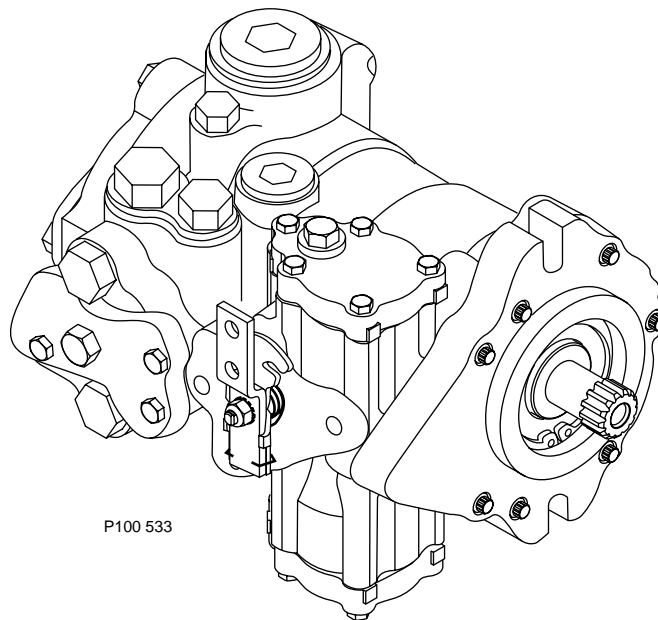

Series 40



M46 - Axial Piston

Pumps

Service Parts Manual

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Service Parts Identification

The following information and procedure is used to identify the module group, item number, manufactured date, part number, and part name of the parts included in the Series 40 M46 variable displacement pump .

The parts listed include all parts which may be used when performing either "Minor Repairs", "Major Repairs", or "Conversions" on the Series 40 M46 pumps.

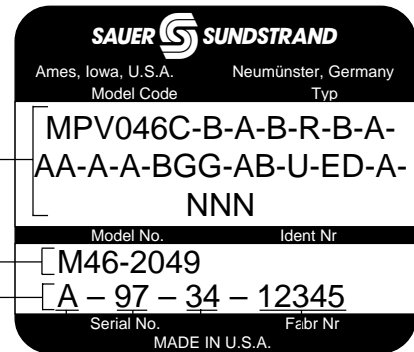
- Nameplate -

Each unit will have a nameplate affixed to it. The name plate will include the following information.

Model Code —————
The Sauer-Sundstrand model code completely defines the specific unit and must be used when ordering the complete unit for the first time or for ordering parts to service the product.

Model Number —————
The Sauer-Sundstrand model number is used by the factory in manufacturing. On repeat orders, a complete unit can also be ordered by the model number.

Serial Number —————
The Sauer-Sundstrand serial number is used to identify the manufacturing location, manufacturing date and the unit sequence in the build. The serial number is also used to identify the unit's warranty time period.



The letter code indicates the location of original manufacture (assembly). "A" indicates the unit was originally assembled in Ames, Iowa, USA. "K" indicates the unit was originally assembled in Lawrence, Kansas, USA.

The first number (2 digits) indicates the year of manufacture. ("97" would indicate the unit was manufactured in 1997)

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.



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 via the nameplate to determine which service part number you need to order.

EXAMPLE: The service part desired is Item 159.

<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
	159	89-23 →	4460563	Front cover (SB-8913)	1
	"	86-23 → 89-22	4460392	Front cover	1

All units using this order code with a date code of 86-23 and up to and including 89-21 must use part number "4460392". All units with a date code of 89-22 and up must use part number "4460563".

Service Bulletins

A Service Bulletin Number (**SB- _ _ _ _**) may follow the "Description" of the part you desire. You must read that Service Bulletin prior to ordering that part. A copy of each of 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 Given Part/Part Number

