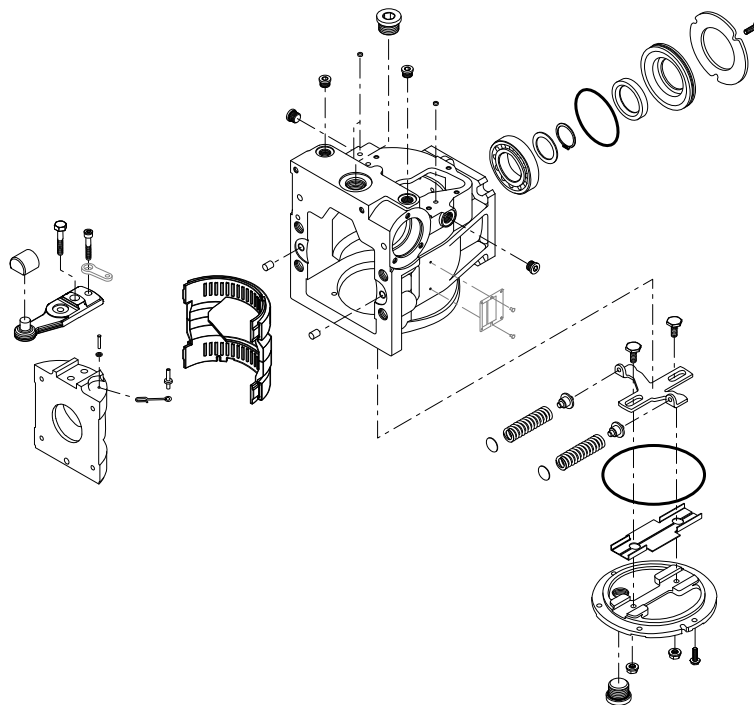


Parts Manual

Series T90 Axial Piston Pump

Size 100cc



Revision history*Table of revisions*

Date	Changed	Rev
December 2022	Added Control (E8)	0403
June 2022	Modified part numbers	0402
October 2021	Updated on Control (A4, A5)	0401
August 2020	Major update with HCEDC	0301
July 2020	Added Orifice (F4, F5, F6), and Changed document number from 'AX00000297' to 'AX199186484676'	0202
December 2019	Danfoss layout, DITA-CMS	0201
June 2016	First edition	0101

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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 T90 100 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 T90 100 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). "C" indicates the unit was originally assembled in Shanghai, China.

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

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

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



General Information

Date code

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

Example: The service part desired is item 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		89-16	8000151	End cap gasket (SB-1995-006)	1

All units using this order code with a date code prior to 89-17 must use part number "8000151." All units with a date code of 89-17 and newer must use part number "8000243."

General Information

Procedure to identify a part

General

The modular design of Series T90 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 T90 pump has an Order Code of T90L100 MA 1 CD 60 P 3 S1 D 03 MKX 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". (T90L100 MA 1 CD 60 P 3 **S1** D 03 MKX 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 341982.

General Information

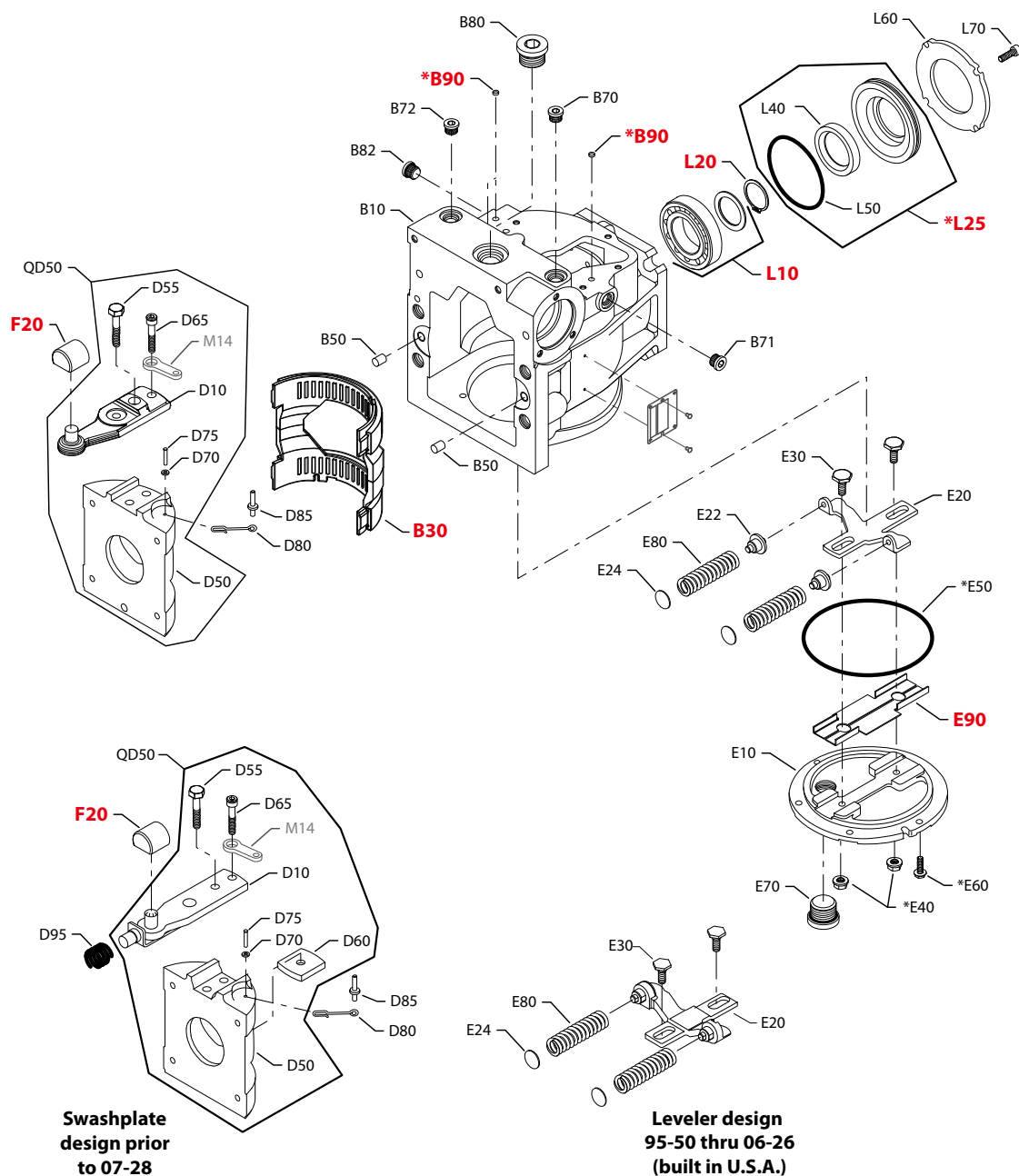
Order code

	Series	Displacement	M	P	J	G	N	F	L	H	T	W	Y	Z	K
	T 9 0	L 1 0 0	M A	1	C D	6 0	P	3	S 1	D	0 3	M K X	3 5	3 5	2 4
Rotation															
Control															
Pressure regulation															
Auxiliary mounting pad															
End cap															
Filtration															
Displacement limitation															
Shaft															
Charging system															
Control orifice															
Special hardware features															
High pressure setting port A															
High pressure setting port B															
Charge pressure setting															

P100 710E

Variable displacement pumps

Common parts (FNR, MDC)



E100 841E

* = Included in overhaul seal kit Q210

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

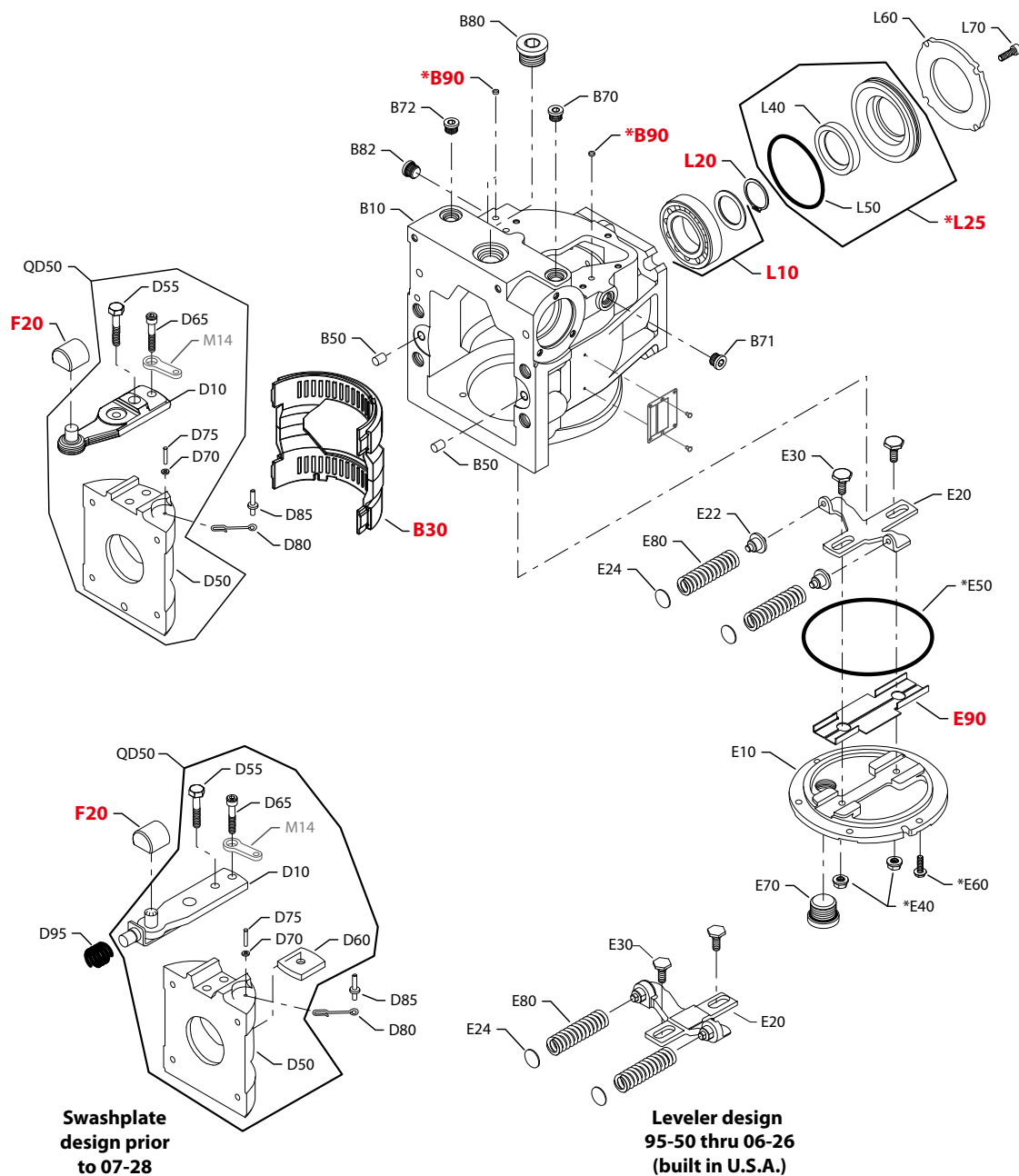
Variable displacement pumps

Common Parts

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	B10	07-28		11002463	Housing (SB-1994-035 & SB-2007-018)	1
	B30	07-29		521614	Cradle bearing assembly (SB-2007-018)	1
	B50	87-02		9004800-3708	Pin	2
	B70	87-02		140644	Plug assembly	1
	B71	87-02		9005110-4400	Plug assembly	
	B72	87-02		140644	Plug assembly	1
	B80	87-02		9005110-9000	Plug assembly	1
	B82	92-19		140644	Plug assembly	1
	B90	87-02		9803390	Control filter screen	3
	D10	07-29		521607	Servo arm assembly (SB-2007-018)	1
	D50	07-29		11002493	Swashplate (SB-2007-018)	1
	D55	07-29		519150	Screw (SB-2007-018)	1
	D65	07-29		9007375-0044	Screw (SB-2007-018)	1
	D70	87-02		11088208	Washer	1
	D75	87-02		9004875-0098	Spiral head pin	1
	D80	87-02		673038	Cage locator link (SB-1994-017)	1
	D85	87-02		8801235	Pin (SB-1998-018 & SB-1999-057)	1
	E10	07-29		11000790	Side cover (SB-2007-018)	1
	E20	06-27		11042019	Leveler	1
	E22	06-27		517936	Spring seat	2
	E24	87-02		8801225	Shim (SB-1989-003 & SB-2000-041)	2
	E30	09-52		11056531	Guide post SB-1998-070 & SB-2009-073)	2
	E40	87-02		9003509-0008	Seal nut	2
	E50	87-02		9004104-1620	O-ring	1

