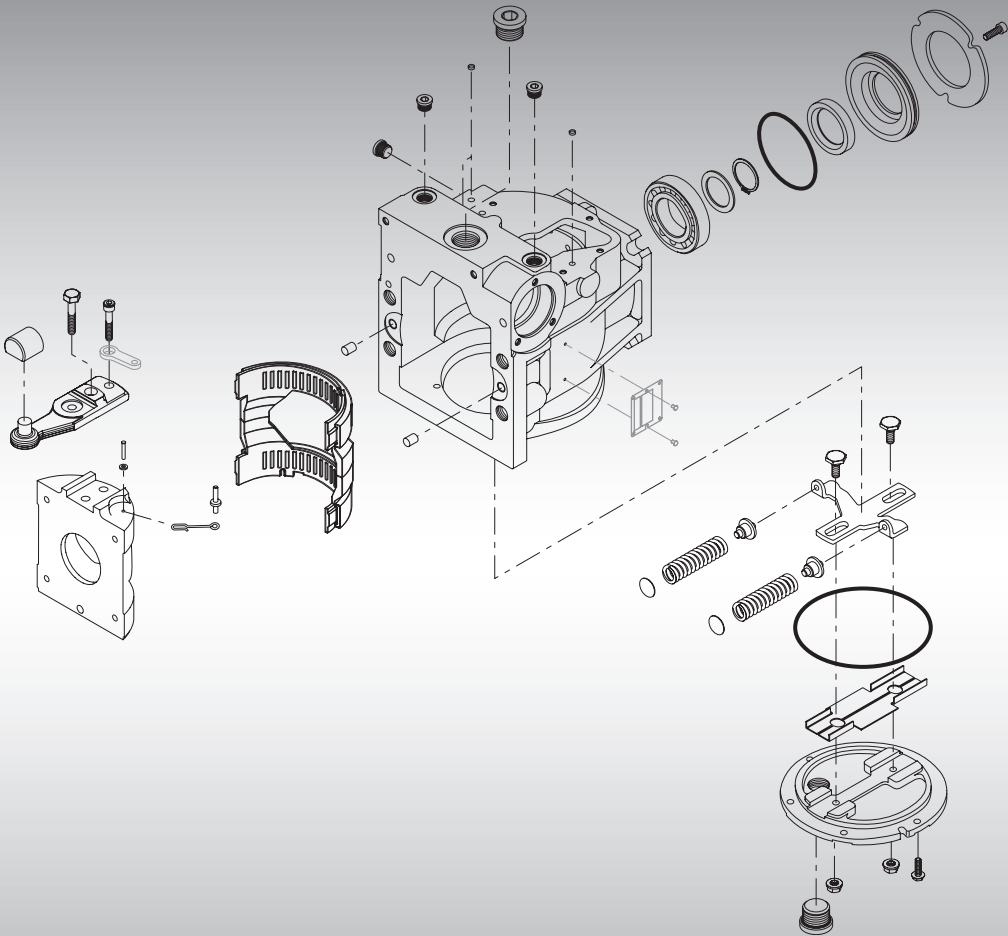




Parts Manual

Series 90

75cc 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 75 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 75 cc pump.

Nameplate

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

Model Code

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

Model Number

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

Serial Number

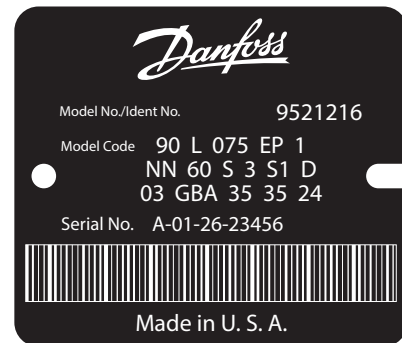
The Danfoss serial number is used to identify the manufacture date and the unit sequence in the build. The serial number is also used to identify the units warranty time period.

The letter code indicates the location of original manufacture (assembly). “A” indicates the unit was originally assembled in Ames, Iowa, USA. “N” indicates the unit was originally assembled in Neumuenster, 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 G30

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
80	G30	89-17		8000243	End cap gasket	1
	G30	87-02	89-16	8000151	End cap gasket (SB-1995-006)	1

All units using this order code with a date code of 87-02 and up to and including 89-16, must use part number "8000151". All units with a date code of 89-17 and newer must use part number "8000243".

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: 314583 (9008000-0118), customers would order 9008000-0118 if ordering the part in the United States.)

Example of a Part Identification

The nameplate on a Series 90 pump has an Order Code of 90L075 EP 1 NN 60 S 3 S1 D 03 GBA 35 35 24. Use the following procedures to determine the part number of the drive shaft used on this pump.

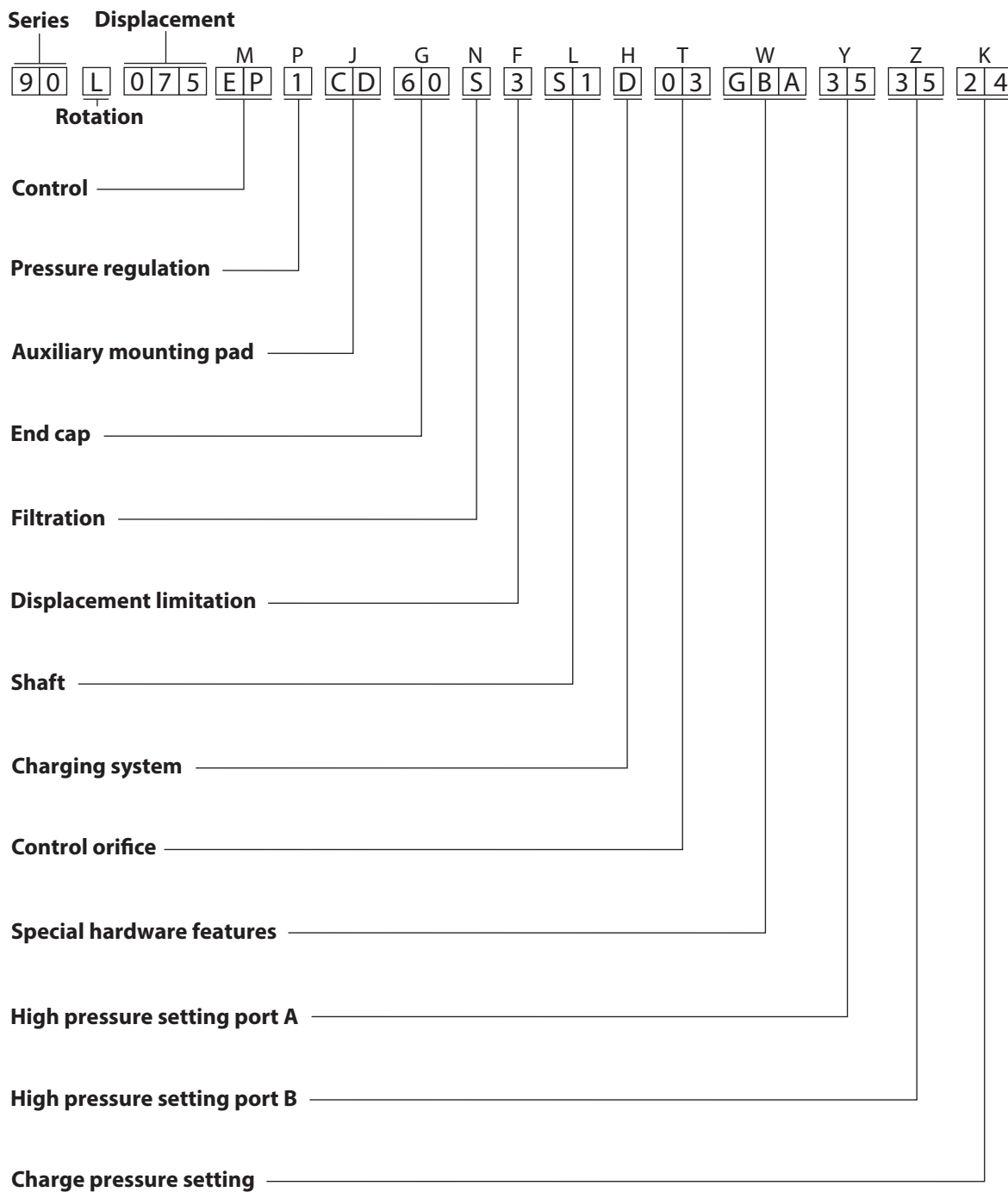
- 1) Referring to the input shaft module in the Order Code (see page 7), the input shaft option for this pump is identified by the code "S1". (90L075 EP 1 NN 60 S 3 **S1** D 03 GBA 35 35 24)
- 2) Referring to the Service Parts List, find the shaft group. Next find the order code that relates to this unit, which is "S1". The shaft is found to be item L100 and part number 8100264.



Notes



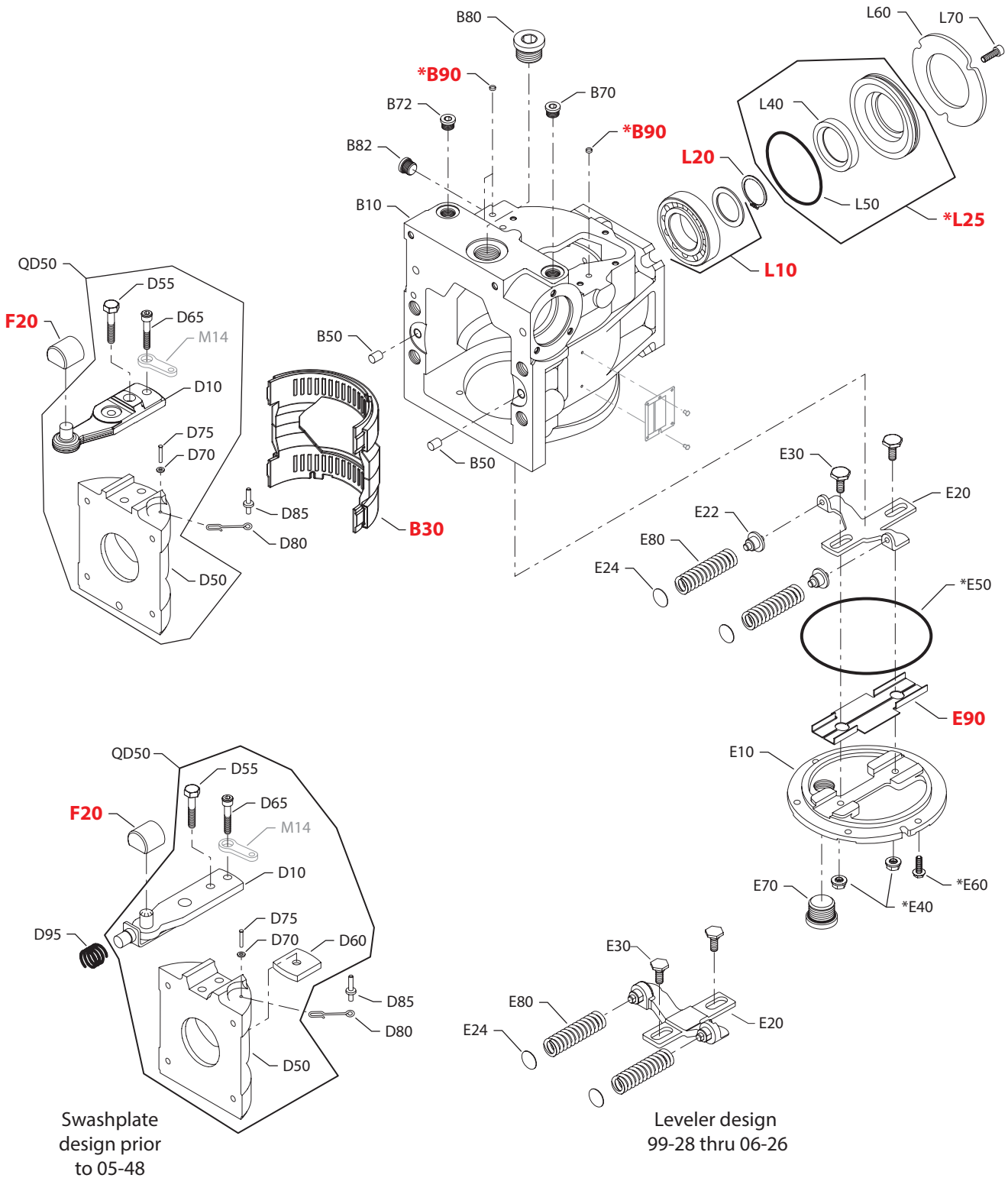
Order code



P100 704E



Variable displacement pump



Swashplate design prior to 05-48

Leveler design 99-28 thru 06-26

* = included in base pump seal kit Q210

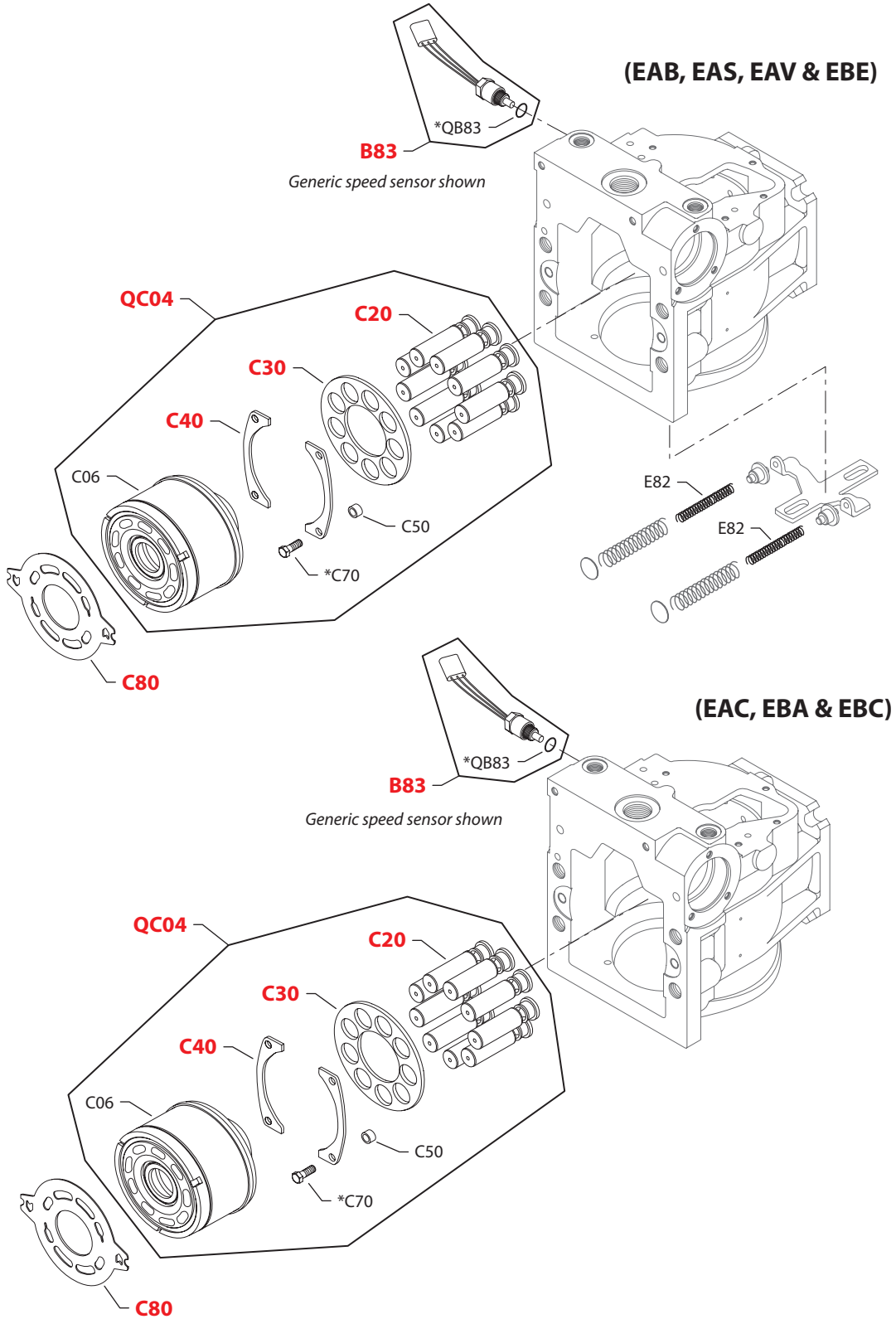
E100 790E
Enlarged **bold** type item numbers are recommended parts to be stocked for servicing


Variable displacement pump
Common parts

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	B10	05-49		11001300	Housing (SB-2005-007)	1
	B30	05-49		518671	Cradle bearing assembly (SB-2005-007)	1
	B30	87-02	05-48	676841 (8700048)	Cradle bearing assembly	1
	B50	87-02		9004800-3708	Pin	2
	B70	87-02		140644 (9005110-5600)	Plug assembly	1
	B72	87-02		140644 (9005110-5600)	Plug assembly	1
	B80	87-02		664524 (9005110-9000)	Plug assembly	1
	B82	92-19		140644 (9005110-5600)	Plug assembly (SB-1992-003)	1
	B90	87-02		9803390	Control filter screen	3
	D10	05-49		519046	Servo arm (SB-2005-007)	1
	D10	88-16	05-48	8100499	Servo arm assembly (SB-1993-015)	1
	D50	05-49		11000688	Swashplate (SB-2005-007)	1
	D50	88-16	05-48	8000188	Swashplate (SB-1988-009)	1
	D55	05-49		519150	Screw (SB-2005-007)	1
	D55	87-02	05-48	666032 (9007276-0107)	Screw	1
	D60	87-02	05-48	8800669	Swashplate guide	1
	D65	87-02		9007375-0044	Screw (SB-1992-011)	1
	D70	87-02		9009625-0146	Washer	1
	D75	87-02		9004875-0098	Spiral head pin	1
	D80	87-02		693929 (8100506)	Cage locator link (SB-1994-017)	1
	D85	01-26		8801235	Pin (SB-2004-012)	1
	D85	87-02	01-25	8801135	Pin (SB-1998-018)	1
	D95	87-02	05-48	8100035	Spring (SB-2005-007)	1
	E10	05-49		11001286	Side cover (SB-2005-007)	1
	E10	95-50	05-48	501572	Side cover (SB-1995-025)	1
	E20	98-14		11042018	Leveler (SB-1999-009)	1
	E22	06-27		517935	Spring seat	2
	E22	99-28	06-26	none		
	E22	98-14	99-27	517935	Spring seat (SB-1999-009)	2
	E24	92-06		8801225	Shim (SB-2000-041)	2
	E30	99-28		11056531	Guide post (SB-2009-073)	2
	E30	95-50	99-27	8000510	Guide post (SB-1999-009)	2
	E30	87-02	95-49	8510098	Side cover kit (SB-1995-025)	1
	E40	87-02		505412 (9003509-0008)	Seal nut	2
	E50	87-02		517377	O-ring	1
	E60	87-02		517228 (5000206)	Screw (SB-1994-018)	6
	E70	87-02		664524 (9005110-9000)	Plug assembly	1
	E80	87-02		334987 (11062691)	Spring	2
	E90	95-50		513888	Insert assembly (SB-1995-025 & SB-1999-041)	1
	F20	88-16		11116313	Slider block (SB-1988-009 & SB-2015-005)	1
	L10	87-02		5000505	Roller bearing	1
	L20	87-02		9006300-0156	Retaining ring	1
	L25	87-02		519671	Seal carrier assembly (SB-2005-007)	1
	L40	87-02		519666	Lip seal (SB-2005-007)	1
	L50	87-02		684621 (9004104-1530)	O-ring	1
	L60	87-02		516767	Retainer plate	1
	L70	87-02		041160 (9007314-0605)	Screw	3
	QD50	05-49		8100984	Swashplate assembly (SB-2005-007)	1
	QD50	88-16	05-48	8100376	Swashplate assembly (SB-1988-009)	1



Variable displacement pump



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* = included in base pump seal kit Q210

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


Variable displacement pump
Common parts

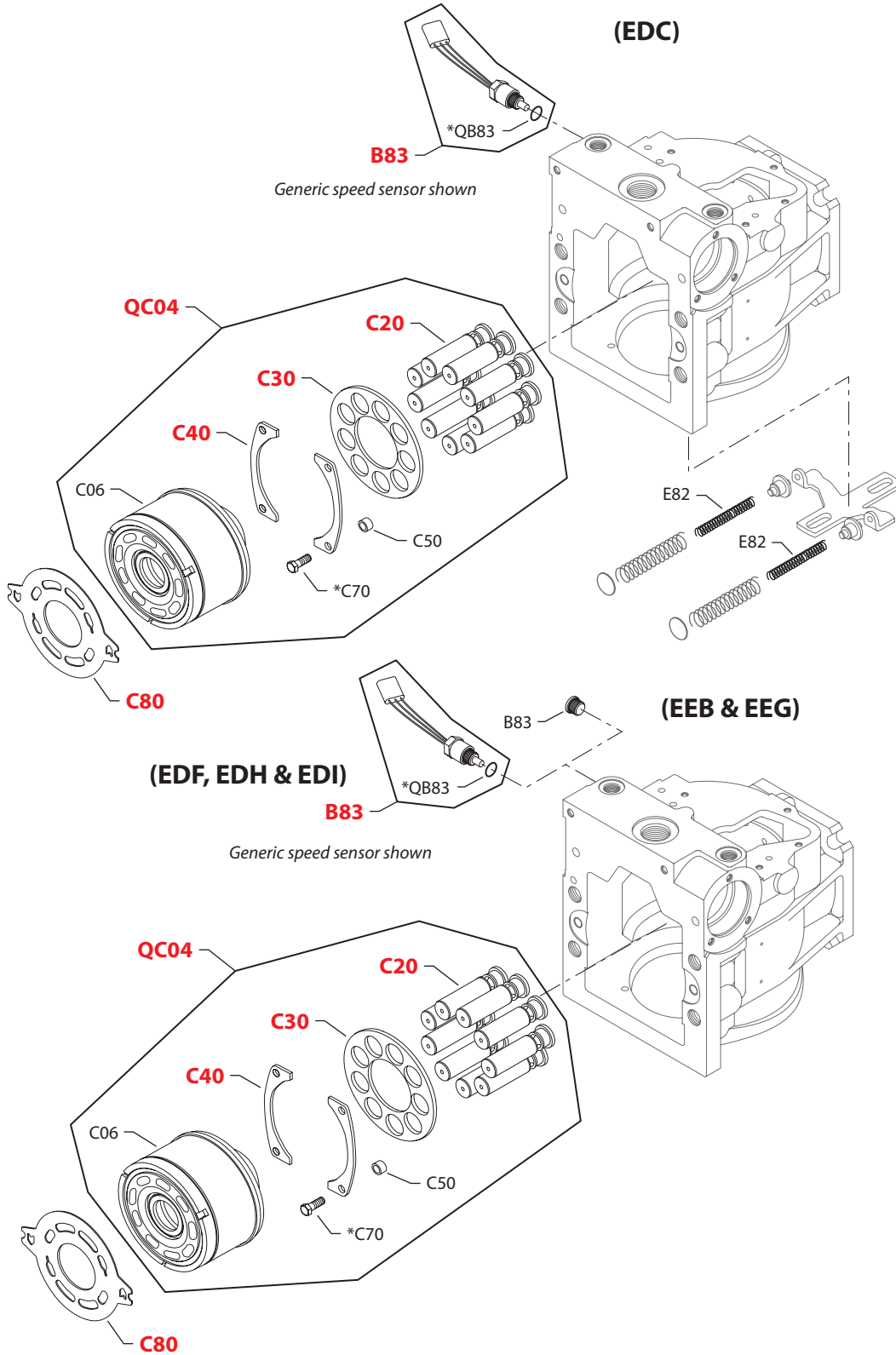
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	C20	87-02		708230	Piston assembly (SB-1988-023)	9
	C30	87-02		11067350	Slipper guide	1
	C40	88-22		334391 (8100294)	Slipper guide bearing (SB-1988-016)	2
	C50	88-22		11065865	Spacer (SB-1988-016 & SB-1998-041)	4
	C65	88-22	98-47	Obsolete	Washer (SB1988-016 & SB-1998-041)	4
	C70	88-22		314419 (9007276-0114)	Screw (SB-1988-016 & SB-1998-041)	4
	QB83	98-14		085043 (9004201-3700)	O-ring	1

Special hardware

EAB	B83	98-14		KPPG12508	Speed sensor	1
	C06	98-14		11094260 (11011714)	Cylinder block assembly, with speed ring	1
	C80	98-14		518008	Valve plate	1
	E82	98-14		11062703	Spring	2
	QC04	98-14		8510366	Cylinder block kit, with speed ring	1
EAC	B83	98-14		KPPG12508	Speed sensor	1
	C06	98-14		11094260 (11011714)	Cylinder block assembly, with speed ring	1
	C80	98-14		518805	Valve plate	1
	QC04	98-14		8510366	Cylinder block kit, with speed ring	1
EAS	B83	98-14		KPPG12508	Speed sensor	1
	C06	98-14		11094260 (11011714)	Cylinder block assembly, with speed ring	1
	C80	98-14		518008	Valve plate	1
	E82	98-14		360842	Spring	2
	QC04	98-14		8510366	Cylinder block kit, with speed ring	1
EAV	B83	06-12	12-35	11046858	Speed sensor	1
	C06	06-12	12-35	11094260 (11011714)	Cylinder block assembly, with speed ring	1
	C80	06-12	12-35	518008	Valve plate	1
	E82	06-12	12-35	11062703	Spring	2
	QC04	06-12	12-35	8510366	Cylinder block kit, with speed ring	1
EBA	B83	04-26		KPPG13408	Speed sensor	1
	C06	04-26		11094260 (11011714)	Cylinder block assembly, with speed ring	1
	C80	04-26		518924	Valve plate	1
	QC04	04-26		8510366	Cylinder block kit, with speed ring	1
EBC	B83	04-26		KPPG13408	Speed sensor	1
	C06	04-26		11094260 (11011714)	Cylinder block assembly, with speed ring	1
	C80	04-26		518805	Valve plate	1
	QC04	04-26		8510366	Cylinder block kit, with speed ring	1
EBE	B83	94-30		KPPG15408	Speed sensor	1
	C06	04-26		11094260 (11011714)	Cylinder block assembly, with speed ring	1
	C80	94-30		518805	Valve plate	1
	E82	98-14		11062703	Spring	2
	QC04	04-26		8510366	Cylinder block kit, with speed ring	1



Variable displacement pump



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* = included in base pump seal kit Q210

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


Variable displacement pump
Common parts

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	C20	87-02		708230	Piston assembly (SB-1988-023)	9
	C30	87-02		11067350	Slipper guide	1
	C40	88-22		334391 (8100294)	Slipper guide bearing (SB-1988-016)	2
	C50	88-22		11065865	Spacer (SB-1988-016 & SB-1998-041)	4
	C65	88-22	98-47	Obsolete	Washer (SB1988-016 & SB-1998-041)	4
	C70	88-22		314419 (9007276-0114)	Screw (SB-1988-016 & SB-1998-041)	4
	QB83	98-14		085043 (9004201-3700)	O-ring	1

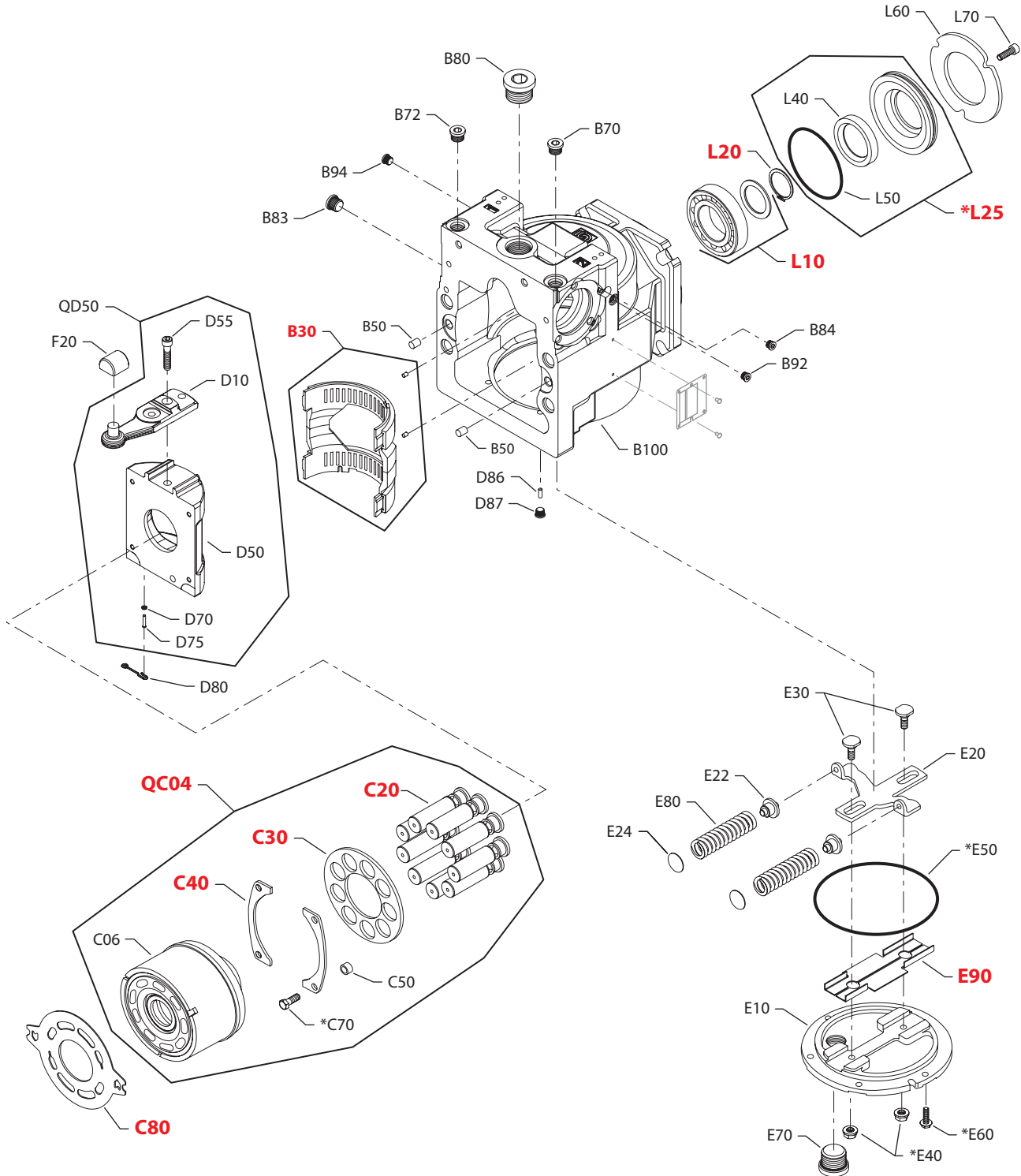
Special hardware

EDC	B83	94-34		KPPG13408	Speed sensor	1
	C06	94-34		11094260 (11011714)	Cylinder block assembly, with speed ring	1
	C80	94-34		518925	Valve plate, CW	1
	C80	94-34		518926	Valve plate, CCW	1
	E82	94-34		11062703	Spring	2
	QC04	94-34		8510366	Cylinder block kit, with speed ring	1
EDF	B83	94-34	12-35	11046858	Speed sensor	1
	C06	94-34	12-35	11094260 (11011714)	Cylinder block assembly, with speed ring	1
	C80	97-14	12-35	518008	Valve plate	1
	QC04	94-34	12-35	8510366	Cylinder block kit, with speed ring	1
EDH	B83	99-17	12-36	KPPG15408	Speed sensor	1
	C06	99-17	12-36	11094260 (11011714)	Cylinder block assembly, with speed ring	1
	C80	99-17	12-36	518007	Valve plate	1
	QC04	99-17	12-36	8510366	Cylinder block kit, with speed ring	1
EDI	B83	00-17	12-36	KPPG15408	Speed sensor	1
	C06	00-17	12-36	11094260 (11011714)	Cylinder block assembly, with speed ring	1
	C80	00-17	12-36	518925	Valve plate, CW	1
	C80	00-17	12-36	518926	Valve plate, CCW	1
	QC04	00-17	12-36	8510366	Cylinder block kit, with speed ring	1
EEB	B83	99-17		140644 (9005110-5600)	Plug assembly	1
	C06	99-17		11094260 (11011714)	Cylinder block assembly, with speed ring	1
	C80	99-17		518008	Valve plate	1
	QC04	99-17		8510366	Cylinder block kit, with speed ring	1
EEG	B83	00-17		140644 (9005110-5600)	Plug assembly	1
	C06	00-17		11094260 (11011714)	Cylinder block assembly, with speed ring	1
	C80	00-17		518925	Valve plate, CW	1
	C80	00-17		518926	Valve plate, CCW	1
	QC04	00-17		8510366	Cylinder block kit, with speed ring	1



Variable displacement pump

(EEH)



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* = included in base pump seal kit Q210

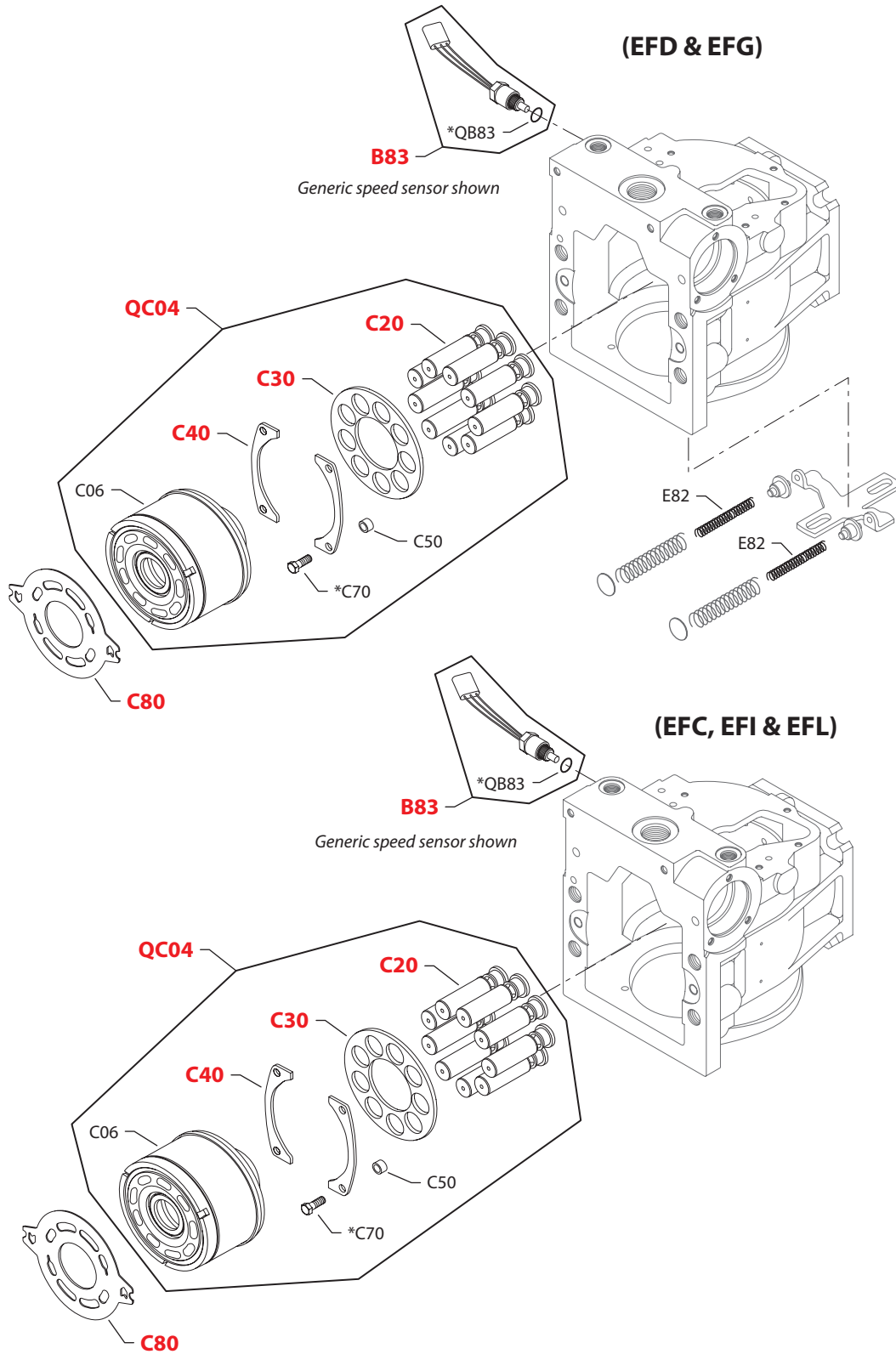
Enlarged **bold** type item numbers are recommended parts to be stocked for servicing


Variable displacement pump
Special hardware

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
EEH	B30	05-20	12-36	518671	Cradle bearing assembly	1
	B50	05-20	12-36	9004800-3708	Pin	2
	B70	05-20	12-36	140644	Plug assembly	1
	B72	05-20	12-36	140644	Plug assembly	1
	B80	05-20	12-36	664524 (9005110-9000)	Plug assembly	1
	B83	05-20	12-36	140644	Plug assembly	1
	B84	05-20	12-36	11040532	Plug assembly	1
	B92	05-20	12-36	11040532	Plug assembly	1
	B94	05-20	12-36	11040532	Plug assembly	1
	B100	05-20	12-36	11117294	Housing assembly	1
	C06	05-20	12-36	11094260 (11011714)	Cylinder block assembly, with speed ring	1
	C20	05-20	12-36	708230	Piston assembly	9
	C30	05-20	12-36	11067350	Slipper guide	1
	C40	05-20	12-36	334391 (8100294)	Slipper guide bearing	2
	C50	05-20	12-36	11065865	Spacer	4
	C70	05-20	12-36	314419 (9007276-0114)	Screw	4
	C80	05-20	12-36	518008	Valve plate	1
	D10	05-20	12-36	519046	Servo arm	1
	D50	05-20	12-36	11104315	Swashplate	1
	D55	05-20	12-36	519150	Screw	1
	D70	05-20	12-36	9009625-0146	Washer	1
	D75	05-20	12-36	9004875-0098	Spiral head pin	1
	D80	05-20	12-36	693929 (8100506)	Cage locator link	1
	D86	05-20	12-36	9004800-1908	Pin	1
	D87	05-20	12-36	11040532	Plug assembly	1
	E10	05-20	12-36	11001286	Side cover	1
	E20	05-20	12-36	11042018	Leveler	1
	E22	05-20	12-36	517935	Spring seat	2
	E24	05-20	12-36	8801225	Shim	2
	E30	05-20	12-36	11056531	Guide post	2
	E40	05-20	12-36	505412 (9003509-0008)	Seal nut	2
	E50	05-20	12-36	517377	O-ring	1
	E60	05-20	12-36	517228 (5000206)	Screw	6
	E70	05-20	12-36	664524 (9005110-9000)	Plug assembly	1
	E80	05-20	12-36	334987	Spring	2
	E90	05-20	12-36	513888	Insert assembly	1
	F20	05-20	12-36	11116313	Slider block (SB-1988-009 & SB-2015-005)	1
	L10	05-20	12-36	5000505	Roller bearing	1
	L20	05-20	12-36	9006300-0156	Retaining ring	1
	L25	05-20	12-36	519671	Seal carrier assembly	1
	L40	05-20	12-36	519666	Lip seal (SB-2005-007)	1
	L50	05-20	12-36	684621 (9004104-1530)	O-ring	1
	L60	05-20	12-36	516767	Retainer plate	1
	L70	05-20	12-36	041160 (9007314-0605)	Screw	3
	QC04	05-20	12-36	8510366	Cylinder block kit, with speed ring	1
	QD50	05-20	12-36	11103350	Swashplate assembly	1



Variable displacement pump



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* = included in base pump seal kit Q210

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


Variable displacement pump
Common parts

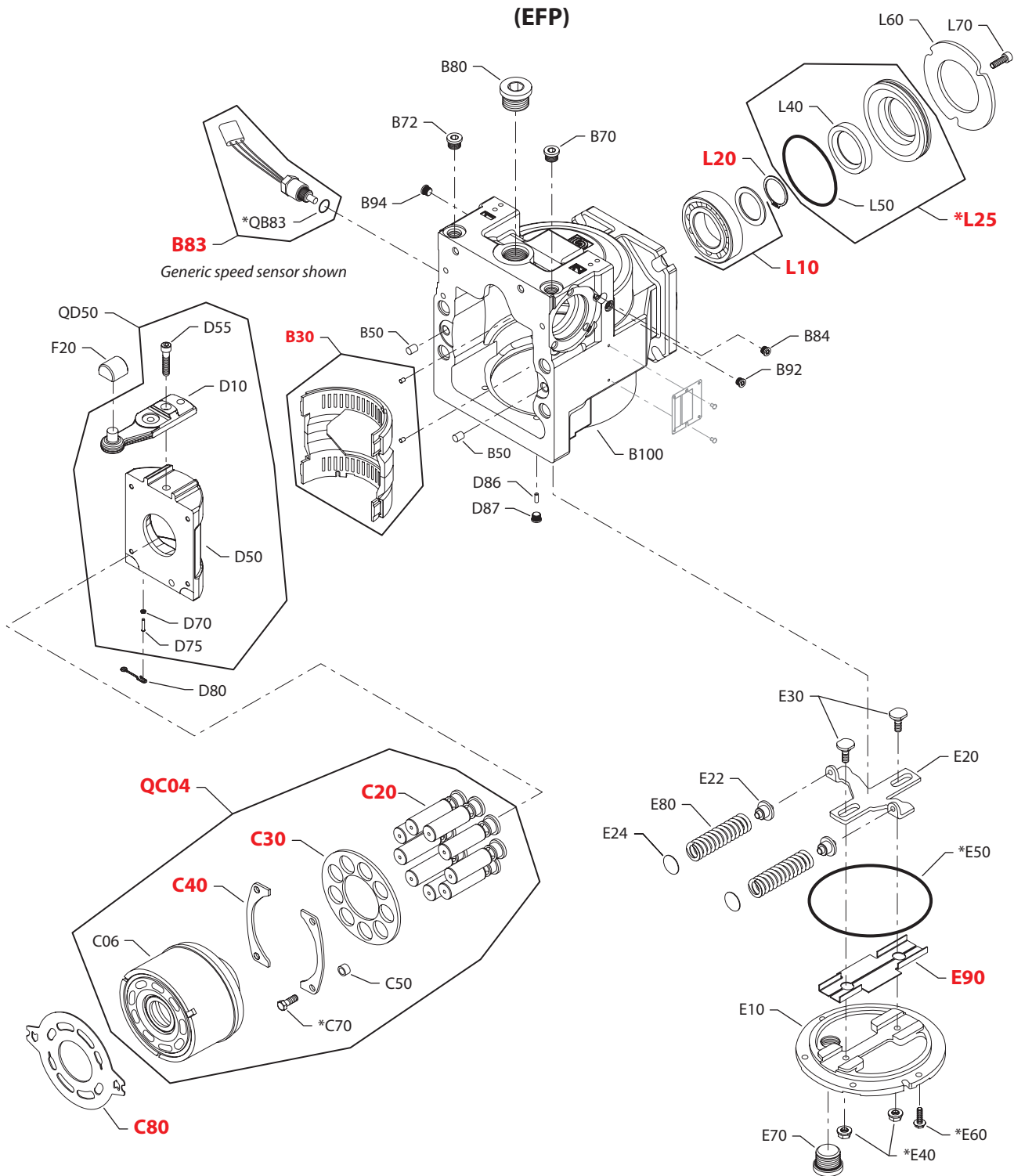
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	C20	87-02		708230	Piston assembly (SB-1988-023)	9
	C30	87-02		11067350	Slipper guide	1
	C40	88-22		334391 (8100294)	Slipper guide bearing (SB-1988-016)	2
	C50	88-22		11065865	Spacer (SB-1988-016 & SB-1998-041)	4
	C65	88-22	98-47	Obsolete	Washer (SB1988-016 & SB-1998-041)	4
	C70	88-22		314419 (9007276-0114)	Screw (SB-1988-016 & SB-1998-041)	4
	QB83	98-14		085043 (9004201-3700)	O-ring	1

Special hardware

EFC	B83	94-34		KPPG156	Speed sensor	1
	C06	94-34		11094260 (11011714)	Cylinder block assembly, with speed ring	1
	C80	94-34		518805	Valve plate	1
	QC04	94-34		8510366	Cylinder block kit, with speed ring	
EFD	B83	04-49	12-36	KPPG156	Speed sensor	1
	C06	94-34	12-36	11094260 (11011714)	Cylinder block assembly, with speed ring	1
	C80	04-49	12-36	518008	Valve plate	1
	E82	04-49	12-36	360842	Spring	2
	QC04	94-34	12-36	8510366	Cylinder block kit, with speed ring	
EFG	B83	04-49	12-36	KPPG156	Speed sensor	1
	C06	94-34	12-36	11094260 (11011714)	Cylinder block assembly, with speed ring	1
	C80	04-49	12-36	518925	Valve plate, CW	1
	E82	04-49	12-36	360842	Spring	2
	QC04	94-34	12-36	8510366	Cylinder block kit, with speed ring	1
EFI	B83	04-49		KPPG156	Speed sensor	1
	C06	94-34		11094260 (11011714)	Cylinder block assembly, with speed ring	1
	C80	04-49		518925	Valve plate, CW	1
	C80	04-49		518926	Valve plate, CCW	1
	QC04	94-34		8510366	Cylinder block kit, with speed ring	
EFL	B83	04-49	12-36	KPPG156	Speed sensor	1
	C06	94-34	12-36	11094260 (11011714)	Cylinder block assembly, with speed ring	1
	C80	04-49	12-36	518007	Valve plate	1
	QC04	94-34	12-36	8510366	Cylinder block kit, with speed ring	1



Variable displacement pump



E101 887E

* = included in base pump seal kit Q210

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

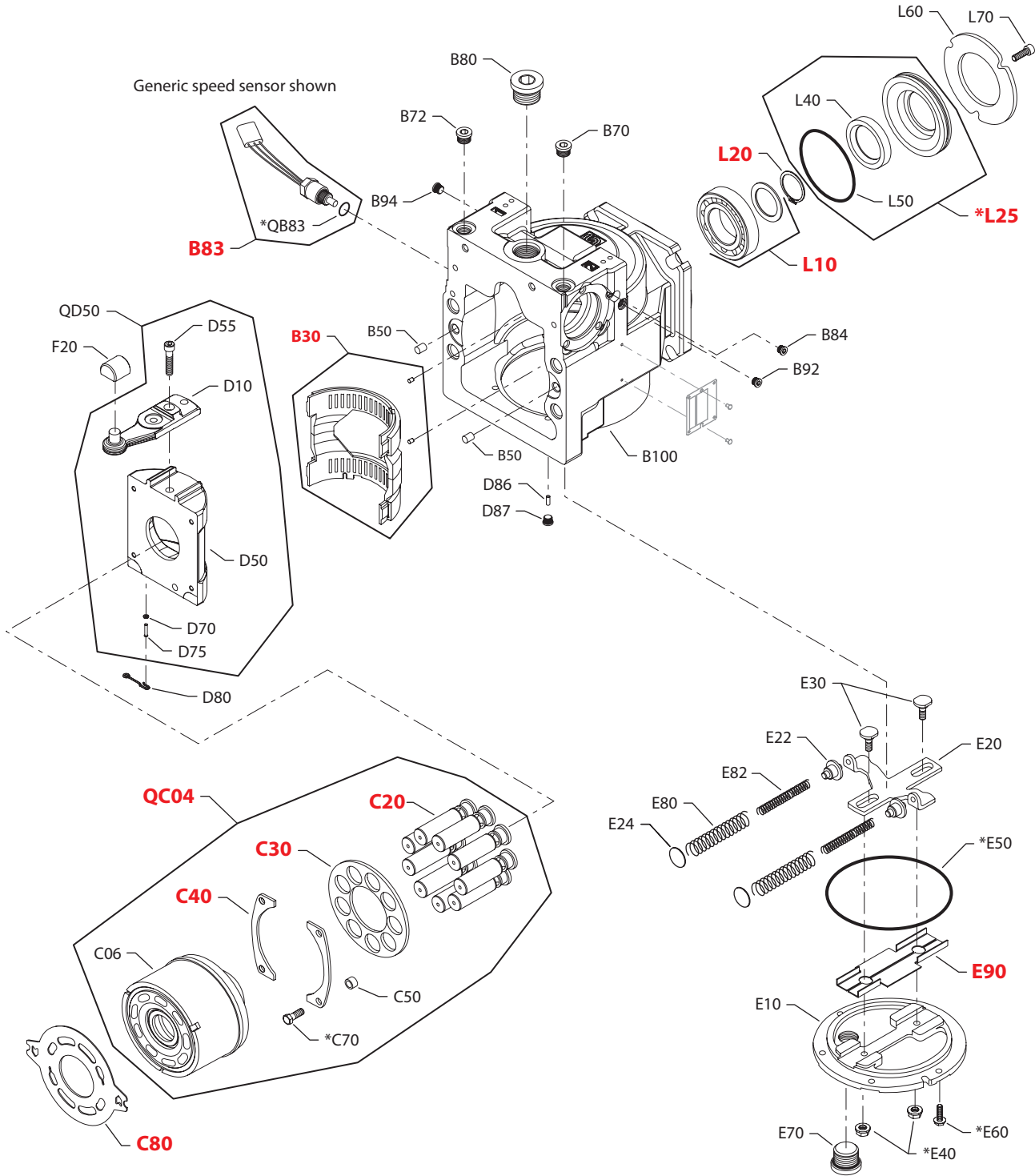

Variable displacement pump
Special hardware

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
EFP	B30	05-34		518671	Cradle bearing assembly	1
	B50	05-34		9004800-3708	Pin	2
	B70	05-34		140644	Plug assembly	1
	B72	05-34		140644	Plug assembly	1
	B80	05-34		664524 (9005110-9000)	Plug assembly	1
	B83	05-34		KPPG156	Speed sensor assembly	1
	B84	05-34		11040532	Plug assembly	1
	B92	05-34		11040532	Plug assembly	1
	B94	05-34		11040532	Plug assembly	1
	B100	05-34		11117294	Housing assembly	1
	C06	05-34		11094260 (11011714)	Cylinder block assembly, with speed ring	1
	C20	05-34		708230	Piston assembly	9
	C30	05-34		11067350	Slipper guide	1
	C40	05-34		334391 (8100294)	Slipper guide bearing	2
	C50	05-34		11065865	Spacer	4
	C70	05-34		314419 (9007276-0114)	Screw	4
	C80	05-34		518925	Valve plate, CW	1
	C80	05-34		518926	Valve plate, CCW	1
	D10	05-34		519046	Servo arm	1
	D50	05-34		11104315	Swashplate	1
	D55	05-34		519150	Screw	1
	D70	05-34		9009625-0146	Washer	1
	D75	05-34		9004875-0098	Spiral head pin	1
	D80	05-34		693929 (8100506)	Cage locator link	1
	D86	05-34		9004800-1908	Pin	1
	D87	05-34		11040532	Plug assembly	1
	E10	05-34		11001286	Side cover	1
	E20	05-34		11042018	Leveler	1
	E22	05-34		517935	Spring seat	2
	E24	05-34		8801225	Shim	2
	E30	05-34		11056531	Guide post	2
	E40	05-34		505412 (9003509-0008)	Seal nut	2
	E50	05-34		517377	O-ring	1
	E60	05-34		517228 (5000206)	Screw	6
	E70	05-34		664524 (9005110-9000)	Plug assembly	1
	E80	05-34		334987	Spring	2
	E90	05-34		513888	Insert assembly	1
	F20	05-34		11116313	Slider block (SB-2015-005)	1
	L10	05-34		5000505	Roller bearing	1
	L20	05-34		9006300-0156	Retaining ring	1
	L25	05-34		519671	Seal carrier assembly	1
	L40	05-34		519666	Lip seal (SB-2005-007)	1
	L50	05-34		684621 (9004104-1530)	O-ring	1
	L60	05-34		516767	Retainer plate	1
	L70	05-34		041160 (9007314-0605)	Screw	3
	QB83	05-34		085043 (9004201-3700)	O-ring	1
	QC04	05-34		8510366	Cylinder block kit, with speed ring	1
	QD50	05-34		11103350	Swashplate assembly	1



Variable displacement pump

(EFR)



E101 886E

* = included in base pump seal kit Q210

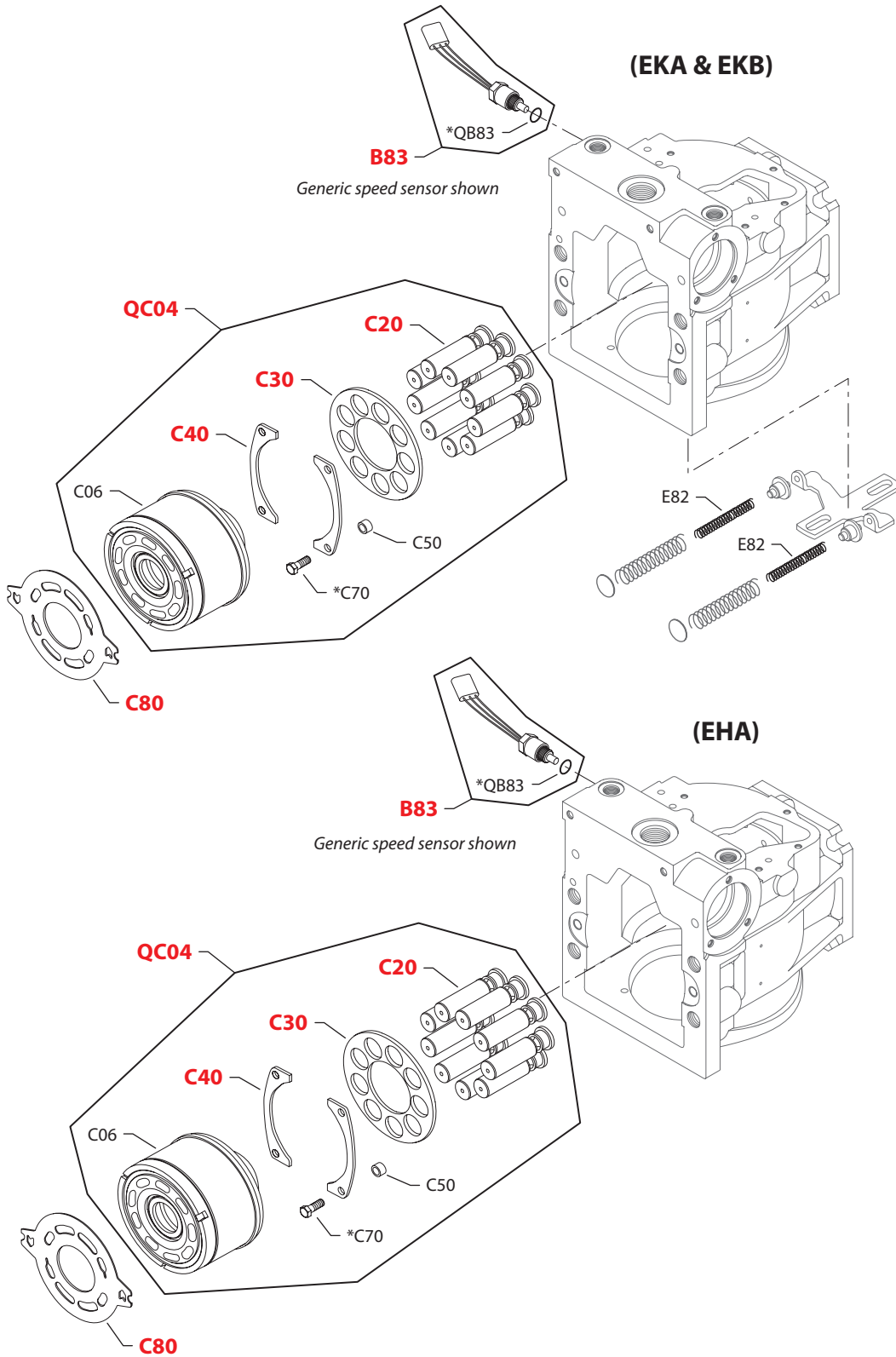
Enlarged **bold** type item numbers are recommended parts to be stocked for servicing


Variable displacement pump
Special hardware

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
EFR	B30	06-18		518671	Cradle bearing assembly	1
	B50	06-18		9004800-3708	Pin	2
	B70	06-18		140644	Plug assembly	1
	B72	06-18		140644	Plug assembly	1
	B80	06-18		664524 (9005110-9000)	Plug assembly	1
	B83	06-18		KPPG156	Speed sensor assembly	1
	B84	06-18		11040532	Plug assembly	1
	B92	06-18		11040532	Plug assembly	1
	B94	06-18		11040532	Plug assembly	1
	B100	06-18		11117294	Housing assembly	1
	C06	06-18		11094260 (11011714)	Cylinder block assembly, with speed ring	1
	C20	06-18		708230	Piston assembly	9
	C30	06-18		11067350	Slipper guide	1
	C40	06-18		334391 (8100294)	Slipper guide bearing	2
	C50	06-18		11065865	Spacer	4
	C70	06-18		314419 (9007276-0114)	Screw	4
	C80	06-18		518008	Valve plate	1
	D10	06-18		519046	Servo arm	1
	D50	06-18		11104315	Swashplate	1
	D55	06-18		519150	Screw	1
	D70	06-18		9009625-0146	Washer	1
	D75	06-18		9004875-0098	Spiral head pin	1
	D80	06-18		693929 (8100506)	Cage locator link	1
	D86	06-18		9004800-1908	Pin	1
	D87	06-18		11040532	Plug assembly	1
	E10	06-18		11001286	Side cover	1
	E20	06-18		11042018	Leveler	1
	E22	06-18		517935	Spring seat	2
	E24	06-18		8801225	Shim	2
	E30	06-18		11056531	Guide post	2
	E40	06-18		505412 (9003509-0008)	Seal nut	2
	E50	06-18		517377	O-ring	1
	E60	06-18		517228 (5000206)	Screw	6
	E70	06-18		664524 (9005110-9000)	Plug assembly	1
	E80	06-18		334987	Spring	2
	E82	06-18		360842	Spring	2
	E90	06-18		513888	Insert assembly	1
	F20	06-18		11116313	Slider block (SB-2015-005)	1
	L10	06-18		5000505	Roller bearing	1
	L20	06-18		9006300-0156	Retaining ring	1
	L25	06-18		519671	Seal carrier assembly	1
	L40	06-18		519666	Lip seal (SB-2005-007)	1
	L50	06-18		684621 (9004104-1530)	O-ring	1
	L60	06-18		516767	Retainer plate	1
	L70	06-18		041160 (9007314-0605)	Screw	3
	QB83	06-18		085043 (9004201-3700)	O-ring	1
	QC04	06-18		8510366	Cylinder block kit, with speed ring	1
	QD50	06-18		11103350	Swashplate assembly	1



Variable displacement pump



* = included in base pump seal kit Q210

E100 791E
 Enlarged **bold** type item numbers are recommended parts to be stocked for servicing


Variable displacement pump
Common parts

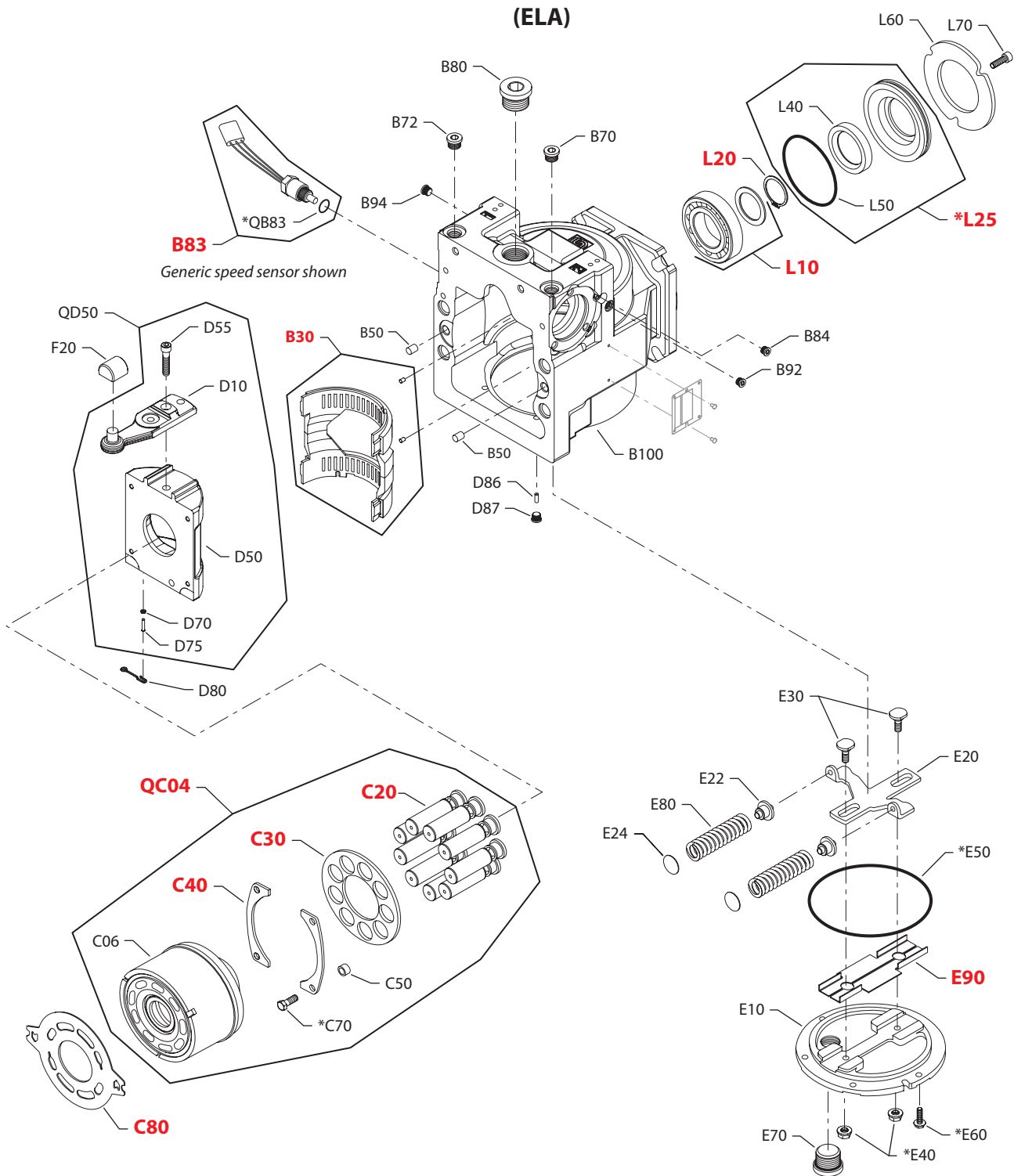
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	C20	87-02		708230	Piston assembly	9
	C30	87-02		11067350	Slipper guide	1
	C40	88-22		334391 (8100294)	Slipper guide bearing	2
	C50	88-22		11065865	Spacer	4
	C70	88-22		314419 (9007276-0114)	Screw	4
	QB83	98-14		085043 (9004201-3700)	O-ring	1

Special hardware

EHA	B83	00-42		KPPG16408	Speed sensor	1
	C06	00-42		11094260 (11011714)	Cylinder block assembly, with speed ring	1
	C80	00-42		518805	Valve plate	1
	QC04	00-42		8510366	Cylinder block kit, with speed ring	1
EKA	B83	99-31		KPPG16719	Speed sensor	1
	C06	99-31		11094260 (11011714)	Cylinder block assembly, with speed ring	1
	C80	99-31		518805	Valve plate	1
	QC04	99-31		8510366	Cylinder block kit, with speed ring	1
EKB	B83	01-13	12-36	KPPG156	Speed sensor	1
	C06	01-13	12-36	11094260 (11011714)	Cylinder block assembly, with speed ring	1
	C80	01-13	12-36	518925	Valve plate, CW	1
	E82	01-13	12-36	360842	Spring	2
	QC04	01-13	12-36	8510366	Cylinder block kit, with speed ring	1



Variable displacement pump



E101 887E

* = included in base pump seal kit Q210

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

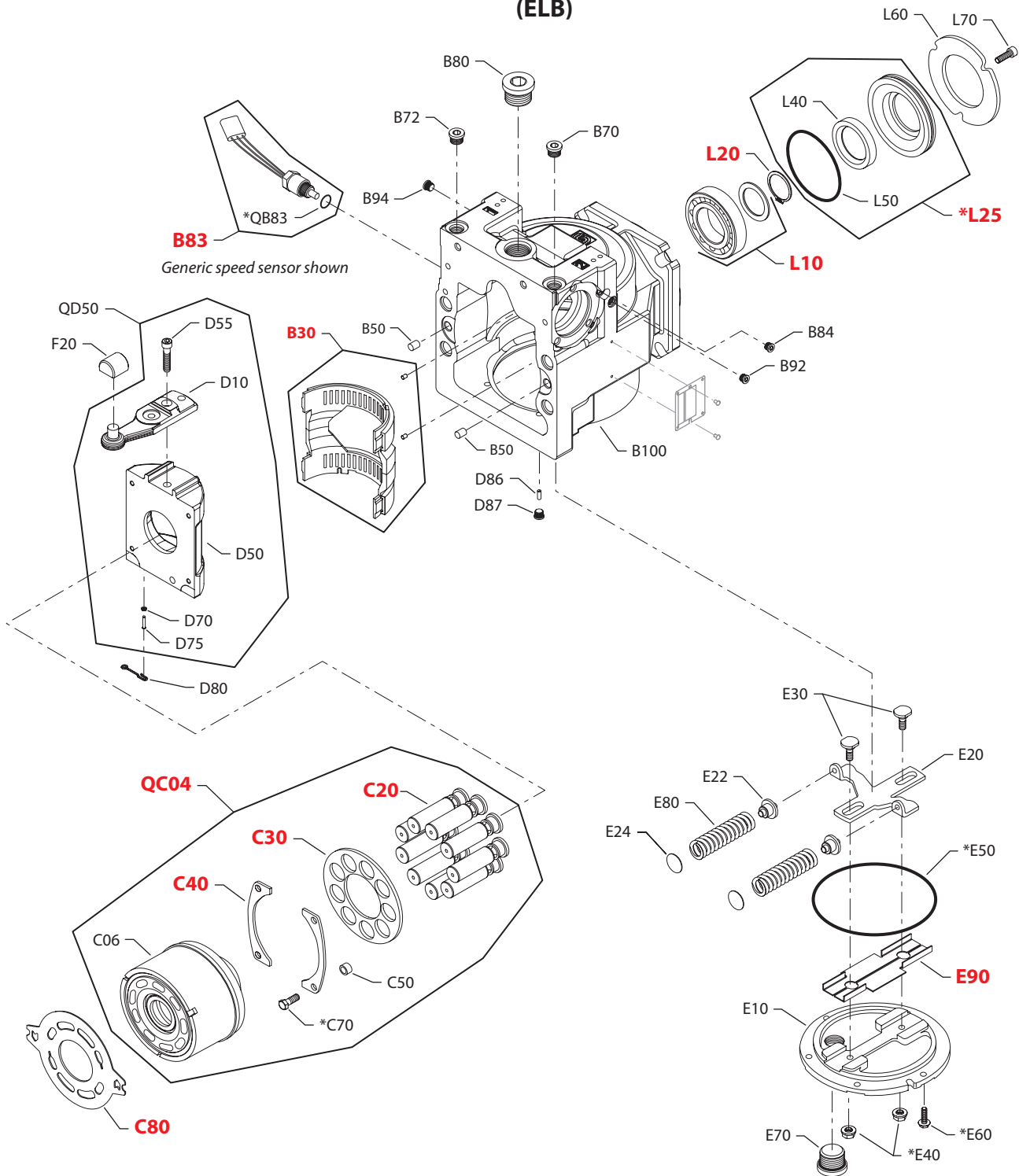

Variable displacement pump
Special hardware

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
ELA	B30	01-03		518671	Cradle bearing assembly	1
	B50	01-03		9004800-3708	Pin	2
	B70	01-03		140644	Plug assembly	1
	B72	01-03		140644	Plug assembly	1
	B80	01-03		664524 (9005110-9000)	Plug assembly	1
	B83	01-03		KPPG13403	Speed sensor assembly	1
	B84	01-03		11040532	Plug assembly	1
	B92	01-03		11040532	Plug assembly	1
	B94	01-03		11040532	Plug assembly	1
	B100	01-03		11117294	Housing assembly	1
	C06	01-03		11094260 (11011714)	Cylinder block assembly, with speed ring	1
	C20	01-03		708230	Piston assembly	9
	C30	01-03		11067350	Slipper guide	1
	C40	01-03		334391 (8100294)	Slipper guide bearing	2
	C50	01-03		11065865	Spacer	4
	C70	01-03		314419 (9007276-0114)	Screw	4
	C80	01-03		518008	Valve plate	1
	D10	01-03		519046	Servo arm	1
	D50	01-03		11104315	Swashplate	1
	D55	01-03		519150	Screw	1
	D70	01-03		9009625-0146	Washer	1
	D75	01-03		9004875-0098	Spiral head pin	1
	D80	01-03		693929 (8100506)	Cage locator link	1
	D86	01-03		9004800-1908	Pin	1
	D87	01-03		11040532	Plug assembly	1
	E10	01-03		11001286	Side cover	1
	E20	01-03		11042018	Leveler	1
	E22	01-03		517935	Spring seat	2
	E24	01-03		8801225	Shim	2
	E30	01-03		11056531	Guide post	2
	E40	01-03		505412 (9003509-0008)	Seal nut	2
	E50	01-03		517377	O-ring	1
	E60	01-03		517228 (5000206)	Screw	6
	E70	01-03		664524 (9005110-9000)	Plug assembly	1
	E80	01-03		334987	Spring	2
	E90	01-03		513888	Insert assembly	1
	F20	01-03		11116313	Slider block	1
	L10	01-03		5000505	Roller bearing	1
	L20	01-03		9006300-0156	Retaining ring	1
	L25	01-03		519671	Seal carrier assembly	1
	L40	01-03		519666	Lip seal (SB-2005-007)	1
	L50	01-03		684621 (9004104-1530)	O-ring	1
	L60	01-03		516767	Retainer plate	1
	L70	01-03		041160 (9007314-0605)	Screw	3
	QB83	01-03		085043 (9004201-3700)	O-ring	1
	QC04	01-03		8510366	Cylinder block kit, with speed ring	1
	QD50	01-03		11103350	Swashplate assembly	1



Variable displacement pump

(ELB)



E101 887E

* = included in base pump seal kit Q210

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

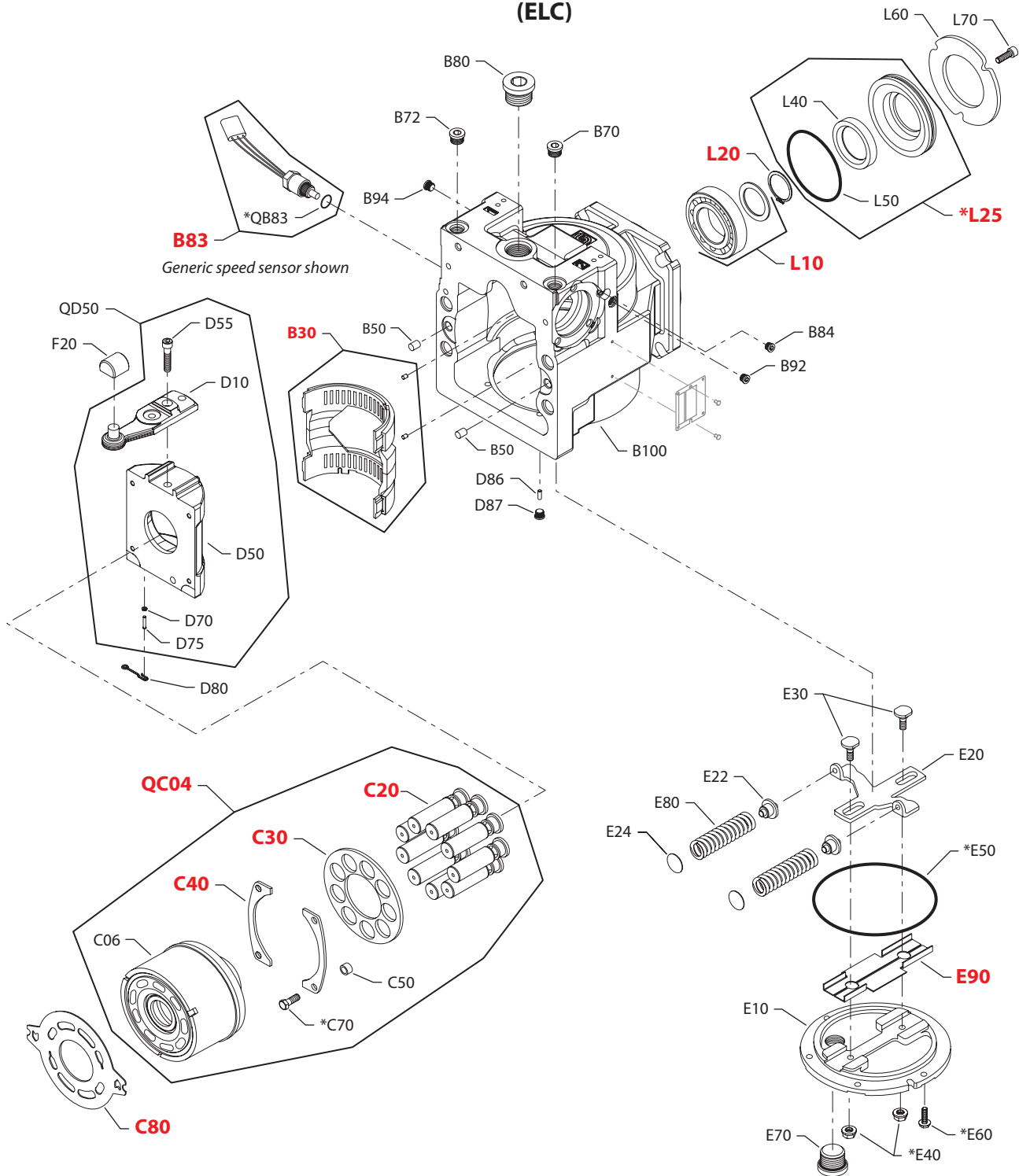

Variable displacement pump
Special hardware

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
ELB	B30	04-03		518671	Cradle bearing assembly	1
	B50	04-03		9004800-3708	Pin	2
	B70	04-03		140644	Plug assembly	1
	B72	04-03		140644	Plug assembly	1
	B80	04-03		664524 (9005110-9000)	Plug assembly	1
	B83	04-03		KPPG13403	Speed sensor assembly	1
	B84	04-03		11040532	Plug assembly	1
	B92	04-03		11040532	Plug assembly	1
	B94	04-03		11040532	Plug assembly	1
	B100	04-03		11117294	Housing assembly	1
	C06	04-03		11094260 (11011714)	Cylinder block assembly, with speed ring	1
	C20	04-03		708230	Piston assembly	9
	C30	04-03		11067350	Slipper guide	1
	C40	04-03		334391 (8100294)	Slipper guide bearing	2
	C50	04-03		11065865	Spacer	4
	C70	04-03		314419 (9007276-0114)	Screw	4
	C80	04-03		518925	Valve plate, CW	1
	D10	04-03		519046	Servo arm	1
	D50	04-03		11104315	Swashplate	1
	D55	04-03		519150	Screw	1
	D70	04-03		9009625-0146	Washer	1
	D75	04-03		9004875-0098	Spiral head pin	1
	D80	04-03		693929 (8100506)	Cage locator link	1
	D86	04-03		9004800-1908	Pin	1
	D87	04-03		11040532	Plug assembly	1
	E10	04-03		11001286	Side cover	1
	E20	04-03		11042018	Leveler	1
	E22	04-03		517935	Spring seat	2
	E24	04-03		8801225	Shim	2
	E30	04-03		11056531	Guide post	2
	E40	04-03		505412 (9003509-0008)	Seal nut	2
	E50	04-03		517377	O-ring	1
	E60	04-03		517228 (5000206)	Screw	6
	E70	04-03		664524 (9005110-9000)	Plug assembly	1
	E80	04-03		334987	Spring	2
	E90	04-03		513888	Insert assembly	1
	F20	04-03		11116313	Slider block	1
	L10	04-03		5000505	Roller bearing	1
	L20	04-03		9006300-0156	Retaining ring	1
	L25	04-03		519671	Seal carrier assembly	1
	L40	04-03		519666	Lip seal (SB-2005-007)	1
	L50	04-03		684621 (9004104-1530)	O-ring	1
	L60	04-03		516767	Retainer plate	1
	L70	04-03		041160 (9007314-0605)	Screw	3
	QB83	04-03		085043 (9004201-3700)	O-ring	1
	QC04	04-03		8510366	Cylinder block kit, with speed ring	1
	QD50	04-03		11103350	Swashplate assembly	1



Variable displacement pump

(ELC)



E101 887E

* = included in base pump seal kit Q210

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

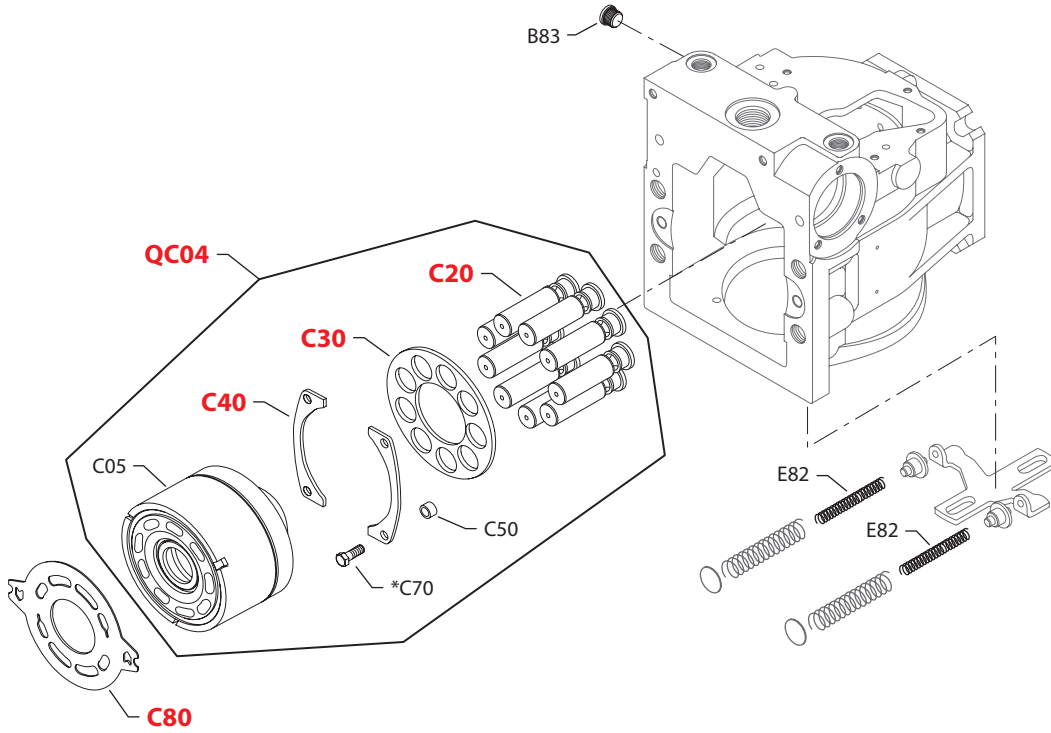

Variable displacement pump
special hardware

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
ELC	B30	04-18		518671	Cradle bearing assembly	1
	B50	04-18		9004800-3708	Pin	2
	B70	04-18		140644	Plug assembly	1
	B72	04-18		140644	Plug assembly	1
	B80	04-18		664524 (9005110-9000)	Plug assembly	1
	B83	04-18		KPPG15408	Speed sensor assembly	1
	B84	04-18		11040532	Plug assembly	1
	B92	04-18		11040532	Plug assembly	1
	B94	04-18		11040532	Plug assembly	1
	B100	04-18		11117294	Housing assembly	1
	C06	04-18		11094260 (11011714)	Cylinder block assembly, with speed ring	1
	C20	04-18		708230	Piston assembly	9
	C30	04-18		11067350	Slipper guide	1
	C40	04-18		334391 (8100294)	Slipper guide bearing	2
	C50	04-18		11065865	Spacer	4
	C70	04-18		314419 (9007276-0114)	Screw	4
	C80	04-18		518925	Valve plate, CW	1
	D10	04-18		519046	Servo arm	1
	D50	04-18		11104315	Swashplate	1
	D55	04-18		519150	Screw	1
	D70	04-18		9009625-0146	Washer	1
	D75	04-18		9004875-0098	Spiral head pin	1
	D80	04-18		693929 (8100506)	Cage locator link	1
	D86	04-18		9004800-1908	Pin	1
	D87	04-18		11040532	Plug assembly	1
	E10	04-18		11001286	Side cover	1
	E20	04-18		11042018	Leveler	1
	E22	04-18		517935	Spring seat	2
	E24	04-18		8801225	Shim	2
	E30	04-18		11056531	Guide post	2
	E40	04-18		505412 (9003509-0008)	Seal nut	2
	E50	04-18		517377	O-ring	1
	E60	04-18		517228 (5000206)	Screw	6
	E70	04-18		664524 (9005110-9000)	Plug assembly	1
	E80	04-18		334987	Spring	2
	E90	04-18		513888	Insert assembly	1
	F20	04-18		11116313	Slider block	1
	L10	04-18		5000505	Roller bearing	1
	L20	04-18		9006300-0156	Retaining ring	1
	L25	04-18		519671	Seal carrier assembly	1
	L40	04-18		519666	Lip seal (SB-2005-007)	1
	L50	04-18		684621 (9004104-1530)	O-ring	1
	L60	04-18		516767	Retainer plate	1
	L70	04-18		041160 (9007314-0605)	Screw	3
	QB83	04-18		085043 (9004201-3700)	O-ring	1
	QC04	04-18		8510366	Cylinder block kit, with speed ring	1
	QD50	04-18		11103350	Swashplate assembly	1



Variable displacement pump

(FAA, FAB, FAC, FAD, FAK, FAL & FAN)



E101 888E

* = included in base pump seal kit Q210

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


Variable displacement pump
Common parts

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	C20	87-02		708230	Piston assembly	9
	C30	87-02		11067350	Slipper guide	1
	C40	88-22		334391 (8100294)	Slipper guide bearing	2
	C50	88-22		11065865	Spacer	4
	C70	88-22		314419 (9007276-0114)	Screw	4

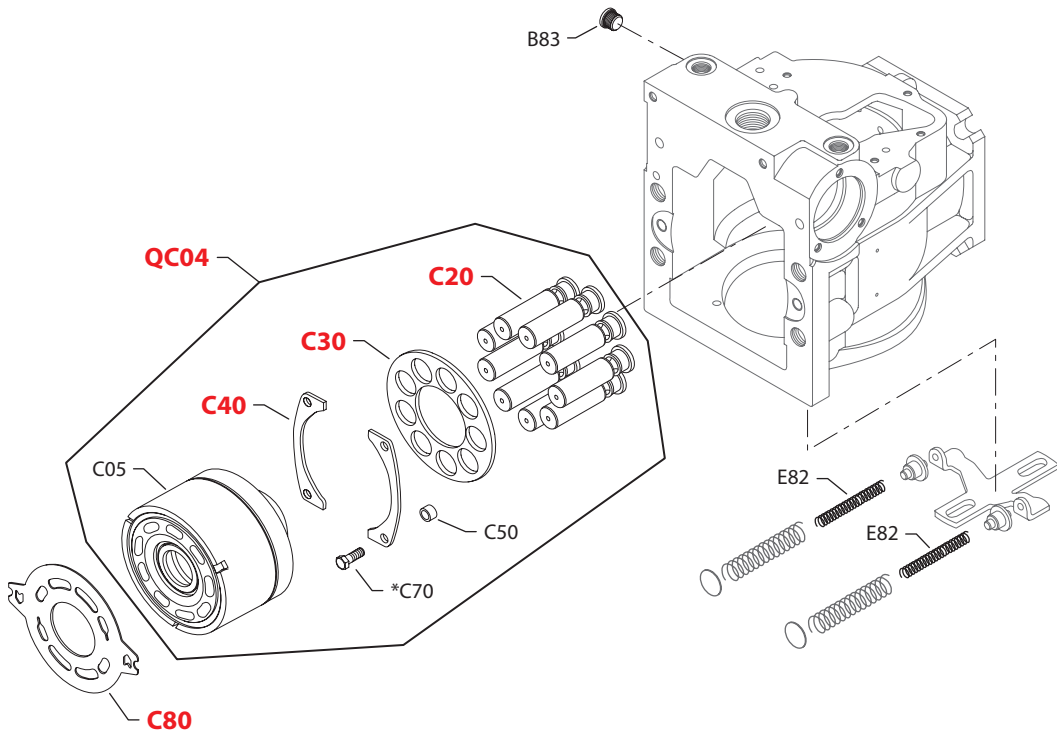
Special hardware

FAA	B83	94-14		140644	Plug assembly	1
	C05	94-14		519253 (11025822)	Cylinder block assembly	1
	C80	94-14		518924	Valve plate	1
	E82	94-14		360842 (11062703)	Spring	2
	QC04	94-14		8510365	Cylinder block kit	1
FAB	B83	94-14		140644	Plug assembly	1
	C05	94-14		519253 (11025822)	Cylinder block assembly	1
	C80	94-14		518923	Valve plate	1
	E82	94-14		360842 (11062703)	Spring	2
	QC04	94-14		8510365	Cylinder block kit	1
FAC	B83	94-14		140644	Plug assembly	1
	C05	94-14		519253 (11025822)	Cylinder block assembly	1
	C80	94-14		518008	Valve plate	1
	E82	94-14		360842 (11062703)	Spring	2
	QC04	94-14		8510365	Cylinder block kit	1
FAD	B83	96-05		140644	Plug assembly	1
	C05	96-05		519253 (11025822)	Cylinder block assembly	1
	C80	96-05		518805	Valve plate	1
	E82	96-05		360842 (11062703)	Spring	2
	QC04	96-05		8510365	Cylinder block kit	1
FAK	B83	98-51		140644	Plug assembly	1
	C05	98-51		519253 (11025822)	Cylinder block assembly	1
	C80	98-51		518805	Valve plate	1
	E82	98-51		360842 (11062703)	Spring	2
	QC04	98-51		8510365	Cylinder block kit	1
FAL	B83	94-14		140644	Plug assembly	1
	C05	94-14		519253 (11025822)	Cylinder block assembly	1
	C80	94-14		518923	Valve plate	1
	E82	94-14		360842 (11062703)	Spring	2
	QC04	94-14		8510365	Cylinder block kit	1
FAN	B83	13-41		140644	Plug assembly	1
	C05	13-41		519253 (11025822)	Cylinder block assembly	1
	C80	13-41		518924	Valve plate	1
	E82	13-41		360842 (11062703)	Spring	2
	QC04	13-41		8510365	Cylinder block kit	1



Variable displacement pump

(FAP, FAQ, FAR, FAS, FAU, FAX & FAY)



E101 888E

* = included in base pump seal kit Q210

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


Variable displacement pump
Common parts

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	C20	87-02		708230	Piston assembly	9
	C30	87-02		11067350	Slipper guide	1
	C40	88-22		334391 (8100294)	Slipper guide bearing	2
	C50	88-22		11065865	Spacer	4
	C70	88-22		314419 (9007276-0114)	Screw	4

Special hardware

FAP	B83	94-14		140644	Plug assembly	1
	C05	94-14		519253 (11025822)	Cylinder block assembly	1
	C80	94-14		518925	Valve plate, CW	1
	C80	94-14		518926	Valve plate, CCW	1
	E82	94-14		360842 (11062703)	Spring	2
	QC04	94-14		8510365	Cylinder block kit	1

FAQ	B83	94-14		140644	Plug assembly	1
	C05	94-14		519253 (11025822)	Cylinder block assembly	1
	C80	94-14		518925	Valve plate, CW	1
	E82	94-14		360842 (11062703)	Spring	2
	QC04	94-14		8510365	Cylinder block kit	1

FAR	B83	94-14		140644	Plug assembly	1
	C05	94-14		519253 (11025822)	Cylinder block assembly	1
	C80	94-14		510723	Valve plate	1
	E82	94-14		360842 (11062703)	Spring	2
	QC04	94-14		8510365	Cylinder block kit	1

FAS	B83	97-03		140644	Plug assembly	1
	C05	97-03		519253 (11025822)	Cylinder block assembly	1
	C80	97-03		518008	Valve plate	1
	E82	97-03		360842 (11062703)	Spring	2
	QC04	97-03		8510365	Cylinder block kit	1

FAU	B83	98-37		140644	Plug assembly	1
	C05	98-37		519253 (11025822)	Cylinder block assembly	1
	C80	98-37		518805	Valve plate	1
	E82	98-37		360842 (11062703)	Spring	2
	QC04	98-37		8510365	Cylinder block kit	1

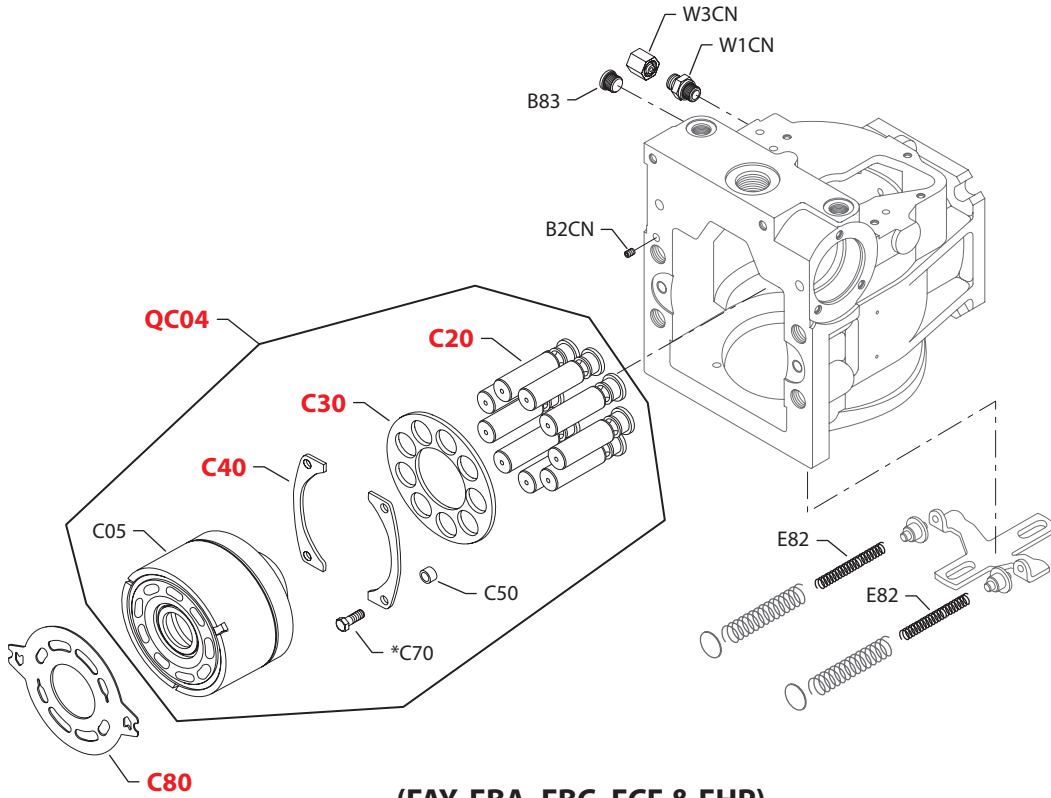
FAX	B83	01-07		140644	Plug assembly	1
	C05	01-07		519253 (11025822)	Cylinder block assembly	1
	C80	01-07		510723	Valve plate	1
	E82	01-07		360842 (11062703)	Spring	2
	QC04	01-07		8510365	Cylinder block kit	1