Example of a Part Identification

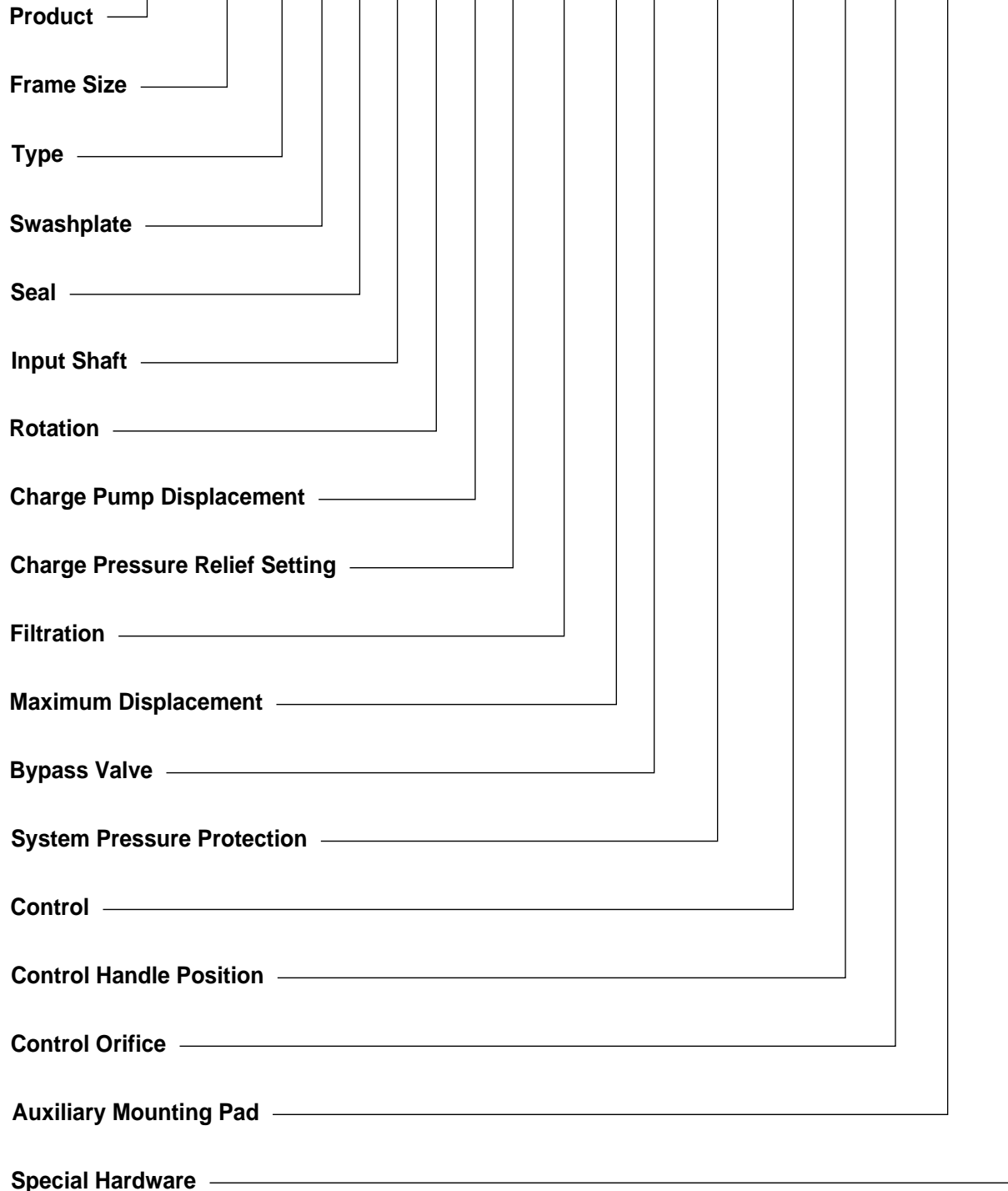
The nameplate on an M46 variable pump has an Order Code of MPV046C-B-A-B-R-B-A-AA-A-A-BGG-AB-U-ED-A-NNN. Use the following procedures to determine the part number of the drive shaft used on this pump.

- 1) Referring to the input shaft module, in the Order Code (see page 5), the input shaft option for this unit is identified by the code "B" (MPV046C-B-A-**B**-R-B-A-AA-A-A-BGG-AB-U-ED-A-NNN)
- 2) Referring to the Service Parts List, find the shaft group. Next find the order code that relates to this unit, which is "B". The shaft is found to be item 401 and part number is 4460268.