Variable displacement pumps

Common parts (FNR, MDC) -continued



E100 841E

* = Included in overhaul seal kit Q210

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

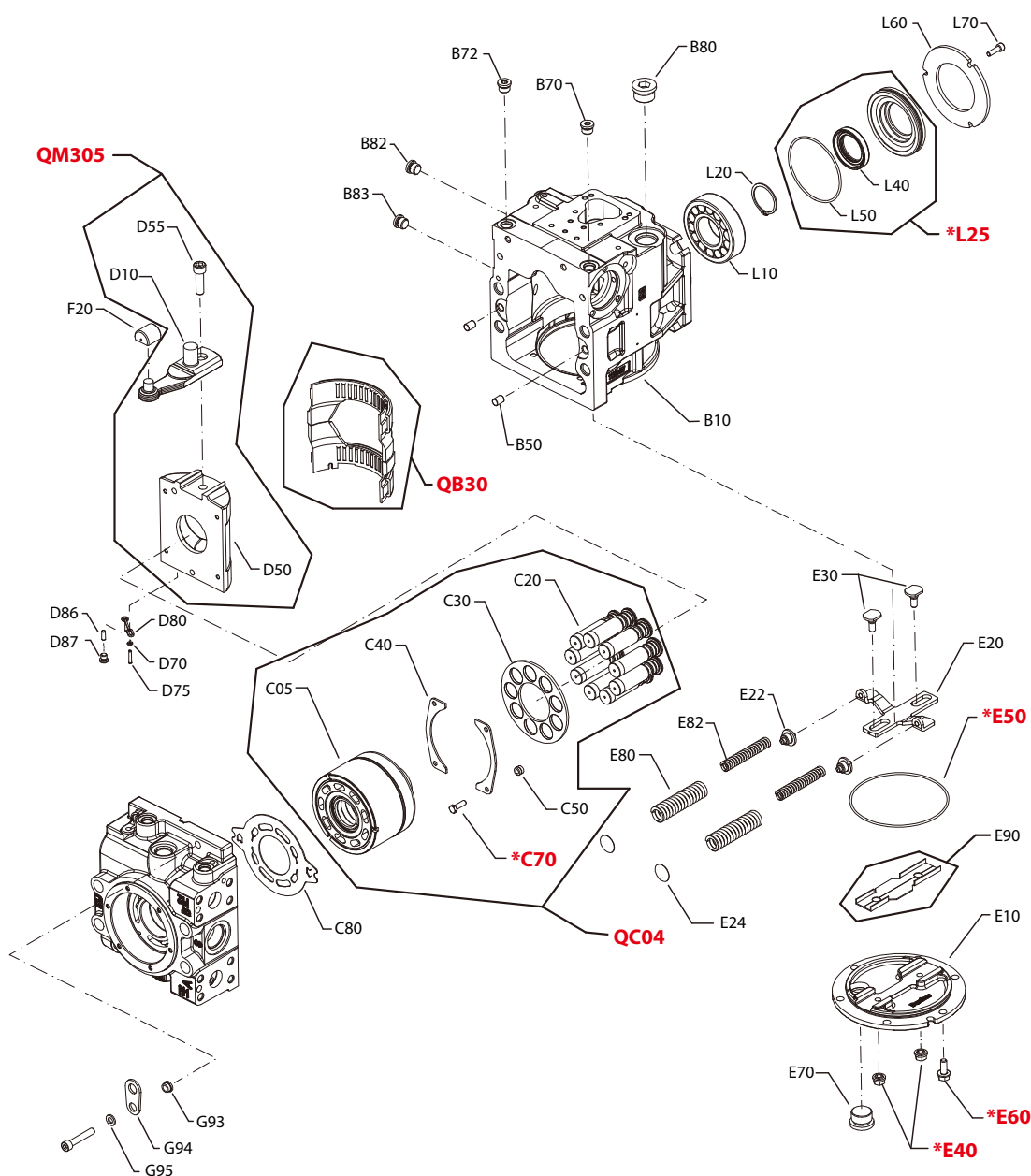
Variable displacement pumps

Common Parts - continued

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	E60	87-02		517228	Screw (SB-1994-018)	6
	E70	87-02		9005110-9000	Plug assembly	1
	E80	87-02		334979	Spring	2
	E90	95-50		513889	Insert assembly (SB-1995-025 & SB-1999-041)	1
	F20	88-16		11116312	Slider block (SB-1988-009, SB-2009-049 & SB-2015-005)	1
	L10	87-02		11135149	Roller bearing	L10
	L20	87-02		9006300-0175	Retaining ring	1
	L25	87-02		521722	Seal carrier assembly (SB-2007-018)	1
	L40	07-29		519021	Lip seal (SB-2007-018)	1
	L50	87-02		9004104-1540	O-ring	1
	L60	87-02		516768	Retainer plate	1
	L70	87-02		9007314-0605	Screw	4
	QD50	07-29		8200618	Swashplate assembly (SB-2007-018)	1

Variable displacement pumps

Common parts (HCEDC)



P400666

* = Included in overhaul seal kit Q210

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

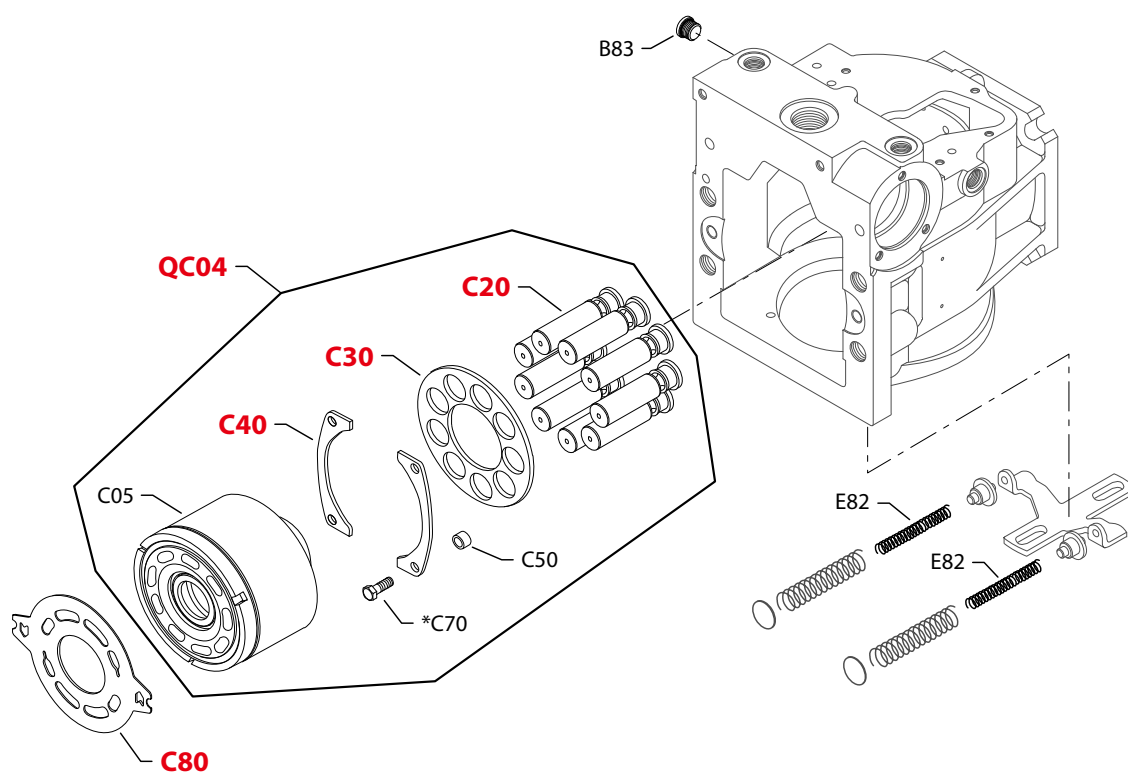
Variable displacement pumps

Common Parts (HCEDC)

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	B10	05-49		11238453	Housing	1
	B30	05-49		521614	Cradle bearing assembly (SB-2005-007)	1
	B50	87-02		9004800-3708	Pin	2
	B70	87-02		140644	Plug assembly	1
	B72	87-02		140644	Plug assembly	1
	B80	87-02		9005110-9000	Plug assembly	1
	B82	92-19		140644	Plug assembly	1
	B83	92-19		140644	Plug assembly	1
	B85	19-49		5000586	Plug-expansion	6
	D70	87-02		11088208	Special washer	1
	D75	87-02		9004875-0098	Spiral head pin	1
	D80	87-02		673038	Cage locator link (SB-1994-017)	1
	D86	19-49		9004800-1908	Pin-straight	1
	D87	19-49		11040532	Plug	1
	E10	05-49		11247271	Side cover (SB-2005-007)	1
	E20	98-14		11042019	Leveler (SB-1999-009)	1
	E22	06-27		517936	Spring seat	2
	E24	92-06		8801225	Shim (SB-2000-041)	2
	E30	99-28		11056531	Guide post (SB-2009-073)	2
	E40	87-02		9003509-0008	Seal nut	2
	E50	87-02		9004104-1620	O-ring	1
	E60	87-02		517228	Screw (SB-1994-018)	6
	E70	87-02		9005110-9000	Plug assembly	1
	E80	87-02		334987	Spring	2
	E90	95-50		513889	Insert assembly (SB-1995-025 & SB-1999-041)	1
	F20	88-16		11116312	Slider block (SB-1988-009 & SB-2015-005)	1
	L10	87-02		11135149	Roller bearing	1
	L20	87-02		9006300-0175	Retaining ring	1
	L25	87-02		521722	Seal carrier assembly (SB-2005-007)	1
	L40	87-02		519021	Lip seal (SB-2005-007)	1
	L50	87-02		9004104-1540	O-ring	1
	L60	87-02		516768	Retainer plate	1
	L70	87-02		9007314-0605	Screw	3
	QM305	20-04		11248624	Swashplate sub-assembly 90PV075	1

Variable displacement pumps

Common parts (MKX, FBK)



P400446

* = Included in overhaul seal kit Q210

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

Variable displacement pumps

Common Parts (MKX, FBK)

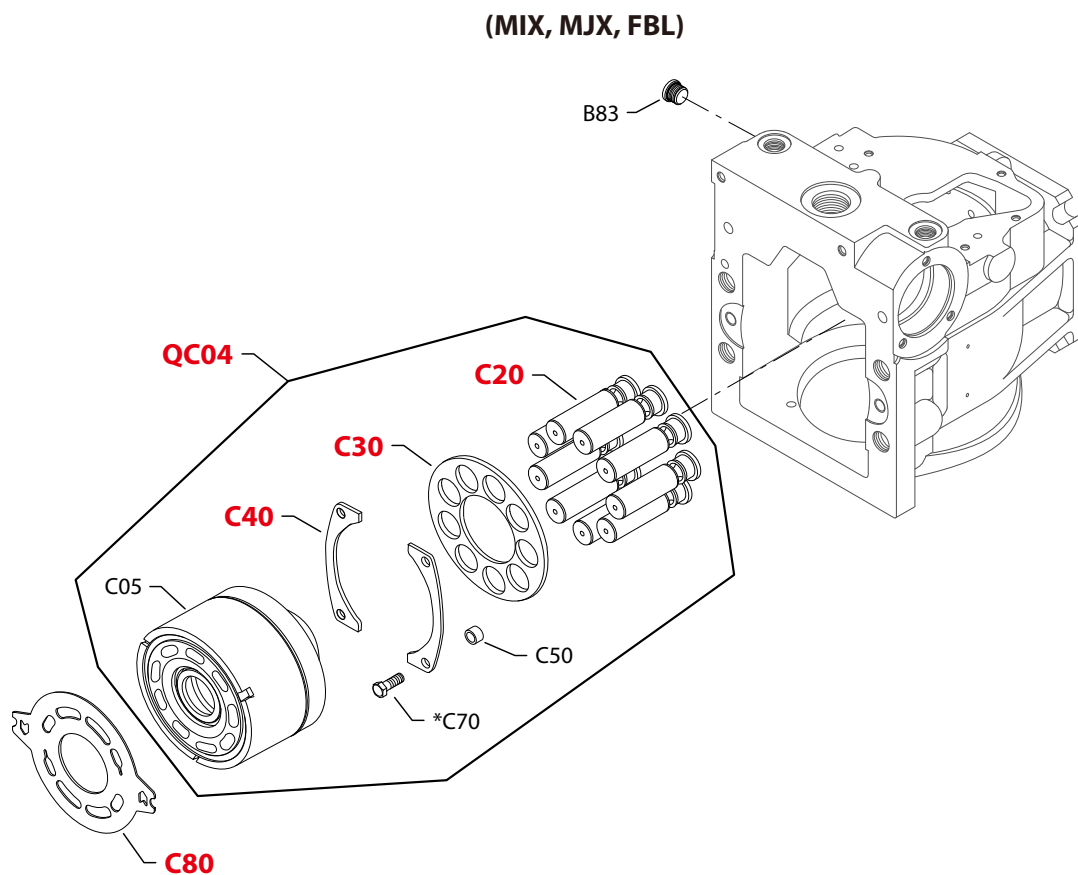
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	C20	87-02		11149730	Piston assembly (SB-1988-023)	9
	C30	87-02		11067351	Slipper guide	1
	C40	88-22		11057789	Slipper guide bearing (SB-1988-016)	2
	C50	88-22		11065866	Spacer (SB-1988-016, SB-1998-041 & SB-2009-038)	4
	C70	88-22		9007276-0114	Screw (SB-1988-016 & SB-1998-041)	4

Special hardware

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
MKX	B83	87-02		140644 (9005110-5600)	Plug assembly	1
	C05	87-02		11012434	Cylinder block assembly	1
	C80	87-02		518806	Valve plate	1
	E82	87-02		356576 (11062702)	Spring	2
	QC04	87-02		8510372	Cylinder block kit	1

Variable displacement pumps

Common parts (MIX, MJX, FBL)



E103 033E

* = Included in overhaul seal kit Q210

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

Variable displacement pumps

Common Parts (MIX, MJX, FBL)