FAY	B83	06-03		140644	Plug assembly	1
	C05	06-03		519253 (11025822)	Cylinder block assembly	1
	C80	06-03		518805	Valve plate	1
	E82	06-03		360842 (11062703)	Spring	2
	QC04	06-03		8510365	Cylinder block kit	1

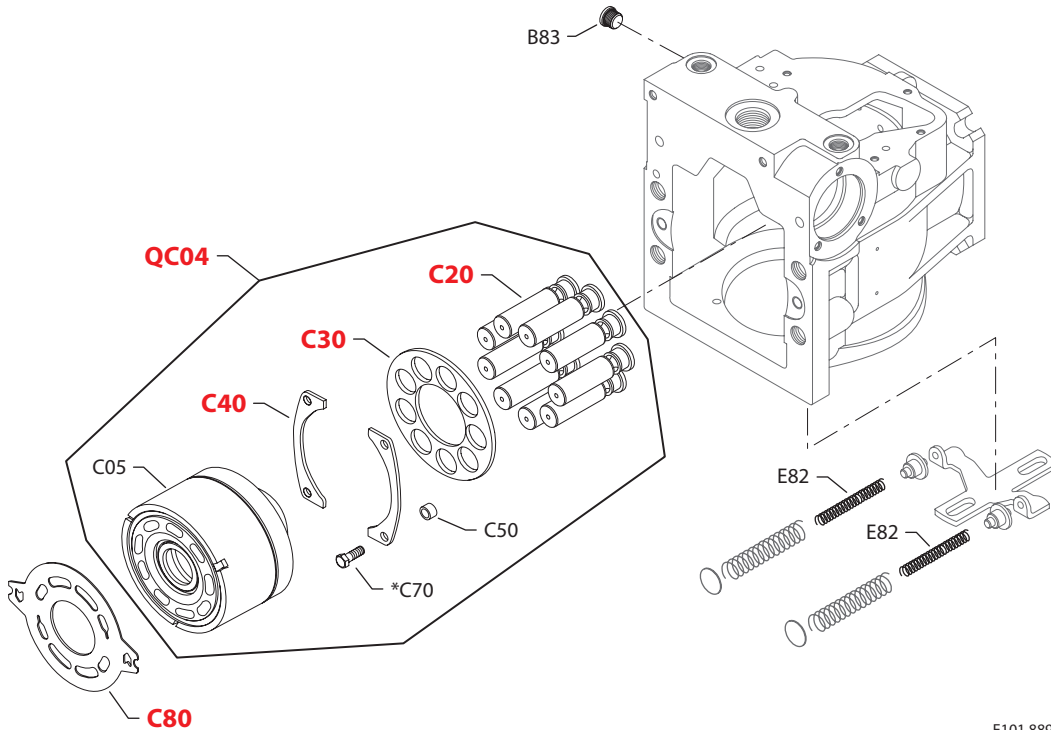


Variable displacement pump

(FAZ)



(FAY, FBA, FBC, FCF & FHP)



E101 889E

* = included in base pump seal kit Q210

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


Variable displacement pump
Common parts

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	C20	87-02		708230	Piston assembly	9
	C30	87-02		11067350	Slipper guide	1
	C40	88-22		334391 (8100294)	Slipper guide bearing	2
	C50	88-22		11065865	Spacer	4
	C70	88-22		314419 (9007276-0114)	Screw	4

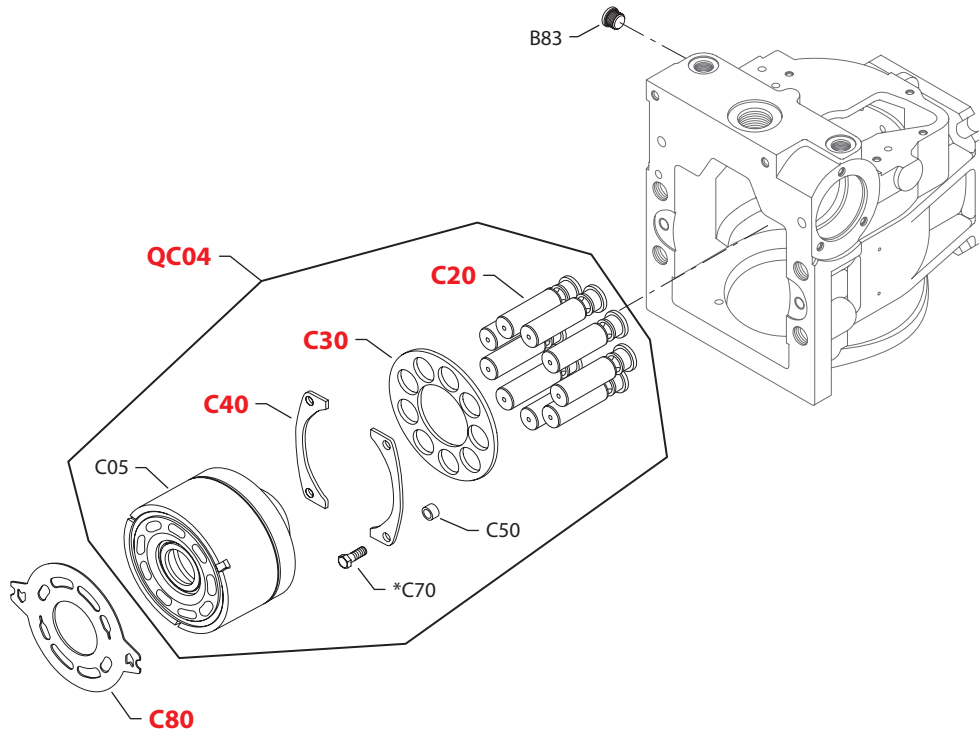
Special hardware

FAZ	B2CN	05-06		775312	Set screw	1
	B83	05-06		140644	Plug assembly	1
	C05	05-06		519253 (11025822)	Cylinder block assembly	1
	C80	05-06		518008	Valve plate	1
	E82	05-06		360842 (11062703)	Spring	2
	QC04	05-06		8510365	Cylinder block kit	1
	W1CN	05-06		723726	Connector	1
W3CN	05-06		574095	Cap	1	
FBA	B83	06-12		140644	Plug assembly	1
	C05	06-12		519253 (11025822)	Cylinder block assembly	1
	C80	06-12		518008	Valve plate	1
	E82	06-12		360842 (11062703)	Spring	2
	QC04	06-12		8510365	Cylinder block kit	1
FBC	B83	06-12		140644	Plug assembly	1
	C05	06-12		519253 (11025822)	Cylinder block assembly	1
	C80	06-12		518805	Valve plate	1
	E82	06-12		360842 (11062703)	Spring	2
	QC04	06-12		8510365	Cylinder block kit	1
FBG	B83	06-16		140644	Plug assembly	1
	C05	06-16		519253 (11025822)	Cylinder block assembly	1
	C80	06-16		518805	Valve plate	1
	E82	06-16		360842 (11062703)	Spring	2
	QC04	06-16		8510365	Cylinder block kit	1
FCF	B83	11-19		140644	Plug assembly	1
	C05	11-19		519253 (11025822)	Cylinder block assembly	1
	C80	11-19		518805	Valve plate	1
	E82	11-19		360842 (11062703)	Spring	2
	QC04	11-19		8510365	Cylinder block kit	1
FHP	B83	12-40		140644	Plug assembly	1
	C05	12-40		519253 (11025822)	Cylinder block assembly	1
	C80	12-40		518805	Valve plate	1
	E82	12-40		360842 (11062703)	Spring	2
	QC04	12-40		8510365	Cylinder block kit	1



Variable displacement pump

(GAA, GBA, GBE, GBJ, GBS & GBT)



E103 033E

* = included in base pump seal kit Q210

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


Variable displacement pump
Common parts

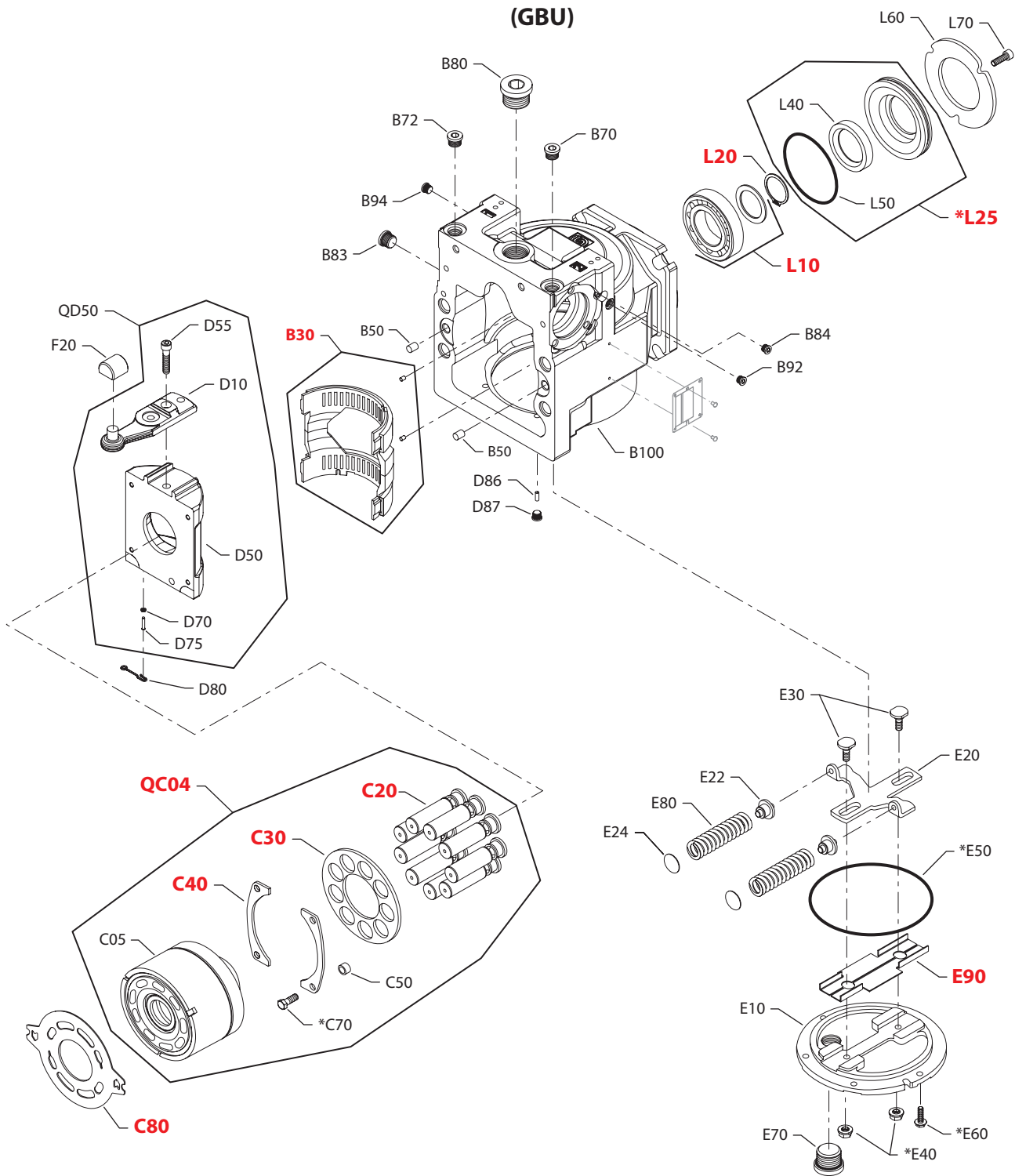
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	C20	87-02		708230	Piston assembly	9
	C30	87-02		11067350	Slipper guide	1
	C40	88-22		334391 (8100294)	Slipper guide bearing	2
	C50	88-22		11065865	Spacer	4
	C70	88-22		314419 (9007276-0114)	Screw	4

Special hardware

GAA	B83	94-14		140644	Plug assembly	1
	C05	94-14		519253 (11025822)	Cylinder block assembly	1
	C80	94-14		344911	Valve plate	1
	QC04	94-14		8510365	Cylinder block kit	1
GBA	B83	87-02		140644	Plug assembly	1
	C05	87-02		519253 (11025822)	Cylinder block assembly	1
	C80	87-02		518805	Valve plate	1
	QC04	87-02		8510365	Cylinder block kit	1
GBE	B83	98-06		140644	Plug assembly	1
	C05	98-06		519253 (11025822)	Cylinder block assembly	1
	C80	98-06		518805	Valve plate	1
	QC04	98-06		8510365	Cylinder block kit	1
GBJ	B83	98-06		140644	Plug assembly	1
	C05	98-06		519253 (11025822)	Cylinder block assembly	1
	C80	98-06		518805	Valve plate	1
	QC04	98-06		8510365	Cylinder block kit	1
GBS	B83	98-06		140644	Plug assembly	1
	C05	98-06		519253 (11025822)	Cylinder block assembly	1
	C80	98-06		518805	Valve plate	1
	QC04	98-06		8510365	Cylinder block kit	1
GBT	B83	98-02		140644	Plug assembly	1
	C05	98-02		519253 (11025822)	Cylinder block assembly	1
	C80	98-02		518805	Valve plate	1
	QC04	98-02		8510365	Cylinder block kit	1



Variable displacement pump



E101 891E

* = included in base pump seal kit Q210

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

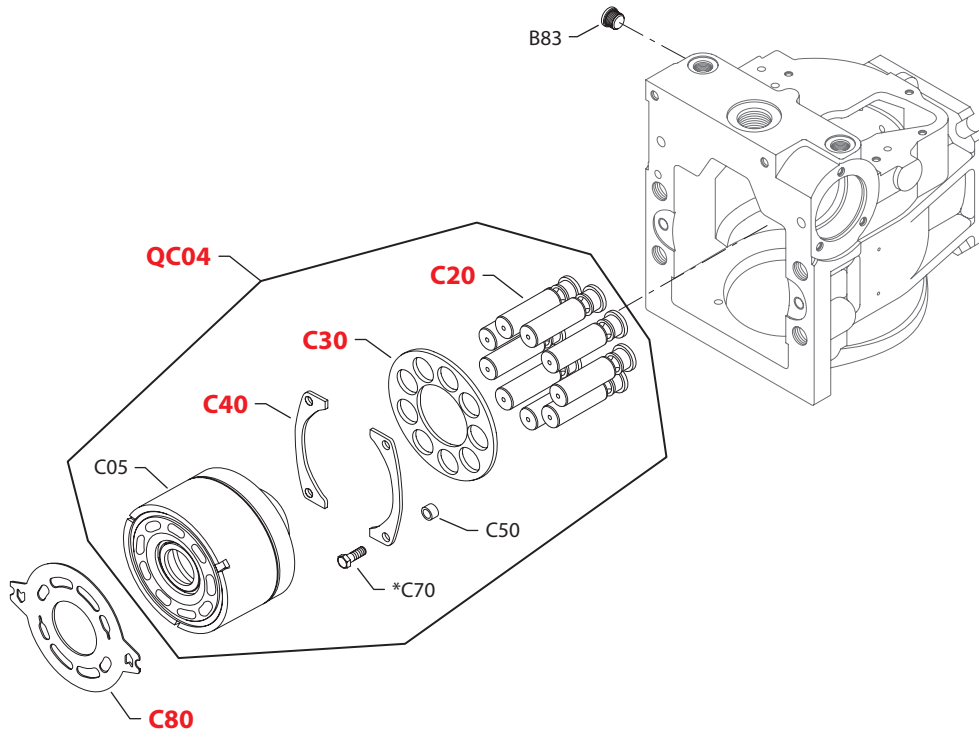

Variable displacement pump
Special hardware

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
GBU	B30	06-18		518671	Cradle bearing assembly	1
	B50	06-18		9004800-3708	Pin	2
	B70	06-18		140644	Plug assembly	1
	B72	06-18		140644	Plug assembly	1
	B80	06-18		664524 (9005110-9000)	Plug assembly	1
	B83	06-18		140644	Plug assembly	1
	B84	06-18		11040532	Plug assembly	1
	B92	06-18		11040532	Plug assembly	1
	B94	06-18		11040532	Plug assembly	1
	B100	06-18		11117294	Housing assembly	1
	C05	06-18		519253 (11025822)	Cylinder block assembly	1
	C20	06-18		708230	Piston assembly	9
	C30	06-18		11067350	Slipper guide	1
	C40	06-18		334391 (8100294)	Slipper guide bearing	2
	C50	06-18		11065865	Spacer	4
	C70	06-18		314419 (9007276-0114)	Screw	4
	C80	06-18		518805	Valve plate	1
	D10	06-18		519046	Servo arm	1
	D50	06-18		11104315	Swashplate	1
	D55	06-18		519150	Screw	1
	D70	06-18		9009625-0146	Washer	1
	D75	06-18		9004875-0098	Spiral head pin	1
	D80	06-18		693929 (8100506)	Cage locator link	1
	D86	06-18		9004800-1908	Pin	1
	D87	06-18		11040532	Plug assembly	1
	E10	06-18		11001286	Side cover	1
	E20	06-18		11042018	Leveler	1
	E22	06-18		517935	Spring seat	2
	E24	06-18		8801225	Shim	2
	E30	06-18		11056531	Guide post	2
	E40	06-18		505412 (9003509-0008)	Seal nut	2
	E50	06-18		517377	O-ring	1
	E60	06-18		517228 (5000206)	Screw	6
	E70	06-18		664524 (9005110-9000)	Plug assembly	1
	E80	06-18		334987	Spring	2
	E90	06-18		513888	Insert assembly	1
	F20	06-18		11116313	Slider block	1
	L10	06-18		5000505	Roller bearing	1
	L20	06-18		9006300-0156	Retaining ring	1
	L25	06-18		519671	Seal carrier assembly	1
	L40	06-18		519666	Lip seal (SB-2005-007)	1
	L50	06-18		684621 (9004104-1530)	O-ring	1
	L60	06-18		516767	Retainer plate	1
	L70	06-18		041160 (9007314-0605)	Screw	3
	QC04	06-18		8510365	Cylinder block kit	1
	QD50	06-18		11103350	Swashplate assembly	1



Variable displacement pump

(GBX, GCA, GCB,
GCC, GCJ, GCP,
GCR, GCS & GCU)



E103 033E

* = included in base pump seal kit Q210

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


Variable displacement pump
Common parts

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	C20	87-02		708230	Piston assembly	9
	C30	87-02		11067350	Slipper guide	1
	C40	88-22		334391 (8100294)	Slipper guide bearing	2
	C50	88-22		11065865	Spacer	4
	C70	88-22		314419 (9007276-0114)	Screw	4

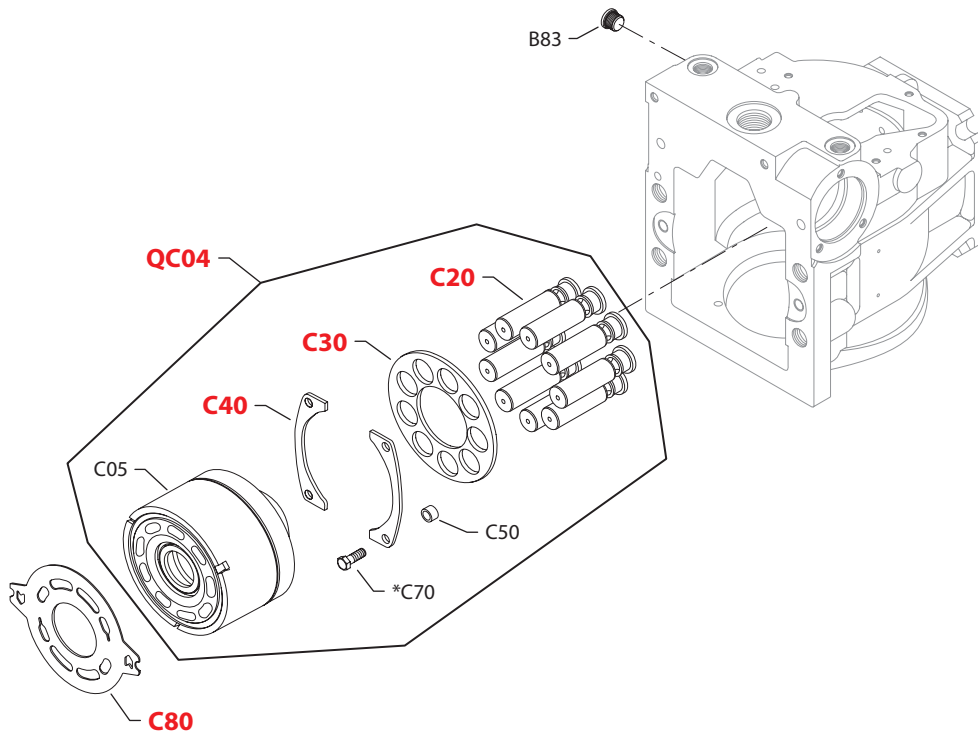
Special hardware

GBX	B83	08-42		140644	Plug assembly	1
	C05	08-42		519253 (11025822)	Cylinder block assembly	1
	C80	08-42		518805	Valve plate	1
	QC04	08-42		8510365	Cylinder block kit	1
GCA	B83	98-14		140644	Plug assembly	1
	C05	98-14		519253 (11025822)	Cylinder block assembly	1
	C80	98-14		518008	Valve plate	1
	QC04	98-14		8510365	Cylinder block kit	1
GCB	B83	98-14		140644	Plug assembly	1
	C05	98-14		519253 (11025822)	Cylinder block assembly	1
	C80	98-14		518008	Valve plate	1
	QC04	98-14		8510365	Cylinder block kit	1
GCC	B83	98-06		140644	Plug assembly	1
	C05	98-06		519253 (11025822)	Cylinder block assembly	1
	C80	98-06		518008	Valve plate	1
	QC04	98-06		8510365	Cylinder block kit	1
GCJ	B83	14-20		140644	Plug assembly	1
	C05	14-20		519253 (11025822)	Cylinder block assembly	1
	C80	14-20		518805	Valve plate	1
	QC04	14-20		8510365	Cylinder block kit	1
GCP	B83	98-06		140644	Plug assembly	1
	C05	98-06		519253 (11025822)	Cylinder block assembly	1
	C80	98-06		518008	Valve plate	1
	QC04	98-06		8510365	Cylinder block kit	1
GCR	B83	98-06		140644	Plug assembly	1
	C05	98-06		519253 (11025822)	Cylinder block assembly	1
	C80	98-06		518805	Valve plate	1
	QC04	98-06		8510365	Cylinder block kit	1
GCS	B83	98-06		140644	Plug assembly	1
	C05	98-06		519253 (11025822)	Cylinder block assembly	1
	C80	98-06		518008	Valve plate	1
	QC04	98-06		8510365	Cylinder block kit	1
GCU	B83	98-06		140644	Plug assembly	1
	C05	98-06		519253 (11025822)	Cylinder block assembly	1
	C80	98-06		518008	Valve plate	1
	QC04	98-06		8510365	Cylinder block kit	1



Variable displacement pump

(GDE, GFD, GFH, GFJ, GFK,
GFP, GFS, GFW & GFZ)



E103 033E

* = included in base pump seal kit Q210

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


Variable displacement pump
Common parts

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	C20	87-02		708230	Piston assembly	9
	C30	87-02		11067350	Slipper guide	1
	C40	88-22		334391 (8100294)	Slipper guide bearing	2
	C50	88-22		11065865	Spacer	4
	C70	88-22		314419 (9007276-0114)	Screw	4

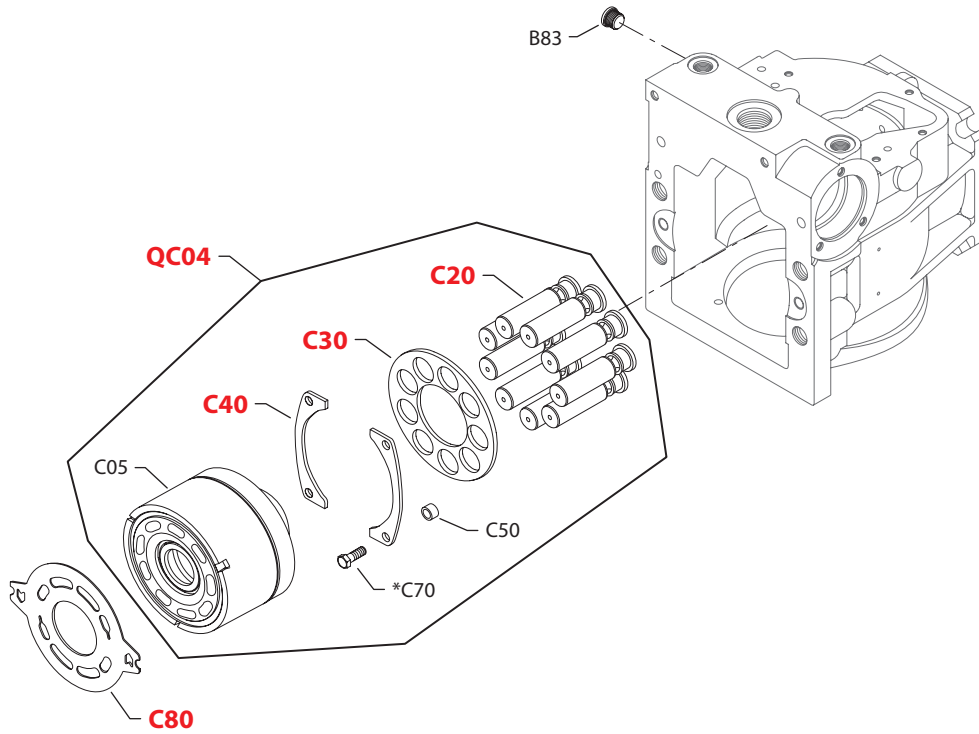
Special hardware

GDE	B83	06-12		140644	Plug assembly	1
	C05	06-12		519253 (11025822)	Cylinder block assembly	1
	C80	06-12		518805	Valve plate	1
	QC04	06-12		8510365	Cylinder block kit	1
GFD	B83	06-12		140644	Plug assembly	1
	C05	06-12		519253 (11025822)	Cylinder block assembly	1
	C80	06-12		518805	Valve plate	1
	QC04	06-12		8510365	Cylinder block kit	1
GFH	B83	06-12		140644	Plug assembly	1
	C05	06-12		519253 (11025822)	Cylinder block assembly	1
	C80	06-12		518805	Valve plate	1
	QC04	06-12		8510365	Cylinder block kit	1
GFJ	B83	06-12		140644	Plug assembly	1
	C05	06-12		519253 (11025822)	Cylinder block assembly	1
	C80	06-12		518805	Valve plate	1
	QC04	06-12		8510365	Cylinder block kit	1
GFK	B83	06-12		140644	Plug assembly	1
	C05	06-12		519253 (11025822)	Cylinder block assembly	1
	C80	06-12		518805	Valve plate	1
	QC04	06-12		8510365	Cylinder block kit	1
GFP	B83	06-12		140644	Plug assembly	1
	C05	06-12		519253 (11025822)	Cylinder block assembly	1
	C80	06-12		518925	Valve plate, CW	1
	QC04	06-12		8510365	Cylinder block kit	1
GFS	B83	06-12		140644	Plug assembly	1
	C05	06-12		519253 (11025822)	Cylinder block assembly	1
	C80	06-12		518805	Valve plate	1
	QC04	06-12		8510365	Cylinder block kit	1
GFW	B83	06-12		140644	Plug assembly	1
	C05	06-12		519253 (11025822)	Cylinder block assembly	1
	C80	06-12		518008	Valve plate	1
	QC04	06-12		8510365	Cylinder block kit	1
GFZ	B83	06-12		140644	Plug assembly	1
	C05	06-12		519253 (11025822)	Cylinder block assembly	1
	C80	06-12		518805	Valve plate	1
	QC04	06-12		8510365	Cylinder block kit	1



Variable displacement pump

(GHT, GLA, GLS & GMA)



E103 033E

* = included in base pump seal kit Q210

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


Variable displacement pump
Common parts

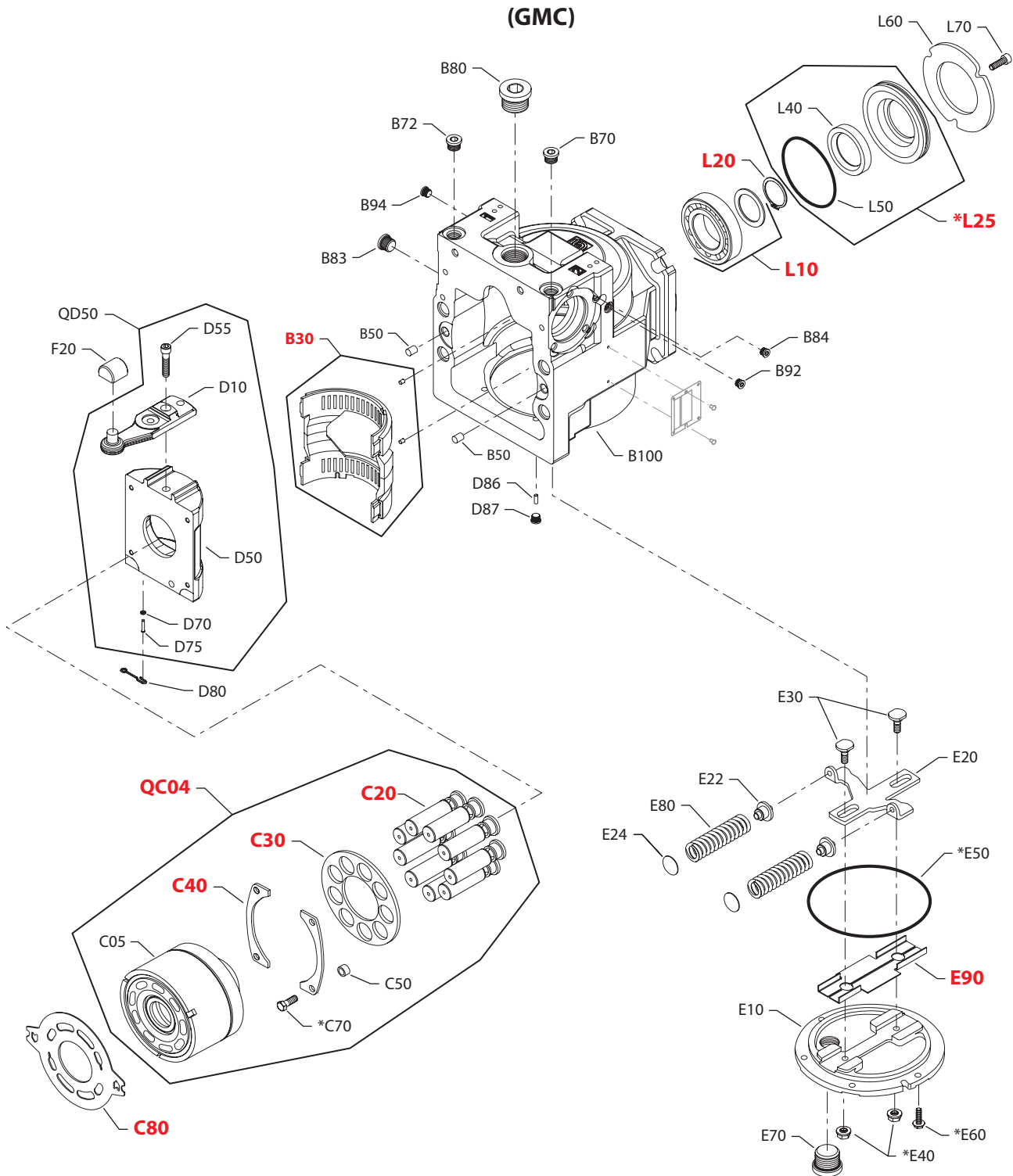
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	C20	87-02		708230	Piston assembly	9
	C30	87-02		11067350	Slipper guide	1
	C40	88-22		334391 (8100294)	Slipper guide bearing	2
	C50	88-22		11065865	Spacer	4
	C70	88-22		314419 (9007276-0114)	Screw	4

Special hardware

GHT	B83	06-12		140644	Plug assembly	1
	C05	06-12		519253 (11025822)	Cylinder block assembly	1
	C80	06-12		518008	Valve plate	1
	QC04	06-12		8510365	Cylinder block kit	1
GLA	B83	98-18		140644	Plug assembly	1
	C05	98-18		519253 (11025822)	Cylinder block assembly	1
	C80	98-18		518925	Valve plate, CW	1
	C80	98-18		518926	Valve plate, CCW	1
	QC04	98-18		8510365	Cylinder block kit	1
GLS	B83	98-18		140644	Plug assembly	1
	C05	98-18		519253 (11025822)	Cylinder block assembly	1
	C80	98-18		518925	Valve plate, CW	1
	C80	98-18		518926	Valve plate, CCW	1
	QC04	98-18		8510365	Cylinder block kit	1
GMA	B83	97-41		140644	Plug assembly	1
	C05	97-41		519253 (11025822)	Cylinder block assembly	1
	C80	97-41		518007	Valve plate	1
	QC04	97-41		8510365	Cylinder block kit	1



Variable displacement pump



E101 891E

* = included in base pump seal kit Q210

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

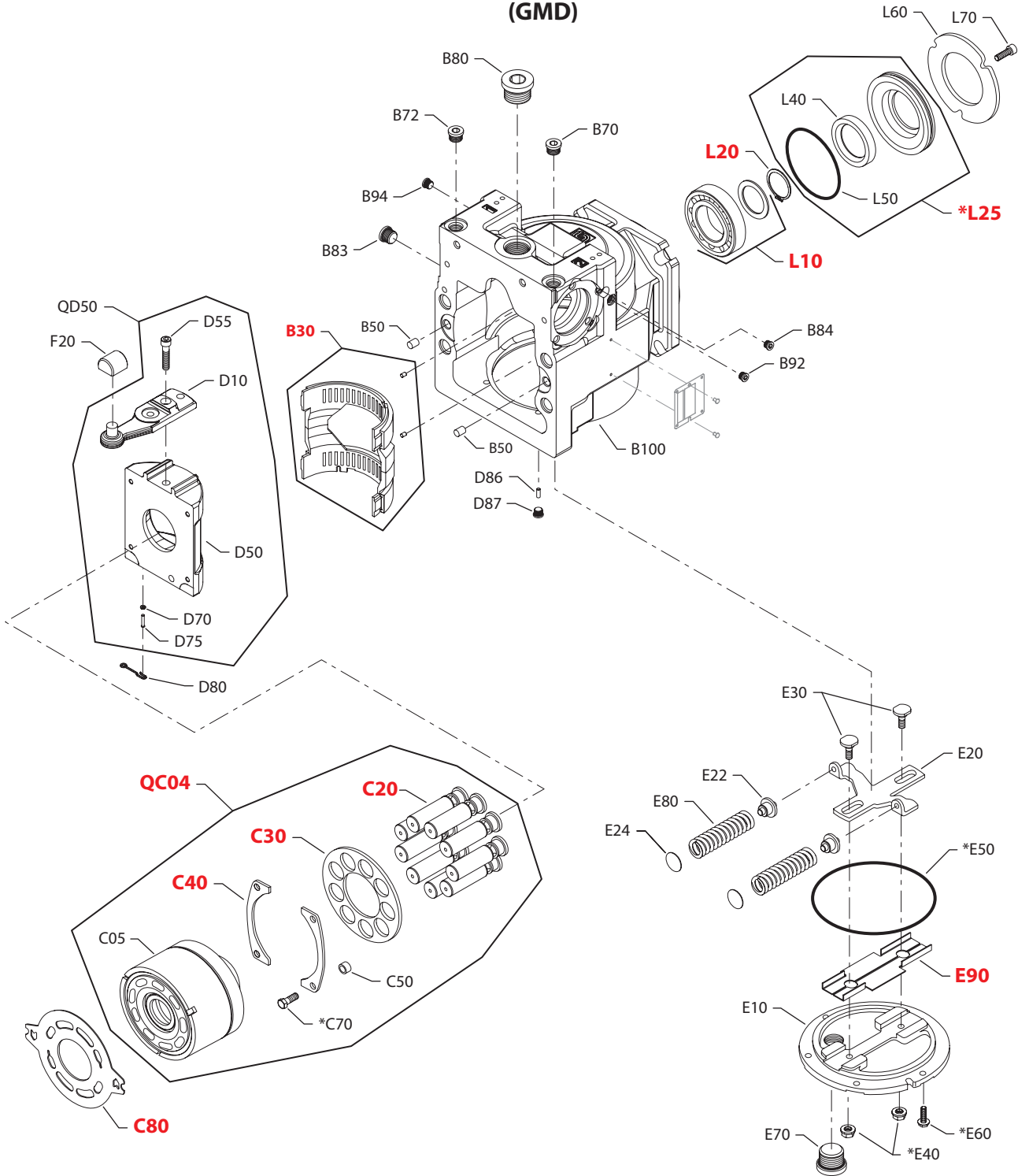

Variable displacement pump
Special hardware

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
GMC	B30	03-48		518671	Cradle bearing assembly	1
	B50	03-48		9004800-3708	Pin	2
	B70	03-48		140644	Plug assembly	1
	B72	03-48		140644	Plug assembly	1
	B80	03-48		664524 (9005110-9000)	Plug assembly	1
	B83	03-48		140644	Plug assembly	1
	B84	03-48		11040532	Plug assembly	1
	B92	03-48		11040532	Plug assembly	1
	B94	03-48		11040532	Plug assembly	1
	B100	03-48		11117294	Housing assembly	1
	C05	03-48		519253 (11025822)	Cylinder block assembly	1
	C20	03-48		708230	Piston assembly	9
	C30	03-48		11067350	Slipper guide	1
	C40	03-48		334391 (8100294)	Slipper guide bearing	2
	C50	03-48		11065865	Spacer	4
	C70	03-48		314419 (9007276-0114)	Screw	4
	C80	03-48		518007	Valve plate	1
	D10	03-48		519046	Servo arm	1
	D50	03-48		11104315	Swashplate	1
	D55	03-48		519150	Screw	1
	D70	03-48		9009625-0146	Washer	1
	D75	03-48		9004875-0098	Spiral head pin	1
	D80	03-48		693929 (8100506)	Cage locator link	1
	D86	03-48		9004800-1908	Pin	1
	D87	03-48		11040532	Plug assembly	1
	E10	03-48		11001286	Side cover	1
	E20	03-48		11042018	Leveler	1
	E22	03-48		517935	Spring seat	2
	E24	03-48		8801225	Shim	2
	E30	03-48		11056531	Guide post	2
	E40	03-48		505412 (9003509-0008)	Seal nut	2
	E50	03-48		517377	O-ring	1
	E60	03-48		517228 (5000206)	Screw	6
	E70	03-48		664524 (9005110-9000)	Plug assembly	1
	E80	03-48		334987	Spring	2
	E90	03-48		513888	Insert assembly	1
	F20	03-48		11116313	Slider block	1
	L10	03-48		5000505	Roller bearing	1
	L20	03-48		9006300-0156	Retaining ring	1
	L25	03-48		519671	Seal carrier assembly	1
	L40	03-48		519666	Lip seal (SB-2005-007)	1
	L50	03-48		684621 (9004104-1530)	O-ring	1
	L60	03-48		516767	Retainer plate	1
	L70	03-48		041160 (9007314-0605)	Screw	3
	QC04	03-48		8510365	Cylinder block kit	1
	QD50	03-48		11103350	Swashplate assembly	1



Variable displacement pump

(GMD)



E101 891E

* = included in base pump seal kit Q210

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

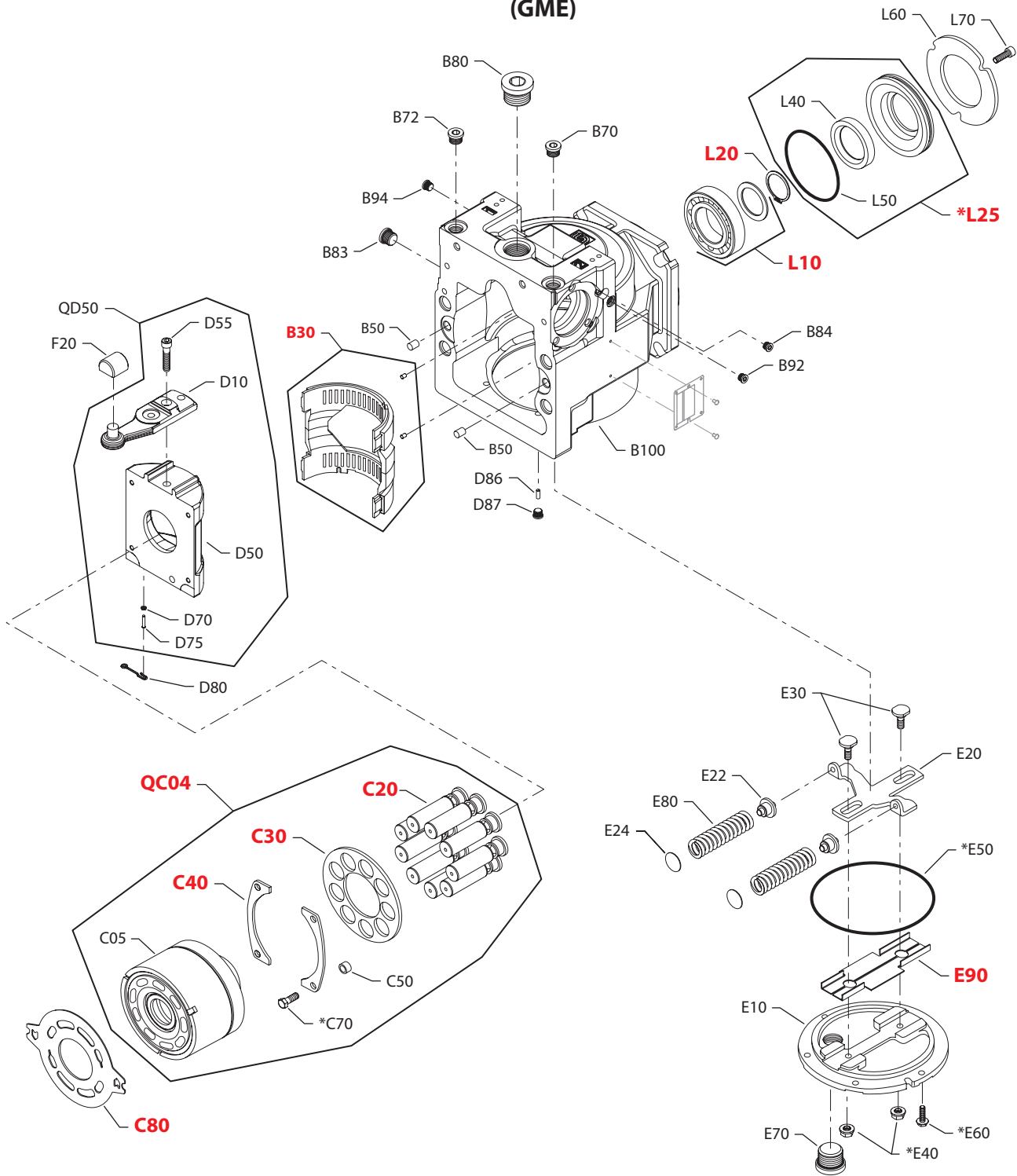

Variable displacement pump
Special hardware

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
GMD	B30	03-48		518671	Cradle bearing assembly	1
	B50	03-48		9004800-3708	Pin	2
	B70	03-48		140644	Plug assembly	1
	B72	03-48		140644	Plug assembly	1
	B80	03-48		664524 (9005110-9000)	Plug assembly	1
	B83	03-48		140644	Plug assembly	1
	B84	03-48		11040532	Plug assembly	1
	B92	03-48		11040532	Plug assembly	1
	B94	03-48		11040532	Plug assembly	1
	B100	03-48		11117294	Housing assembly	1
	C05	03-48		519253 (11025822)	Cylinder block assembly	1
	C20	03-48		708230	Piston assembly	9
	C30	03-48		11067350	Slipper guide	1
	C40	03-48		334391 (8100294)	Slipper guide bearing	2
	C50	03-48		11065865	Spacer	4
	C70	03-48		314419 (9007276-0114)	Screw	4
	C80	03-48		518925	Valve plate, CW	1
	D10	03-48		519046	Servo arm	1
	D50	03-48		11104315	Swashplate	1
	D55	03-48		519150	Screw	1
	D70	03-48		9009625-0146	Washer	1
	D75	03-48		9004875-0098	Spiral head pin	1
	D80	03-48		693929 (8100506)	Cage locator link	1
	D86	03-48		9004800-1908	Pin	1
	D87	03-48		11040532	Plug assembly	1
	E10	03-48		11001286	Side cover	1
	E20	03-48		11042018	Leveler	1
	E22	03-48		517935	Spring seat	2
	E24	03-48		8801225	Shim	2
	E30	03-48		11056531	Guide post	2
	E40	03-48		505412 (9003509-0008)	Seal nut	2
	E50	03-48		517377	O-ring	1
	E60	03-48		517228 (5000206)	Screw	6
	E70	03-48		664524 (9005110-9000)	Plug assembly	1
	E80	03-48		334987	Spring	2
	E90	03-48		513888	Insert assembly	1
	F20	03-48		11116313	Slider block	1
	L10	03-48		5000505	Roller bearing	1
	L20	03-48		9006300-0156	Retaining ring	1
	L25	03-48		519671	Seal carrier assembly	1
	L40	03-48		519666	Lip seal (SB-2005-007)	1
	L50	03-48		684621 (9004104-1530)	O-ring	1
	L60	03-48		516767	Retainer plate	1
	L70	03-48		041160 (9007314-0605)	Screw	3
	QC04	03-48		8510365	Cylinder block kit	1
	QD50	03-48		11103350	Swashplate assembly	1



Variable displacement pump

(GME)



E101 891E

* = included in base pump seal kit Q210

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

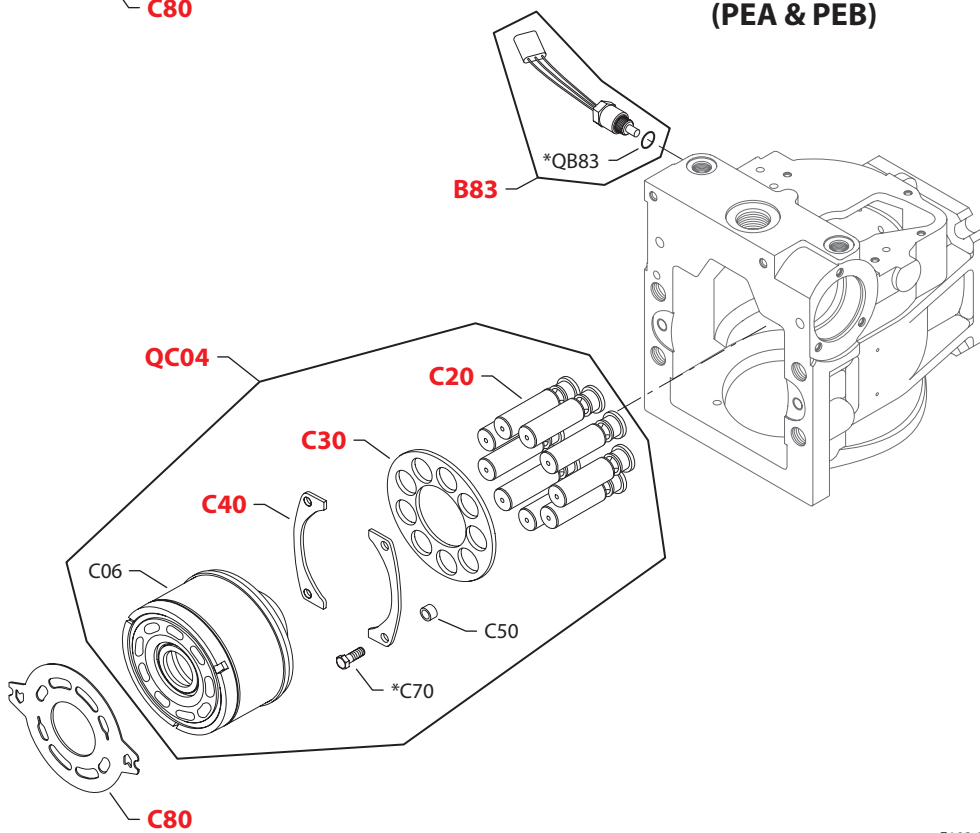
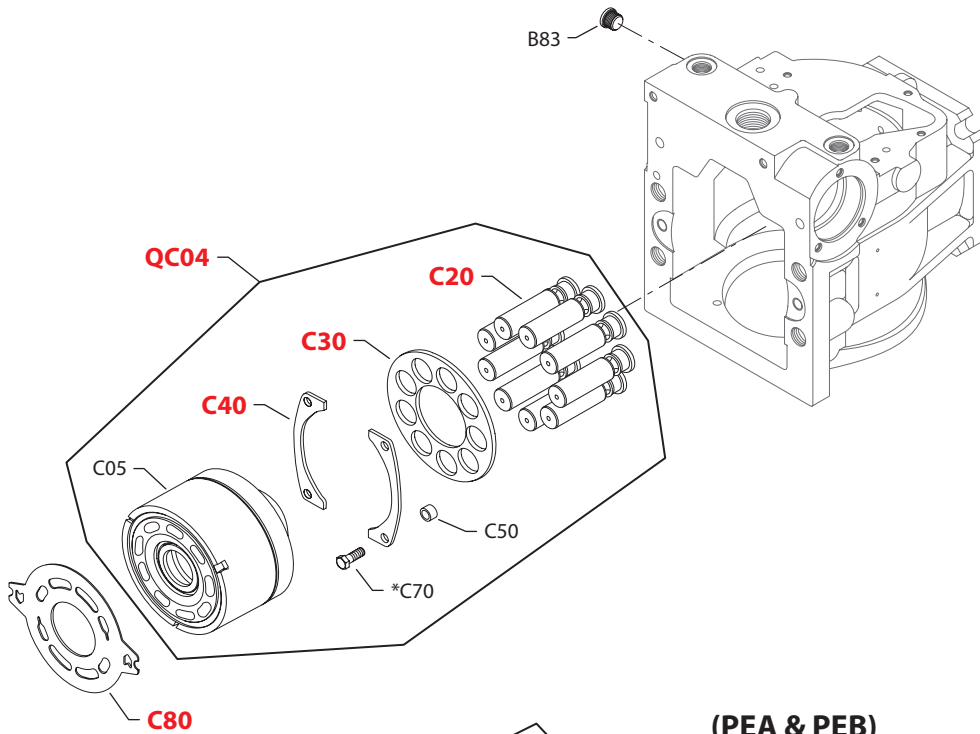

Variable displacement pump
Special hardware

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
GME	B30	03-48		518671	Cradle bearing assembly	1
	B50	03-48		9004800-3708	Pin	2
	B70	03-48		140644	Plug assembly	1
	B72	03-48		140644	Plug assembly	1
	B80	03-48		664524 (9005110-9000)	Plug assembly	1
	B83	03-48		140644	Plug assembly	1
	B84	03-48		11040532	Plug assembly	1
	B92	03-48		11040532	Plug assembly	1
	B94	03-48		11040532	Plug assembly	1
	B100	03-48		11117294	Housing assembly	1
	C05	03-48		519253 (11025822)	Cylinder block assembly	1
	C20	03-48		708230	Piston assembly	9
	C30	03-48		11067350	Slipper guide	1
	C40	03-48		334391 (8100294)	Slipper guide bearing	2
	C50	03-48		11065865	Spacer	4
	C70	03-48		314419 (9007276-0114)	Screw	4
	C80	03-48		518008	Valve plate	1
	D10	03-48		519046	Servo arm	1
	D50	03-48		11104315	Swashplate	1
	D55	03-48		519150	Screw	1
	D70	03-48		9009625-0146	Washer	1
	D75	03-48		9004875-0098	Spiral head pin	1
	D80	03-48		693929 (8100506)	Cage locator link	1
	D86	03-48		9004800-1908	Pin	1
	D87	03-48		11040532	Plug assembly	1
	E10	03-48		11001286	Side cover	1
	E20	03-48		11042018	Leveler	1
	E22	03-48		517935	Spring seat	2
	E24	03-48		8801225	Shim	2
	E30	03-48		11056531	Guide post	2
	E40	03-48		505412 (9003509-0008)	Seal nut	2
	E50	03-48		517377	O-ring	1
	E60	03-48		517228 (5000206)	Screw	6
	E70	03-48		664524 (9005110-9000)	Plug assembly	1
	E80	03-48		334987	Spring	2
	E90	03-48		513888	Insert assembly	1
	F20	03-48		11116313	Slider block	1
	L10	03-48		5000505	Roller bearing	1
	L20	03-48		9006300-0156	Retaining ring	1
	L25	03-48		519671	Seal carrier assembly	1
	L40	03-48		519666	Lip seal (SB-2005-007)	1
	L50	03-48		684621 (9004104-1530)	O-ring	1
	L60	03-48		516767	Retainer plate	1
	L70	03-48		041160 (9007314-0605)	Screw	3
	QC04	03-48		8510365	Cylinder block kit	1
	QD50	03-48		11103350	Swashplate assembly	1



Variable displacement pump

(GTA, HCA, JAA, JCA JCB,
PGA & PGB)



* = included in base pump seal kit Q210

E103 032E
Enlarged **bold** type item numbers are recommended parts to be stocked for servicing


Variable displacement pump
Common parts

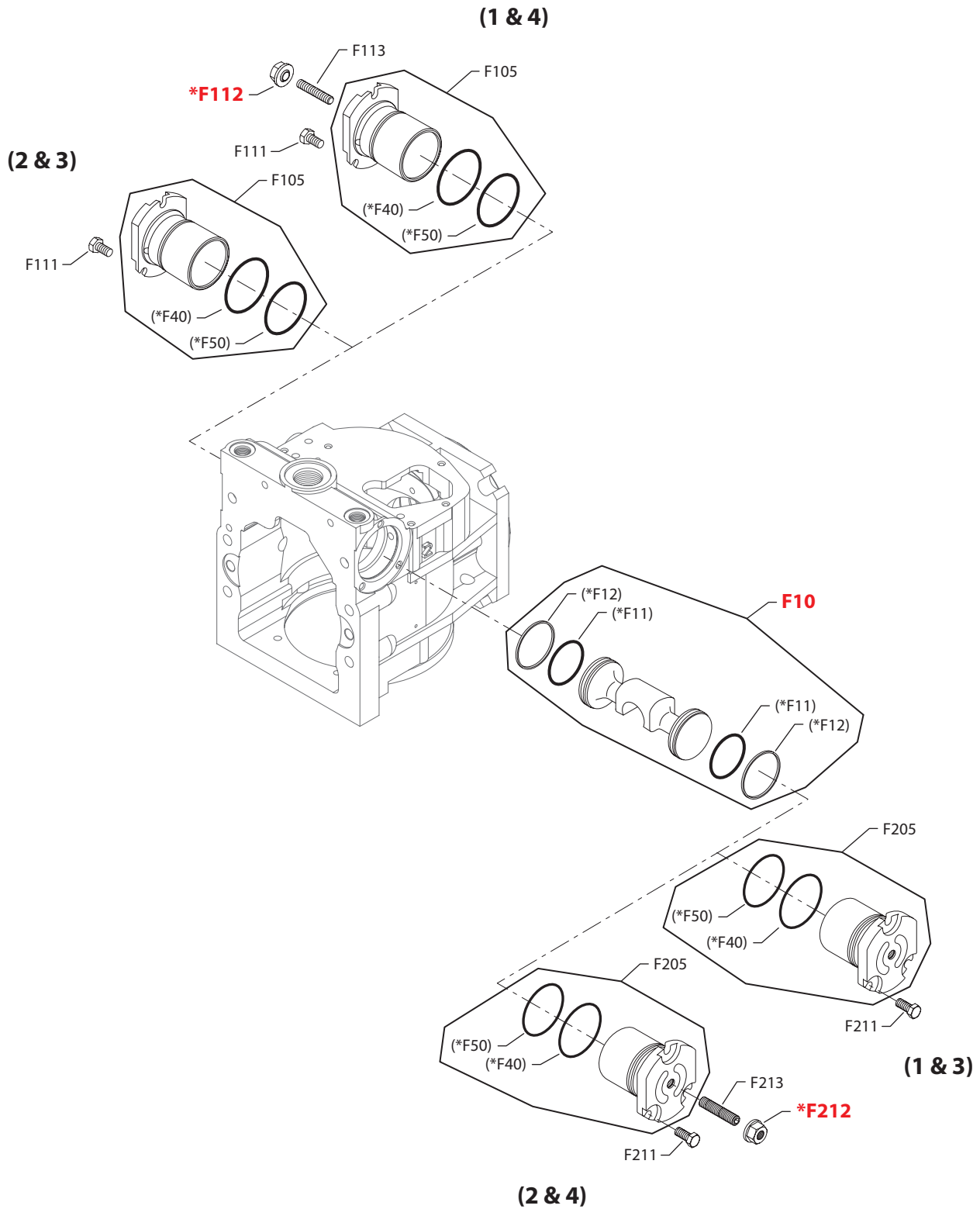
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	C20	87-02		708230	Piston assembly	9
	C30	87-02		11067350	Slipper guide	1
	C40	88-22		334391 (8100294)	Slipper guide bearing	2
	C50	88-22		11065865	Spacer	4
	C70	88-22		314419 (9007276-0114)	Screw	4

Special hardware

GTA	B83	98-18		140644	Plug assembly	1
	C05	98-18		519253 (11025822)	Cylinder block assembly	1
	C80	98-18		518805	Valve plate	1
	QC04	98-18		8510365	Cylinder block kit	1
HCA	B83	98-18		140644	Plug assembly	1
	C05	98-18		519253 (11025822)	Cylinder block assembly	1
	C80	98-18		518924	Valve plate	1
	QC04	98-18		8510365	Cylinder block kit	1
JAA	B83	97-41		140644	Plug assembly	1
	C05	97-41		519253 (11025822)	Cylinder block assembly	1
	C80	97-41		518924	Valve plate	1
	QC04	97-41		8510365	Cylinder block kit	1
JCA	B83	08-12		140644	Plug assembly	1
	C05	08-12		519253 (11025822)	Cylinder block assembly	1
	C80	08-12		518805	Valve plate	1
	QC04	08-12		8510365	Cylinder block kit	1
PEA	B83	07-04		KPPG156	Speed sensor assembly	1
	C06	07-04		11094260 (11011714)	Cylinder block assembly with speed ring	1
	C80	07-04		518805	Valve plate	1
	QB83	07-04		085043 (9004201-3700)	O-ring	1
	QC04	07-04		8510366	Cylinder block kit with speed ring	1
PEB	B83	07-07		KPPG156	Speed sensor assembly	1
	C06	07-07		11094260 (11011714)	Cylinder block assembly with speed ring	1
	C80	07-07		518925	Valve plate, CW	1
	C80	07-07		518926	Valve plate, CCW	1
	QB83	07-07		085043 (9004201-3700)	O-ring	1
	QC04	07-07		8510366	Cylinder block kit with speed ring	1
PGA	B83	07-04		140644	Plug assembly	1
	C05	07-04		519253 (11025822)	Cylinder block assembly	1
	C80	07-04		518805	Valve plate	1
	QC04	07-04		8510365	Cylinder block kit	1
PGB	B83	07-07		140644	Plug assembly	1
	C05	07-07		519253 (11025822)	Cylinder block assembly	1
	C80	07-07		518925	Valve plate, CW	1
	C80	07-07		518926	Valve plate, CCW	1
	QC04	07-07		8510365	Cylinder block kit	1



Variable displacement pump



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

E100 688E

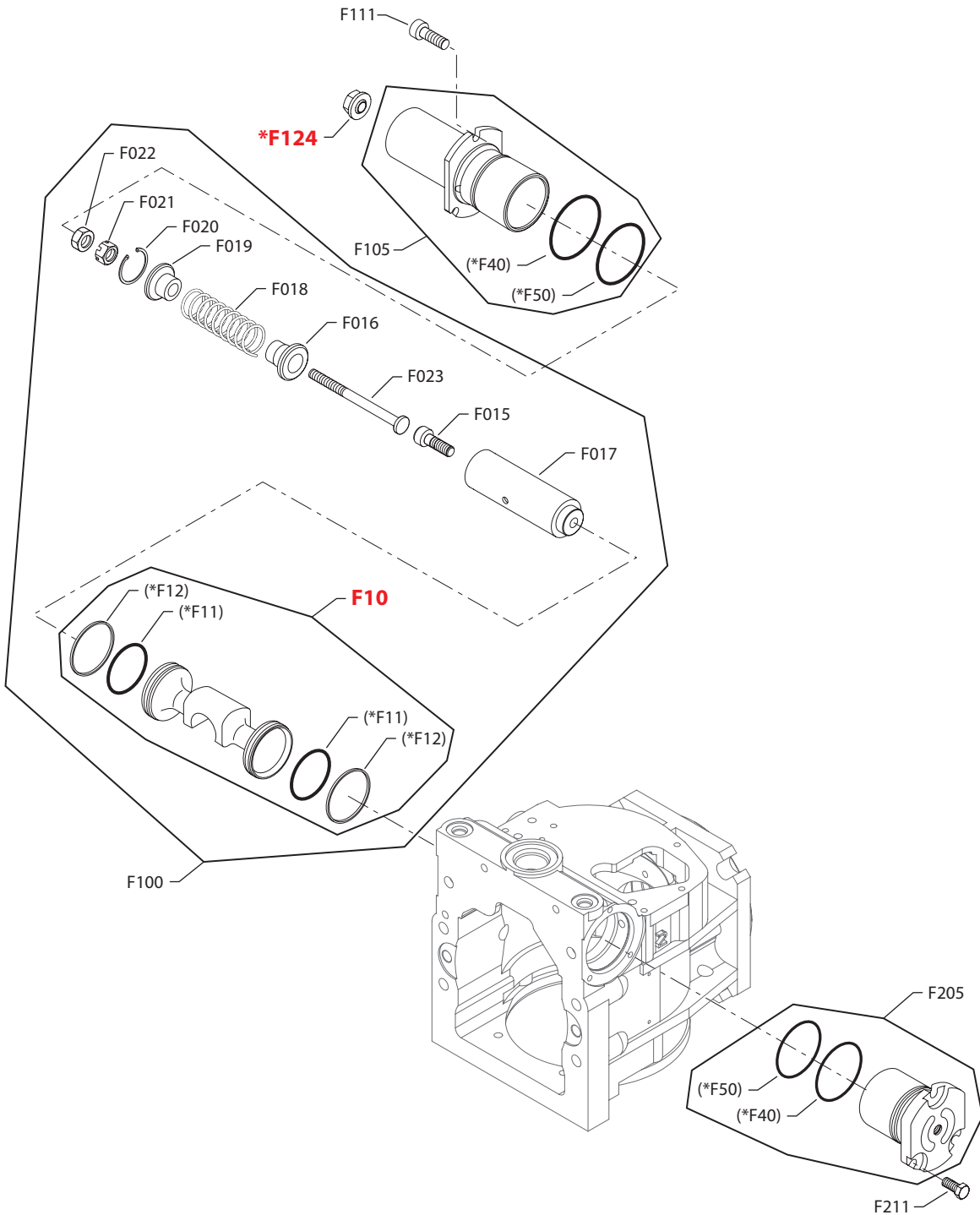

Variable displacement pump
Displacement limitation

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
1	F10	88-16		11041752	Servo piston assembly (SB-1988-009 & SB-2000-022)	1
	F105	87-02		11059759 (11055763)	Servo cylinder assembly	1
	F111	87-02		378083 (9007210-0804)	Screw	3
	F112	87-02		505412 (9003509-0008)	Seal nut	1
	F113	87-02		5000747	Set screw, M8 x 45mm, SB-2000-022	1
	F205	87-02		11059760 (11055761)	Servo cylinder assembly	1
	F211	87-02		378083 (9007210-0804)	Screw	3
	2	F10	88-16		11041752	Servo piston assembly (SB-1988-009 & SB-2000-022)
F105		87-02		11059760 (11055761)	Servo cylinder assembly	1
F111		87-02		378083 (9007210-0804)	Screw	3
F205		87-02		11059759 (11055763)	Servo cylinder assembly	1
F211		87-02		378083 (9007210-0804)	Screw	3
F212		87-02		505412 (9003509-0008)	Seal nut	1
F213		87-02		5000747	Set screw, M8 x 45mm, SB-2000-022	1
3		F10	88-16		11041752	Servo piston assembly (SB-1988-009 & SB-2000-022)
	F105	87-02		11059760 (11055761)	Servo cylinder assembly	1
	F111	87-02		378083 (9007210-0804)	Screw	3
	F205	87-02		11059760 (11055761)	Servo cylinder assembly	1
	F211	87-02		378083 (9007210-0804)	Screw	3
	4	F10	88-16		11041752	Servo piston assembly (SB-1988-009 & SB-2000-022)
F105		87-02		11059759 (11055763)	Servo cylinder assembly	1
F111		87-02		378083 (9007210-0804)	Screw	3
F112		87-02		505412 (9003509-0008)	Seal nut	1
F113		87-02		5000747	Set screw, M8 x 45mm, SB-2000-022	1
F205		87-02		11059759 (11055763)	Servo cylinder assembly	1
F211		87-02		378083 (9007210-0804)	Screw	3
F212		87-02		505412 (9003509-0008)	Seal nut	1
F213		87-02		5000747	Set screw, M8 x 45mm, SB-2000-022	1



Variable displacement pump

(7)



E100 705E

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

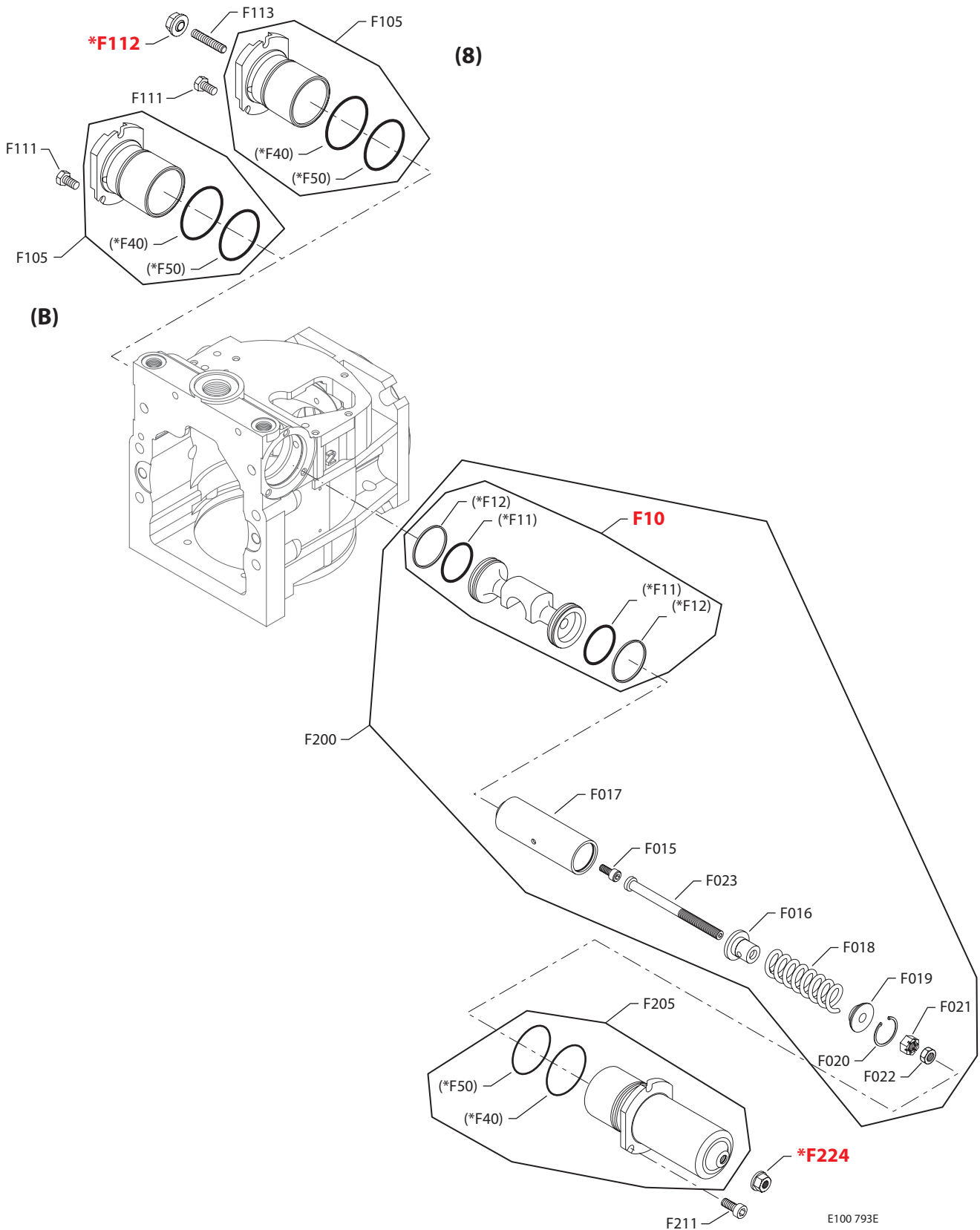
Enlarged **bold** type item numbers are recommended parts to be stocked for servicing


Variable displacement pump
Displacement limitation

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
7	F10	98-14		11041755	Servo piston assembly	1
	F015	98-14		346395	Screw	1
	F016	98-14		507092	Spring guide	1
	F017	98-14		346320	Servo spring housing	1
	F018	98-14		346254	Spring	1
	F019	98-14		507093	Spring guide	1
	F020	98-14		346379	Retaining ring	1
	F021	98-14		787887	Castle nut	1
	F022	98-14		336800	Nut	1
	F023	98-14		11140220	Adjusting screw	1
	F100	98-14		515310 (8100932)	Servo assembly	1
	F105	98-14		11060187 (11055767)	Servo cylinder assembly, automotive control	1
	F111	98-14		746651 (393595)	Screw	3
	F124	98-14		336826	Seal nut	1
	F205	98-14		11059760 (11055761)	Servo cylinder assembly, non-adjustable	1
	F211	98-14		378083 (9007210-0804)	Screw	3



Variable displacement pump



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

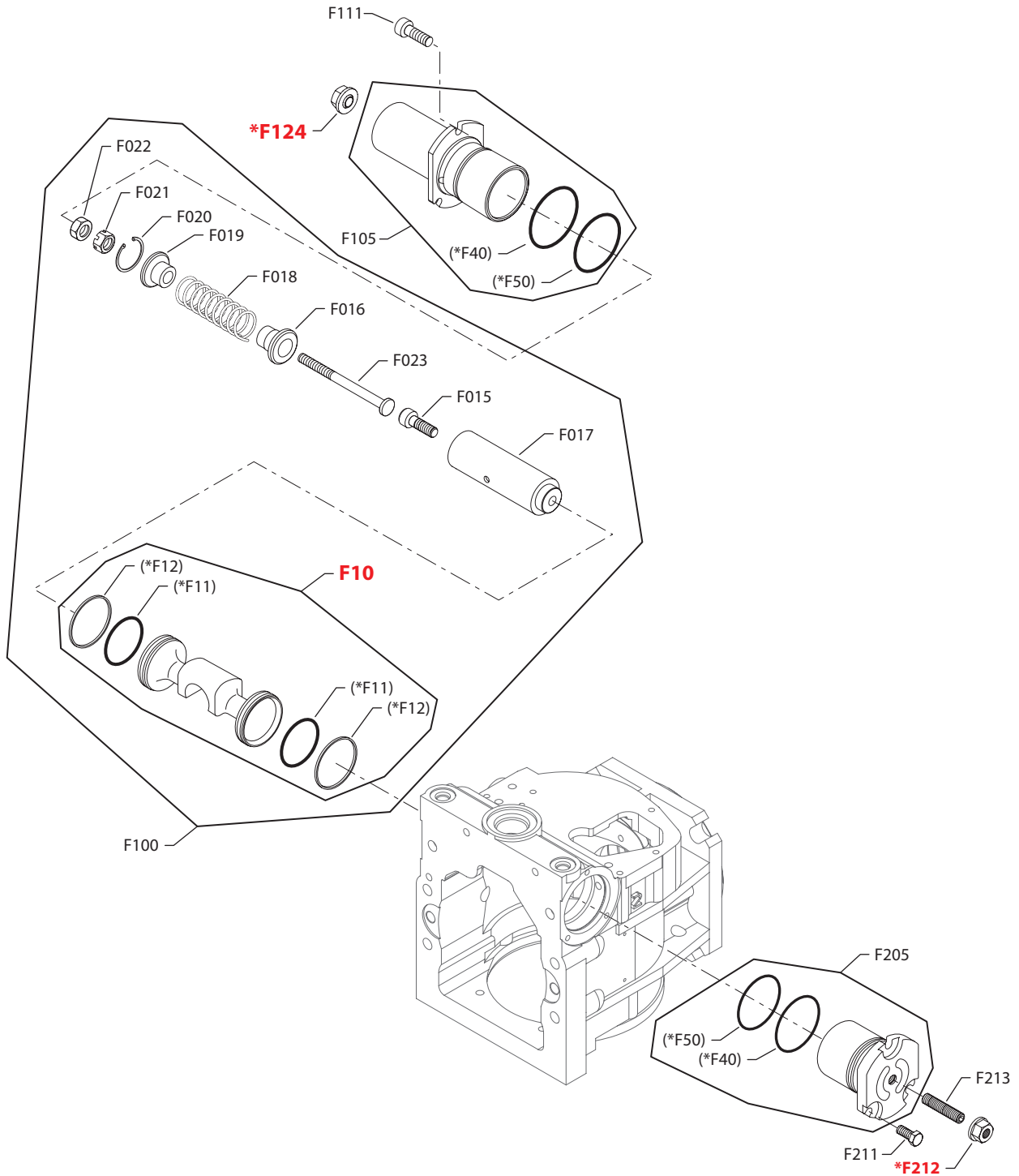

Variable displacement pump
Displacement limitation

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
8	F10	98-14		11041755	Servo piston assembly	1
	F015	98-14		346395	Screw	1
	F016	98-14		507092	Spring guide	1
	F017	98-14		346320	Servo spring housing	1
	F018	98-14		346262	Spring	1
	F019	98-14		507093	Spring guide	1
	F020	98-14		346379	Retaining ring	1
	F021	98-14		787887	Castle nut	1
	F022	98-14		336800	Nut	1
	F023	98-14		11140220	Adjusting screw	1
	F105	98-14		11059759 (11055763)	Servo cylinder assembly	1
	F111	98-14		378083 (9007210-0804)	Screw	3
	F112	98-14		505412 (9003509-0008)	Seal nut	1
	F113	98-14		5000747	Set screw, M8 x 45mm, SB-2000-022	1
	F200	98-14		515324 (8100932)	Servo assembly	1
	F205	98-14		11060187 (11055767)	Servo cylinder assembly	1
	F211	98-14		746651 (393595)	Screw	3
	F224	98-14		336826	Seal nut	1
B	F10	98-14		11041755	Servo piston assembly	1
	F015	98-14		346395	Screw	1
	F016	98-14		507092	Spring guide	1
	F017	98-14		346320	Servo spring housing	1
	F018	98-14		346254	Spring	1
	F019	98-14		507093	Spring guide	1
	F020	98-14		346379	Retaining ring	1
	F021	98-14		787887	Castle nut	1
	F022	98-14		336800	Nut	1
	F023	98-14		11140220	Adjusting screw	1
	F105	98-14		11059760 (11055761)	Servo cylinder assembly	1
	F111	98-14		378083 (9007210-0804)	Screw	3
	F200	98-14		515310 (8100932)	Servo assembly	1
	F205	98-14		11060187 (11055767)	Servo cylinder assembly	1
	F211	98-14		746651 (393595)	Screw	3
	F224	98-14		336826	Seal nut	1



Variable displacement pump

(D)



E100 792E

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

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



Variable displacement pump

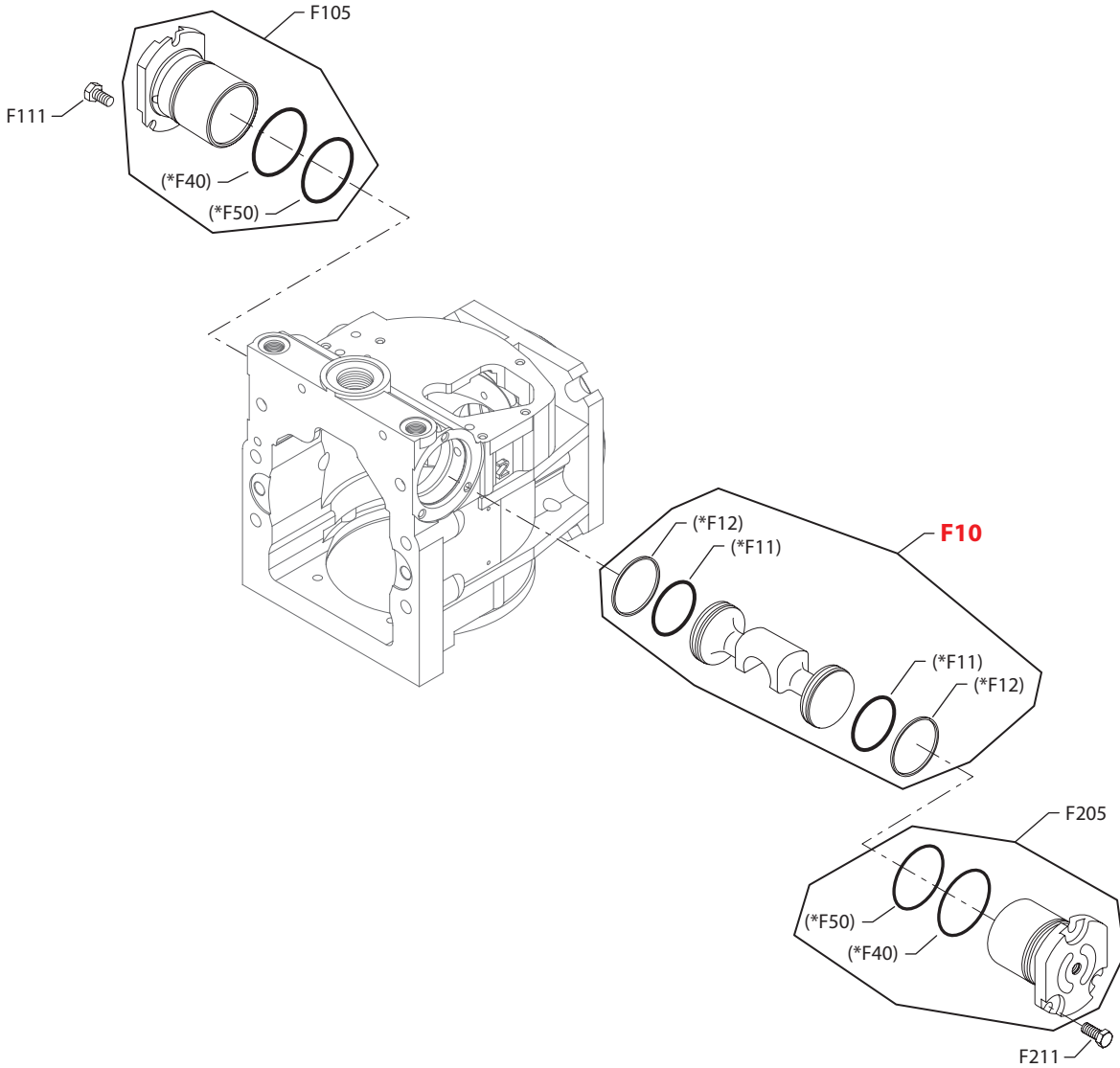
Displacement limitation

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
D	F10	98-14		11041755	Servo piston assembly	1
	F015	98-14		346395	Screw	1
	F016	98-14		507092	Spring guide	1
	F017	98-14		346320	Servo spring housing	1
	F018	98-14		346254	Spring	1
	F019	98-14		507093	Spring guide	1
	F020	98-14		346379	Retaining ring	1
	F021	98-14		787887	Castle nut	1
	F022	98-14		336800	Nut	1
	F023	98-14		11140220	Adjusting screw	1
	F100	98-14		515310 (8100932)	Servo assembly	1
	F105	98-14		11060187 (11055767)	Servo cylinder assembly, automotive control	1
	F111	98-14		746651 (393595)	Screw	3
	F124	98-14		336826	Seal nut	1
	F205	98-14		11059759 (11055763)	Servo cylinder assembly	1
	F211	98-14		378083 (9007210-0804)	Screw	3
	F212	98-14		505412 (9003508-0008)	Seal nut	1
	F213	98-14		5000747	Set screw (SB-2000-022)	1



Variable displacement pump

(F)



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

E101 895E

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



Variable displacement pump

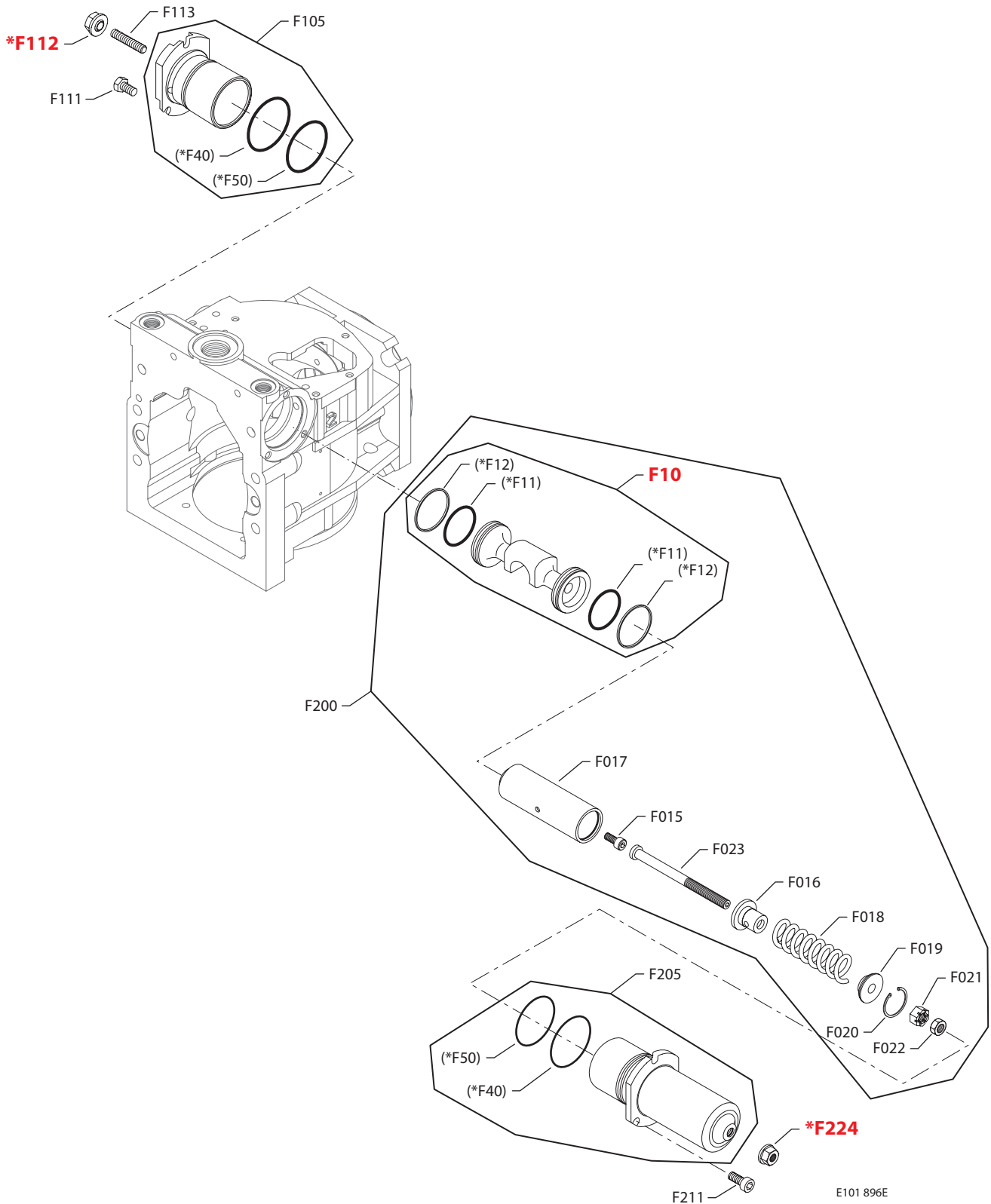
Displacement limitation

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
F	F10	91-30		11041752	Servo piston assembly (SB-2000-022)	1
	F105	91-30		11055765	Servo cylinder assembly	1
	F111	91-30		378083 (9007210-0804)	Screw	3
	F205	91-30		11055765	Servo cylinder assembly	1
	F211	91-30		378083 (9007210-0804)	Screw	3



Variable displacement pump

(H)



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 () = not available individually

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

E101 896E

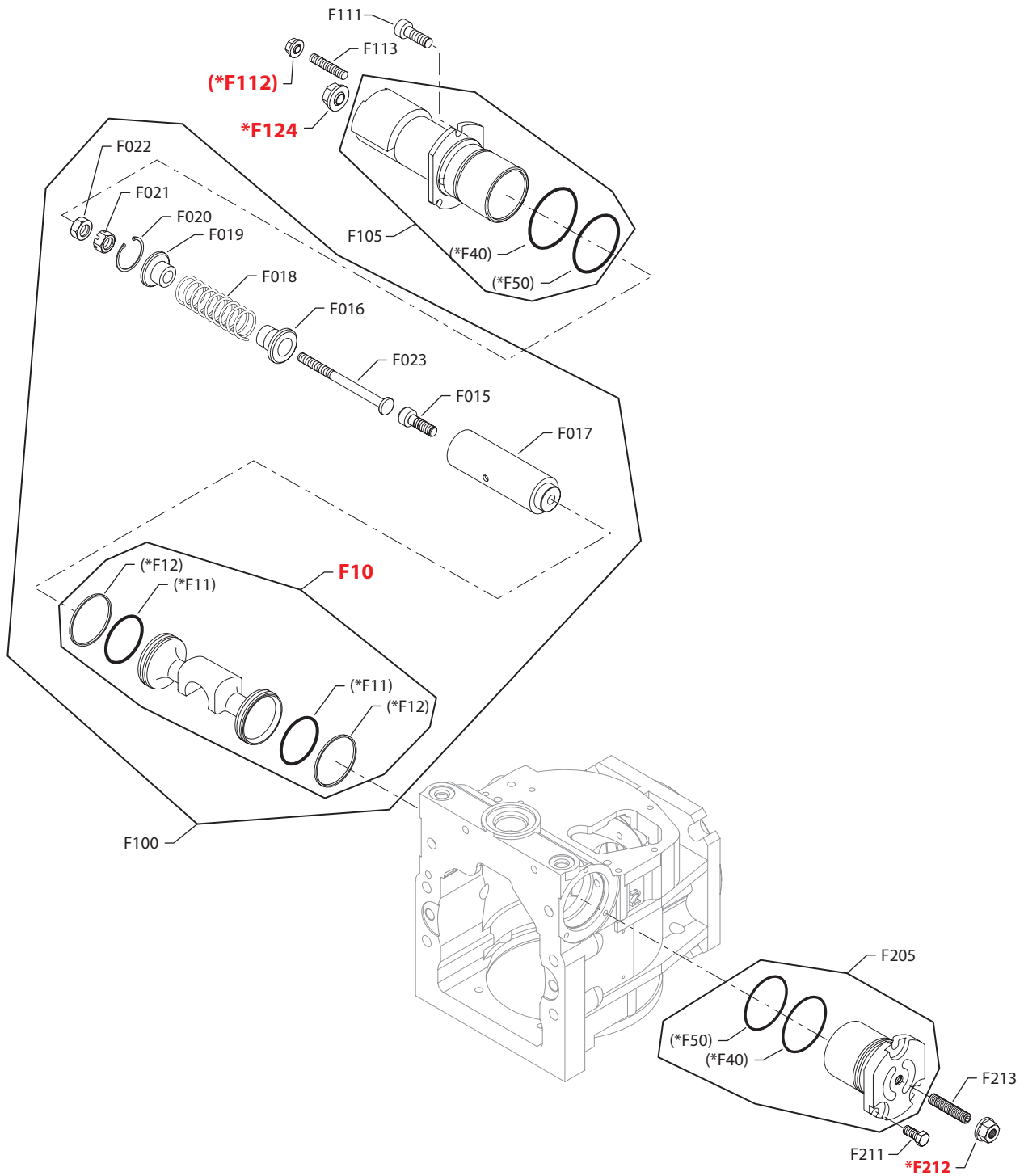

Variable displacement pump
Displacement limitation

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
H	F10	98-14		11041755	Servo piston assembly	1
	F015	98-14		346395	Screw	1
	F016	98-14		507092	Spring guide	1
	F017	98-14		346320	Servo spring housing	1
	F018	98-14		346254	Spring	1
	F019	98-14		507093	Spring guide	1
	F020	98-14		346379	Retaining ring	1
	F021	98-14		787887	Castle nut	1
	F022	98-14		336800	Nut	1
	F023	98-14		11140220	Adjusting screw	1
	F105	98-14		11059759 (11055763)	Servo cylinder assembly	1
	F111	98-14		378083 (9007210-0804)	Screw	3
	F112	98-14		505412 (9003509-0008)	Seal nut	1
	F113	98-14		5000747	Set screw, M8 x 45mm, SB-2000-022	1
	F200	98-14		515310 (8100932)	Servo assembly	1
	F205	98-14		11060187 (11055767)	Servo cylinder assembly	1
	F211	98-14		746651 (393595)	Screw	3
	F224	98-14		336826	Seal nut	1



Variable displacement pump

(L)



E101 897E

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

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

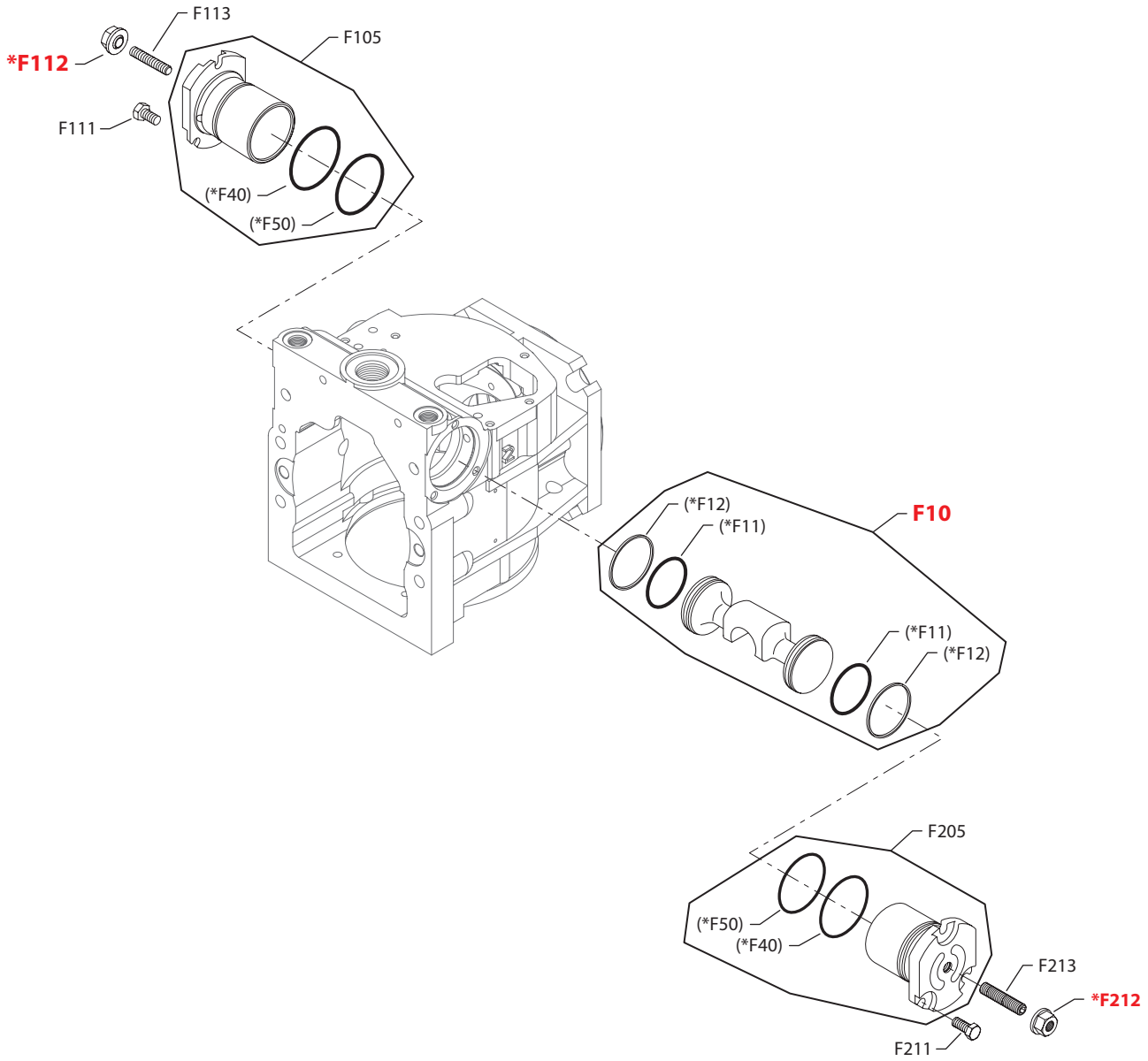

Variable displacement pump
Displacement limitation

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
L	F10	98-21		11041755	Servo piston assembly	1
	F015	98-21		346395	Screw	1
	F016	98-21		507092	Spring guide	1
	F017	98-21		346320	Servo spring housing	1
	F018	98-21		346254	Spring	1
	F019	98-21		507093	Spring guide	1
	F020	98-21		346379	Retaining ring	1
	F021	98-21		787887	Castle nut	1
	F022	98-21		336800	Nut	1
	F023	98-21		11140220	Adjusting screw	1
	F100	98-21		515310 (8100932)	Servo assembly	1
	F105	98-21		11059757	Servo cylinder assembly, automotive control	1
	F111	98-21		746651 (393595)	Screw	3
	F112	98-21		505412 (9003509-0008)	Seal nut	1
	F113	98-21		5000747	Set screw, M8 x 45mm, SB-2000-022	1
	F124	98-21		336826	Seal nut	1
	F205	98-21		11059759 (11055763)	Servo cylinder assembly	1
	F211	98-21		378083 (9007210-0804)	Screw	3
	F212	98-21		505412 (9003509-0008)	Seal nut	1
	F213	98-21		5000747	Set screw, M8 x 45mm, SB-2000-022	1



Variable displacement pump

(P)



E101 898E

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 () = not available individually

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



Variable displacement pump

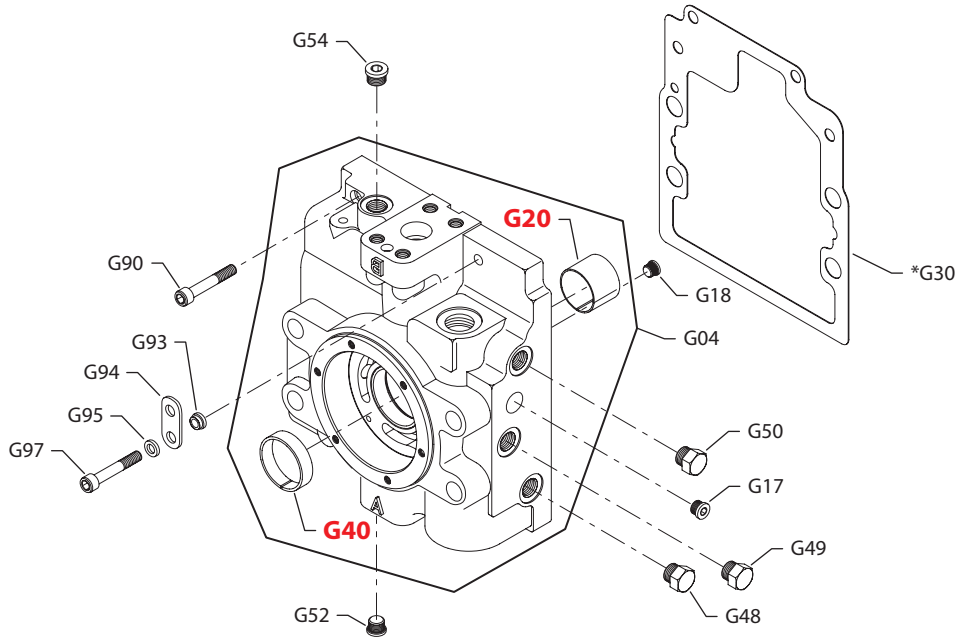
Displacement limitation

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
P	F10	98-41		11041752	Servo piston assembly (SB-2000-022)	1
	F105	98-41		11059759 (11055763)	Servo cylinder assembly	1
	F111	98-41		378083 (9007210-0804)	Screw	3
	F112	98-41		505412 (9003509-0008)	Seal nut	1
	F113	98-41		719401	Set screw, M8 x 50mm	1
	F205	98-41		11059759 (11055763)	Servo cylinder assembly	1
	F211	98-41		378083 (9007210-0804)	Screw	3
	F212	98-41		505412 (9003509-0008)	Seal nut	1
	F213	98-41		719401	Set screw, M8 x 50mm	1



Variable displacement pump

(H, 2, 6, 60,
61, 62 & 6R)



E100 795E

* = included in base pump seal kit Q210

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

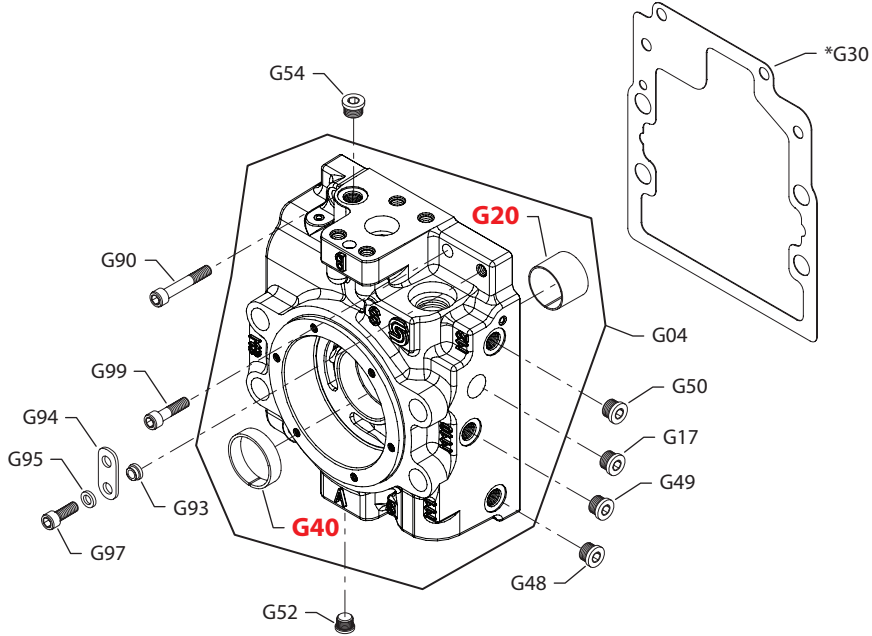

Variable displacement pump
End cap (side ports built in U.S.A.)