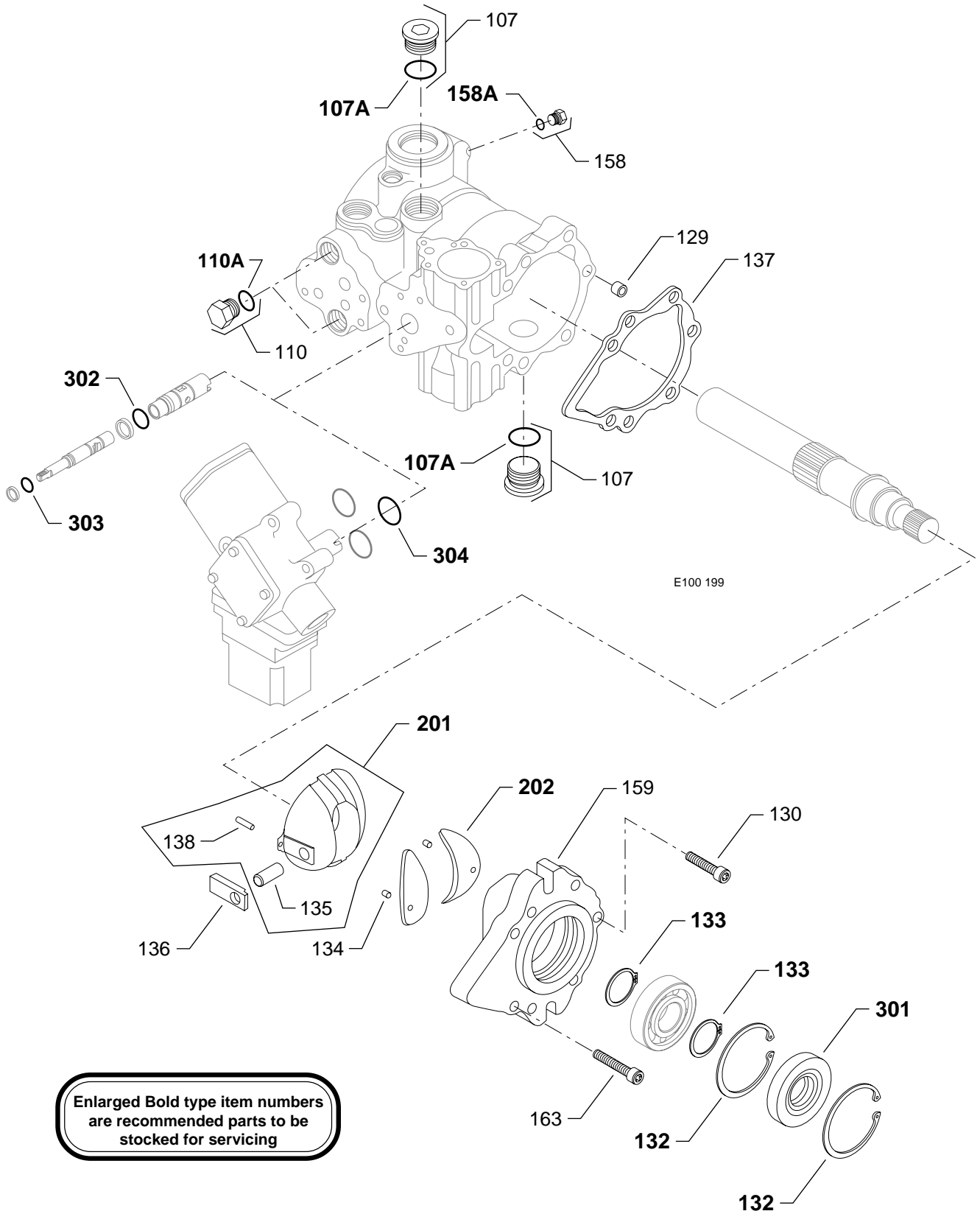


PV Order Code

MPV046C B A B R B A A A A BGG AB U ED A NNN



M46 Variable Displacement Pump



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



Common Parts

<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
	107	84-31 →	9005110-9000	Plug	2
	107A	84-31 →	9004201-7500	O-ring	2
	110	84-31 →	9005110-5600	Plug	2
	110A	84-31 →	9004201-3700	O-ring	2
	129	85-37 →	9004875-0100	Pin	1
	"	<i>84-31</i> → <i>85-36</i>	<i>9004875-0067</i>	<i>Pin</i>	<i>1</i>
	130	84-31 →	5000208	Screw (SB-9437)	1
	132	84-31 →	9006200-0281	Retaining ring	2
	133	84-31 →	9006300-0137	Retaining ring	2
	134	94-48 →	5000116	Coiled pin	2
	"	<i>84-31</i> → <i>94-47</i>	<i>9004700-1206</i>	<i>Slotted pin (SB-9411)</i>	<i>2</i>
	135	84-31 →	9004820-4416	Pin	1
	136	84-31 →	4460162	Sleeve bearing	1
	137	84-31 →	4460564	Front cover gasket (SB-8913)	1
	138	86-14 →	5000507	Pin (SB-9812)	1
	158	84-31 →	9005100-4400	Plug	1
	158A	84-31 →	9004201-2500	O-ring	1
	159	89-23 →	4460563	Front cover (SB-8913)	1
	"	<i>86-23</i> → <i>89-22</i>	<i>4460392</i>	<i>Front cover</i>	<i>1</i>
	163	89-23 →	5000207	Screw (SB-9437)	6
	"	<i>84-31</i> → <i>89-22</i>	<i>9007510-3716</i>	<i>Screw (SB-8913)</i>	<i>6</i>

Swashplate

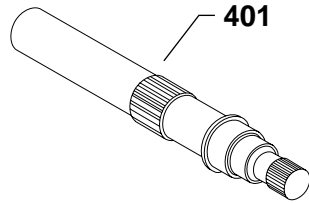