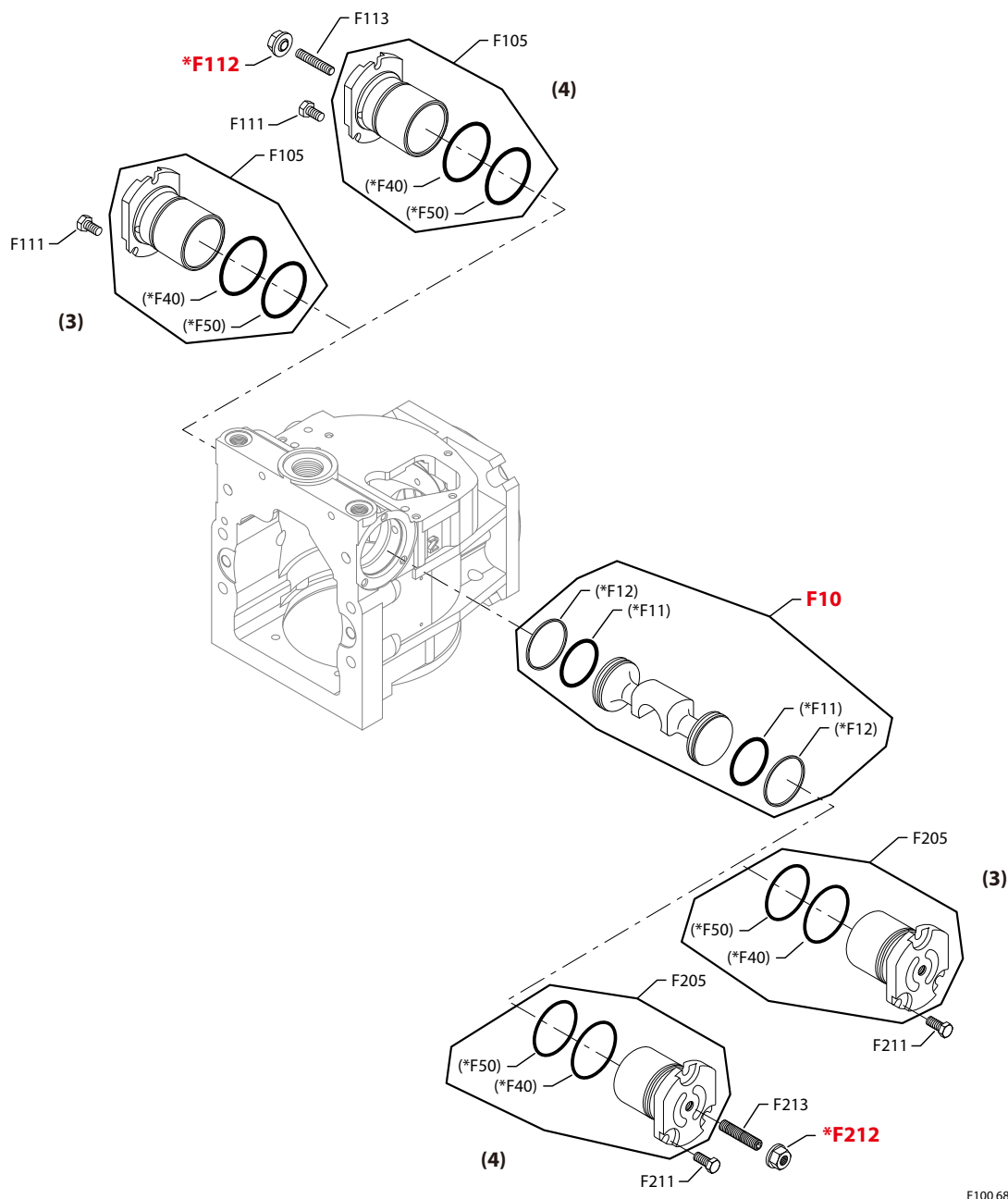
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	C20	87-02		11149730	Piston assembly (SB-1988-023)	9
	C30	87-02		11067351	Slipper guide	1
	C40	88-22		11057789	Slipper guide bearing (SB-1988-016)	2
	C50	88-22		11065866	Spacer (SB-1988-016, SB-1998-041 & SB-2009-038)	4
	C70	88-22		9007276-0114	Screw (SB-1988-016 & SB-1998-041)	4

Special hardware

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
MIX, MJX, FBL	B83	87-02		140644	Plug assembly	1
	C05	87-02		11155338	Cylinder block assembly	1
	C80	87-02		518806	Valve plate	1
	QC04	87-02		11149945	Cylinder block kit	1

Variable displacement pumps

Displacement limitation



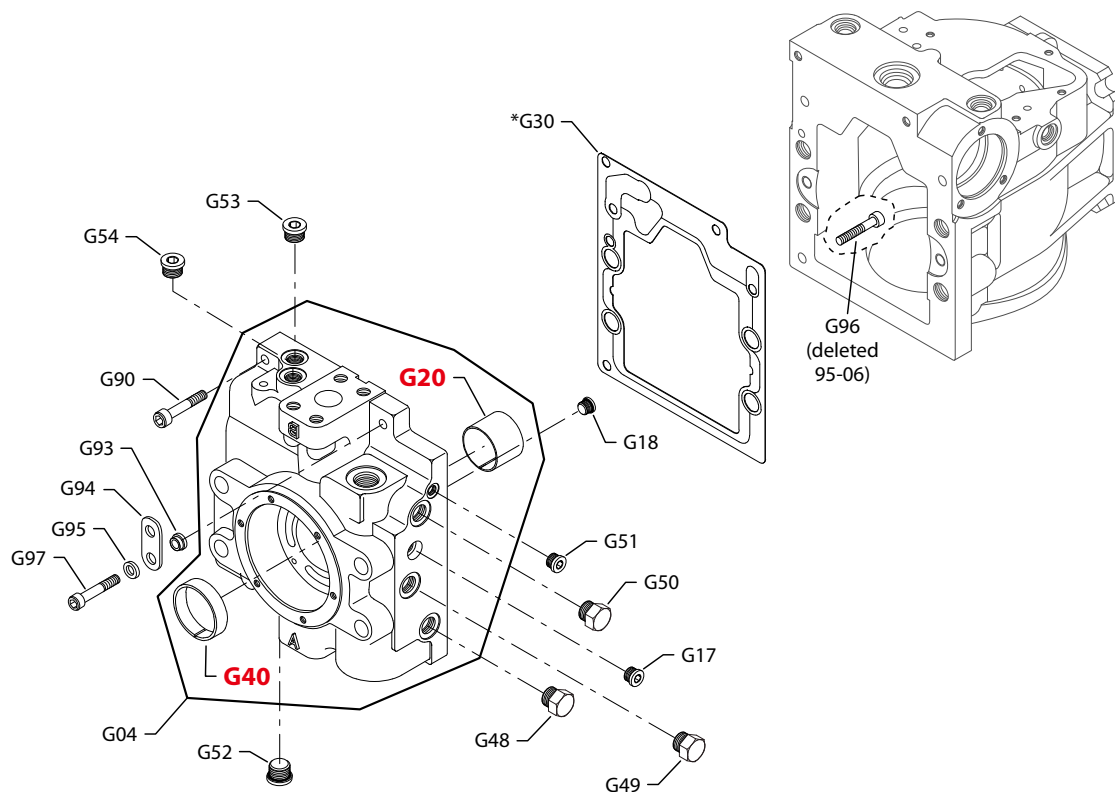
Variable displacement pumps

Displacement limitation

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
3	F10	88-16		11044943	Servo piston assembly (SB-2000-022 & SB-2009-035)	1
	F105	87-02		11060703 (11055769)	Servo cylinder assembly	1
	F111	87-02		378083 (9007210-0804)	Screw	3
	F205	87-02		11060703 (11055769)	Servo cylinder assembly	1
	F211	87-02		378083 (9007210-0804)	Screw	3
4	F10	88-16		11044943	Servo piston assembly (SB-2000-022 & SB-2009-035)	1
	F105	87-02		11060704 (11055771)	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 (SB-2000-022)	1
	F205	87-02		11060704 (11055771)	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 (SB-2000-022)	1

Variable displacement pumps

End cap (60)



E100 850E

* = Included in overhaul seal kit Q210

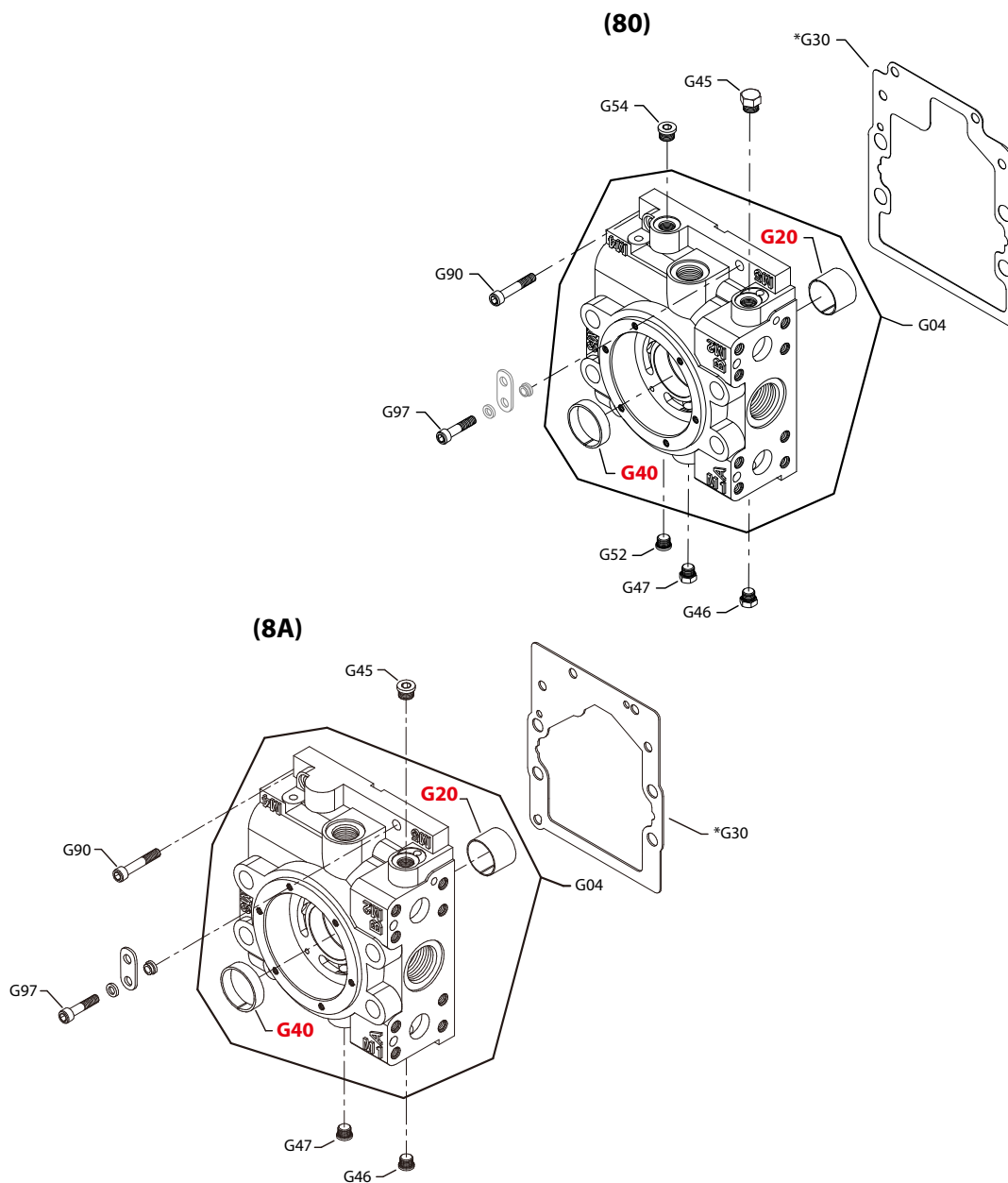
Enlarged **bold** type item numbers are recommended parts to be stocked for servicing

Variable displacement pumps
End cap (60)

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	G17	92-12		9005110-4400	Plug (SB-1992-0003)	1
	G18	92-12		9005110-4400	Plug (SB-1992-0003)	1
	G20	87-02		11149945	Journal bearing	1
	G30	89-46		8200212	End cap gasket (SB-1992-003)	1
	G40	87-02		11017392	Bushing	1
	G48	87-02		140644	Plug assembly	1
	G49	87-02		140644	Plug assembly	1
	G51	87-02		9005110-5600	Plug assembly	1
	G52	87-02		140644	Plug assembly	1
	G53	87-02		140644	Plug assembly	1
	G54	87-02		140644	Plug assembly	1
	G90	92-12		9007314-0810	Screw	1
	G93	92-12		8800564	Spacer	1
	G94	92-12		8800565	Lifting bracket	1
	G95	92-12		9009610-3459	Washer	1
	G97	92-12		9007314-0810	Screw	1
60	G04	92-12		11029066	End cap assembly, side ports (SB-1992-003)	1

Variable displacement pumps

End cap (80, 8A)