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	G17	92-19		9005110-4400	Plug (SB-1992-0003)	1
	G18	92-19		9005110-4400	Plug (SB-1992-0003)	1
	G20	87-02		664763 (8700013)	Journal bearing	1
	G30	92-19		8100565	End cap gasket	1
	G30	87-02	92-18	8100212	End cap gasket (SB-1992-003)	1
	G40	87-02		664771 (8700008)	Bushing	1
	G48	87-02		046151 (9005100-5600)	Plug assembly	1
	G49	87-02		046151 (9005100-5600)	Plug assembly	1
	G50	87-02		046151 (9005100-5600)	Plug assembly	1
	G52	87-02		140644 (9005110-5600)	Plug assembly	1
	G54	87-02		140644 (9005110-5600)	Plug assembly	1
	G90	92-19		746644 (9007314-0810)	Screw	1
	G90	87-02	92-18	9007210-0611	Screw (SB-1992-003)	1
	G93	92-19		713800 (8800564)	Spacer	1
	G93	87-02	92-18	8800404	Spacer	1
	G94	92-19		8800565	Lifting bracket	1
	G94	87-02	92-18	8800522	Lifting bracket	1
	G95	92-19		002311 (9009610-3459)	Washer	1
	G95	87-02	92-18	9009610-2850	Washer	1
	G97	96-05		746644 (9007314-0810)	Screw	1
	G97	92-19	96-04	5000060	Screw	1
	G97	87-02	92-18	9007314-0604	Screw (SB-1992-003)	1
2, 6, 60, 61	G04	92-19		8100686	End cap assembly, side ports (SB-1992-003)	1
H & 62	G04	94-07		8100687	End cap assembly, metric side ports	1
6R	G04	98-11		8100845	End cap assembly, metric side ports, CCW	1

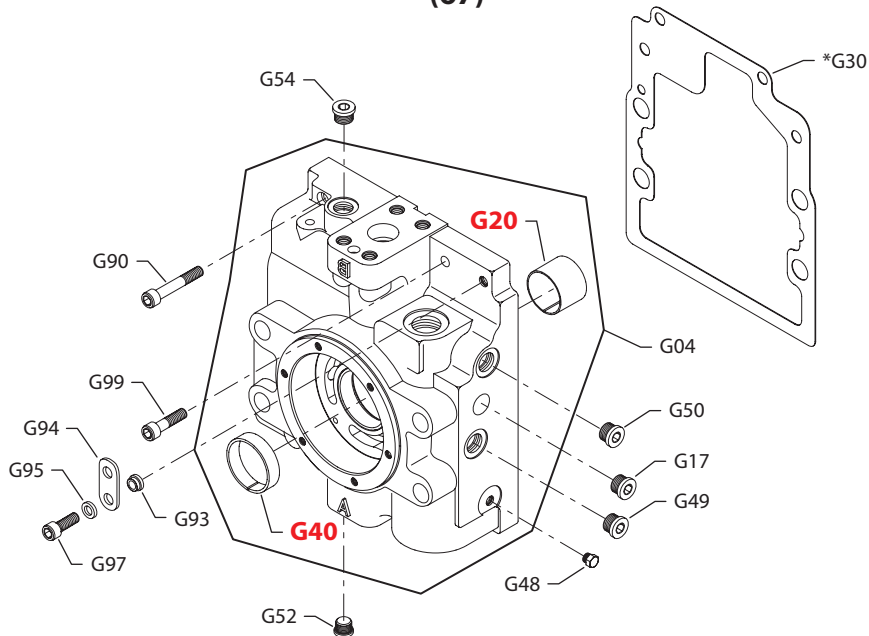


Variable displacement pump

(60 & 62)



(67)



E100 795E

* = included in base pump seal kit Q210

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



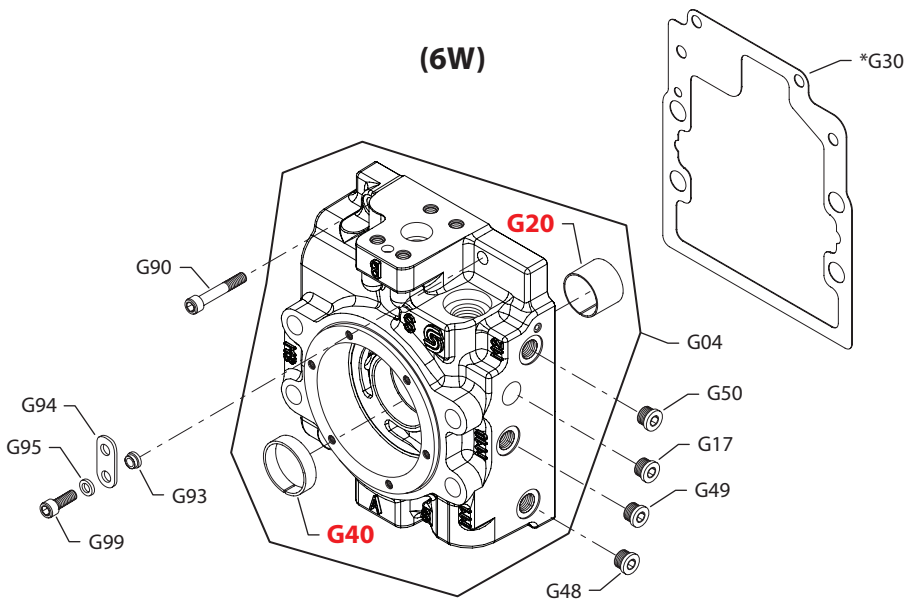
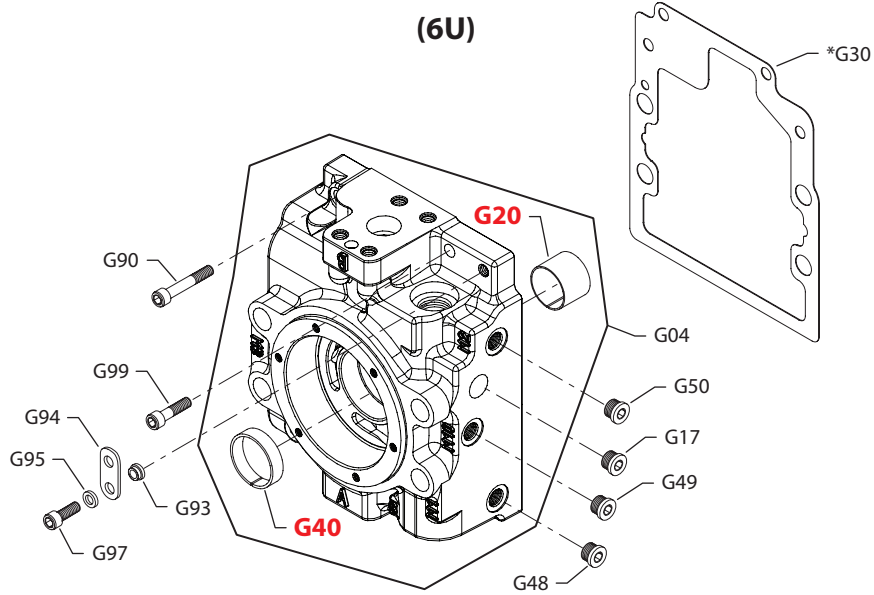
Variable displacement pump

End cap (side ports built in Germany)

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	G17	96-18		140644	Plug assembly	1
	G20	96-18		664763 (8700013)	Journal bearing	1
	G30	96-18		8100565	End cap gasket	1
	G40	96-18		664771 (8700008)	Bushing	1
	G49	96-18		140644	Plug assembly	1
	G50	96-18		140644	Plug assembly	1
	G52	96-18		140644	Plug assembly	1
	G54	96-18		140644	Plug assembly	1
	G90	96-18		746644 (9007314-0810)	Screw	1
	G93	96-18		713800 (8800564)	Spacer	1
	G94	96-18		8800565	Lifting bracket	1
	G95	96-18		002311 (9009610-3459)	Washer	1
	G97	96-18		395723 (9007315-0805)	Screw	1
	G99	96-18		746594 (9007314-0807)	Screw	1
60	G04	96-18		502277	End cap assembly, side ports	1
	G48	96-18		140644	Plug assembly	1
62	G04	96-18		507891	End cap assembly, metric side ports	1
	G48	96-18		140644	Plug assembly	1
67	G04	96-18		502287	End cap assembly	1
	G48	96-18		500648	Plug assembly	1



Variable displacement pump



* = included in base pump seal kit Q210

E103 073E

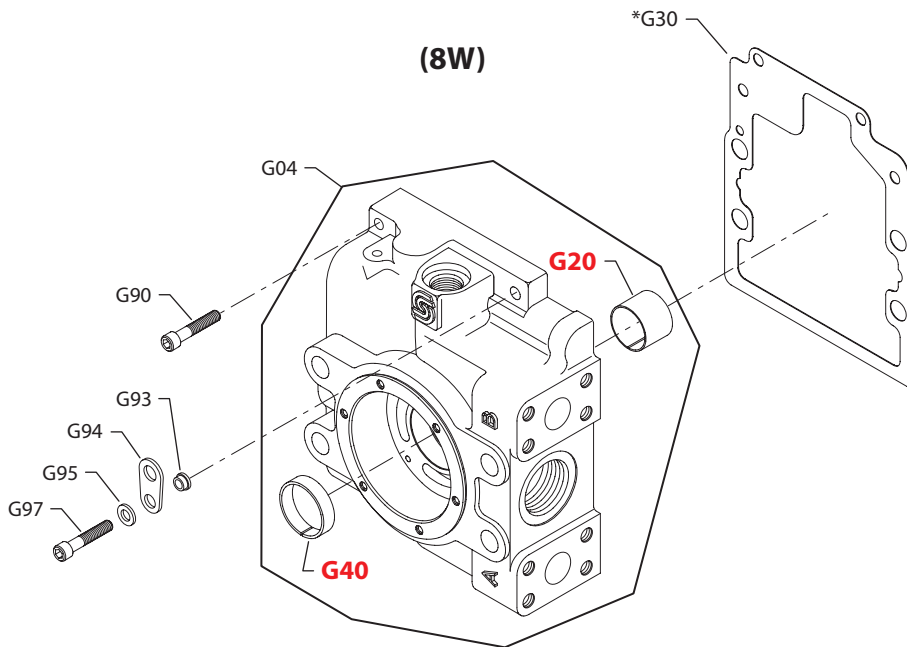
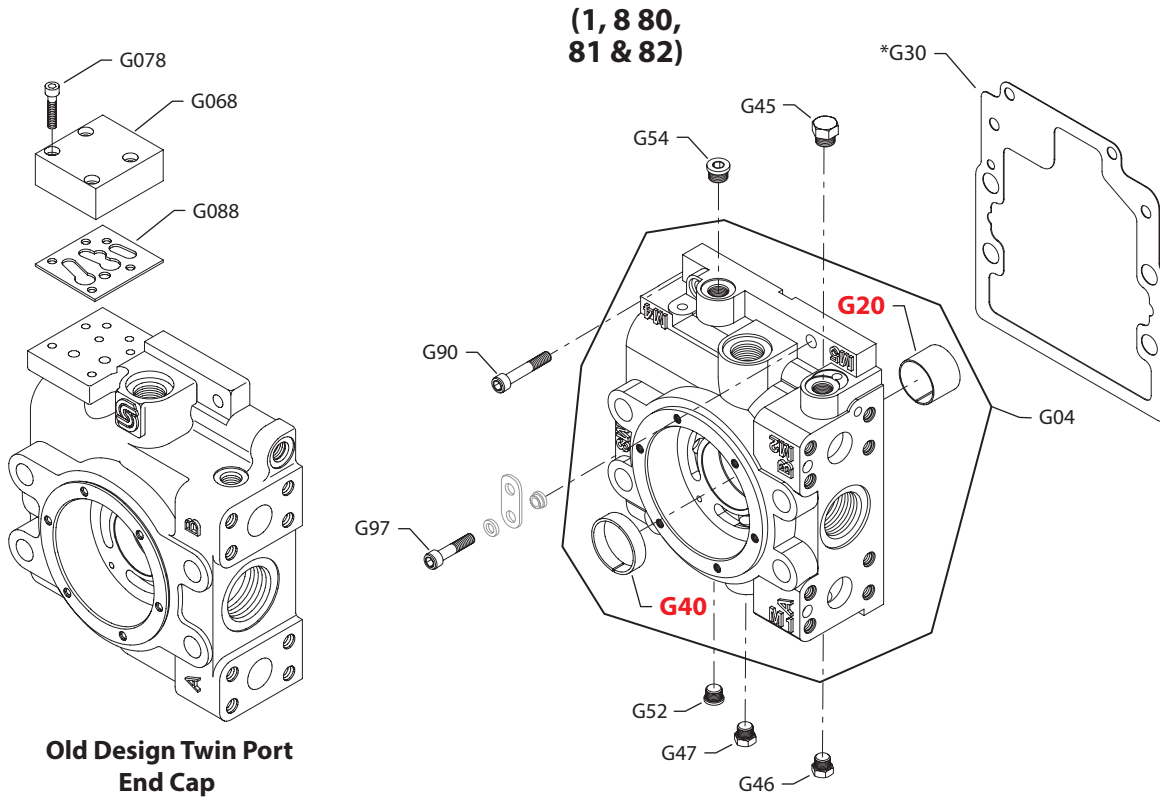
Enlarged **bold** type item numbers are recommended parts to be stocked for servicing


Variable displacement pump
End cap (side ports built in Germany)

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	G17	96-18		140644	Plug assembly	1
	G20	96-18		664763 (8700013)	Jounal bearing	1
	G30	96-18		8100565	End cap gasket	1
	G40	96-18		664771 (8700008)	Bushing	1
	G48	96-18		140644	Plug assembly	1
	G49	96-18		140644	Plug assembly	1
	G50	96-18		140644	Plug assembly	1
	G90	96-18		746644 (9007314-0810)	Screw	1
	G93	96-18		713800 (8800564)	Spacer	1
	G94	96-18		8800565	Lifting bracket	1
	G95	96-18		002311 (9009610-3459)	Washer	1
	G99	96-18		746594 (9007314-0807)	Screw	1
6U	G04	96-18		518105	End cap assembly, side ports	1
	G97	96-18		395723 (9007315-0805)	Screw	1
6W	G04	96-18		521416	End cap assembly, side ports	1



Variable displacement pump



E100 796E

* = included in base pump seal kit Q210

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

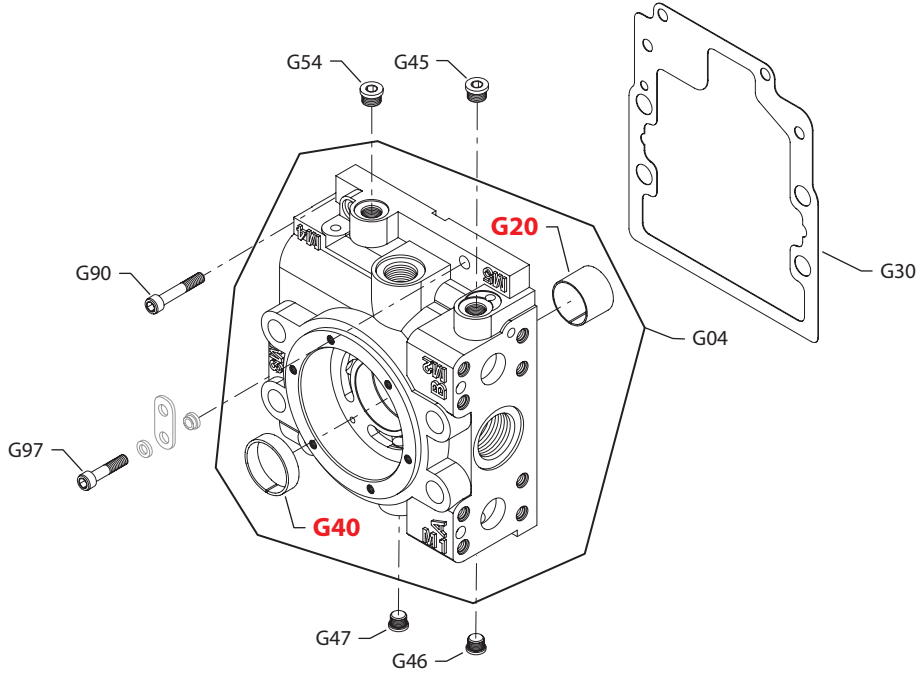

Variable displacement pump
End cap (twin ports built in U.S.A.)

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	G20	87-02		664763 (8700013)	Jounal bearing	1
	G30	96-05		8100565	End cap gasket (SB-1995-012)	1
	G30	87-02	96-04	8100466	End cap gasket (SB-1992-003)	1
	G40	87-02		664771 (8700008)	Bushing	1
	G90	96-05		746644 (9007314-0810)	Screw	1
	G93	92-19		713800 (8800564)	Spacer	1
	G93	87-02	92-18	307678 (8800404)	Spacer	1
	G94	92-19		8800565	Lifting bracket	1
	G94	87-02	92-18	8800522	Lifting bracket	1
	G95	92-19		002311 (9009610-3459)	Washer	1
	G95	87-02	92-18	002295 (9009610-2850)	Washer	1
	G97	92-19		746644 (9007314-0810)	Screw	1
	G97	87-02	92-18	694356 (9007314-0608)	Screw (SB-1992-003)	1
	G068	87-02	96-04	364281	Valve housing assembly (SB-1995-012)	1
	G078	87-02	96-04	694356 (9007314-0608)	Screw (SB-1995-012)	4
	G088	87-02	96-04	689117	Gasket (SB-1995-012)	1
8 & 80	G04	96-05		8100688	End cap assembly, twin ports (SB-1995-012)	1
	G45	87-02		046151 (9005100-5600)	Plug assembly	1
	G46	87-02		046151 (9005100-5600)	Plug assembly	1
	G47	87-02		046151 (9005100-5600)	Plug assembly	1
	G52	87-02		140644 (9005110-5600)	Plug assembly	1
	G54	87-02		140644 (9005110-5600)	Plug assembly	1
1 & 81	G04	96-05		8100688	End cap assembly, twin ports (SB-1995-012)	1
	G45	87-02		046151 (9005100-5600)	Plug assembly	1
	G46	87-02		046151 (9005100-5600)	Plug assembly	1
	G47	87-02		046151 (9005100-5600)	Plug assembly	1
	G52	87-02		515965 (9005110-5600)	Plug assembly	1
	G54	87-02		515965 (9005110-5600)	Plug assembly	1
82	G04	97-01		8100689	End cap assembly, metric twin ports	1
	G45	87-02		046151 (9005100-5600)	Plug assembly	1
	G46	87-02		046151 (9005100-5600)	Plug assembly	1
	G47	87-02		046151 (9005100-5600)	Plug assembly	1
	G52	87-02		515965 (9005110-5600)	Plug assembly	1
	G54	87-02		515965 (9005110-5600)	Plug assembly	1
8W	G04	97-24		8100916	End cap assembly, twin ports, CW	1
	G04	97-24		8100929	End cap assembly, twin ports, CCW	1

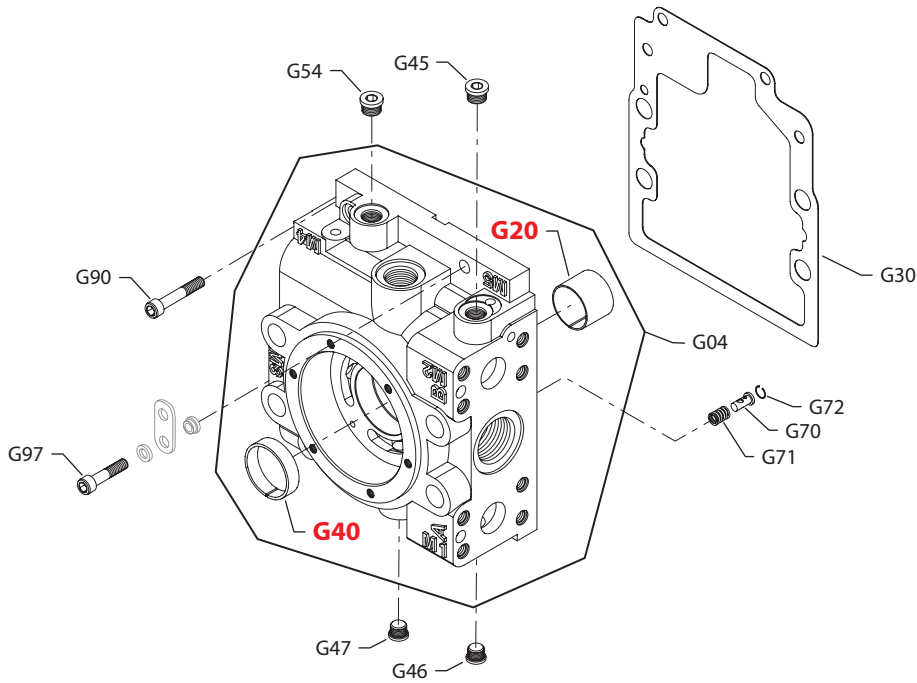


Variable displacement pump

(80, 82 & 8V)



(8D)



E103 074E

* = included in base pump seal kit Q210

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



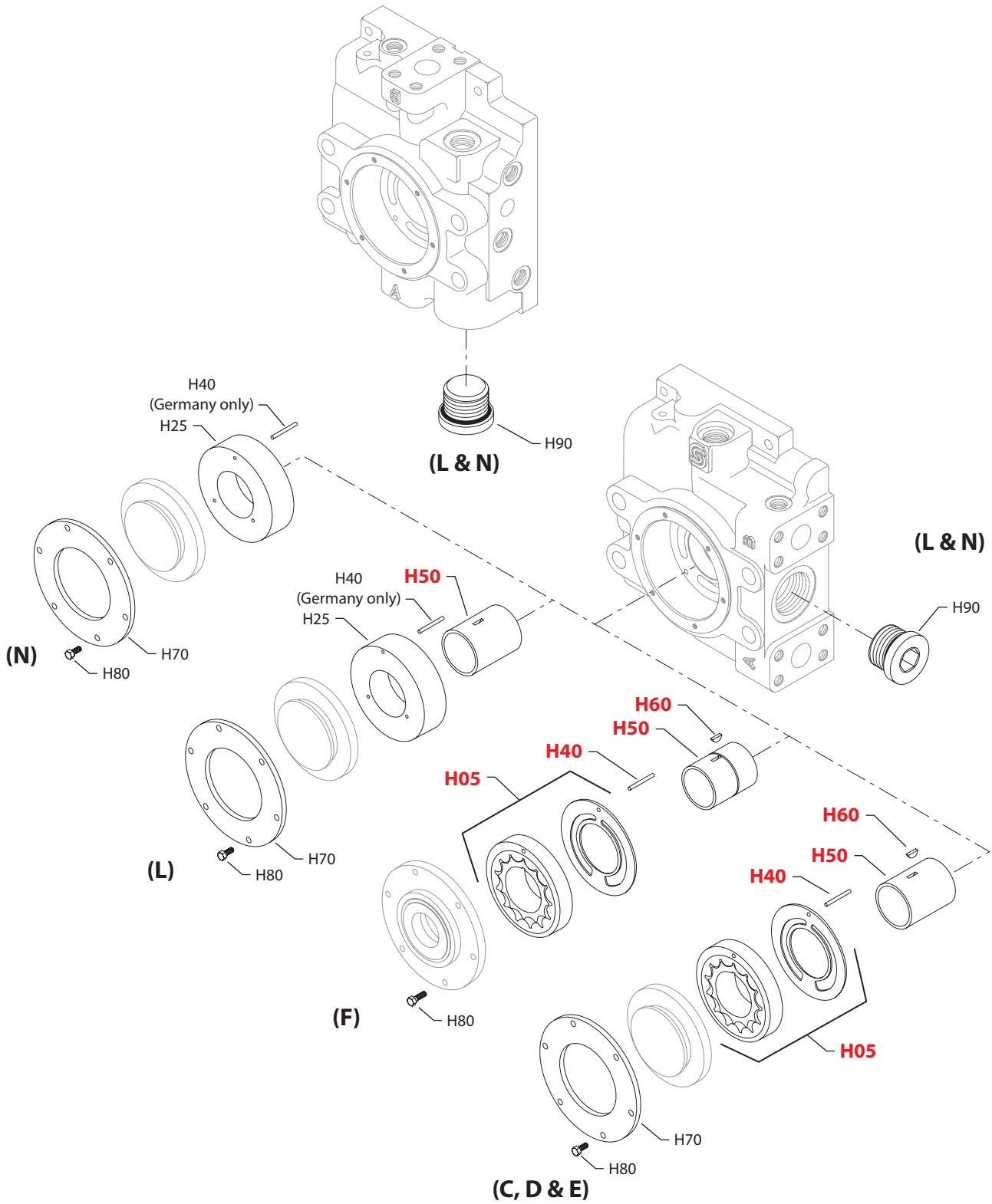
Variable displacement pump

End cap (twin ports built in Germany)

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	G20	96-18		664763 (8700013)	Journal bearing	1
	G30	96-18		8100565	End cap gasket	1
	G40	96-18		664771 (8700008)	Bushing	1
	G90	96-18		746644 (9007314-0810)	Screw	1
	G93	96-18		713800 (8800564)	Spacer	1
	G94	96-18		8800565	Lifting bracket	1
	G95	96-18		002311 (9009610-3459)	Washer	1
	G97	96-18		746644 (9007314-0810)	Screw	1
80	G04	96-18		8100566	End cap assembly, twin ports	1
	G45	96-18		140644	Plug assembly	1
	G46	96-18		140644	Plug assembly	1
	G47	96-18		140644	Plug assembly	1
	G54	96-18		140644	Plug assembly	1
82	G04	96-18		8100573	End cap assembly, metric twin ports	1
	G45	96-18		140644	Plug assembly	1
	G46	96-18		140644	Plug assembly	1
	G47	96-18		140644	Plug assembly	1
	G54	96-18		140644	Plug assembly	1
8D	G04	96-18		508576	End cap assembly, twin ports	1
	G45	96-18		140644	Plug assembly	1
	G46	96-18		140644	Plug assembly	1
	G47	96-18		140644	Plug assembly	1
	G54	96-18		140644	Plug assembly	1
	G70	96-18		508211	Valve body	1
	G71	96-18		508209	Spring	1
	G72	96-18		521472	Retaining ring	1
8V	G04	96-18		518107	End cap assembly, twin ports	1
	G45	96-18		140644	Plug assembly	1
	G46	96-18		140644	Plug assembly	1
	G47	96-18		140644	Plug assembly	1
	G54	96-18		140644	Plug assembly	1



Variable displacement pump



E100 797E

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

Variable displacement pump
Charging system

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
C	H05	93-10		8100479	Charge pump set, 14 cc (SB-1993-001*)	1
	H40	87-02		9004800-1222	Pin	1
	H50	93-10		8801178	Charge pump shaft (SB-1993-001 & SB-1998-066)	1
	H50	87-02	89-16	8100142	Charge pump shaft (SB-1989-006)	1
	H60	87-02		9003310-1208	Key	1
	H70	87-02		516761	Retaining plate	1
	H80	87-02		648451 (9007210-0604)	Screw	6

* For information regarding replacement parts for units built from 89-17 to 93-09, refer to BLN-10107 in the appendix.

D	H05	93-10		8100480	Charge pump set, 17 cc (SB-1993-001*)	1
	H40	87-02		9004800-1222	Pin	1
	H50	93-10		8801178	Charge pump shaft (SB-1993-001 & SB-1998-066)	1
	H50	87-02	89-16	8100142	Charge pump shaft (SB-1989-006)	1
	H60	87-02		9003310-1208	Key	1
	H70	87-02		516761	Retaining plate	1
	H80	87-02		648451 (9007210-0604)	Screw	6

* For information regarding replacement parts for units built from 89-17 to 93-09, refer to BLN-10107 in the appendix.\

E	H05	93-10		8100481	Charge pump set, 20 cc (SB-1993-001*)	1
	H40	87-02		9004800-1222	Pin	1
	H50	93-10		8801178	Charge pump shaft (SB-1993-001 & SB-1998-066)	1
	H50	87-02	89-16	8100142	Charge pump shaft (SB-1989-006)	1
	H60	87-02		9003310-1208	Key	1
	H70	87-02		516761	Retaining plate	1
	H80	87-02		648451 (9007210-0604)	Screw	6

* For information regarding replacement parts for units built from 89-17 to 93-09, refer to BLN-10107 in the appendix.

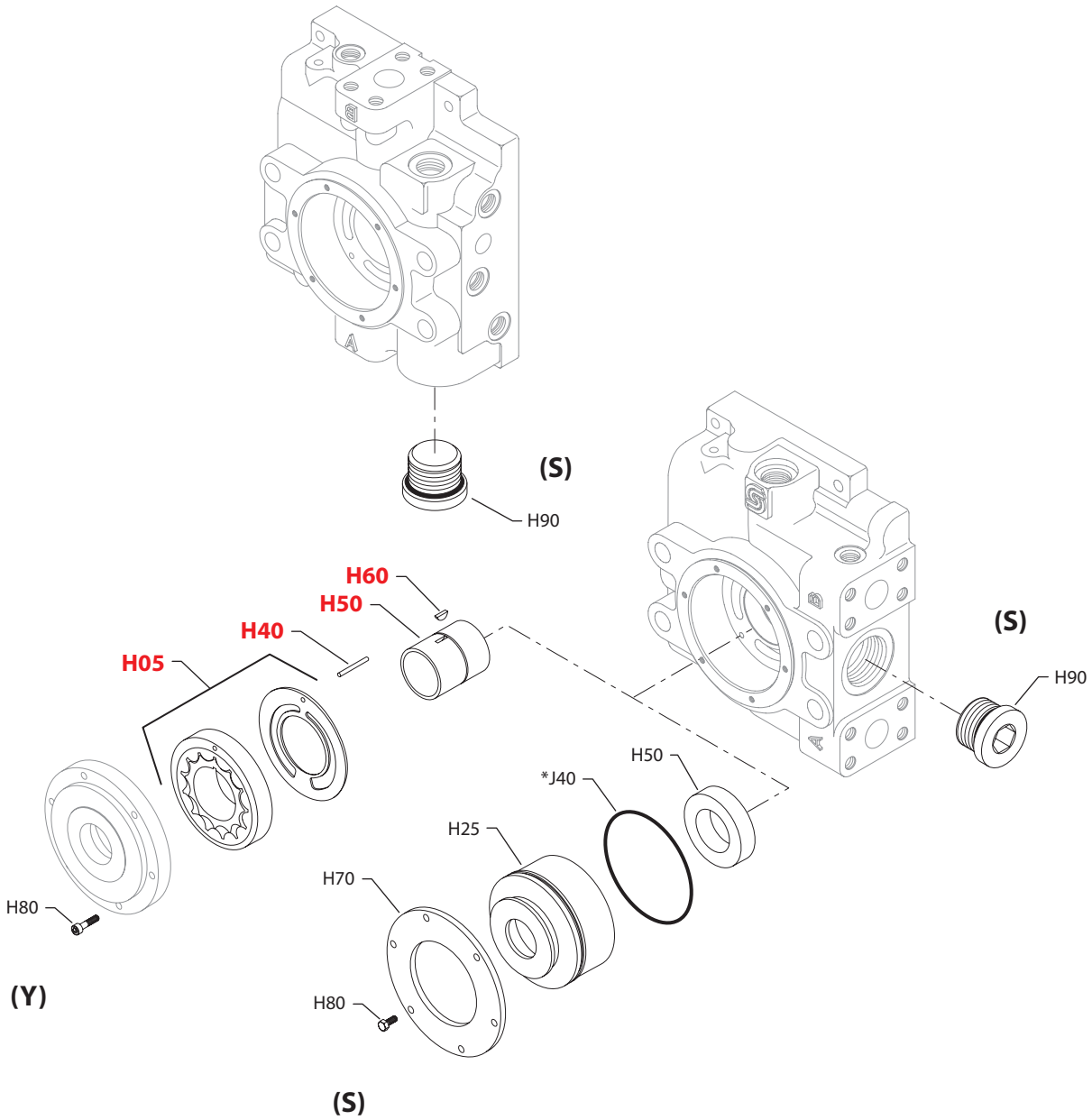
F	H05	97-01		8200240	Charge pump set, 26 cc	1
	H40	97-01		9004800-1224	Pin	1
	H50	97-01		8801179	Charge pump shaft	1
	H60	97-01		9003310-1208	Key	1
	H80	97-01		672493 (9007210-0604)	Screw	6

L	H25	87-02		11077717 (8800466-0075)	Charge pump spacer	1
	H40	87-02		9004800-1222	Pin	1
	H50	93-10		8801178	Charge pump shaft (SB-1993-001 & SB-1998-066)	1
	H50	87-02	89-16	8000078	Charge pump shaft (SB-1989-006)	1
	H70	87-02		516761	Retaining plate	1
	H80	87-02		648451 (9007210-0604)	Screw	6
	H90	87-02		320002 (9005110-9200)	Plug assembly	1

N	H25	98-51		11077717 (8800466-0075)	Charge pump spacer	1
	H40	98-51		9004800-1222	Pin	1
	H70	98-51		516761	Retaining plate	1
	H80	98-51		648451	Screw	6
	H90	98-51		320002 (9005110-9200)	Plug assembly	1



Variable displacement pump



E101 899E

* = included in base pump seal kit Q210

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



Variable displacement pump

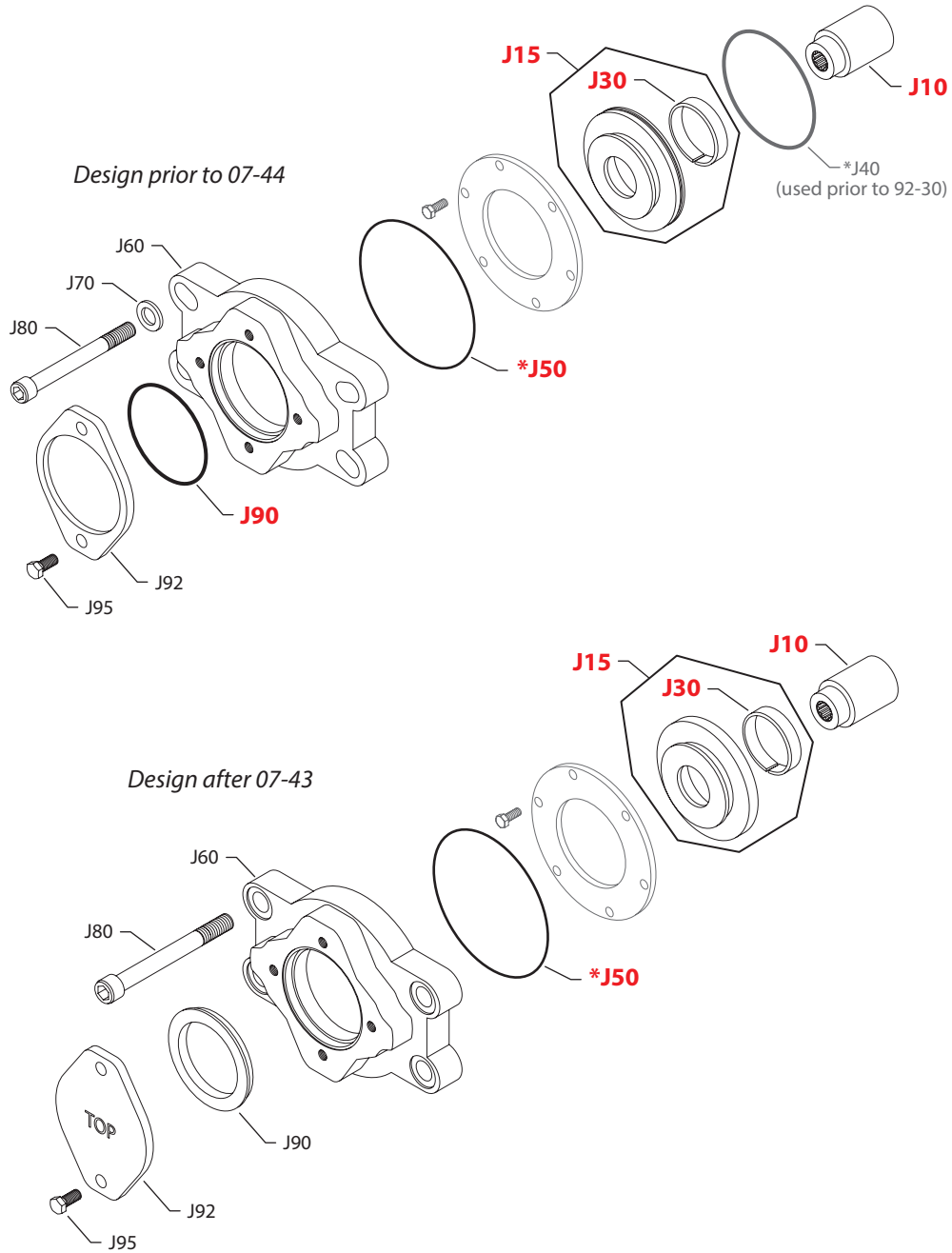
Charging system

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
S	H25	96-24		509220	Charge pump spacer	1
	H50	96-24		509221	Spacer	1
	H70	96-24		516761	Retaining plate	1
	H80	96-24		648451	Screw	6
	H90	96-24		320002 (9005110-9200)	Plug assembly	1
	J40	96-24		680892 (9004104-0440)	O-ring	1
	Y	H05	99-18		8200240	Charge pump set, 26 cc
H40		99-18		5000358	Pin	1
H50		99-18		8801210	Charge pump shaft	1
H60		99-18		9003310-1208	Key	1
H80		99-18		041160 (9007314-0605)	Screw	6



Variable displacement pump

(AB & AC)



* = included in base pump seal kit Q210

E100 713E

Enlarged **bold** type item numbers are recommended parts to be stocked 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	87-02		8100147	Coupling, 9 tooth	1
	J15	87-02		8800832	Cover assembly, CW (SB-1993-001* & SB-2005-011))	1
	J15	87-02		8800833	Cover assembly, CCW (SB-1993-001* & SB-2005-011)	1
	J30	87-02		664771 (8700008)	Bushing	1
	J40	87-02	92-29	680892 (9004104-0440)	O-ring	1
	J50	87-02		056739 (9004104-1580)	O-ring	1
	J60	87-02		8100846	Flange adaptor, SAE A (SB-2007-027)	1
	J70	87-02	07-43	664920 (9009625-0132)	Washer (SB-2007-027)	4
	J80	98-44		518721	Screw, M16 x 140	4
	J80	87-02	98-43	9007314-1622	Screw, M16 x 130 (SB-1998-073)	4
	J90	07-44		4800482	A pad seal (SB-2007-027)	1
	J90	87-02	07-43	545434 (9004100-0420)	O-ring	1
	J92	07-44		4460586	Cover plate (SB-2007-027)	1
	J92	87-02	07-43	9802336	Cover plate	1
	J95	87-02		9007200-3714	Screw	2

* For information regarding replacement parts for units built from 89-17 to 93-09, refer to BLN-10107 in the appendix. New style covers may be used with either charge pump design.

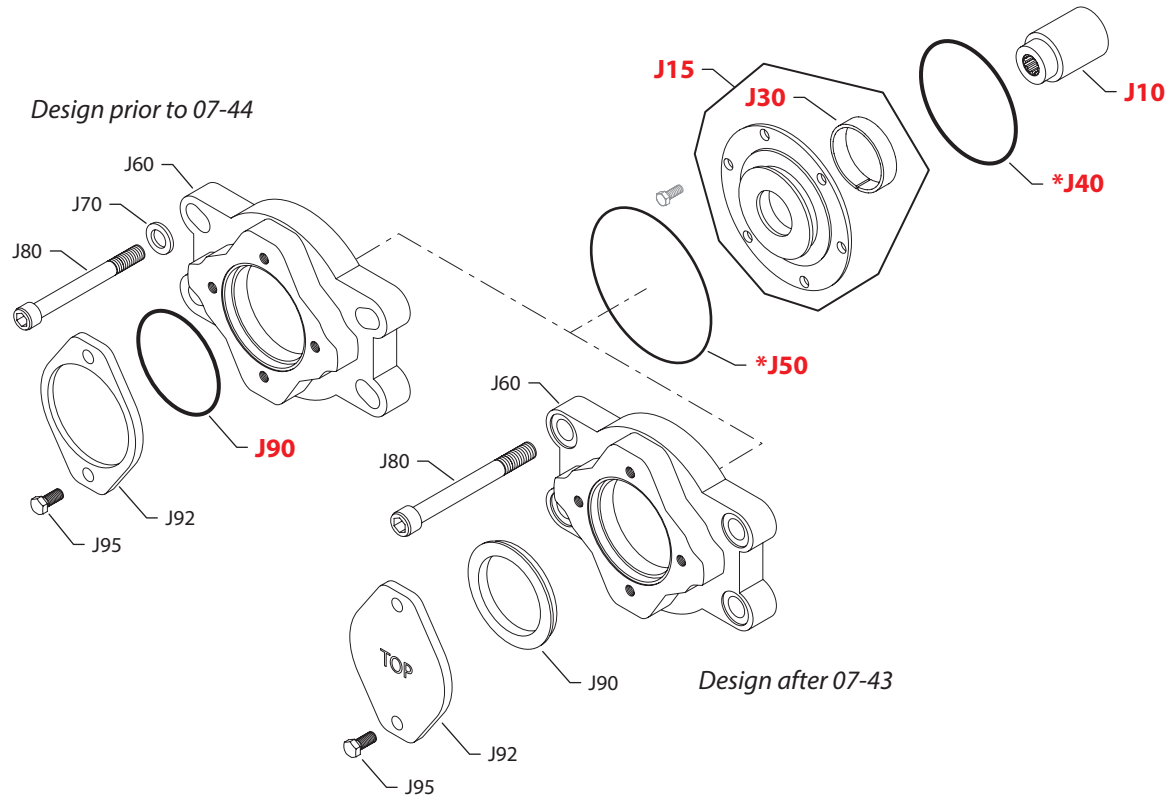
AC & T	J10	87-02		8100297	Coupling, 11 tooth	1
	J15	87-02		8800832	Cover assembly, CW (SB-1993-001* & SB-2005-011)	1
	J15	87-02		8800833	Cover assembly, CCW (SB-1993-001* & SB-2005-011)	1
	J30	87-02		664771 (8700008)	Bushing	1
	J40	87-02	92-29	680892 (9004104-0440)	O-ring	1
	J50	87-02		056739 (9004104-1580)	O-ring	1
	J60	87-02		8100846	Flange adaptor, SAE A (SB-2007-027)	1
	J70	87-02	07-43	664920 (9009625-0132)	Washer (SB-2007-027)	4
	J80	98-44		518721	Screw, M16 x 140	4
	J80	87-02	98-43	9007314-1622	Screw M16 x 130 (SB-1998-073)	4
	J90	07-44		4800482	A pad seal (SB-2007-027)	1
	J90	87-02	07-43	545434 (9004100-0420)	O-ring	1
	J92	07-44		4460586	Cover plate (SB-2007-027)	1
	J92	87-02	07-43	9802336	Cover plate	1
	J95	87-02		9007200-3714	Screw	2

* For information regarding replacement parts for units built from 89-17 to 93-09, refer to BLN-10107 in the appendix. New style covers may be used with either charge pump design.

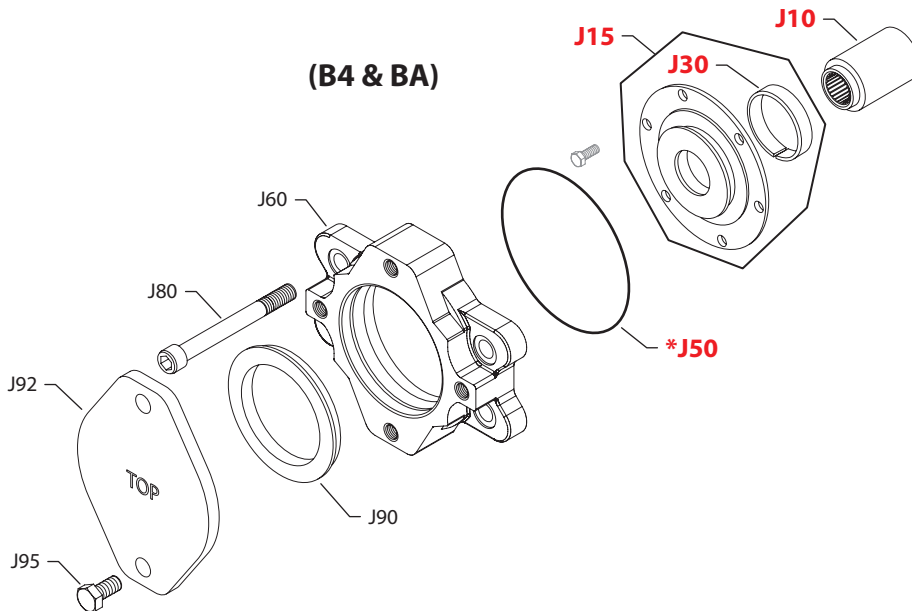


Variable displacement pump

(AH)



(B4 & BA)



E100 798E

* = included in base pump seal kit Q210

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

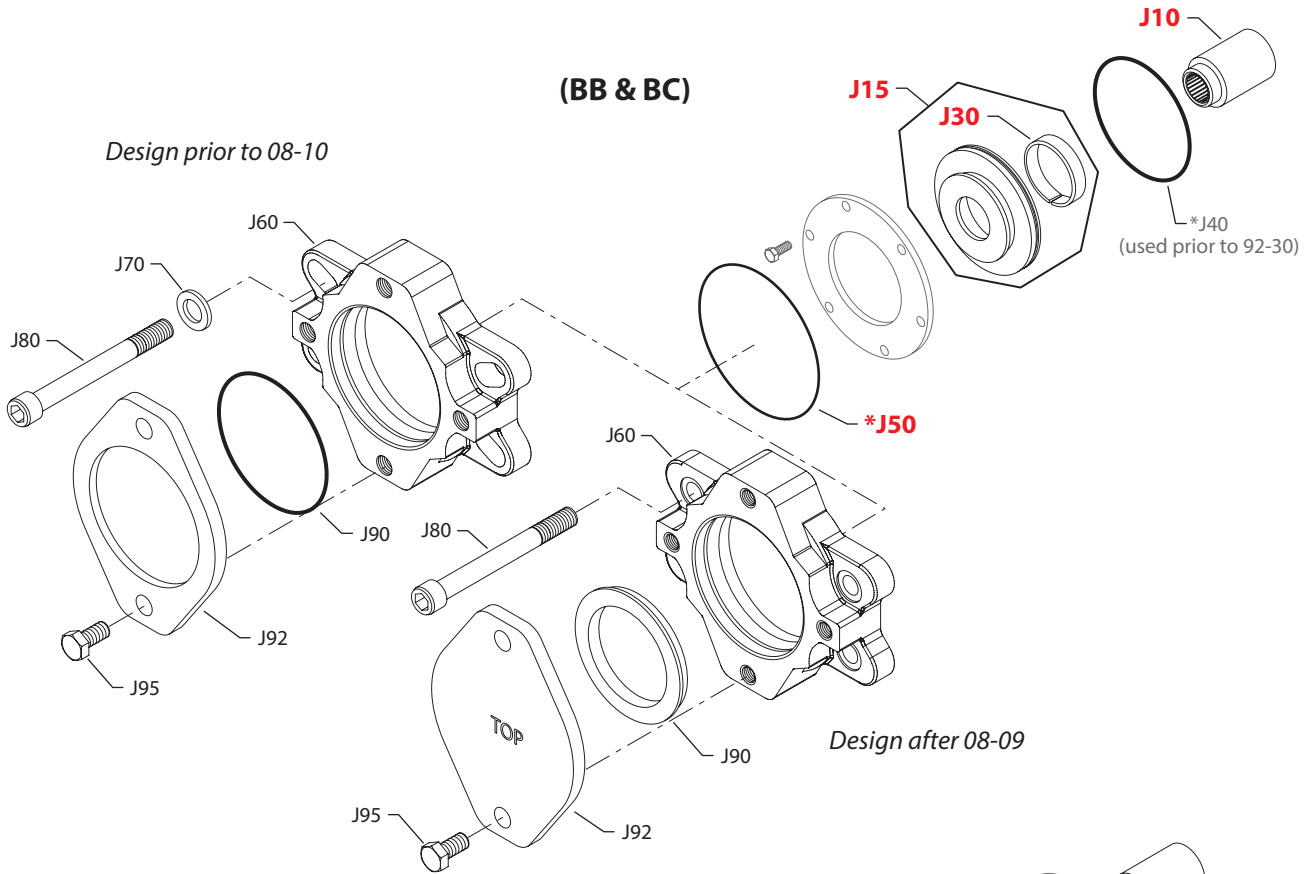

Variable displacement pump
Auxiliary mounting

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
AH	J10	02-08		8100147	Coupling, 9 tooth	1
	J15	02-08		8100649	Cover assembly, CW	1
	J15	02-08		8100647	Cover assembly, CCW	1
	J30	02-08		664771 (8700008)	Bushing	1
	J40	02-08		680892 (9004104-0440)	O-ring	1
	J50	02-08		056739 (9004104-1580)	O-ring	1
	J60	02-08		8100846	Flange adaptor, SAE A (SB-2007-027)	1
	J70	02-08	07-43	664920 (9009625-0132)	Washer (SB-2007-027)	4
	J80	02-08		518721	Screw, M16 x 140	4
	J90	07-44		4800482	A pad seal (SB-2007-027)	1
	J90	02-08	07-43	545434 (9004100-0420)	O-ring	1
	J92	07-44		4460586	Cover plate (SB-2007-027)	1
	J92	02-08	07-43	9802336	Cover plate	1
	J95	02-08		9007200-3714	Screw	2
	B4	J10	15-44		8100148	Coupling, 13 tooth
J15		15-44		8801248	Cover assembly, CW	1
J30		15-44		664771 (8700008)	Bushing	1
J50		15-44		056739 (9004104-1580)	O-ring	1
J60		15-44		8100847	Flange adaptor, SAE B	1
J80		15-44		518721	Screw, M16 x 140	4
J90		15-44		8801061	B pad seal	1
J92		15-44		8801059	Cover plate	1
J95		15-44		9007200-5021	Screw	2
BA		J10	06-15		8100273	Coupling, 15 tooth
	J15	06-15		8801248	Cover assembly, CW	1
	J15	06-15		8801352	Cover assembly, CCW	1
	J30	06-15		664771 (8700008)	Bushing	1
	J50	06-15		056739 (9004104-1580)	O-ring	1
	J60	06-15		8100847	Flange adaptor, SAE B	1
	J80	06-15		518721	Screw, M16 x 140	4
	J90	06-15		8801061	B pad seal	1
	J92	06-15		8801059	Cover plate	1
	J95	06-15		9007200-5021	Screw	2

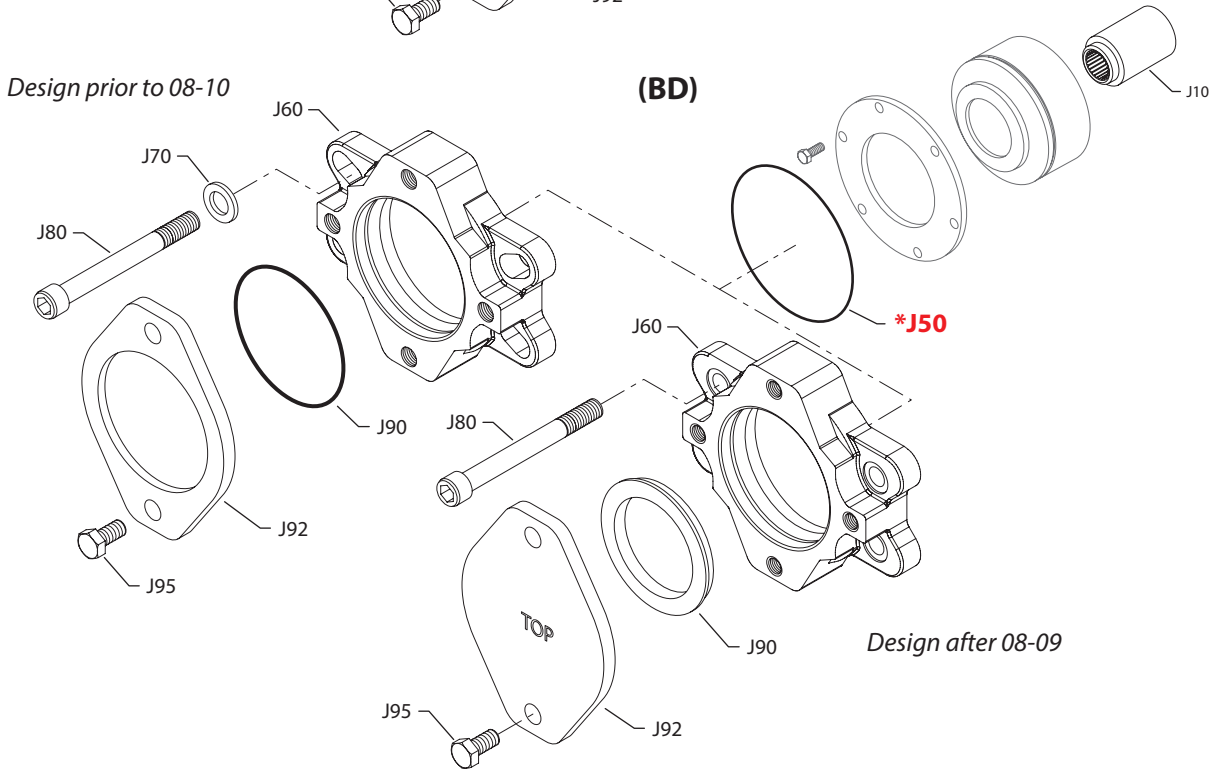


Variable displacement pump

(BB & BC)



(BD)



E100 799E

* = included in base pump seal kit Q210

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


Variable displacement pump
Auxiliary mounting

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
BB & V	J10	87-02		8100273	Coupling, 15 tooth	1
	J15	87-02		8800832	Cover assembly, CW (SB-1993-001* & SB-2005-011)	1
	J15	87-02		8800833	Cover assembly, CCW (SB-1993-001* & SB-2005-011)	1
	J30	87-02		664771 (8700008)	Bushing	1
	J40	87-02	92-15	680892 (9004104-0440)	O-ring	1
	J50	87-02		056739 (9004104-1580)	O-ring	1
	J60	87-02		8100847	Flange adaptor, SAE B (SB-2007-055)	1
	J70	87-02	08-09	9009625-0132	Washer (SB-2007-055)	4
	J80	98-44		518721	Screw, M16 x 140	4
	J80	87-02	98-43	9007314-1622	Screw M16 x 130 (SB-1998-073)	4
	J90	08-10		8801061	B pad seal (SB-2007-055)	1
	J90	87-02	08-09	726935 (9004104-0450)	O-ring	1
	J92	08-10		8801059	Cover plate (SB-2007-055)	1
	J92	87-02	08-09	4460370	Cover plate	1
	J95	87-02		9007200-5021	Screw	2

* For information regarding replacement parts for units built from 89-17 to 93-09, refer to BLN-10107 in the appendix. New style covers may be used with either charge pump design.

BC & B	J10	87-02		8100148	Coupling, 13 tooth	1
	J15	87-02		8800832	Cover assembly, CW (SB-1993-001* & SB-2005-011)	1
	J15	87-02		8800833	Cover assembly, CCW (SB-1993-001* & SB-2005-011)	1
	J30	87-02		664771 (8700008)	Bushing	1
	J40	87-02	92-15	680892 (9004104-0440)	O-ring	1
	J50	87-02		056739 (9004104-1580)	O-ring	1
	J60	87-02		8100847	Flange adaptor, SAE B (SB-2007-055)	1
	J70	87-02	08-09	9009625-0132	Washer (SB-2007-055)	4
	J80	98-44		518721	Screw, M16 x 140	4
	J80	87-02	98-43	9007314-1622	Screw M16 x 130 (SB-1998-073)	4
	J90	08-10		8801061	B pad seal (SB-2007-055)	1
	J90	87-02	08-09	726935 (9004104-0450)	O-ring	1
	J92	08-10		8801059	Cover plate (SB-2007-055)	1
	J92	87-02	08-09	4460370	Cover plate	1
	J95	87-02		9007200-5021	Screw	2

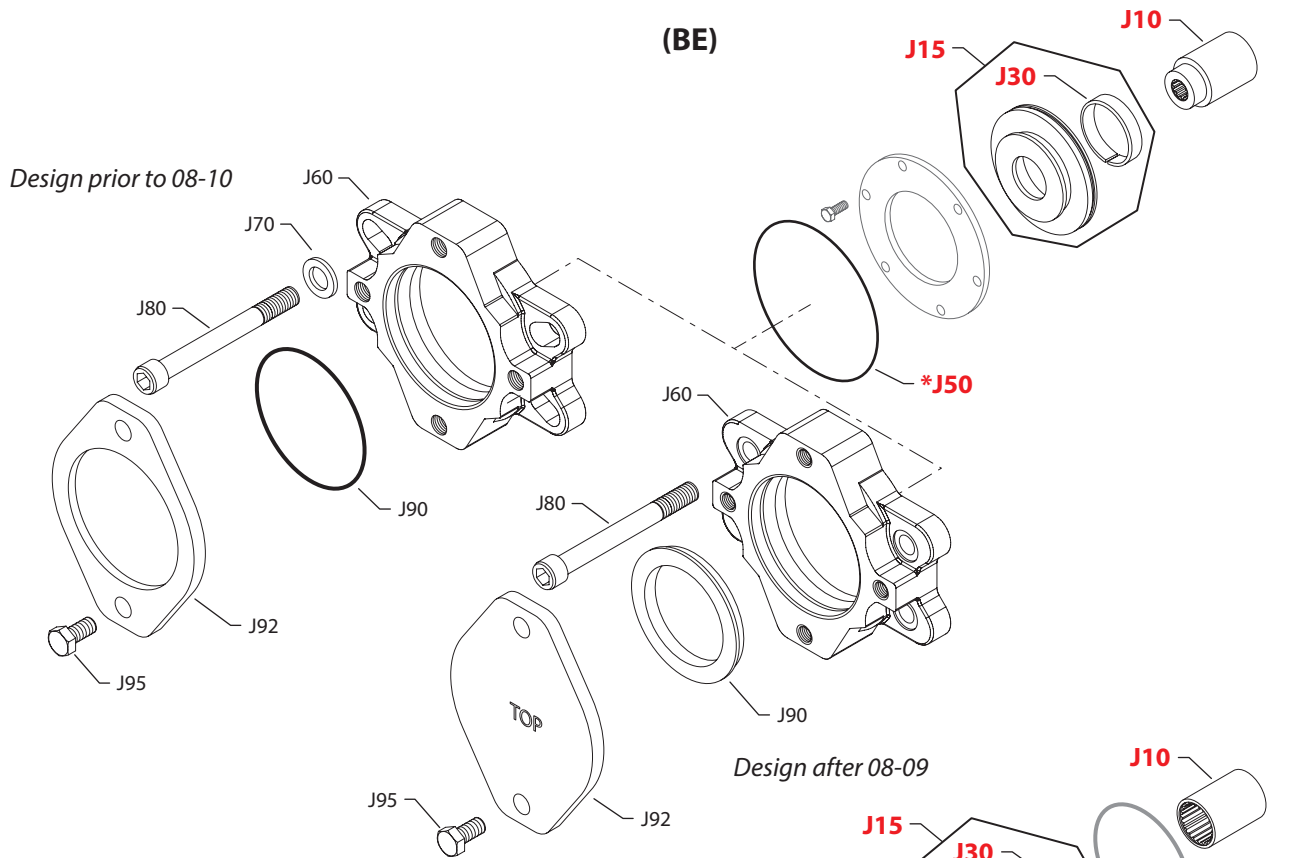
* For information regarding replacement parts for units built from 89-17 to 93-09, refer to BLN-10107 in the appendix. New style covers may be used with either charge pump design.

BD	J10	06-10		8100148	Coupling, 13 tooth	1
	J50	06-10		056739 (9004104-1580)	O-ring	1
	J60	06-10		8100938	Flange adaptor, SAE B (SB-2007-055)	1
	J70	06-10	08-09	664920 (9009625-0132)	Washer (SB-2007-055)	4
	J80	06-10		518721	Screw, M16 x 140	4
	J90	08-10		8801061	B pad seal (SB-2007-055)	1
	J90	06-10	08-09	726935 (9004104-0450)	O-ring	1
	J92	08-10		8801059	Cover plate (SB-2007-055)	1
	J92	06-10	08-09	4460370	Cover plate	1
	J95	06-10		370320	Screw	2

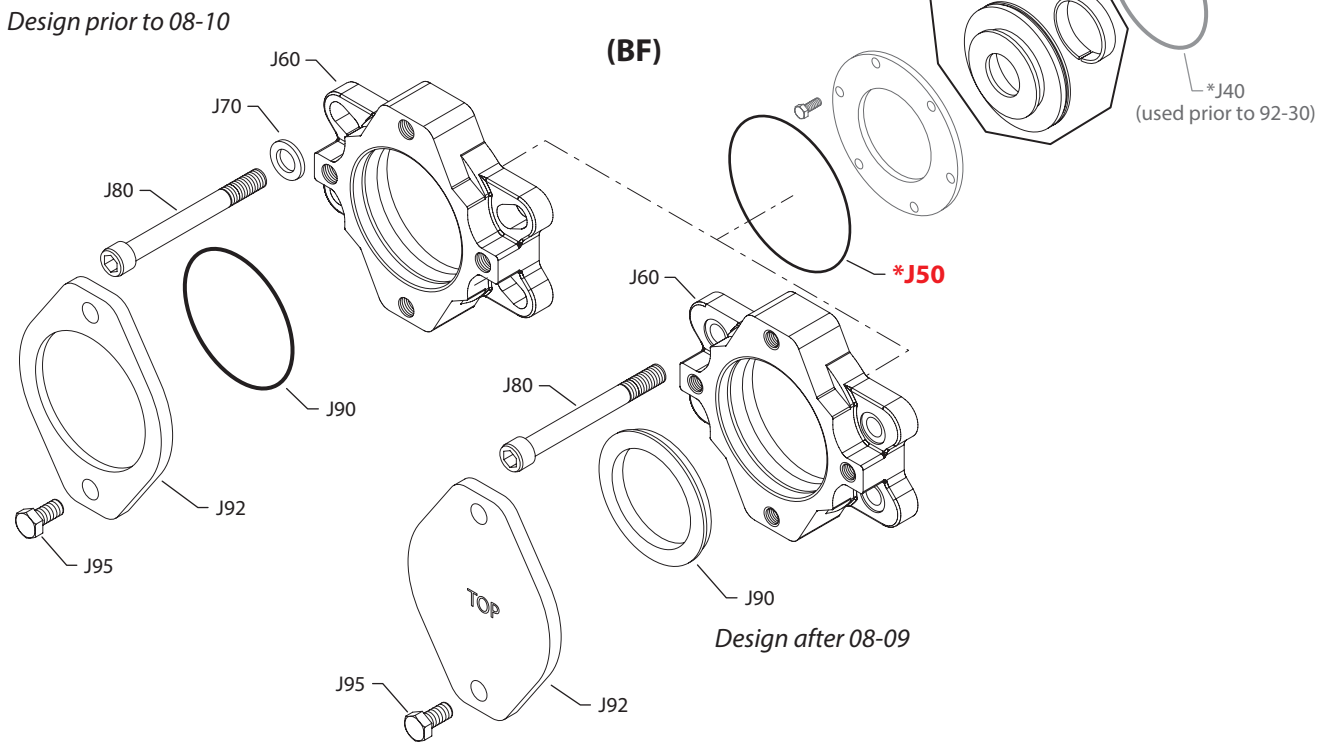


Variable displacement pump

(BE)



(BF)



* = included in base pump seal kit Q210

E100 800E

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

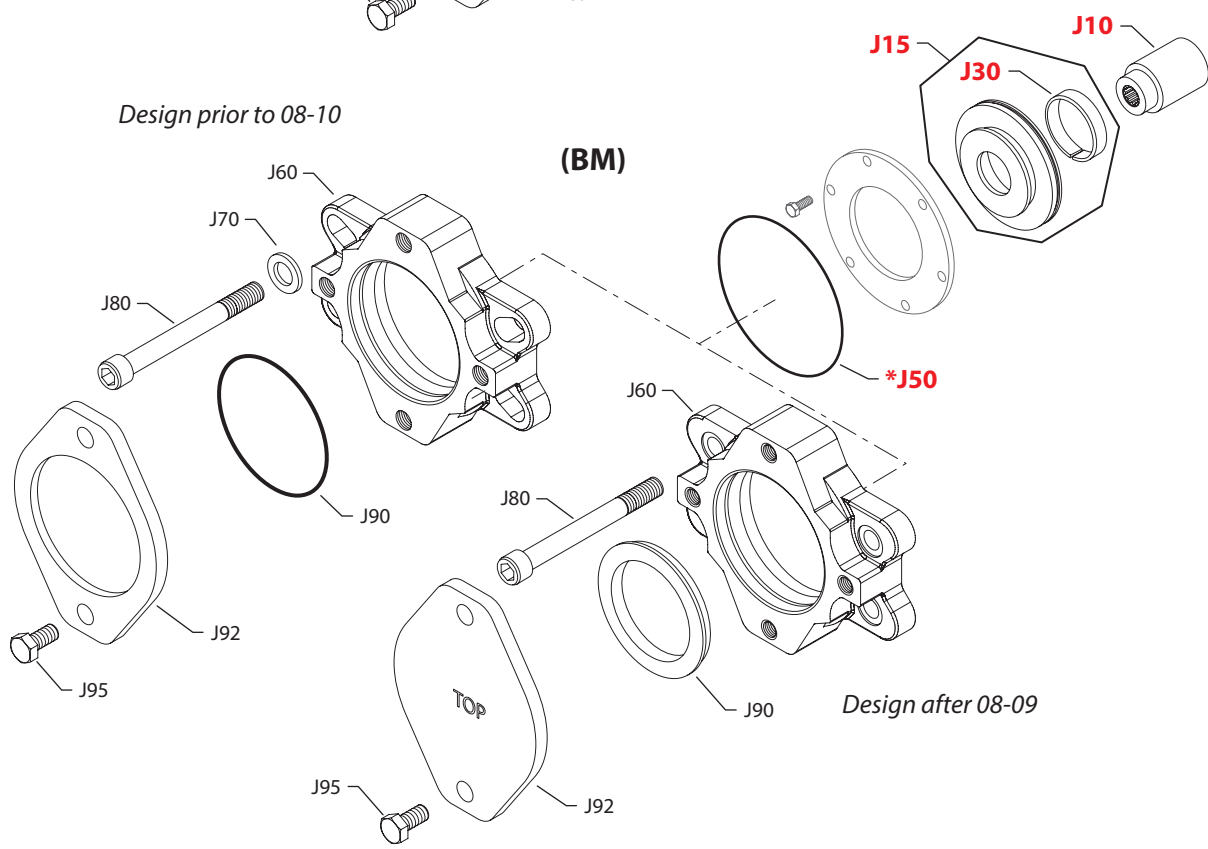
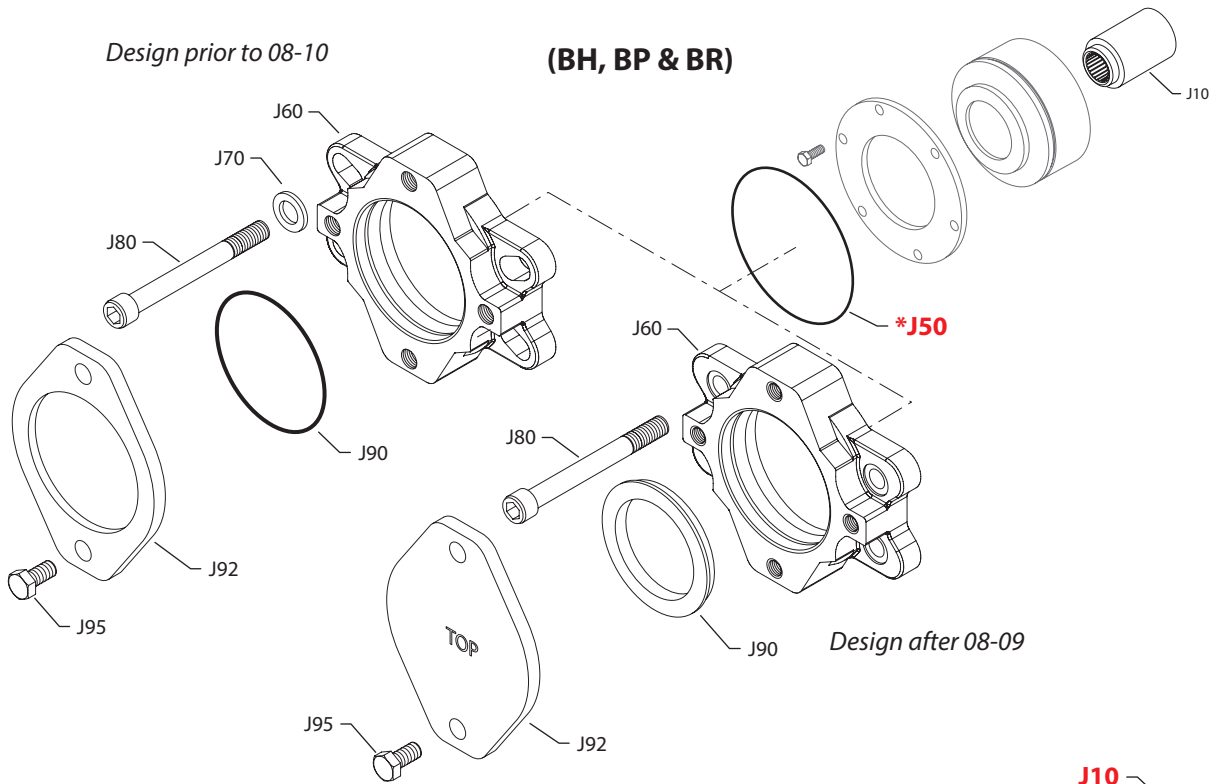

Variable displacement pump
Auxiliary mounting

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit	
BE & P	J10	95-21		8100148	Coupling, 13 tooth	1	
	J15	95-21		8800832	Cover assembly, CW (SB-2005-011)	1	
	J15	95-21		8800833	Cover assembly, CCW (SB-2005-011)	1	
	J30	95-21		664771 (8700008)	Bushing	1	
	J50	95-21		056739 (9004104-1580)	O-ring	1	
	J60	95-21		8100938	Flange adaptor, SAE B, metric threads (SB-2007-055)	1	
	J70	95-21	08-09	9009625-0132	Washer (SB-2007-055)	4	
	J80	98-44		518721	Screw, M16 x 140	4	
	J80	95-21	98-43	9007314-1622	Screw M16 x 130 (SB-1998-073)	4	
	J90	08-10		8801061	B pad seal (SB-2007-055)	1	
	J90	95-21	08-09	726935 (9004104-0450)	O-ring	1	
	J92	08-10		8801059	Cover plate (SB-2007-055)	1	
	J92	95-21	08-09	4460370	Cover plate	1	
	J95	95-21		370320 (9007314-1207)	Screw	2	
	BF & U	J10	87-02		11053342	Coupling, 19 tooth	1
		J15	87-02		8800832	Cover assembly, CW (SB-1993-001* & SB-2005-011)	1
J15		87-02		8800833	Cover assembly, CCW (SB-1993-001* & SB-2005-011)	1	
J30		87-02		664771 (8700008)	Bushing	1	
J40		87-02	92-15	680892 (9004104-0440)	O-ring	1	
J50		87-02		056739 (9004104-1580)	O-ring	1	
J60		87-02		8100847	Flange adaptor, SAE B (SB-2007-055)	1	
J70		87-02	08-09	9009625-0132	Washer (SB-2007-055)	4	
J80		98-44		518721	Screw, M16 x 140	4	
J80		87-02	98-43	9007314-1622	Screw M16 x 130 (SB-1998-073)	4	
J90		08-10		8801061	B pad seal (SB-2007-055)	1	
J90		87-02	08-09	726935 (9004104-0450)	O-ring	1	
J92		08-10		8801059	Cover plate (SB-2007-055)	1	
J92		87-02	08-09	4460370	Cover plate	1	
J95		87-02		9007200-5021	Screw	2	

* For information regarding replacement parts for units built from 89-17 to 93-09, refer to BLN-10107 in the appendix. New style covers may be used with either charge pump design.