<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
A	201	86-23 →	4510072	Non-balanced swashplate assy.	1
	"	<i>86-14</i> → <i>86-22</i>	<i>4460412</i>	<i>Non-balanced swashplate</i>	<i>1</i>
	202	86-23 →	4460325-0001	Journal bearing	2
	"	<i>84-31</i> → <i>86-22</i>	<i>4460277</i>	<i>Journal bearing</i>	<i>2</i>
B	201	86-23 →	4510073	Balanced swashplate assembly	1
	202	86-23 →	4460696	Journal bearing (SB-9411)	2

Seal

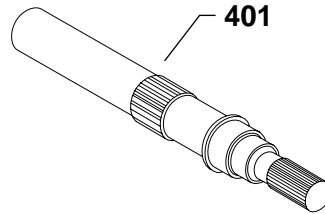
<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
A	301	84-31 →	9008000-0121	Lip seal	1
	302	84-31 →	9004100-0160	O-ring (MDC)	1
	303	84-31 →	9004100-0120	O-ring (MDC)	1
B	301	84-31 →	9008000-0121	Lip seal	1
	304	98-31 →	9004101-1190	O-ring, for EDC (SB-9852)	1
	304	<i>84-31</i> → <i>98-30</i>	<i>9004100-0210</i>	<i>O-ring, for EDC</i>	<i>1</i>
	304	98-33 →	9004101-1190	O-ring, for HDC (SB-9852)	1
	304	<i>84-31</i> → <i>98-32</i>	<i>9004100-0210</i>	<i>O-ring, for HDC</i>	<i>1</i>

Bold Items indicate recommended parts to be stocked for servicing

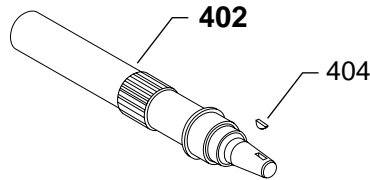
M46 Variable Displacement Pump



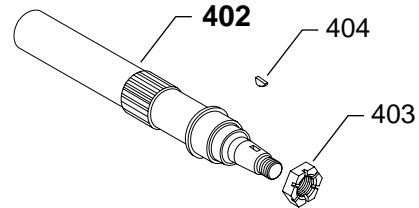
(A, B, D, G, H, J, K and L)



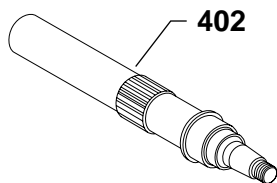
(E and X)



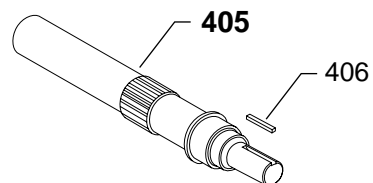
(M)



(N, P, R and S)



(U)



(V and W)