P400669

* = Included in overhaul seal kit Q210

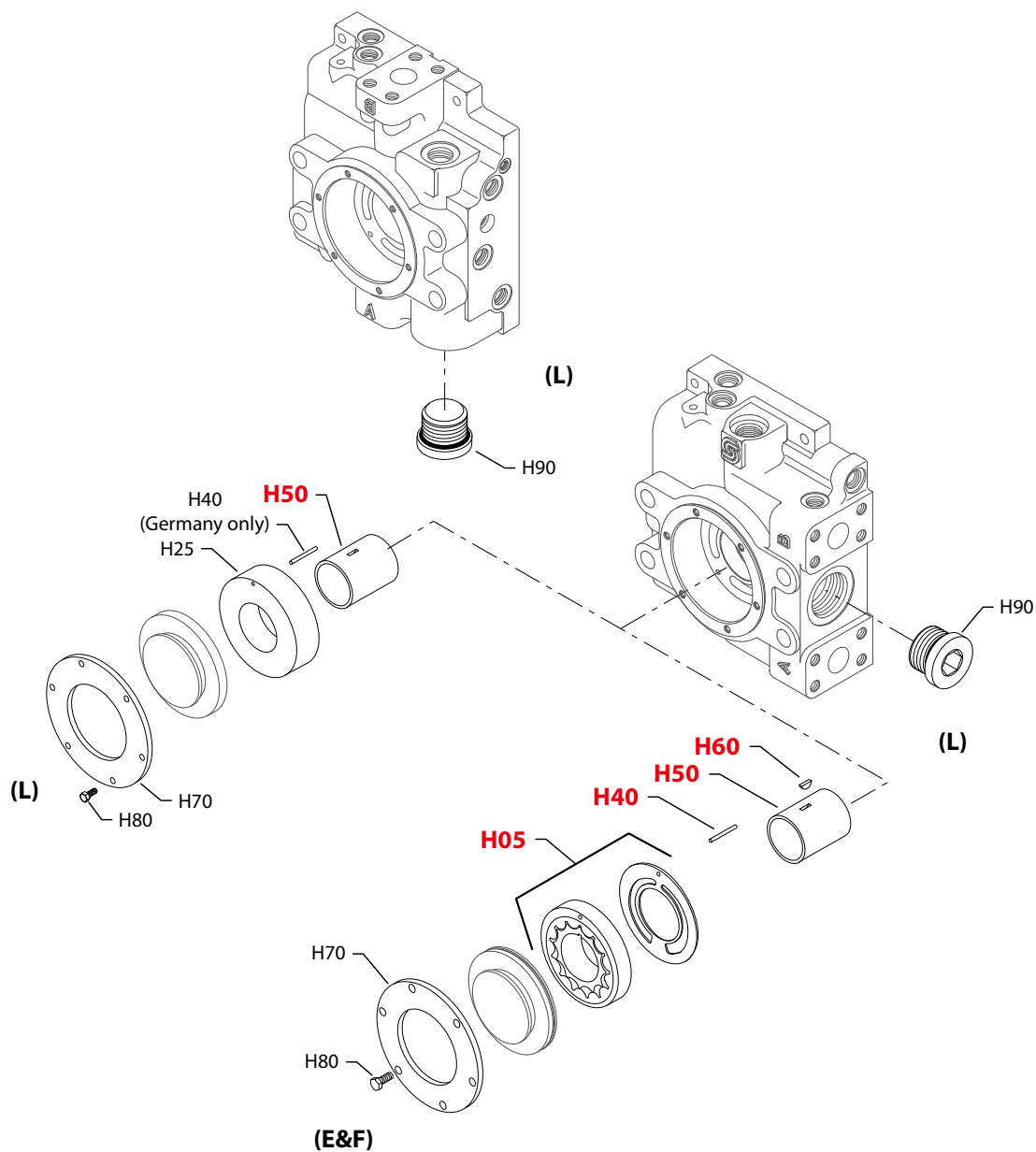
Enlarged **bold** type item numbers are recommended parts to be stocked for servicing

Variable displacement pumps
End cap (80, 8A)

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	G20	87-02		11017304	Journal bearing	1
	G30	87-02		8200212	End cap gasket	1
	G40	87-02		11017392	Bushing	1
	G46	87-02		140644	Plug assembly	1
	G90	87-02		9007314-0810	Screw	1
	G93	87-02		8800564	Spacer	1
	G94	87-02		8800565	Lifting bracket	1
	G95	87-02		9009610-3459	Washer	1
	G97	87-02		9007314-0810	Screw	1
80	G04	92-12		11029067	End cap assembly (SB-1995-012)	1
	G45	87-02		140644	Plug assembly	1
	G47	87-02		140644	Plug assembly	1
	G51	87-02		140644	Plug assembly	1
	G52	87-02		140644	Plug assembly	1
	G53	87-02		140644	Plug assembly	1
	G54	87-02		140644	Plug assembly	1
8A	G04	96-05		11064568	End cap assembly, twin ports	1
	G45	87-02		140644	Plug assembly	1
	G46	87-02		140644	Plug assembly	1
	G47	87-02		140644	Plug assembly	1

Variable displacement pumps

Charging system



P400449

* = Included in overhaul seal kit

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

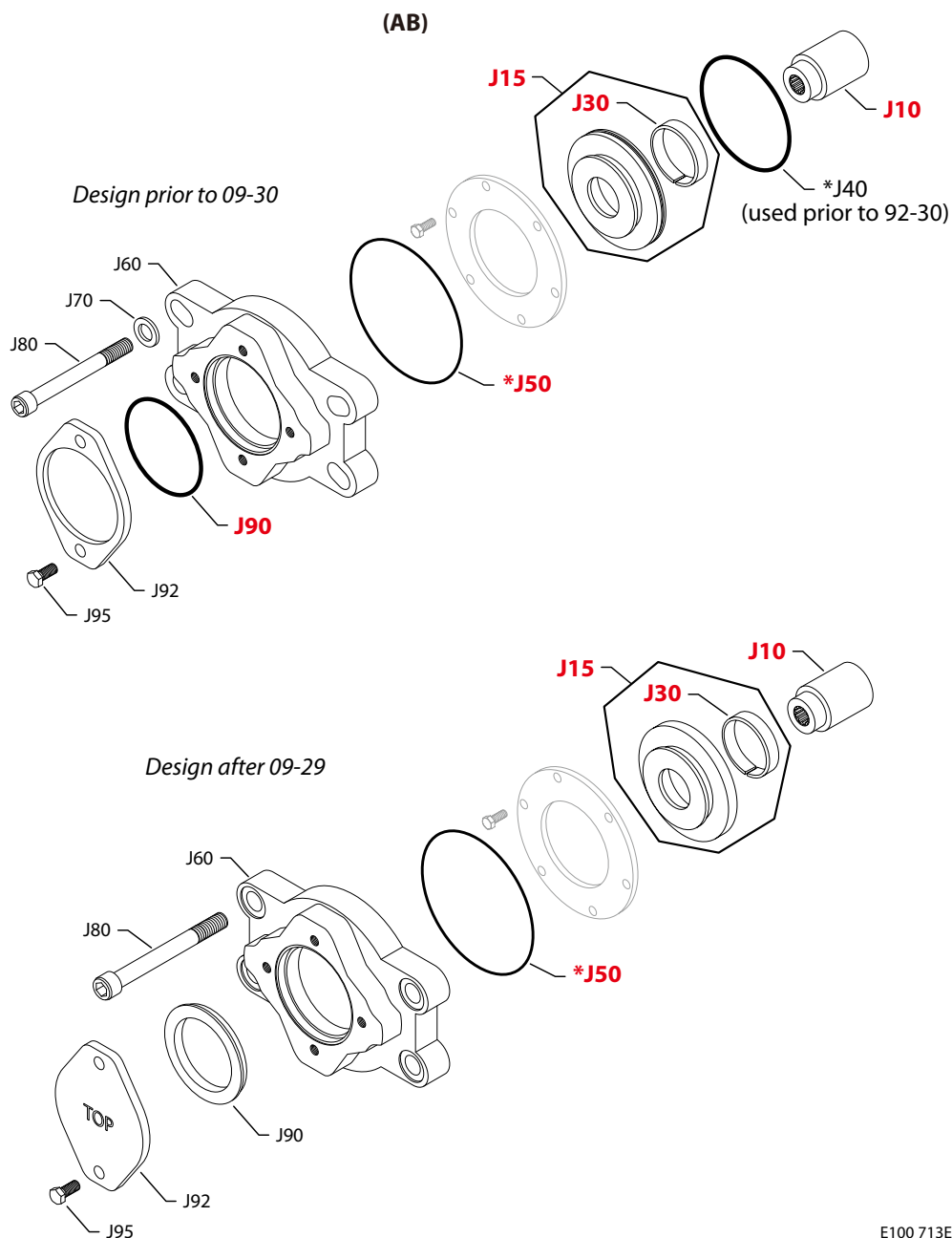
Variable displacement pumps
Charging system

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
H	H05	93-15		8200239	Charge pump set, 20 cc (SB-1993-001*)	1
	H40	87-02		9004800-1224	Pin	1
	H50	93-15		8801178	Charge pump shaft (SB-1993-001 & SB-1998-066)	1
	H60	87-02		9003310-1208	Key	1
	H70	87-02		516761	Retaining plate	1
	H80	87-02		9007210-0604	Screw	6
F	H05	93-15		8200240	Charge pump set, 26 cc (SB-1993-001*)	1
	H40	87-02		9004800-1224	Pin	1
	H50	93-15		8801178	Charge pump shaft (SB-1993-001 & SB-1998-066)	1
	H60	87-02		9003310-1208	Key	1
	H70	87-02		516761	Retaining plate	1
	H80	87-02		9007210-0604	Screw	6
L	H25	87-02		8800466-0100	Charge pump spacer	1
	H50	93-15		8801178	Charge pump shaft (SB-1993-001 & SB-1998-066)	1
	H70	87-02		516761	Retaining plate	1
	H80	87-02		9007210-0604	Screw	6
	H90	87-02		9005110-9500	Plug assembly	1

* For information regarding replacement parts for units built from 89-17 to 93-09, refer to AN152886483362 in the appendix.

Variable displacement pumps

Auxiliary mounting (AB)



E100 713E

* = Included in overhaul seal kit Q210

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Variable displacement pumps

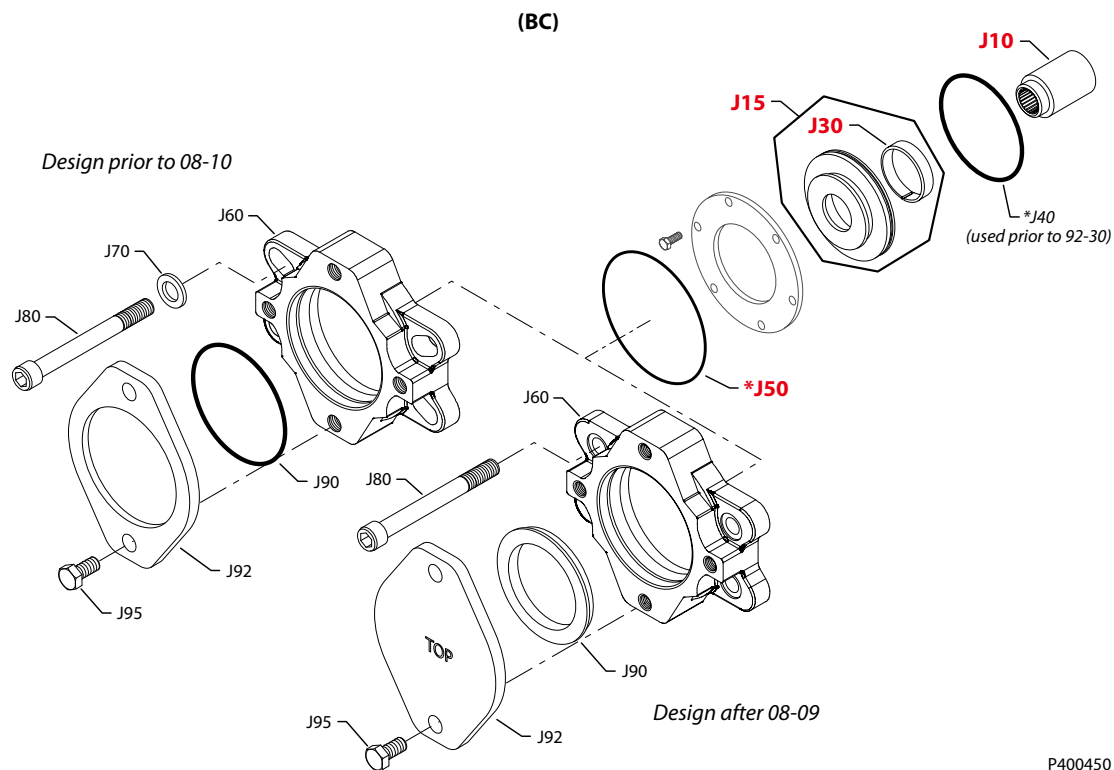
Auxiliary mounting (AB)

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
AB	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		8700008	Bushing	1
	J40	87-02	92-29	680892 (9004104-0440)	O-ring	1
	J50	87-02		9004104-1580	O-ring	1
	J60	87-02		8200467	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	9007314-1624	Screw, M16 x 130 (SB-1989-023)	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 AN152886483362 in the appendix.