Variable displacement pump



* = included in base pump seal kit Q210

E103 034E

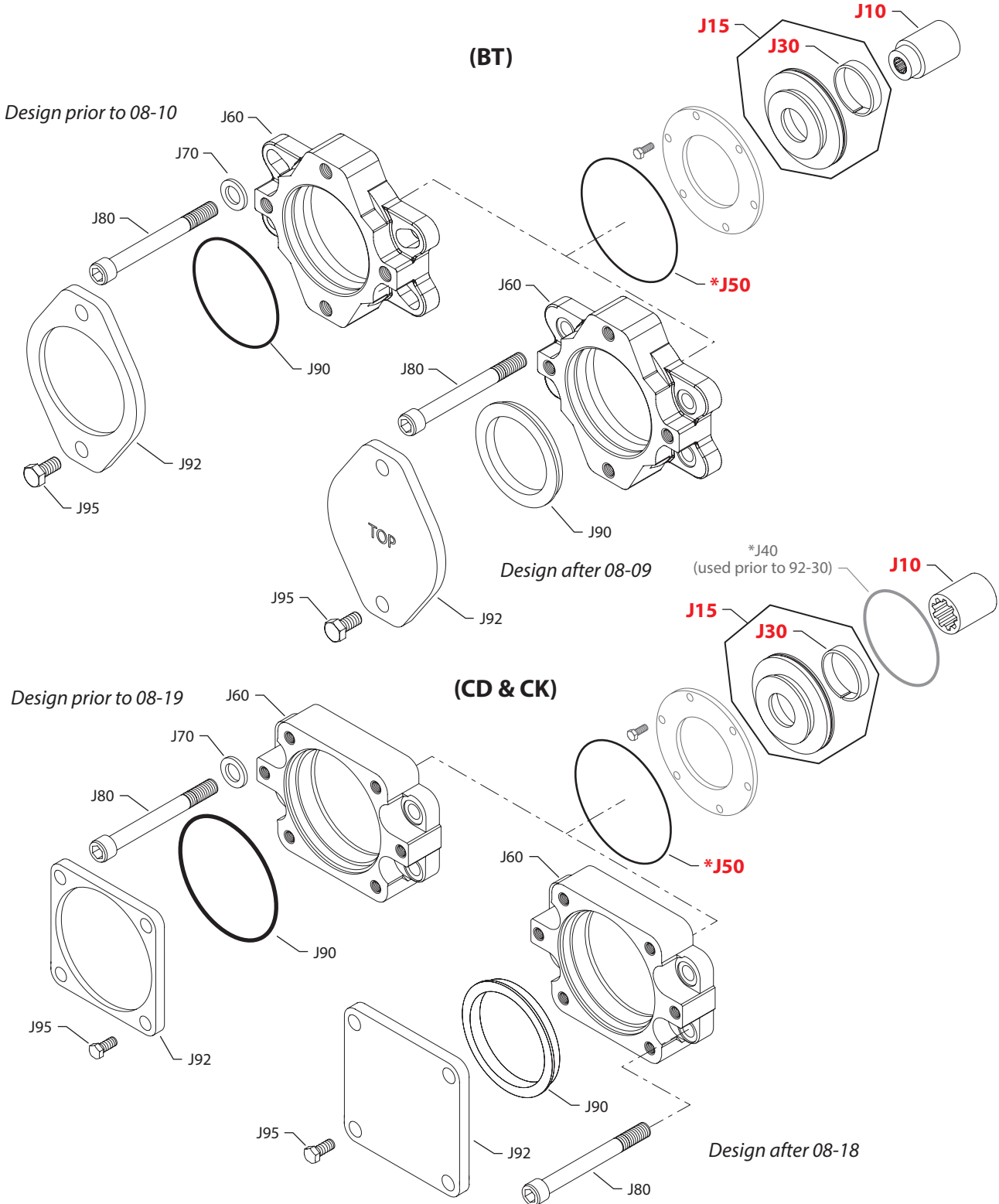
Enlarged **bold** type item numbers are recommended parts to be stocked for servicing


Variable displacement pump
Auxiliary mounting

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
BH	J10	06-13		8100148	Coupling, 13 tooth	1
	J50	06-13		056739 (9004104-1580)	O-ring	1
	J60	06-13		8100847	Flange adaptor, SAE B (SB-2007-055)	1
	J70	06-13	09-30	664920 (9009625-0132)	Washer (SB-2007-055)	4
	J80	06-13		518721	Screw, M16 x 140	4
	J90	08-10		8801061	B pad seal (SB-2007-055)	1
	J90	06-13	09-30	726935 (9004104-0450)	O-ring	1
	J92	08-10		8801059	Cover plate (SB-2007-055)	1
	J92	06-13	08-09	4460370	Cover plate	1
	J95	06-13		9007200-5021	Screw	2
BM & 7	J10	94-07		8100273	Coupling, 15 tooth	1
	J15	94-07		8800832	Cover assembly, CW (SB-2005-011)	1
	J15	94-07		8800833	Cover assembly, CCW (SB-2005-011)	1
	J30	94-07		664771 (8700008)	Bushing	1
	J50	94-07		056739 (9004104-1580)	O-ring	1
	J60	94-07		8100938	Flange adaptor, SAE B, metric threads (SB-2007-055)	1
	J70	94-07	08-09	9009625-0132	Washer (SB-2007-055)	4
	J80	98-44		518721	Screw, M16 x 140	4
	J80	94-07	98-43	9007314-1622	Screw M16 x 130 (SB-1998-073)	4
	J90	08-10		8801061	B pad seal (SB-2007-055)	1
	J90	06-13	08-09	726935 (9004104-0450)	O-ring	1
	J92	08-10		8801059	Cover plate (SB-2007-055)	1
	J92	94-07	08-09	4460370	Cover plate	1
	J95	94-07		737866 (9007314-1207)	Screw	2
	BP	J10	04-50		8100273	Coupling, 15 tooth
J50		04-50		056739 (9004104-1580)	O-ring	1
J60		04-50		8100847	Flange adaptor, SAE B (SB-2007-055)	1
J70		04-50	09-30	664920 (9009625-0132)	Washer (SB-2007-055)	4
J80		04-50		518721	Screw, M16 x 140	4
J90		08-10		8801061	B pad seal (SB-2007-055)	1
J90		04-50	09-30	726935 (9004104-0450)	O-ring	1
J92		08-10		8801059	Cover plate (SB-2007-055)	1
J92		04-50	08-09	4460370	Cover plate	1
J95		04-50		9007200-5021	Screw	2
BR	J10	04-50		8100273	Coupling, 15 tooth	1
	J50	04-50		056739 (9004104-1580)	O-ring	1
	J60	04-50		8100938	Flange adaptor, SAE B (SB-2007-055)	1
	J70	04-50	09-30	664920 (9009625-0132)	Washer (SB-2007-055)	4
	J80	04-50		518721	Screw, M16 x 140	4
	J90	08-10		8801061	B pad seal (SB-2007-055)	1
	J90	04-50	09-30	726935 (9004104-0450)	O-ring	1
	J92	08-10		8801059	Cover plate (SB-2007-055)	1
	J92	87-02	08-09	4460370	Cover plate	1
	J95	04-50		370320 (9007314-1207)	Screw	2



Variable displacement pump



* = included in base pump seal kit Q210

E100 801E
 Enlarged **bold** type item numbers are recommended parts to be stocked for servicing

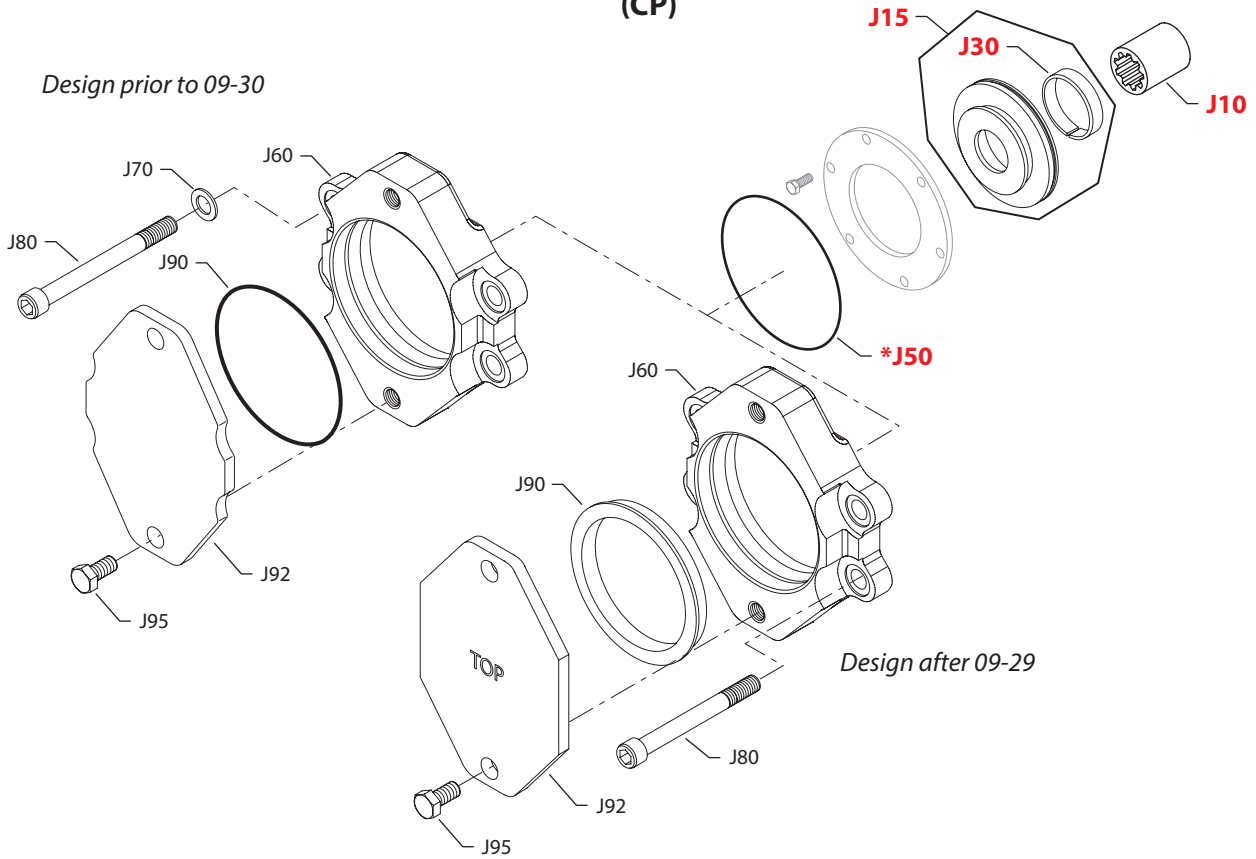

Variable displacement pump
Auxiliary mounting

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
BT	J10	05-12		11053346	Coupling, 14 tooth, high strength	1
	J15	05-12		8800832	Cover assembly, CW (SB-1993-001* & SB-2005-011)	1
	J15	05-12		8800833	Cover assembly, CCW (SB-1993-001* & SB-2005-011)	1
	J30	05-12		664771 (8700008)	Bushing	1
	J50	05-12		056739 (9004104-1580)	O-ring	1
	J60	05-12		8100847	Flange adaptor, SAE B (SB-2007-055)	1
	J70	05-12	08-09	9009625-0132	Washer (SB-2007-055)	4
	J80	98-44		518721	Screw, M16 x 140	4
	J80	05-12	98-43	9007314-1622	Screw M16 x 130 (SB-1998-073)	4
	J90	08-10		8801061	B pad seal (SB-2007-055)	1
	J90	05-12	08-09	726935 (9004104-0450)	O-ring	1
	J92	08-10		8801059	Cover plate (SB-2007-055)	1
	J92	05-12	08-09	4460370	Cover plate	1
	J95	05-12		9007200-5021	Screw	2
	CD & C	J10	87-02		11053346	Coupling, 14 tooth, high strength
J15		87-02		8800832	Cover assembly, CW (SB-1993-001* & SB-2005-011)	1
J15		87-02		8800833	Cover assembly, CCW (SB-1993-001* & SB-2005-011)	1
J30		87-02		664771 (8700008)	Bushing	1
J40		87-02	92-15	680892 (9004104-0440)	O-ring	1
J50		87-02		056739 (9004104-1580)	O-ring	1
J60		87-02		8100897	Flange adaptor, SAE C (SB-2007-051)	1
J70		87-02	03-10	5000602	Washer (SB-2002-050)	4
J80		98-44		518721	Screw, M16 x 140	4
J80		87-02	98-43	9007314-1622	Screw M16 x 130 (SB-1998-073)	4
J90		08-19		11081805	C pad seal (SB-2007-051)	1
J90		87-02	08-18	726943 (9004104-0490)	O-ring	1
J92		08-19		8801060	Cover plate (SB-2007-051)	1
J92		87-02	08-18	8800406	Cover plate	1
J95		87-02		9007200-5021	Screw	4
CK	J10	96-04		11053278	Coupling, 25 tooth, high strength	1
	J15	96-04		8800832	Cover assembly, CW (SB-2005-011)	1
	J15	96-04		8800833	Cover assembly, CCW (SB-2005-011)	1
	J30	96-04		664771 (8700008)	Bushing	1
	J50	96-04		056739 (9004104-1580)	O-ring	1
	J60	96-04		8100897	Flange adaptor, SAE C (SB-2007-051)	1
	J70	96-04	03-10	5000602	Washer (SB-2002-050)	4
	J80	98-44		518721	Screw, M16 x 140	4
	J80	96-04	98-43	9007314-1622	Screw M16 x 130 (SB-1998-073)	4
	J90	08-19		11081805	C pad seal (SB-2007-051)	1
	J90	96-04	08-18	726943 (9004104-0490)	O-ring	1
	J92	08-19		8801060	Cover plate (SB-2007-055)	1
	J92	96-04	08-18	4460370	Cover plate	1
	J95	96-04		9007200-5021	Screw	4

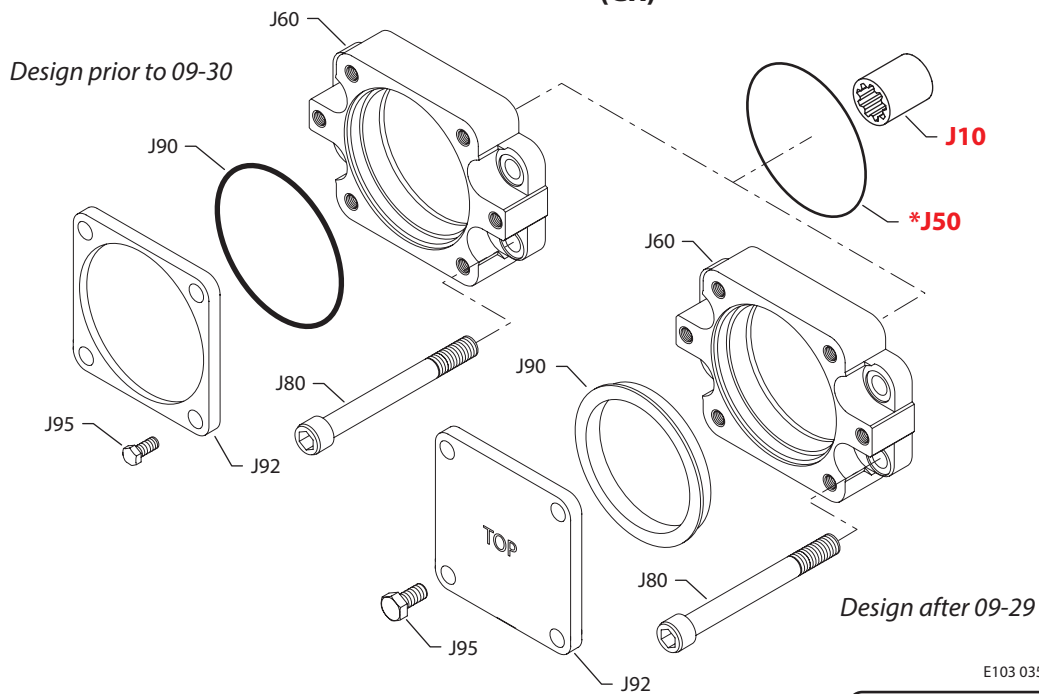


Variable displacement pump

(CP)



(CR)



* = included in base pump seal kit Q210

E103 035E

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


Variable displacement pump
Auxiliary mounting

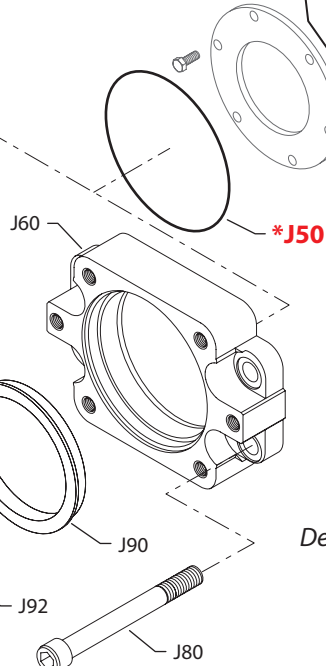
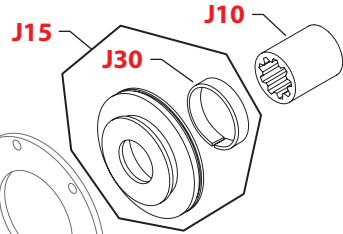
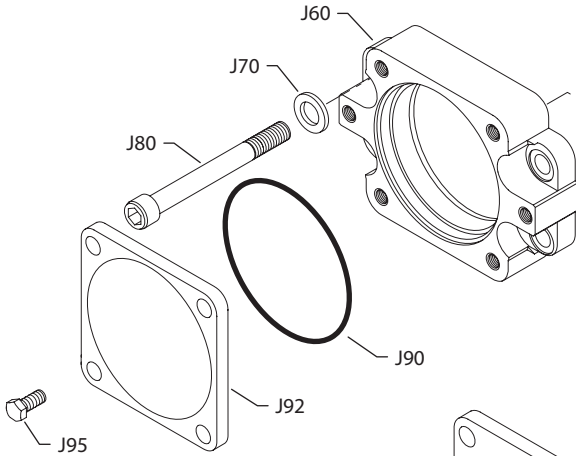
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
CP	J10	93-14		11053346	Coupling, 14 tooth, high strength	1
	J15	93-14		8800832	Cover assembly, CW (SB-2005-011)	1
	J15	93-14		8800833	Cover assembly, CCW (SB-2005-011)	1
	J30	93-14		664771 (8700008)	Bushing	1
	J50	93-14		056739 (9004104-1580)	O-ring	1
	J60	93-14		8100949	Flange adaptor, SAE C	1
	J70	93-14	03-10	5000602	Washer (SB-2002-050)	4
	J80	98-44		518721	Screw, M16 x 140	4
	J80	93-14	98-43	9007314-1622	Screw M16 x 130 (SB-1998-073)	4
	J90	09-30		11081805	C pad seal (SB-2007-051)	1
	J90	93-14	09-29	726943 (9004104-0490)	O-ring	1
	J92	93-30		11048554	Cover plate (SB-2007-051)	1
	J92	93-14	09-29	350678	Cover plate	1
	J95	93-14		9007200-6222	Screw	2
	CR	J10	03-14		11053346	Coupling, 14 tooth, high strength
J50		03-14		056739 (9004104-1580)	O-ring	1
J60		03-14		8100942	Flange adaptor, SAE C (SB-2007-051)	1
J80		03-14		518721	Screw, M16 x 140	4
J90		09-30		11081805	C pad seal (SB-2007-051)	1
J90		03-14	09-29	726943 (9004104-0490)	O-ring	1
J92		09-30		8801060	Cover plate (SB-2007-051)	1
J92		03-14	09-29	8800406	Cover plate	1
J95		03-14		370320	Screw	4



Variable displacement pump

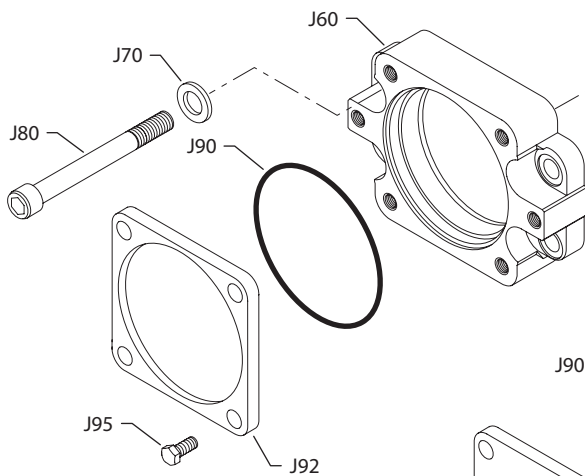
(CT, CV & CW)

Design prior to 08-10

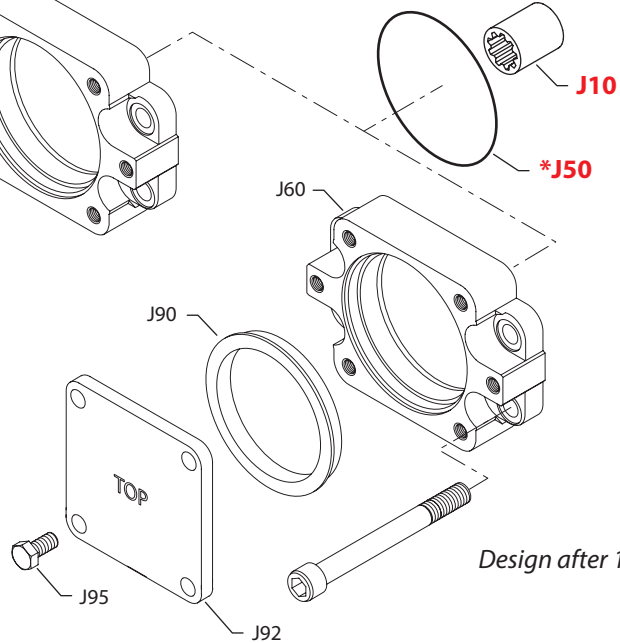


Design after 08-09

Design prior to 10-30



(CU)



Design after 10-29

E103 036E

* = included in base pump seal kit Q210

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

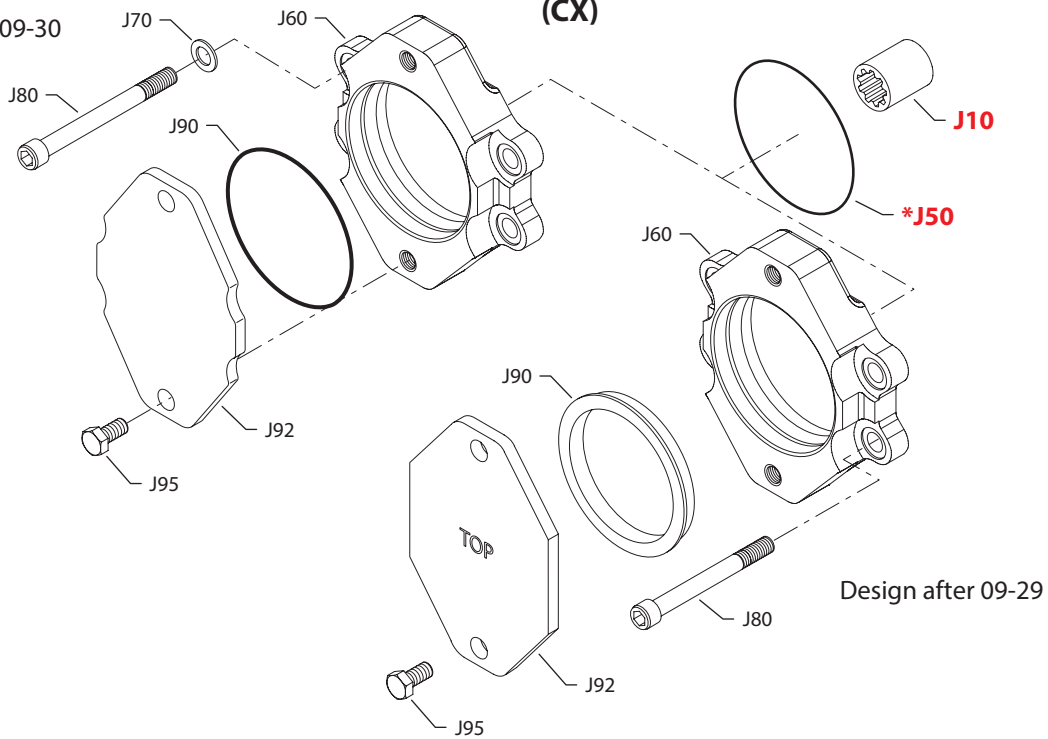
Variable displacement pump
Auxiliary mounting

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit	
CT	J10	98-42		11053342	Coupling, 19 tooth	1	
	J15	98-42		8800832	Cover assembly, CW (SB-2005-011)	1	
	J15	98-42		8800833	Cover assembly, CCW (SB-2005-011)	1	
	J30	98-42		664771 (8700008)	Bushing	1	
	J50	98-42		056739 (9004104-1580)	O-ring	1	
	J60	98-42		8100897	Flange adaptor, SAE C (SB-2002-050 & SB-2007-051))	1	
	J70	98-42	03-10	5000602	Washer (SB-2002-050)	4	
	J80	98-44		518721	Screw, M16 x 140	4	
	J80	98-42	98-43	9007314-1622	Screw M16 x 130 (SB-1998-073)	4	
	J90	08-10		11081805	C pad seal	1	
	J90	98-42	08-09	719179 (9004100-0480)	O-ring	1	
	J92	08-10		8801060	Cover plate	1	
	J92	98-42	08-09	8800406	Cover plate	1	
	J95	98-42		9007200-5021	Screw	4	
	CU	J10	99-04		11053346	Coupling, 14 tooth, high strength	1
J50		99-04		056739 (9004104-1580)	O-ring	1	
J60		99-04		8100897	Flange adaptor, SAE C (SB-2007-051)	1	
J70		99-04	04-02	5000602	Washer (SB-2002-050)	4	
J80		99-04		518721	Screw, M16 x 140	4	
J90		10-30		11081805	C pad seal (SB-2007-051)	1	
J90		99-04	10-29	726943 (9004104-0490)	O-ring	1	
J92		10-30		8801060	Cover plate (SB-2007-051)	1	
J92		99-04	10-29	8800406	Cover plate	1	
J95		99-04		9007200-5021	Screw	4	
CV		J10	00-16		11053278	Coupling, 25 tooth, high strength	1
	J15	00-16		8800832	Cover assembly, CW (SB-2005-011)	1	
	J30	00-16		664771 (8700008)	Bushing	1	
	J50	00-16		056739 (9004104-1580)	O-ring	1	
	J60	00-16		8100897	Flange adaptor, SAE C (SB-2007-051)	1	
	J80	00-16		518721	Screw, M16 x 140	4	
	J90	00-16		11081805	C pad seal	1	
	J92	00-16		8801060	Cover plate	1	
	J95	00-16		9007200-5021	Screw	4	
	CW	J10	98-46		11053346	Coupling, 14 tooth, high strength	1
		J15	98-46		8800832	Cover assembly, CW (SB-2005-011)	1
J30		98-46		664771 (8700008)	Bushing	1	
J50		98-46		056739 (9004104-1580)	O-ring	1	
J60		98-46		8100897	Flange adaptor, SAE C	1	
J70		98-46	00-10	5000602	Washer (SB-2002-050)	4	
J80		98-44		518721	Screw, M16 x 140	4	
J90		98-46		11081805	C pad seal	1	
J92		98-46		8801060	Cover plate	1	
J95		98-46		9007200-5021	Screw	2	

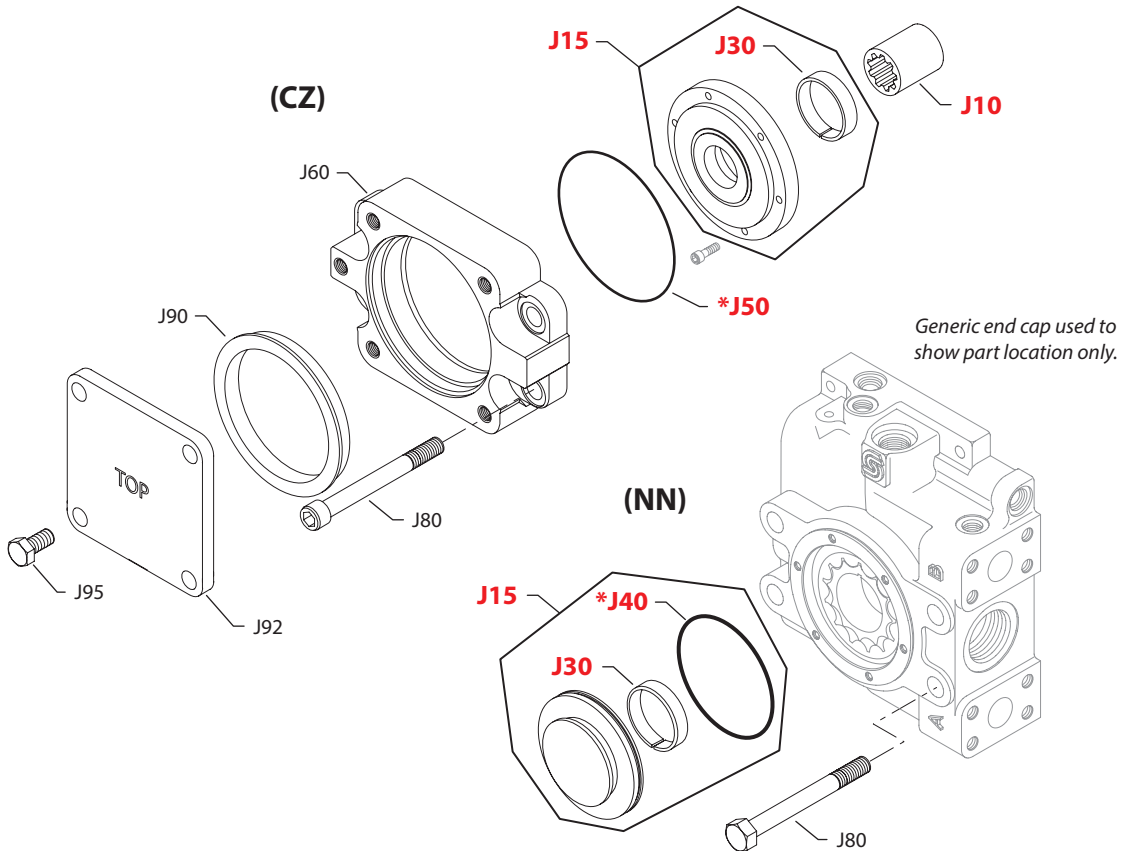


Variable displacement pump

Design prior to 09-30



(CZ)



E100 802E

* = included in base pump seal kit Q210

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

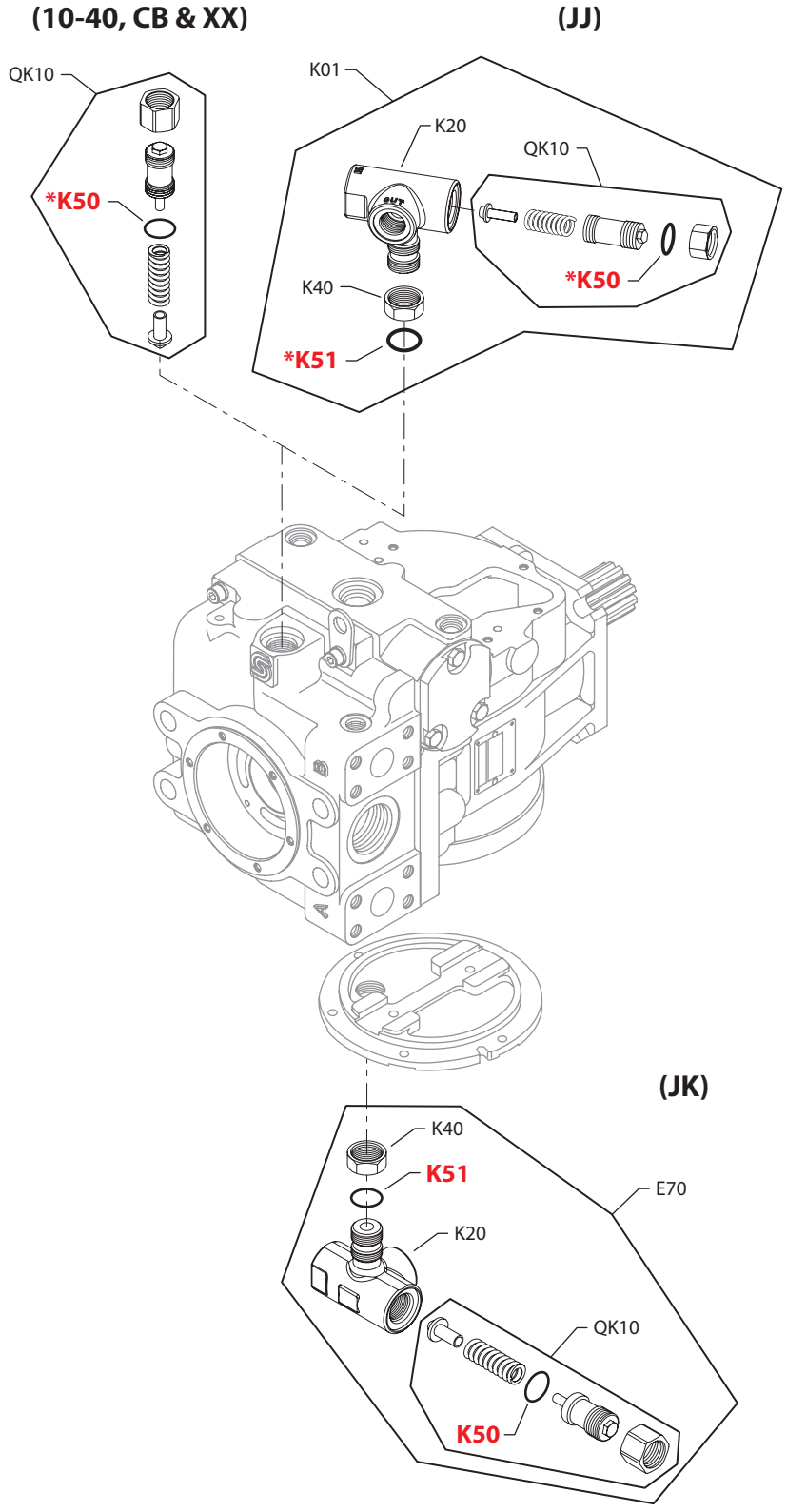

Variable displacement pump
Auxiliary mounting

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
CX	J10	01-35		11053346	Coupling, 14 tooth, high strength	1
	J50	01-35		056739 (9004104-1580)	O-ring	1
	J60	01-35		8100949	Flange adaptor, SAE C	1
	J70	01-35	09-29	5000602	Washer (SB-2002-050)	4
	J80	01-35		518721	Screw, M16 x 140	4
	J90	09-30		11081805	C pad seal	1
	J90	01-35	09-29	726943	O-ring	1
	J92	09-30		11048554	Cover plate	1
	J92	01-35	09-29	350678	Cover plate	1
	J95	01-35		9007200-6222	Screw	2
CZ	J10	02-08		11053346	Coupling, 14 tooth, high strength	1
	J15	02-08		8801248	Cover assembly, CW (SB-2005-011)	1
	J30	02-08		664771 (8700008)	Bushing	1
	J50	02-08		056739 (9004104-1580)	O-ring	1
	J60	02-08		8100897	Flange adaptor, SAE C	1
	J80	02-08		518721	Screw, M16 x 140	4
	J90	02-08		11081805	C pad seal	1
	J92	02-08		8801060	Cover plate	1
	J95	02-08		9007200-5021	Screw	2
	NN & N	J15	87-02		8800834	Cover assembly, (SB-1993-001*)
J30		87-02		664771 (8700008)	Bushing	1
J40		87-02		680892 (9004104-0440)	O-ring	1
J80		98-44		9007210-1621	Screw, M16 x 120	4
J80		87-02	98-43	9007210-1620	Screw, M16 x 100 (SB-1998-073)	4

* For additional information regarding replacement parts for units built prior to 93-10, refer to BLN-10107 in the appendix



Variable displacement pump



E100 803E

* = included in base pump seal kit Q210

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

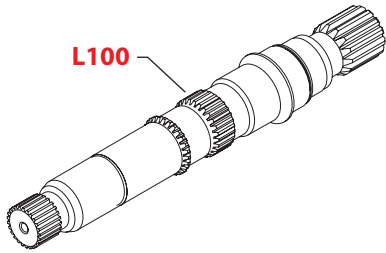

Variable displacement pump
Charge pressure setting

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
10-30	K50	87-42		001149 (9004201-6200)	O-ring (SB-1989-002)	1
	QK10	87-42		8002K000-A	Charge relief valve kit, 10-30 bar (SB-1989-002)	1
32-42	K50	94-13		001149 (9004201-6200)	O-ring	1
	QK10	94-13		8510269	Charge relief valve kit, 30-42 bar	1
CB	K50	14-37		001149 (9004201-6200)	O-ring	1
	QK10	14-37		11156917	Charge relief valve kit, 30-42 bar	1
JD				none		
JJ	K01	99-11		8100832	Externally mounted charge pressure relief valve	1
	QK10	99-11		8510272	Charge relief valve kit, 10-30 bar	1
	K20	99-11		8100816	Charge relief housing	1
	K40	99-11		8000658	Nut	1
	K50	99-11		001149 (9004201-6200)	O-ring	1
	K51	99-11		001156 (9004201-7500)	O-ring	1
JK	E70	99-11		8100832	Externally mounted charge pressure relief valve	1
	QK10	99-11		8510272	Charge relief valve kit, 10-30 bar	1
	K20	99-11		8100816	Charge relief housing	1
	K40	99-11		8000658	Nut	1
	K50	99-11		001149 (9004201-6200)	O-ring	1
	K51	99-11		001156 (9004201-7500)	O-ring	1
XX	K50	94-13		012559 (9004202-6200)	O-ring, viton	1
	QK10	94-13		11086335	Charge relief valve kit, viton	1

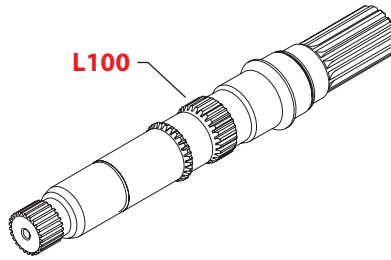


Variable displacement pump

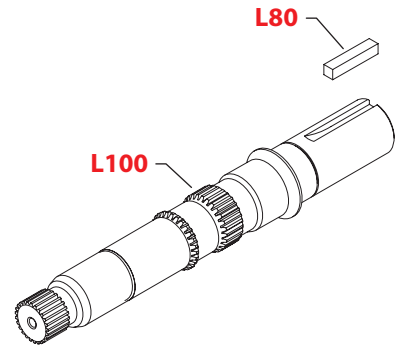
(C6, C7, D7, D9,
G1, G6, J1, S1, S3,
S4 & SA)



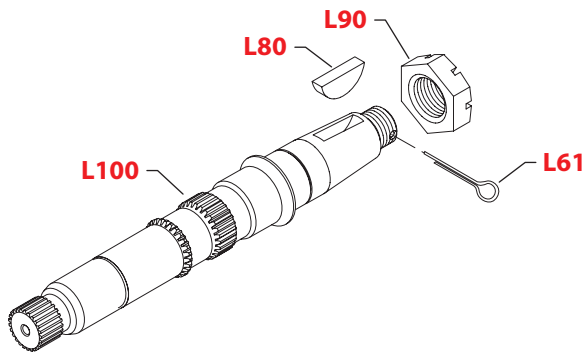
(G2, J8)



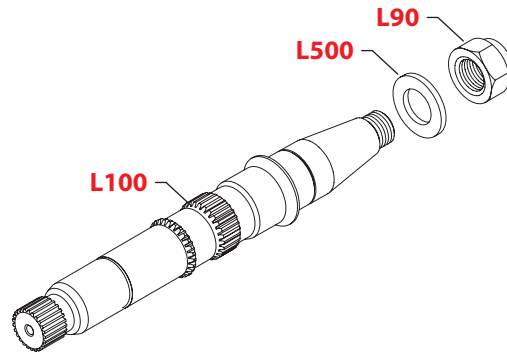
(K2)



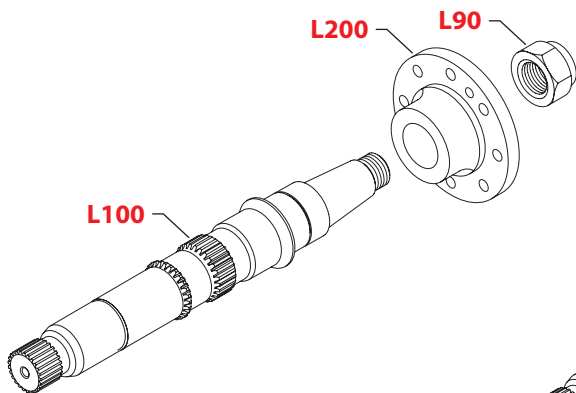
(T1 & T2)



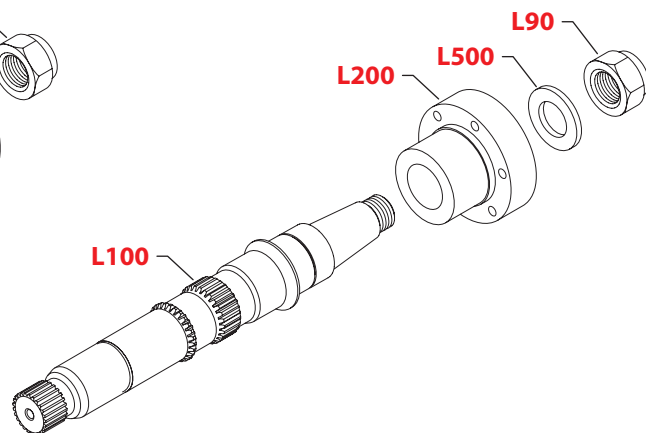
(T6)



(TG)



(TJ)



E100 804E

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


Variable displacement pump
Shaft

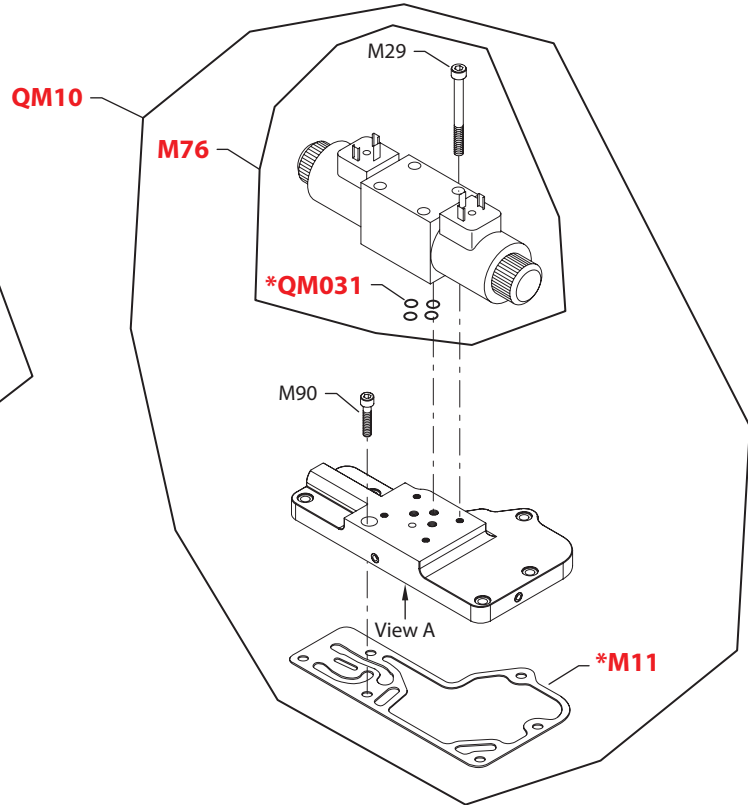
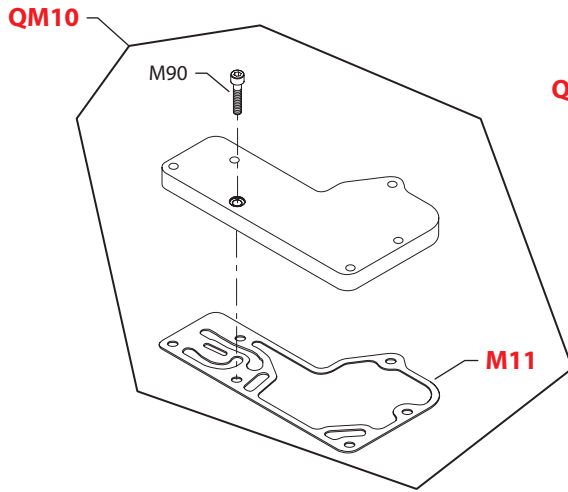
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
C6	L100	87-02		318998 (8100299)	Shaft, 21 tooth spline	1
C7	L100	87-02		693838 (8100266)	Shaft, 23 tooth spline	1
D7	L100	95-08		506860	Shaft, 23 tooth spline, M10 threaded tapped hole	1
D9	L100	95-08		11094648 (500054)	Shaft, 21 tooth spline, M10 threaded tapped hole	1
G1	L100	97-15		504004	Shaft, 25 tooth spline	1
G2	L100	97-15		8100701	Shaft, 21 tooth spline, special length	1
G6	L100	97-15		8100652	Shaft, 25 tooth spline, special	1
J1	L100	92-16		8100469	Shaft, 23 tooth spline, special length	1
J8	L100	99-11		8100830	Shaft, 23 tooth spline, special length	1
K2	L80	87-02		9003261-3724	Key	1
	L100	87-02		8100354	Shaft, straight key, 1.5" diameter	1
S1	L100	87-02		701441 (8100264)	Shaft, 14 tooth spline	1
S3	L100	87-02		8100238	Shaft, 16 tooth spline	1
S4	L100	87-02		8100440	Shaft, 17 tooth spline	1
SA	L100	87-02		1713914	Shaft, 14 tooth spline long	1
T1	L61	87-02		716779 (9004600-1230)	Cotter pin	1
	L80	87-02		9003310-3724	Key	1
	L90	87-02		5000606	Slotted nut	1
	L100	87-02		8100310	Shaft, 1.375" tapered	1
T2	L61	87-02		716779 (9004600-1230)	Cotter pin	1
	L80	87-02		9003310-3724	Key	1
	L90	87-02		5000606	Slotted nut	1
	L100	87-02		312009 (11114770)	Shaft, 1.5" tapered	1
T6	L90	87-02		504060	Slotted nut	1
	L100	87-02		511616	Shaft, 1.5" tapered	1
	L500	87-02		511627	Washer	1
TG	L90	87-02		504060	Slotted nut	1
	L100	87-02		504059	Shaft, 1.5" tapered	1
	L200	87-02		504061	Flange adapter	1
TJ	L90	87-02		504060	Slotted nut	1
	L100	87-02		511616	Shaft, 1.5" tapered	1
	L200	87-02		511462	Coupling	1
	L500	87-02		511627	Washer	1



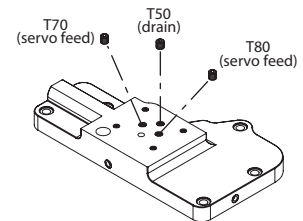
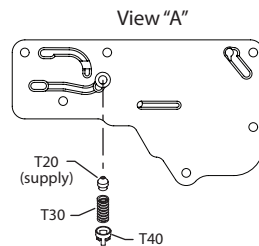
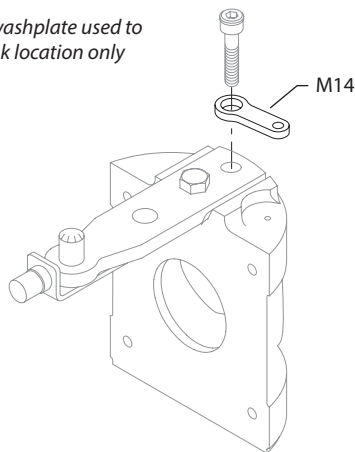
Variable displacement pump

(CA & CB)

(DC & DD)



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.

E100 716E

* = included in control seal kit QM210

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

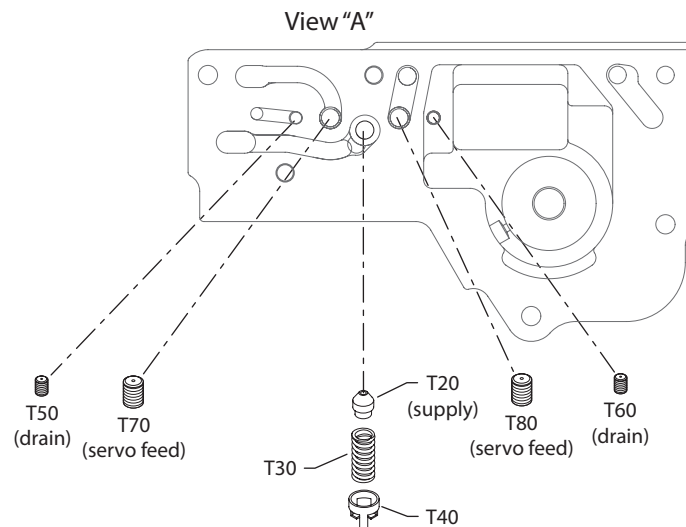
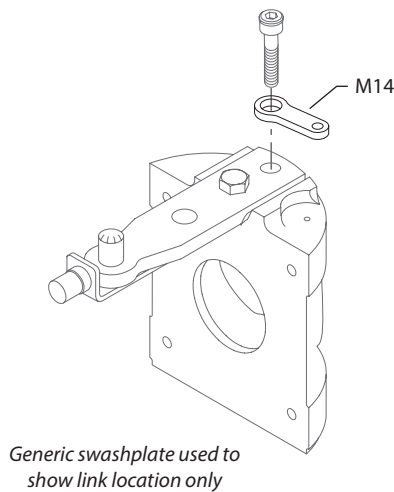
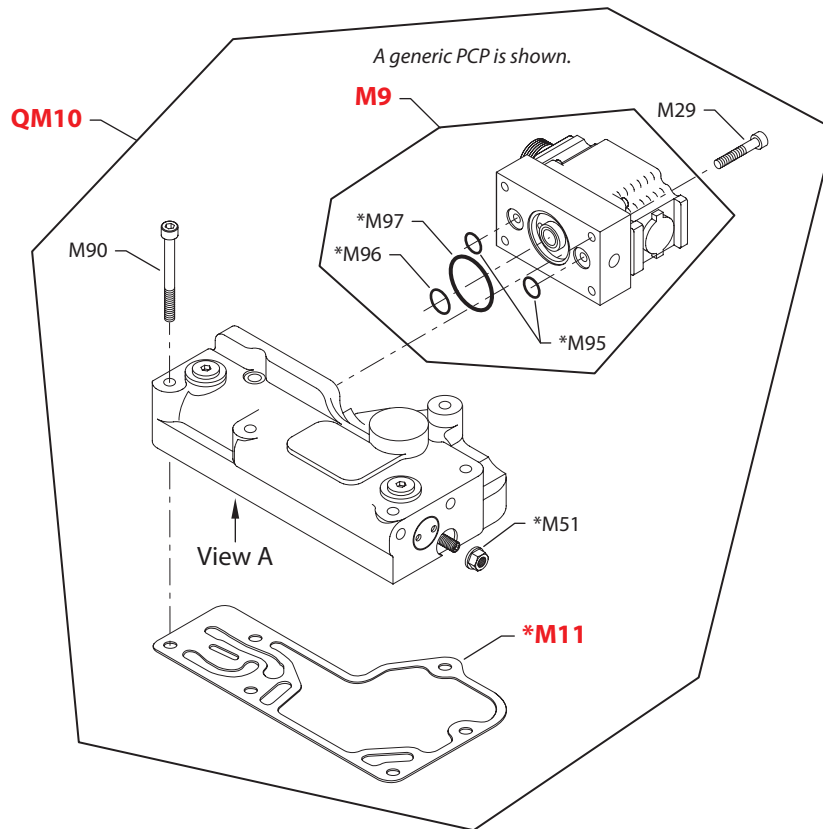

Variable displacement pump
Control

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
CA	M1	87-02		8102M0CA-A	Control cover plate kit	1
	M11	87-02		8800923	Control gasket	1
	M90	87-02		693341 (9007314-0606)	Screw	6
CB	M1	87-02		8102M0CA-A	Control cover plate kit	1
	M11	87-02		8800923	Control gasket	1
	M14	96-40		11070305	Feedback link (SB-1999-019 & SB-2013-011)	1
	M14	87-02	96-39	8000481	Feedback link (SB-1996-009)	1
	M90	87-02		693341 (9007314-0606)	Screw	6
	DC	M11	87-02		8800923	Control gasket
M29		87-02		035592	Screw	4
M76		87-02		687103	Solenoid valve, 12v	1
M90		87-02		693341 (9007314-0606)	Screw	6
QM10		87-02		8102M0DC-A	Control kit, 12v	1
QM031		87-02		11099647	O-ring kit	1
QM210		87-02		11096172	Control seal kit	1
DD		M11	87-02		8800923	Control gasket
	M29	87-02		035592	Screw	4
	M76	87-02		549907	Solenoid valve, 24v	1
	M90	87-02		693341 (9007314-0606)	Screw	6
	QM10	87-02		8102M0DD-A	Control kit, 24v	1
	QM031	87-02		11099647	O-ring kit	1
	QM210	87-02		11096172	Control seal kit	1



Variable displacement pump

(EA, EG, EP & EX)



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 717E

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

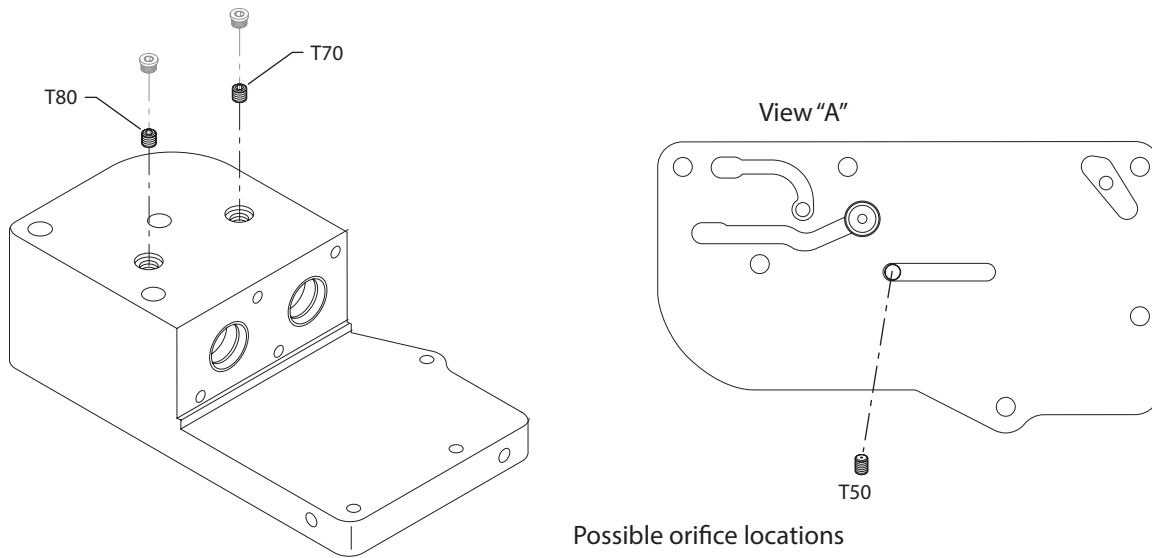
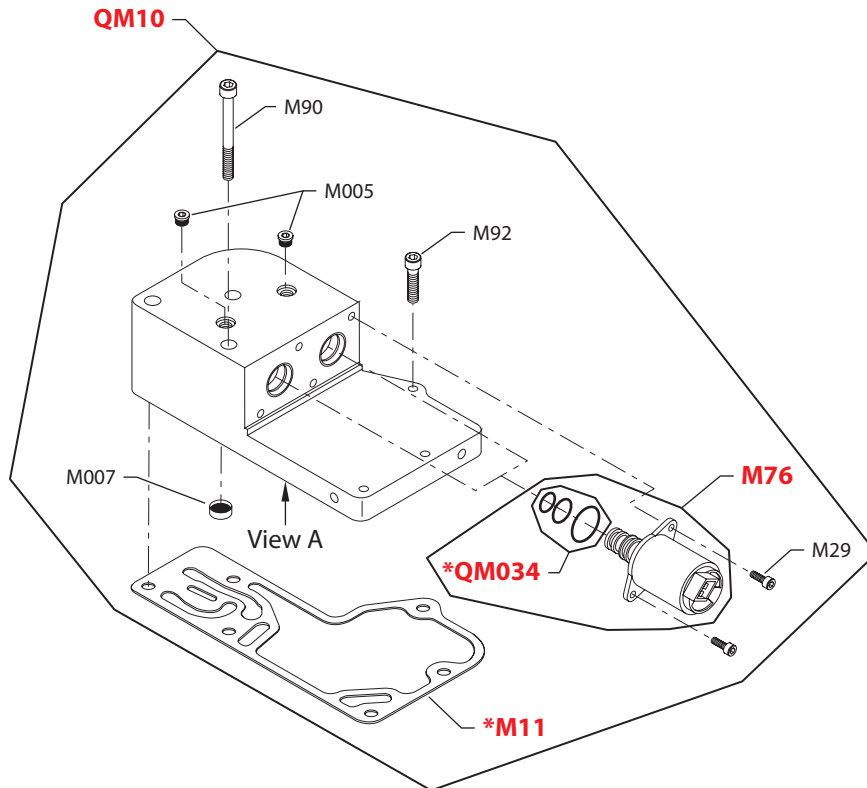

Variable displacement pump
Control

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
EA	M9	91-16		MCV110A1017	PCP, MS connector	1
	M11	91-16		8800923	Control gasket	1
	M14	96-40		11070305	Feedback link (SB-1999-019 & SB-2013-011)	1
	M14	91-16	96-39	8000481	Feedback link (SB-1996-009)	1
	M29	91-16		K07067	Screw	4
	M51	91-16		9003509-0008	Seal nut	1
	M90	91-16		692889 (9007314-0611)	Screw	6
	M95	91-16		318337 (9004104-0120)	O-ring	2
	M96	91-16		011304 (9004104-0140)	O-ring	1
	M97	91-16		318345 (9004104-0240)	O-ring	1
	QM10	91-16		8102M0EA-B	EDC kit, MS connector	1
	QM210	91-16		11096174	Control seal kit	1
	EG	M9	91-16	12-35	MCV110A1018	PCP, MS connector
M11		91-16	12-35	8800923	Control gasket	1
M14		96-40	12-35	11070305	Feedback link (SB-1999-019 & SB-2013-011)	1
M14		91-16	96-39	8000481	Feedback link (SB-1996-009)	1
M29		91-16	12-35	K07067	Screw	4
M51		91-16	12-35	9003509-0008	Seal nut	1
M90		91-16	12-35	692889 (9007314-0611)	Screw	6
M95		91-16	12-35	318337 (9004104-0120)	O-ring	2
M96		91-16	12-35	011304 (9004104-0140)	O-ring	1
M97		91-16	12-35	318345 (9004104-0240)	O-ring	1
QM10		91-16	12-35	11097110	EDC kit, MS connector	1
QM210		91-16	12-35	11096174	Control seal kit	1
EP		M9	91-07		MCV110A1058	PCP, Packard connector
	M11	91-07		8800923	Control gasket	1
	M14	96-40		11070305	Feedback link (SB-1999-019 & SB-2013-011)	1
	M14	91-07	96-39	8000481	Feedback link (SB-1996-009)	1
	M29	91-07		K07067	Screw	4
	M51	91-07		9003509-0008	Seal nut	1
	M90	91-07		692889 (9007314-0611)	Screw	6
	M95	91-07		318337 (9004104-0120)	O-ring	2
	M96	91-07		011304 (9004104-0140)	O-ring	1
	M97	91-07		318345 (9004104-0240)	O-ring	1
	QM10	91-07		8102M0EP-B	EDC kit, Packard connector	1
	QM210	91-07		11096174	Control seal kit	1
	EX	M9	93-16		MCV110A1090	PCP, Metri-pack connector
M11		93-16		8800923	Control gasket	1
M14		96-40		11070305	Feedback link (SB-1999-019 & SB-2013-011)	1
M14		93-16	96-39	8000481	Feedback link (SB-1996-009)	1
M29		93-16		K07067	Screw	4
M51		93-16		9003509-0008	Seal nut	1
M90		93-16		692889 (9007314-0611)	Screw	6
M95		93-16		318337 (9004104-0120)	O-ring	2
M96		93-16		011304 (9004104-0140)	O-ring	1
M97		93-16		318345 (9004104-0240)	O-ring	1
QM10		93-16		8102M0EX-B	EDC kit, Packard connector	1
QM210		93-16		11096174	Control seal kit	1



Variable displacement pump

(FA, FB, FC & FD)



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 873E

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

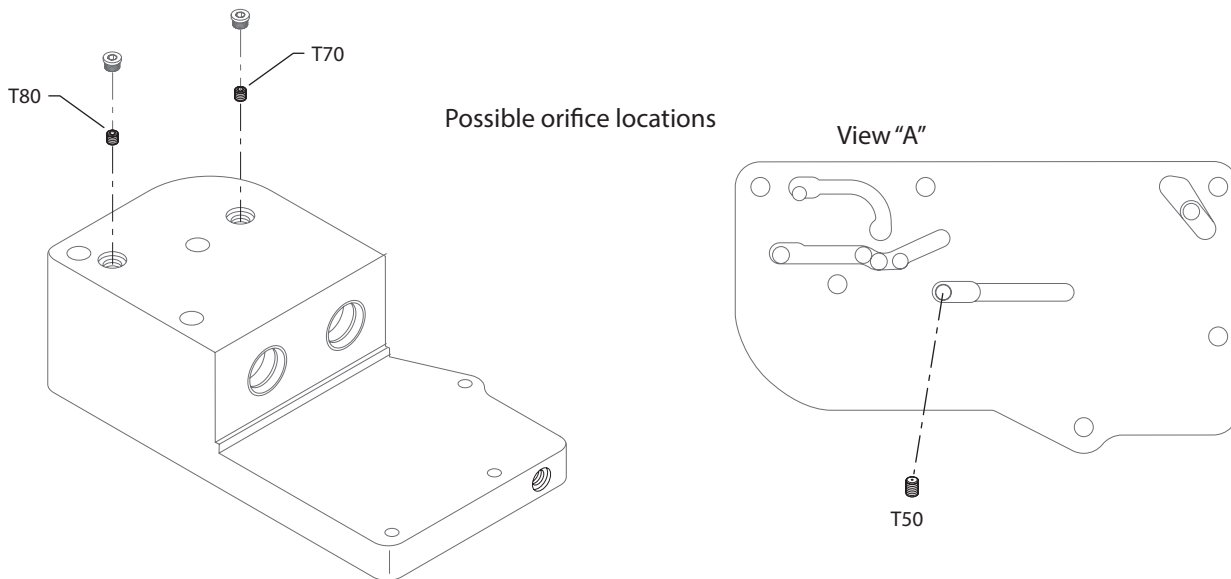
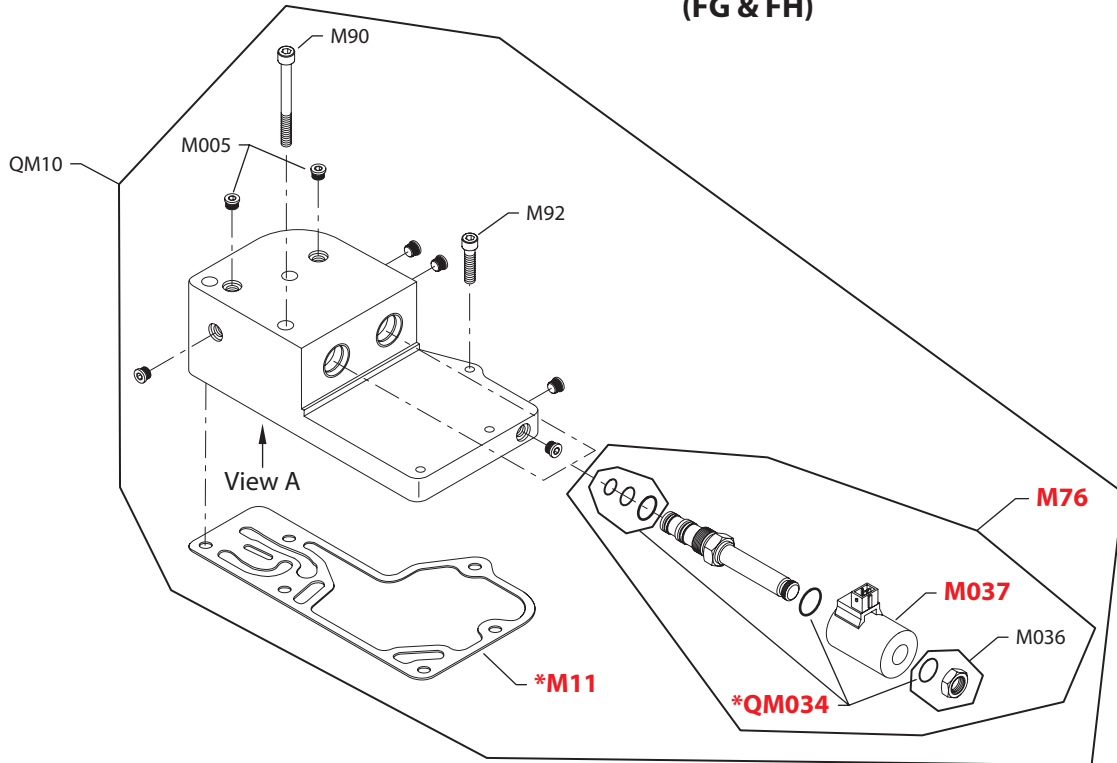

Variable displacement pump
Control

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
FA	M11	98-14		8800923	Control gasket	1
	M29	98-14		067694	Screw	4
	M76	98-14		518080	Solenoid valve, 12 volt, 25 bar	2
	M90	98-14		9007314-0614	Screw	3
	M92	98-14		693341 (9007314-0606)	Screw	3
	M005	98-14		11040532	Plug assembly	2
	M007	98-14		K00775	Filter screen	1
	QM10	98-14		11015079	NFPE control kit, 12 volt, 25 bar	1
	QM034	98-14		11099849	Solenoid valve seal kit	2
	QM210	98-14		11100028	Control seal kit	1
FB	M11	98-14		8800923	Control gasket	1
	M29	98-14		067694	Screw	4
	M76	98-14		518081	Solenoid valve, 24 volt, 25 bar	2
	M90	98-14		9007314-0614	Screw	3
	M92	98-14		693341 (9007314-0606)	Screw	3
	M005	98-14		11040532	Plug assembly	2
	M007	98-14		K00775	Filter screen	1
	QM10	98-14		11015080	NFPE control kit, 24 volt, 25 bar	1
	QM034	98-14		11099849	Solenoid valve seal kit	2
	QM210	98-14		11100028	Control seal kit	1
FC	M11	98-14		8800923	Control gasket	1
	M29	98-14		067694	Screw	4
	M76	98-14		521709	Solenoid valve, 12 volt, 32 bar	2
	M90	98-14		9007314-0614	Screw	3
	M92	98-14		693341 (9007314-0606)	Screw	3
	M005	98-14		11040532	Plug assembly	2
	M007	98-14		K00775	Filter screen	1
	QM10	98-14		8510230	NFPE control kit, 12 volt, 32 bar	1
	QM034	98-14		11099849	Solenoid valve seal kit	2
	QM210	98-14		11100028	Control seal kit	1
FD	M11	98-14		8800923	Control gasket	1
	M29	98-14		067694	Screw	4
	M76	98-14		517214	Solenoid valve, 24 volt, 32 bar	2
	M90	98-14		9007314-0614	Screw	3
	M92	98-14		693341 (9007314-0606)	Screw	3
	M005	98-14		11040532	Plug assembly	2
	M007	98-14		K00775	Filter screen	1
	QM10	98-14		11015081	NFPE control kit, 24 volt, 32 bar	1
	QM034	98-14		11099849	Solenoid valve seal kit	2
	QM210	98-14		11100028	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

E100 805E

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

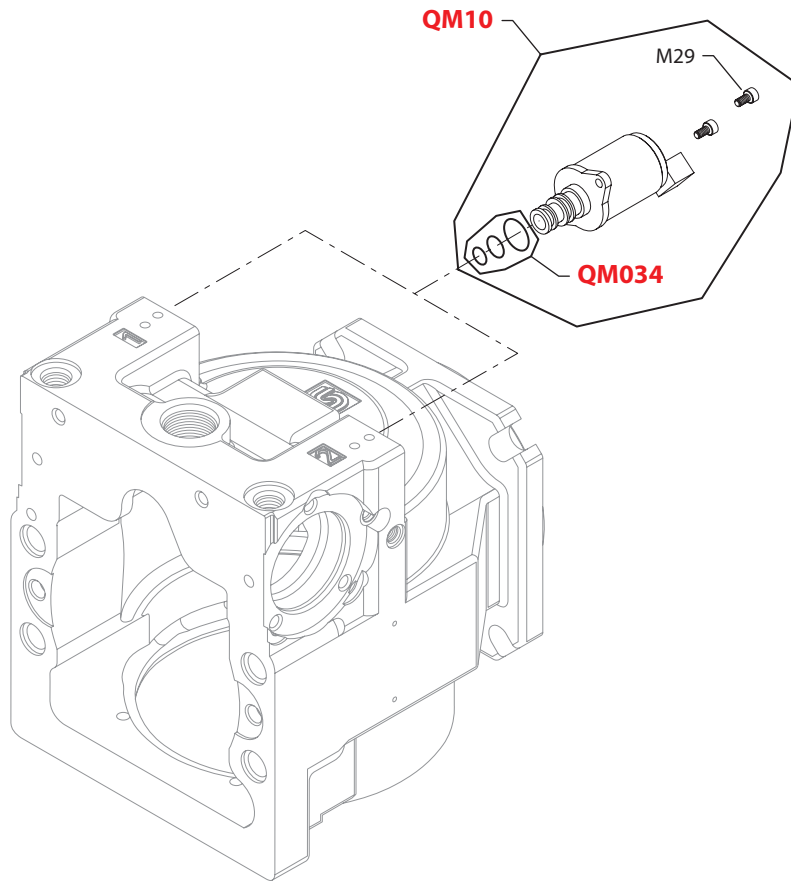

Variable displacement pump
Control

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
FG	M11	00-30		8800923	Control gasket	1
	M76	00-30		516006	Solenoid valve, 12 volt, 25 bar	2
	M90	00-30		9007314-0614	Screw	3
	M92	00-30		693341 (9007314-0606)	Screw	3
	M005	00-30		11040532	Plug assembly	2
	QM10	00-30		11026563	NFPE control kit, 12 volt, 32 bar	1
	QM034	00-30		11100185	Solenoid valve seal kit	2
	QM036	00-30		518088	Coil nut kit	2
	QM037	00-30		516003	Coil, 12v Jet connector	2
	QM210	00-30		11100001	Control seal kit	1
	FH	M11	00-30		8800923	Control gasket
M76		00-30		515617	Solenoid valve, 24 volt, 25 bar	2
M90		00-30		9007314-0614	Screw	3
M92		00-30		693341 (9007314-0606)	Screw	3
M005		00-30		11040532	Plug assembly	2
QM10		00-30		11026569	NFPE control kit, 24 volt, 32 bar	1
QM034		00-30		11100185	Solenoid valve seal kit	2
QM036		00-30		518088	Coil nut kit	2
QM037		00-30		516004	Coil, 24v Jet connector	2
QM210		00-30		11100001	Control seal kit	1



Variable displacement pump

(FK, FL, FM & FN)



* = included in control seal kit QM210

E103 075E

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

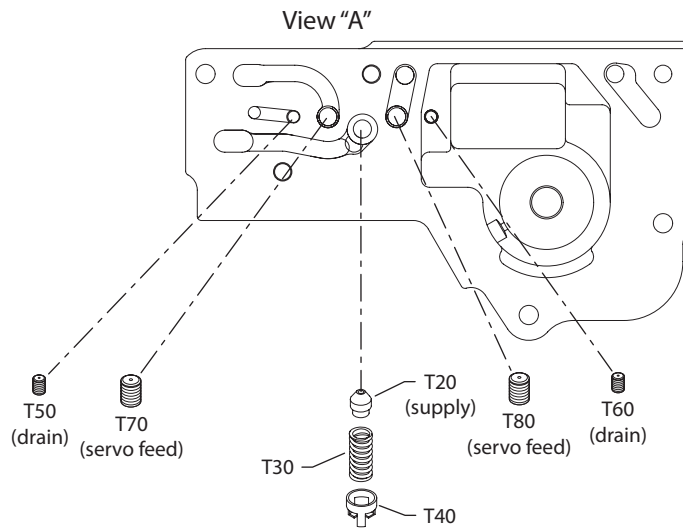
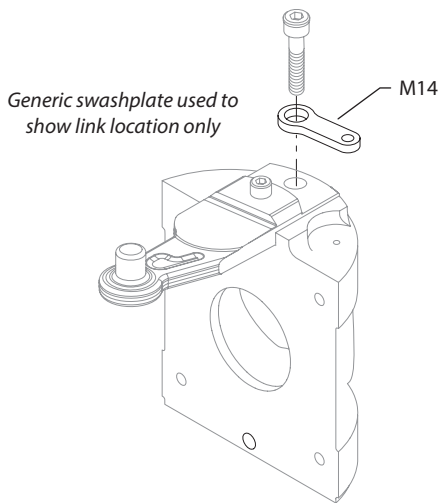
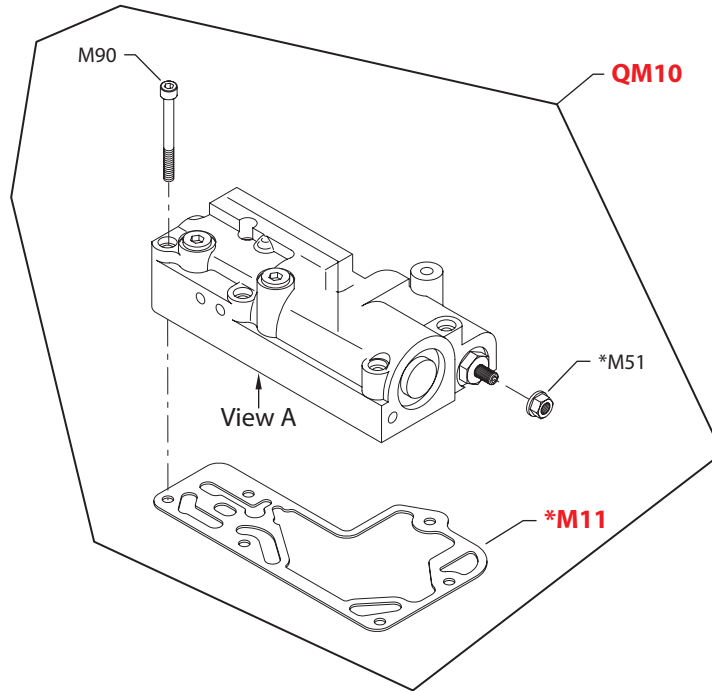

Variable displacement pump
Control

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
FK	M29	02-27		346957	Screw	4
	QM10	02-27		11098764	NFPE control kit, 12 volt, 25 bar	2
	QM034	02-27		11099849	Solenoid valve seal kit	2
FL	M29	03-52		346957	Screw	4
	QM10	03-52		11098765	NFPE control kit, 24 volt, 25 bar	2
	QM034	03-52		11099849	Solenoid valve seal kit	2
FM	M29	04-06		346957	Screw	4
	QM10	04-06		11098766	NFPE control kit, 12 volt, 32 bar	2
	QM034	04-06		11099849	Solenoid valve seal kit	2
FN	M29	04-06		346957	Screw	4
	QM10	04-06		11098767	NFPE control kit, 24 volt, 32 bar	2
	QM034	04-06		11099849	Solenoid valve seal kit	2



Variable displacement pump

(HF HK HM & HS)



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 806E

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


Variable displacement pump
Control

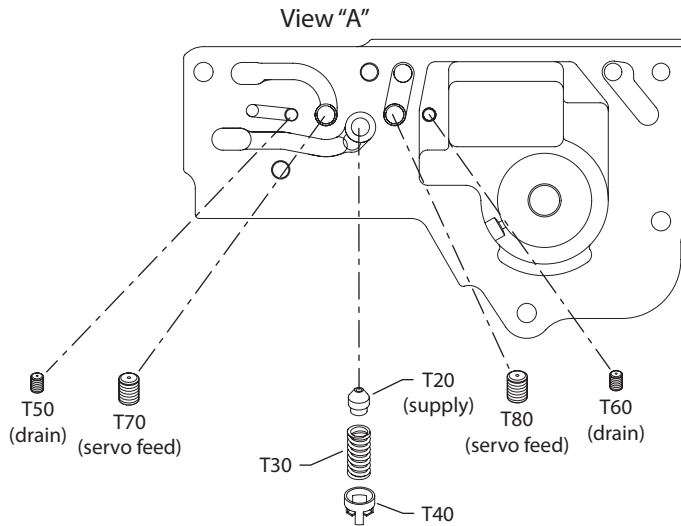
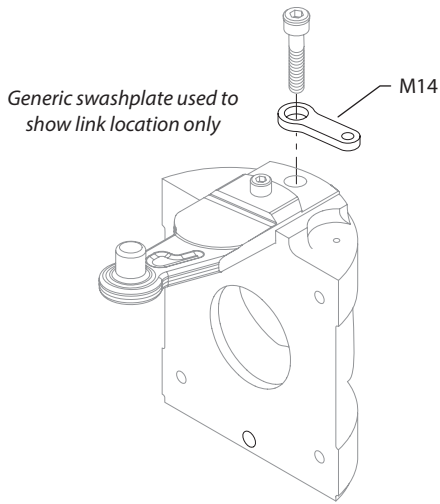
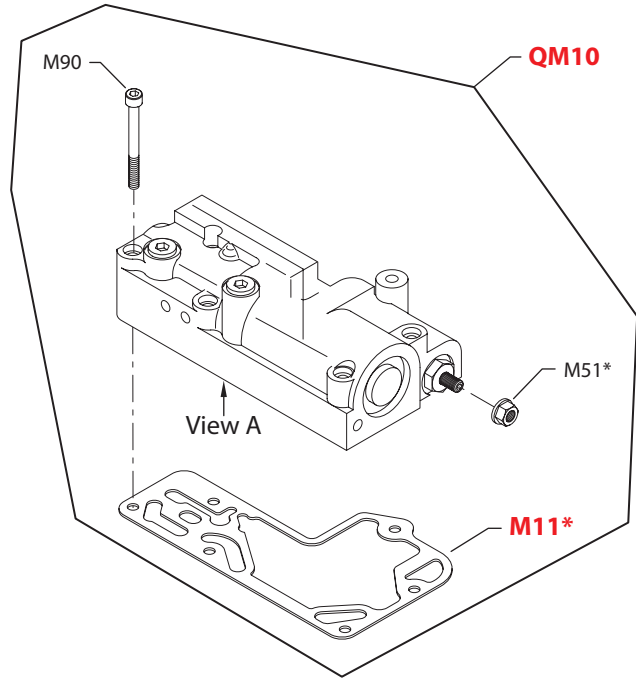
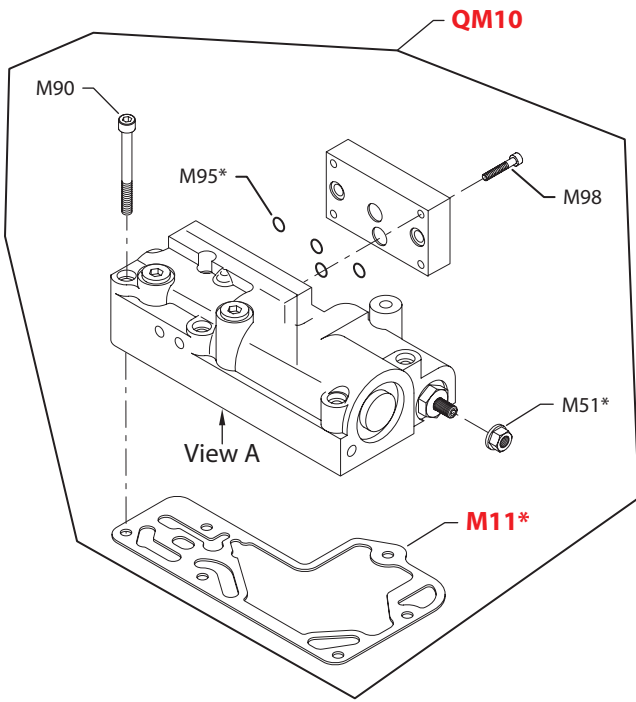
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
HF	M11	92-15		8801241	Control gasket (SB-1999-065)	1
	M14	96-40		11070305	Feedback link (SB-1999-019 & SB-2013-011)	1
	M14	92-15	96-39	8000481	Feedback link (SB-1996-009)	1
	M51	92-15		505412 (9003509-0008)	Seal nut	1
	M90	92-15		692889 (9007314-0611)	Screw	6
	QM10	92-15		8102M0HF-A	HDC kit, 3-11 bar	1
	QM210	92-15		11096266	Control seal kit	1
	HK	M11	92-15		8801241	Control gasket (SB-1999-065)
M14		96-40		11070305	Feedback link (SB-1999-019 & SB-2013-011)	1
M14		92-15	96-39	8000481	Feedback link (SB-1996-009)	1
M51		92-15		505412 (9003509-0008)	Seal nut	1
M90		92-15		692889 (9007314-0611)	Screw	6
QM10		92-15		8102M0HK-A	HDC kit, 1-11 bar	1
QM210		92-15		11096266	Control seal kit	1
HM		M11	92-15		8801241	Control gasket (SB-1999-065)
	M14	96-40		11070305	Feedback link (SB-1999-019 & SB-2013-011)	1
	M14	92-15	96-39	8000481	Feedback link (SB-1996-009)	1
	M51	92-15		505412 (9003509-0008)	Seal nut	1
	M90	92-15		692889 (9007314-0611)	Screw	6
	QM10	92-15		8102M0HM-A	HDC kit, 1.1 -6.7 bar	1
	QM210	92-15		11096266	Control seal kit	1
	HS	M11	94-19		8801241	Control gasket (SB-1999-065)
M14		96-40		11070305	Feedback link (SB-1999-019 & SB-2013-011)	1
M14		94-19	96-39	8000481	Feedback link (SB-1996-009)	1
M51		92-15		505412 (9003509-0008)	Seal nut	1
M90		92-15		692889 (9007314-0611)	Screw	6
QM10		92-15		8102M0HS-A	HDC kit, 6-18 bar	1
QM210		92-15		11096266	Control seal kit	1



Variable displacement pump

(HU)

(HX, HY & JC)



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

E103 076E

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


Variable displacement pump
Control

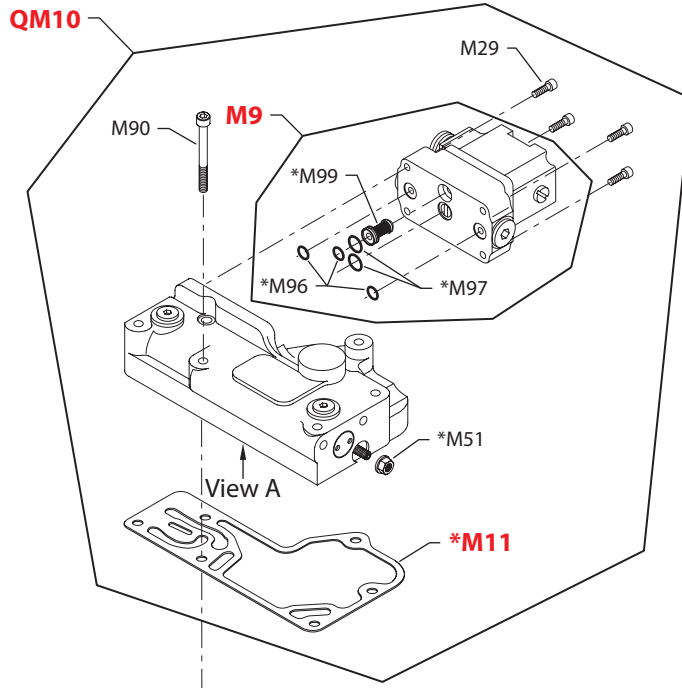
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
HU	M11	96-06	14-17	8801241	Control gasket (SB-1999-065)	1
	M14	96-40	14-17	11070305	Feedback link (SB-1999-019 & SB-2013-011)	1
	M14	96-06	96-39	8000481	Feedback link (SB-1996-009)	1
	M51	96-06	14-17	505412 (9003509-0008)	Seal nut	1
	M90	96-06	14-17	692889 (9007314-0611)	Screw	6
	M95	96-06	14-17	611517 (9004100-0120)	O-ring	4
	M98	96-06	14-17	K14798	Screw	4
	QM10	96-06	14-17	8510276	HDC kit, 3-11 bar	1
	QM210	96-06	14-17	11096276	Control seal kit	1
HX	M11	00-19		8801241	Control gasket	1
	M14	00-19		11070305	Feedback link (SB-2013-011)	1
	M51	00-19		505412 (9003509-0008)	Seal nut	1
	M90	00-19		692889 (9007314-0611)	Screw	6
	QM10	00-19		11015102	HDC kit, 3-11 bar	1
	QM210	00-19		11096266	Control seal kit	1
HY	M11	98-11		8801241	Control gasket (SB-1999-065)	1
	M14	98-11		11070305	Feedback link	1
	M51	98-11		505412 (9003509-0008)	Seal nut	1
	M90	98-11		692889 (9007314-0611)	Screw	6
	QM10	98-11		8510280	HDC kit, 4-14 bar	1
	QM210	98-11		11096266	Control seal kit	1
JC	M11	03-06		8801241	Control gasket	1
	M14	03-06		11070305	Feedback link	1
	M51	03-06		505412 (9003509-0008)	Seal nut	1
	M90	03-06		692889 (9007314-0611)	Screw	6
	QM10	03-06		8510312	HDC kit, 6-18 bar, steel barrel	1
	QM210	03-06		11096266	Control seal kit	1



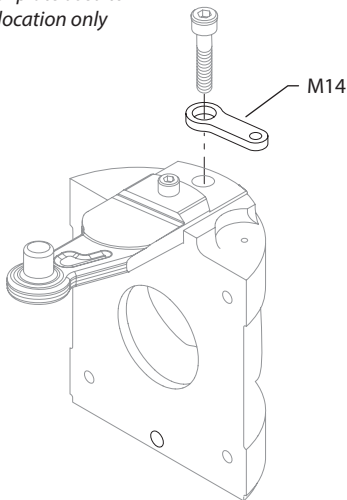
Variable displacement pump

(K0, K2, K7 & KA)

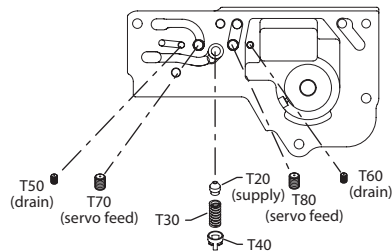
A generic PCP is shown.



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 807E

* = included in control seal kit QM210

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


Variable displacement pump
Control

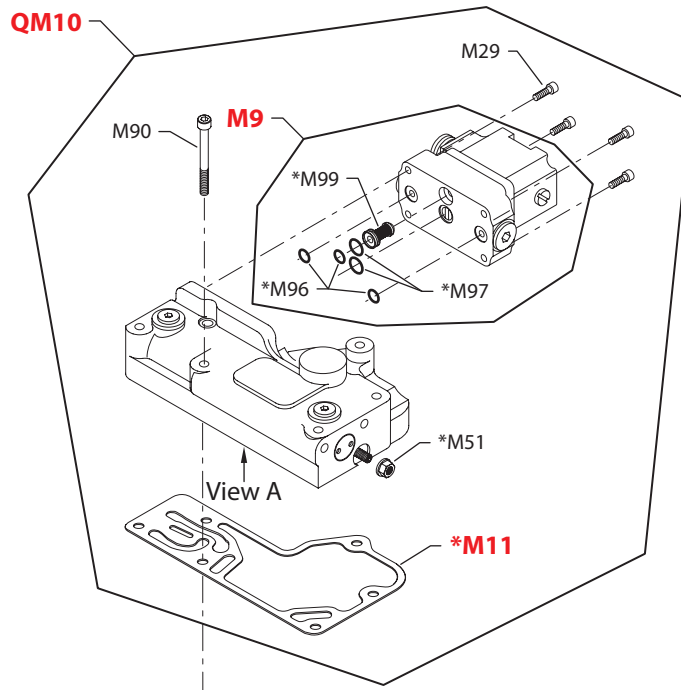
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
K0	M9	02-49		MCV116G4217	PCP, Packard connector, dual coil	1
	M11	02-49		8800923	Control gasket	1
	M14	02-49		11070305	Feedback link	1
	M29	02-49		K07067	Screw	4
	M51	02-49		505412 (9003509-0008)	Seal nut	1
	M90	02-49		692889 (9007314-0611)	Screw	6
	M96	02-49		011296 (9004105-0120)	O-ring	3
	M97	02-49		9004105-0130	O-ring	2
	M99	02-49		K08572	Filter assembly	1
	QM10	02-49		11015103	EDC3 kit, Packard connector, dual coil	1
	QM210	02-49		11095724	Control seal kit	1
	K2	M9	09-22		MCV116G4214	PCP, Deutsch connector, dual coil
M11		09-22		8800923	Control gasket	1
M14		09-22		11070305	Feedback link (SB-2013-011)	1
M29		09-22		K07067	Screw	4
M51		09-22		505412 (9003509-0008)	Seal nut	1
M90		09-22		692889 (9007314-0611)	Screw	6
M96		09-22		011296 (9004105-0120)	O-ring	3
M97		09-22		9004105-0130	O-ring	2
M99		09-22		K08572	Filter assembly	1
QM10		09-22		11066897	EDC3 kit, Deutsch connector, dual coil	1
QM210		09-22		11095724	Control seal kit	1
K7		M9	14-12		11101116	PCP, MS connector
	M11	14-12		8800923	Control gasket	1
	M14	14-12		11070305	Feedback link	1
	M29	14-12		K07067	Screw	4
	M51	14-12		505412 (9003509-0008)	Seal nut	1
	M90	14-12		692889 (9007314-0611)	Screw	6
	M96	14-12		011296 (9004105-0120)	O-ring	3
	M97	14-12		9004105-0130	O-ring	2
	M99	14-12		K08572	Filter assembly	1
	QM10	14-12		11139993	EDC3 kit, MS connector	1
	QM210	14-12		11095724	Control seal kit	1
	KA	M9	95-26		MCV116G4201	PCP, MS connector, dual coil
M11		95-26		8800923	Control gasket	1
M14		96-40		11070305	Feedback link (SB-1999-019 & SB-2013-011)	1
M14		95-26	96-39	8000481	Feedback link (SB-1996-009)	1
M29		95-26		K07067	Screw	4
M51		95-26		505412 (9003509-0008)	Seal nut	1
M90		95-26		692889 (9007314-0611)	Screw	6
M96		95-26		011296 (9004105-0120)	O-ring	3
M97		95-26		9004105-0130	O-ring	2
M99		95-26		K08572	Filter assembly	1
QM10		95-26		8510115	EDC3 kit, MS connector, dual coil	1
QM210		95-26		11095724	Control seal kit	1



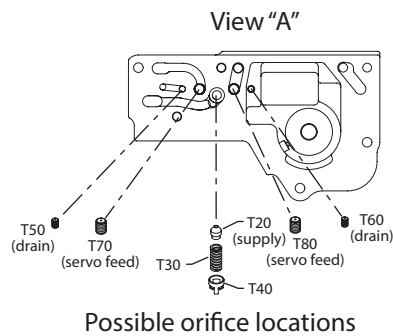
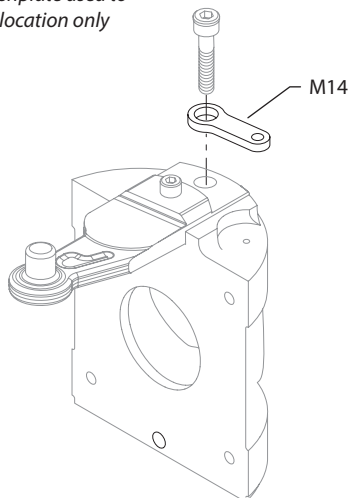
Variable displacement pump

(KC, KD, KE & KH)

A generic PCP is shown.



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 807E

* = included in control seal kit QM210

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


Variable displacement pump
Control

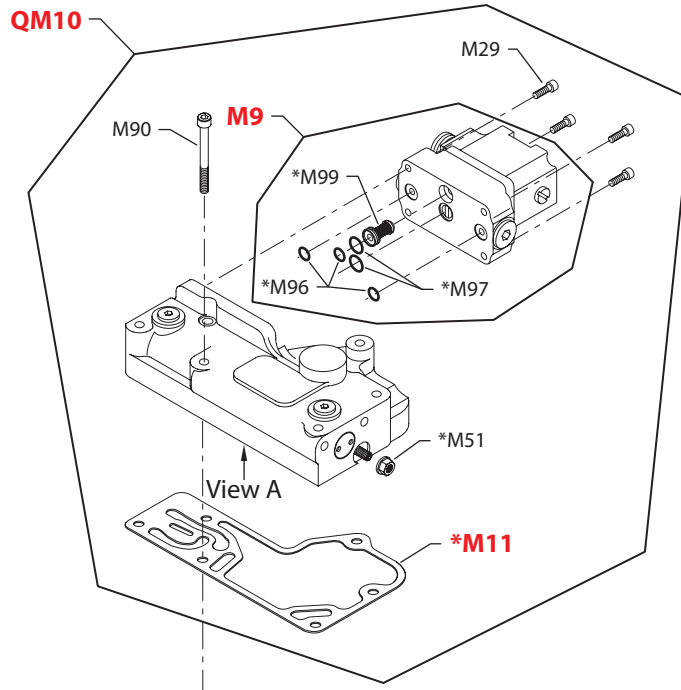
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
KB	M9	15-25		11164284	PCP, cold oil special	1
	M11	15-25		8800923	Control gasket	1
	M14	15-25		11070305	Feedback link (SB-1999-019 & SB-2013-011)	1
	M29	15-25		K07067	Screw	4
	M51	15-25		505412 (9003509-0008)	Seal nut	1
	M90	15-25		692889 (9007314-0611)	Screw	6
	M96	15-25		011296 (9004105-0120)	O-ring	3
	M97	15-25		9004105-0130	O-ring	1
	M99	15-25		K08572	Filter assembly	1
	QM10	15-25		11166988	EDC3 kit, cold oil special	1
	QM210	15-25		11095724	Control seal kit	1
KC	M9	02-22	14-39	MCV116C1401	PCP, MS connector	1
	M11	02-22	14-39	8800923	Control gasket	1
	M14	02-22	14-39	11070305	Feedback link (SB-2013-011)	1
	M29	02-22	14-39	K07067	Screw	4
	M51	02-22	14-39	505412 (9003509-0008)	Seal nut	1
	M90	02-22	14-39	692889 (9007314-0611)	Screw	6
	M96	02-22	14-39	011296 (9004105-0120)	O-ring	3
	M97	02-22	14-39	9004105-0130	O-ring	2
	M99	02-22	14-39	K08572	Filter assembly	1
	QM10	02-22	14-39	11013634	EDC kit, MS connector, dual coil	1
	QM210	02-22	14-39	11095724	Control seal kit	1
KD	M9	97-49		MCV116F3113	PCP, Metripack	1
	M11	97-49		8800923	Control gasket	1
	M14	97-49		11070305	Feedback link (SB-1999-019 & SB-2013-011)	1
	M29	97-49		K07067	Screw	4
	M51	97-49		505412 (9003509-0008)	Seal nut	1
	M90	97-49		692889 (9007314-0611)	Screw	6
	M96	97-49		011296 (9004105-0120)	O-ring	3
	M97	97-49		9004105-0130	O-ring	1
	M99	02-22		K08572	Filter assembly	1
	QM10	97-49		8510246	EDC3 kit, Metripack	1
	QM210	97-49		11095724	Control seal kit	1
KE	M9	97-49		MCV116F3118	PCP, Deutsch connector	1
	M11	97-49		8800923	Control gasket	1
	M14	97-49		11070305	Feedback link (SB-1999-019 & SB-2013-011)	1
	M29	97-49		K07067	Screw	4
	M51	97-49		505412 (9003509-0008)	Seal nut	1
	M90	97-49		692889 (9007314-0611)	Screw	6
	M96	97-49		011296 (9004105-0120)	O-ring	3
	M97	97-49		9004105-0130	O-ring	1
	M99	02-22		K08572	Filter assembly	1
	QM10	97-49		8510322	EDC3 kit, Deutsch connector	1
	QM210	97-49		11095724	Control seal kit	1



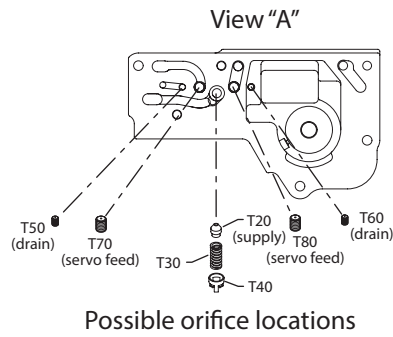
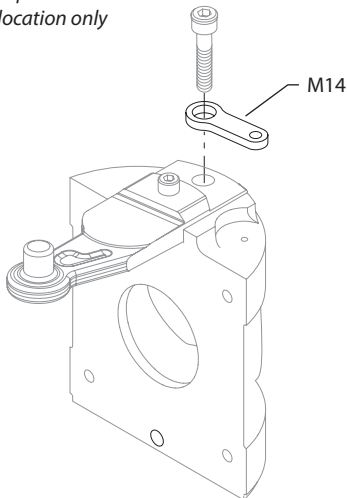
Variable displacement pump

(KK, KN, KP & KT)

A generic PCP is shown.