Variable displacement pumps

Auxiliary mounting (BC)



* = Included in overhaul seal kit Q210

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

Variable displacement pumps

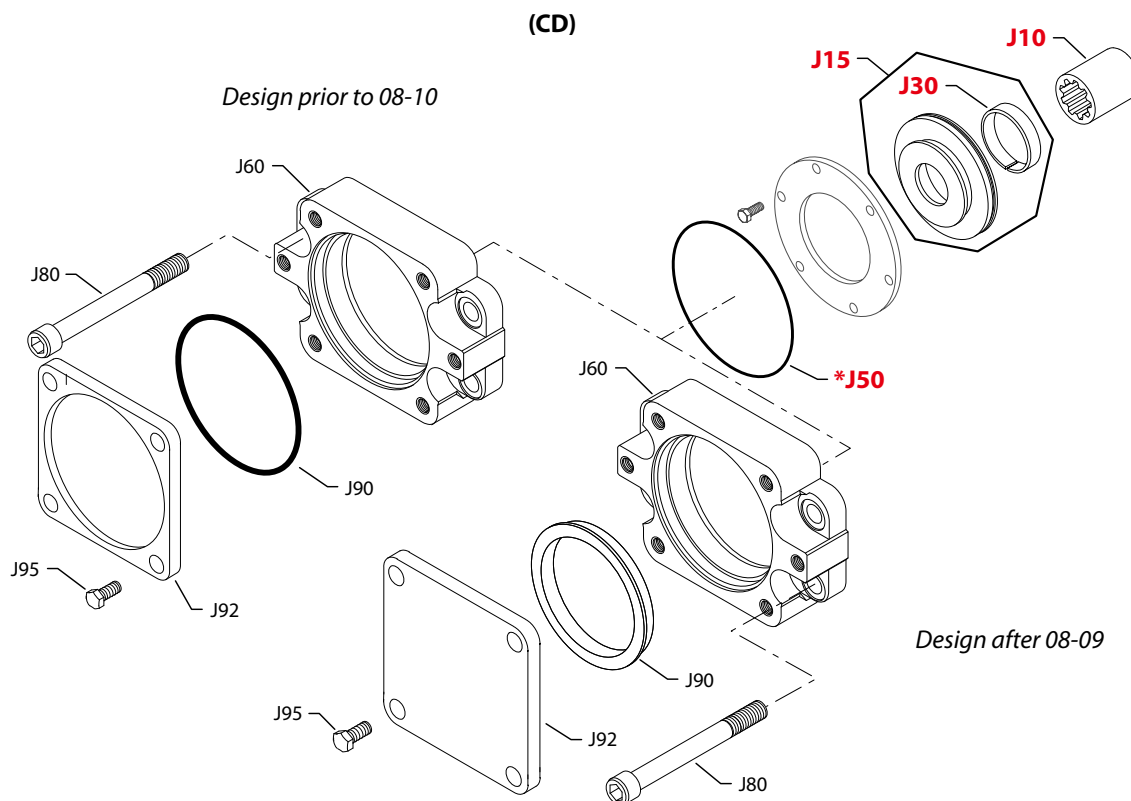
Auxiliary mounting (BC)

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
BC	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		8700008	Bushing	1
	J40	87-02	92-15	680892 (9004104-0440)	O-ring	1
	J50	87-02		9004104-1580	O-ring	1
	J60	87-02		8200468	Flange adapter (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	9007314-1624	Screw M16 x 130 (SB-1989-023)	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 AN152886483362 in the appendix.

Variable displacement pumps

Auxiliary mounting (CD)



P400451

* = Included in overhaul seal kit Q210

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

Variable displacement pumps

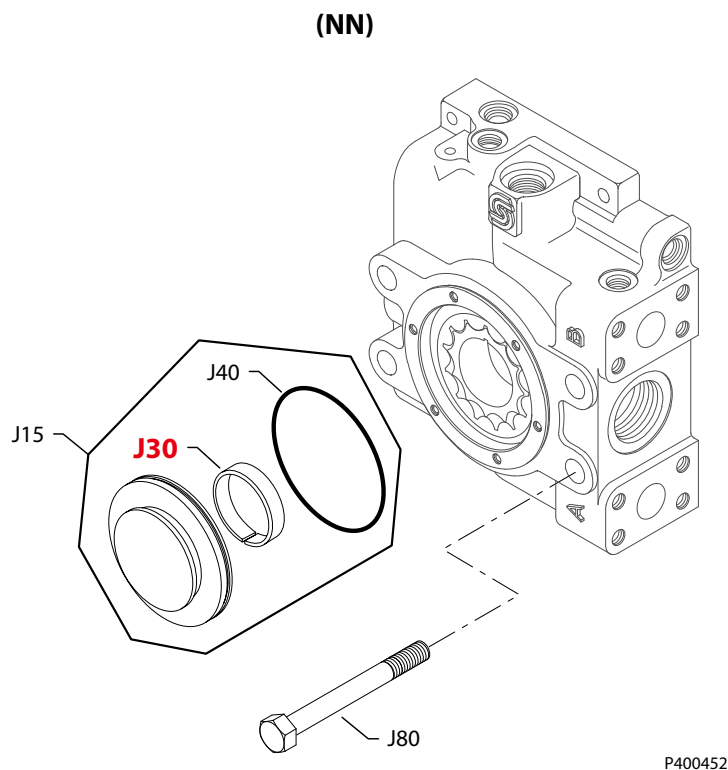
Auxiliary mounting (CD)

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
CD	J10	87-02		11053346	Coupling, 14 tooth, high strength	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		8700008	Bushing	1
	J40	87-02	92-15	680892 (9004104-0440)	O-ring	1
	J50	87-02		9004104-1580	O-ring	1
	J60	87-02		8200515	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	9007314-1624	Screw M16 x 130 (SB-1989-023)	4
	J90	08-10		11081805	C pad seal (SB-2007-051)	1
	J90	87-02	08-09	726943 (9004104-0490)	O-ring	1
	J92	08-10		8801060	Cover plate (SB-2007-051)	1
	J92	87-02	08-09	8800406	Cover plate	1
	J95	87-02		9007200-5021	Screw	4

* For information regarding replacement parts for units built from 89-17 to 93-09, refer to AN152886483362 in the appendix.

Variable displacement pumps

Auxiliary mounting (NN)



* = Included in overhaul seal kit Q210

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

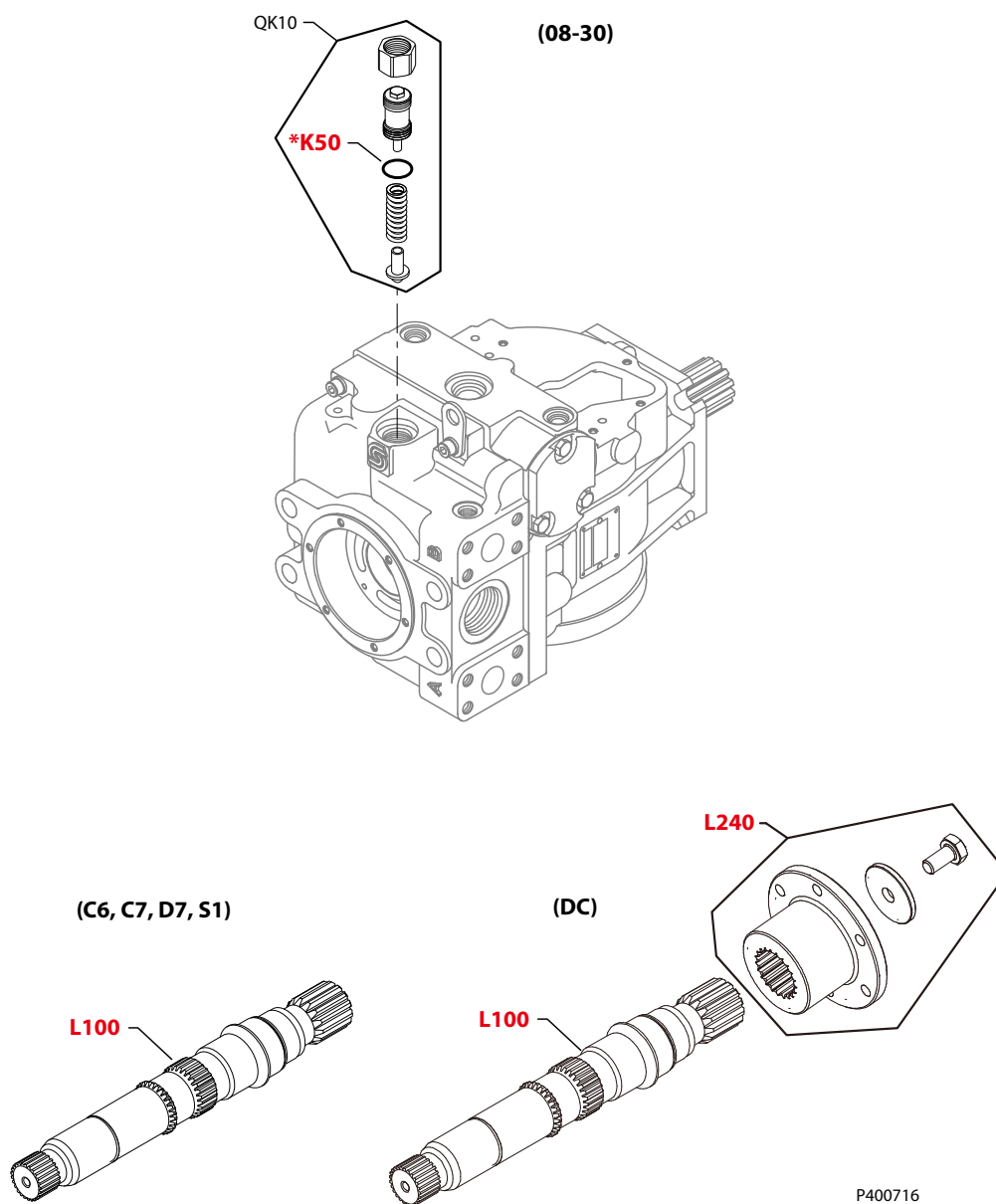
Variable displacement pumps*Auxiliary mounting (NN)*

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
NN	J15	87-02		8800834	Cover assembly, (SB-1993-001*)	1
	J30	87-02		8700008	Bushing	1
	J40	87-02	92-15	9004104-0440	O-ring	1
	J80	98-44		342030	Screw, M16 x 120	4

* For information regarding replacement parts for units built from 89-17 to 93-09, refer to AN152886483362 in the appendix.

Variable displacement pumps

Charge pressure setting



* = Included in overhaul seal kit Q210

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

Variable displacement pumps

Charge pressure setting

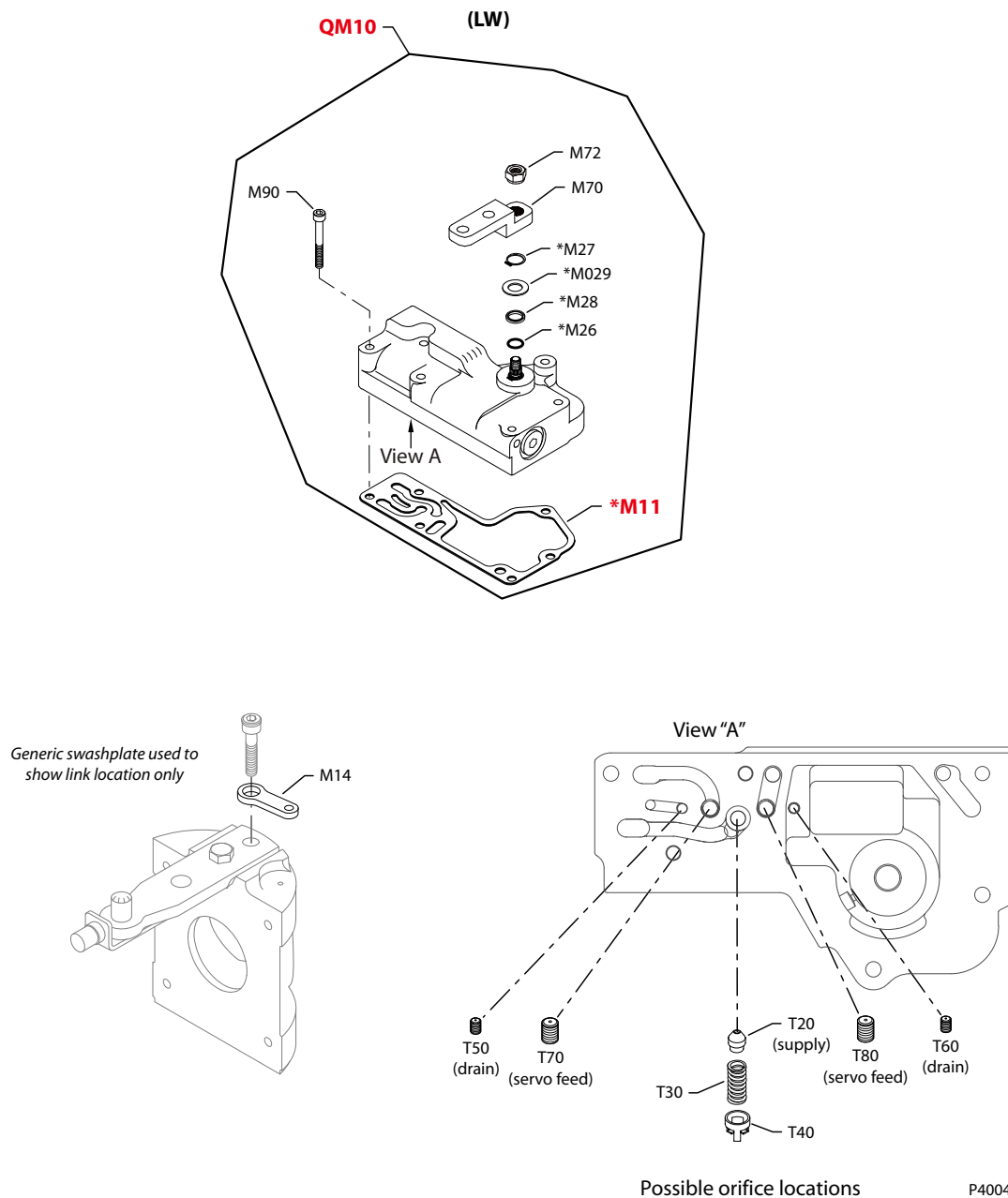
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
08-30	K50	87-42		9004201-6200	O-ring (SB-1989-002)	1
	QK10	87-42		8002K000-A	Charge relief valve kit, 8-30 bar (SB-1989-002)	1

Shaft

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
C6	L100	98-38		11045028	Shaft, 21 tooth spline	1
C7	L100	89-46		8200169	Shaft, 23 tooth spline	
F1	L100	89-46		8200170	Shaft, 23 tooth spline (SB-1989-023)	
D7	L100	94-14		11045030	Shaft, 23 tooth spline, M10 threaded tapped hole	
S1	L100	89-46		8200171	Shaft, 14 tooth spline	
DC	L100	95-08		11045030	Shaft, 23 tooth spline, M10 threaded tapped hole	
	L240	95-08		11078891	Coupling	

Variable displacement pumps

Control (LW)



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 overhaul seal kit Q210

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

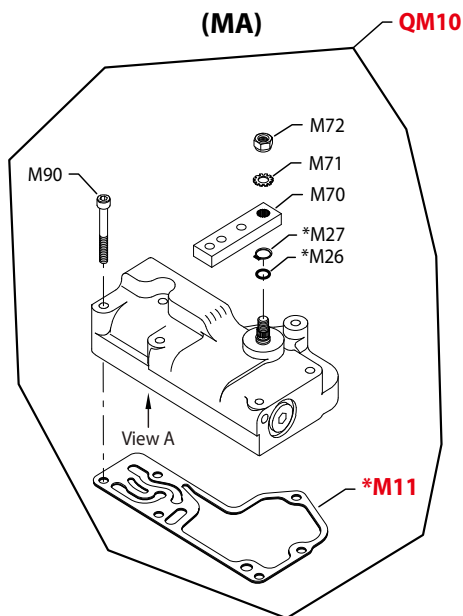
Variable displacement pumps

Control

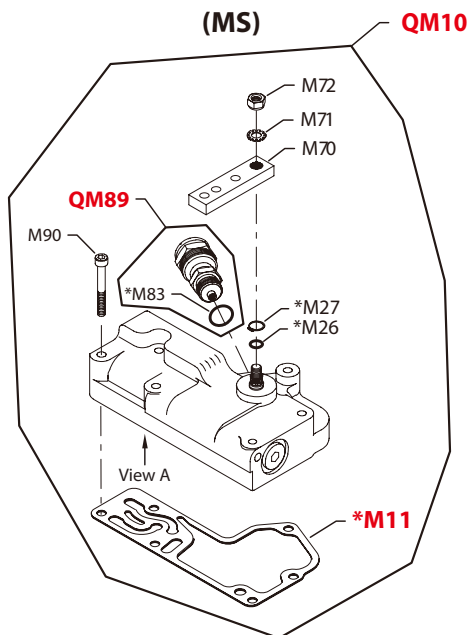
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
LW	M11	12-03		8800923	Control gasket	1
	M14	12-03		11070306	Feedback link (SB-2013-011)	1
	M26	12-03		9004105-0110	O-ring	1
	M27	12-03		042507	Retaining ring	1
	M28	12-03		510690	Seal	1
	M029	12-03		512047	Washer	1
	M70	12-03		9800916	Control handle	1
	M72	12-03		9003513-0800	Nut	1
	M90	12-03		9007314-0611	Screw	6
	QM10	12-03		11107925	MDC kit, 2-position solenoid valve, 24v	1
	QM210	812-03		11110668	Control seal kit	1

Variable displacement pumps

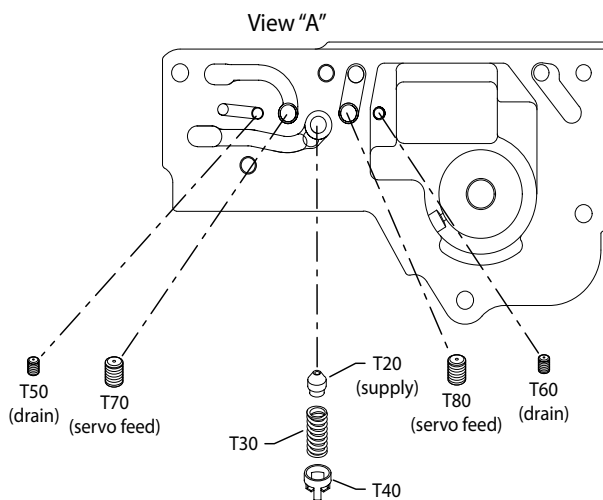
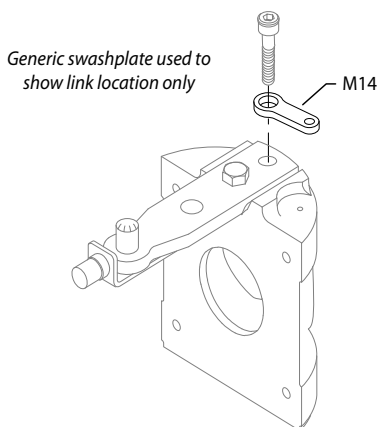
Control (MA, MS)



A generic neutral start switch is shown.



A generic neutral start switch is shown.



Possible orifice locations

P400671

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 overhaul seal kit Q210

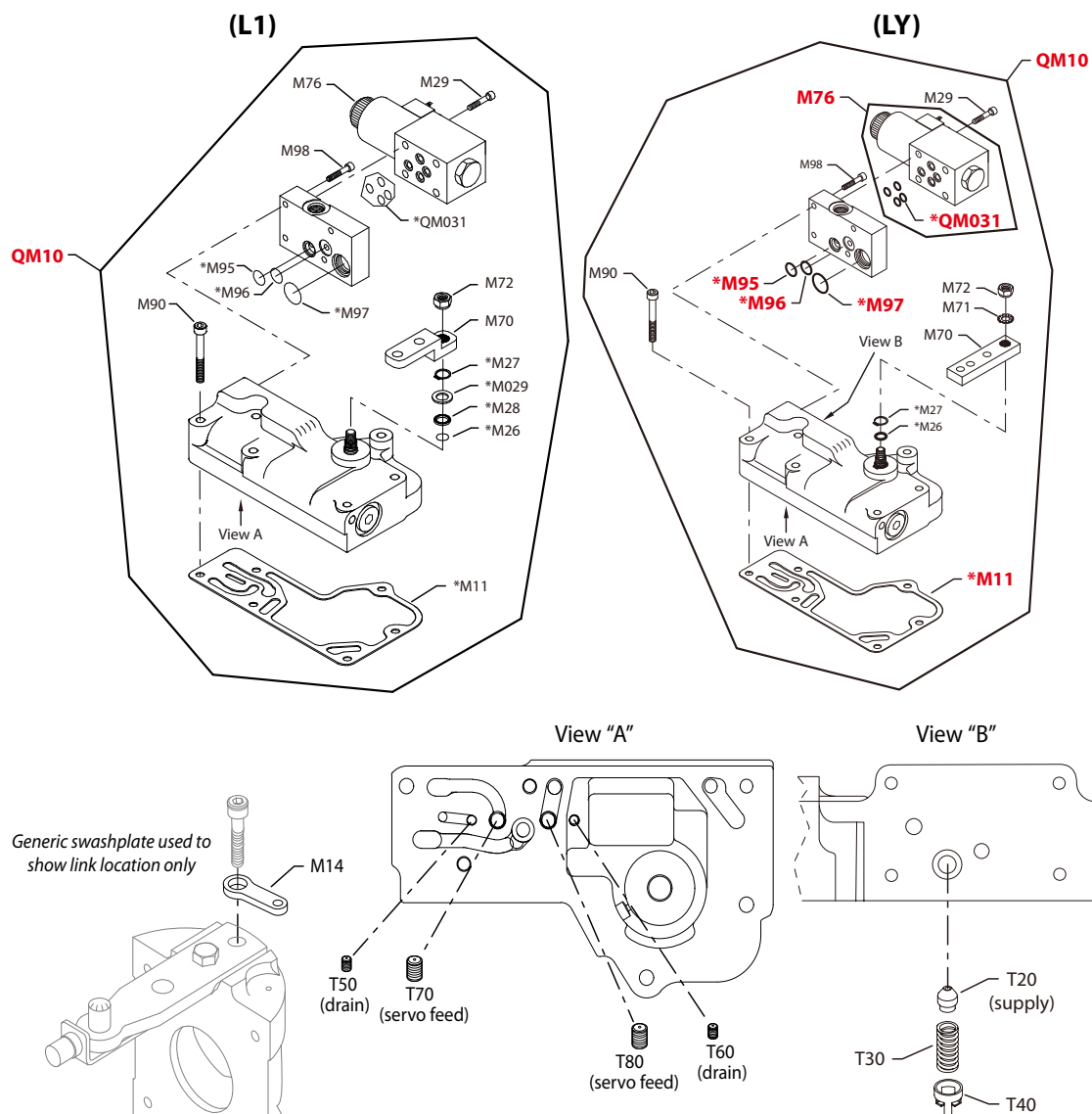
Enlarged **bold** type item numbers are recommended parts to be stocked for servicing

Variable displacement pumps
Control (MA, MS)

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		11070306	Feedback link (SB-1999-019 & SB-2013-011)	1
	M26	87-02		144725 (9004105-0110)	O-ring	1
	M27	87-02		042507 (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
MS	M11	01-07		8800923	Control gasket	1
	M14	01-07		11070305	Feedback link	1
	M26	01-07		9004105-0110	O-ring	1
	M27	01-07		042557	Retaining ring	1
	M70	01-07		9800916	Control handle	1
	M71	01-07		9009660-3100	Toothlock washer	1
	M72	01-07		9003513-0800	Nut	1
	M83	01-07		9004201-5000	O-ring	1
	M90	01-07		9007314-0611	Screw	6
	QM10	01-07		8102M0MB-A	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 pumps

Control (L1, LY)



Possible orifice locations

P400672

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 overhaul seal kit Q210

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

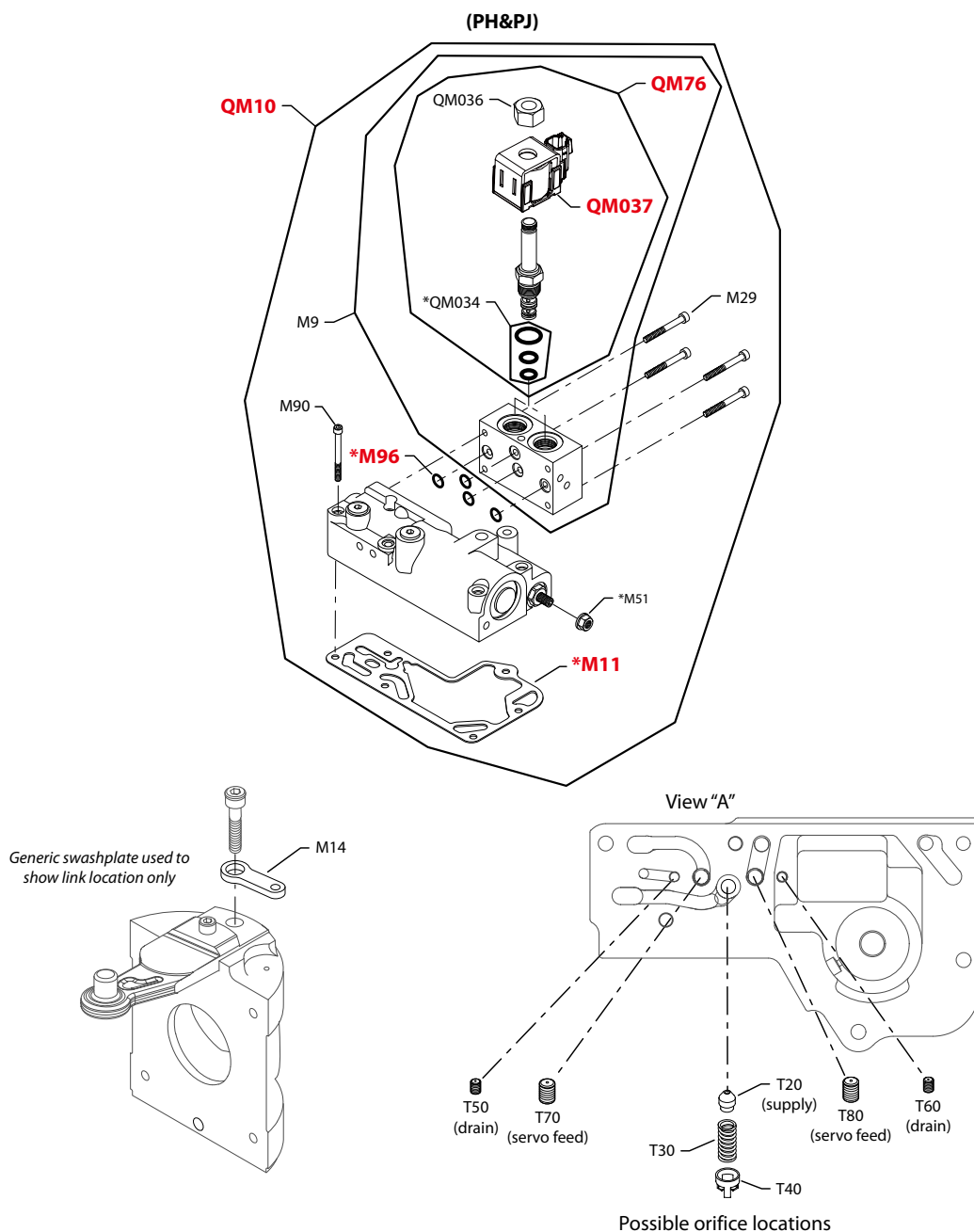
Variable displacement pumps

Control (L1, LY)