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 807E

* = included in control seal kit QM210

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


Variable displacement pump
Control

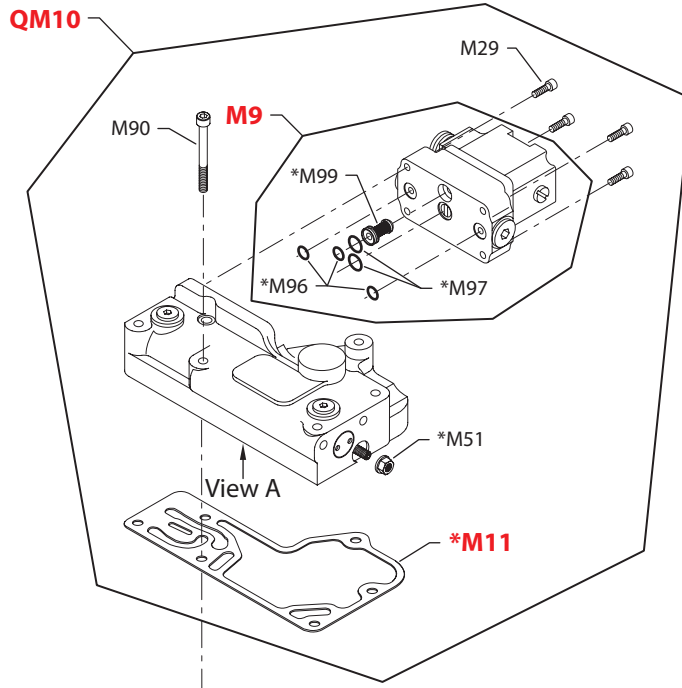
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
KH	M9	00-06		MCV116G4211	PCP, cold oil special	1
	M11	00-06		8800923	Control gasket	1
	M14	00-06		11070305	Feedback link	1
	M29	00-06		K07067	Screw	4
	M51	00-06		505412 (9003509-0008)	Seal nut	1
	M90	00-06		692889 (9007314-0611)	Screw	6
	M96	00-06		011296 (9004105-0120)	O-ring	3
	M97	00-06		9004105-0130	O-ring	1
	M99	00-06		K08572	Filter assembly	1
	QM10	00-06		11015105	EDC3 kit, cold oil special	1
	QM210	00-06		11095724	Control seal kit	1
KK	M9	00-06		MCV116G4211	PCP, cold oil special	1
	M11	00-06		8800923	Control gasket	1
	M14	00-06		11070305	Feedback link (SB-2013-011)	1
	M29	00-06		K07067	Screw	4
	M51	00-06		505412 (9003509-0008)	Seal nut	1
	M90	00-06		692889 (9007314-0611)	Screw	6
	M96	00-06		011296 (9004105-0120)	O-ring	3
	M97	00-06		9004105-0130	O-ring	2
	M99	00-06		K08572	Filter assembly	1
	QM10	00-06		11013632	EDC3 kit, cold oil special	1
	QM210	00-06		11095724	Control seal kit	1
KN	M9	95-51		MCV116A3501	PCP, MS connector, single coil	1
	M11	95-51		8800923	Control gasket	1
	M14	96-40		11070305	Feedback link (SB-1999-019 & SB-2013-011)	1
	M14	95-51	96-39	8000481	Feedback link (SB-1996-009)	1
	M29	95-51		K07067	Screw	4
	M51	95-51		505412 (9003509-0008)	Seal nut	1
	M90	95-51		692889 (9007314-0611)	Screw	6
	M96	95-51		011296 (9004105-0120)	O-ring	3
	M97	95-51		9004105-0130	O-ring	2
	M99	95-51		K08572	Filter assembly	1
	QM10	95-51		11013622	EDC3 kit, MS connector, single coil	1
QM210	95-51		11095724	Control seal kit	1	
KP	M9	95-26		MCV116G4204	PCP, Weather-pack connector, dual coil	1
	M11	95-26		8800923	Control gasket	1
	M14	96-40		11070305	Feedback link (SB-1999-019 & SB-2013-011)	1
	M14	95-26	96-39	8000481	Feedback link (SB-1996-009)	1
	M29	95-26		K07067	Screw	4
	M51	95-26		505412 (9003509-0008)	Seal nut	1
	M90	95-26		692889 (9007314-0611)	Screw	6
	M96	95-26		011296 (9004105-0120)	O-ring	3
	M97	95-26		9004105-0130	O-ring	2
	M99	95-26		K08572	Filter assembly	1
	QM10	95-26		8510116	EDC3 kit, Weather-pack connector, dual coil	1
QM210	95-26		11095724	Control seal kit	1	



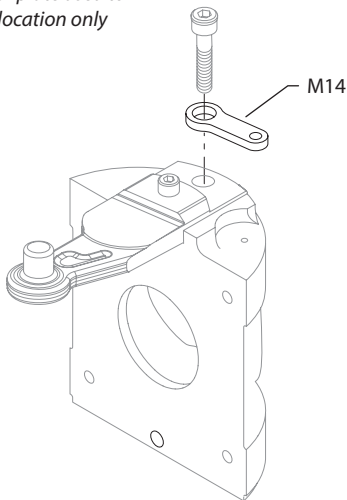
Variable displacement pump

(KT)

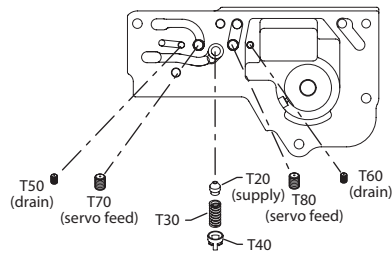
A generic PCP is shown.



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 807E

* = included in control seal kit QM210

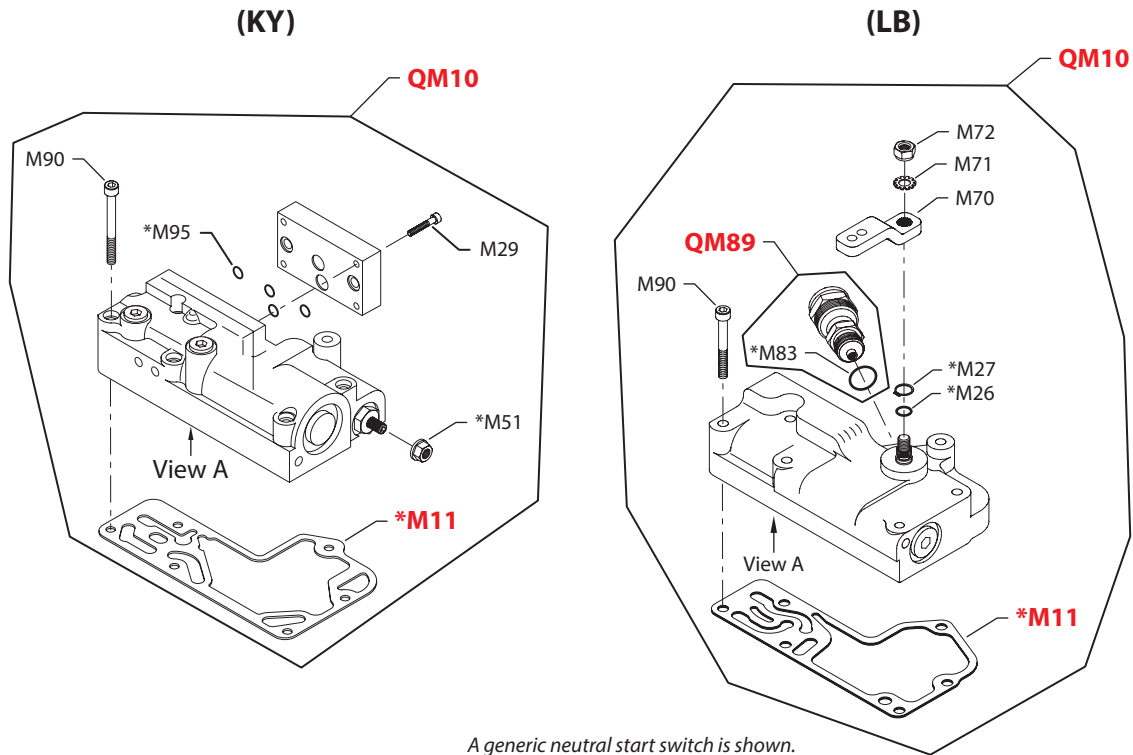
Enlarged **bold** type item numbers are recommended parts to be stocked for servicing


Variable displacement pump
Control

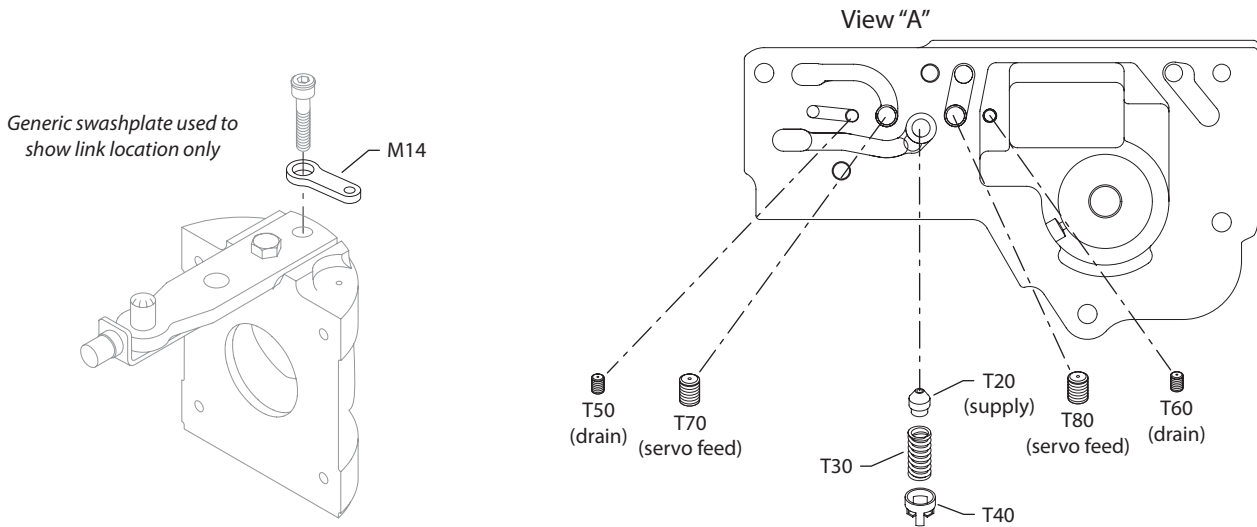
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
KT	M9	99-49		MCV116G4214	PCP, Duetsch connector	1
	M11	99-49		8800923	Control gasket	1
	M14	99-49		11070305	Feedback link	1
	M29	99-49		K07067	Screw	4
	M51	99-49		505412 (9003509-0008)	Seal nut	1
	M90	99-49		692889 (9007314-0611)	Screw	6
	M96	99-49		011296 (9004105-0120)	O-ring	3
	M97	99-49		9004105-0130	O-ring	2
	M99	99-49		K08572	Filter assembly	1
	QM10	99-49		8510298	EDC3 kit, Deutsch connector	1
	QM210	99-49		11095724	Control seal kit	1



Variable displacement pump



A generic neutral start switch is shown.



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 808E

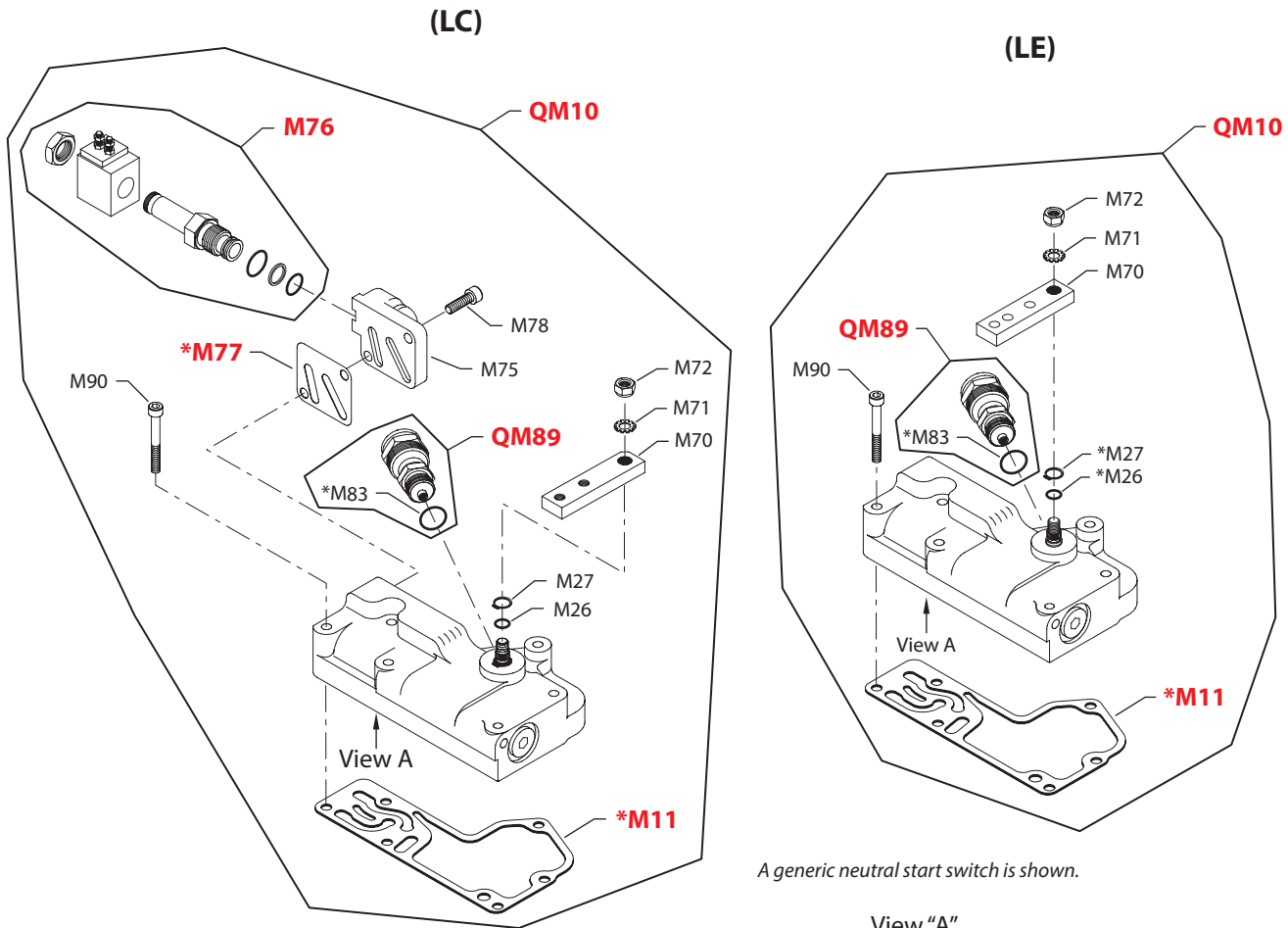
Enlarged **bold** type item numbers are recommended parts to be stocked for servicing


Variable displacement pump
Control

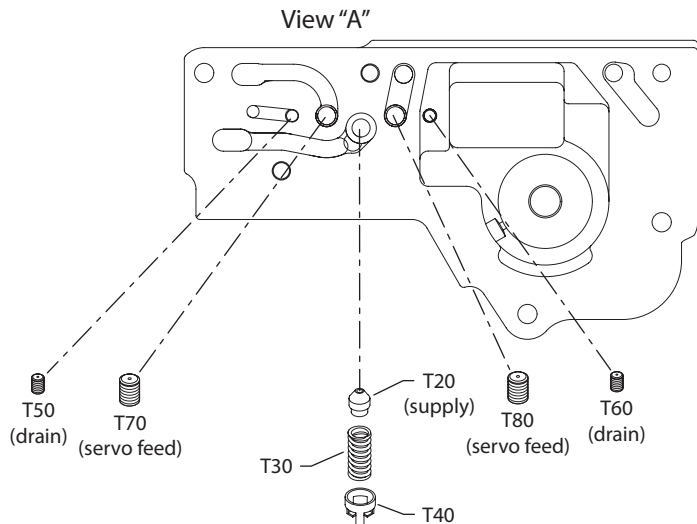
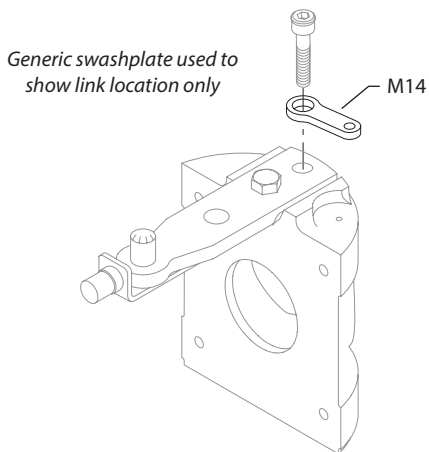
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
KY	M11	02-22		8800923	Control gasket	1
	M14	02-22		11070305	Feedback link	1
	M29	02-22		K07067	Screw	4
	M51	02-22		505412 (9003509-0008)	Seal nut	1
	M90	02-22		692889 (9007314-0611)	Screw	6
	M95	02-22		611517 (9004100-0120)	O-ring	4
	QM10	02-22		11015106	EDC3 w/HDC plate kit	1
	QM210	02-22		11096195	Control seal kit	1
	LB	M11	96-40		8800923	Control gasket
M14		96-40		11070305	Feedback link (SB-1996-009 & SB-1999-019)	1
M26		96-40		144725 (9004105-0110)	O-ring	1
M27		96-40		042557 (9006300-0044)	Retaining ring	1
M70		96-40		8801007	Control handle	1
M71		96-40		689018 (9009660-3100)	Toothlock washer	1
M72		96-40		040642 (9003513-0800)	Nut	1
M83		96-40		001131 (9004201-5000)	O-ring	1
M90		96-40		692889 (9007314-0611)	Screw	6
QM10		96-40		8510173	MDC kit, w/4 lbs neutral start switch	1
QM89		96-40		8510174	Neutral start switch kit, 4 lbs, Weather-pack	1
QM210		96-40		11096274	Control seal kit	1



Variable displacement pump



A generic neutral start switch is shown.



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

E103 077E

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

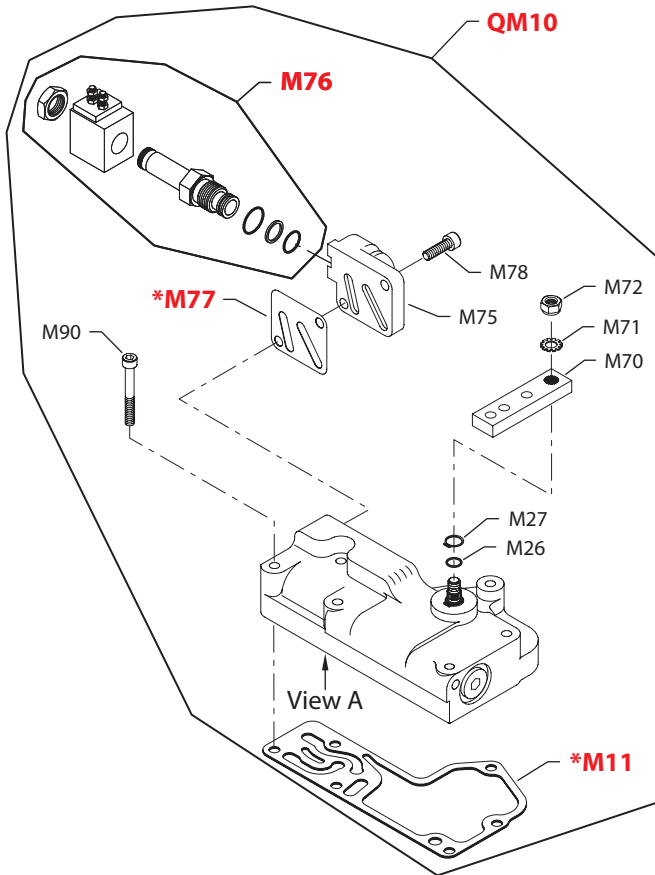

Variable displacement pump
Control

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
LC	M11	97-06		8800923	Control gasket	1
	M14	97-06		11070305	Feedback link (SB-1999-019 & SB-2013-011)	1
	M26	97-06		144725 (9004105-0110)	O-ring	1
	M27	97-06		042557 (9006300-0044)	Retaining ring	1
	M70	97-06		9802360	Control handle	1
	M71	97-06		689018 (9009660-3100)	Toothlock washer	1
	M72	97-06		040642 (9003513-0800)	Nut	1
	M75	97-06		505022	Control manifold	1
	M76	97-06		11127986	Solenoid valve, 12 volt, 2-pole	1
	M77	97-06		8800882	Manifold gasket	1
	M78	97-06		693341 (9007314-0606)	Screw	2
	M83	97-06		001131 (9004201-5000)	O-ring	1
	M90	97-06		692889 (9007314-0611)	Screw	6
	QM10	97-06		11015107	MDC kit, w/neutral start switch, 2 pole 12v solenoid	1
	QM89	97-06		8510027	Neutral start switch kit	1
	QM210	97-06		11100031	Control seal kit	1
LE	M11	01-07		8800923	Control gasket	1
	M14	01-07		11070305	Feedback link	1
	M26	01-07		144725 (9004105-0110)	O-ring	1
	M27	01-07		042557 (9006300-0044)	Retaining ring	1
	M70	01-07		9800916	Control handle	1
	M71	01-07		689018 (9009660-3100)	Toothlock washer	1
	M72	01-07		040642 (9003513-0800)	Nut	1
	M83	01-07		001131 (9004201-5000)	O-ring	1
	M90	01-07		692889 (9007314-0611)	Screw	6
	QM10	01-07		8510291	MDC kit, high force neutral start switch	1
	QM89	01-07		8510316	Neutral start switch kit, high force	1
	QM210	01-07		11096274	Control seal kit	1

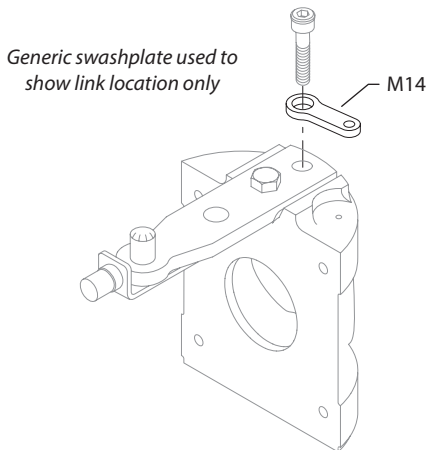
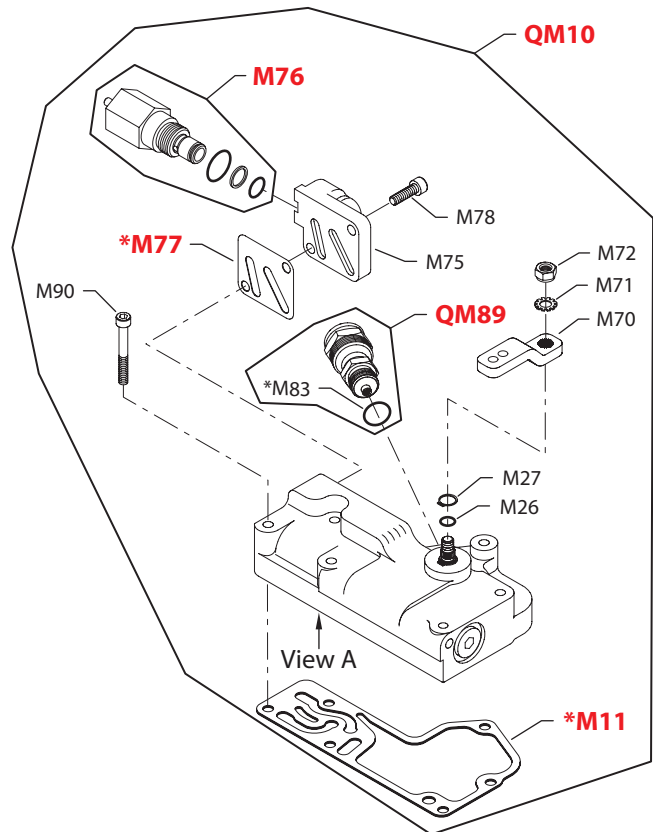


Variable displacement pump

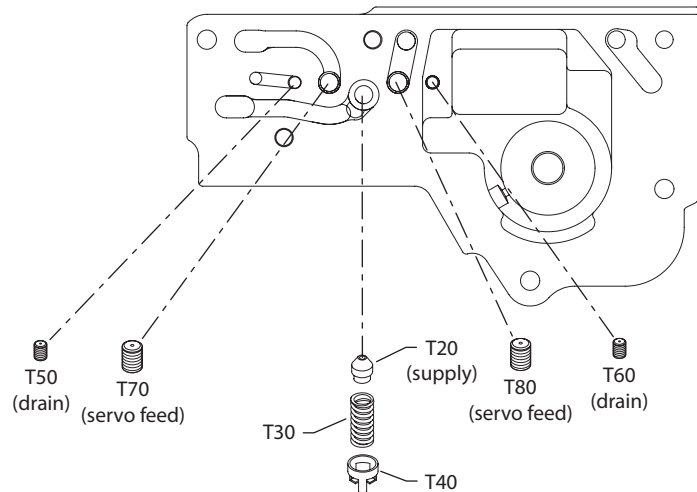
(LG)



(LK)



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.

* = included in control seal kit QM210

E100 809E

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


Variable displacement pump
Control

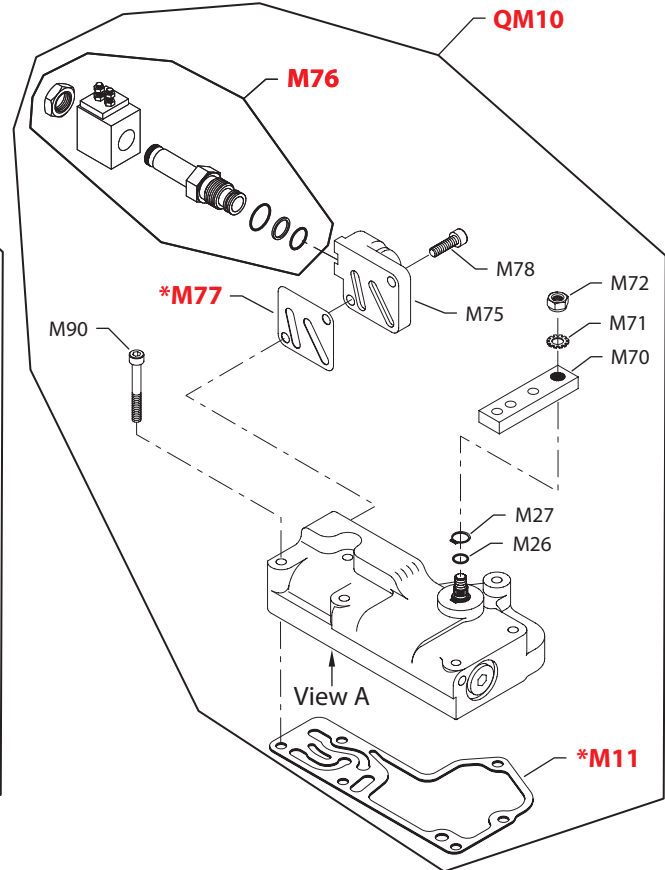
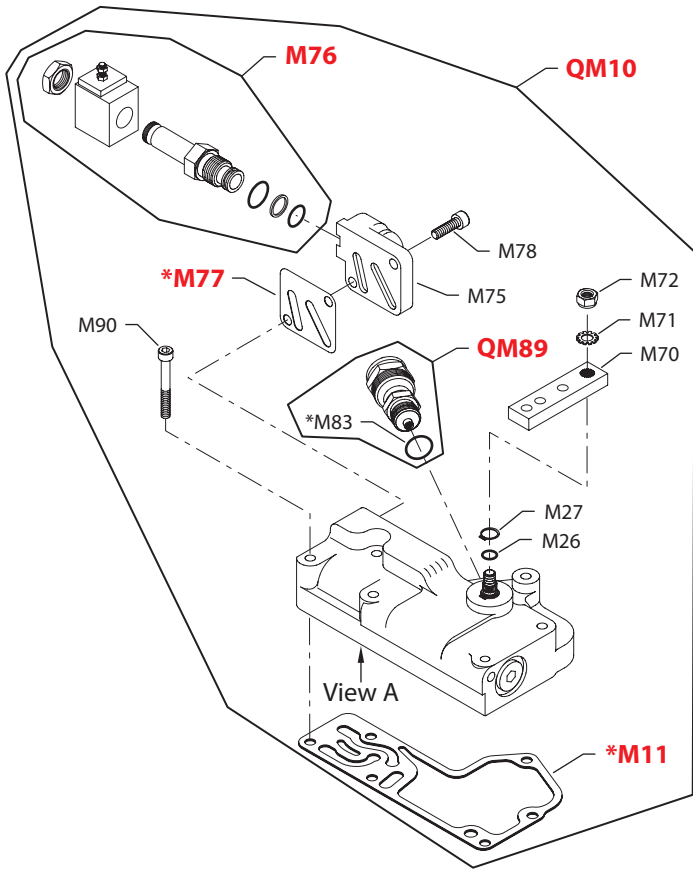
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
LG	M11	01-01		8800923	Control gasket	1
	M14	01-01		11070305	Feedback link	1
	M26	01-01		144725 (9004105-0110)	O-ring	1
	M27	01-01		042557 (9006300-0044)	Retaining ring	1
	M70	01-01		9800916	Control handle	1
	M71	01-01		689018 (9009660-3100)	Toothlock washer	1
	M72	01-01		040642 (9003513-0800)	Nut	1
	M75	01-01		505022	Control manifold	1
	M76	01-01		11127986	Solenoid valve, 12 volt, 2-pole	1
	M77	01-01		8800882	Manifold gasket	1
	M78	01-01		693341 (9007314-0606)	Screw	2
	M90	01-01		692889 (9007314-0611)	Screw	6
	QM10	01-01		11015108	MDC kit, w/2-pole 12v solenoid	1
	QM210	01-01		11100031	Control seal kit	1
LK	M11	99-49	14-16	8800923	Control gasket	1
	M14	99-49	14-16	11070305	Feedback link	1
	M26	99-49	14-16	144725 (9004105-0110)	O-ring	1
	M27	99-49	14-16	042557 (9006300-0044)	Retaining ring	1
	M70	99-49	14-16	8801007	Control handle	1
	M71	99-49	14-16	689018 (9009660-3100)	Toothlock washer	1
	M72	99-49	14-16	040642 (9003513-0800)	Nut	1
	M75	99-49	14-16	8800920	Control manifold	1
	M76	99-49	14-16	8800921	Mechanical shunt valve	1
	M77	99-49	14-16	8800882	Manifold gasket	1
	M78	99-49	14-16	693341 (9007314-0606)	Screw	2
	M83	99-49	14-16	001131 (9004201-5000)	O-ring	1
	M90	99-49	14-16	692889 (9007314-0611)	Screw	6
	QM10	99-49	14-16	11015109	MDC kit, neutral start switch, shunt valve	1
	QM89	99-49	14-16	8510174	Neutral start switch kit, high force, Weather-pack	1
	QM210	99-49	14-16	11100031	Control seal kit	1



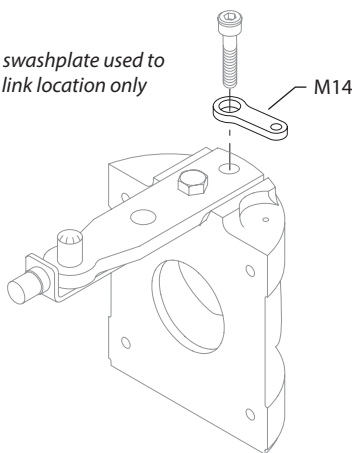
Variable displacement pump

(LL)

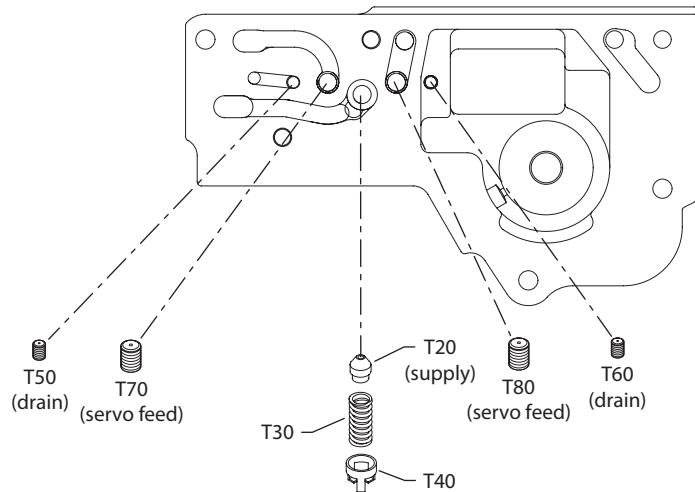
(LN)



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.

* = included in control seal kit QM210

E100 720E

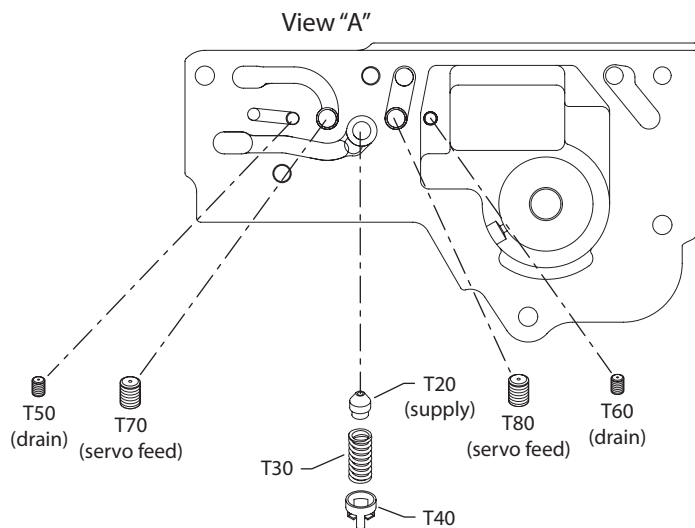
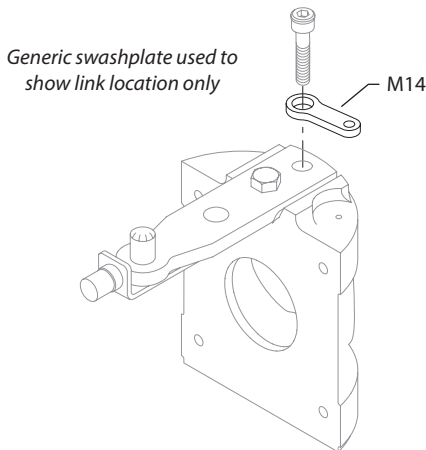
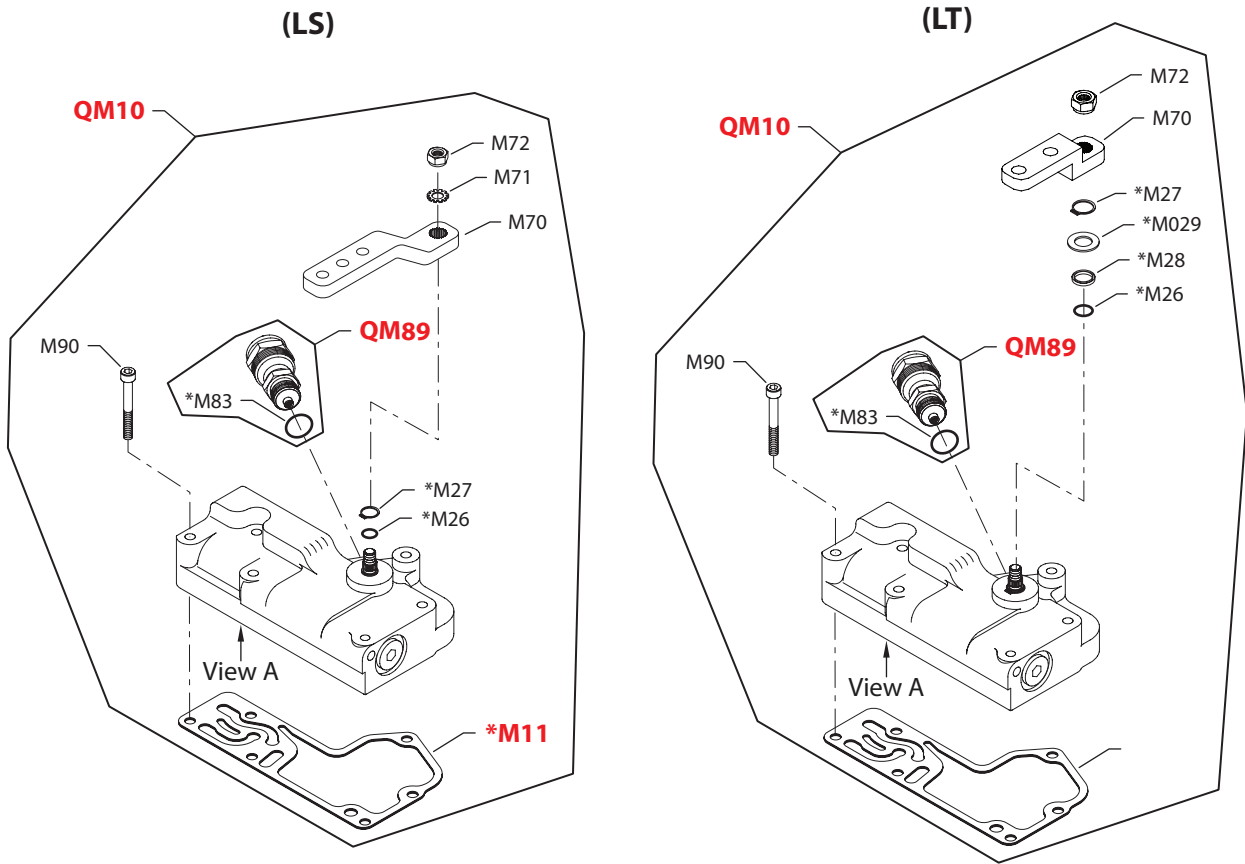
Enlarged **bold** type item numbers are recommended parts to be stocked for servicing


Variable displacement pump
Control

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
LL	M11	02-16		8800923	Control gasket	1
	M14	02-16		11070305	Feedback link	1
	M26	02-16		144725 (9004105-0110)	O-ring	1
	M27	02-16		042557 (9006300-0044)	Retaining ring	1
	M70	02-16		9800916	Control handle	1
	M71	02-16		689018 (9009660-3100)	Toothlock washer	1
	M72	02-16		040642 (9003513-0800)	Nut	1
	M75	02-16		505022	Control manifold	1
	M76	02-16		11127988	Solenoid valve, 12v, single pole	1
	M77	02-16		8800882	Manifold gasket	1
	M78	02-16		693341 (9007314-0606)	Screw	2
	M83	02-16		001131 (9004201-5000)	O-ring	1
	M90	02-16		692889 (9007314-0611)	Screw	6
	QM10	02-16		8510393	MDC kit, w/single pole 12v solenoid	1
	QM89	02-16		8510316	Neutral start switch kit, high force, Weather-pack	1
	QM210	02-16		11100031	Control seal kit	1
	LN	M11	04-33		8800923	Control gasket
M14		04-33		11070305	Feedback link	1
M26		04-33		144725 (9004105-0110)	O-ring	1
M27		04-33		042557 (9006300-0044)	Retaining ring	1
M70		04-33		9800916	Control handle	1
M71		04-33		689018 (9009660-3100)	Toothlock washer	1
M72		04-33		040642 (9003513-0800)	Nut	1
M75		04-33		505022	Control manifold	1
M76		04-33		11127986	Solenoid valve, 12 volt, 2-pole	1
M77		04-33		8800882	Manifold gasket	1
M78		04-33		693341 (9007314-0606)	Screw	2
M90		04-33		692889 (9007314-0611)	Screw	6
QM10		04-33		8100961	MDC kit, w/special orifice	1
QM210		04-33		11100031	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

Possible orifice locations

E103 078E

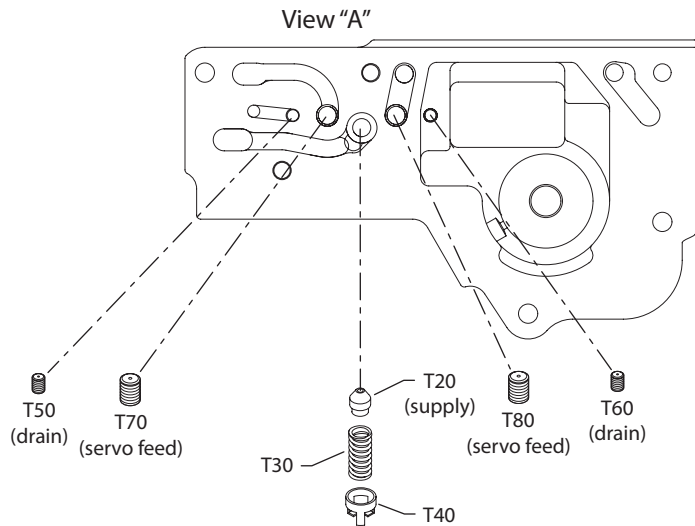
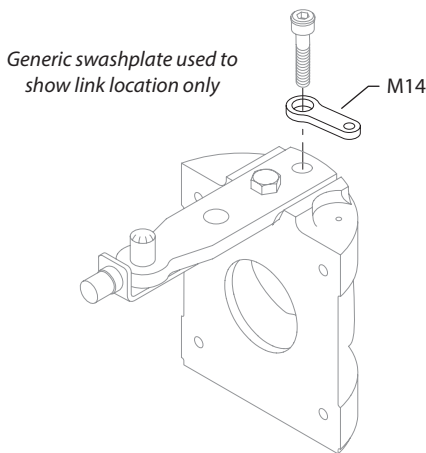
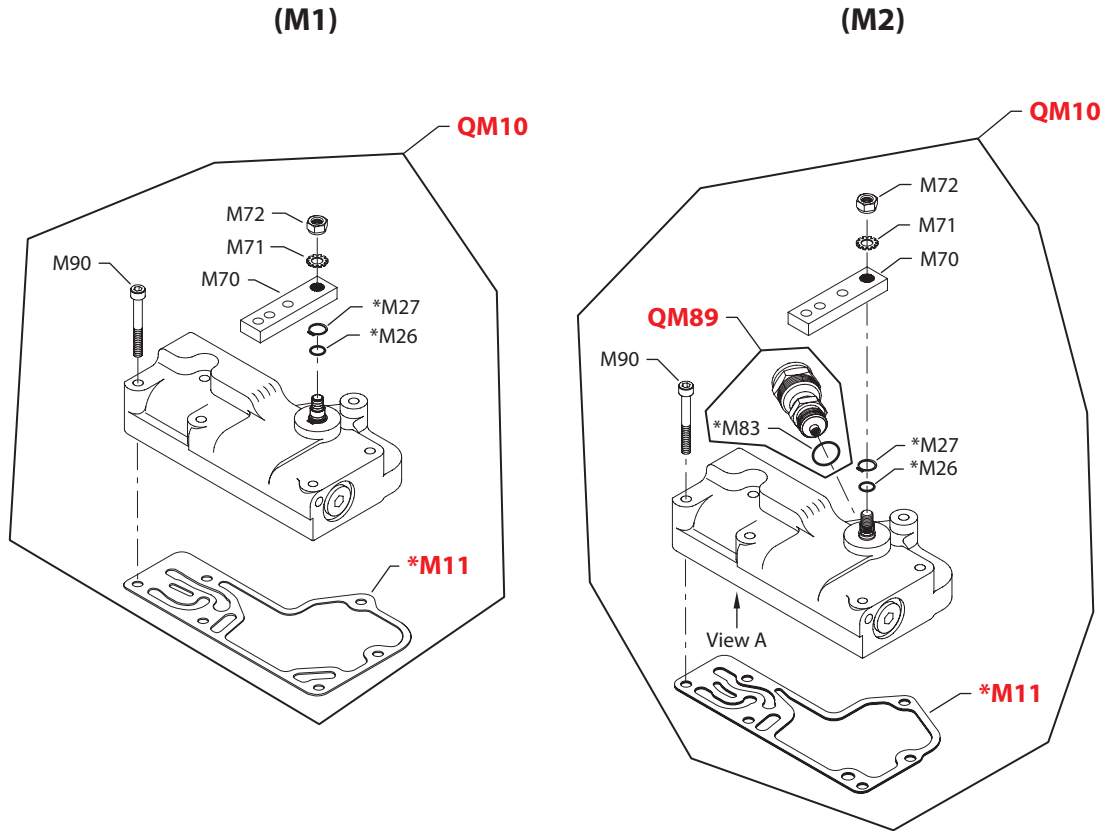
Enlarged **bold** type item numbers are recommended parts to be stocked for servicing


Variable displacement pump
Control

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
LS	M11	13-45		8800923	Control gasket	1
	M14	13-45		11070305	Feedback link	1
	M26	13-45		144725 (9004105-0110)	O-ring	1
	M27	13-45		042557 (9006300-0044)	Retaining ring	1
	M70	13-45		8801339	Control handle, offset	1
	M72	13-45		040642 (9003513-0800)	Nut	1
	M83	13-45		001131 (9004201-5000)	O-ring	1
	M90	13-45		692889 (9007314-0611)	Screw	6
	QM10	13-45		8510360	MDC kit, with high force neutral start switch	1
	QM89	13-45		8510316	Neutral start switch kit, high force, Weather-pack	1
	QM210	13-45		11096274	Control seal kit	1
	LT	M11	06-13		8800923	Control gasket
M14		06-13		11070305	Feedback link	1
M26		06-13		144725 (9004105-0110)	O-ring	1
M27		06-13		042507	Retaining ring	1
M28		06-13		510690	Lip seal	1
M70		06-13		769075	Control handle, offset	1
M72		06-13		040642 (9003513-0800)	Nut	1
M83		06-13		001131 (9004201-5000)	O-ring	1
M90		06-13		692889 (9007314-0611)	Screw	6
M029		06-13		512047	Washer	1
QM10		06-13		11098763	MDC kit, with high force neutral start switch	1
QM89		06-13		8510027	Neutral start switch kit, high force, Weather-pack	1
QM210		06-13		11109083	Control seal kit, with lip seal	1



Variable displacement pump



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 810E

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


Variable displacement pump
Control

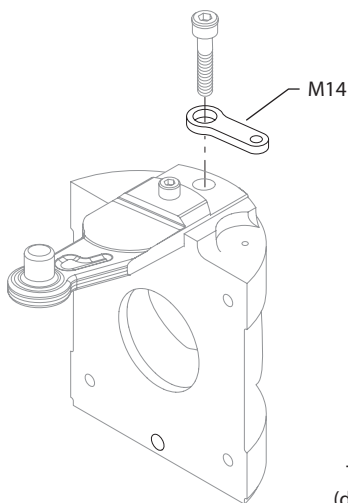
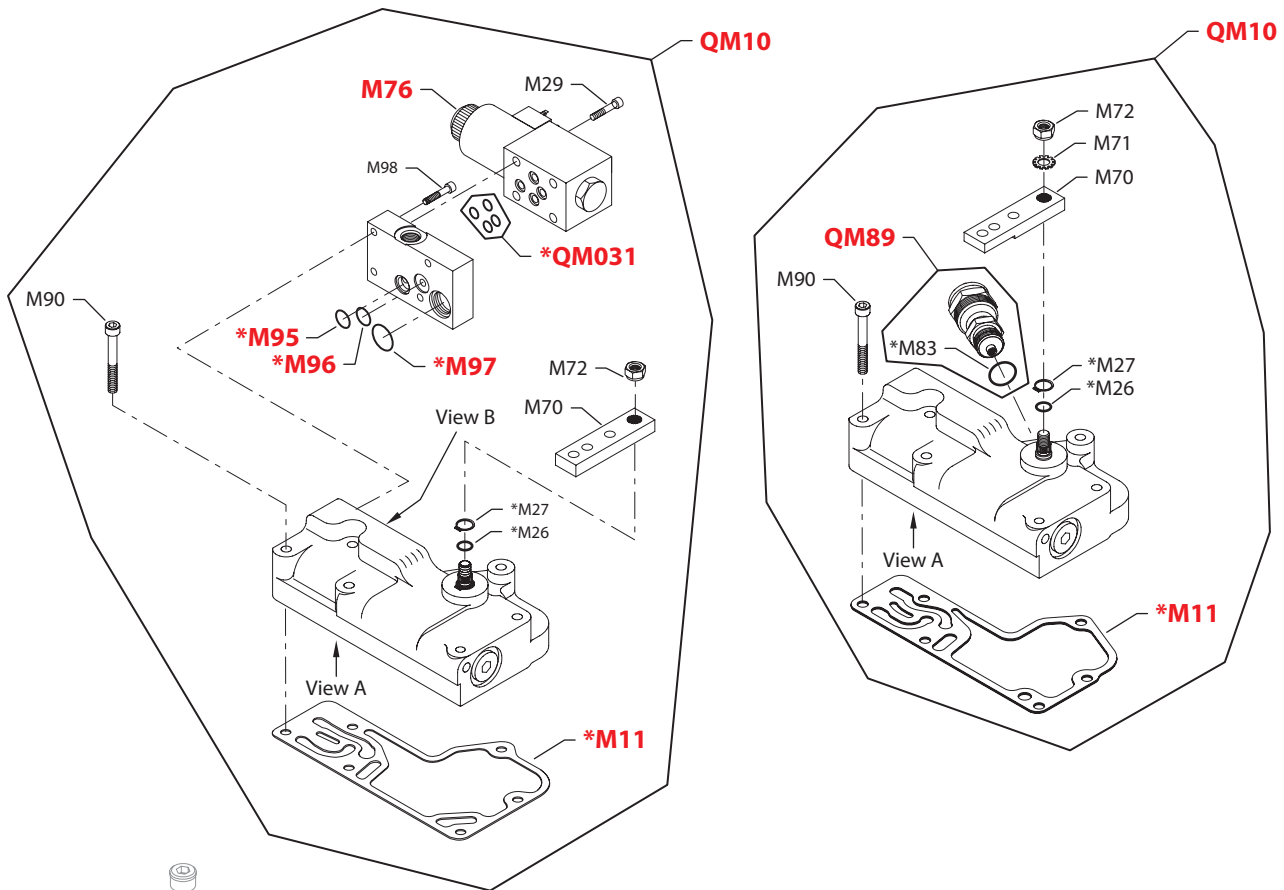
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit	
M1	M11	95-37		8800923	Control gasket	1	
	M14	96-40		11070305	Feedback link (SB-1999-019 & SB-2013-011)	1	
	M14	95-37	96-39	8000481	Feedback link (SB-1996-009)	1	
	M26	95-37		144725 (9004105-0110)	O-ring	1	
	M27	95-37		042557 (9006300-0044)	Retaining ring	1	
	M70	95-37		9800916	Control handle	1	
	M71	95-37		689018 (9009660-3100)	Toothlock washer	1	
	M72	95-37		040642 (9003513-0800)	Nut	1	
	M90	95-37		692889 (9007314-0611)	Screw	6	
	QM10	95-37		11014378	MDC kit, brass sleeve	1	
	QM210	95-37		11096274	Control seal kit	1	
	M2	M11	95-37		8800923	Control gasket	1
		M14	96-40		11070305	Feedback link (SB-1999-019 & SB-2013-011)	1
M14		95-37	96-39	8000481	Feedback link (SB-1996-009)	1	
M26		95-37		144725 (9004105-0110)	O-ring	1	
M27		95-37		042557 (9006300-0044)	Retaining ring	1	
M70		95-37		9800916	Control handle	1	
M71		95-37		689018 (9009660-3100)	Toothlock washer	1	
M72		95-37		040642 (9003513-0800)	Nut	1	
M83		95-37		001131 (9004201-5000)	O-ring	1	
M90		95-37		692889 (9007314-0611)	Screw	6	
QM10		95-37		8510112	MDC kit, with neutral start switch, brass sleeve	1	
QM89		95-37		709014 (80020S40)	Neutral start switch kit	1	
QM210		95-37		11096274	Control seal kit	1	



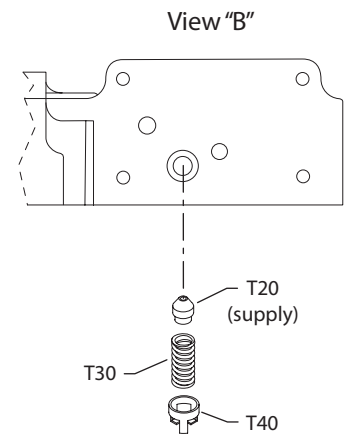
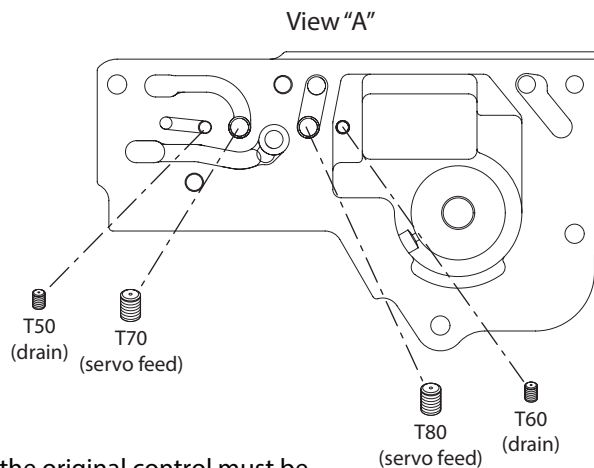
Variable displacement pump

(M3)

(M7)



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.

* = included in control seal kit QM210

E103 441E

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

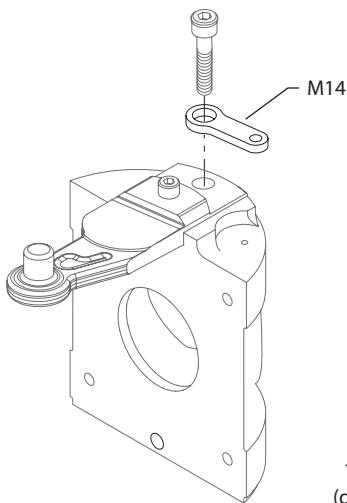
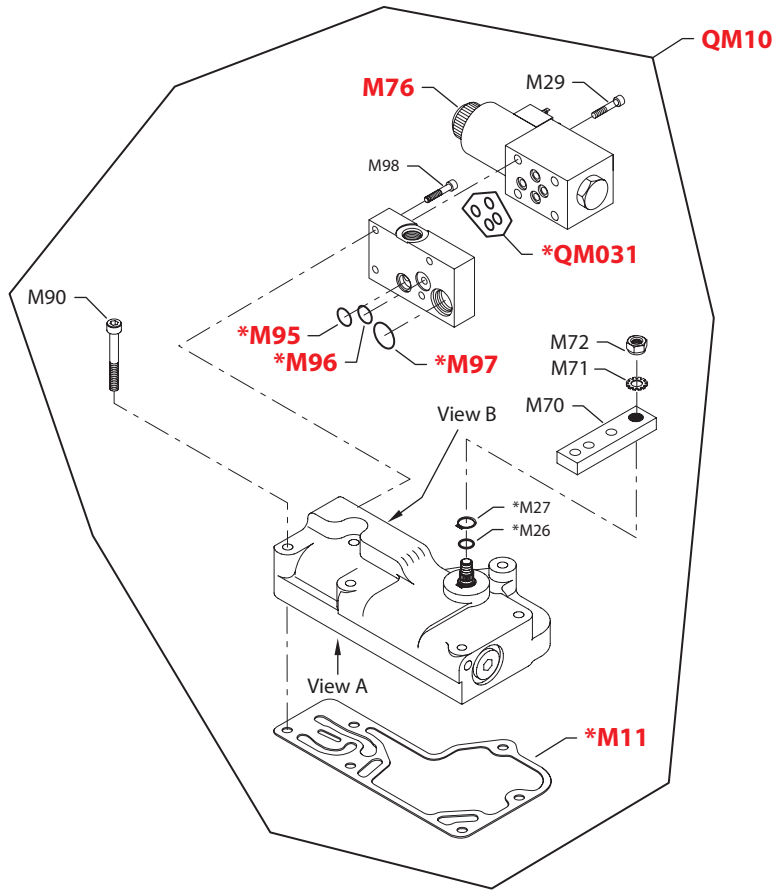

Variable displacement pump
Control

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M3	M11	14-18		8800923	Control gasket	1
	M14	14-18		11070305	Feedback link	1
	M26	14-18		144725 (9004105-0110)	O-ring	1
	M27	14-18		042557 (9006300-0044)	Retaining ring	1
	M29	14-18		035592	Screw, M5 x 45	4
	M70	14-18		9800916	Control handle	1
	M72	14-18		040642 (9003513-0800)	Nut	1
	M76	14-18		11146844	Solenoid valve, Deutsch connector	1
	M90	14-18		692889 (9007314-0611)	Screw	6
	M95	14-18		056713	O-ring	1
	M96	14-18		056713	O-ring	1
	M97	14-18		544742	O-ring	1
	M98	14-18		067686	Screw, M5 x 20	4
	QM10	14-18		11148988	MDC kit w/2-position solenoid, Deutsch connector	1
	QM031	14-18		11099647	Solenoid valve seal kit	1
	QM210	14-18		11099978	Control seal kit	1
M7	M11	15-43		8800923	Control gasket	1
	M14	15-43		11070305	Feedback link	1
	M26	15-43		144725 (9004105-0110)	O-ring	1
	M27	15-43		042557 (9006300-0044)	Retaining ring	1
	M70	15-43		8801260	Control handle	1
	M71	15-43		689018 (9009660-3100)	Toothlock washer	1
	M72	15-43		040642 (9003513-0800)	Nut	1
	M83	15-43		001131 (9004201-5000)	O-ring	1
	M90	15-43		692889 (9007314-0611)	Screw	6
	QM10	15-43		11099070	MDC kit, with neutral start switch, special handle	1
	QM89	15-43		8510170	Neutral start switch kit	1
	QM210	15-43		11096274	Control seal kit	1

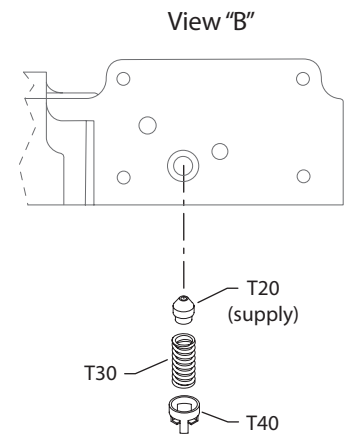
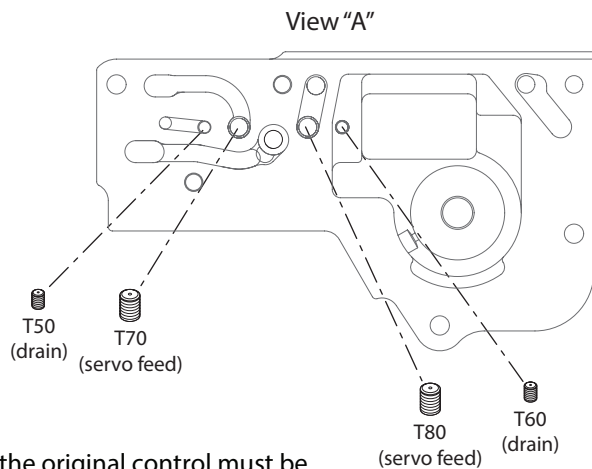


Variable displacement pump

(M8)



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.

* = included in control seal kit QM210

E103 080E

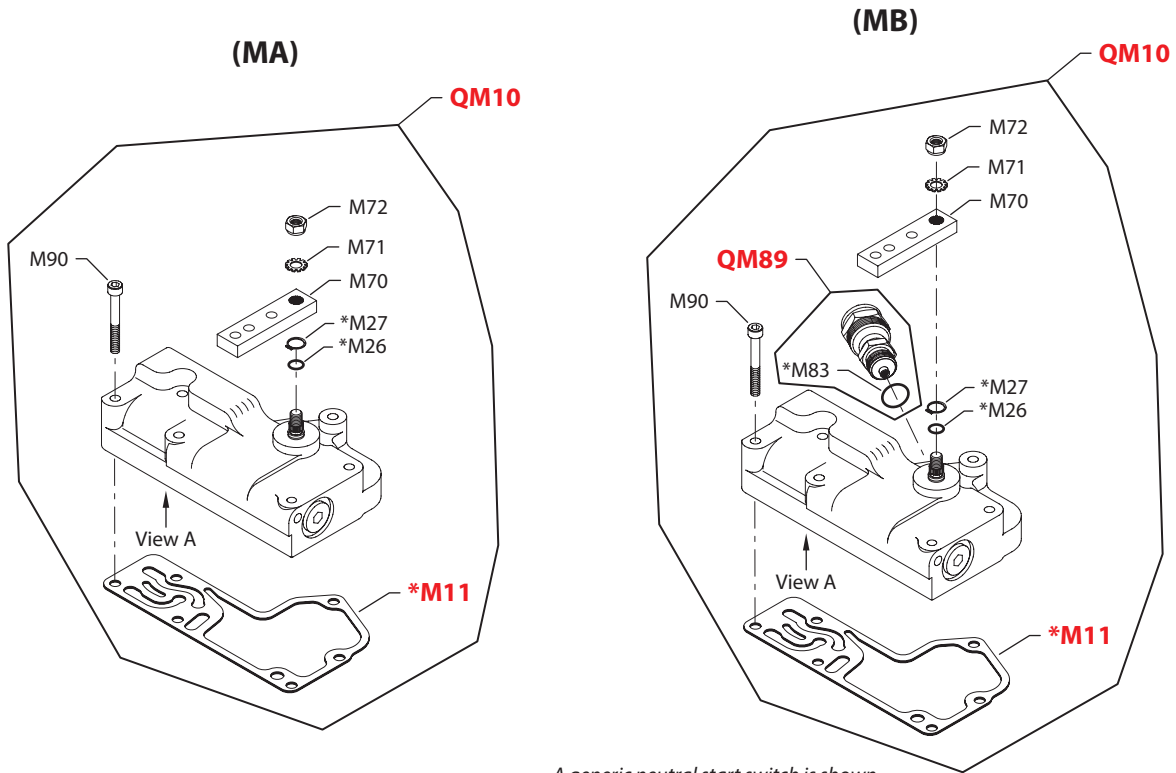
Enlarged **bold** type item numbers are recommended parts to be stocked for servicing


Variable displacement pump
Control

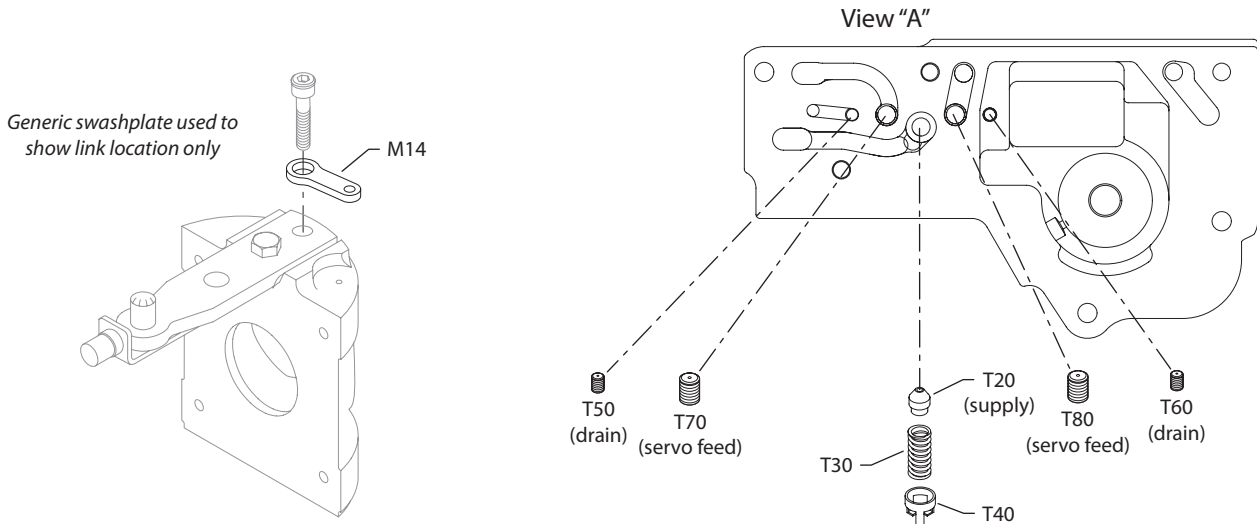
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
M8	M11	04-31		8800923	Control gasket	1
	M14	04-31		11070305	Feedback link	1
	M26	04-31		144725 (9004105-0110)	O-ring	1
	M27	04-31		042557 (9006300-0044)	Retaining ring	1
	M29	04-31		9007315-0507	Screw	4
	M70	04-31		9800916	Control handle	1
	M71	04-31		689018 (9009660-3100)	Toothlock washer	1
	M72	04-31		040642 (9003513-0800)	Nut	1
	M76	04-31		508009	Solenoid valve	1
	M90	04-31		692889 (9007314-0611)	Screw	6
	M95	04-31		9004105-0140	O-ring	1
	M96	04-31		9004105-0140	O-ring	1
	M97	04-31		9004105-0190	O-ring	1
	M98	04-31		9007315-0505	Screw	4
	QM10	04-31		11015110	MDC kit, w/2-position solenoid valve	1
	QM031	04-31		11099647	Solenoid seal kit	1
	QM210	04-31		11099978	Control seal kit	1



Variable displacement pump



A generic neutral start switch is shown.



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

E103 081E

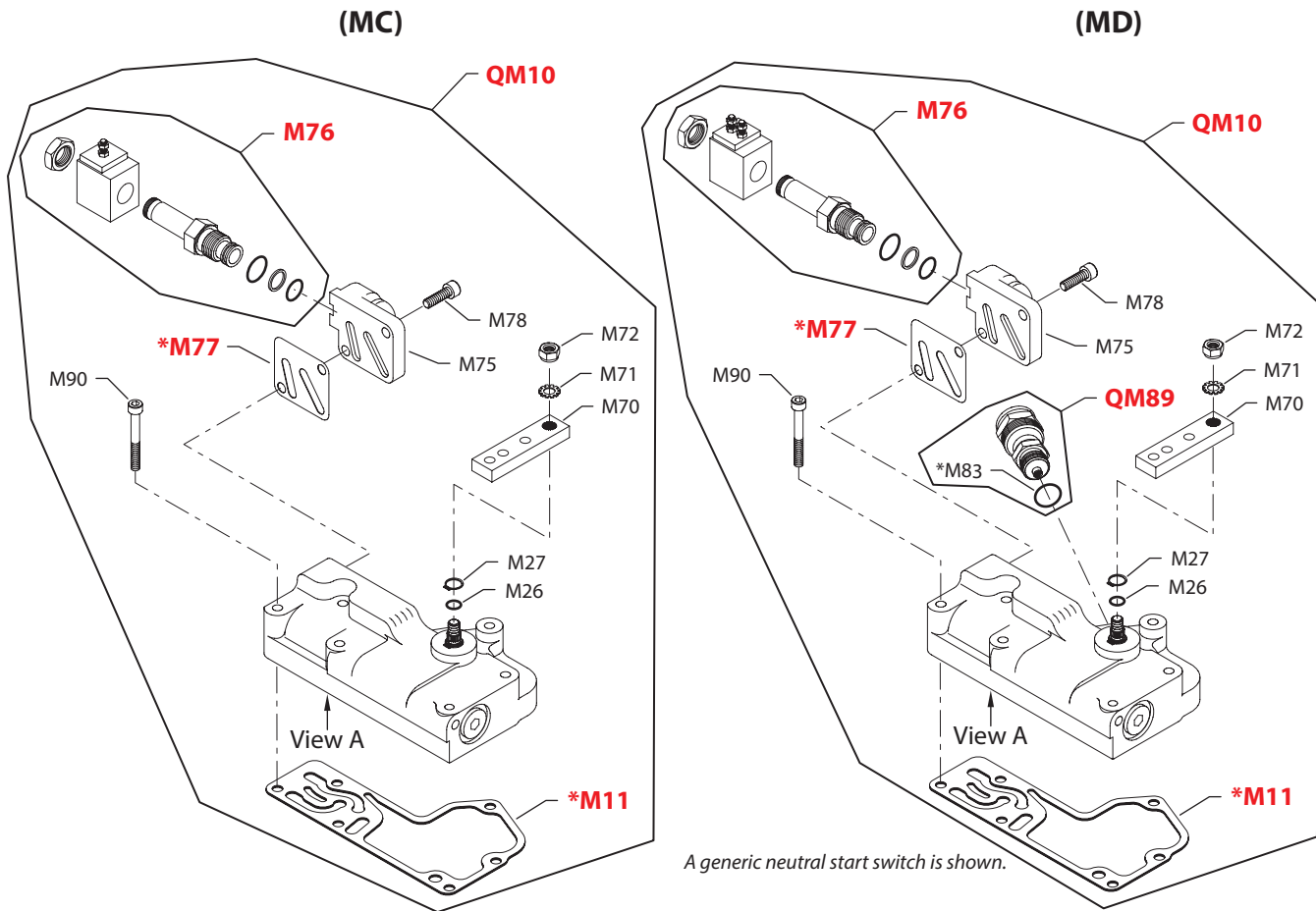
Enlarged **bold** type item numbers are recommended parts to be stocked for servicing


Variable displacement pump
Control

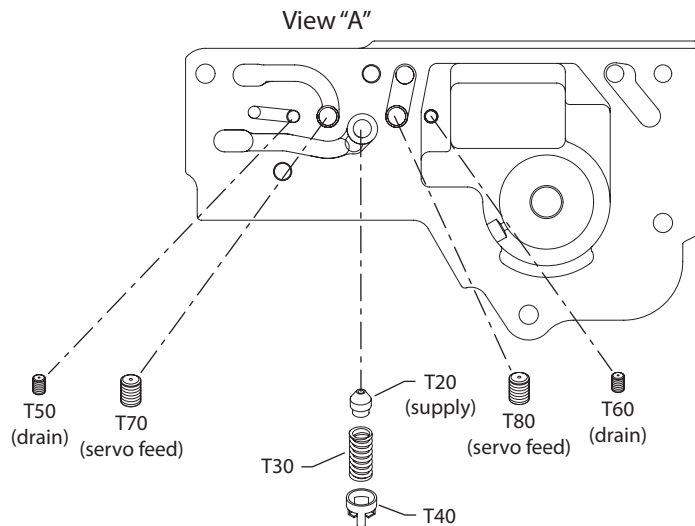
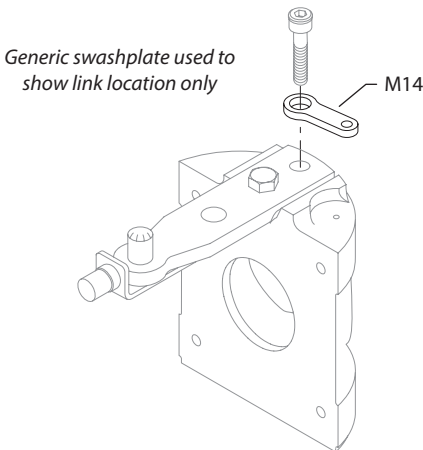
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit	
MA	M11	87-02		8800923	Control gasket	1	
	M14	96-40		11070305	Feedback link (SB-1999-019 & SB-2013-011)	1	
	M14	87-02	96-39	8000481	Feedback link (SB-1996-009)	1	
	M26	87-02		144725 (9004105-0110)	O-ring	1	
	M27	87-02		042557 (9006300-0044)	Retaining ring	1	
	M70	87-02		9800916	Control handle	1	
	M71	87-02		689018 (9009660-3100)	Toothlock washer	1	
	M72	87-02		040642 (9003513-0800)	Nut	1	
	M90	87-02		692889 (9007314-0611)	Screw	6	
	QM10	87-02		8102M0MA-A	MDC kit	1	
	QM210	87-02		11096274	Control seal kit	1	
	MB	M11	87-02		8800923	Control gasket	1
		M14	96-40		11070305	Feedback link (SB-1999-019 & SB-2013-011)	1
M14		87-02	96-39	8000481	Feedback link (SB-1996-009)	1	
M26		87-02		144725 (9004105-0110)	O-ring	1	
M27		87-02		042557 (9006300-0044)	Retaining ring	1	
M70		87-02		9800916	Control handle	1	
M71		87-02		689018 (9009660-3100)	Toothlock washer	1	
M72		87-02		040642 (9003513-0800)	Nut	1	
M83		87-02		001131 (9004201-5000)	O-ring	1	
M90		87-02		692889 (9007314-0611)	Screw	6	
QM10		87-02		8102M0MB-A	MDC kit with neutral start switch	1	
QM89		87-02		80020540	Neutral start switch kit	1	
QM210		87-02		11096274	Control seal kit	1	



Variable displacement pump



A generic neutral start switch is shown.



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

E103 082E

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


Variable displacement pump
Control

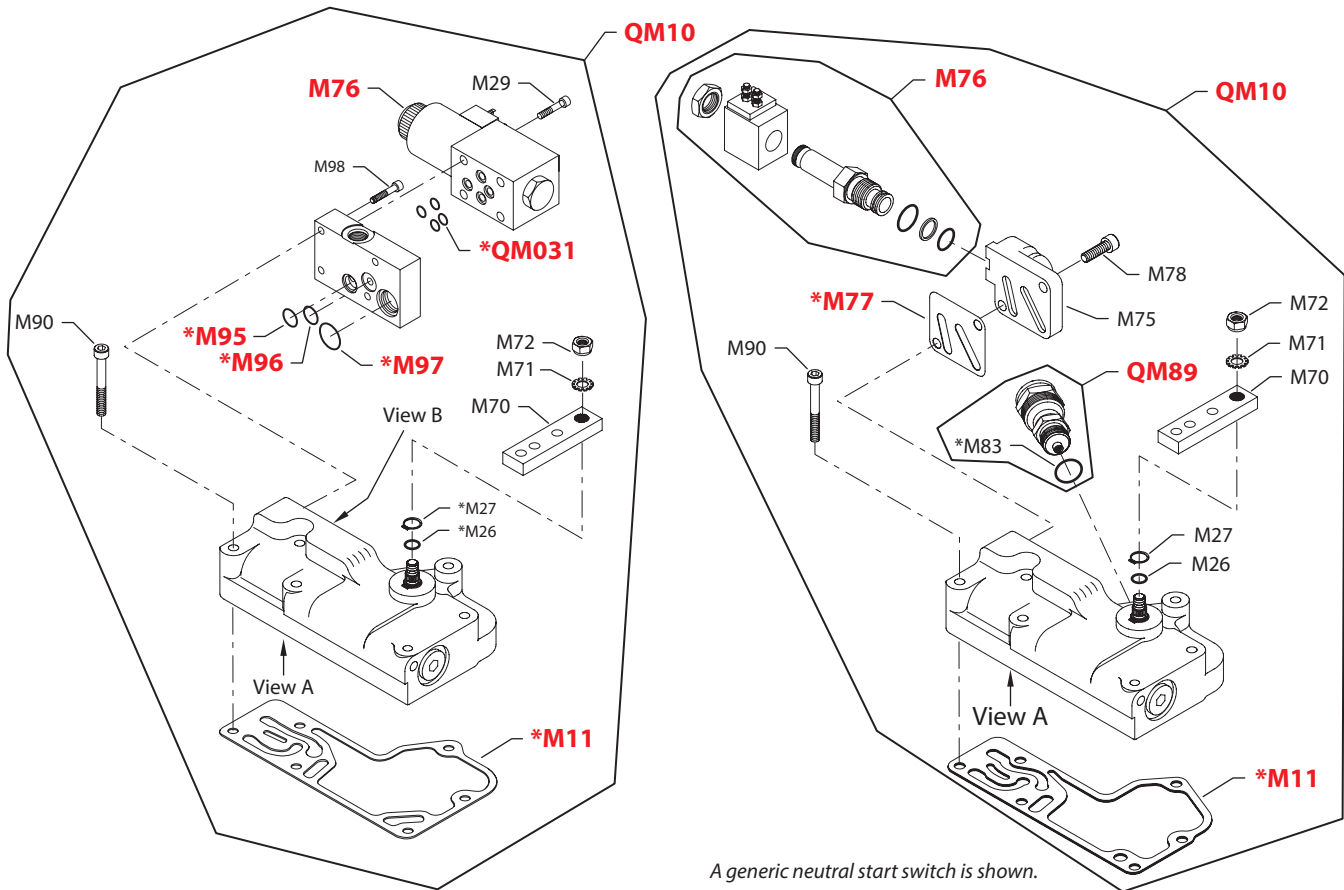
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
MC	M11	87-02		8800923	Control gasket	1
	M14	96-40		11070305	Feedback link (SB-1999-019 & SB-2013-011)	1
	M14	87-02	96-39	8000481	Feedback link (SB-1996-009)	1
	M26	87-02		144725 (9004105-0110)	O-ring	1
	M27	87-02		042557 (9006300-0044)	Retaining ring	1
	M70	87-02		9800916	Control handle	1
	M71	87-02		689018 (9009660-3100)	Toothlock washer	1
	M72	87-02		040642 (9003513-0800)	Nut	1
	M75	87-02		505022	Control manifold (SB-1995-003)	1
	M76	87-02		11127987	Solenoid valve, 12 volt, single pole	1
	M77	87-02		8800882	Manifold gasket	1
	M78	95-10		693341 (9007314-0606)	Screw (SB-1995-003)	2
	M78	87-02	95-09	041160 (9007314-0605)	Screw	2
	M90	87-02		692889 (9007314-0611)	Screw	6
	QM10	87-02		8102M0MC-A	MDC kit w/12 volt solenoid, single pole	1
	QM210	87-02		11100031	Control seal kit	1
	MD	M11	02-16		8800923	Control gasket
M14		02-16		11070305	Feedback link	1
M26		02-16		144725 (9004105-0110)	O-ring	1
M27		02-16		042557 (9006300-0044)	Retaining ring	1
M70		02-16		9800916	Control handle	1
M71		02-16		689018 (9009660-3100)	Toothlock washer	1
M72		02-16		040642 (9003513-0800)	Nut	1
M75		02-16		505022	Control manifold	1
M76		02-16		11127986	Solenoid valve, 12v, double pole	1
M77		02-16		8800882	Manifold gasket	1
M78		02-16		693341 (9007314-0606)	Screw	2
M83		02-16		001131 (9004201-5000)	O-ring	1
M90		02-16		692889 (9007314-0611)	Screw	6
QM10		02-16		8102M0MD-A	MDC kit, w/double pole 12v solenoid	1
QM89		02-16		8510027	Neutral start switch kit, high force, Weather-pack	1
QM210		02-16		11100031	Control seal kit	1



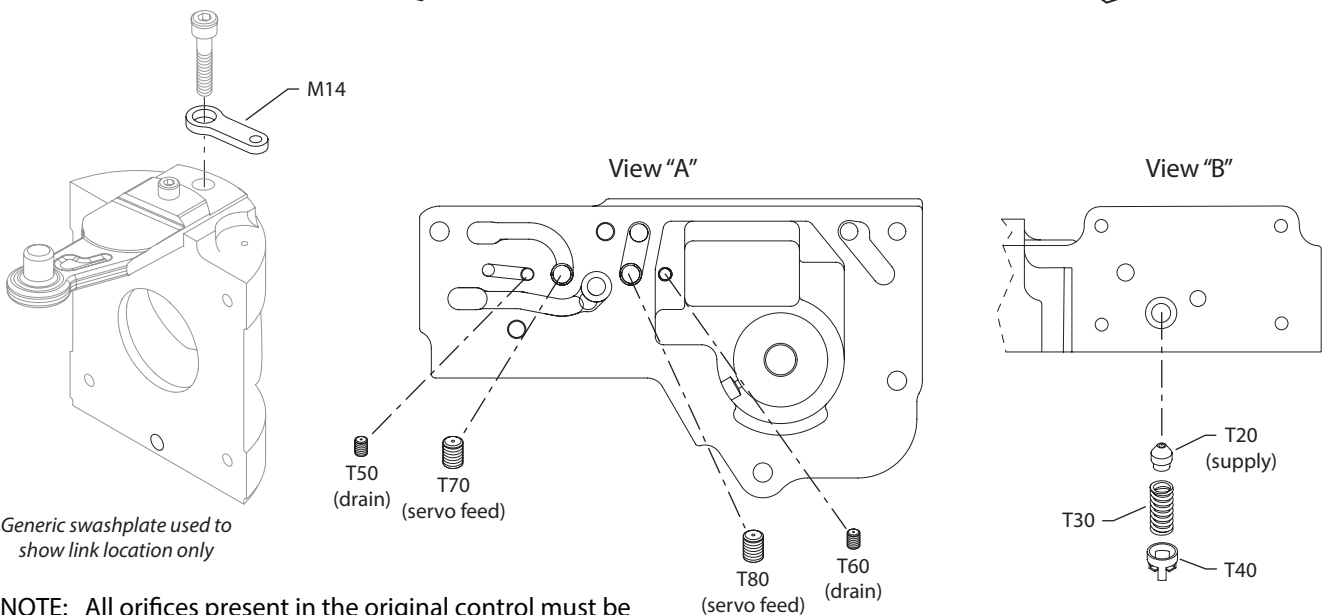
Variable displacement pump

(ME)

(MG)



A generic neutral start switch is shown.



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.

* = included in control seal kit QM210

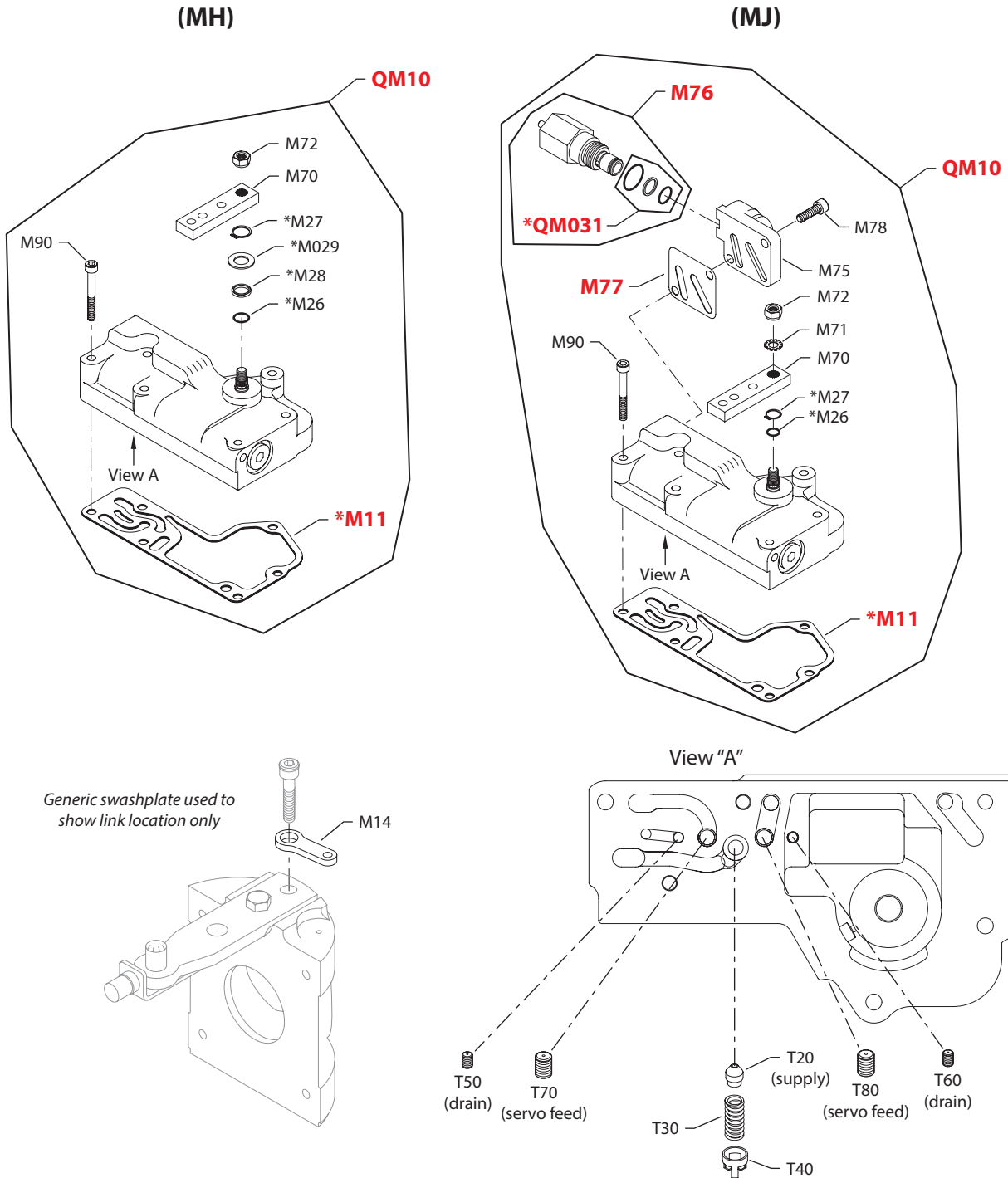
E100 721E
 Enlarged **bold** type item numbers are recommended parts to be stocked for servicing


Variable displacement pump
Control

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit	
ME	M11	87-02		8800923	Control gasket	1	
	M14	96-40		11070305	Feedback link (SB-1999-019 & SB-2013-011)	1	
	M14	87-02	96-39	8000481	Feedback link (SB-1996-009)	1	
	M26	87-02		144725 (9004105-0110)	O-ring	1	
	M27	87-02		042557 (9006300-0044)	Retaining ring	1	
	M29	87-02		9007315-0510	Screw	4	
	M70	87-02		9800916	Control handle	1	
	M71	87-02		689018 (9009660-3100)	Toothlock washer	1	
	M72	87-02		040642 (9003513-0800)	Nut	1	
	M76	87-02		519357	Solenoid valve, 12 volt	1	
	M90	87-02		692889 (9007314-0611)	Screw	6	
	M95	87-02		056713 (9004105-0140)	O-ring	1	
	M96	87-02		056713 (9004105-0140)	O-ring	1	
	M97	87-02		544742 (9004105-0190)	O-ring	1	
	M98	87-02		9007315-0505	Screw	4	
	QM10	87-02		8102M0ME-A	MDC kit w/2-position solenoid valve, 12 volt	1	
	QM031	87-02		11099647	Solenoid seal kit	1	
	QM210	87-02		11099978	Control seal kit	1	
	MG	M11	02-16		8800923	Control gasket	1
		M14	02-16		11070305	Feedback link	1
M26		02-16		144725 (9004105-0110)	O-ring	1	
M27		02-16		042557 (9006300-0044)	Retaining ring	1	
M70		02-16		9800916	Control handle	1	
M71		02-16		689018 (9009660-3100)	Toothlock washer	1	
M72		02-16		040642 (9003513-0800)	Nut	1	
M75		02-16		505022	Control manifold	1	
M76		02-16		11127985	Solenoid valve, 24v, double pole	1	
M77		02-16		8800882	Manifold gasket	1	
M78		02-16		693341 (9007314-0606)	Screw	2	
M83		02-16		001131 (9004201-5000)	O-ring	1	
M90		02-16		692889 (9007314-0611)	Screw	6	
QM10		02-16		8510061	MDC kit, w/double pole 24v solenoid	1	
QM89		02-16		80020540	Neutral start switch kit, high force	1	
QM210		02-16		11100031	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

E100811E
 Enlarged **bold** type item numbers are recommended parts to be stocked for servicing

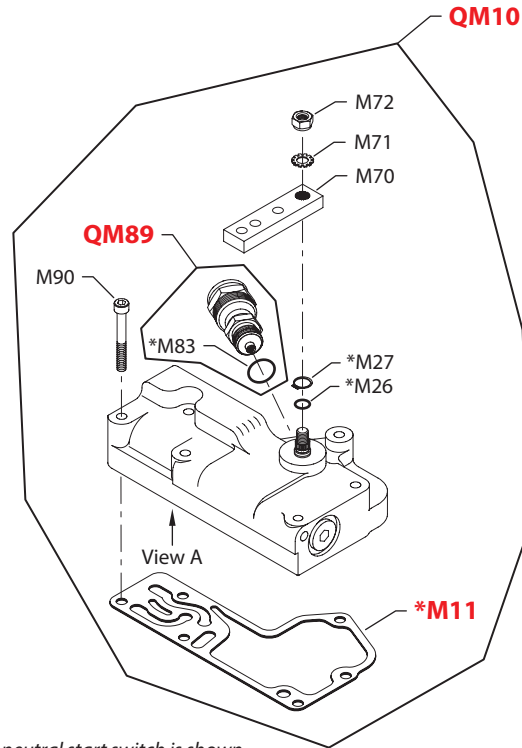

Variable displacement pump
Control

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
MH	M11	87-02		8800923	Control gasket	1
	M14	96-40		11070305	Feedback link (SB-1999-019 & SB-2013-011)	1
	M14	87-02	96-39	8000481	Feedback link (SB-1996-009)	1
	M26	87-02		144725 (9004105-0110)	O-ring	1
	M27	87-02		042507	Retaining ring	1
	M28	14-44		510690	Lip seal	1
	M029	14-44		512047	Washer	1
	M70	87-02		9800916	Control handle	1
	M72	87-02		040642 (9003513-0800)	Nut	1
	M90	87-02		692889 (9007314-0611)	Screw	6
	QM10	87-02		8510282	MDC kit	1
	QM210	87-02		11096274	Control seal kit	1
MJ	M11	96-12	14-12	8800923	Control gasket	1
	M14	96-40	14-12	11070305	Feedback link (SB-1999-019 & SB-2013-011)	1
	M14	96-12	96-39	8000481	Feedback link (SB-1996-009)	1
	M26	96-12	14-12	144725 (9004105-0110)	O-ring	1
	M27	96-12	14-12	042557 (9006300-0044)	Retaining ring	1
	M70	96-12	14-12	9800916	Control handle	1
	M71	96-12	14-12	689018 (9009660-3100)	Toothlock washer	1
	M72	96-12	14-12	040642 (9003513-0800)	Nut	1
	M75	96-12	14-12	8800920	Control manifold	1
	M76	96-12	14-12	8800921	Mechanical shunt valve	1
	M77	96-12	14-12	8800882	Manifold gasket	1
	M78	96-12	14-12	693341 (9007314-0606)	Screw	2
	M90	96-12	14-12	692889 (9007314-0611)	Screw	6
	QM10	96-12	14-12	11015111	MDC kit, shunt valve	1
	QM034	96-12	14-12	11099649	Shunt valve seal kit	1
	QM210	96-12	14-12	11100031	Control seal kit	1

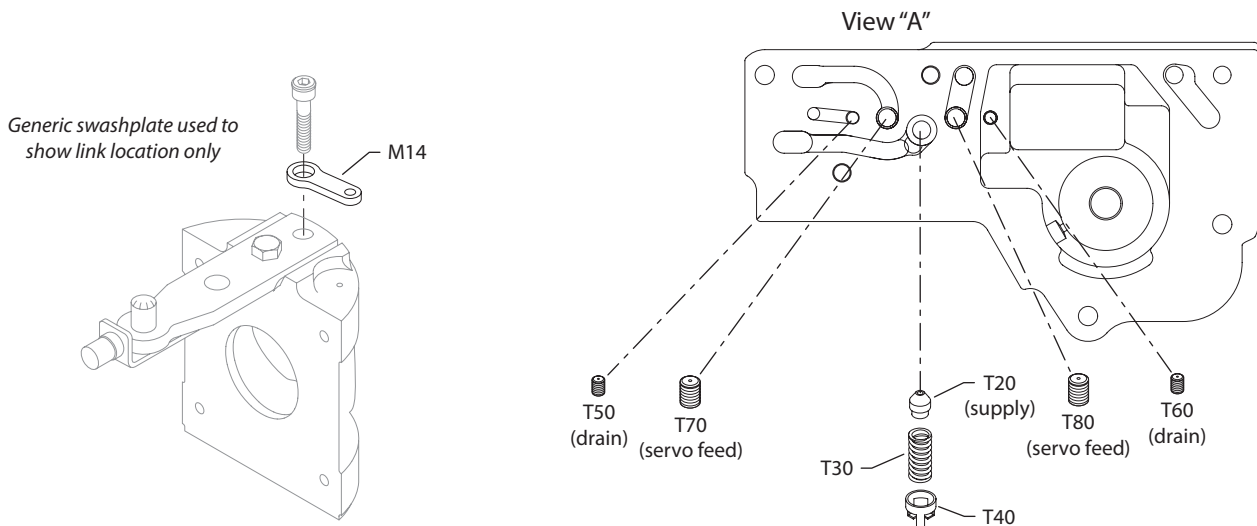


Variable displacement pump

(MK & ML)



A generic neutral start switch is shown.