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
L1	M11	87-02		8800923	Control gasket	1
	M14	96-40		11070306	Feedback link (SB-1999-019 & SB-2013-011)	1
	M26	87-02		9004105-0110	O-ring	1
	M27	87-02		042507	Retaining ring	1
	M28	87-02		510690	Shaft seal	1
	M29	87-02		035592	Screw	1
	M70	87-02		769075	Control handle	1
	M72	87-02		9003513-0800	Nut	1
	M76	87-02		519369	Solenoid valve, 12 volt	1
	M90	87-02		9007314-0611	Screw	6
	M95	87-02		056713	O-ring	1
	M96	87-02		056713	O-ring	1
	M97	87-02		544742	O-ring	1
	M98	87-02		067686	Screw	4
	QM10	87-02		11184346	MDC kit w/2-position solenoid valve, 24volt	1
	QM031	87-02		11099647	Solenoid seal kit	1
	QM210	87-02		11184341	Control seal kit	1
LY	M11	02-16		8800923	Control gasket	1
	M14	02-16		11070306	Feedback link	1
	M26	02-16		9004105-0110	O-ring	1
	M27	02-16		042557	Retaining ring	1
	M70	02-16		9800916	Control handle	1
	M71	02-16		9009660-3100	Toothlock washer	1
	M72	02-16		9003513-0800	Nut	1
	M75	02-16		507437	Control manifold	1
	M76	02-16		519369	Solenoid valve, 24v, double pole	1
	M90	87-02		9007314-0611	Screw	6
	M95	87-02		056713	O-ring	1
	M96	87-02		056713	O-ring	1
	M97	87-02		544742	O-ring	1
	M98	87-02		067686	Screw	4
	QM10	87-02		11184340	MDC kit w/2-position solenoid valve, 24volt	1
	QM031	87-02		11099647	Solenoid seal kit	1
	QM210	87-02		11184341	Control seal kit	1

Variable displacement pumps

Control (PH, PJ)



P400458

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 overhaul seal kit Q210

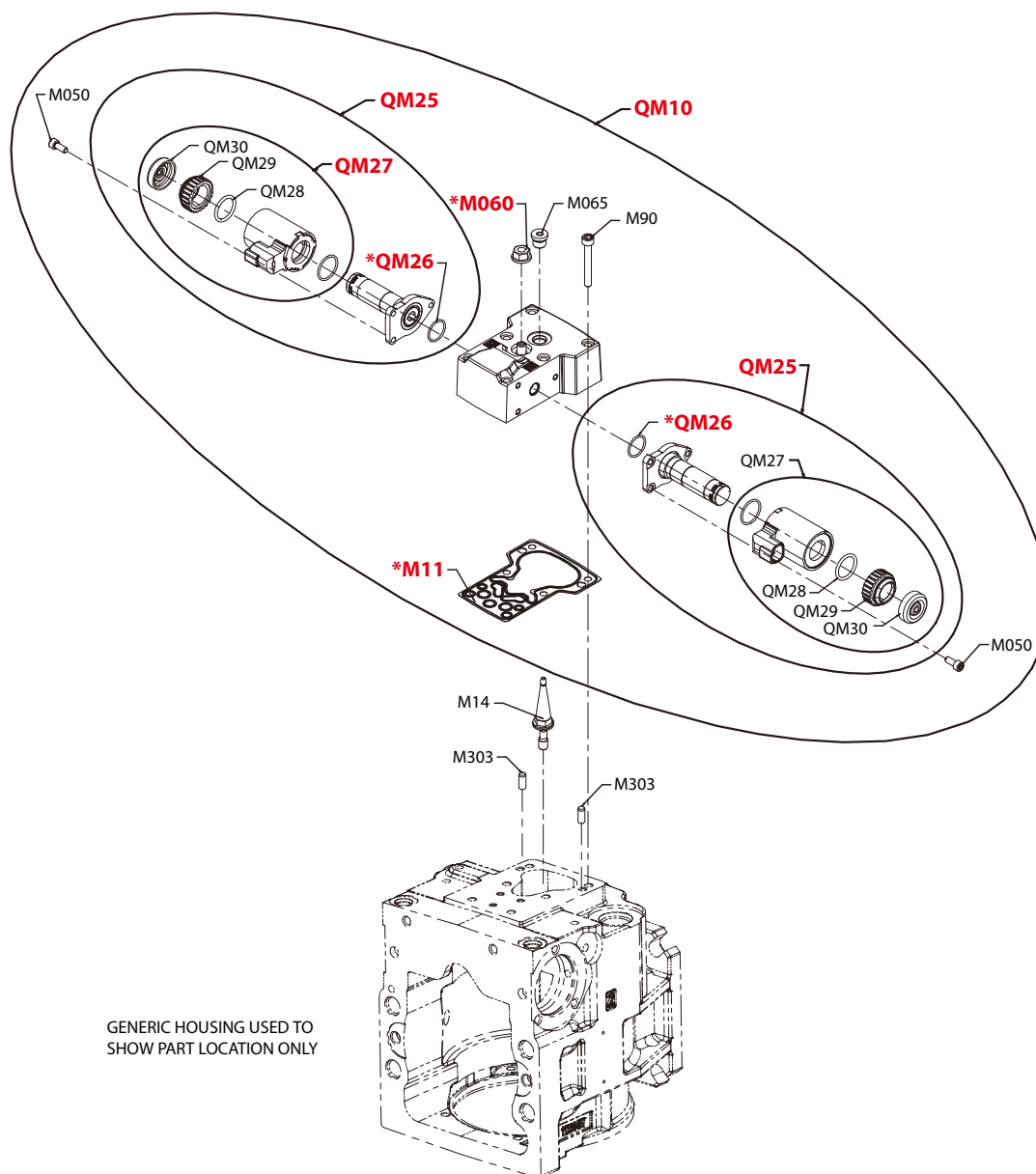
Enlarged **bold** type item numbers are recommended parts to be stocked for servicing

Variable displacement pumps
Control (PH, PJ)

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
PH	M9	12-38		11175060	Reducing manifold	1
	M11	12-38		801241	Control gasket	1
	M14	12-38		11070306	Feedback link (SB-2013-011)	1
	M29	12-38		K28807	Screw	4
	M51	12-38		9003509-0008	Seal nut	1
	M90	12-38		692889 (9007314-0611)	Screw	6
	M96	12-38		011296 (9004105-0120)	O-ring	4
	QM10	12-38		11121734	EDC2, 12 volt, AMP connector	1
	QM034	12-38		11016151	Solenoid valve seal kit	2
	QM036	12-38		11117349	Coil nut	2
	QM037	12-38		171180419	Coil, 12 volt	2
	QM76	12-38		11120557	Solenoid valve, 12 volt	2
	QM210	12-38		11138468	Control seal kit	1
PJ	M9	14-15		11175061	Reducing manifold	1
	M11	14-15		8801241	Control gasket	1
	M14	14-15		11070306	Feedback link (SB-2013-011)	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		011296 (9004105-0120)	O-ring	4
	QM10	14-15		11141118	EDC2, 24 volt	1
	QM034	14-15		11016151	Solenoid valve seal kit	2
	QM036	14-15		11117349	Coil nut	2
	QM037	14-15		171180619	Coil, 24 volt	2
	QM76	14-15		11136795	Solenoid valve, 24 volt	2
	QM210	14-15		11100211	Control seal kit	1

Variable displacement pumps

Control (A4, A5)



P400667

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

* = Included in overhaul seal kit Q210

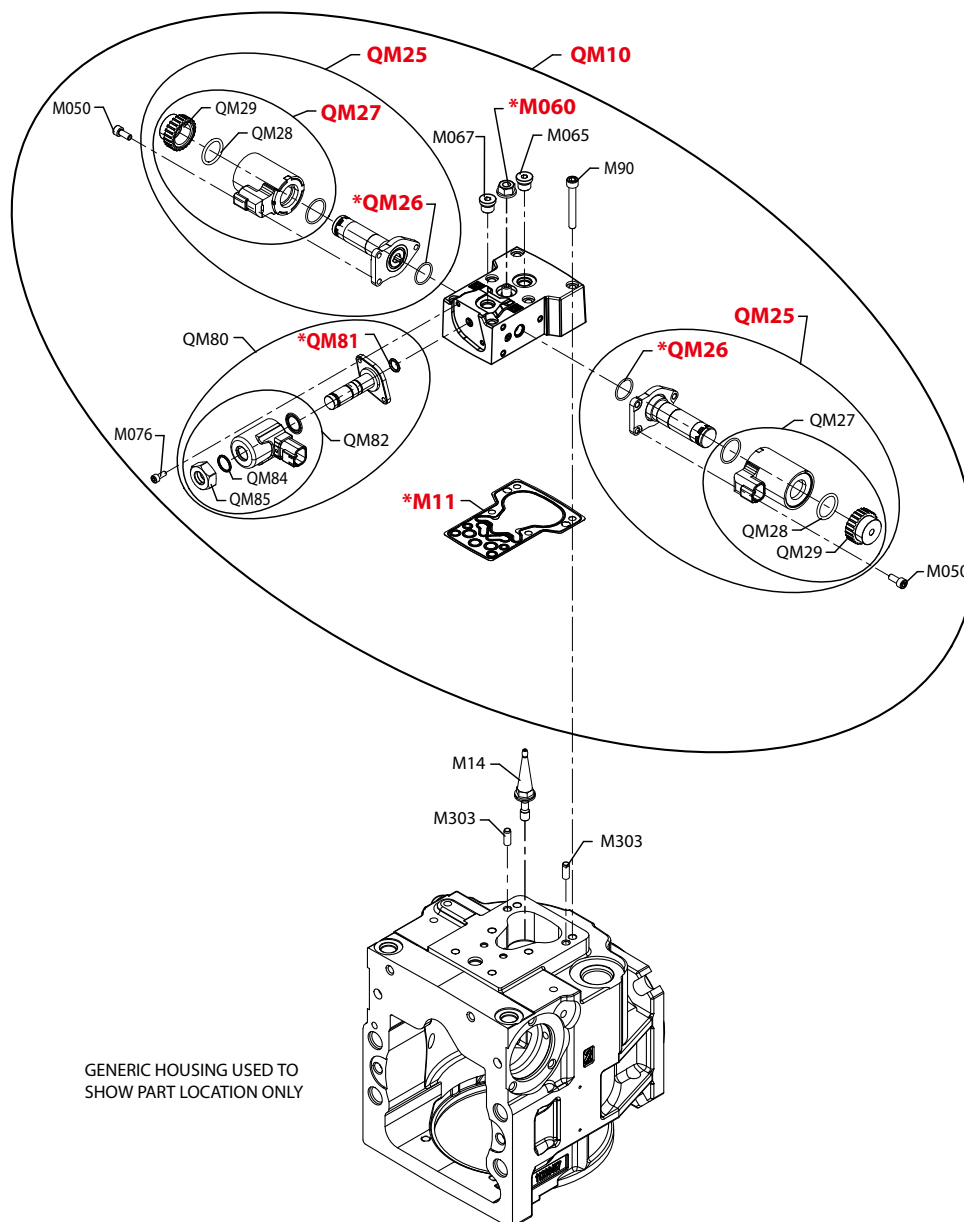
Enlarged **bold** type item numbers are recommended parts to be stocked for servicing

Variable displacement pumps
Control (A4, A5)

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
A4	M10	20-04		11030121	EDC 12V DT04 MOR fast	1
	M11	20-04		11227209	Control gasket	1
	M14	20-04		11202172	Feedback link	1
	M90	20-04		9007314-0611	Screw	6
	QM100	20-04		11019732	SVC KIT-EDC, 12V DT04 FAST MOR	1
	QM25	20-04		140751	Solenoid-prop, 24V DT04-2P MOR	2
	QM26	20-04		11001952	O-ring	2
	QM27	20-04		11004700	SVC KIT-COIL, 24V DT CONN MOR	2
	QM28	20-04		063172	O-ring	2
	QM29	20-04		11004750	Screw-nut	2
	QM30	20-04		11027883	Cap	2
	QM303	20-04		310979	Pin parallel	2
	QM305	20-04		11184755	Cover-paint STD, DT04-2P	2
A5	M10	20-04		11030124	EDC 24V DT04 MOR fast	1
	M11	20-04		11227209	Control gasket	1
	M14	20-04		11202172	Feedback link	1
	M90	20-04		9007314-0611	Screw	6
	QM100	20-04		11019733	SVC KIT-EDC, 24V DT04 MOR fast	1
	QM25	20-04		140751	Solenoid-prop, 24V DT04-2P MOR	2
	QM26	20-04		11001952	O-ring	2
	QM27	20-04		11004700	SVC KIT-COIL, 24V DT CONN MOR	2
	QM28	20-04		063172	O-ring	2
	QM29	20-04		11004750	Screw-nut	2
	QM30	20-04		11027883	Cap	2
	QM303	20-04		310979	Pin parallel	2
	QM305	20-04		11184755	Cover-paint STD, DT04-2P	2