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

E103 079E

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

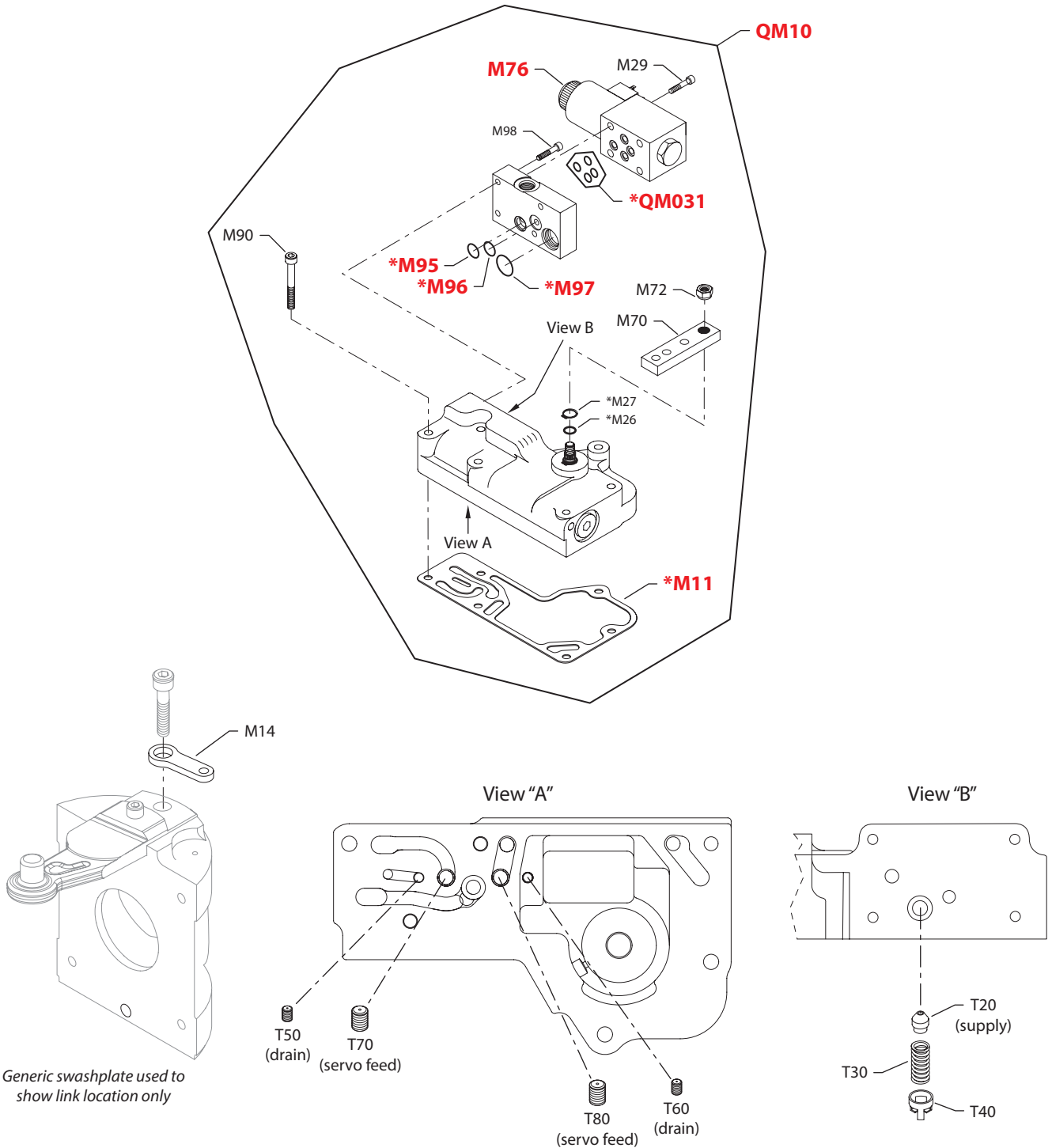

Variable displacement pump
Control

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
MK	M11	87-02		8800923	Control gasket	1
	M14	96-40		11070305	Feedback link (SB-1999-019 & SB-2013-011)	1
	M14	87-02	96-39	8000481	Feedback link (SB-1996-009)	1
	M26	87-02		144725 (9004105-0110)	O-ring	1
	M27	87-02		042557 (9006300-0044)	Retaining ring	1
	M70	87-02		9800916	Control handle	1
	M71	87-02		689018 (9009660-3100)	Toothlock washer	1
	M72	87-02		040642 (9003513-0800)	Nut	1
	M83	87-02		001131 (9004201-5000)	O-ring	1
	M90	87-02		692889 (9007314-0611)	Screw	6
	QM10	87-02		8102M0MK-A	MDC kit w/wide deadband, nss	1
	QM89	87-02		80020540	Neutral start switch kit	1
	QM210	87-02		11096274	Control seal kit	1
	ML	M11	87-02		8800923	Control gasket
M14		96-40		11070305	Feedback link (SB-1999-019 & SB-2013-011)	1
M14		87-02	96-39	8000481	Feedback link (SB-1996-009)	1
M26		87-02		144725 (9004105-0110)	O-ring	1
M27		87-02		042557 (9006300-0044)	Retaining ring	1
M70		87-02		9800916	Control handle	1
M71		87-02		689018 (9009660-3100)	Toothlock washer	1
M72		87-02		040642 (9003513-0800)	Nut	1
M83		87-02		001131 (9004201-5000)	O-ring	1
M90		87-02		692889 (9007314-0611)	Screw	6
QM10		87-02		11015112	MDC kit w/wide deadband, high force nss	1
QM89		87-02		8510027	Neutral start switch kit, high force	1
QM210		87-02		11096274	Control seal kit	1



Variable displacement pump

(MN)



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 QM210

Possible orifice locations

E103 084E

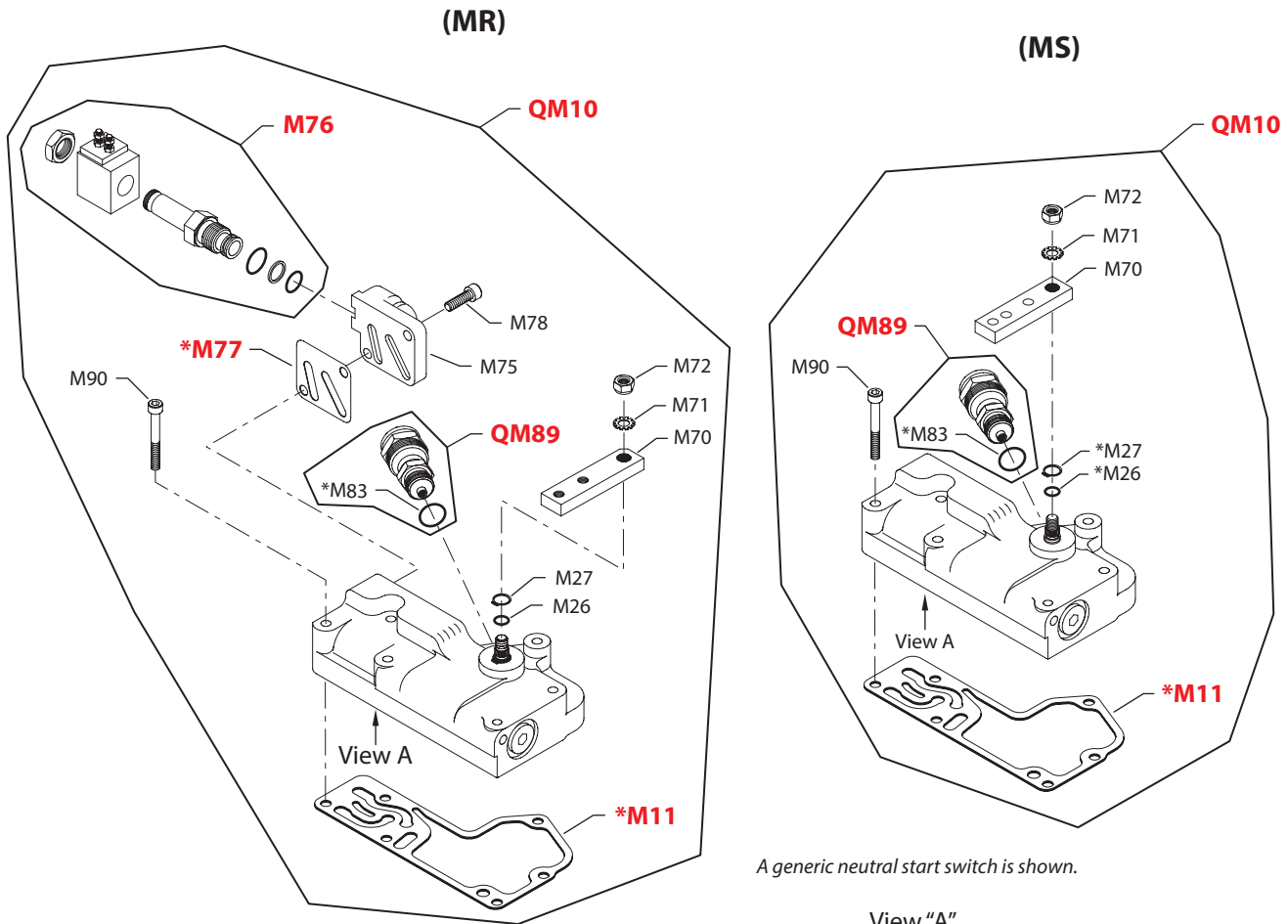
Enlarged **bold** type item numbers are recommended parts to be stocked for servicing


Variable displacement pump
Control

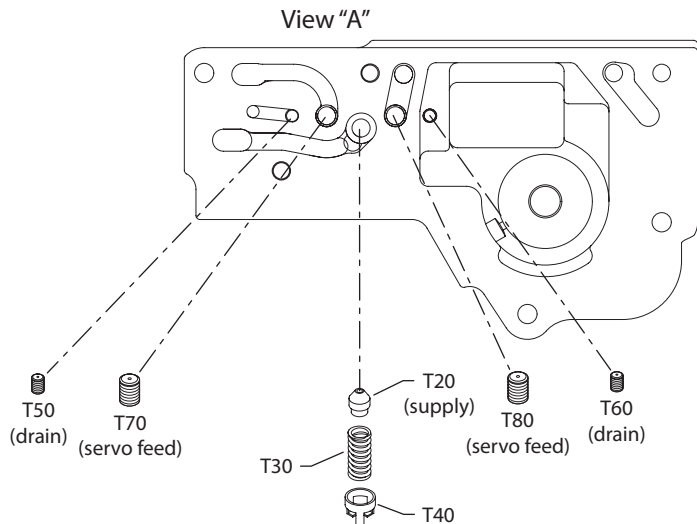
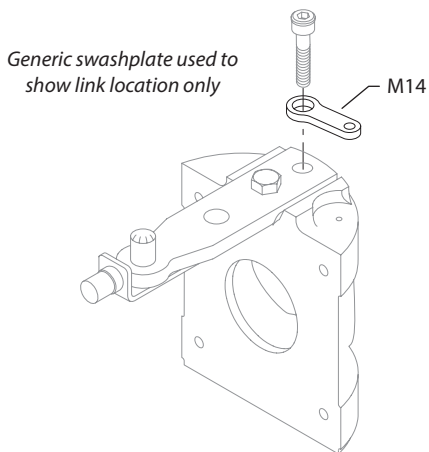
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
MN	M11	94-02		8800923	Control gasket	1
	M14	94-02		11070305	Feedback link	1
	M26	94-02		144725 (9004105-0110)	O-ring	1
	M27	94-02		042557 (9006300-0044)	Retaining ring	1
	M29	94-02		035592	Screw, M5 x 45	4
	M70	94-02		9800916	Control handle	1
	M72	94-02		040642 (9003513-0800)	Nut	1
	M76	94-02		519357	Solenoid valve, 12 volt	1
	M90	94-02		692889 (9007314-0611)	Screw	6
	M95	94-02		056713	O-ring	1
	M96	94-02		056713	O-ring	1
	M97	94-02		544742	O-ring	1
	M98	94-02		067686	Screw, M5 x 20	4
	QM10	94-02		11087557	MDC kit w/2-position solenoid	1
	QM031	94-02		11099647	Solenoid valve seal kit	1
	QM210	94-02		11099978	Control seal kit	1



Variable displacement pump



A generic neutral start switch is shown.



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

E103 077E

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

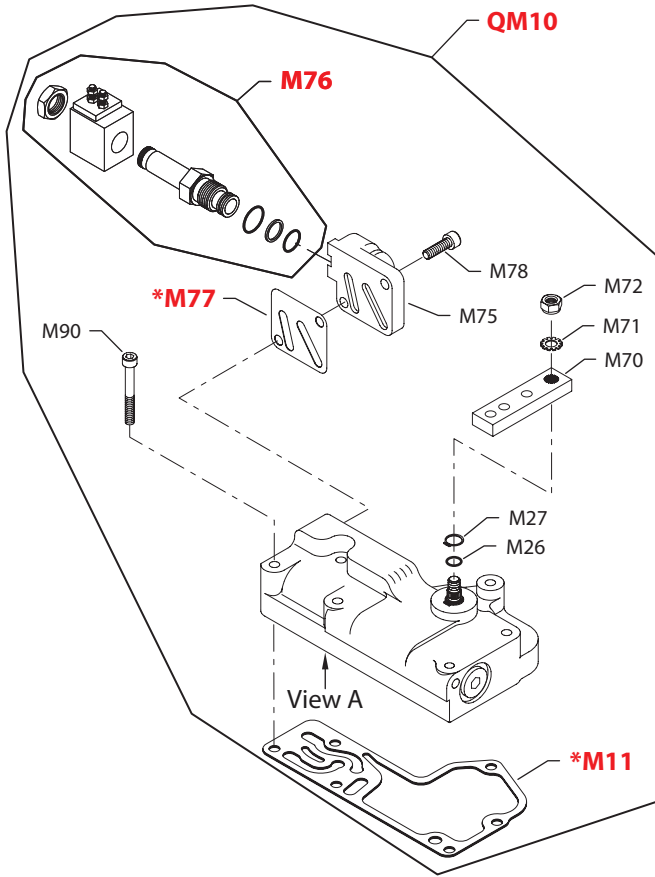

Variable displacement pump
Control

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit	
MR	M11	96-43		8800923	Control gasket	1	
	M14	96-43		11070305	Feedback link	1	
	M26	96-43		144725 (9004105-0110)	O-ring	1	
	M27	96-43		042557 (9006300-0044)	Retaining ring	1	
	M70	96-43		9800916	Control handle	1	
	M71	96-43		689018 (9009660-3100)	Toothlock washer	1	
	M72	96-43		040642 (9003513-0800)	Nut	1	
	M75	96-43		505022	Control manifold	1	
	M76	96-43		11127985	Solenoid valve, 24 volt, double pole	1	
	M77	96-43		8800882	Manifold gasket	1	
	M78	96-43		693341 (9007314-0606)	Screw	2	
	M83	96-43		001131 (9004201-5000)	O-ring	1	
	M90	96-43		692889 (9007314-0611)	Screw	6	
	QM10	96-43		8510394	MDC kit w/24 v solenoid, 2-pole, high force nss	1	
	QM89	96-43		709014 (8510027)	Neutral start switch kit, high force	1	
	QM210	96-43		11100031	Control seal kit	1	
	MS	M11	01-07		8800923	Control gasket	1
		M14	01-07		11070305	Feedback link	1
		M26	01-07		144725 (9004105-0110)	O-ring	1
		M27	01-07		042557 (9006300-0044)	Retaining ring	1
M70		01-07		9800916	Control handle	1	
M71		01-07		689018 (9009660-3100)	Toothlock washer	1	
M72		01-07		040642 (9003513-0800)	Nut	1	
M83		01-07		001131 (9004201-5000)	O-ring	1	
M90		01-07		692889 (9007314-0611)	Screw	6	
QM10		01-07		8510287	MDC kit, high force neutral start switch	1	
QM89		01-07		8510027	Neutral start switch kit, high force	1	
QM210		01-07		11096274	Control seal kit	1	

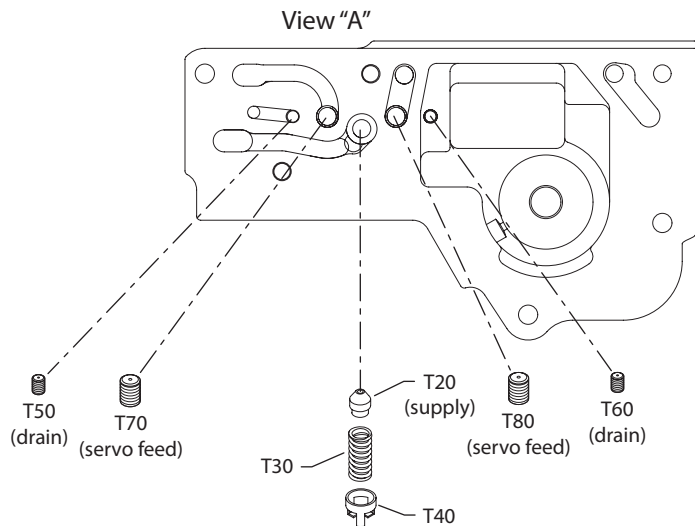
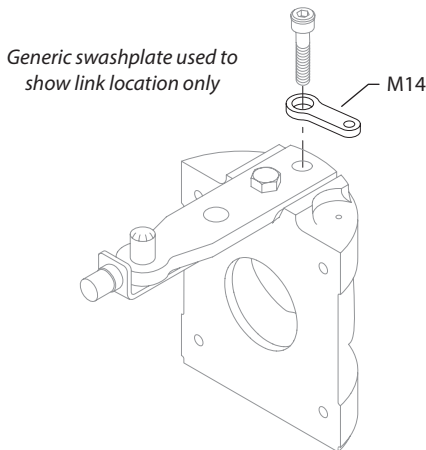
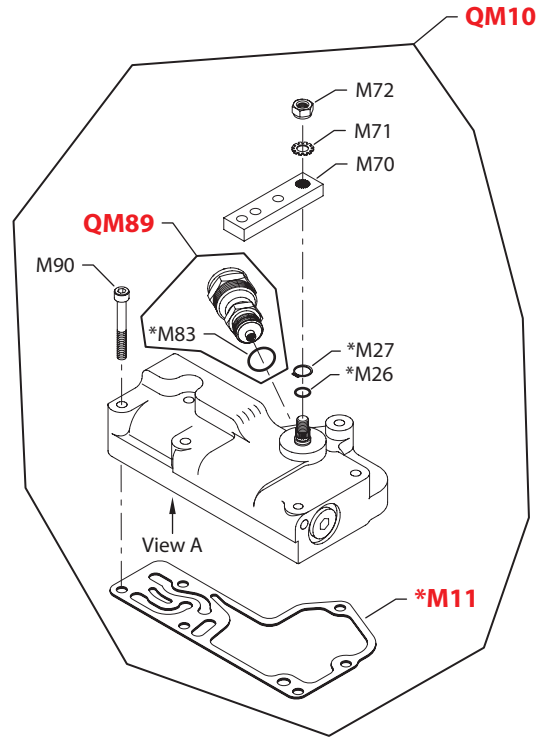


Variable displacement pump

(MT)



(MV)



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

Possible orifice locations

E100 722E

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

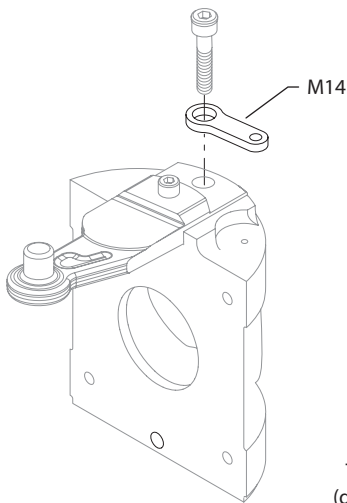
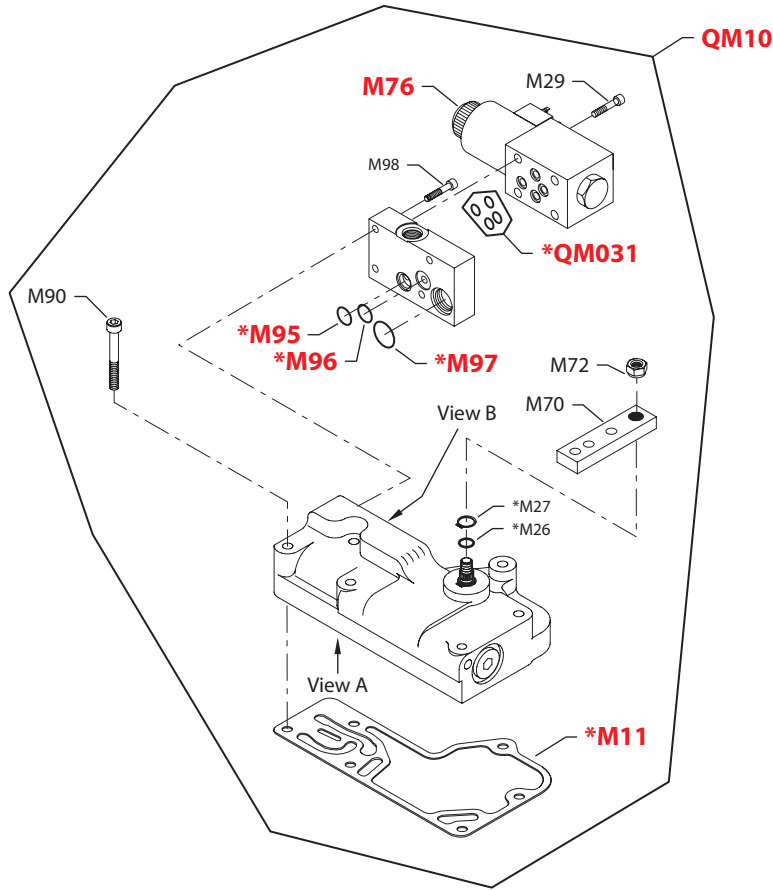

Variable displacement pump
Control

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
MT	M11	01-01		8800923	Control gasket	1
	M14	01-01		11070305	Feedback link	1
	M26	01-01		144725 (9004105-0110)	O-ring	1
	M27	01-01		042557 (9006300-0044)	Retaining ring	1
	M70	01-01		9800916	Control handle	1
	M71	01-01		689018 (9009660-3100)	Toothlock washer	1
	M72	01-01		040642 (9003513-0800)	Nut	1
	M75	01-01		505022	Control manifold	1
	M76	01-01		11127986	Solenoid valve, 12 volt, 2-pole	1
	M77	01-01		8800882	Manifold gasket	1
	M78	01-01		693341 (9007314-0606)	Screw	2
	M90	01-01		692889 (9007314-0611)	Screw	6
	QM10	01-01		8510320	MDC kit, w/2-pole 12v solenoid	1
	QM210	01-01		11100031	Control seal kit	1
MV	M11	94-30		8800923	Control gasket	1
	M14	96-40		11070305	Feedback link (SB-1999-019 & SB-2013-011)	1
	M14	94-30	96-39	8000481	Feedback link (SB-1996-009)	1
	M26	94-30		144725 (9004105-0110)	O-ring	1
	M27	94-30		042557 (9006300-0044)	Retaining ring	1
	M70	94-30		9800916	Control handle	1
	M71	94-30		689018 (9009660-3100)	Toothlock washer	1
	M72	94-30		040642 (9003513-0800)	Nut	1
	M83	94-30		001131 (9004201-5000)	O-ring	1
	M90	94-30		692889 (9007314-0611)	Screw	6
	QM10	94-30		8510342	MDC kit, nss w/weatherpack connector, 2-way	1
	QM89	94-30		8510170	Neutral start switch kit, weather pack connector, 2-way	1
	QM210	94-30		11096274	Control seal kit	1

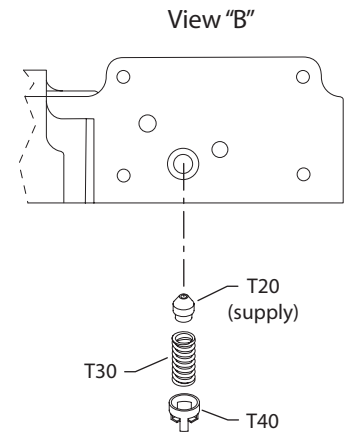
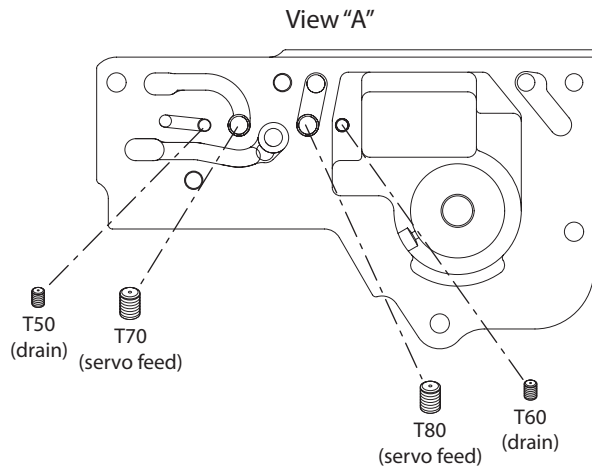


Variable displacement pump

(MW)



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.

* = included in control seal kit QM210

E103 084E

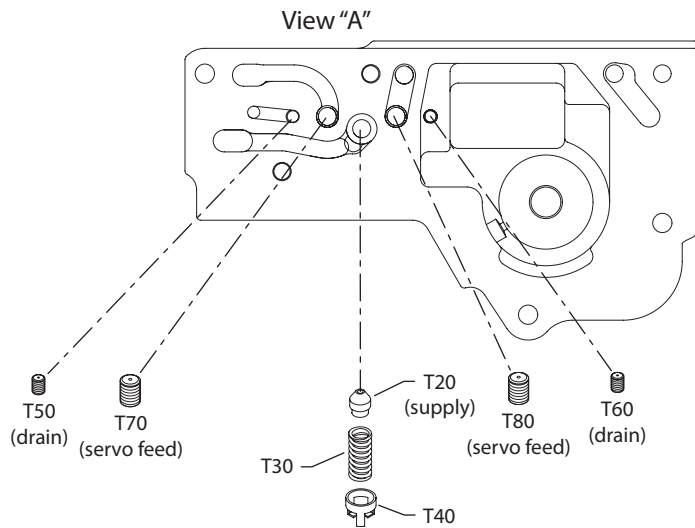
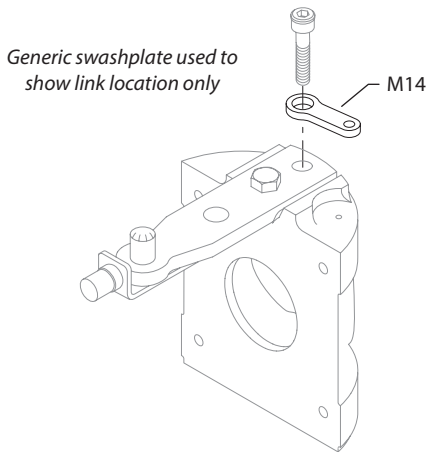
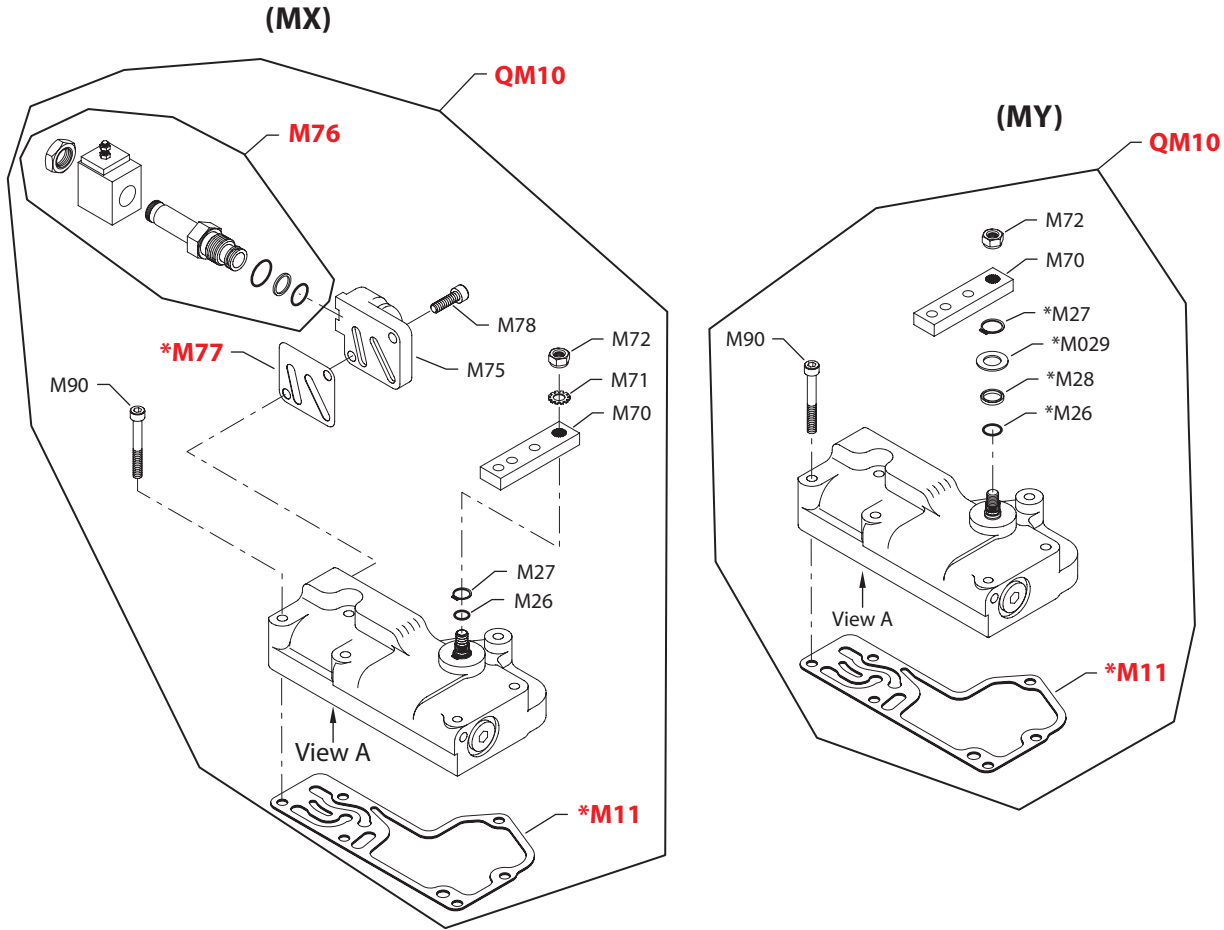
Enlarged **bold** type item numbers are recommended parts to be stocked for servicing


Variable displacement pump
Control

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
MW	M11	14-18		8800923	Control gasket	1
	M14	14-18		11070305	Feedback link	1
	M26	14-18		144725 (9004105-0110)	O-ring	1
	M27	14-18		042557 (9006300-0044)	Retaining ring	1
	M29	14-18		035592	Screw, M5 x 45	4
	M70	14-18		9800916	Control handle	1
	M72	14-18		040642 (9003513-0800)	Nut	1
	M76	14-18		11146844	Solenoid valve, Deutsch connector	1
	M90	14-18		692889 (9007314-0611)	Screw	6
	M95	14-18		056713	O-ring	1
	M96	14-18		056713	O-ring	1
	M97	14-18		544742	O-ring	1
	M98	14-18		067686	Screw, M5 x 20	4
	QM10	14-18		11148990	MDC kit w/2-position solenoid, Deutsch connector	1
	QM031	14-18		11099647	Solenoid valve seal kit	1
	QM210	14-18		11099978	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.

Possible orifice locations

* = included in control seal kit QM210

E103 085E

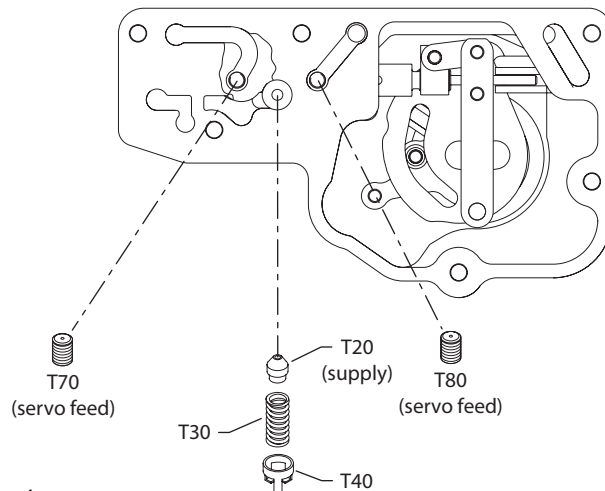
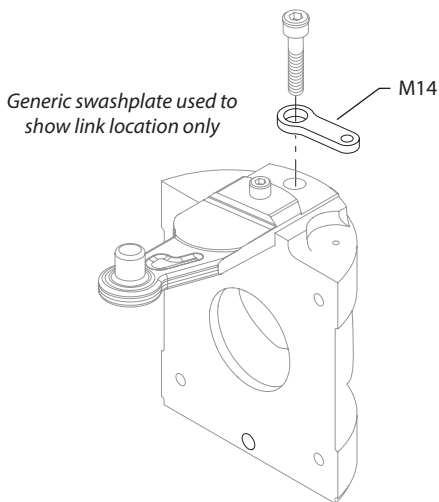
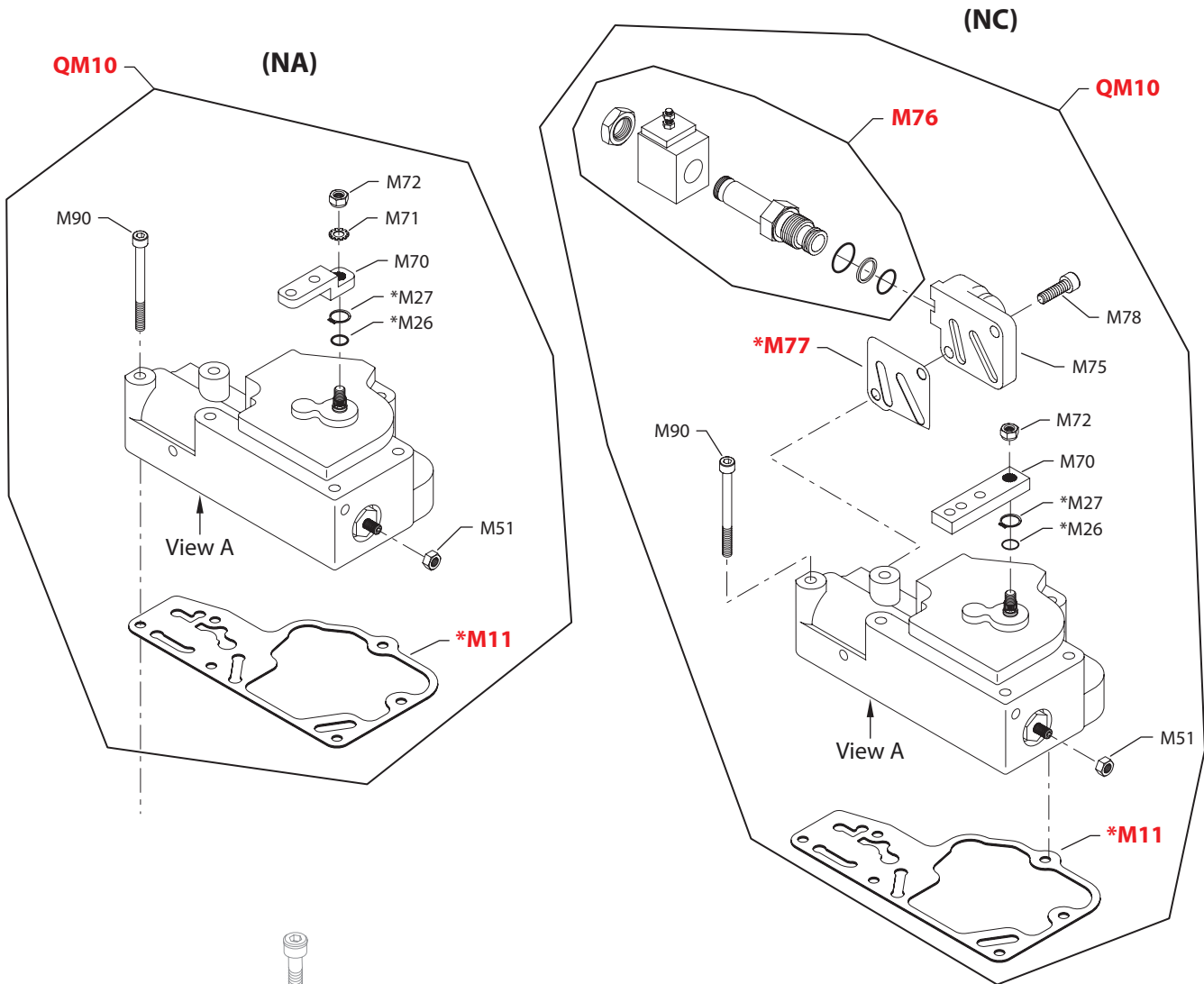
Enlarged **bold** type item numbers are recommended parts to be stocked for servicing


Variable displacement pump
Control

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
MX	M11	94-30		8800923	Control gasket	1
	M14	96-40		11070305	Feedback link (SB-1999-019 & SB-2013-011)	1
	M14	94-30	96-39	8000481	Feedback link (SB-1996-009)	1
	M26	94-30		144725 (9004105-0110)	O-ring	1
	M27	94-30		042557 (9006300-0044)	Retaining ring	1
	M70	94-30		9800916	Control handle	1
	M71	94-30		689018 (9009660-3100)	Toothlock washer	1
	M72	94-30		040642 (9003513-0800)	Nut	1
	M75	94-30		505022	Control manifold (SB-1995-003)	1
	M76	94-30		11127988	Solenoid valve, 12 volt, single pole	1
	M77	94-30		8800882	Manifold gasket	1
	M78	95-10		693341 (9007314-0606)	Screw (SB-1995-003)	2
	M78	94-30	95-09	041160 (9007314-0605)	Screw	2
	M90	94-30		692889 (9007314-0611)	Screw	6
	QM10	94-30		11015113	MDC kit w/12 volt solenoid, single pole	1
	QM210	94-30		11100031	Control seal kit	1
	MY	M11	96-07		8800923	Control gasket
M14		96-07		11070305	Feedback link (SB-1999-019 & SB-2013-011)	1
M14		87-02	96-39	8000481	Feedback link (SB-1996-009)	1
M26		87-02		144725 (9004105-0110)	O-ring	1
M27		87-02		042507	Retaining ring	1
M28		15-05		510690	Lip seal	1
M029		15-05		512047	Washer	1
M70		96-07		9800916	Control handle	1
M72		96-07		040642 (9003513-0800)	Nut	1
M90		96-07		692889 (9007314-0611)	Screw	6
QM10		96-07		11087559	MDC kit	1
QM210		96-07		11096274	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

E100 812E

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

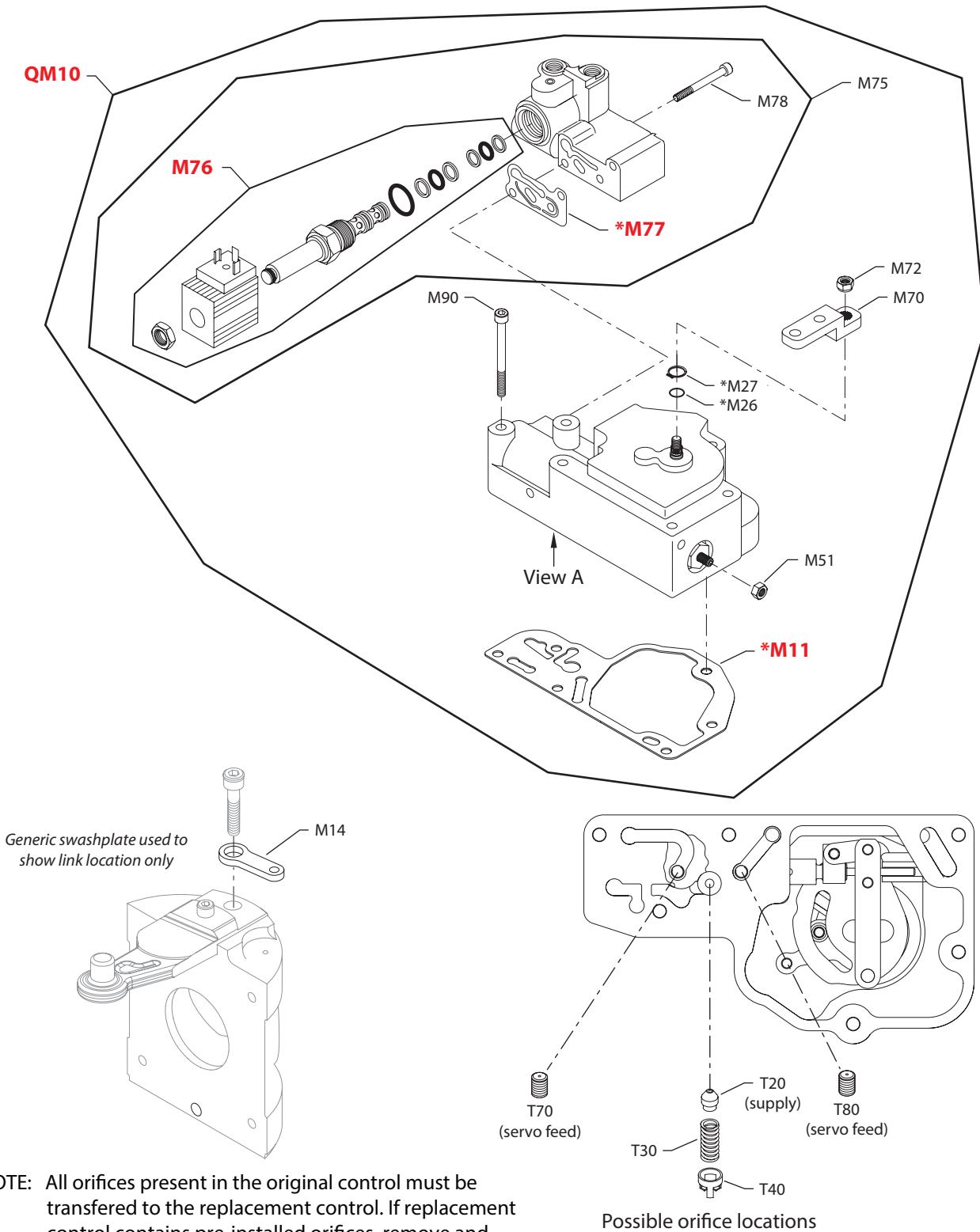

Variable displacement pump
Control

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit	
NA	M11	94-30		504733	Control gasket	1	
	M14	96-40		11070305	Feedback link (SB-1999-019 & SB-2013-011)	1	
	M14	94-30	96-39	8000481	Feedback link (SB-1996-009)	1	
	M26	94-30		144725 (9004105-0110)	O-ring	1	
	M27	94-30		042557 (9006300-0044)	Retaining ring	1	
	M51	94-30		345462	Nut	1	
	M70	94-30		769075	Control handle, sharp bend	1	
	M71	94-30		689018 (9009660-3100)	Toothlock washer	1	
	M72	94-30		040642 (9003513-0800)	Nut	1	
	M90	94-30		9007314-0614	Screw	6	
	QM10	94-30		8102M0NA-A	MDC kit, NL	1	
	QM210	94-30		11096273	Control seal kit	1	
	NC	M11	94-50	14-42	504733	Control gasket	1
		M14	96-40	14-42	11070305	Feedback link (SB-1999-019 & SB-2013-011)	1
M14		94-50	96-39	8000481	Feedback link (SB-1996-009)	1	
M26		94-30	14-42	144725 (9004105-0110)	O-ring	1	
M27		94-30	14-42	042557 (9006300-0044)	Retaining ring	1	
M51		94-30	14-42	345462	Nut	1	
M70		94-50	14-42	9800916	Control handle	1	
M72		94-50	14-42	040642 (9003513-0800)	Nut	1	
M75		94-50	14-42	502128	Control manifold	1	
M76		94-50	14-42	9700803	Solenoid valve	1	
M77		94-50	14-42	502129	Manifold gasket	1	
M78		94-50	14-42	693341 (9007314-0606)	Screw	2	
M90		94-50	14-42	9007314-0614	Screw	6	
QM10		94-50	14-42	11098758	MDC kit, NL	1	
QM210		94-50	14-42	11099983	Control seal kit	1	



Variable displacement pump

(NE)



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

E103 083 E

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



Variable displacement pump

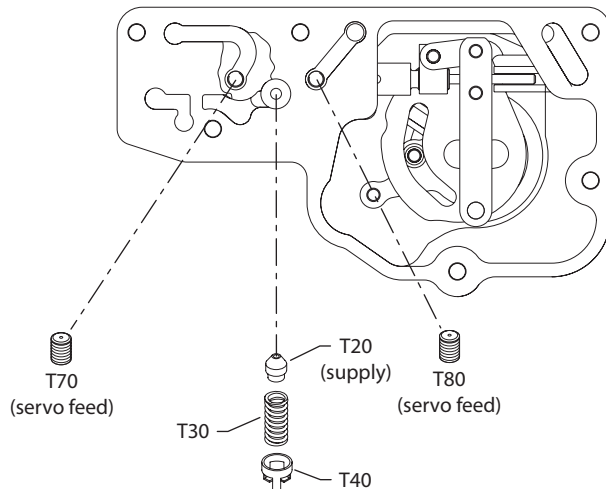
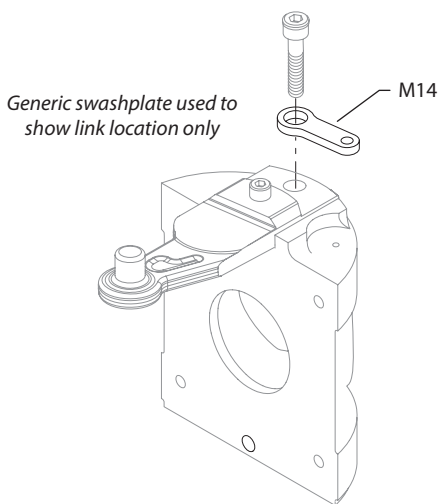
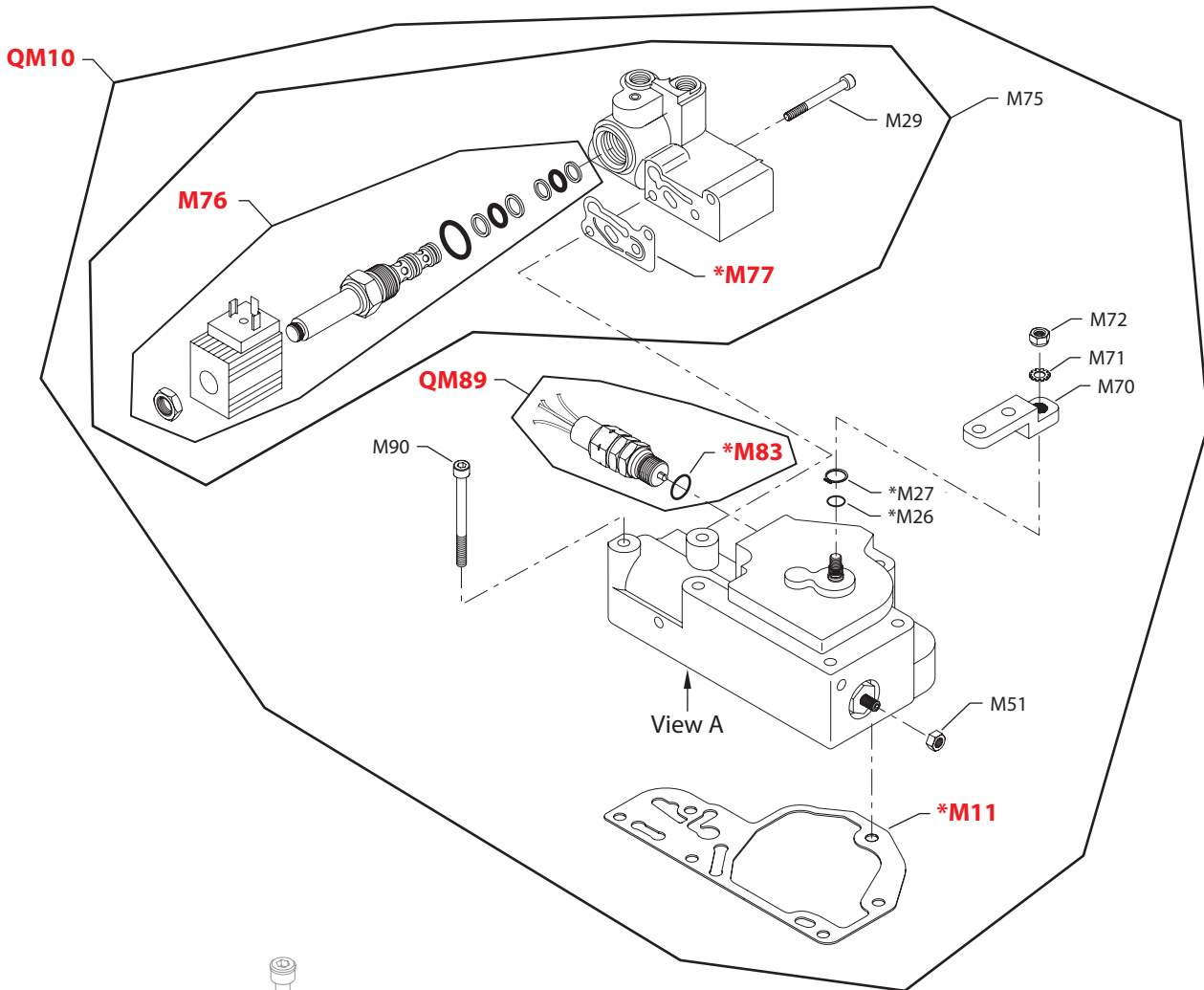
Control

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
NE	M11	94-05	14-15	504733	Control gasket	1
	M14	96-40	14-15	11070305	Feedback link (SB-1999-019 & SB-2013-011)	1
	M14	94-05	96-39	8000481	Feedback link (SB-1996-009)	1
	M26	94-05	14-15	144725 (9004105-0110)	O-ring	1
	M27	94-05	14-15	042557 (9006300-0044)	Retaining ring	1
	M51	94-05	14-15	345462	Nut	1
	M70	94-05	14-15	769075	Control handle, sharp bend	1
	M72	94-05	14-15	040642 (9003513-0800)	Nut	1
	M75	94-05	14-15	500147	Control manifold assembly	1
	M76	94-05	14-15	8700100	Solenoid valve	1
	M77	94-05	14-15	500260	Manifold gasket	1
	M78	94-05	14-15	692889 (9007314-0611)	Screw	2
	M90	94-05	14-15	9007314-0614	Screw	6
	QM10	94-05	14-15	11098759	MDC kit, NL	1
	QM210	94-05	14-15	11100415	Control seal kit	1



Variable displacement pump

(NU)



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

E103 086 E

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



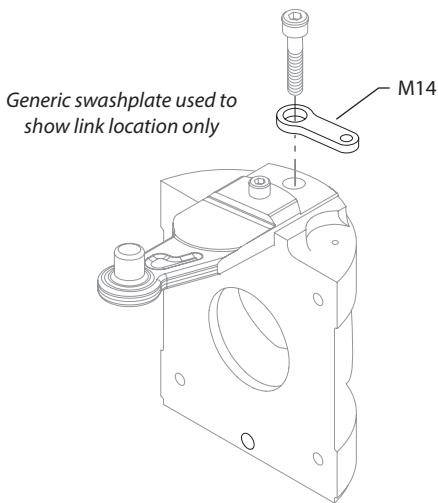
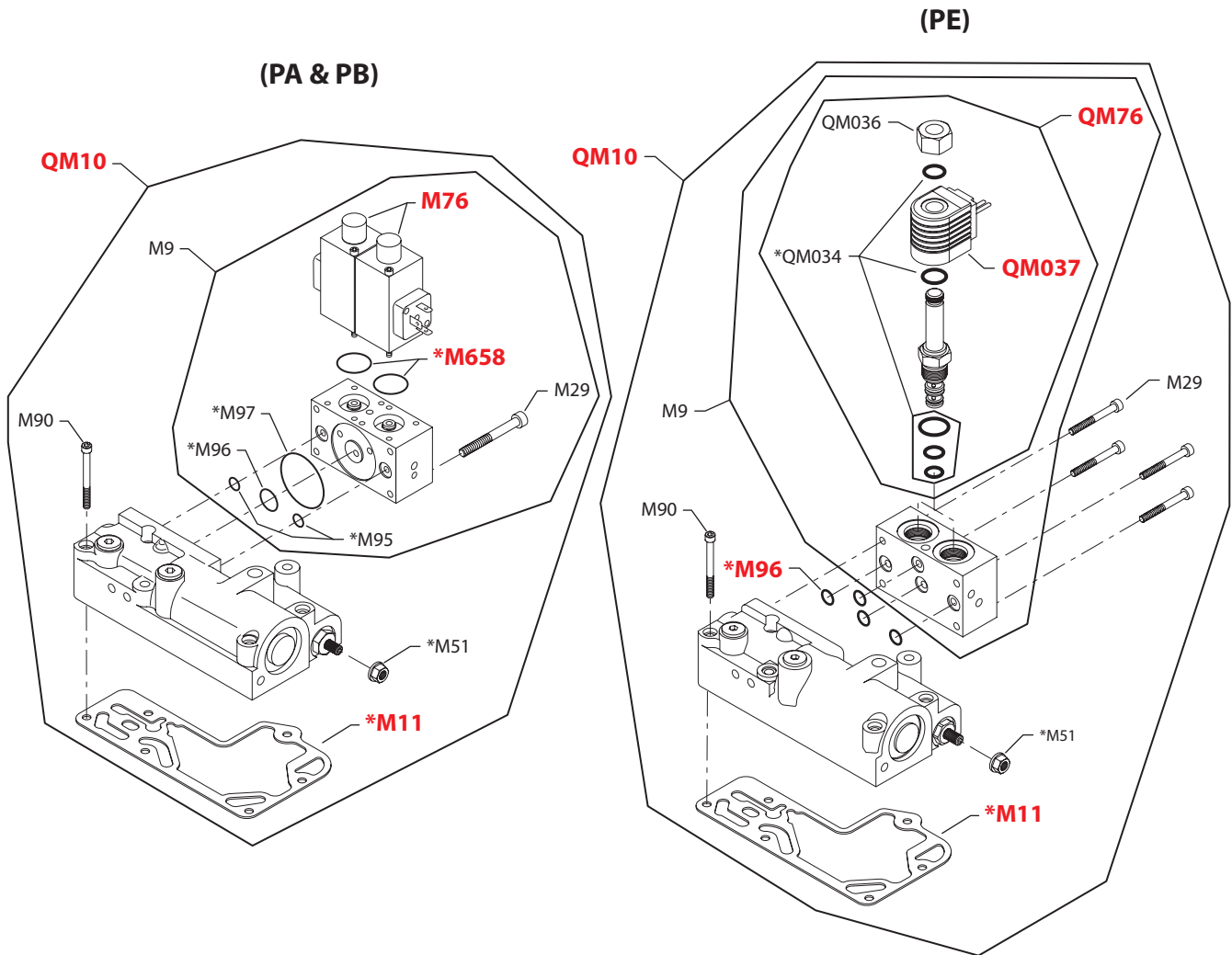
Variable displacement pump

Control

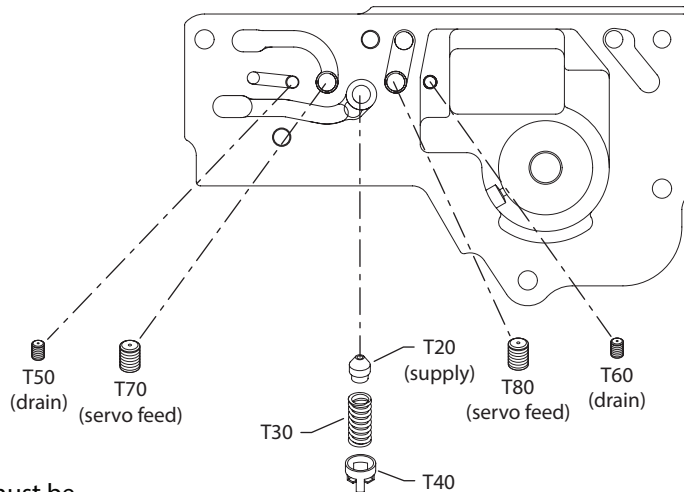
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
NU	M11	94-30		504733	Control gasket	1
	M14	94-30		11070305	Feedback link	1
	M26	94-30		144725 (9004105-0110)	O-ring	1
	M27	94-30		042557 (9006300-0044)	Retaining ring	1
	M29	94-30		692889 (9007314-0611)	Screw	2
	M51	94-30		345462	Nut	1
	M70	94-30		769075	Control handle, sharp bend	1
	M71	94-30		689018 (9009660-3100)	Toothlock washer	1
	M72	94-30		040642 (9003513-0800)	Nut	1
	M75	94-30		500147	Control manifold assembly	1
	M76	94-30		8700100	Solenoid valve	1
	M77	94-30		500260	Manifold gasket	1
	M83	94-30		784686 (9004104-0130)	O-ring	1
	M90	94-30		9007314-0614	Screw	6
	QM10	94-30		11015114	MDC kit, NL w/nss	1
	QM89	94-30		11087773	Back-up alarm switch kit	1
	QM210	94-30		11100415	Control seal kit	1



Variable displacement pump



View "A"



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

E100813 E

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


Variable displacement pump
Control

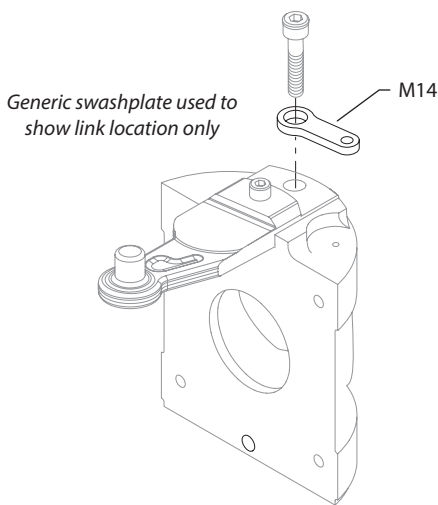
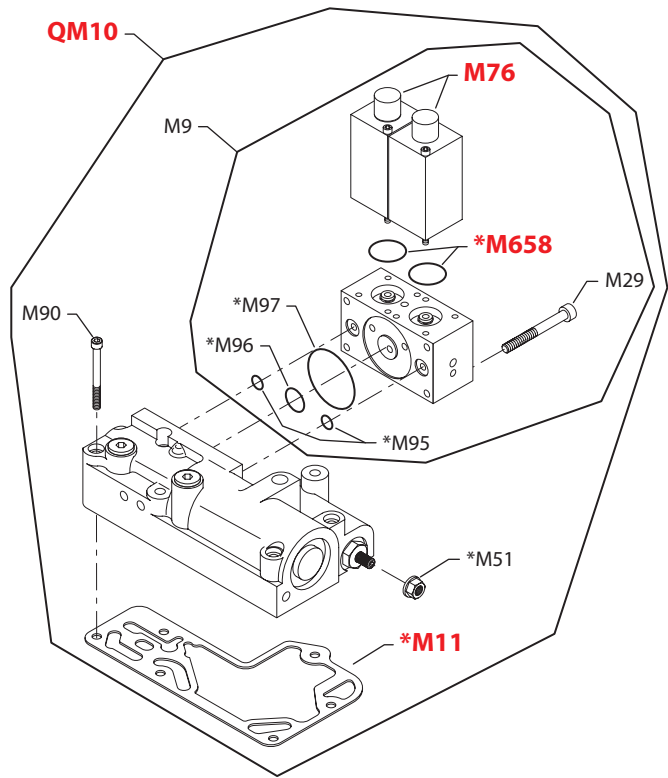
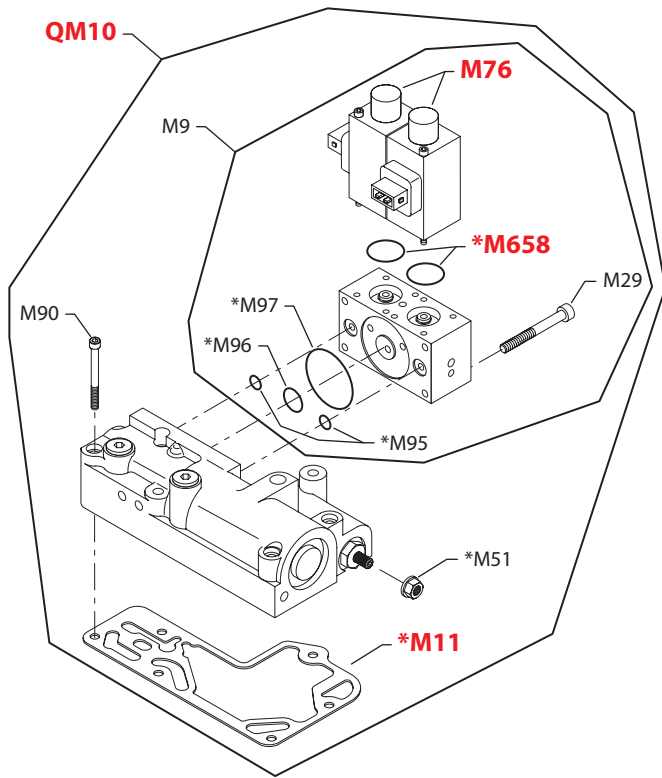
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
PA	M9	94-07		782037	PDC, 12 volt	1
	M11	94-07		8801241	Control gasket	1
	M14	96-40		11070305	Feedback link (SB-1999-019 & SB-2013-011)	1
	M14	94-07	96-39	8000481	Feedback link (SB-1996-009)	1
	M29	94-07		035592	Screw	4
	M51	94-07		9003509-0008	Seal nut	1
	M76	94-07		11001795	Solenoid, 12 volt, din connector	2
	M90	94-07		692889 (9007314-0611)	Screw	6
	M95	94-07		011296 (9004105-0120)	O-ring	2
	M96	94-07		688721 (9004104-0170)	O-ring	1
	M97	94-07		314534 (9004104-0310)	O-ring	1
	M658	94-07		635938 (9004100-0210)	O-ring	2
	QM10	94-07		8510166	HDC2, w/PDC	1
	QM210	94-07		11096251	Control seal kit	1
	PB	M9	94-15		782045	PDC, 24 volt
M11		94-15		8801241	Control gasket	1
M14		96-40		11070305	Feedback link (SB-1999-019 & SB-2013-011)	1
M14		94-15	96-39	8000481	Feedback link (SB-1996-009)	1
M29		94-15		035592	Screw	4
M51		94-15		9003509-0008	Seal nut	1
M76		94-15		11001794	Solenoid, 24 volt, din connector	2
M90		94-15		692889 (9007314-0611)	Screw	6
M95		94-15		011296 (9004105-0120)	O-ring	2
M96		94-15		688721 (9004104-0170)	O-ring	1
M97		94-15		314534 (9004104-0310)	O-ring	1
M658		94-15		635938 (9004100-0210)	O-ring	2
QM10		94-15		11034092	Electro-hydraulic control kit	1
QM210		94-15		11096251	Control seal kit	1
PE		M9	10-30		11175053	HIC, proportional reducing manifold assembly
	M11	10-30		8801241	Control gasket	1
	M14	10-30		11070305	Feedback link	1
	M29	10-30		K28807	Screw	4
	M51	10-30		9003509-0008	Seal nut	1
	M90	10-30		692889 (9007314-0611)	Screw	6
	M96	10-30		9004105-0120	O-ring	4
	QM10	10-30		8510318	EDC, high current, 3-11 bar, 12 volt	1
	QM034	10-30		11100210	Solenoid valve seal kit	2
	QM036	10-30		11175054	Coil nut	2
	QM037	10-30		11175055	Coil, 12 volt	2
	QM76	10-30		11175056	Solenoid valve, 12 volt	2
	QM210	10-30		11100211	Control seal kit	1



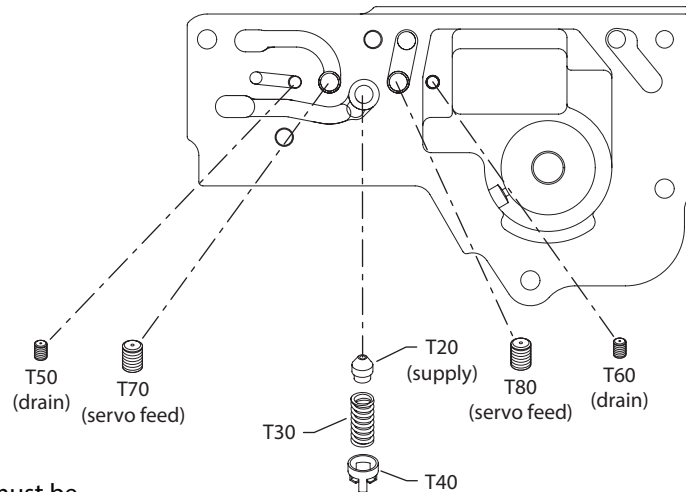
Variable displacement pump

(PF)

(PG)



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.

* = included in control seal kit QM210

E103 087 E

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

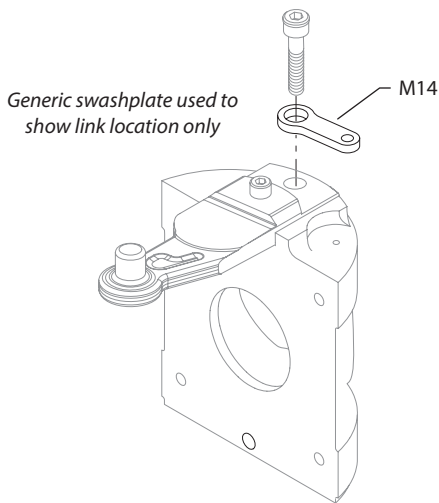
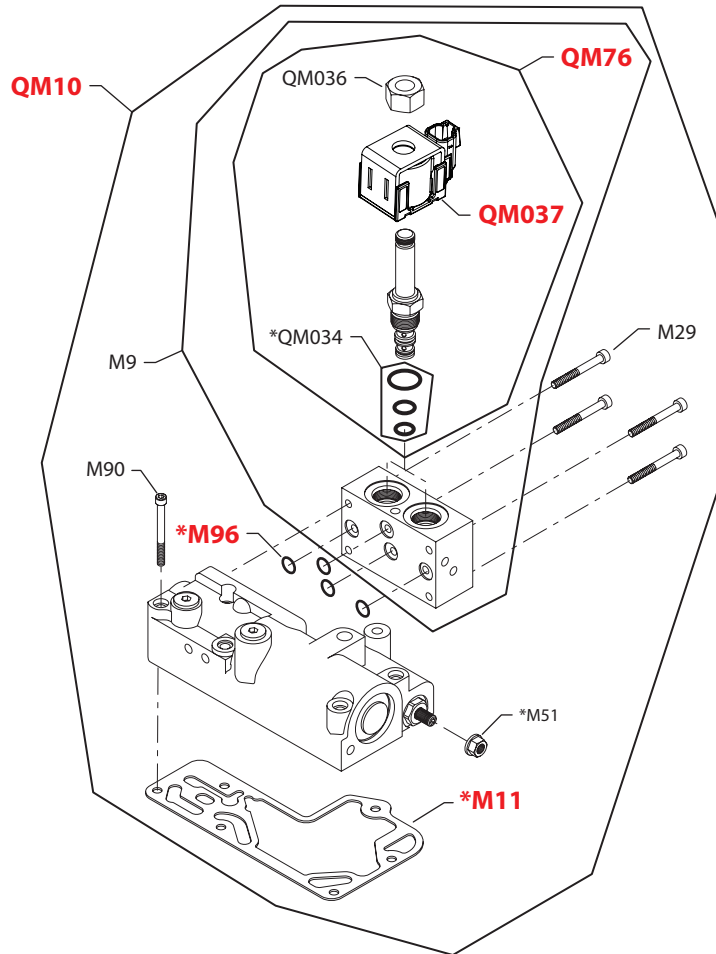

Variable displacement pump
Control

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit	
PF	M9	03-32		519719	PDC, 12 volt	1	
	M11	03-32		8801241	Control gasket	1	
	M14	03-32		11070305	Feedback link (SB-2013-011)	1	
	M29	03-32		035592	Screw	4	
	M51	03-32		9003509-0008	Seal nut	1	
	M76	03-32		11001793	Solenoid, 12 volt, AMP connector	2	
	M90	03-32		692889 (9007314-0611)	Screw	6	
	M95	03-32		011296 (9004105-0120)	O-ring	2	
	M96	03-32		688721 (9004104-0170)	O-ring	1	
	M97	03-32		314534 (9004104-0310)	O-ring	1	
	M658	03-32		635938 (9004100-0210)	O-ring	2	
	QM10	03-32		11098760	EDC2, 12 volt, AMP connector	1	
	QM210	03-32		11096251	Control seal kit	1	
	PG	M9	06-13		11001679	PDC, 12 volt	1
		M11	06-13		8801241	Control gasket	1
M14		06-13		11070305	Feedback link (SB-2013-011)	1	
M29		06-13		035592	Screw	4	
M51		06-13		9003509-0008	Seal nut	1	
M76		06-13		11001793	Solenoid, 12 volt, AMP connector	2	
M90		06-13		692889 (9007314-0611)	Screw	6	
M95		06-13		011296 (9004105-0120)	O-ring	2	
M96		06-13		688721 (9004104-0170)	O-ring	1	
M97		06-13		314534 (9004104-0310)	O-ring	1	
M658		06-13		635938 (9004100-0210)	O-ring	2	
QM10		06-13		11098761	EDC2, 12 volt, AMP connector	1	
QM210		06-13		11096251	Control seal kit	1	

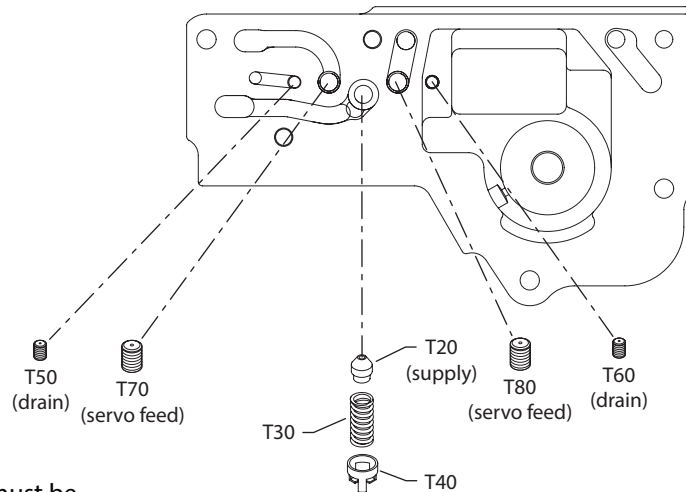


Variable displacement pump

(PH & PJ)



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.

* = included in control seal kit QM210

E103 088 E

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



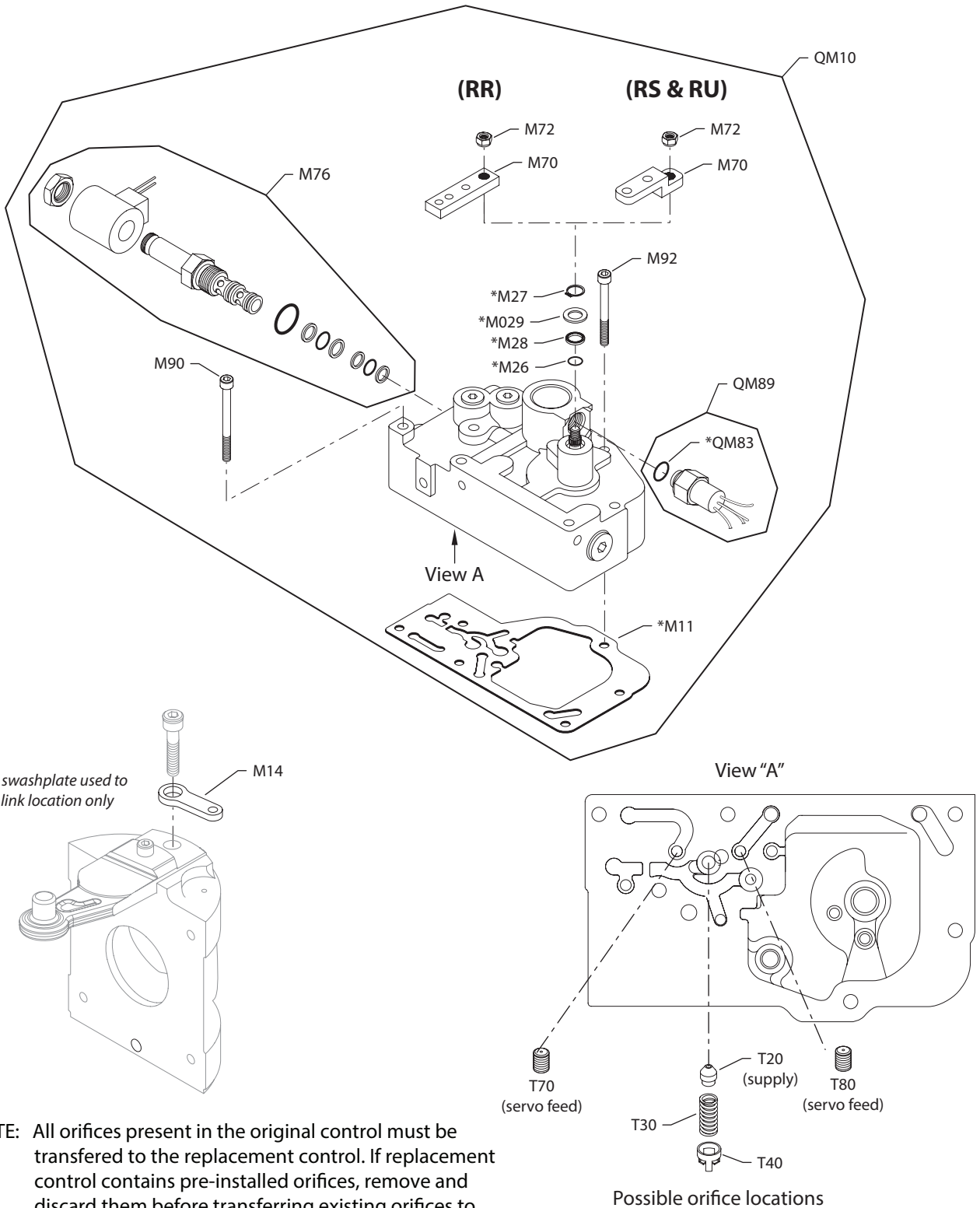
Variable displacement pump

Control

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
PH	M9	13-37		11175060	HIC, proportional reducing manifold assembly	1
	M11	13-37		8801241	Control gasket	1
	M14	13-37		11070305	Feedback link	1
	M29	13-37		K28807	Screw	4
	M51	13-37		9003509-0008	Seal nut	1
	M90	13-37		692889 (9007314-0611)	Screw	6
	M96	13-37		9004105-0120	O-ring	4
	QM10	13-37		11121735	EDC, high current	1
	QM034	13-37		11175057	Solenoid valve seal kit	2
	QM036	13-37		11175058	Coil nut	2
	QM037	13-37		11175059	Coil, 12 volt	2
	QM76	13-37		11174842	Solenoid valve, 12 volt	2
	QM210	13-37		11138468	Control seal kit	1
	PJ	M9	14-15		11175061	HIC, proportional reducing manifold assembly
M11		14-15		8801241	Control gasket	1
M14		14-15		11070305	Feedback link	1
M29		14-15		K28807	Screw	4
M51		14-15		9003509-0008	Seal nut	1
M90		14-15		692889 (9007314-0611)	Screw	6
M96		14-15		9004105-0120	O-ring	4
QM10		14-15		11141115	EDC, high current	1
QM034		14-15		11175057	Solenoid valve seal kit	2
QM036		14-15		11175058	Coil nut	2
QM037		14-15		11175074	Coil, 24 volt	2
QM76		14-15		11175075	Solenoid valve, 24 volt	2
QM210		14-15		11138468	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

E103 089E
 Enlarged **bold** type item numbers are recommended parts to be stocked for servicing

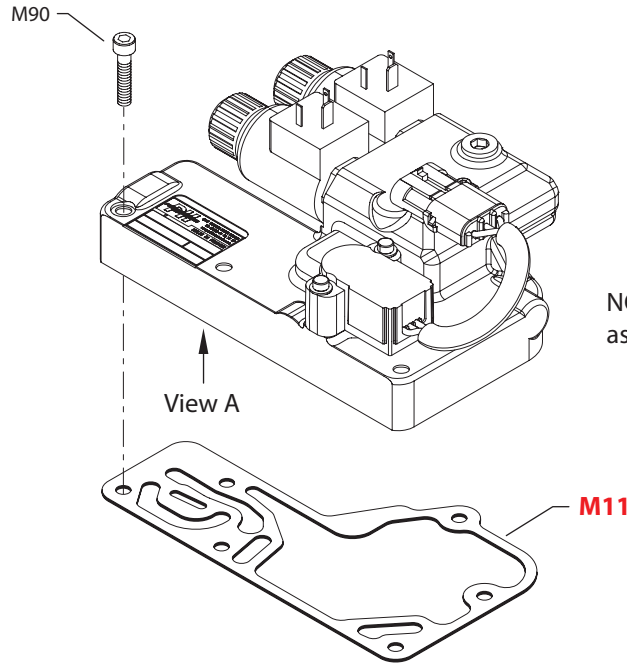

Variable displacement pump
Control

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
RR	M11	99-06		510378	Control gasket	1
	M14	99-06		11070305	Feedback link (SB-2013-011)	1
	M26	99-06		144725 (9004105-0110)	O-ring	1
	M27	99-06		042557 (9006300-0044)	Retaining ring	1
	M28	99-06		510690	Lip seal	1
	M029	99-06		512047	Washer	1
	M70	99-06		9800916	Control handle	1
	M72	99-06		040642 (9003513-0800)	Nut	1
	M76	99-06		513582	Solenoid valve, 12 volt	1
	M90	99-06		354407	Screw	5
	M92	99-06		510382	Screw	1
	QM10	99-06		8510245	MDC kit, roller	1
	QM83	99-06		001131 (9004201-5000)	O-ring	1
	QM89	99-06		11099847	Neutral start switch, high force	1
	QM210	99-06		11100030	Control seal kit	1
RS	M11	01-15		510378	Control gasket	1
	M14	01-15		11070305	Feedback link (SB-2013-011)	1
	M26	01-15		144725 (9004105-0110)	O-ring	1
	M27	01-15		042507 (9006300-0044)	Retaining ring	1
	M28	01-15		510690	Lip seal	1
	M029	01-15		512047	Washer	1
	M70	01-15		769075	Control handle, sharp bend	1
	M72	01-15		040642 (9003513-0800)	Nut	1
	M76	01-15		513018	Solenoid valve, 24 volt	1
	M90	01-15		354407	Screw	5
	M92	01-15		510382	Screw	1
	QM10	01-15		11087610	MDC kit, roller	1
	QM83	01-15		001131 (9004201-5000)	O-ring	1
	QM89	01-15		11099847	Neutral start switch, high force	1
	QM210	01-15		11100030	Control seal kit	1
RU	M11	97-30		510378	Control gasket	1
	M14	97-30		11070305	Feedback link (SB-2013-011)	1
	M26	97-30		144725 (9004105-0110)	O-ring	1
	M27	97-30		042557 (9006300-0044)	Retaining ring	1
	M28	97-30		510690	Lip seal	1
	M029	97-30		512047	Washer	1
	M70	97-30		769075	Control handle, sharp bend	1
	M72	97-30		040642 (9003513-0800)	Nut	1
	M76	97-30		513017	Solenoid valve, 12 volt	1
	M90	97-30		354407	Screw	5
	M92	01-15		510382	Screw	1
	QM10	97-30		11087609	MDC kit, roller	1
	QM83	97-30		001131 (9004201-5600)	O-ring	1
	QM89	97-30		11099847	Neutral start switch, high force	1
	QM210	97-30		11100030	Control seal kit	1

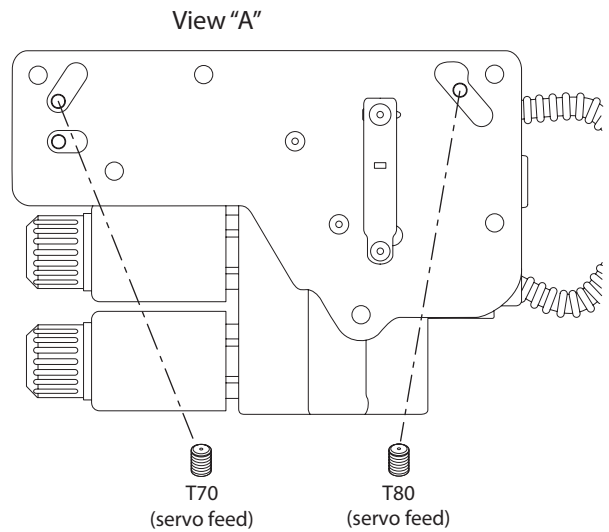
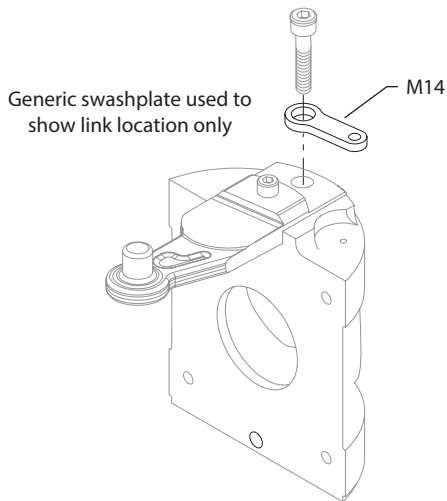


Variable displacement pump

(SA, SB, SD & SE)



NOTE: This control is not available as a service part



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.