Variable displacement pumps

Control (E8)



P400785

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 overhaul seal kit Q210

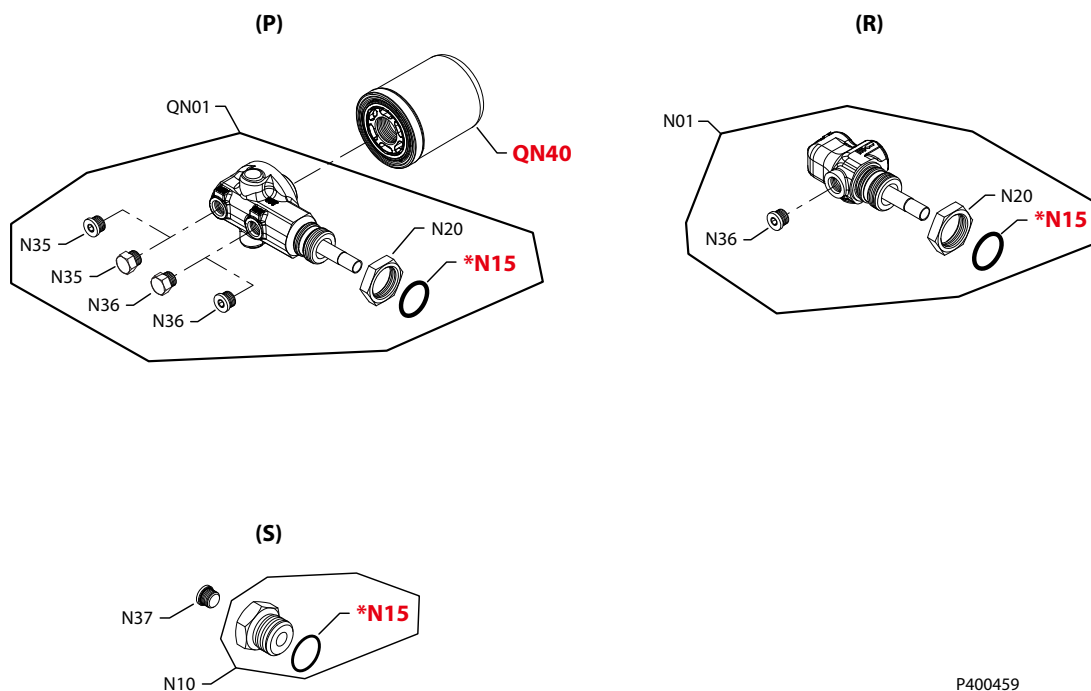
Enlarged **bold** type item numbers are recommended parts to be stocked for servicing

Variable displacement pumps
Control (E8)

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
E8	M10	20-04		11143290	EDC, 24V with CCO	1
	M11	20-04		11227209	Control gasket	1
	M14	20-04		11202172	Feedback link	1
	M90	20-04		9007314-0611	Screw	6
	QM100	20-04		11147472	SVC KIT-EDC, 24V with CCO	1
	QM25	20-04		11012459	Solenoid-prop, H1P 24V DT04-2P	2
	QM26	20-04		11001952	O-ring	2
	QM27	20-04		11028019	SVC KIT-coil, 24V DT Conn MOR	2
	QM28	20-04		063172	O-ring	2
	QM29	20-04		11004749	Screw-nut	2
	QM80	20-04		11231201	Solenoid, ON/OFF flange 24V DT04-2P KEY C	1
	QM81	20-04		11152257	O-ring, HMS151 9.00x1.80 N NBR70	1
	QM82	20-04		11232697	SVC KIT-coil, 24V DT conn KEY C	1
	QM84	20-04		11232752	O-ring, ISO3601-1 13.00x2.00 N-FKM70	1
	QM85	20-04		11140394	Nut-HEX,SW22	1

Variable displacement pumps

Filtration



P400459

* = Included in overhaul seal kit Q210

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

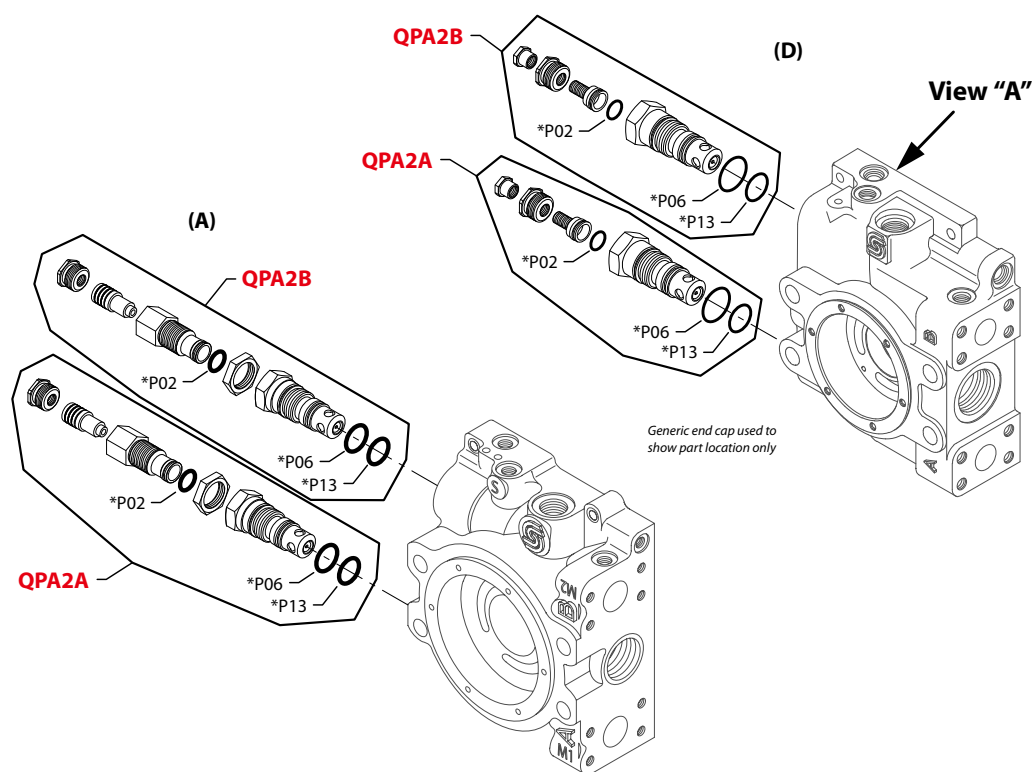
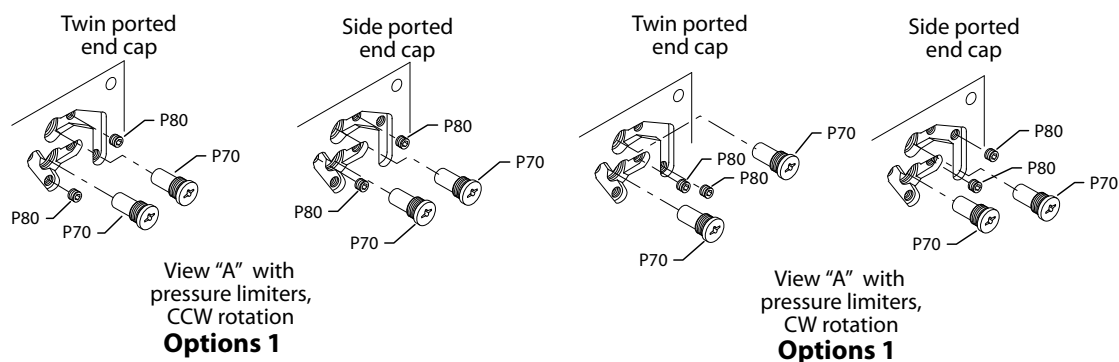
Variable displacement pumps

Filtration

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
P	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 assembly	1
	QN40	87-02		11004917	Filter, short	1
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		5000230	Reducer assembly	1
	N15	87-02		001172 (9004201-9000)	O-ring	1
	N37	87-02		140644 (9005110-5600)	Plug assembly	1

Variable displacement pumps

High pressure regulation



P400460

* = Included in overhaul seal kit Q210

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

Variable displacement pumps

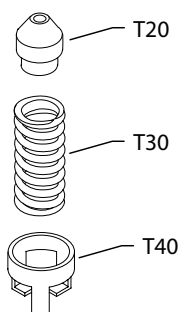
High pressure regulation

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
D	QPA2A	92-39		8510388	Multi-function valve kit	1
	QPA2B	92-39		8510388	Multi-function valve kit	1

Variable displacement pumps

Orifice

(03)



See control drawing
for orifice location

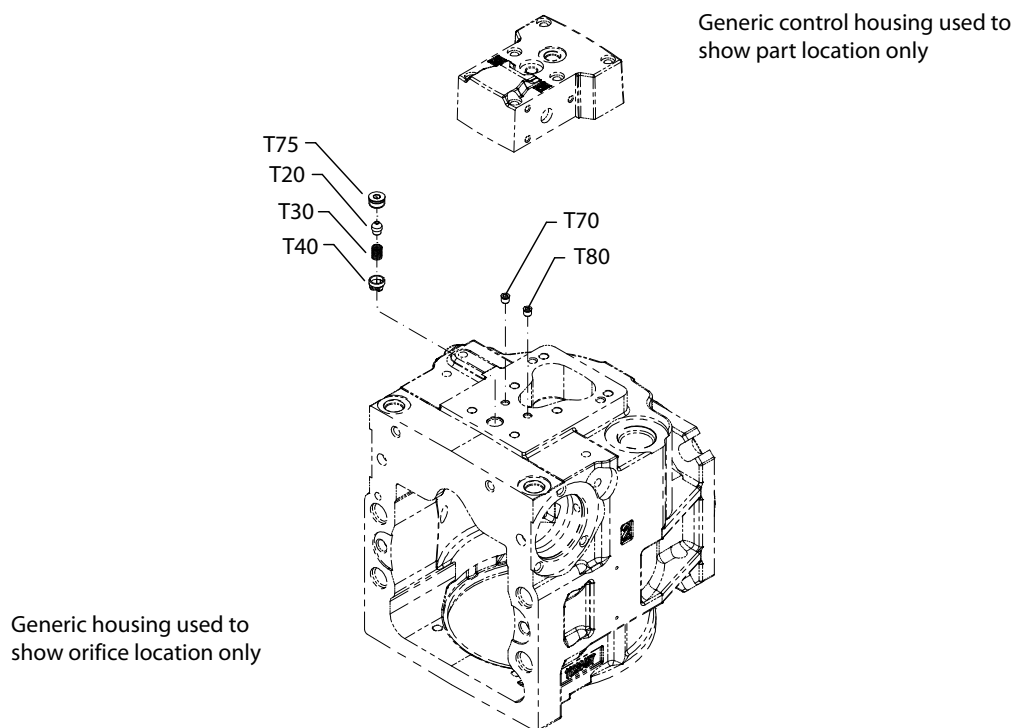
P400461

Variable displacement pumps*Orifice*

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
00				None		
03	T20	87-42		11061958	Orificed check valve, .032"	1
	T30	87-42		679506 (8700007)	Spring	1
	T40	87-42		8801303	Spring retainer	1

Variable displacement pumps

Orifice (F4, F5, F6)



P400715

Variable displacement pumps

Orifice common parts (F4, F5, F6)

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	T30	87-42		679506	Spring	1
	T40	87-42		8801303	Spring retainer	1
	T70	87-42		140759	Orificed, 2.5mm	1
	T75	20-32		11256563	Check valve seat	1
	T80	87-42		140759	Orificed, 2.5mm	1

Special hardware (F4, F5, F6)

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
F4	T20	87-42		11061958	Orificed check valve, 0.81mm	1
F5	T20	87-42		11061993	Orificed check valve, 1.57mm	1
F6	T20	87-42		11062006	Orificed check valve, 2.34mm	1

Variable displacement pumps

Overhaul seal kit

Overhaul seal kit

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	Q210	87-42		11095649	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		517378 (9004104-1620)	O-ring	1
	E60	87-02		517228 (5000206)	Screw (SB-1994-018)	6
	F11	87-02		314500 (9004100-1310)	O-ring	2
	F12	87-02		507797 (8700067)	Piston ring	2
	F40	87-02		363754 (9004104-0350)	O-ring	2
	F50	89-41		9004104-0340	O-ring	2
	F112	87-02		505412 (9003509-0008)	Seal nut	1
	F124	87-02		066159	Seal nut	1
	F212	87-02		505412 (9003509-0008)	Seal nut	1
	F224	87-02		066159	Seal nut	1
	G30	89-46		8200212	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
	L25	87-02		521722	Seal carrier assembly (SB-2007-018)	1
	N15	87-02		001172 (9004201-9000)	O-ring	1
	N98	87-02		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

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