E103 090E

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



Variable displacement pump

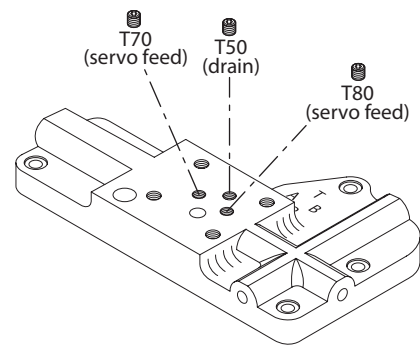
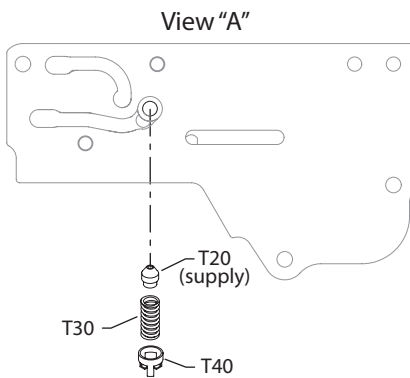
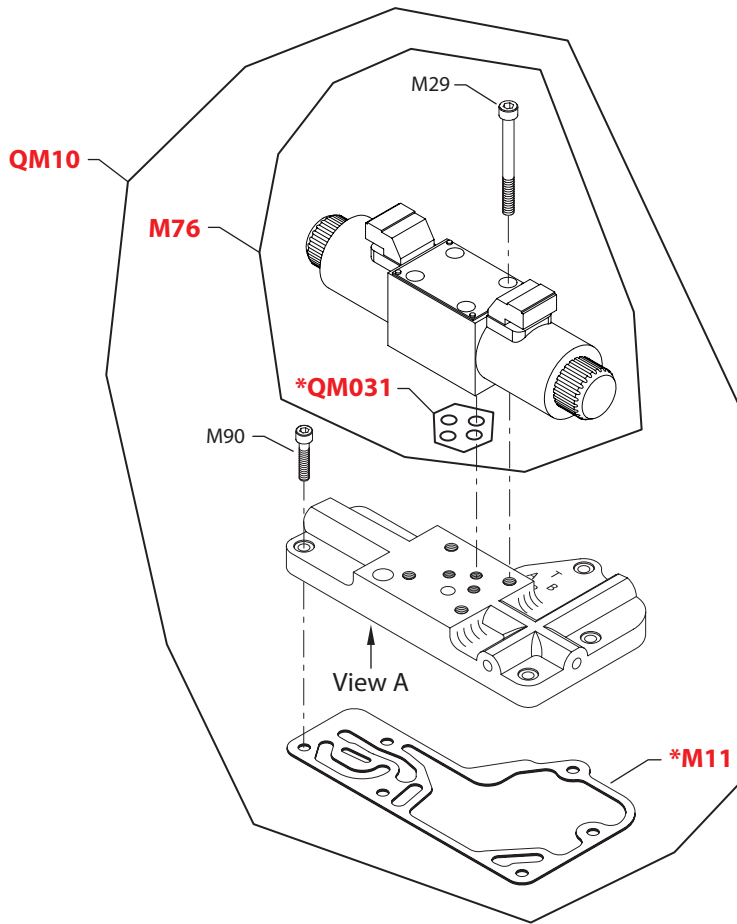
Control

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
SA	M11	07-23		8800923	Gasket	1
	M14	07-23		11070305	Feedback link	1
	M90	07-23		694356 (9007314-0608)	Screw	6
SB	M11	07-23		8800923	Gasket	1
	M14	07-23		11070305	Feedback link	1
	M90	07-23		694356 (9007314-0608)	Screw	6
SD	M11	10-34		8800923	Gasket	1
	M14	10-34		11070305	Feedback link	1
	M90	10-34		694356 (9007314-0608)	Screw	6
SE	M11	10-34		8800923	Gasket	1
	M14	10-34		11070305	Feedback link	1
	M90	10-34		694356 (9007314-0608)	Screw	6



Variable displacement pump

(SC)



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

E103 091E

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



Variable displacement pump

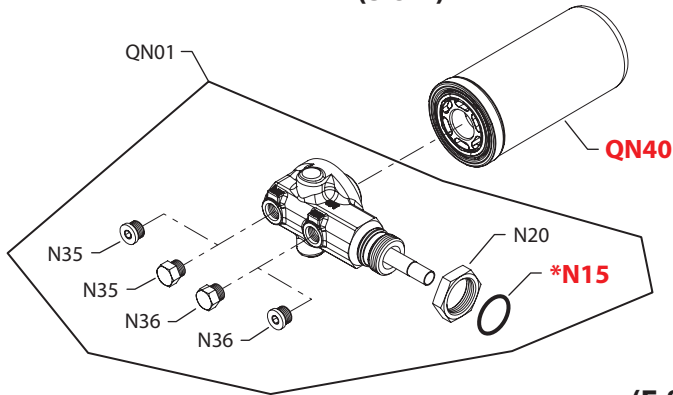
Control

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
SC	M11	98-21		8800923	Gasket	1
	M29	98-21		035592	Screw	4
	M76	98-21		509848	Solenoid valve, 12 volt	1
	M90	98-21		693341 (9007314-0606)	Screw	6
	QM10	98-21		11098762	Control kit, 3-position, 12 volt	1
	QM031	98-21		11099647	Valve seal kit	1
	QM210	98-21		11096172	Control seal kit	1

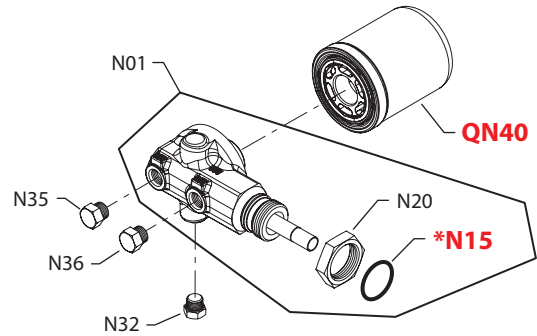


Variable displacement pump

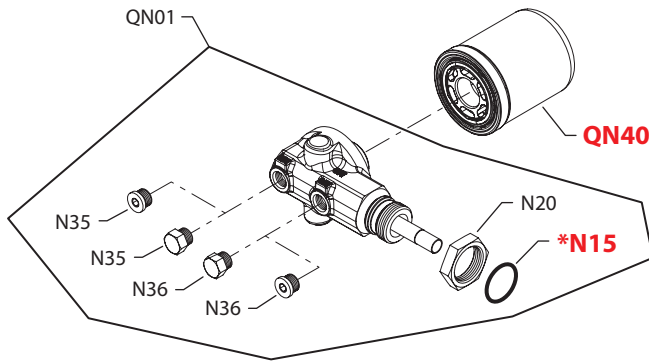
(3 & L)



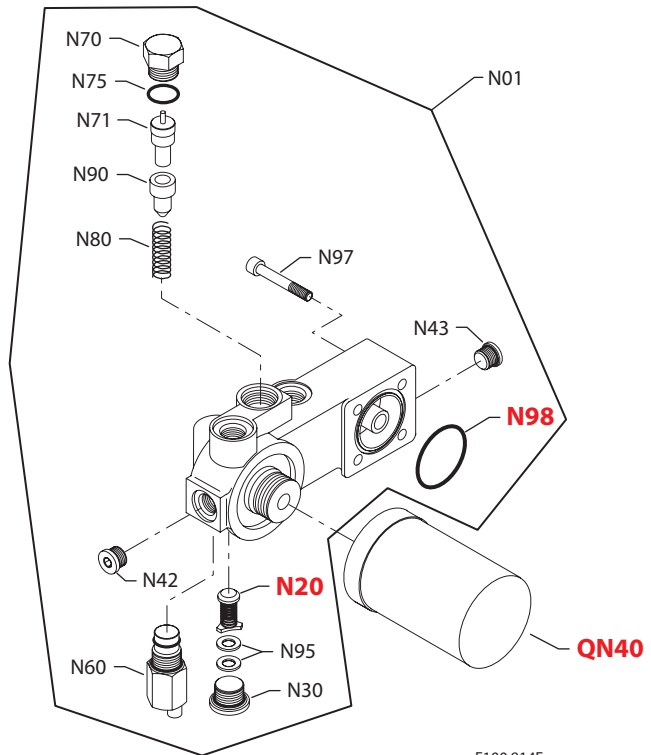
(6)



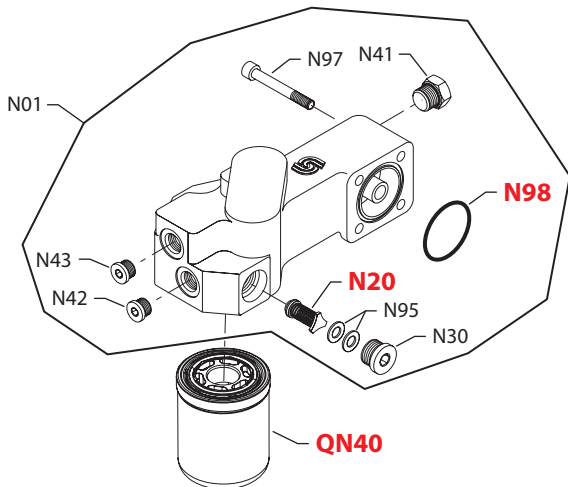
(E & P)



(J)



(G)



E100 814E

* = included in base pump seal kit Q210

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

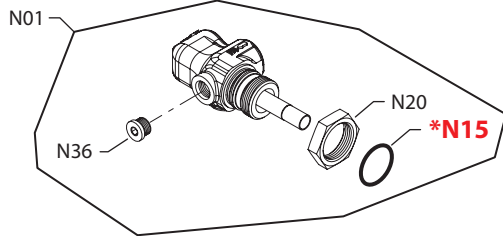

Variable displacement pump
Filtration

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
3	N15	99-18		001172 (9004201-9000)	O-ring	1
	N20	99-18		11049997	Nut	1
	N35	99-18		140644 (9005100-5600)	Plug assembly	1
	N36	99-18		140644 (9005100-5600)	Plug assembly	1
	QN01	99-18		11145249	Filter manifold kit	1
	QN40	99-18		11004919	Filter, long	1
	6	N01	00-01		11060345	Filter manifold assembly
N15		00-01		001172 (9004201-9000)	O-ring	1
N20		00-01		11049997	Nut	1
N32		00-01		140644 (9005100-5600)	Plug assembly	1
N35		00-01		140644 (9005100-5600)	Plug assembly	1
N36		00-01		140644 (9005100-5600)	Plug assembly	1
QN40		00-01		11004917	Filter, short	1
8 & D				None		
E	N15	96-46		001172 (9004201-9000)	O-ring	1
	N20	96-46		11049997	Nut	1
	N35	96-46		140644 (9005100-5600)	Plug assembly	1
	N36	96-46		140644 (9005100-5600)	Plug assembly	1
	QN01	96-46		11145249	Filter manifold kit	1
	QN40	96-46		11004917	Filter, short	1
	G & J	N01	96-46		501831	Filter manifold assembly
N20		96-46		360768	Check valve	1
N30		96-46		365965	Plug assembly	1
N41		96-46		001537	Plug assembly	1
N42		96-46		140644 (9005100-5600)	Plug assembly	1
N43		96-46		140644 (9005100-5600)	Plug assembly	1
N95		96-46		500115	Washer	2
N97		96-46		376269	Screw	4
N98		96-46		9004104-0320	O-ring	1
QN40		96-46		11004917	Filter, short	1
L	N15	87-02		001172 (9004201-9000)	O-ring	1
	N20	95-18		11049997	Nut (SB-1994-036)	1
	N20	87-02	95-17	700492 (9002863-1600)	Nut	1
	N35	87-02		140644 (9005100-5600)	Plug assembly	1
	N36	87-02		140644 (9005100-5600)	Plug assembly	1
	QN01	87-02		11145249	Filter manifold kit	1
	QN40	87-02		11004919	Filter, long	1
	P	N15	87-02		001172 (9004201-9000)	O-ring
N20		95-18		11049997	Nut (SB-1994-036)	1
N20		87-02	95-17	700492 (9002863-1600)	Nut	1
N35		87-02		140644 (9005100-5600)	Plug assembly	1
N36		87-02		140644 (9005100-5600)	Plug assembly	1
QN01		87-02		11145249	Filter manifold kit	1
QN40		87-02		11004917	Filter, short	1

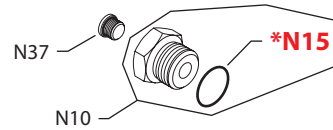


Variable displacement pump

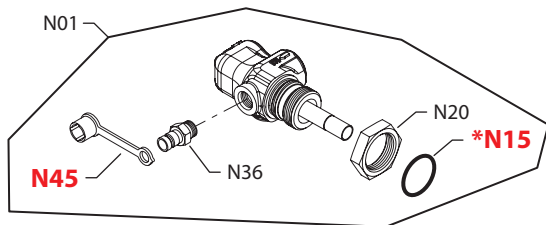
(R)



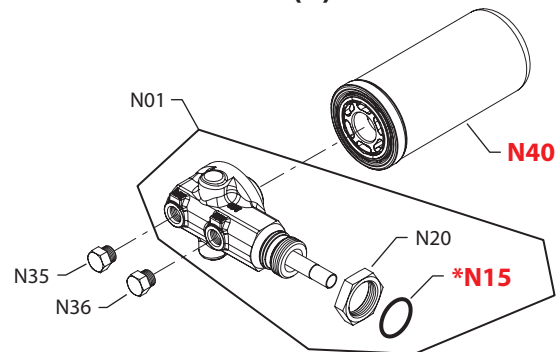
(S)



(U)



(X)



E100 815E

* = included in base pump seal kit Q210

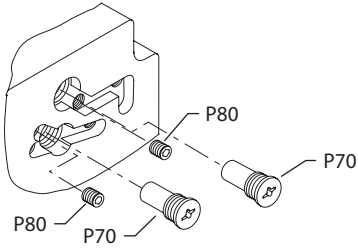
Enlarged **bold** type item numbers are recommended parts to be stocked for servicing


Variable displacement pump
Filtration

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
R	N01	87-02		11060427	Filter manifold assembly	1
	N15	87-02		001172 (9004201-9000)	O-ring	1
	N20	95-18		11049997	Nut (SB-1994-036)	1
	N20	87-02	95-17	700492 (9002863-1600)	Nut	1
	N36	87-02		140644 (9005100-5600)	Plug assembly	1
S	N10	87-02		707554 (5000230)	Reducer assembly	1
	N15	87-02		001172 (9004201-9000)	O-ring	1
	N37	87-02		140644 (9005110-5600)	Plug assembly	1
U	N01	96-16		11060428	Filter manifold assembly	1
	N15	96-16		001172 (9004201-9000)	O-ring	1
	N20	96-16		11049997	Nut	1
	N36	96-16		140644	Plug assembly	1
	N41	96-16		8700127	Diagnostic receptical	1
	N45	96-16		8700128	Dust cover	1
V				None		
X	N01	01-01		11060344	Filter manifold assembly	1
	N15	01-01		001172 (9004201-9000)	O-ring	1
	N20	01-01		11049997	Nut	1
	N25	01-01		700302 (8800180)	Tube	1
	N35	01-01		9005100-5600	Plug assembly	1
	N36	01-01		9005100-5600	Plug assembly	1
	QN40	01-01		11004919	Filter, long	1

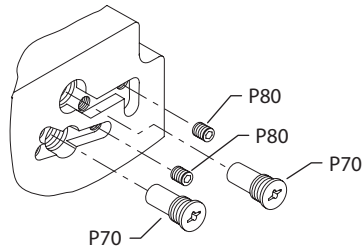


Variable displacement pump



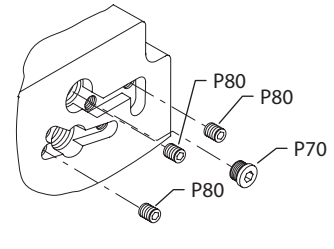
View "A" of end cap with pressure limiters, CCW pump rotation.

Options 1, 5, 6 and F



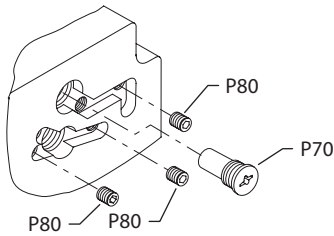
View "A" of end cap with pressure limiters, CW pump rotation.

Options 1, 5, 6 and F



View "A" of end cap without pressure limiters, CCW and CW pump rotation.

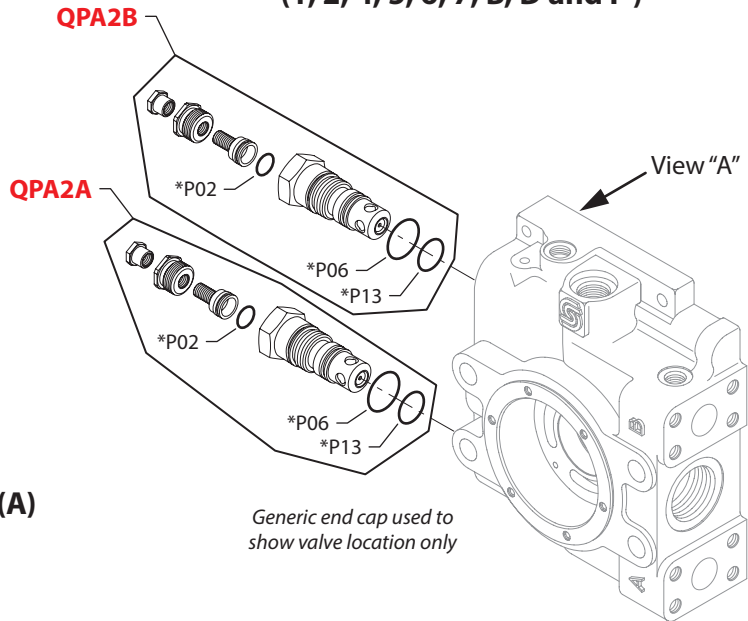
Options 2 and 7



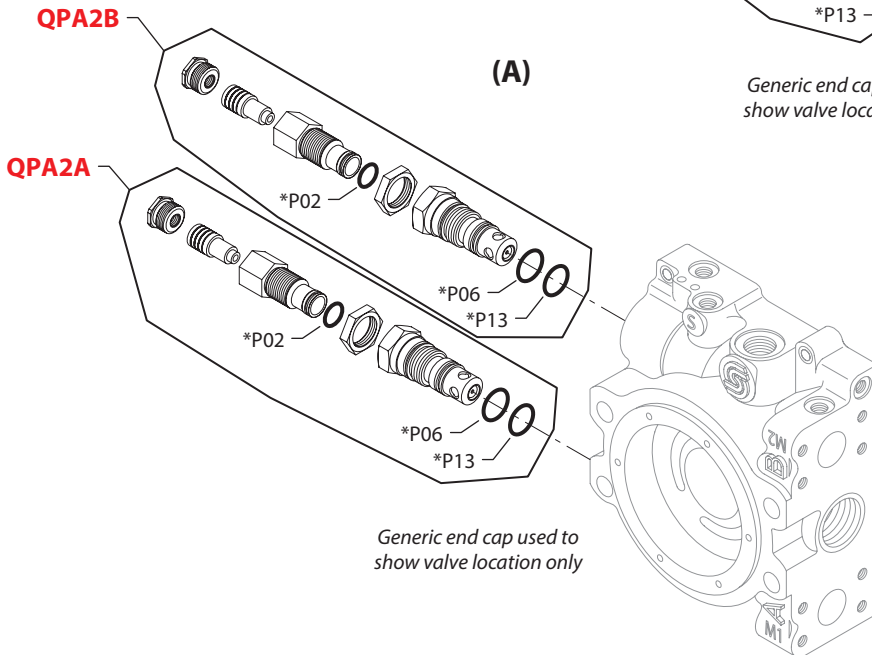
View "A" of end cap with pressure limiter port A, CW pump rotation.

Option B

(1, 2, 4, 5, 6, 7, B, D and F)



Generic end cap used to show valve location only



Generic end cap used to show valve location only

E100 816E

* = included in base pump seal kit Q210

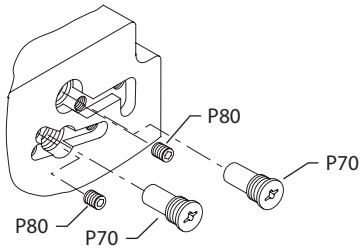
Enlarged **bold** type item numbers are recommended parts to be stocked for servicing


Variable displacement pump
High pressure regulation

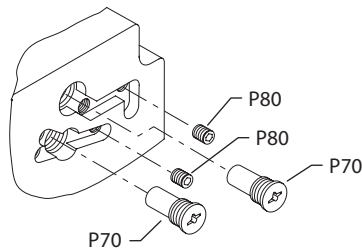
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	P02	87-02		688721 (9004104-0170)	O-ring	2
	P06	87-02		071811	O-ring	2
	P13	87-02		544742 (9004105-0190)	O-ring	2
1	P70	87-02		8800188	Check valve	2
	P80	87-02		9005475-0004	Special plug assembly	2
	QPA2A	87-02		8510022-1	Multi-function valve kit	1
	QPA2B	87-02		8510022-1	Multi-function valve kit	1
2	P70	87-02		327007 (9005110-4400)	Plug (SB-1989-003)	1
	P80	87-02		9005475-0004	Special plug assembly	3
	QPA2A	87-02		8510022-2	Multi-function valve kit	1
	QPA2B	87-02		8510022-2	Multi-function valve kit	1
4	QPA2A	87-02		8510022-7	Multi-function valve kit	1
	QPA2B	87-02		8510022-7	Multi-function valve kit	1
5	P70	87-02		8800188	Check valve	2
	P80	87-02		9005475-0004	Special plug assembly	2
	QPA2A	87-02		8510240	Multi-function valve kit	1
	QPA2B	87-02		8510240	Multi-function valve kit	1
6	P70	87-02		8800188	Check valve	2
	P80	87-02		9005475-0004	Special plug assembly	2
	QPA2A	87-02		8510022-6	Multi-function valve kit	1
	QPA2B	87-02		8510022-6	Multi-function valve kit	1
7	P70	87-02		327007 (9005110-4400)	Plug (SB-1989-003)	1
	P80	87-02		9005475-0004	Special plug assembly	3
	QPA2A	87-02		8510022-7	Multi-function valve kit	1
	QPA2B	87-02		8510022-7	Multi-function valve kit	1
A	QPA2A	87-02		8510202	Multi-function valve kit, 420 bar	1
	QPA2B	87-02		8510202	Multi-function valve kit, 420 bar	1
B	P70	95-22		8800188	Check valve	1
	P80	95-22		9005475-0004	Special plug assembly	3
	QPA2A	95-22		8510022-1	Multi-function valve kit	1
	QPA2B	95-22		8510022-7	Multi-function valve kit	1
D	QPA2A	92-39		8510388	Multi-function valve kit	1
	QPA2B	92-39		8510388	Multi-function valve kit	1
F	P70	04-36		8800188	Check valve	2
	P80	04-36		9005475-0004	Special plug assembly	2
	QPA2A	04.36		8510022-2	Multi-function valve kit	1
	QPA2B	04.36		8510022-2	Multi-function valve kit	1



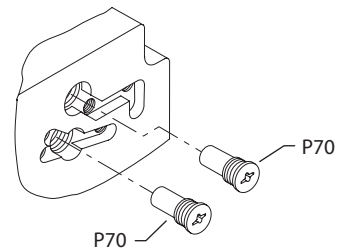
Variable displacement pump



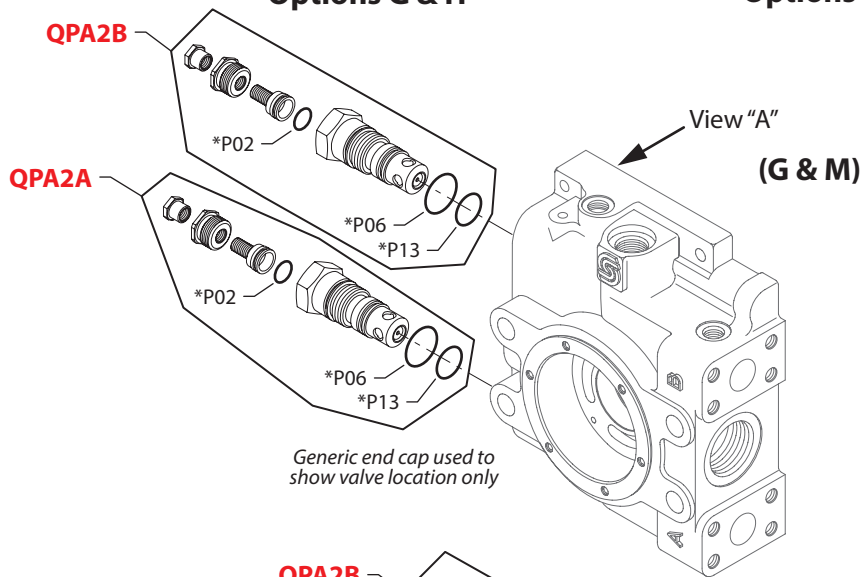
View "A" of end cap with pressure limiters, CCW pump rotation.
Options G & H



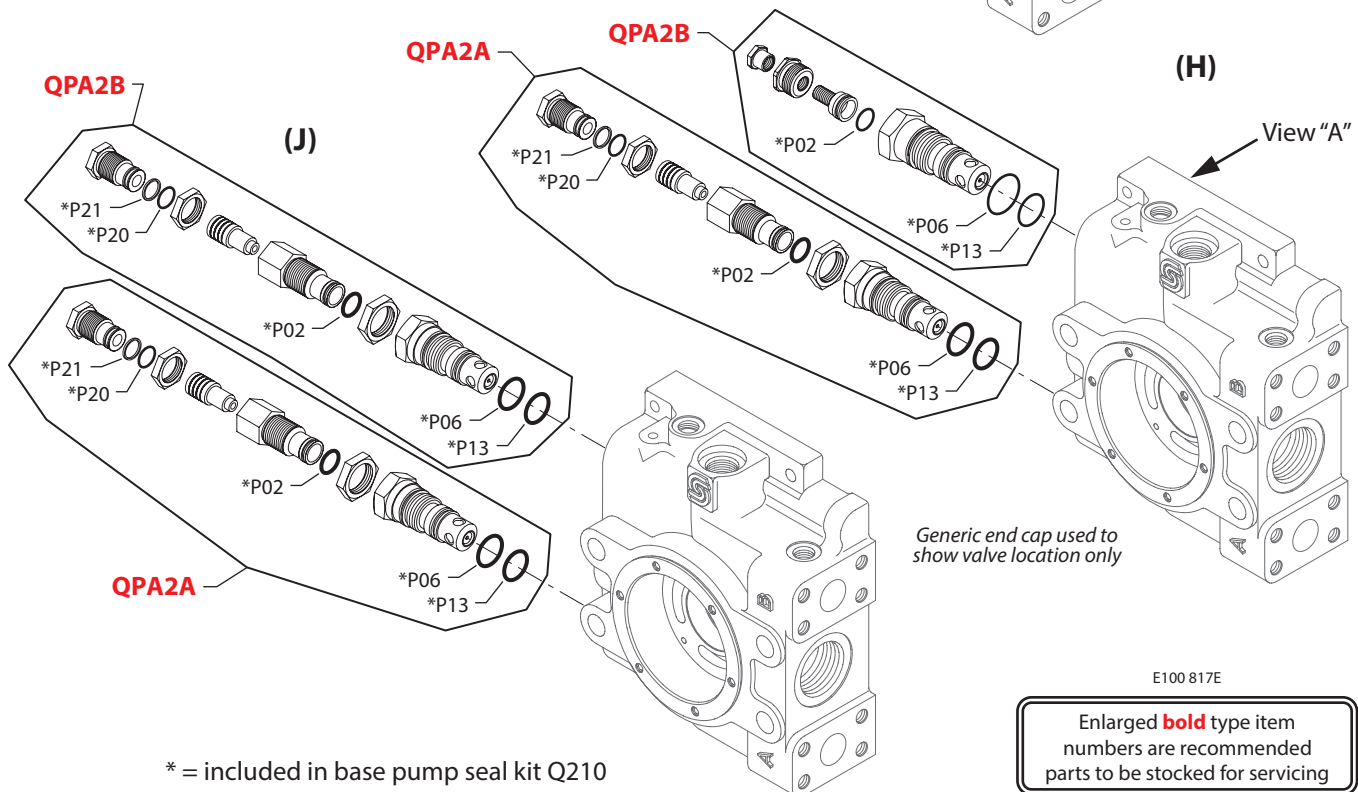
View "A" of end cap with pressure limiters, CW pump rotation.
Options G & H



View "A" of end cap without pressure limiters, CCW and CW pump rotation.
Options M



Generic end cap used to show valve location only



Generic end cap used to show valve location only

* = included in base pump seal kit Q210

E100 817E

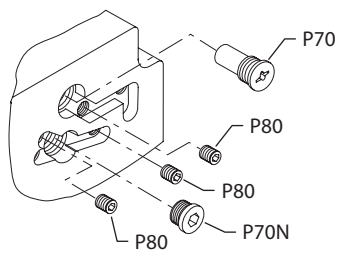
Enlarged **bold** type item numbers are recommended parts to be stocked for servicing


Variable displacement pump
High pressure regulation

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	P02	87-02		688721 (9004104-0170)	O-ring	2
	P06	87-02		071811	O-ring	2
	P13	87-02		544742 (9004105-0190)	O-ring	2
G	P70	97-06		8800188	Check valve	2
	P80	97-06		9005475-0004	Special plug	2
	QPA2A	97-06		8510196	Multi-function valve kit	1
	QPA2B	97-06		8510196	Multi-function valve kit	1
H	P20	97-40		9004105-0160	O-ring	1
	P21	97-40		9006110-0160	Back up ring	1
	P70	97-40		8800188	Check valve	2
	P80	97-40		9005475-0004	Special plug	2
	QPA2A	97-40		8510275	Multi-function valve kit	1
	QPA2B	97-40		8510022-1	Multi-function valve kit	1
J	P20	97-06		9004105-0160	O-ring	2
	P21	97-06		9006110-0160	Back up ring	2
	QPA2A	97-40		8510273	Multi-function valve kit	1
	QPA2B	97-40		8510273	Multi-function valve kit	1
M	P70	98-11		8800188	Check valve	2
	QPA2A	98-11		8510022-1	Multi-function valve kit	1
	QPA2B	98-11		8510022-1	Multi-function valve kit	1



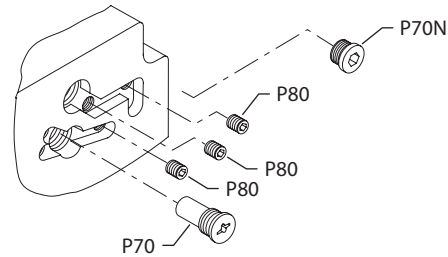
Variable displacement pump



View "A" of end cap with pressure limiter port B, CCW pump rotation.

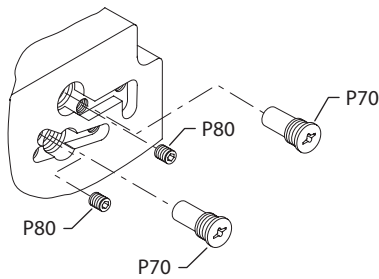
Option N

(N)



View "A" of end cap with pressure limiter port B, CW pump rotation.

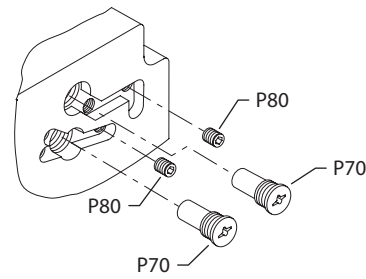
Option N



View "A" of end cap with pressure limiters, CCW pump rotation.

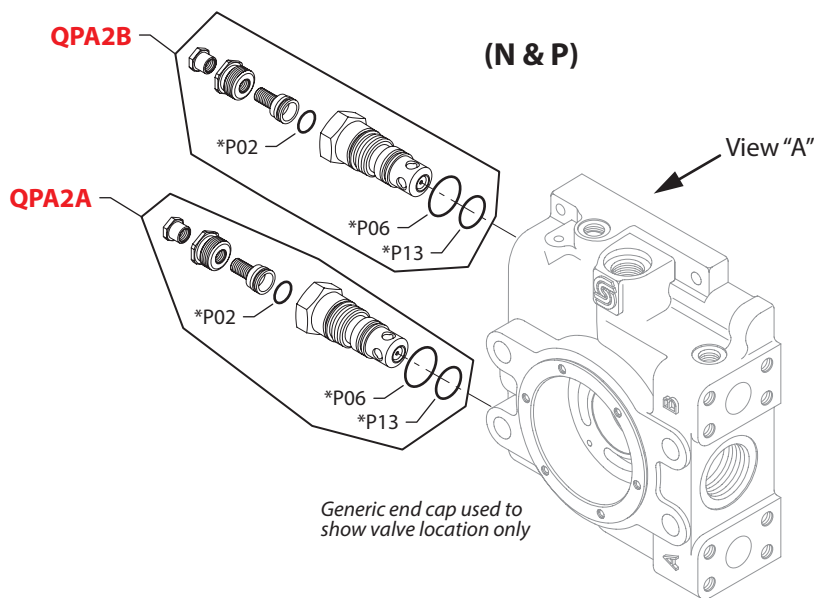
Options P

(P)



View "A" of end cap with pressure limiters, CW pump rotation.

Options P



Generic end cap used to show valve location only

E103 092E

* = included in base pump seal kit Q210

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



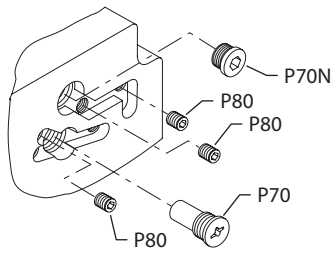
Variable displacement pump

High pressure regulation

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	P02	87-02		688721 (9004104-0170)	O-ring	2
	P06	87-02		071811	O-ring	2
	P13	87-02		544742 (9004105-0190)	O-ring	2
N	P70	98-41		8800188	Check valve	1
	P70N	98-41		327007 (9005110-4400)	Plug assembly	1
	P80	98-41		9005475-0004	Special plug	3
	PA2A	98-41		781971	Plug assembly	1
	QPA2B	98-41		8510022-1	Multi-function valve kit	1
P	P70	99-26		8800188	Check valve	2
	P80	99-26		9005475-0004	Special plug	2
	QPA2A	99-26		8510389	Multi-function valve kit	1
	QPA2B	99-26		8510389	Multi-function valve kit	1

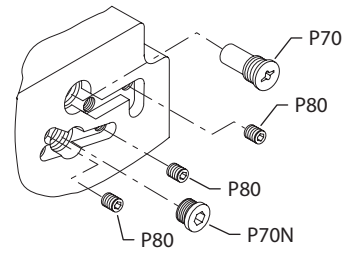


Variable displacement pump

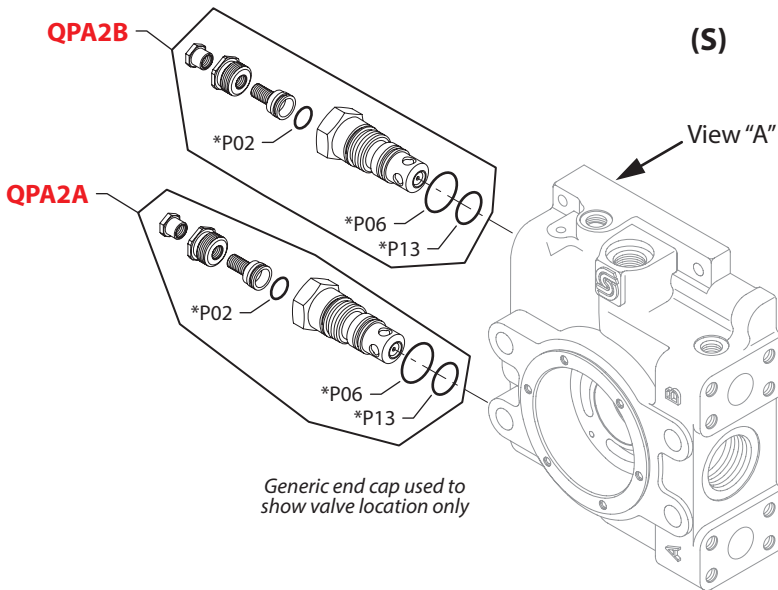
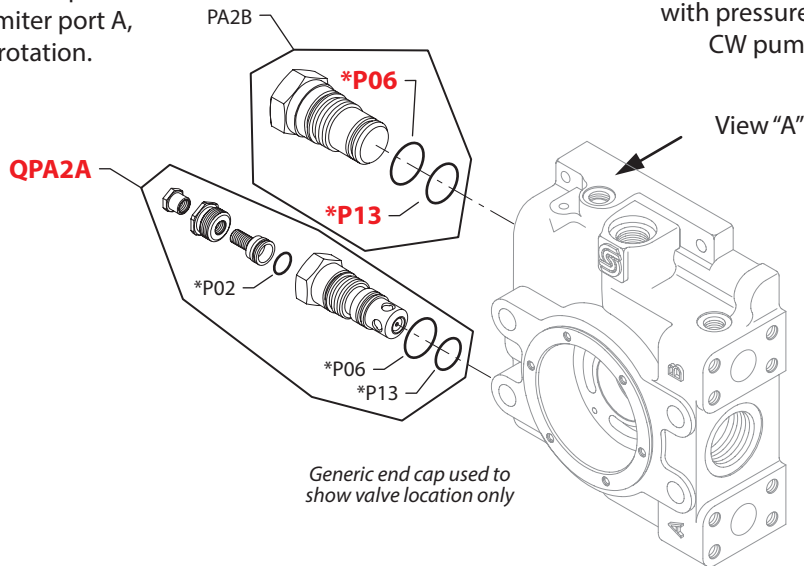


View "A" of end cap with pressure limiter port A, CCW pump rotation.

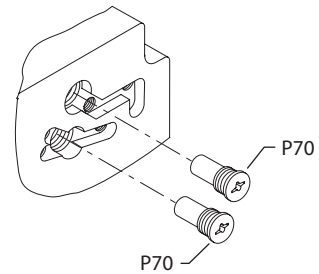
(R)



View "A" of end cap with pressure limiter port A, CW pump rotation.



(S)



View "A" of end cap with pressure limiters

E103 093E

* = included in base pump seal kit Q210

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



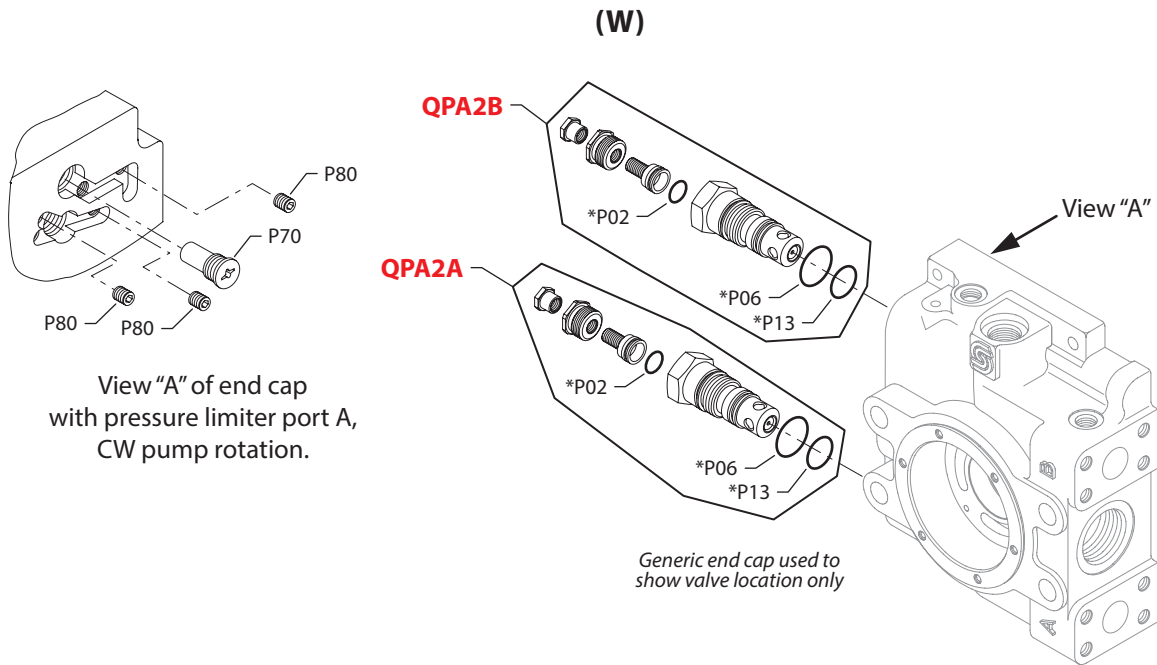
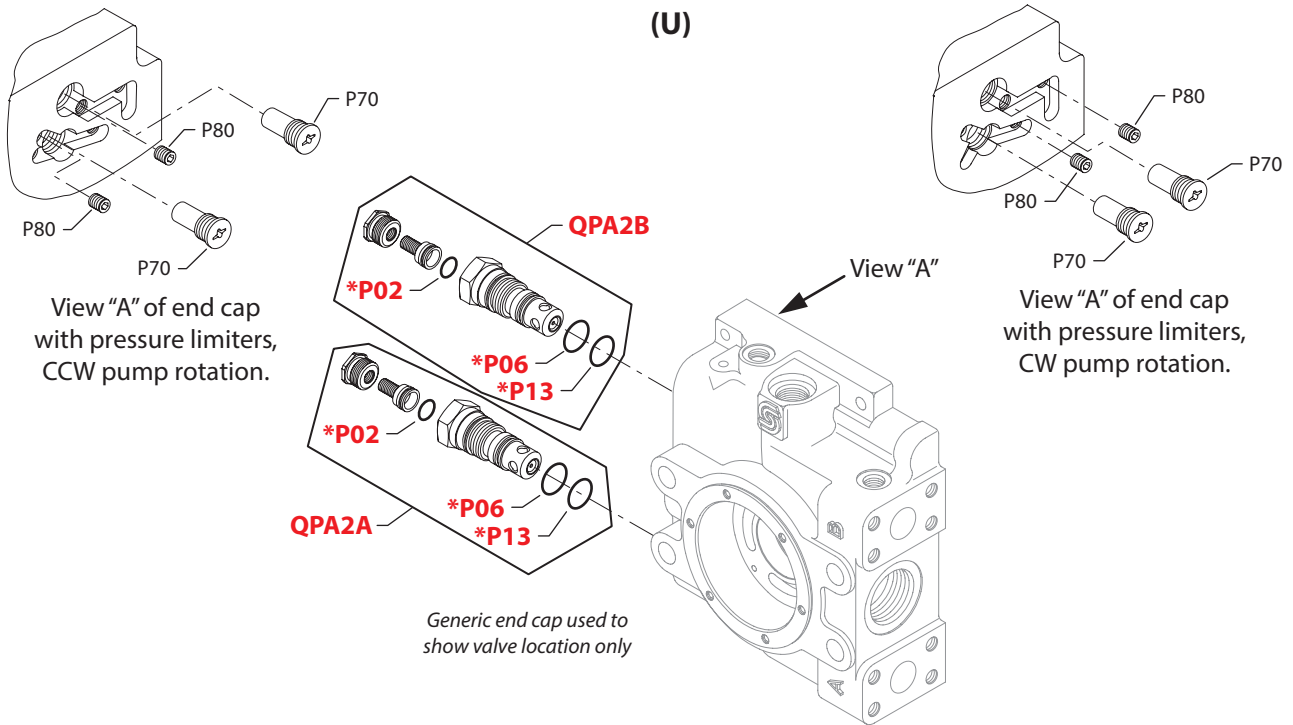
Variable displacement pump

High pressure regulation

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	P02	87-02		688721 (9004104-0170)	O-ring	2
	P06	87-02		071811	O-ring	2
	P13	87-02		544742 (9004105-0190)	O-ring	2
R	P70	99-14		8800188	Check valve	1
	P70N	99-14		327007 (9005110-4400)	Plug assembly	1
	P80	99-14		9005475-0004	Special plug	3
	PA2B	99-14		781971	Plug assembly	1
	QPA2A	99-14		8510022-1	Multi-function valve kit	1
S	P70	02-23		8800188	Check valve	2
	QPA2A	02-23		8510389	Multi-function valve kit	1
	QPA2B	02-23		8510389	Multi-function valve kit	1



Variable displacement pump



* = included in base pump seal kit Q210

E103 094E

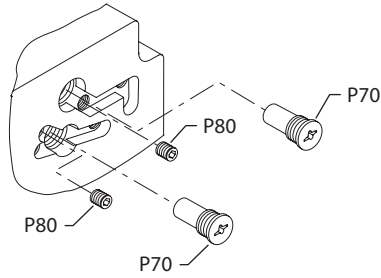
Enlarged **bold** type item numbers are recommended parts to be stocked for servicing


Variable displacement pump
High pressure regulation

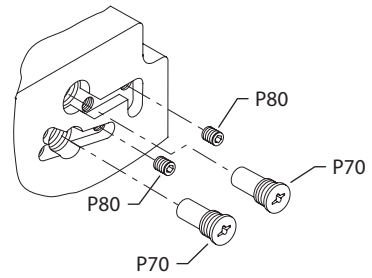
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	P02	87-02		688721 (9004104-0170)	O-ring	2
	P06	87-02		071811	O-ring	2
	P13	87-02		544742 (9004105-0190)	O-ring	2
U	P70	04-36		8800188	Check valve	2
	P80	04-36		9005475-0004	Special plug	2
	QPA2A	04-36		8510022-7	Multi-function valve kit	1
	QPA2B	04-36		8510022-7	Multi-function valve kit	1
W	P70	09-50		8800188	Check valve	1
	P80	09-50		9005475-0004	Special plug	3
	QPA2A	09-50		8510022-1	Multi-function valve kit	1
	QPA2B	09-50		8510022-2	Multi-function valve kit	1



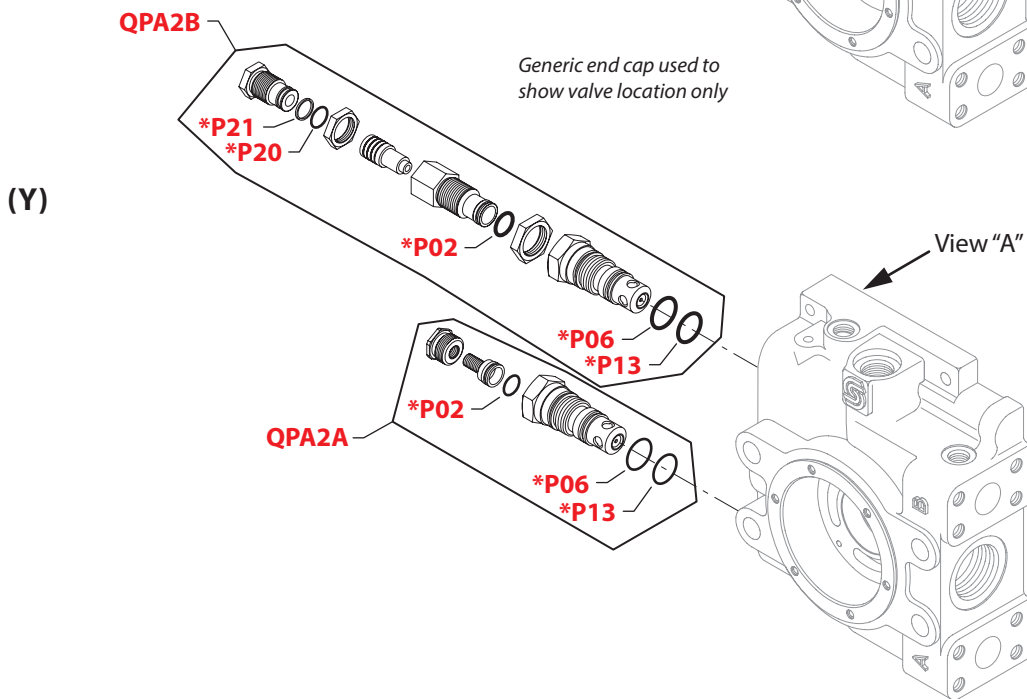
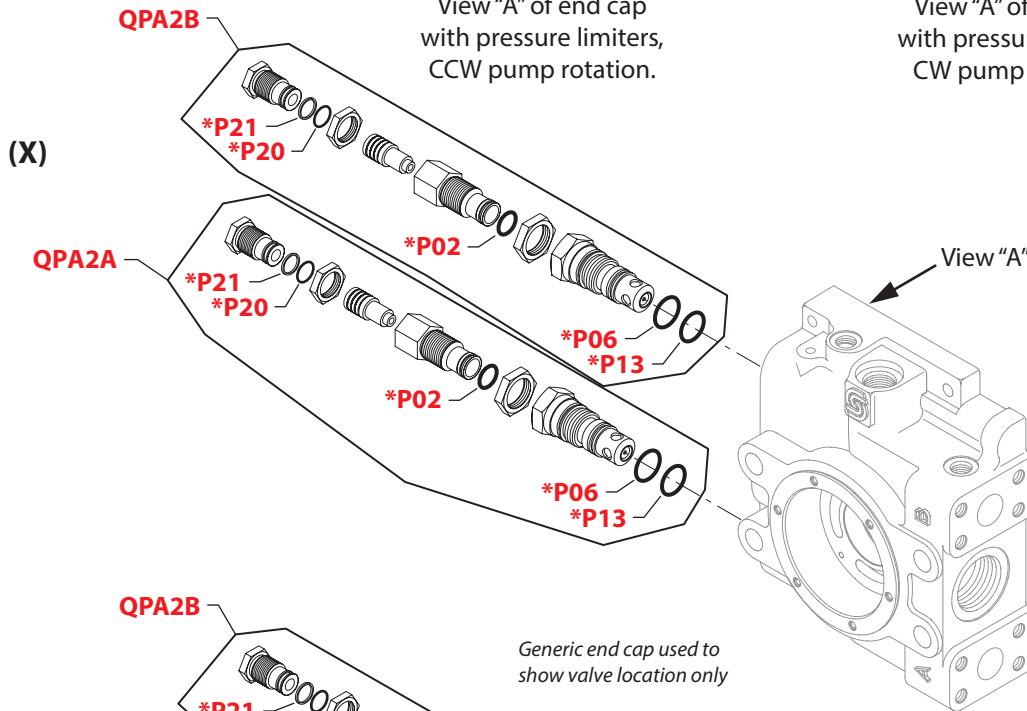
Variable displacement pump



View "A" of end cap with pressure limiters, CCW pump rotation.



View "A" of end cap with pressure limiters, CW pump rotation.



E103.095E

* = included in base pump seal kit Q210

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

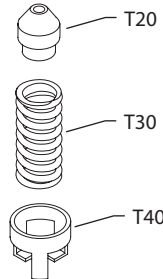

Variable displacement pump
High pressure regulation

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	P02	87-02		688721 (9004104-0170)	O-ring	2
	P06	87-02		071811	O-ring	2
	P13	87-02		544742 (9004105-0190)	O-ring	2
X	P20	09-19		9004105-0160	O-ring	2
	P21	09-19		9006110-0160	Back up ring	2
	P70	09-19		8800188	Check valve	2
	P80	09-19		9005475-0004	Special plug	2
	QPA2A	09-19		11079763	Multi-function valve kit	1
	QPA2B	09-19		11079763	Multi-function valve kit	1
Y	P20	11-02		9004105-0160	O-ring	1
	P21	11-02		9006110-0160	Back up ring	1
	P70	11-02		8800188	Check valve	2
	P80	11-02		9005475-0004	Special plug	2
	QPA2A	11-02		8510022-1	Multi-function valve kit	1
	QPA2B	11-02		8510275	Multi-function valve kit	1



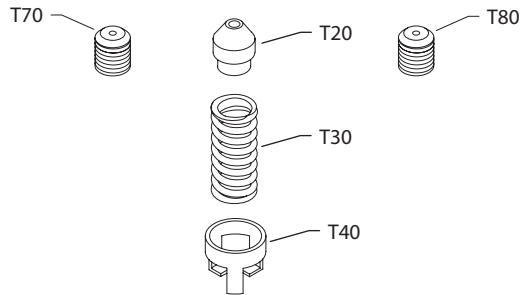
Variable displacement pump

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



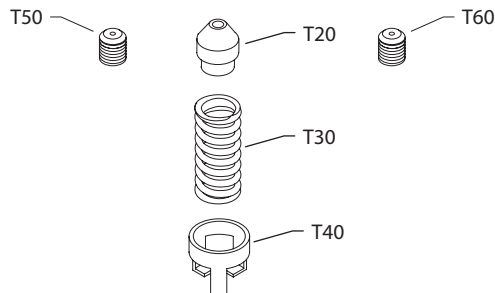
See control drawing
for orifice location

(21)



See control drawing
for orifice location

(23 & 24)



See control drawing
for orifice location

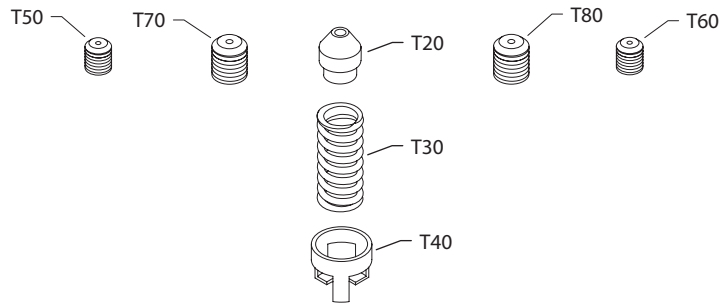

Variable displacement pump
Orifice

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
00				None		
01	T20	87-42		8801136	Orificed check valve, .018"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
02	T20	87-42		8801139	Orificed check valve, .026"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
03	T20	87-42		11061958	Orificed check valve, .032"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
04	T20	87-42		11061970	Orificed check valve, .040"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
05	T20	87-42		11061981	Orificed check valve, .054"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
06	T20	87-42		11061993	Orificed check valve, .062"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
09	T20	87-42		11062006	Orificed check valve, .092"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
21	T20	87-42		11061970	Orificed check valve, .040"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T70	87-42		714477	Orifice plug, 0.8mm, M8 x 8	1
	T80	87-42		714477	Orifice plug, 0.8mm, M8 x 8	1
22	T20	87-42		8801137	Orificed check valve, .022"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
23	T20	87-42		11061958	Orificed check valve, .032"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T50	87-42		639153	Orifice plug, 1.3mm, M5 x 6	1
	T60	87-42		639153	Orifice plug, 1.3mm, M5 x 6	1
24	T20	87-42		8801136	Orificed check valve, .018"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T50	87-42		617159	Orifice plug, 1.8mm, M5 x 6	1
	T60	87-42		617159	Orifice plug, 1.8mm, M5 x 6	1



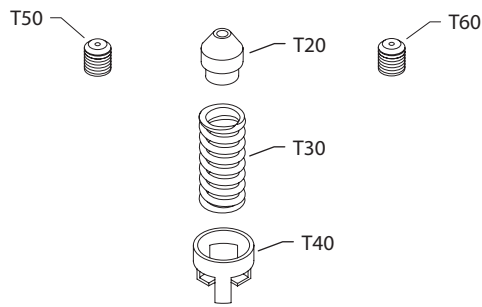
Variable displacement pump

(25, 28, 30 & 35)



See control drawing
for orifice location

(26 & 29)



See control drawing
for orifice location

(32)



See control drawing
for orifice location

(34)



See control drawing
for orifice location



Variable displacement pump

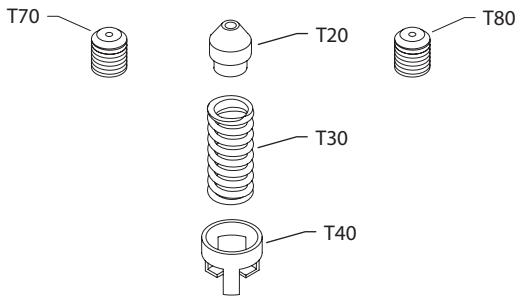
Orifice

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
25	T20	87-42		8801139	Orificed check valve, .026"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T50	87-42		606657	Orifice plug, 0.5mm, M5 x 6	1
	T60	87-42		606657	Orifice plug, 0.5mm, M5 x 6	1
	T70	87-42		716837	Orifice plug, 0.6mm, M8 x 8	1
	T80	87-42		716837	Orifice plug, 0.6mm, M8 x 8	1
	26	T20	87-42		11061958	Orificed check valve, .032"
T30		87-42		679506 (8700007)	Spring	1
T40		87-42		8801303	Spring retainer	1
T50		87-42		598292 (11062004)	Orifice plug, 0.8mm, M5 x 6	1
T60		87-42		598292 (11062004)	Orifice plug, 0.8mm, M5 x 6	1
28		T20	87-42		8801139	Orificed check valve, .026"
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T50	87-42		639104 (11062012)	Orifice plug, 0.7mm, M5 x 6	1
	T60	87-42		639104 (11062012)	Orifice plug, 0.7mm, M5 x 6	1
	T70	87-42		704650 (11062018)	Orifice plug, 0.7mm, M8 x 8	1
	T80	87-42		704650 (11062018)	Orifice plug, 0.7mm, M8 x 8	1
	29	T20	87-42		11061958	Orificed check valve, .032"
T30		87-42		679506 (8700007)	Spring	1
T40		87-42		8801303	Spring retainer	1
T50		87-42		639104 (11062012)	Orifice plug, 0.7mm, M5 x 6	1
T60		87-42		639104 (11062012)	Orifice plug, 0.7mm, M5 x 6	1
30		T20	87-42		8801139	Orificed check valve, .026"
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T50	87-42		639153	Orifice plug, 1.3mm, M5 x 6	1
	T60	87-42		639153	Orifice plug, 1.3mm, M5 x 6	1
	T70	87-42		704650 (11062018)	Orifice plug, 0.7mm, M8 x 8	1
	T80	87-42		704650 (11062018)	Orifice plug, 0.7mm, M8 x 8	1
	32	T50	87-42		639120	Orifice plug, 1.0mm, M5 x 6
T60		87-42		639120	Orifice plug, 1.0mm, M5 x 6	1
33				None		
34	T70	87-42		755793	Orifice plug, 1.0mm, M8 x 8	1
	T80	87-42		755793	Orifice plug, 1.0mm, M8 x 8	1
35	T20	87-42		11061958	Orificed check valve, .032"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T50	87-42		639120	Orifice plug, 1.0mm, M5 x 6	1
	T60	87-42		639120	Orifice plug, 1.0mm, M5 x 6	1



Variable displacement pump

(38 & 42)



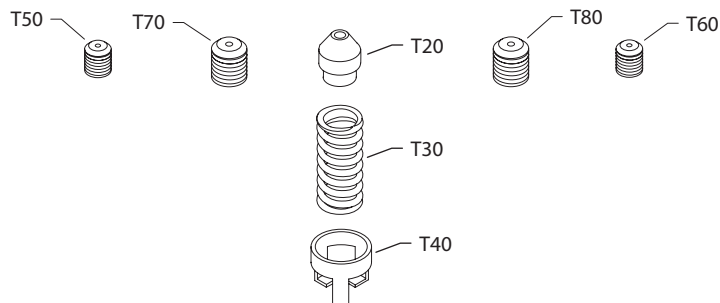
See control drawing
for orifice location

(41)



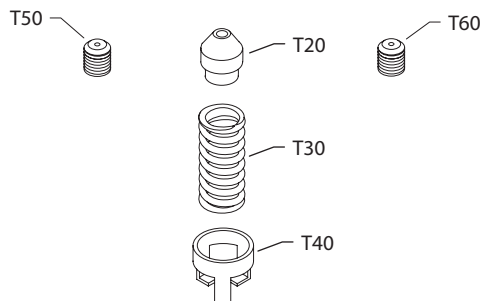
See control drawing
for orifice location

(43)



See control drawing
for orifice location

(45, 46 & 49)



See control drawing
for orifice location

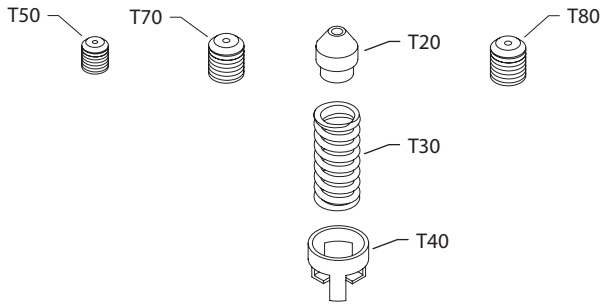

Variable displacement pump
Orifice

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
38	T20	87-42		8801139	Orificed check valve, .026"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T70	87-42		716837	Orifice plug, 0.6mm, M8 x 8	1
	T80	87-42		716837	Orifice plug, 0.6mm, M8 x 8	1
41	T50	87-42		639153	Orifice plug, 1.3mm, M5 x 6	1
	T60	87-42		639153	Orifice plug, 1.3mm, M5 x 6	1
	T70	87-42		704650 (11062018)	Orifice plug, 0.7mm, M8 x 8	1
	T80	87-42		704650 (11062018)	Orifice plug, 0.7mm, M8 x 8	1
42	T20	87-42		11061958	Orificed check valve, .032"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T70	87-42		714477	Orifice plug, 0.8mm, M8 x 8	1
	T80	87-42		714477	Orifice plug, 0.8mm, M8 x 8	1
43	T20	87-42		11061958	Orificed check valve, .032"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T50	87-42		639153	Orifice plug, 1.3mm, M5 x 6	1
	T60	87-42		639153	Orifice plug, 1.3mm, M5 x 6	1
	T70	87-42		755793	Orifice plug, 1.0mm, M8 x 8	1
	T80	87-42		755793	Orifice plug, 1.0mm, M8 x 8	1
45	T20	87-42		11061958	Orificed check valve, .032"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T50	87-42		639153	Orifice plug, 1.3mm, M5 x 6	1
	T60	87-42		598292 (11062004)	Orifice plug, 0.8mm, M5 x 6	1
46	T20	87-42		8801139	Orificed check valve, .026"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T50	87-42		598292 (11062004)	Orifice plug, 0.8mm, M5 x 6	1
	T60	87-42		598292 (11062004)	Orifice plug, 0.8mm, M5 x 6	1
49	T20	87-42		11061958	Orificed check valve, .032"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T50	87-42		598292 (11062004)	Orifice plug, 0.8mm, M5 x 6	1
	T60	87-42		598292 (11062004)	Orifice plug, 0.8mm, M5 x 6	1



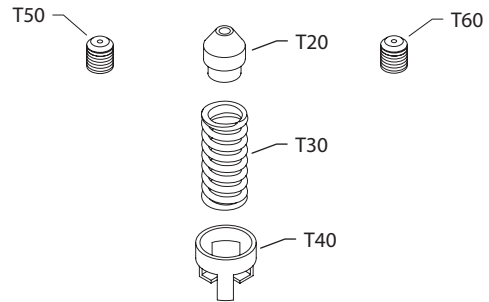
Variable displacement pump

(50 & 52)



See control drawing
for orifice location

(60)



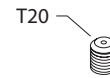
See control drawing
for orifice location

(64)



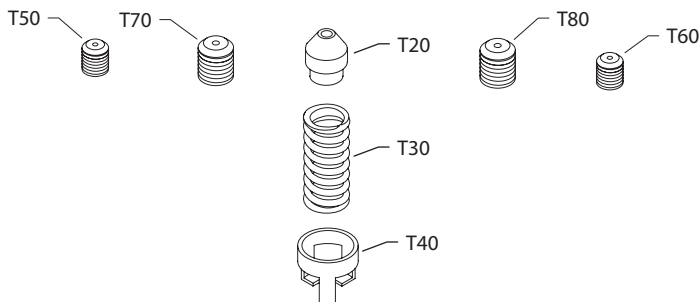
See control drawing
for orifice location

(71)



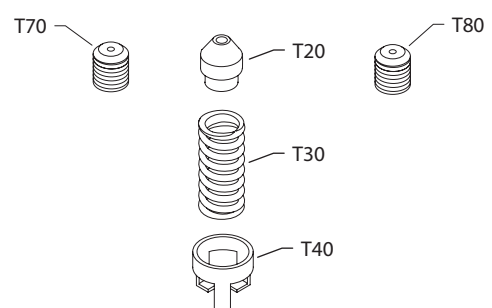
See control drawing
for orifice location

(73 & 74)



See control drawing
for orifice location

(76)



See control drawing
for orifice location

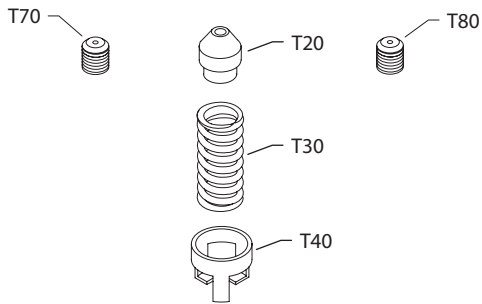

Variable displacement pump
Orifice

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
50	T20	87-42		8801139	Orificed check valve, .026"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T50	87-42		310771	Orifice plug, 1.2mm, M5 x 6	1
	T70	87-42		517571	Orifice plug, 0.9mm, M8 x 8	1
	T80	87-42		517571	Orifice plug, 0.9mm, M8 x 8	1
	52	T20	87-42		11061970	Orificed check valve, 1.02mm
T30		87-42		679506 (8700007)	Spring	1
T40		87-42		8801303	Spring retainer	1
T50		87-42		310771	Orifice plug, 1.2mm, M5 x 6	1
T70		87-42		739144	Orifice plug, 0.8mm, M6 x 6	1
T80		87-42		739144	Orifice plug, 0.8mm, M6 x 6	1
60		T20	87-42		8801136	Orificed check valve, .018"
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T50	87-42		598292 (11062004)	Orifice plug, 0.8mm, M5 x 6	1
	T60	87-42		598292 (11062004)	Orifice plug, 0.8mm, M5 x 6	1
	64	T50	87-42		617159	Orifice plug, 1.8mm, M5 x 6
T60		87-42		617159	Orifice plug, 1.8mm, M5 x 6	1
71	T20	87-42		11061957	Orificed plug, 0.79mm	1
73	T20	87-42		8801137	Orificed check valve, .022"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T50	87-42		598292 (11062004)	Orifice plug, 0.8mm, M5 x 6	1
	T60	87-42		598292 (11062004)	Orifice plug, 0.8mm, M5 x 6	1
	T70	87-42		714477	Orifice plug, 0.8mm, M8 x 8	1
	T80	87-42		714477	Orifice plug, 0.8mm, M8 x 8	1
	74	T20	87-42		11061958	Orificed check valve, .032"
T30		87-42		679506 (8700007)	Spring	1
T40		87-42		8801303	Spring retainer	1
T50		87-42		598292 (11062004)	Orifice plug, 0.8mm, M5 x 6	1
T60		87-42		598292 (11062004)	Orifice plug, 0.8mm, M5 x 6	1
T70		87-42		755793	Orifice plug, 1.0mm, M8 x 8	1
T80		87-42		755793	Orifice plug, 1.0mm, M8 x 8	1
76		T20	87-42		8801139	Orificed check valve, .026"
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T70	87-42		578542	Orifice plug, 0.8mm, M6 x 8	1
	T80	87-42		578542	Orifice plug, 0.9mm, M6 x 8	1



Variable displacement pump

(78, 99, A5, A6 & A7)



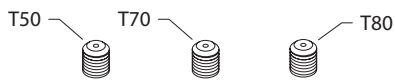
See control drawing
for orifice location

(82, A2 & A4)



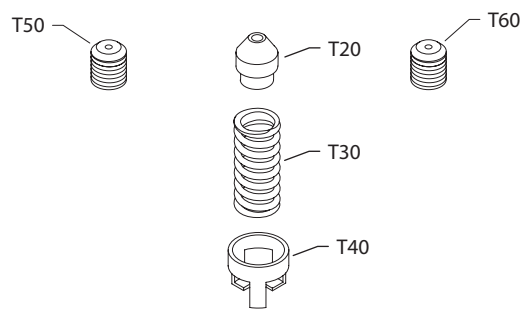
See control drawing
for orifice location

(84)



See control drawing
for orifice location

(A3)



See control drawing
for orifice location

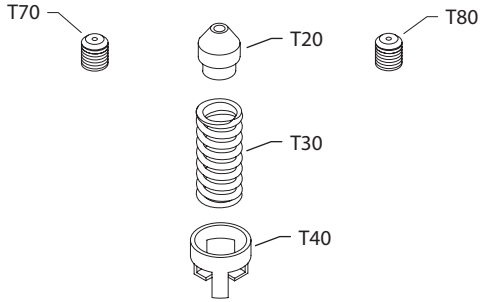

Variable displacement pump
Orifice

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
78	T20	87-42		8801139	Orificed check valve, .026"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T70	87-42		518215	Orifice plug, 2.2mm, M6 x 6	1
	T80	87-42		518215	Orifice plug, 2.2mm, M6 x 6	1
82	T70	87-42		310771	Orifice plug, 1.2mm, M6 x 6	1
	T80	87-42		310771	Orifice plug, 1.2mm, M6 x 6	1
84	T50	87-42		310771	Orifice plug, 1.2mm, M6 x 6	1
	T70	87-42		310771	Orifice plug, 1.2mm, M6 x 6	1
	T80	87-42		310771	Orifice plug, 1.2mm, M6 x 6	1
99	T20	87-42		8801301	Orificed check valve, .047"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T70	87-42		517572	Orifice plug, 1.5mm, M6 x 6	1
	T80	87-42		517572	Orifice plug, 1.5mm, M6 x 6	1
A2	T70	87-42		043364	Orifice plug, 1.02mm, M6 x 6	1
	T80	87-42		043364	Orifice plug, 1.02mm, M6 x 6	1
A3	T20	87-42		11061958	Orificed check valve, .032"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T50	87-42		704650 (11062018)	Orifice plug, 0.7mm, M8 x 8	1
	T60	87-42		704650 (11062018)	Orifice plug, 0.7mm, M8 x 8	1
A4	T70	87-42		578542	Orifice plug, 0.8mm, M6 x 8	1
	T80	87-42		578542	Orifice plug, 0.8mm, M6 x 8	1
A5	T20	87-42		11061970	Orificed check valve, 0.40"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T70	87-42		578542	Orifice plug, 0.8mm, M6 x 8	1
	T80	87-42		578542	Orifice plug, 0.9mm, M6 x 8	1
A6	T20	87-42		8801139	Orificed check valve, .026"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T70	87-42		507333	Orifice plug, 0.6mm, M6 x 4	1
	T80	87-42		507333	Orifice plug, 0.6mm, M6 x 4	1
A7	T20	87-42		11061958	Orificed check valve, .032"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T70	87-42		578542	Orifice plug, 0.8mm, M6 x 8	1
	T80	87-42		578542	Orifice plug, 0.9mm, M6 x 8	1



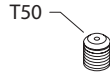
Variable displacement pump

(A8, A9 & C1)



See control drawing
for orifice location

(B1, B7, B8 & B9)



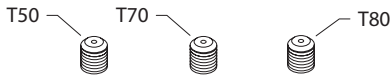
See control drawing
for orifice location

(B2)



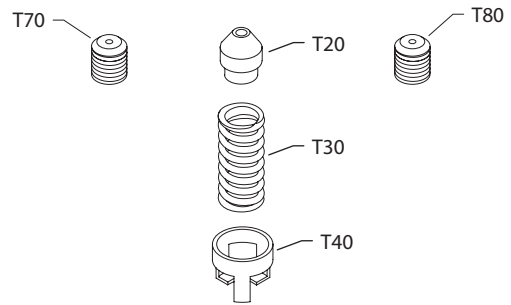
See control drawing
for orifice location

(B3)



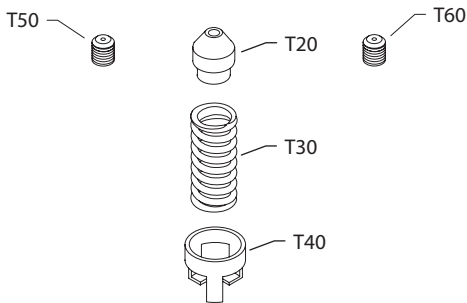
See control drawing
for orifice location

(B2)



See control drawing
for orifice location

(C2 & C3)



See control drawing
for orifice location

(C4)



See control drawing
for orifice location

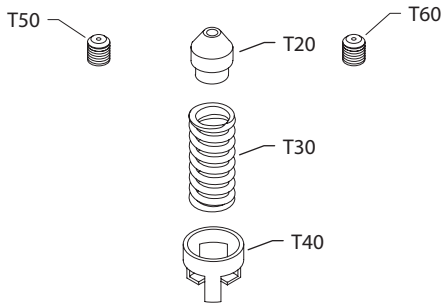

Variable displacement pump
Orifice

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
A8	T20	87-42		11061970	Orificed check valve, 0.40"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T70	87-42		508014	Orifice plug, 1.0mm, M6 x 8	1
	T80	87-42		508014	Orifice plug, 1.0mm, M6 x 8	1
A9	T20	87-42		11061993	Orificed check valve, 1.57mm	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T70	87-42		507042	Orifice plug, 1.5mm, M6 x 8	1
	T80	87-42		507042	Orifice plug, 1.5mm, M6 x 8	1
B1	T50	87-42		507042	Orifice plug, 1.5 mm, M6 x 8	1
B2	T70	87-42		310771	Orifice plug, 1.2 mm, M6 x 6	1
	T80	87-42		310771	Orifice plug, 1.2 mm, M6 x 6	1
B3	T50	87-42		507042	Orifice plug, 1.5mm, M6 x 8	1
	T70	87-42		739144	Orifice plug, 0.8mm, M6 x 6	1
	T80	87-42		739144	Orifice plug, 0.8mm, M6 x 6	1
B6				none		
B7	T50	87-42		578542	Orifice plug, 0.8mm, M6 x 8	1
B8	T50	87-42		508014	Orifice plug, 1.0mm, M6 x 8	1
B9	T50	87-42		516598	Orifice plug, 1.2mm, M6 x 8	1
C1	T20	87-42		8801139	Orificed check valve, 0.26"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T70	87-42		714477	Orifice plug, 0.8mm, M8 x 8	1
	T80	87-42		714477	Orifice plug, 0.8mm, M8 x 8	1
C2	T20	87-42		8801136	Orificed check valve, 0.18"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T50	87-42		639120	Orifice plug, 1.0mm, M5 x 6	1
	T60	87-42		639120	Orifice plug, 1.0mm, M5 x 6	1
C3	T20	87-42		8801139	Orificed check valve, 0.26"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T50	87-42		11061989	Orifice plug, 1.3mm, M5 x 6	1
	T60	87-42		11061989	Orifice plug, 1.3mm, M5 x 6	1
C4	T50	87-42		639161	Orifice plug, 1.4mm, M5 x 6	1
	T60	87-42		639161	Orifice plug, 1.4mm, M5 x 6	1



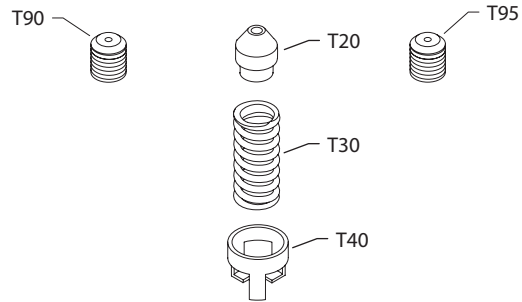
Variable displacement pump

(C5, C6, C7 & C9)



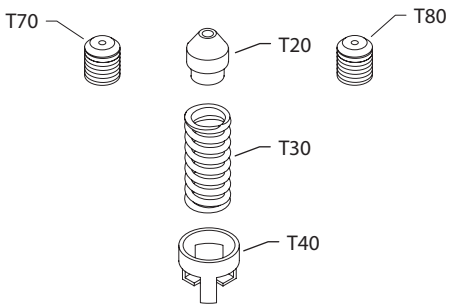
See control drawing
for orifice location

(C8)



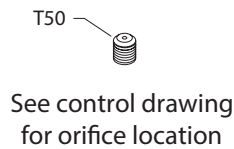
See control drawing
for orifice location

(D2)



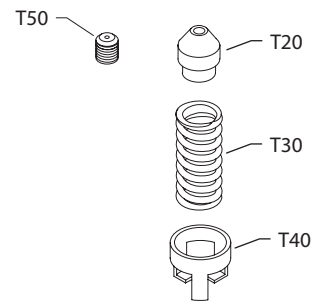
See control drawing
for orifice location

(G1)



See control drawing
for orifice location

(G4 & G8)



See control drawing
for orifice location



Variable displacement pump

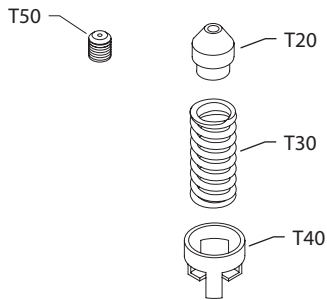
Orifice

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
C5	T20	87-42		11061958	Orificed check valve, .032"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T50	87-42		639161	Orifice plug, 1.4 mm, M5 x 6	1
	T60	87-42		639161	Orifice plug, 1.4 mm, M5 x 6	1
C6	T20	87-42		11061970	Orificed check valve, 0.40"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T50	87-42		639161	Orifice plug, 1.4 mm, M5 x 6	1
	T60	87-42		639161	Orifice plug, 1.4 mm, M5 x 6	1
C7	T20	87-42		11061981	Orificed check valve, 1.37 mm	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T50	87-42		639161	Orifice plug, 1.4 mm, M5 x 6	1
	T60	87-42		639161	Orifice plug, 1.4 mm, M5 x 6	1
C8	T20	87-42		8801139	Orificed check valve, .026"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T90	87-42		704650 (1162018)	Orifice plug, 0.7 mm, M8 x 8	1
	T95	87-42		704650 (1162018)	Orifice plug, 0.7 mm, M8 x 8	1
C9	T20	87-42		11061958	Orificed check valve, .032"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T50	87-42		639146	Orifice plug, 1.2 mm, M5 x 6	1
	T60	87-42		639146	Orifice plug, 1.2 mm, M5 x 6	1
D2	T20	87-42		11061981	Orificed check valve, 1.37 mm	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T70	87-42		714477	Orifice plug, 0.8 mm, M8 x 8	1
	T80	87-42		714477	Orifice plug, 0.8 mm, M8 x 8	1
D4	T20	87-42		8801139	Orificed check valve, .026"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T90	87-42		704650 (11062018)	Orifice plug, 0.7 mm, M8 x 8	1
	T95	87-42		704650 (11062018)	Orifice plug, 0.7 mm, M8 x 8	1
G1	T50	87-42		310771	Orifice plug, 1.2 mm, M6 x 6	1
G4	T20	87-42		8801136	Orificed check valve, .018"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T50	87-42		310771	Orifice plug, 1.2 mm, M6 x 6	1



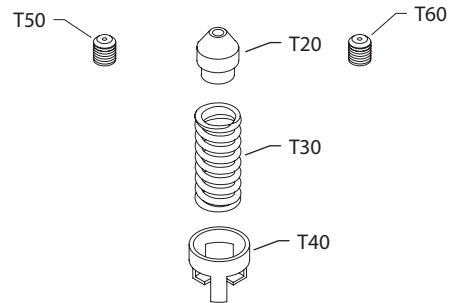
Variable displacement pump

(GB, GD, GF & GJ)



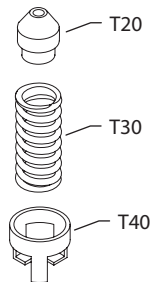
See control drawing
for orifice location

(H1, H9 & K2)



See control drawing
for orifice location

(K1)



See control drawing
for orifice location

(P1)



See control drawing
for orifice location

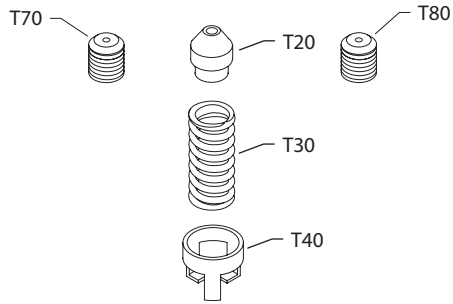

Variable displacement pump
Orifice

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
G8	T20	87-42		8801139	Orificed check valve, .026"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T50	87-42		310771	Orifice plug, 1.2 mm, M6 x 6	1
GB	T20	87-42		11061958	Orificed check valve, .032"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T50	87-42		310771	Orifice plug, 1.2 mm, M6 x 6	1
GD	T20	87-42		11061993	Control orifice kit, 1.57 mm	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T50	87-42		310771	Orifice plug, 1.2 mm, M6 x 6	1
GF	T20	87-42		11061970	Control orifice kit, 0.040"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T50	87-42		310771	Orifice plug, 1.2 mm, M6 x 6	1
GJ	T20	87-42		11061981	Control orifice kit, 1.37 mm	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T50	87-42		310771	Orifice plug, 1.2 mm, M6 x 6	1
H1	T20	87-42		11061958	Orificed check valve, .032"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T50	87-42		714477	Orifice plug, 0.8 mm, M8 x 8	1
	T60	87-42		714477	Orifice plug, 0.8 mm, M8 x 8	1
H9	T20	87-42		8801139	Orificed check valve, .026"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T50	87-42		714477	Orifice plug, 0.8 mm, M8 x 8	1
	T60	87-42		714477	Orifice plug, 0.8 mm, M8 x 8	1
K1	T20	87-42		11061981	Orificed check valve, 1.37 mm	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
K2	T20	87-42		11061958	Orificed check valve, .032"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T50	87-42		639104	Orifice plug, 0.7mm, M5 x 6	1
	T60	87-42		639104	Orifice plug, 0.7mm, M5 x 6	1
P1	T70	87-42		508014	Orifice plug, 1.0 mm, M6 x 8	1
	T80	87-42		508014	Orifice plug, 1.0 mm, M6 x 8	1



Variable displacement pump

(Z1 & Z3)



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
Z1	T20	87-42		11061958	Orificed check valve, .032"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T70	87-42		519659	Orifice plug, 1.0 mm, M6 x 6	1
	T80	87-42		519659	Orifice plug, 1.0 mm, M6 x 6	1
Z3	T20	87-42		11061970	Orificed check valve, .040"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T70	87-42		519659	Orifice plug, 1.0 mm, M6 x 6	1
	T80	87-42		519659	Orifice plug, 1.0 mm, M6 x 6	1

Overhaul seal kit

Q210	87-42			11095648	Overhaul seal kit	1
B90	87-42			9803390	Control screen	3
C70	88-22			314419 (9007276-0114)	Screw (SB-1988-016 & SB-1998-041)	4
E40	87-02			505412 (9003509-0008)	Seal nut	2
E50	87-02			517377	O-ring	1
E60	87-02			517228 (5000206)	Screw (SB-1994-018)	6
F11	87-02			676569 (9004100-1270)	O-ring	2
F12	87-02			507797 (8700066)	Piston ring	2
F40	87-02			363754 (9004104-1350)	O-ring	2
F50	89-41			9004104-0320	O-ring	2
F112	87-02			505412 (9003509-0008)	Seal nut	1
F124	87-02			336826	Seal nut	1
F212	87-02			505412 (9003509-0008)	Seal nut	1
F224	87-02			336826	Seal nut	1
G30	92-19			8100565	End cap gasket	1
G30	87-02	96-04		8100466	End cap gasket (SB-1992-003)	1
G30	87-02	92-18		8100212	End cap gasket (SB-1992-003)	1
J40	87-02			680892 (9004104-0440)	O-ring	1
J50	87-02			056739 (9004104-1580)	O-ring	1
K50	87-02			001149 (9004201-6200)	O-ring	1
K51	87-02			9004201-7500	O-ring	1
L25	87-02			519671	Lip seal (SB-2005-007)	1
N15	87-42			001172 (9004201-9000)	O-ring	1
N98	87-42			9004104-0320	O-ring	1
P02	87-02			688721 (9004104-0170)	O-ring	2
P06	87-02			071811	O-ring	2
P13	87-02			544742 (9004105-0190)	O-ring	2
P20	87-02			9004105-0160	O-ring	2
P21	87-02			9006110-0160	O-ring	2

**BLN-10107**

To improve efficiency and reliability, the number of parts in series 90 pumps is being reduced. The charge pump design on 55 cc - 130 cc frame sizes is being changed so that the outer port plate is an integral part of the charge pump cover and distance plates are eliminated. The change is taking effect at the following manufacturing dates:

55 cc: 93-10 75 cc: 93-10 100 cc: 93-15 130 cc: 93-34

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

The charge pump shaft also changes and must be replaced when using the new style hardware. The complete charge pump assembly can be interchanged with corresponding hardware from 89-17 and beyond. However, piece parts are not interchangeable. For units prior to 89-17, consult Sauer-Danfoss.

The old design charge pump hardware is obsolete and is no longer available. Refer to the chart on the next page to determine the replacement kit.


BLN-10107

The following information must be known to determine the correct charge pump replacement kit:

1. Unit size (055, 075, 100, or 130 cc)
2. Charge pump displacement (11, 14, 17, 20, 26, or 34 cc)
3. Auxiliary pad (Yes or No)
4. Rotation (LH or RH)

Obsoleted Charge Pump Parts			Unit Size	Chg. pump displacement	Auxiliary pad	Rotation	Replacement Kit
Gear Set	Shaft	Cover					
8000169	8000174	8800513	055	11 cc	No	LH or RH	8510028
		8800514			Yes	LH	8510029
		8800514			Yes	RH	8510030
8000170	8000174	8800513	055	14 cc	No	LH or RH	8510031
		8800514			Yes	LH	8510032
		8800514			Yes	RH	8510033
8000171	8000174	8800513	055	17 cc	No	LH or RH	8510034
		8800514			Yes	LH	8510035
		8800514			Yes	RH	8510036
8100313	337956	8800513	075	14 cc	No	LH or RH	8510037
		8800514			Yes	LH	8510038
		8800514			Yes	RH	8510039
8100314	337956	8800513	075	17 cc	No	LH or RH	8510040
		8800514			Yes	LH	8510041
		8800514			Yes	RH	8510042
8100315	337956	8800513	075	20 cc	No	LH or RH	8510043
		8800514			Yes	LH	8510044
		8800514			Yes	RH	8510045
8200158	337956	8800513	100	17 cc	No	LH or RH	8510046
		8800514			Yes	LH	8510047
		8800514			Yes	RH	8510048
8200159	337956	8800513	100	20 cc	No	LH or RH	8510049
		8800514			Yes	LH	8510050
		8800514			Yes	RH	8510051
8200160	337956	8800513	100	26 cc	No	LH or RH	8510052
		8800514			Yes	LH	8510053
		8800514			Yes	RH	8510054
714444	303636	347518	130	20 cc	No	LH or RH	8510064
		347526			Yes	LH	8510065
		347526			Yes	RH	8510066
714451	303636	347518	130	26 cc	No	LH or RH	8510067
		347526			Yes	LH	8510068
		347526			Yes	RH	8510069
714469	303636	347518	130	34 cc	No	LH or RH	8510070
		347526			Yes	LH	8510071
		347526			Yes	RH	8510072



Service Bulletin: SB-1988-009

Products affected Series 90 pumps

Subject Servo arm change

Description As a product improvement, Sauer-Danfoss has changed the series 90 pump servo arm and swashplate (item D10 and D50). The old style servo arm and swashplate will become obsolete. Because this change creates non-interchangeability between new and old swashplates, servo arms, and possibly servo piston (item S10) and slider block (item F20), separate servo arms and swashplates will no longer be sold as service parts.

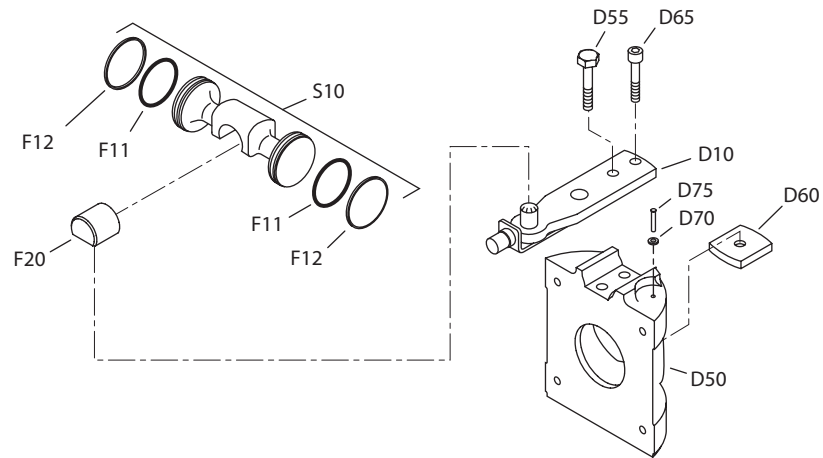
Also, the new servo arm is actually a press fit into a groove in the new swashplate. This situation requires special tooling for assembly, therefore, pre-assembled kits will be created for 55, 75, and 100 cc pumps. The kits will work in any vintage pump.

The kit for 55 cc pumps will include all the items in the figure, except item S10

The kit for 75 cc pumps will include all item in the figure.

The kit for 100 cc pumps will include all items in the figure, except items S10 and F20.

Note: The slider block (item F20) in 55 cc pumps and the slider block and the servo piston (item S10) in 75 cc pumps had to be changed slightly to allow clearance for the new servo arm. The new servo piston and slider block will work in any vintage pump.



Models affected All 94-2xxx (55 cc), 95-2xxx (75 cc), and 96-2xxx (100 cc) pumps

Serial numbers Change goes into effect with s/n 88-14-xxxxx on 55 cc pumps and with s/n 88-16-xxxxx for 75 cc and 100 cc pumps.

Part numbers affected
 New 55 cc slider block is p/n 8000189
 New 75 cc slider block is p/n 8100368
 New 100 cc slider block is p/n 8100369
 New 55 cc servo arm/swashplate kit is p/n 8000201
 New 75 cc servo arm/swashplate kit is p/n 8100377
 New 100 cc servo arm/swashplate kit is p/n 8200192

Parts disposition ■ Non-interchangeable



Service Bulletin: SB-1988-016

Products affected Series 90 pumps

Subject Change to fixed clearance slipper hold down

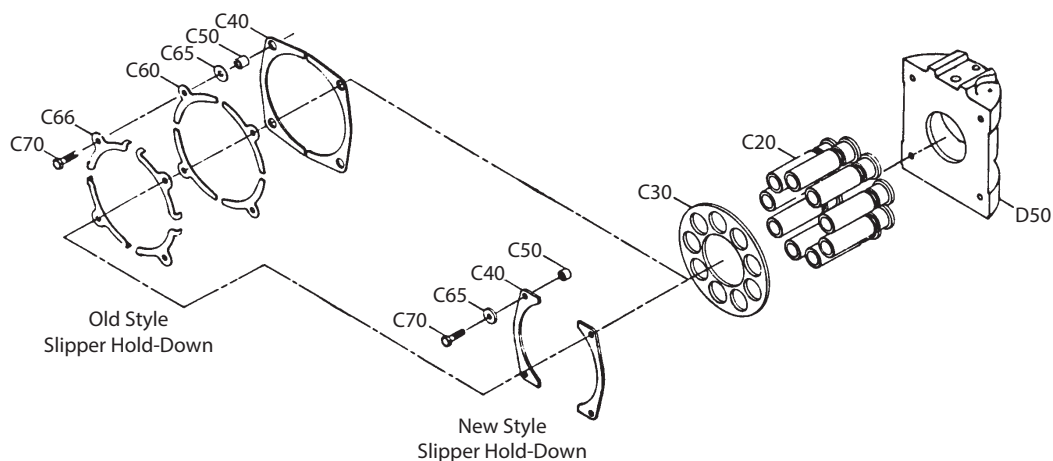
Description As a product improvement, Sauer-Danfoss has simplified the design of the series 90 pump slipper hold down mechanism. The hold down changes from spring loaded with a fixed maximum clearance design.

The leaf spring (item C60) and spring aligner (item C66) will be eliminated and will not be available as service parts.

The spacer (item C50), bearing (item C40), and washer (item C65) will change and the old part numbers will not be available as service parts.

The swashplate (item D50), pistons (item C20), slipper retainer (item C30), and screws (item C70) will remain the same.

If any of the affected parts (item C66, C60, C65, C50, or C40) require replacement during repair of older style pumps, discard these parts and rebuild using new style parts (items C40, C50, and C65). As before, the screws (item C70) which are coated with locking compound **MUST** always be replaced after removal.



Models affected All 94-2xxx (55 cc), 95-2xxx (75 cc), and 96-2xxx (100 cc) pumps

Serial numbers
 55 cc pumps, 94-2xxx, changed at s/n 88-43-xxxxx
 75 cc pumps, 95-2xxx, changed at s/n 88-22-xxxxx
 100 cc pumps, 96-2xxx, changed at s/n 88-20-xxxxx

Part numbers affected

Item	Qty/pump	55 cc	75 cc	100 cc
C40	2	8000137	8100294	8200144
C50	4	8000138	8100295	8200145
C65	4	9009625-0159	9009625-0159	9009625-0159
C70	4	314419 (9007276-0114)	9007276-0099	9007276-0099

Parts disposition

■ Non-interchangeable as individual parts, but new style C40, C50, and C65 can be used in any vintage pump, if all three are changed.



Service Bulletin: SB-1988-023

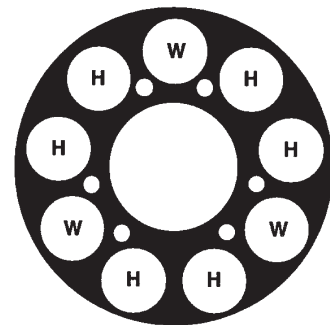
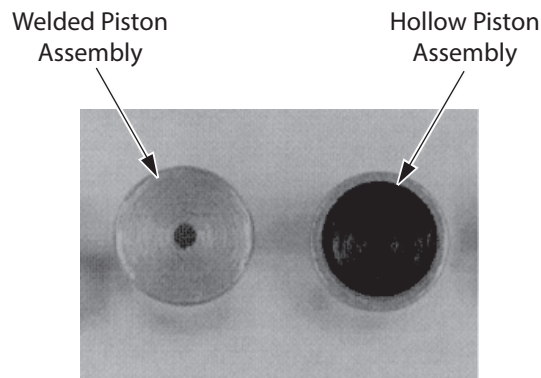
Products affected Series 90 pumps and motors

Subject Piston improvement

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

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

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



When replacing hollow pistons with welded pistons, it is mandatory that the welded pistons be incorporated symmetrically in multiples of three.

Models affected All series 90 pumps and motors: 93-xxxx, 94-xxxx, 95-xxxx, and 96-xxxx pumps

Serial numbers Welded pistons will be incorporated into all series 90 pumps and motors by the end of the first quarter of 1998.

Part numbers affected

Part number	Description
706101	Piston assembly, welded - 42 cc
367672	Piston assembly, welded - 55 cc
708230	Piston assembly, welded - 75 cc
364000	Piston assembly, welded - 100 cc

Parts disposition ■ Interchangeable



Service Bulletin: SB-1989-002

Products affected Series 90 pumps

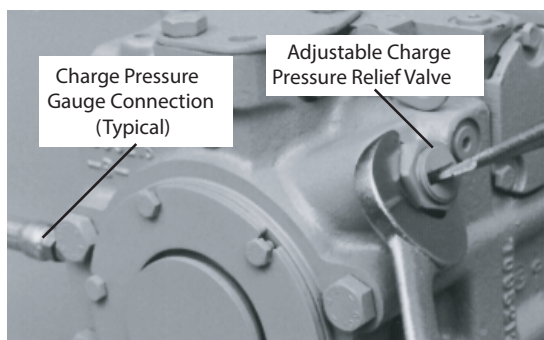
Subject Incorporation of adjustable charge relief valve

Description As a product improvement Sauer-Danfoss is incorporating an adjustable charge relief valve on all series 90 variable displacement pumps. This design replaces the previous shim adjustable charge relief valve. The new design valve provides a range of pressure adjustment which covers the available charge pressure options of 290, 348, and 406 psi [20, 24, and 28 bar].

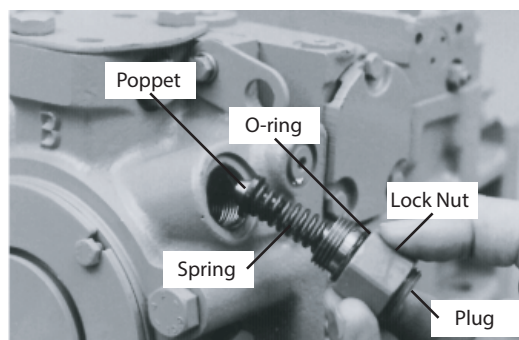
Note: This improvement changes the design of the charge relief valve poppet and plug. The new style charge relief may protrude from the pump end cap approximately 0.27 in [6.9 mm] farther than the shim adjustable r

To adjust the new design valve, first install a gauge to measure charge pressure as described in the series 90 service manual. Loosen the adjustment lock nut with a 1-1/16 in hex wrench. Operate the pump at an input speed of 1700 to 2000 rpm and turn the adjustment plug with a large screwdriver while observing the charge pressure. Clockwise rotation of the plug increases the setting, while counterclockwise rotation decreases the setting at a rate of approximately 50 psi [3.4 bar] per turn. Once the desired setting is achieved, torque the lock nut to 34-41 lbf-ft [46-55 Nm], and remove the charge pressure gauge.

Sauer-Danfoss will offer an adjustable charge relief valve kit for sale as a service part. This kit can be used to service any vintage series 90 variable pump. Since the new and old style charge relief valves are interchangeable as an assembly, the old style parts will no longer be available as service parts.



Adjusting Charge Relief Valve



Charge Relief Valve Assembly

Models affected All 93-2xxx, 94-2xxx, 95-2xxx, and 96-2xxx pumps

Serial numbers Due to the interchangeability of the charge relief valve assemblies, this is a running change. It will be incorporated into all series 90 variable pumps by March of 1989.

Part numbers affected

Part number	Description
8002K000-A	Adjustable charge relief valve kit - new style (includes poppet, spring, plug, O-ring, and nut)

Parts disposition ■ Interchangeable (as an assembly)



Service Bulletin: SB-1989-003

Products affected

Series 90 pumps

Subject

Swashplate leveler spring seat change and servo pressure relief valve deletion

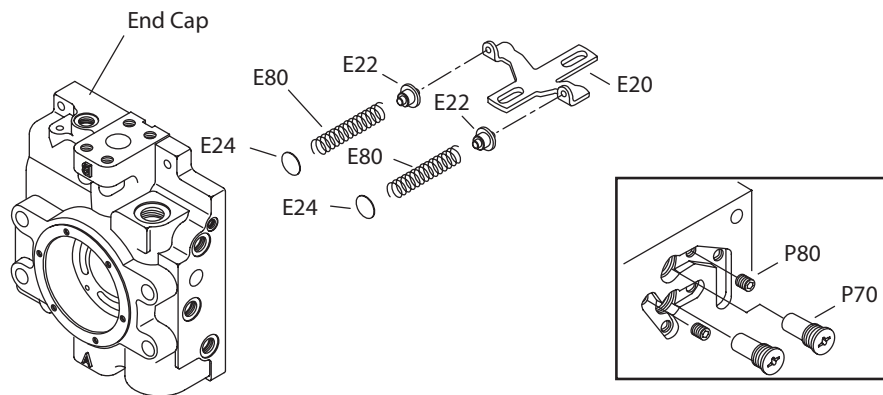
Description

As a product improvement, Sauer-Danfoss is adding hardened shims between the swashplate leveler springs and the end cap in series 90 variable pumps. In addition, the leveler spring seats have been hardened, and are now separate pieces from the leveler. Previously, the seats were peened to the leveler.

These improvements require some minor changes in the repair procedures for the series 90 pumps. When installing the lever springs (E80), take care that the spring seats (E22) are in position on the swashplate leveler (E20). Before installing the end cap, assemble the hardened shims (E24) into their pockets in the end cap and retain with petroleum jelly.

In an unrelated change, the servo pressure check relief valves installed in the pump end cap (or rotation valve housing) are no longer required. These valves (P70) will be replaced by standard socket head, straight thread O-ring plugs.

The swashplate leveler, plus the separate spring seats, are directly interchangeable with the old design part. When performing major repairs on any series 90 pump, the hardened shims should be installed between the leveler springs and the end cap. The plugs are also interchangeable with the servo pressure check relief valves.



Models affected

All 93-2xxx (42 cc), 94-2xxx (55 cc), 95-2xxx (75 cc), and 96-2xxx (100 cc) pumps

Serial numbers

The hardened swashplate leveler spring seats and hardened shims incorporated at serial number 89-09-xxxx. Due to the interchangeability of the straight thread plugs with the servo pressure check relief valves, this change will be incorporated during the 1st quarter of 1989.

Part numbers affected

Item	Description	Qty	42 cc	55 cc	75 cc	100 cc
E20	Leveler	1	673897	8000094	8100130	8200007
E22	Spring seat	2	358820	358838	358523	358846
E24	Shim	2	359034	359042	359042	359059
P70	Plug	2	9005110-4400	9005110-4400	9005110-4400	9005110-4400

Parts disposition

■ Non-interchangeable



Service Bulletin: SB-1989-006

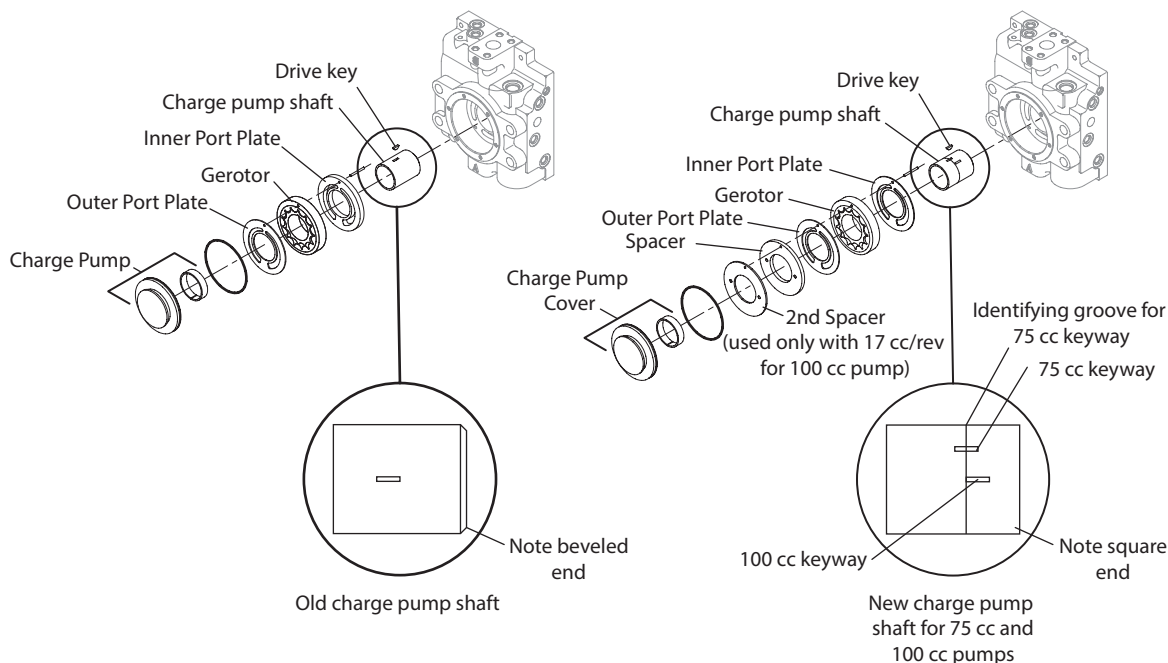
Products affected Series 90 pumps

Subject Charge pump design change

Description The original series 90 charge pump design included two (2) port plates, one (1) on each side of the gerotor. If the charge pump displacement was less than the maximum available for the pump's frame size, the inside port plate was thicker than the 0.050 in. (1.27 mm) outside port plate.

The new design charge pump will always have two (2) 0.050 in (1.27 mm) thickness port plates, one (1) on each side of the gerotor. Additionally, if the charge pump displacement is less than the maximum available for the pump's frame size, one (1) or two (2) spacers were install between the outside port plate and the charge pump cover.

In addition, the location of the keyway in the charge pump shaft has been changed to ensure full engagement of the drive key in the gerotor. The new charge pump shaft used in 75 and 100 cc pumps has two (2) keyways. The rear keyway (farthest from the end cap and splined end of the shaft) is used for 75 cc pumps, while the front keyway is used for 100 cc pumps. The new style charge pump shafts for 55, 75, and 100 cc pumps also changed from having a beveled end to a square end on the end closest to the pump end cap.



**Service Bulletin: SB-1989-006****Models affected**

All 94-2xxx (55 cc), 95-2xxx (75 cc), and 96-2xxx (100 cc) pumps

Serial numbers

A-89-17-xxxxx for all pumps manufactured in Ames, Iowa.

N-89-07-xxxxx for all 95-2xxx (75 cc) pumps manufacture in Neumunster, West Germany.

N-88-48-xxxxx for all 96-2xxx (100 cc) pumps manufacture in Neumunster, West Germany.

Part numbers affected

Proper part number versus pump serial number information can be found in the series 90 Parts Manuals.

The thicker inside port plates (thicker than 0.050 in (1.27 mm) will be obsoleted and no longer available as service parts. If these parts require replacement, use the 0.050 in. 1.27 mm) port plate and appropriate spacer(s) as service parts. On 100 cc pumps only, the new charge pump shaft must be used if the new style spacer is used,

On 55 and 75 cc pumps, the charge pump shaft clearance pocket in the end cap changed from a beveled to a straight corner to correspond with the change in the charge pump shaft. Old style charge pump shafts will remain available as service parts and must be used in the 55 and 75 cc beveled pocket end caps.

Old style (beveled pocket) end caps will be obsoleted and no longer available as service parts. If an old style end cap needs replacement, new style end caps can be used with any vintage charge pump hardware and charge pump shaft.

Parts disposition

■ Non-interchangeable - must use correct charge pump shaft per serial number of pump



Service Bulletin: SB-1992-003A

Products affected Series 90: 55, 75, 100, 130 cc pumps

Subject Block point change: components redesign

Description As part of our overall series 90 product improvement program, numerous components are being redesigned. This redesign is referred to as a “block point” change. The objective of the block point change is to minimize the number of times we change the units while we convert to high volume tooling at various plant sites. These design improvements will provide increased reliability and more application flexibility. The nature of these changes makes customer requalification unnecessary. Old style (pre-block point) variable housings and end caps will no longer be available as spare parts.

Frame size: 075 cc

Item	Description	Pre-block point part number	New part number 92-19 & later
Common parts group, 75 cc			
B10	Variable housing	716621 (O)	724674
B82	Plug	n/a	9005110-5600
End cap, 75 cc			
G048	End cap - twin ports	8100292 (O)	8100471
G308	End cap gasket	8100270 (I) (O)	8100466 (I)
G968	Screw	9007314-0604	9007314-0804
G046	End cap - side ports	8100356 (O)	8100472
G306	End cap gasket	8100212	8100448
G906	Screw	9007210-0611	9007210-0810
G956	Screw	9007314-0608	9007314-0810
G172	Plug	n/a	9005110-4400
G182	Plug	n/a	9005110-4400
G93	Spacer	8800404	common part
G94	Lifting bracket	8800522	common part
G95	Washer	9009610-2850	common part
Common parts group, 75 cc			
B83	Plug	n/a	9005110-5600

Models affected All series 90 95-2xxx variable pumps

Serial numbers Changes will take place at the serial number 92-19-xxxxx

Part numbers affected Refer to text of this bulletin for specific part numbers
 Housing: Thickness adjacent to the side cover has been increased
 End cap: Match housing change; small end cap screws will be larger, orientation of charge relief valve on side port end caps has been changed from oblique to vertical.

Note: Reference PIB-9102 for design changes and outline dimensions.

Parts disposition ■ Non-interchangeable

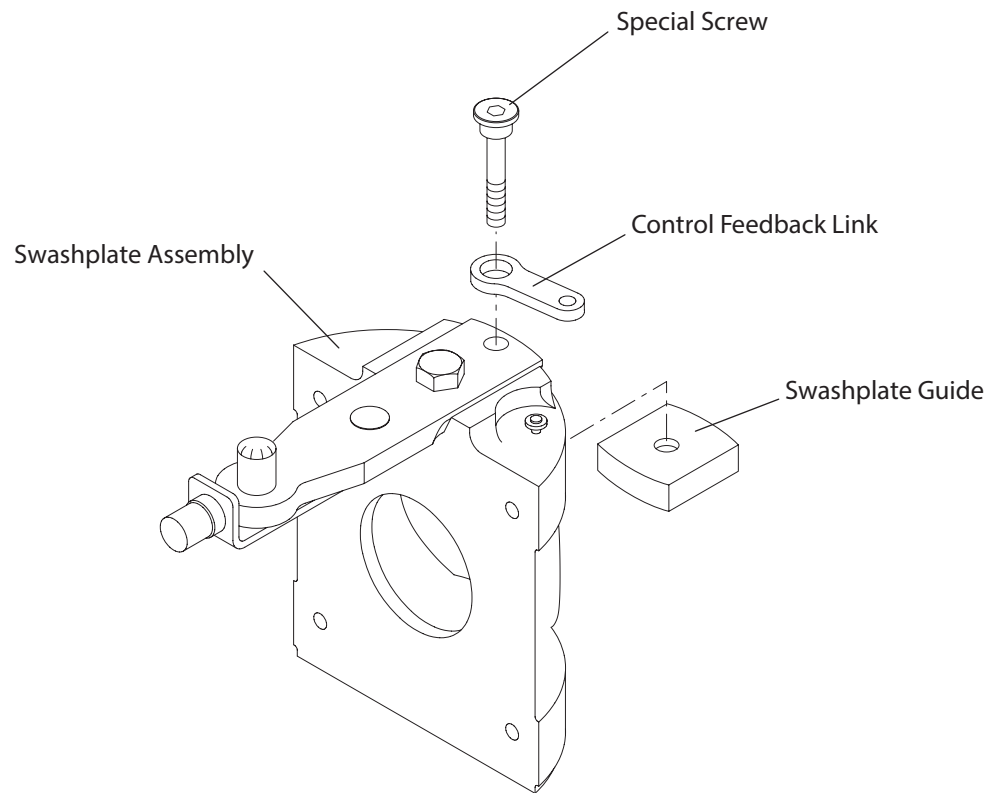


Service Bulletin: SB-1992-011

Products affected Series 90 - 055, 075, and 100 frame size pumps

Subject Feedback link retention

Description Effective in September of 1992, the feedback link in series 90 pumps will be mechanically retained to the swashplate. In the past, the link slipped over a specially ground socket head screw and could fall off the screw during assembly. The screw has changed to include a head to retain the link. The feedback link does not change.



Models affected All 94-2xxx (55 cc), 95-2xxx (75 cc), and 96-2xxx (100 cc) pumps

Serial numbers Pumps with serial number A-92-38-xxxx and beyond include the new feature.

Part numbers affected

Frame size	Old screw	New "headed screw
55 & 75 cc	9007276-0109	9007375-0044
100 cc	9007375-0030	9007375-0032

Parts disposition ■ Interchangeable



Service Bulletin: SB-1993-001A

Products affected Series 90 - 55, 75, and 100 cc pumps

Subject Charge pump design change

Description **The serial numbers mentioned apply only to Ames production units. Neumunster will incorporate the change in July or August of this year.**

To improve efficiency and reliability, the number of parts in series 90 charge pumps is being reduced. The charge pump design on 55 cc thru 100 cc frame sizes is being changed such that the outer port plate (H30) is an integral part of the charge pump cover (J15) and distance plates are eliminated.

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 charge pump shaft also changes and must be replaced when using the new style hardware. The complete charge pump assembly can be interchanged with corresponding hardware from 89-17 and beyond. **However, piece parts are not interchangeable.** For units prior to 89-17, consult Sauer-Danfoss.

Models affected All 94-2xxx, 95-2xxx, and 96-2xxx pumps

Serial numbers
 55 cc: A-93-10 & beyond
 75 cc: A-93-10 & beyond
 100 cc: A93-15 & beyond

Part numbers affected

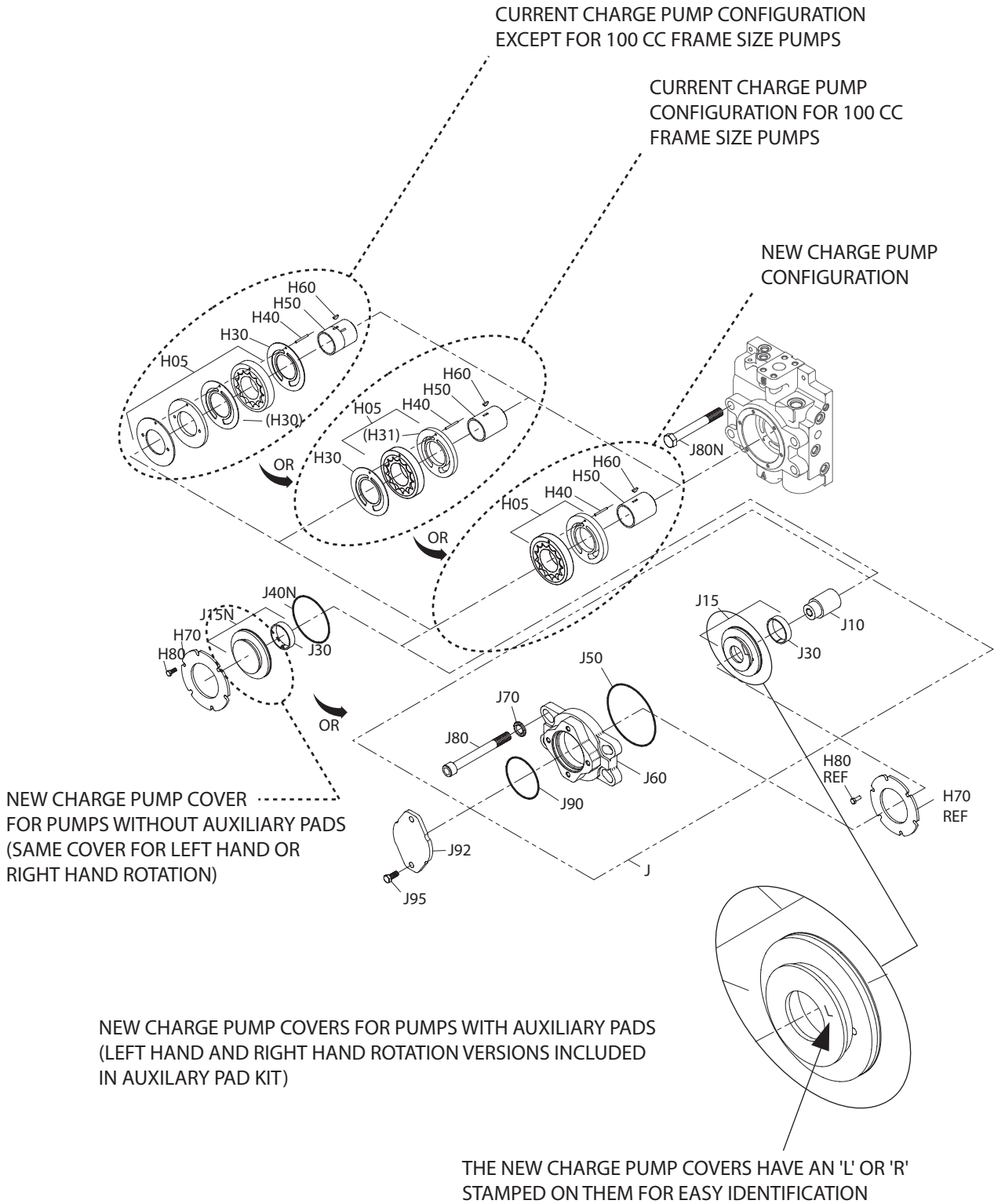
55 cc		75 cc		100 cc		Item number	Description
Before 93-10	After 93-10	Before 93-10	After 93-10	Before 93-15	After 93-15		
8000169	8000268	N/A	N/A	N/A	N/A	H05	11 cc charge pump set
8000170	8000269	8100313	8100479	N/A	N/A	H05	14 cc charge pump set
8000171	8000270	8100314	8100480	8200158	8200238	H05	17 cc charge pump set
N/A	N/A	8100315	8100481	8200159	8200239	H05	20 cc charge pump set
N/A	N/A	N/A	N/A	8200160	8200240	H05	26 cc charge pump set
8800314	N/A	8800314	N/A	8800314	N/A	H30	Port plate
N/A	Incl. in H05	N/A	Incl. in H05	8800315	Incl. in H05	H31	Port plate
8000174	8000267	337956	8100476	337956	8100476	H50	Charge pump shaft
8800513	8800834	8800513	8800834	8800513	8800834	J15N	Charge pump cover assy.
8800514	See J15L/R	8800514	See J15L/R	8800514	See J15L/R	J15	Aux. charge pump cover
N/A	8800833	N/A	8800833	N/A	8800833	J15L	Aux. L.H. cover assy.
N/A	8800832	N/A	8800832	N/A	8800832	J15R	Aux. R.H. cover assy.

Note: Piece parts are not interchangeable

Parts disposition ■ Interchangeable for s/n 89-17-xxxxx and beyond. Piece parts are not interchangeable.



Service Bulletin: SB-1993-001A





Service Bulletin: SB-1993-015A

Products affected Series 90 pump: All frame sizes

Subject Servo arm interference with speed sensor ring

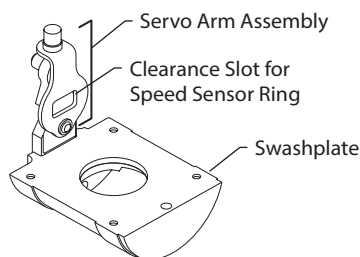
Description **Note: This service bulletin revision adds the 42 cc frame size and the incorporation date of 55 thru 100 cc.**

A potential interference problem has been identified in series 90 42, 55, 75, and 100 cc frame size pumps built since early 1992. Interference may occur between the swashplate hold down bracket on the servo arm and the speed sensor ring, which may be installed on the cylinder block as an option.

A new hold down bracket has been designed to provide clearance for the speed sensor ring.

If a cylinder block with speed ring must be installed in one of the subject pumps, a servo arm assembly with the new hold down will also be required.

Sometime during the first quarter of 1994, all 55, 75, and 100 cc pumps will be equipped with the new design hold down bracket. The 42 cc pumps will implement the new design hold down bracket in the second quarter of 1994.



Models affected All 93-2xxx, 94-2xxx, 95-2xxx, and 96-2xxx variable pumps

Serial numbers
 42 cc at serial number 92-16-xxxxx
 55 cc at serial number 92-06-xxxxx
 75 cc at serial number 92-17-xxxxx
 1000 cc at serial number 92-12-xxxxx

All 55, 75 and 100 cc pumps built in Ames beginning with s/n A-94-11-xxxxx will have the new servo arm assembly installed. 100 cc pumps built in Neumunster will also incorporate on this date. The 75 cc pumps built in Neumunster will incorporate on N-94-14-xxxxx 42 cc pumps will incorporate on N-94-36-xxxxx.

Part numbers affected

Frame size	Old servo arm (no slot in bracket)	New servo arm (with slot in bracket)
42 cc	354282	502976
55 cc	8000191	8000318
75 cc	8100366	8100499
100 cc	8200182	8200268

Parts disposition ■ Non-interchangeable - Pumps with speed sensor ring must use the new servo arm.



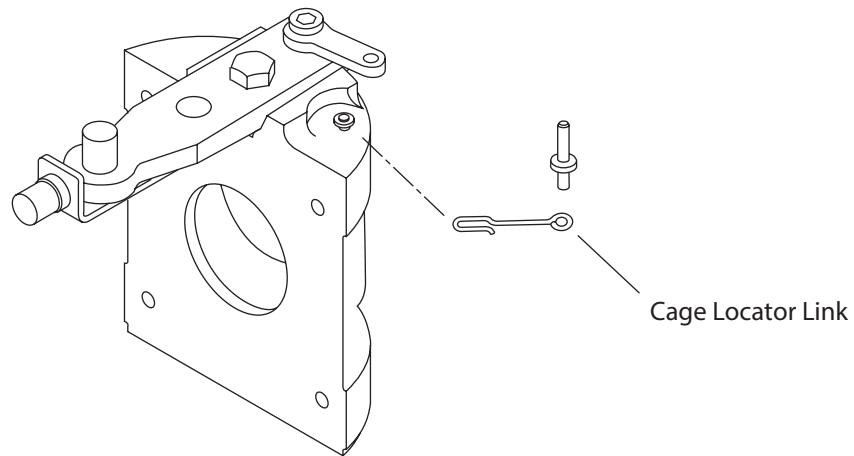
Service Bulletin: SB-1994-017

Products affected Series 90 55-100 cc variable pumps

Subject Swashplate cage locator

Description As a product improvement, Sauer-Danfoss has made a design change to the cage locator link used on the 55 thru 100 cc variable pumps.

The new link is made from square wire. In the past, the link was made from round wire, This is an interchangeable change.



Models affected All , 94-2xxx + 942xxx, 95-2xxx, + 952xxx and 96-2xxx + 962xxx variable pumps

Serial numbers 55 and 75 cc pumps serial number 94-18-xxxxx
100 cc pumps will begin 4th quarter 1994

Part numbers affected	Old link	New link
55 cc	8100241	8100506
75 cc	8100241	8100506
100 cc	8200108	8200273

Parts disposition ■ Interchangeable



Service Bulletin: SB-1994-018

Products affected

Series 90 variable pumps

Subject

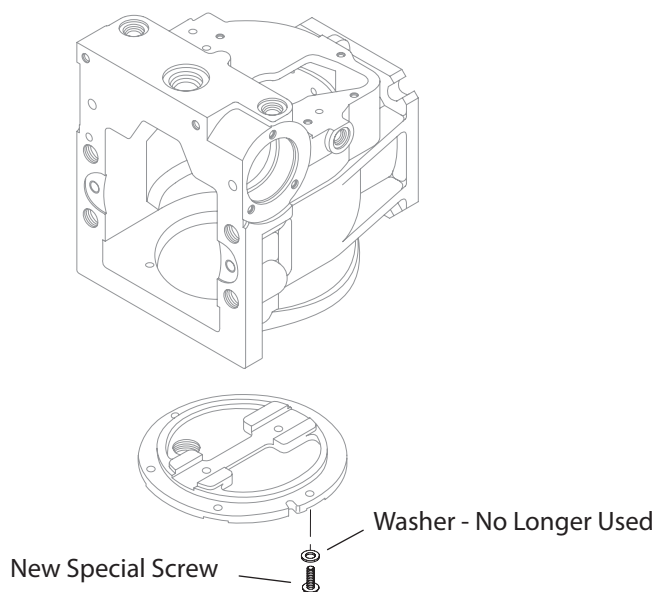
Side cover washer elimination

Description

The washers located under the side cover screws have been removed on all series 90 42 thru 130 cc variable pumps.

As before, the side cover screws must be replaced if they are removed for any reason. The special coating, which seals and retains the screws, wears off when the screws are removed.

The screw length changed on 55 thru 100 cc pumps, so it is important that the washers are discarded during repair. The proper screw is included in the overhaul seal kits.



Models affected

All 93-2xxx, 94-2xxx, 95-2xxx, 96-2xxx, and 97-2xxx variable pumps

Serial numbers

Change took place during the 2nd and 3rd quarter of 1994

Part numbers affected

Pump size	Old screw	New screw
42 cc	648477	Same part number
55-100 cc	9007276-0115	517228 (5000206)
130 cc	308700	Same part number

Parts disposition

■ Interchangeable



Service Bulletin: SB-1994-036

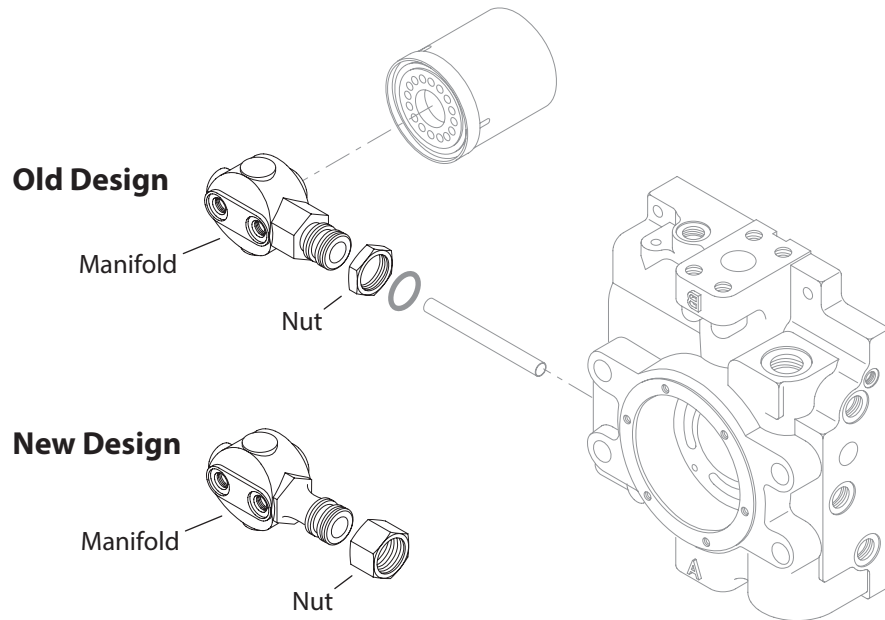
Products affected Series 90 55 thru 130 cc variable pumps

Subject Integral filtration manifold

Description As a product improvement, Sauer-Danfoss is changing the integral filter manifold and bulkhead nut to make it more easily indexed.

The old bulkhead nut may be used with either the old or new filter manifold. The new bulkhead nut can only be used with the new filter manifold.

The old bulkhead nut will remain available as a service part. The old filter manifold will be obsolete and no longer available as a service part.



Models affected All series 90 55 thru 130 cc variable pumps with "L", "M", or "P" filtration option code

Serial numbers Change occurred at serial number 95-18-xxxxx

Part numbers affected

<u>Description</u>	<u>Part number (prior to 95-18)</u>	<u>Part number (95-18 & beyond)</u>
Filter manifold	8800200	8800896
Bulkhead nut	9002863-1600	5000222

Parts disposition ■ Interchangeable - new bulkhead nut can only be used with new filter manifold

Service Bulletin: SB-1995-003

Products affected

Series 90 variable pumps - all frame sizes

Subject

Manual displacement control (MDC) with DC electric solenoid override

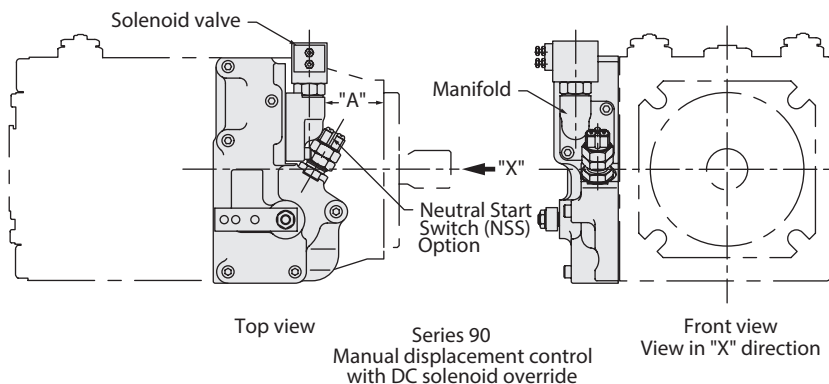
Description

In order to accommodate our European customers, the manifold which attaches to the front of the manual displacement control (MDC) housing is being changed.

The European solenoid valve requires a thicker manifold to provide clearance between the solenoid and the front of the MDC housing. The revised manifold will protrude closer to the mounting flange of the pump, reducing dimension "A" shown in the accompanying drawing by approximately 5 mm [0.2 in]. Please see chart below for specific clearances.

The thicker manifold requires longer screws and may be used with either the U.S. or European sourced solenoid.

This change will become effective during March of 1995. The old manifold will be obsoleted and no longer available as a service part.



Frame size		42	55	75	100	130
Dimension "A"	Current	39.9 [1.57]	55.9 [2.20]	54.1 [2.13]	60.2 [2.37]	74.4 [2.93]
	Future mm [in]	34.9 [1.37]	50.9 [2.0]	49.1 [1.93]	55.2 [2.17]	69.4 [2.73]

Models affected

All series 90 variable pumps using MDC with DC electric solenoid override.

Serial numbers

Change will take place in March 1995.

Part numbers affected

Description	Current part number	New part number	Quantity
Manifold	8800365	505022	1
Screw	9007314-0605	9007314-0606	2

Parts disposition

■ Interchangeable (new manifold requires longer screws)



Service Bulletin: SB-1995-012

Products affected Series 90 75cc variable pumps

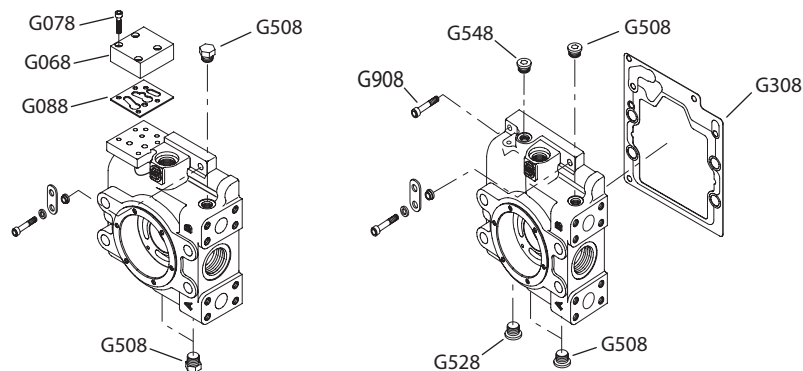
Subject End cap design change

Description As part of our overall series 90 product improvement program, the 75cc twin ported end cap is being redesigned. The redesign will eliminate the logic block and place the pressure limiter logic area in the same location as the side ported end cap, which is on the back side of the end cap. The logic pattern will be the same as the current 75cc side ported end cap. Old style end caps will be obsoleted and no longer available as a service part.

Any unit with a twin ported end cap and built prior to serial number A-96-05-xxxxx, must use the 8100466 gasket. Any unit with a serial number of A-96-05-xxxxx and beyond must use the 8100565 gasket. These two gaskets are not interchangeable.

Any unit with a side ported end cap and built prior to A-92-19-xxxxx must use the 8100212 gasket. Any unit with a serial number of A-92-19-xxxxx and beyond must use the 8100565 gasket.

The end cap assembly and its appropriate gasket is interchangeable. However, piece parts are not interchangeable.



Models affected All 75cc variable pumps

Serial numbers This change became effective at serial number A-96-05-xxxxx.

Part numbers affected

Description	Item	92-19 to 96-04	96-05 & beyond
End cap assembly	G048	8100471	8100566
Logic block	G068	364281	-
Logic block gasket	G088	689117	-
Logic block screw	G078	9007314-0608	-
Screw	G908	-	9007314-0810
Screw	G958	9007314-0804	9007314-0810
Plug	G508	9005100-5600	9005110-5600
Plug	G528		9005110-5600
Plug	G548		9005110-5600

Parts disposition ■ Non-interchangeable - except where noted



Service Bulletin: SB-1995-025

Products affected

Series 90 55, 75, and 100 cc variable pumps

Subject

Side cover design change

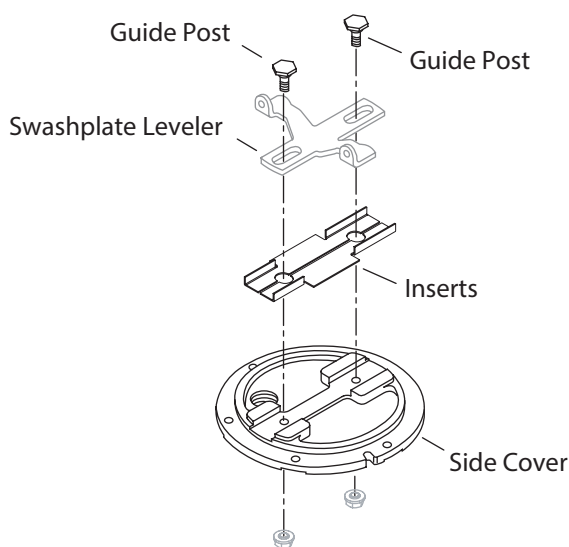
Description

As a product improvement, Sauer-Danfoss 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 55,75, & 100 cc variable pumps

Serial numbers

This change became effective at serial number A-95-50-xxxxx.

Part numbers affected

Description	Old part numbers		New part numbers		
	Guide post	Side cover	Insert assy.	Guide post	Side cover kit
55 cc	8100353	8000157	8000406	8000379	8510097
75 cc	8100353	8100226	8100562	8000379	8510098
100 cc	8100353	746560	8200321	8000379	8510099*

Parts disposition

■ Interchangeable as a kit. Piece parts are not interchangeable.



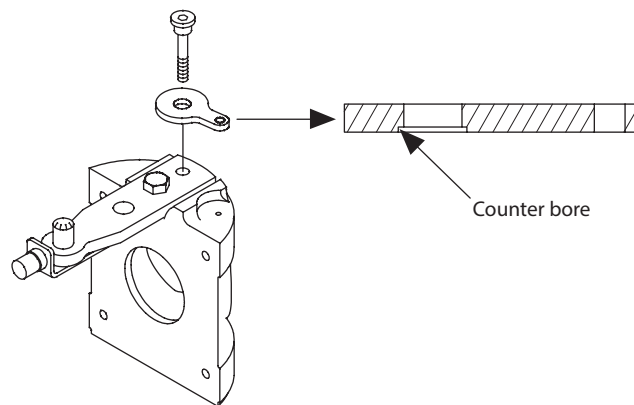
Service Bulletin: SB-1996-009

Products affected Series 90 55, 75, and 100 cc variable pumps

Subject Change swashplate feedback link

Description As a product improvement, Sauer-Danfoss is changing the design of the swashplate feedback link used on the 55, 75, and 100 cc variable pumps.

The new swashplate link has a counter bore that allows for clearance between the feedback link and the servo arm screw. The counter bore side of the link must be installed such that the counter bore is facing the surface of the servo arm.



Models affected All 942xxx, 952xxxx, and 962xxx variable pumps

Serial numbers For 55 and 75 cc pumps, the change became effective at serial number A-96-22-xxxxx. For 100 cc pumps, the change became effective at serial number A-96-12-xxxxx

Part numbers affected	Frame size	Old part number	New part number
	55 cc	8000096	8000481
	75 cc	8000096	8000481
	100 cc	8200106	8200344

Parts disposition ■ Interchangeable



Service Bulletin: SB-1998-018

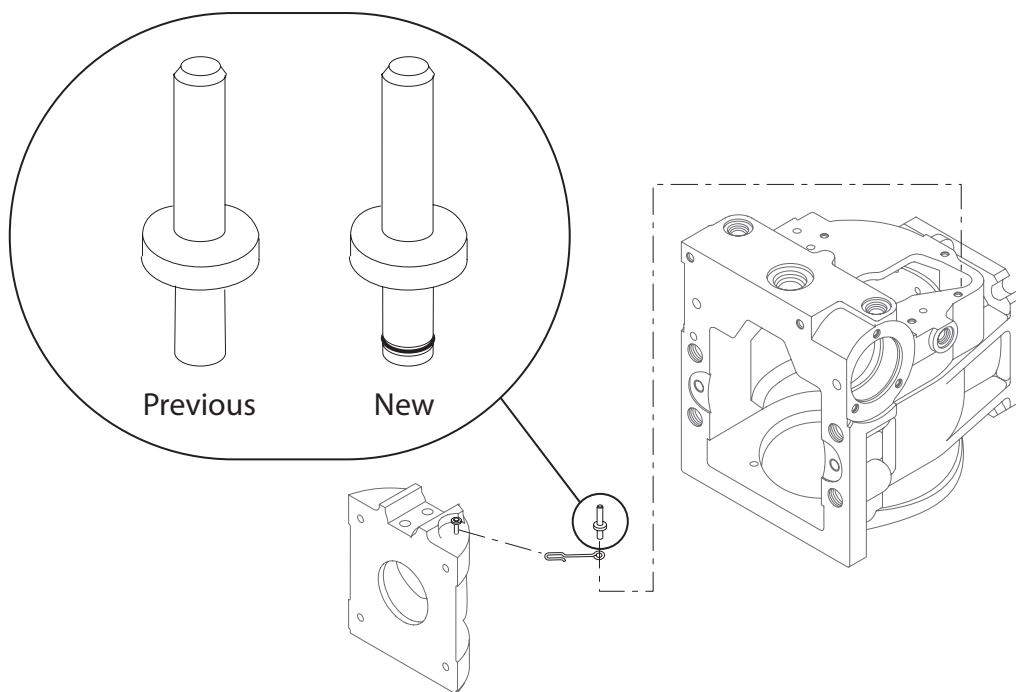
Products affected Series 90 55, 75, and 100 cc variable pumps

Subject Swashplate bearing cage locator pin

Description Sauer-Danfoss has modified the design of the swashplate bearing cage locator pin used in the series 90 55, 75, and 100 cc variable displacement pumps.

The improved design includes a rubber gripping element on the portion of the pin that is in the main pump housing. The rubber element aids in retaining the pin in the housing during normal pump assembly and servicing procedures, by increasing the interference fit between the pin and the pilot hole in the pump housing.

To aid in identifying this change, Sauer-Danfoss has released a new part number for the updated pin design. The new pin is completely interchangeable with the previous pin part number. The previous pin has been obsoleted.



Models affected All 94-2xxx, 942xxx, 95-2xxx, 952xxx, 96-2xxx and 962xxx variable pumps

Serial numbers This change became effective at serial number 98-24-xxxx

Part numbers affected	<u>Prior to 98-24</u>	<u>98-24 and beyond</u>
Pin part number	8100235	8801135

Parts disposition ■ Interchangeable



Service Bulletin: SB-1998-041

Products affected

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

Subject

Piston hold down mechanism design change

Description

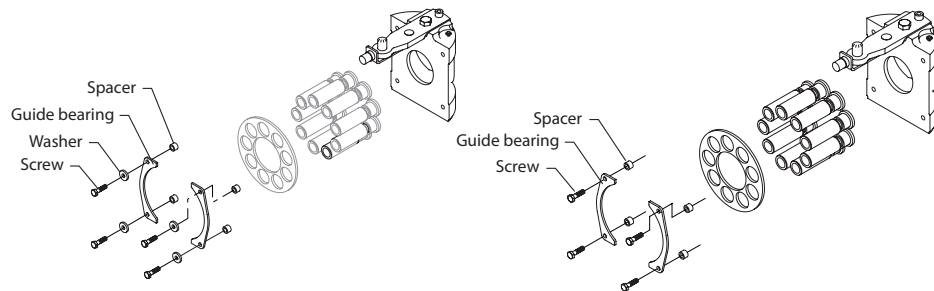
Sauer-Danfoss has initiated a change to the piston hold down mechanism used on series 90 55, 75, and 100 cc variable displacement pump and the series 90 55 and 75 cc variable displacement motors.

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

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

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

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





Service Bulletin: SB-1998-041

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

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

Part numbers affected

Component	Displacement	Prior to 98-48	Current
Hold down screw	55 cc	314419 (9007276-0114)	648477
Spacer	55 cc	8000266	8000619
Washer - pumps	55 cc	9009625-0159	N/A
Washer - motors	55 cc	9009625-0129	N/A
Hold down screw	75 cc	9007276-0099	9007276-0114
Spacer	75 cc	8100450	8100777
Washer - pumps	75 cc	9009625-0159	N/A
Washer - motors	75 cc	9009625-0129	N/A
Hold down screw	100 cc	9007276-0099	9007276-0114
Spacer	100 cc	8200216	8200422
Washer - pumps	100 cc	9009625-0159	N/A

Parts disposition ■ Interchangeable



Service Bulletin: SB-1998-066

Products affected

Series 90 55, 75, and 100 cc variable pumps

Subject

Charge pump shaft part number change

Description

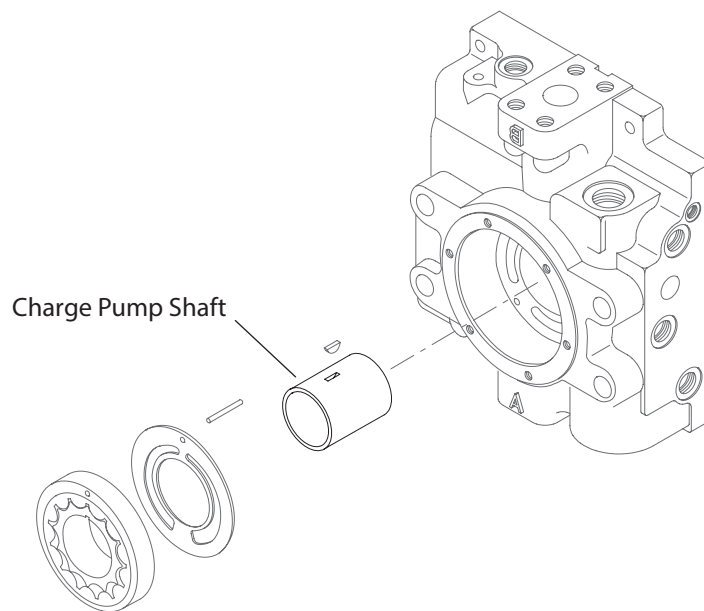
As a product improvement, Sauer-Danfoss has modified the design of the charge pump shaft used in series 90 55, 75 and 100 cc pumps. This change affects all charge pump sizes (11, 14, 17, 20, 26, and 31 cc) available in the series 90 displacement range.

The series 90 55 cc variable displacement pump uses the same charge pump shaft, regardless of charge pump size (11, 14, or 17 cc). The series 90 75 and 100 cc variable displacement pumps, utilize a common charge pump shaft for the standard size charge pumps (75 cc standard equals 14, 17, and 20 cc and 100 cc standard equals 17, 20, and 26 cc).

A unique charge pump shaft is utilized by series 90 75 cc variable displacement pumps equipped with the 26 cc size charge pump., while the same unique shaft is used by series 90 100 cc variable displacement pumps equipped with 31 cc size charge pumps.

The design modification includes a surface finish change to the charge pump shaft which improves the wear characteristics between the charge pump shaft and the journal bearings in the charge pump cover and end cap.

To assist in identifying this change, Sauer-Danfoss has released new charge pump shaft part numbers. The new shafts are completely interchangeable with the previous shafts. The new shaft has replaced the previous shaft in new pump assemblies and charge pump service kits. The previous shafts have been obsoleted and are no longer available as a service part. The chart on the next page will assist you in determining the part number changes.





Service Bulletin: SB-1998-066

Models affected

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

NOTE: Pump models 9621723 and 9622117 were released with a special charge pump option (code W - 26 cc charge pump with special shaft). With this product modification, the charge pump option code for these two models has been changed from W to the standard option (code F - 26 cc charge pump). The special shaft part number 8801176 has been obsoleted and replaced with shaft part number 8801178.

Serial numbers

Sauer-Danfoss Ames production - effective at serial number A-99-40-xxxxx

Sauer-Danfoss Neumunster production - effective at serial number N-99-39-xxxxx

Part numbers affected

Series 90 Size	Charge pump	Previous shaft	New shaft	Charge kit		
				No aux. pad	LH w/aux.	RH w/aux.
55	11	8000267	8801177	8510028	8510029	8510030
55	14	8000267	8801177	8510031	8510032	8510033
55	17	8000267	8801177	8510034	8510035	8510036
75	14	8100476	8801178	8510037	8510038	8510039
75	17	8100476	8801178	8510040	8510041	8510042
75	20	8100476	8801178	8510043	8510044	8510045
75	26*	8100478	8801179	N/A	N/A	N/A
100	17	8100476	8801178	8510046	8510047	8510048
100	20	8100476	8801178	8510049	8510050	8510051
100	26	8100476	8801178	8510052	8510053	8510054
100	31*	8100478	8801179	N/A	N/A	N/A

* Special charge pump shaft option using unique charge pump shaft

Parts disposition

■ Interchangeable



Service Bulletin: SB-1998-073

Products affected Series 90 75cc variable pumps

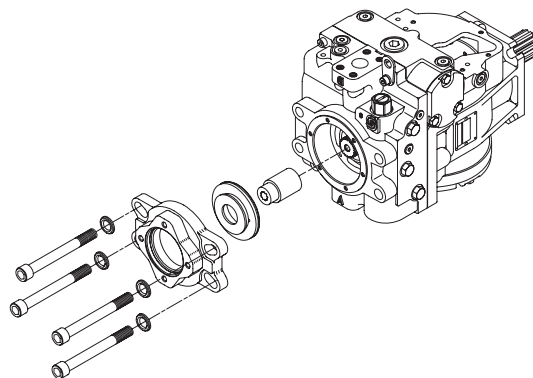
Subject Large end cap screw change

Description Sauer-Danfoss has introduced a design modification to the Series 90 75cc Variable Displacement pump assembly. The (4) large cap screws which fasten the end cap to the main pump housing on the Series 90 75cc and 100cc pumps have a common screw thread designation (M16x1.75). Until recently however, the screws had a different overall length, with the screw used in 75cc pumps being 10 mm (0.394 in) shorter than the screw used with the 100cc pumps.

Sauer-Danfoss has now modified the design of the Series 90 75cc pump housing by increasing the drilled and tapped depth of the end cap mounting screw bore. This change now makes it possible for Series 90 75cc and 100cc pumps to use a common end cap screw. With this change, a common large screw is now used in the assembly of 75cc and 100cc pumps which are not equipped with an auxiliary drive flange, and a second, common large screw, is used for pumps equipped with an auxiliary drive flange. The improvement in hardware commonality also assists in preventing insufficient gasket clamp load due to assembly with the incorrect length screw.

It is important to note that pumps assembled prior to the change incorporation, must continue to be serviced with the original, shorter, assembly screw. Auxiliary drive flange service kits have been updated to include both 146mm (5.74 in.) and 156mm (6.14 in.) length screws, so that you may properly service pumps of either vintage. The shorter screw may be used to service pumps built after the change incorporation, if required.

To assist in identifying this change, Sauer-Danfoss has released a new pump housing part number. The previous pump housing has been obsoleted and is no longer available as a service part. The end cap screws will continue to remain available as service items.



Models affected 95-2xxx and 962xxxx variable displacement pumps

Serial numbers Sauer-Danfoss Ames production: A-98-44-xxxxx.
Sauer-Danfoss Neumunster production: N-00-05-xxxxx.

Part numbers affected

Component	Prior to 98-44	Current
Pump housing	8100551	8100761
Screw-no auxiliary drive	9007210-1620	9007210-1621
Screw-with auxiliary drive	9007314-1622	9007314-1623

Note: Auxiliary drive kits include both screws: 8102J00A-A, 8102J00B-A, 8102J00T-A, and 8102J00V-A.



Service Bulletin: SB-1999-009

Products affected

Series 90 75cc variable pumps

Subject

Eliminate potential interference between speed ring and spring seats and springs

Description

Sauer-Danfoss has modified the design of the swashplate leveler and spring seat assembly used on Series 90 75cc pumps. The design and serviceability of the pump has been improved by integrating the spring seats directly into the swashplate leveler.

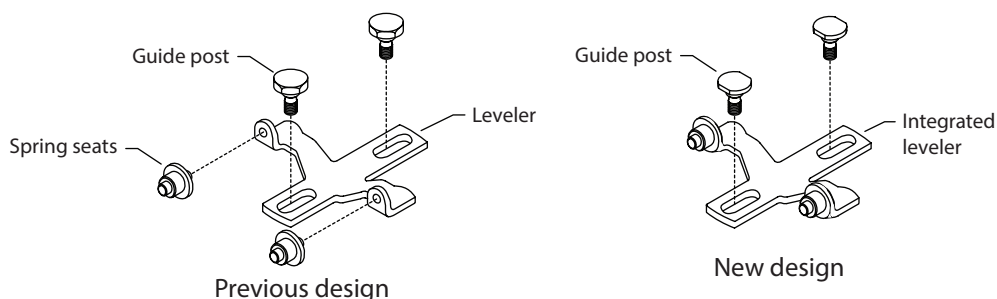
This new design eliminates the potential for the spring seats to separate from the leveler during assembly and servicing.

The old spring seats part number 358523 will be available as a service part and will only be used with the old style leveler part number 8100682.

If the need to replace the leveler part number 8100682 arises it must be replaced with the new leveler with integrated spring seats, part number 8100698. The old swashplate leveler will be obsolete and no longer available as a service part.

At the same time, Sauer-Sundstrand has changed the leveler guide post to help eliminate the possibility of interference between the leveler and the speed ring. The new guide post allows less movement of the leveler. The old and new guide posts are not interchangeable. The old hex head guide post, part number 8000510, must be used with the old leveler, part number 8100682. The new oval guide post, part number 8000575, must be used with the new leveler, part number 8100698.

93-2xxx, 94-2xxxx, 95-2xxx, 96-2xxxx, 97-2xxx, 98-2xxx, and 99-2xxx



Models affected

All series 90 75cc variable displacement pumps

Serial numbers

This change became effective at serial number A-99-27-xxxxx

Part numbers affected

Description	Prior to 99-27	99-27 or later
Spring seat	358523	N/A
Leveler	8100682	8100698
Guide post	8000510	8000575

Parts disposition

■ Interchangeable - Only when the new guide posts and leveler are used



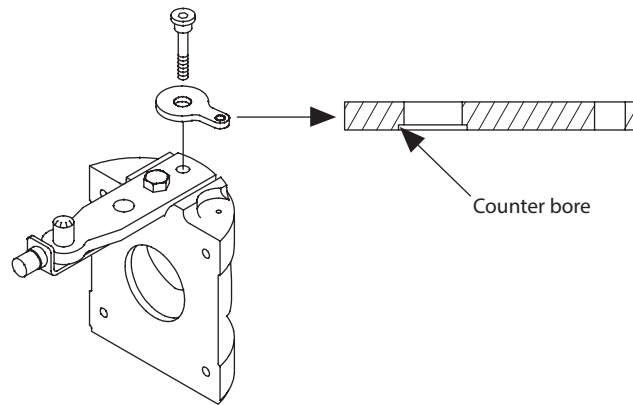
Service Bulletin: SB-1999-019

Products affected Series 90 55, 75, and 100 cc variable pumps

Subject Feedback link change

Description As a product improvement, Sauer-Danfoss is changing the design of the swashplate feedback link used on the 55, 75, and 100 cc variable pumps.

In 1996, a counter bore was added to the design of our swashplate link to allow for a higher clamping load when assembled to the servo arm. This change was described in SB-1996-009. The counter bore is no longer required on most units due to a design change to the servo arm. Sauer-Danfoss recommends the old feedback link be used when servicing pumps with dates codes prior to 96-40-xxxxx. The old feedback link will remain available as a service part.



Models affected All series 90 55, 75, and 100 cc variable pumps

Serial numbers This change became effective at serial number A-96-40-xxxxx.

Part numbers affected

	100 cc	55 & 75 cc
Old part number	8200344	8000481
New part number	8200413	11070305

Parts disposition ■ Non-interchangeable



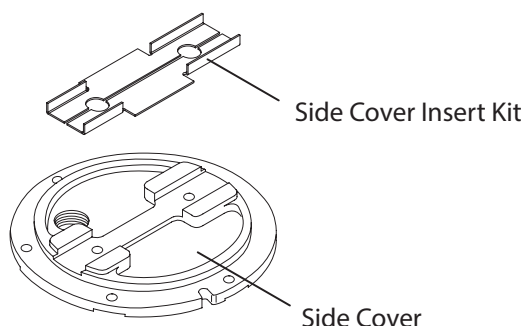
Service Bulletin: SB-1999-041A

Products affected Series 90 variable pumps

Subject Change to side cover insert material

Description As a continuous product improvement, Sauer-Danfoss has changed the side cover insert material to improve wear characteristics. The new material is more wear resistant than the previous material.

In order to track this change, new part numbers have been created and the old part numbers will be obsolete.



Models affected 93-2xxx, 94-2xxxx, 95-2xxx, 96-2xxxx, 97-2xxx, 98-2xxx, and 99-2xxx

Serial numbers

Frame size	NMS effectivity date	Ames effectivity date
42 cc	N-99-36-xxxxx	N/A
55 cc	N-00-18-xxxxx	A-00-18-xxxxx
75 cc	N-99-26-xxxxx	A-00-38-xxxxx
100 cc	N-99-31-xxxxx	A-00-38-xxxxx
130 cc	N-99-33-xxxxx	N/A
180 cc	N-99-36-xxxxx	N/A
250 cc	N-99-36-xxxxx	N/A

Part numbers affected

Frame size	Old part number	New part number
42 cc	506916	513885
55 cc	8000406	513886
75 cc	8000562	513888
100 cc	8200321	513889
130 cc	8300004	513890
180 cc	506914	513891
250 cc	506914	513891

Parts disposition ■ 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-xxxx through A-99-49-xxxx. 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-xxxx. Sauer-Danfoss Ames 100cc pump production: A-00-25-xxxx. Sauer-Danfoss Neumunster production: N-00-01-xxxx.



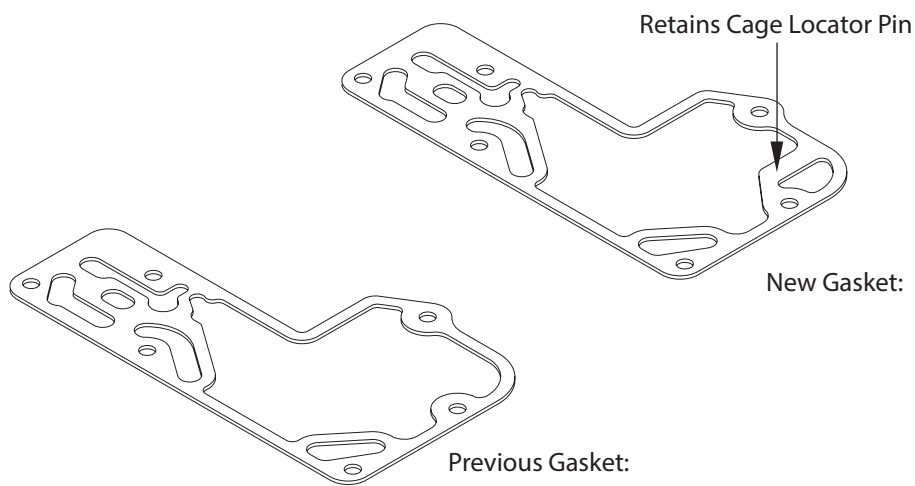
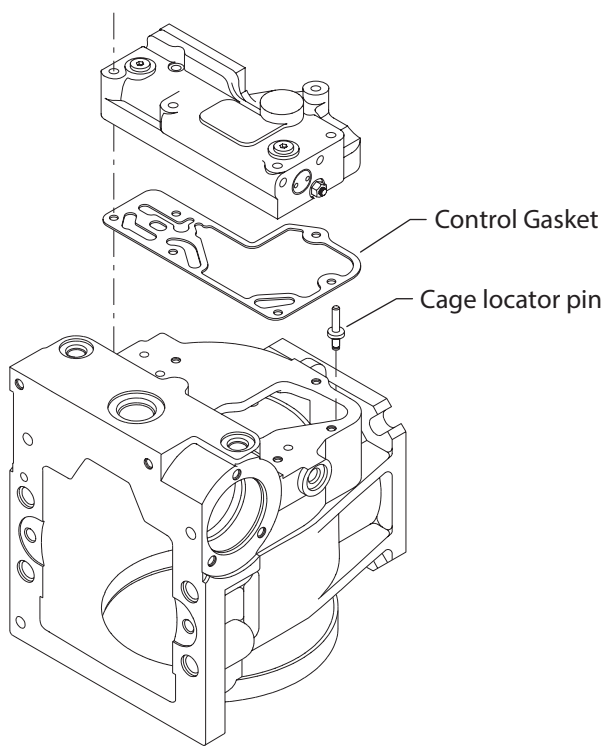
Service Bulletin: SB-1999-065A

Part numbers affected

Previous gasket	New gasket
511608	8801241

Parts disposition

■ Interchangeable





Service Bulletin: SB-2000-022

Products affected

Series 90 75, 100, and 130 cc variable displacement pumps

Subject

Displacement limiter screw and servo piston change

Description

Sauer-Danfoss has identified a product issue affecting a limited number of Series 90 100cc variable displacement pumps built at the Ames, Iowa, USA facility in the time frame of June 2000 through August 2000 (serial date range A-00-23-xxxxx up to and including A-00-34-xxxxx). This same issue also affects a limited number of Series 90 75cc, 100cc, and 130cc variable displacement pumps built at the Neumunster, Germany facility in the time frame of June 2000 through September 2000 (serial date range N-00-23-xxxxx up to and including A-00-39-xxxxx).

These pumps, equipped with displacement limiters, may have a servo piston with large center drills. These large center drills may allow the displacement limiter screw to thread into the servo piston while turning the screw in against the servo piston while adjusting the pump's displacement. If this occurs, the pump will be mechanically held in stroke by the displacement limiter screw. This situation can only happen during adjustment; it will not occur during normal operation.

Sauer-Danfoss has introduced a change to the servo piston and the displacement limiter screw to prevent the reoccurrence of this issue. We have made a change to the servo piston to limit the size of the center drill. We have also changed the design of the service displacement limiter screw from a "flat" point to a "dog nose" point. When servicing a pump that meets the above criteria, you must verify that the displacement limiter screw of the new "dog nose" version. If it is not, you must replace the displacement limiter screw with the new version. If the pump is not inside the date code ranges and displacements mentioned, you do not need to verify the version of the displacement limiter screws.

To assist in tracking this change, we have issued new part numbers for the servo pistons and displacement limiter screws. Even though this issue did not affect the 42cc or 55cc pumps, the service displacement limiter screw part number will change also to keep one common service part. We do this as the same displacement limiter screw is used on 42cc, 55cc, 75cc, and 100cc pumps.



Old
"flat point"
displacement limiter screw



New
"dog nose"
displacement limiter screw


Service Bulletin: SB-2000-022
Models affected

All 95-2xxx, 952xxxx, 96-2xxx, 962xxxx, 97-2xxx, and 972xxxx variable displacement pumps with 1, 2, 4, or P displacement limitation option.

Serial numbers

Sauer-Danfoss Ames 100cc production with serial number A-00-23-xxxxx up to and including A-00-34-xxxxx.

Sauer-Danfoss Neumunster, Germany production with serial number N-00-23-xxxxx up to and including A-00-39-xxxxx.

Part numbers affected

Frame size	Old servo piston	New servo piston	Old screw	New screw
42 & 55cc	N/A	N/A	9007712-0814	516677
75 cc	509282	516683	9007712-0814	516677
100 cc	509284	516684	9007712-0814	516677
130 cc	510496	516685	572180	516678

Parts disposition

■ Interchangeable



Service Bulletin: SB-2000-041A

Products affected

Series 90 55, 75, 1nd 100 cc variable displacement pumps

Subject

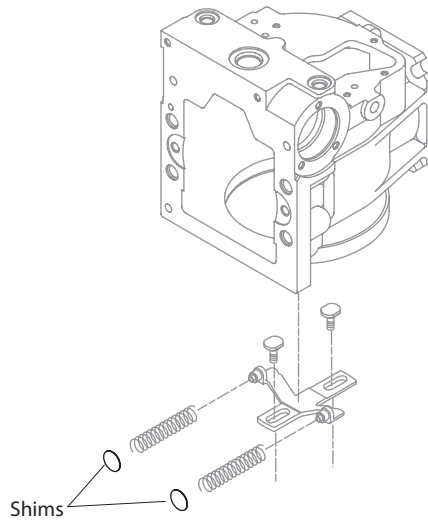
Common leveler spring shim.

Description

The date code for the series 90 55 cc should have been for a date code of A-92-06-xxxxx not A-02-06-xxxxx.

Sauer-Danfoss has standardized the leveler spring shim used on all 55, 75, and 100 cc variable displacement pumps. Two different shims were used in the past. One size was for 55 and 75 cc pumps, and the other for the 100 cc pumps. The new shim can be used in all three frame sizes.

Sauer-Danfoss has issued a new part number for the new shim. The new shim is interchangeable for 55 cc pumps built after A-92-06-xxxxx, 75 cc pumps built after A-96-19-xxxxx, and 100 cc pumps. For pumps manufactured prior to these dates, you will need to reuse the old shims, as the new shim outer diameter is larger, and this will cause the new shim to not seat correctly in the bottom of the pocket in the end cap. The old shim part numbers are obsolete.



Models affected

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

Serial numbers

Sauer-Danfoss Ames, Iowa production change was effective at serial number A-00-40-xxxxx

Sauer-Danfoss Neumunster, Germany production change was effective at serial number N-01-27-xxxxx

Part numbers affected

Frame size	Old part number	New part number
55 cc	359042	8801225*
75 cc	359042	8801225**
100 cc	359059	8801225

* can only be used in pumps manufacture after A-92-06-xxxxx

** can only be used in pumps manufactured after A-96-19-xxxxx

Parts disposition

■ Interchangeable



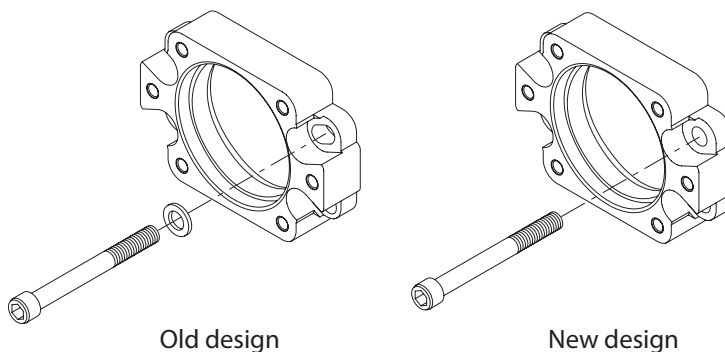
Service Bulletin: SB-2002-050

Products affected Series 90 55, 75, and 100 cc pumps

Subject Auxiliary mounting pad

Description As a product improvement, Sauer-Danfoss has changed the design of the SAE C auxiliary mounting pad to increase strength and reduce corrosion. The old auxiliary mounting pad and new auxiliary mounting pad are interchangeable. The new auxiliary mounting pads are frame size dependent, because they do not have slotted mounting holes. The auxiliary mounting pad screws remain the same, but they do not require washers.

The old auxiliary mounting pad is obsolete and no longer available as a service part. The washers will remain available.



Models affected Series 90 55, 75, and 100 cc pumps with SAE C auxiliary mounting.

Serial numbers This change became effective at serial number A-03-10-xxxxx

Part numbers affected

Frame size	Old auxiliary pad part number	New auxiliary pad part number	Old washer part number
55 cc	723205	8000643	5000602
75 cc	723205	8100848	9009625-0132
100 cc	723205	8200469	9009625-0132

The new auxiliary mounting pads are frame size dependent and do not use washers.

Parts disposition ■ Interchangeable



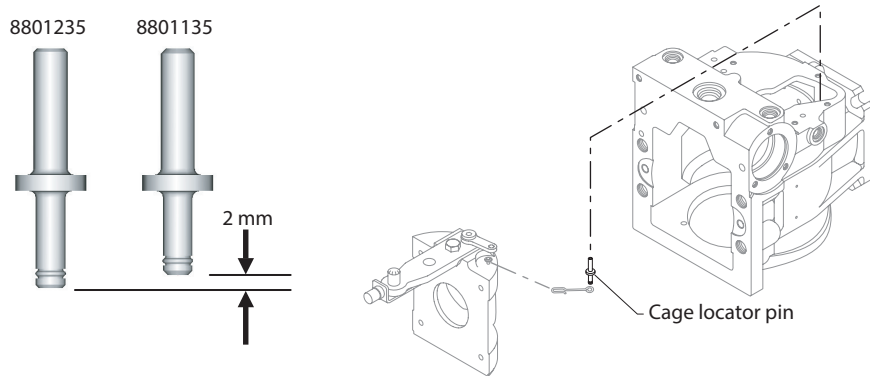
Service Bulletin: SB-2004-012

Products affected Series 90 55 and 75 cc pumps

Subject Cage locator pin

Description As a product improvement, Sauer-Danfoss is standardizing the cage locator pin for all series 90 55, 75, and 100 cc pumps. All 55 and 75 cc pumps will now use the same locator pin used in 100 cc pumps. The new locator pin extends 2 mm further into the housing than the old pin. The housings have been machined to accept the longer pin.

The old cage locator pin must be used in pumps that have not had the housings modified. The old pin can be used in any vintage pump and will remain available as a service part.



Models affected Series 90 55 and 75 cc pumps.

Serial numbers and part numbers affected

Frame size	Old pin part number	New pin part number	Housing modification date*
			A-04-43-xxxxx
55 cc	8801135	8801235	N-04-43-xxxxx
			S- not determined
			A-01-26-xxxxx
75 cc	723205	8100848	N-00-01-xxxxx
			S- not determined
100 cc	8801235	8801235	No change

* A = Ames, Iowa N = Neumunster, Germany
 S = Shanghai, China (a revision will be made when modification date has been determined).

Parts disposition ■ Non-interchangeable

**Service Bulletin: SB-2005-007A**

Products affected Series 90 75 cc pumps

Subject Pump redesign

Description As a global improvement, the series 90 75cc displacement pump has redesigned components as a product improvement program. The following components are being redesigned: servo arm, swashplate guide, pump housing, shaft seal, and cradle bearing.

All parts are non-interchangeable with the exception of the shaft seal. Model numbers and order codes will not be changed.

Servo arm: 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.

Swashplate Guide: 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 swashplate hold-down. 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 separate swashplate guide that was bolted to the bottom of the swashplate has been removed. The separate swashplate guide will remain available as a service part for a period of time.

Housing: The housing is modified internally to provide the servo arm pivot. Also, the cradle and side cover radii are reduced. The housing casting is commonized globally. Some customers may notice cosmetic external changes. The old housing will be obsoleted and no longer available as a service part.

Shaft seal: The new shaft seal is interchangeable with the old version. The shaft seal will be sourced from one global supplier. The old shaft seal will be obsoleted and no longer available as a service part.

Cradle bearing: The new design is a single piece cold formed with the positioning pin now integral with the bearing. The old cradle bearing will remain available as a service part for a period of time.

Side cover: The side cover will have a 138.58 mm pilot as the old side cover had a 140.589 mm pilot.

The current version of the housing will not be available globally long term. Current bearings will be available under the 8700048 part number. Swashplate 8100367 will be maintained for service parts. It is interchangeable for the 516201 swashplate in current housings. Fastener 660032 (90007276-0107), swashplate guide 8800669, and spring 8100035 are used in other series 90 frame sizes and will remain active. The side cover will be kept for service parts replacement.



Service Bulletin: SB-2005-007A

Models affected All 952xxxx pumps.

Serial numbers affected This change was effective at serial number: A-05-49-xxxxx, N-05-40-xxxxx, and S-05-47-xxxxx

Part numbers affected

Description	Old part number	New part number
Housing	500170 (N), 724674 (N), 8100761 (A)	11001300
Cradle bearing	676841/P (N), 8700048 (A)	518671
Servo arm	518323 (N), 8100499 (A)	519046
Swashplate	516201 (N), 8100367 (A)	521366 (N), 11000688 (A)
Screw	666032 (N), 9007276-0107 (A)	519150
Swashplate guide	8800669	No longer used
Spring	664367 (N), 8100035 (A)	No longer used
Side cover	501572	11001286
Shaft seal assembly	510015 (N), 8100553 (A)	519671
Lip seal	664508 (N), 9008000-0115 (A)	519666
Side cover kit	8510098	8510392
Swashplate assembly	8100376	8100984
Servo/swashplate kit	8100377	8510391

- Parts disposition**
- Non-interchangeable
 - Interchangeable



Service Bulletin: SB-2005-011

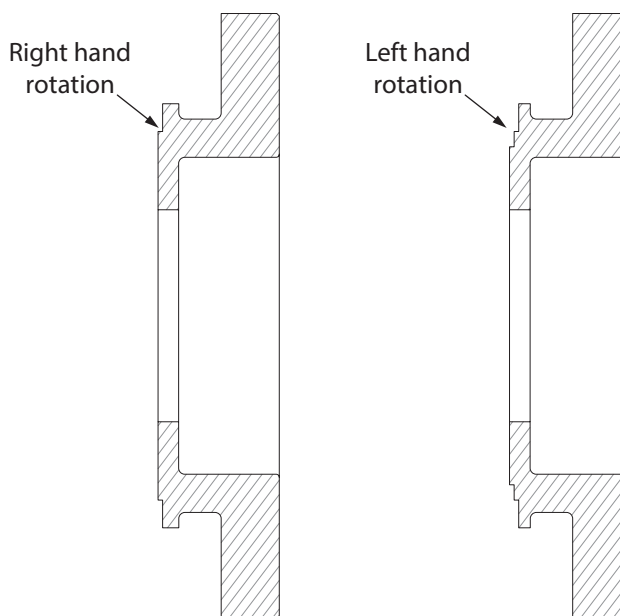
Products affected Series 90 42 thru 100 cc pumps

Subject Auxiliary flange charge pump cover

Description Sauer-Danfoss will no longer mark auxiliary flange charge pump cover with an "R" for right hand rotation or an "L" for left hand rotation.

The pilot surface has changed on the covers. The right hand rotation charge pump cover will have 1 step and the left hand rotation charge pump cover will have 2 steps. Refer to the drawings below for example.

The part numbers of the charge pump covers will not change.



Models affected Series 90 42 thru 100 cc pumps with auxiliary pad options.

Serial numbers This change became effective at serial number A-05-17-xxxxx

Part numbers affected None

Parts disposition ■ Interchangeable



Service Bulletin: SB-2007-027

Products affected Series 90; 55, 75 , and 100 cc pumps

Subject SAE A auxiliary mounting flange

Description Sauer-Danfoss is pleased to announce a design improvement on the SAE A auxiliary mounting flange adapter on all its series 90 pumps. All manufacturing locations producing these pumps will be changed to this configuration.

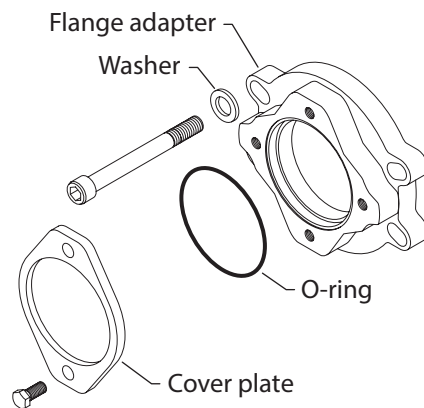
The improvement comes in the form of a more robust sealing geometry with a larger cross-section O-ring. The O-ring groove in the flange will now be sized to mate with a 2.62mm [0.103] cross section O-ring rather than the old 1.78mm [0.070] cross-section O-ring. The Sauer-Danfoss part number for the new O-ring is 9004104-1520 (2.62mm [0.103]. 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.

Also, the flanges will no longer have a slotted interface with a washer for the end cap screws. The flanges will now have round through holes for the end cap screws and will use no washers. The end cap screws do not change. This eliminates the area where water or high pressure wash chemicals can be trapped around the end cap screws. There now are specific part numbers for the flanges used on each of the three displacement size pumps; 55, 75 and 100 cc.

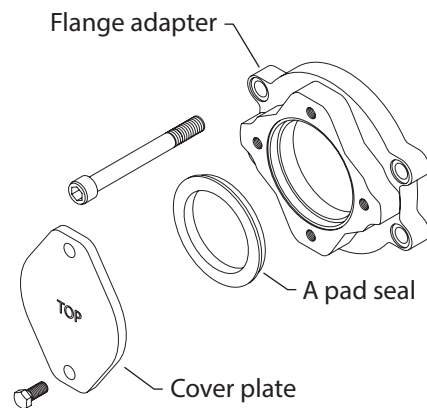
The pumps will now be supplied with the donut style A pad seal and new flat cover, instead of the small O-ring and cover plate (shown in the drawing below).

The overhaul seal kit will include the old O-ring, the new O-ring and the A pad seal.

Old Design



New Design




Service Bulletin: SB-2007-027

Models affected All series 90; 55, 75, and 100 cc pumps with SAE "A" auxiliary mounting flanges.

Serial numbers This change became affective at serial number; A 07-05-xxxxx.

Part numbers affected

Description	Old p/n	Used on	New p/n	Used on
Flange adapter	8000262	55 cc	8000641	55 cc
Flange adapter	8800172	55, 75 & 100 cc	8000641	55 cc
Flange adapter	8800172	55, 75 & 100 cc	8100846	75 cc
Flange adapter	8800172	55, 75 & 100 cc	8200467	100 cc
Washer	9009625-0132	55, 75 & 100 cc	NA	NA
O-ring	9004104-0420	All sizes	9004104-1520	All sizes
A Pad seal	NA	All sizes	4800482	All sizes
Flange cover	9802336	All sizes	4460586	All sizes

Note: If the new auxiliary flange adapter is used, the new O-ring or A pad seal and cover must also be used.

Parts disposition

- Interchangeable - if new O-ring or A pad seal and cover are replaced
- Use parts in stock
- Order replacement parts
- Revise existing part orders



Service Bulletin: SB-2007-051

Products affected Series 90; 55, 75 , and 100 cc pumps

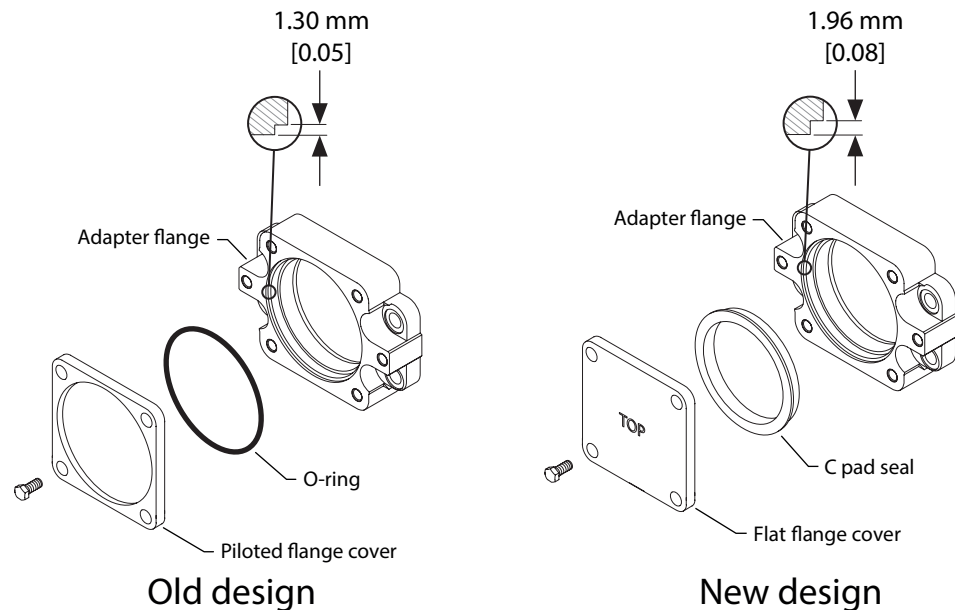
Subject SAE C auxiliary mounting flange

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 55, 75, and 100cc. 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 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 cover plate (shown in the drawing below).

The overhaul seal kit will include the old O-ring, the new O-ring and the new C pad seal




Service Bulletin: SB-2007-051

Models affected All series 90; 55, 75, and 100 cc pumps with SAE "C" auxiliary mounting flanges.

Serial numbers This change became affective at serial number; A 08-19-xxxxx and N 09-30-xxxxx.

Part numbers affected

Description	Old p/n	Used on	New p/n
SAE C flange	8200469	100 cc	8200515
SAE C flange	8100848	75 cc	8100897
SAE C flange	8000643	55 cc	8000740
O-ring	9004100-0480	55, 75 & 100 cc	9004104-1580
C Pad seal	N/A	55, 75 & 100 cc	8801062
Flange cover	8800406	55, 75 & 100 cc	8801060

Note: If the new auxiliary flange adapter is used, the new O-ring or C pad seal and cover must also be used.

Parts disposition

- Interchangeable - if new O-ring or C pad seal and cover are replaced
- Use parts in stock
- Order replacement parts
- Revise existing part orders



Service Bulletin: SB-2007-055

Products affected Series 90; 55, 75 , and 100 cc pumps

Subject SAE B auxiliary mounting flange

Part numbers affected

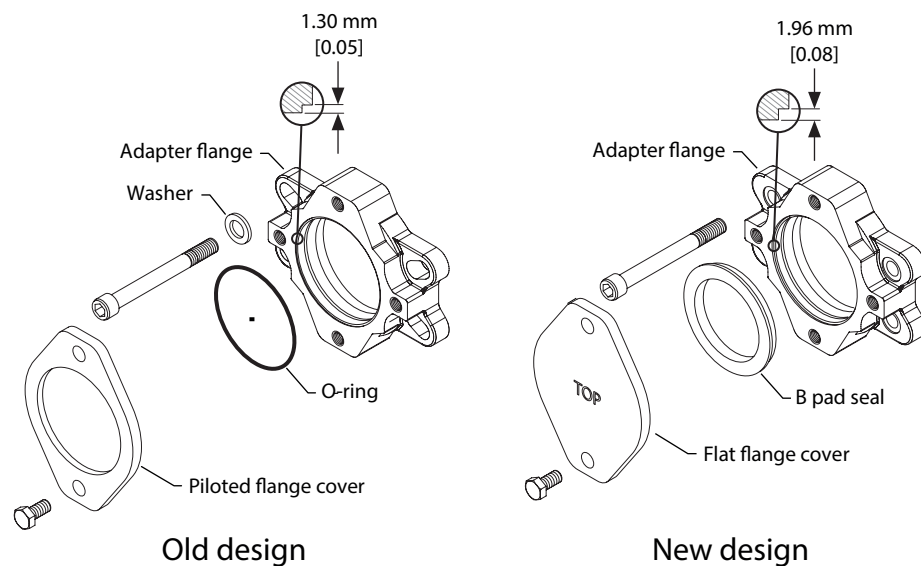
Sauer-Danfoss is pleased to announce a design improvement on the SAE B auxiliary mounting flange adapter on its series 90 pumps. The frame sizes affected by this change are 55, 75, and 100cc. All manufacturing locations producing these pumps will be changed to this configuration.

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 [0.103] 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 part number 9004104-1540 O-ring used.

Also, the flanges will no longer have a slotted interface with a washer for the end cap screws. The flanges will now have round through holes for the end cap screws and will use no washers. The end cap screws do not change. This eliminates the area where water or high pressure wash chemicals can be trapped around the end cap screws. There now are specific part numbers for the flanges used on each of the three displacement size pumps; 55, 75 and 100 cc.

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

The overhaul seal kit will include the old O-ring, the new O-ring and the new B pad seal.




Service Bulletin: SB-2007-055

Models affected All series 90; 55, 75, and 100 cc pumps with SAE "B" auxiliary mounting flanges.

Serial numbers This change became affective at serial number; A 08-19-xxxxx.

Part numbers affected

Description	Old p/n	Used on	New p/n	Used on
Metric B flange	8800983	55, 75 & 100 cc	8200540	100 cc
SAE B flange	8800173	55, 75 & 100 cc	8200468	100 cc
SAE B flange	8800173	55, 75 & 100 cc	8100847	75 cc
Metric B flange	8800983	55, 75 & 100 cc	8100938	75 cc
SAE B flange	8800173	55, 75 & 100 cc	8000642	55 cc
SAE B flange	8000263	55, 75 & 100 cc	8000642	55 cc
Washer	9009625-0132	55, 75 & 100 cc	N/A	N/A
O-ring	9004104-0450	55, 75 & 100 cc	9004104-1540	55, 75 & 100 cc
B Pad seal	N/A	55, 75 & 100 cc	8801061	55, 75 & 100 cc
Flange cover	4460370	55, 75 & 100 cc	8801059	55, 75 & 100 cc

Note: If the new auxiliary flange adapter is used, the new O-ring or B pad seal and cover must also be used.

Parts disposition

- Interchangeable - if new O-ring or C pad seal and cover are replaced
- Use parts in stock
- Order replacement parts
- Revise existing part orders

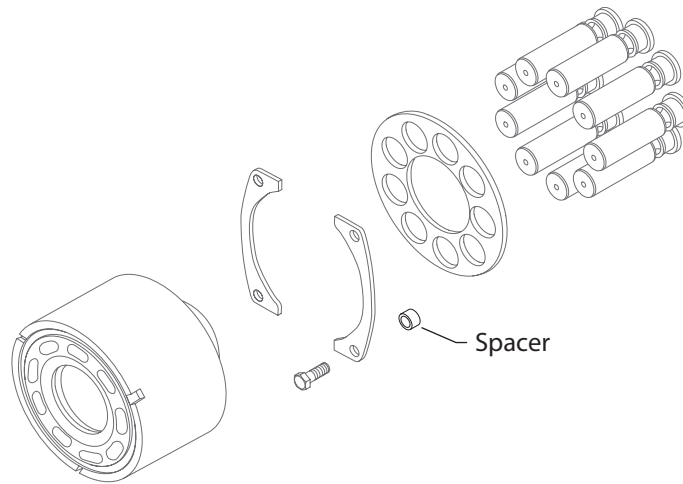


Service Bulletin: SB-2009-038

Products affected Series 90 55, 75 and 100 cc pumps

Subject Slipper hold down spacer

Description The supplier for the spacers, used for slipper hold down spacing in series 90 pumps, has changed. The new part is physically and functionally interchangeable in all applications. The part numbers have changed to better track this change. The old part numbers will become obsolete and not available for service.



Models affected Series 90 55, 75 and 100 cc pumps.

Serial numbers This change became effective at serial number: A09-38-XXXXX for 55cc (14-Sep-2009)
 A10-04-XXXXX for 75cc (22-Jan-2010)
 A09-38-XXXXX for 100cc (12-Aug-2009)

Part numbers affected

Spacer	Old part number	New part number
55cc	8000619	11065864
75cc	8100777	11065865
100cc	8200422	11065866

Parts disposition ■ Non-interchangeable

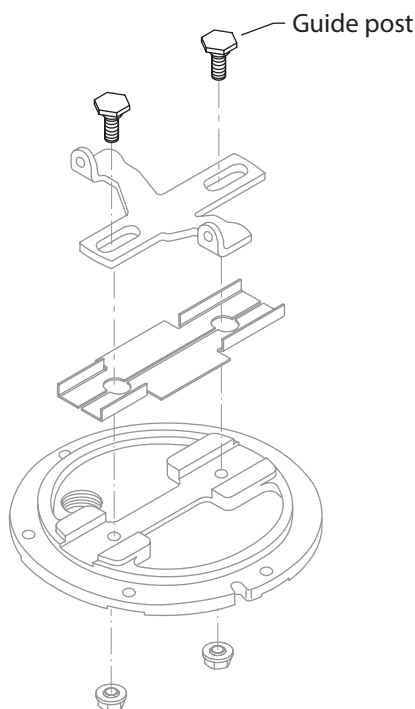


Service Bulletin: SB-2009-073

Products affected Series 90 75 and 100 cc pumps

Subject Supplier charge for guide posts

Description The supplier has changed, for the guide posts used in series 90 75 and 100 cc pumps. The new guide posts are interchangeable with the old guide posts. A new part number has been assigned to the new guide post to better track this change. The old part number has become obsolete and not available for service.



Models affected Series 90 75 and 100 cc pumps

Serial numbers This change became effective at serial number A-09-50-xxxxx (21 December 2009)

Part numbers affected

Description	Old part number	New part number
Guide post	8000575	11056531

Parts disposition ■ Interchangeable



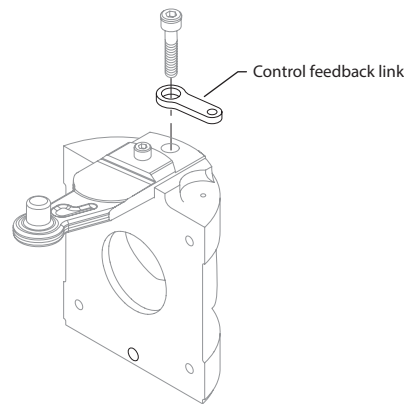
Service Bulletin: SB-2013-011

Products affected Series 90 42-250cc pumps

Subject Feedback link - Control

Description Sauer-Danfoss has changed to a global supplier for the control feedback links used in Series 90 42-250cc pumps.

Old parts and new parts are completely interchangeable. Part numbers will be changing for tracking purposes. Old parts will become obsolete and no longer available as a service part.



Models affected Series 90 42-250cc pumps

Part numbers affected

Control feedback link	Old part number	New part number
42cc pumps	648600	11070304
55 & 75cc pumps	8000602	11070305
100cc pumps	8200413	11070306
130cc pumps	340091	11070307
180 & 250cc pupms	747451	11070308

Parts disposition

- Interchangeable
- Use parts in stock



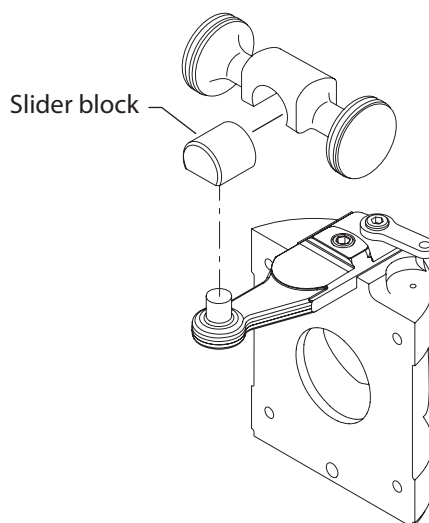
Service Bulletin: SB-2015-005

Products affected Series 90 42-250cc pumps

Subject Slider block supplier change

Description The supplier has changed for Series 90 pump slider blocks. Parts are completely interchangeable.

Part numbers have been changed for tracking purposes. As a result old part numbers will become obsolete and no longer available as service parts.



Models affected Series 90 42-250cc pumps

Part numbers affected	Description	Old Part Number	New Part Number	Effective Date
	Slider block 42 NMS	648303	11116314	N/A
	Slider block 55-75 NMS	8800750	11116313	6-Aug-2014
	Slider block 55-75 AMS	11061964	11116313	6-Sept-2014
	Slider block 100 AMS	11061908	11116312	10-Mar-2014
	Slider block 100 NMS	756197	11116312	20-Feb-2015
	Slider block 130 NMS	11000317	11116309	9-Dec-2014
	Slider block 180-250 NMS	746479	11116308	24-Oct-2014

Parts disposition

- Interchangeable
- Use parts in stock



Notes



Notes



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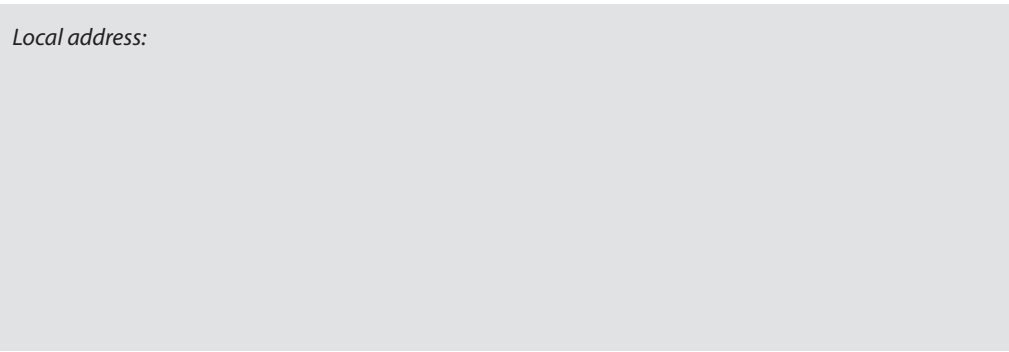
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