E100 200E

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

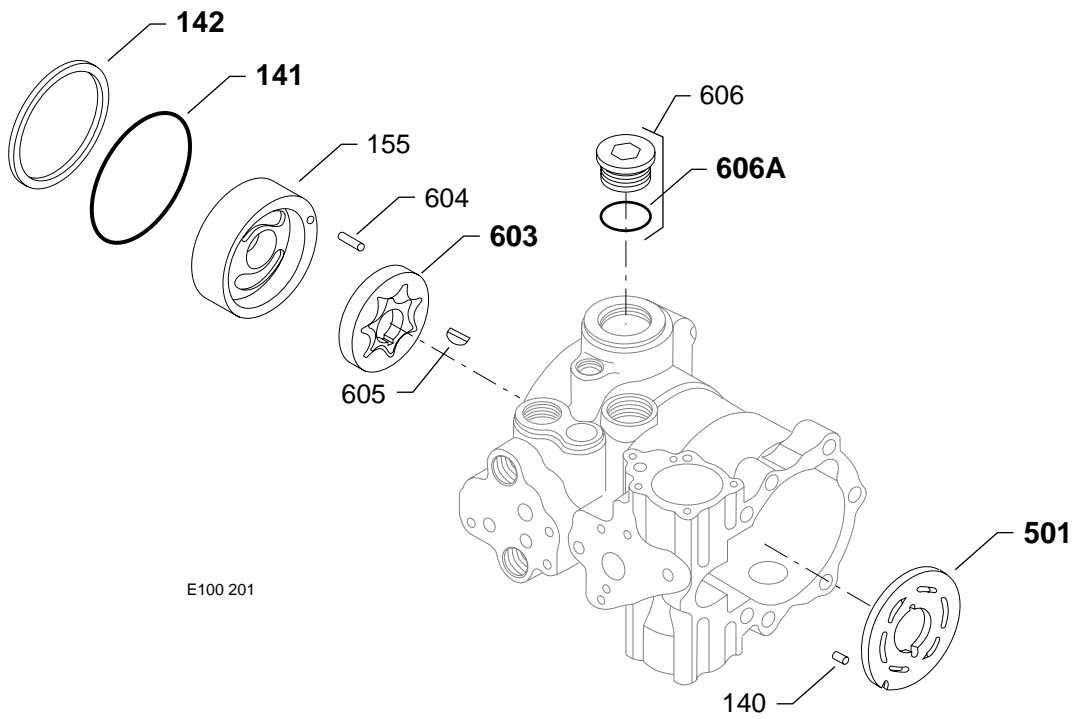


Input Shaft

Order Code	Item	Date Code Begin → End	Part Number	Description	Qty. per Model/Kit
A	401	84-31 →	4460304	Shaft, 13 tooth, no aux. drive	1
B	401	84-31 →	4460268	Shaft, 13 tooth, 9 t. 'A' flange drive	1
D	401	84-31 →	4460269	Shaft, 13 tooth, 13 t. 'B' flange drive	1
E	401	97-38 →	4460966	Shaft, 15 t. special, 9 t. 'A' flange dr.	1
G	401	84-31 →	4460099	Shaft, 15 tooth, no aux. drive	1
H	401	84-31 →	4460102	Shaft, 15 tooth, 9 t. 'A' flange drive	1
J	401	84-31 →	4460484	Shaft, 15 tooth, 11 t. 'A' flange drive	1
K	401	84-31 →	4460104	Shaft, 15 tooth, 13 t. 'B' flange drive	1
L	401	90-31 →	4460638	Shaft, 13 tooth, 11 t. 'A' flange drive	1
M	402	91-46 →	4460675	Shaft, 3.0 taper, 9 t. 'A' flange drive	1
	404	91-46 →	9003310-1510	Key	1
N	402	84-31 →	4460299	Shaft, 1" taper, no aux. drive	1
	403	84-31 →	9003575-0071	Slotted nut	1
	404	84-31 →	9003310-2514	Key	1
P	402	84-31 →	4460309	Shaft, 1" taper, 9 t. 'A' flange drive	1
	403	84-31 →	9003575-0071	Slotted nut	1
	404	84-31 →	9003310-2514	Key	1
R	402	84-31 →	4460373	Shaft, 1" taper, 11 t. 'A' flange drive	1
	403	84-31 →	9003575-0071	Slotted nut	1
	404	84-31 →	9003310-2514	Key	1
S	402	84-31 →	4460703	Shaft, 1" taper, 13 t. 'B' flange drive	1
	403	84-31 →	9003575-0071	Slotted nut	1
	404	84-31 →	9003310-2514	Key	1
U	402	95-10 →	4460745	Shaft, 1" taper, 13 t. 'B' flange drive	1
V	405	84-31 →	4460404	Shaft, straight key, no aux. drive	1
	406	84-31 →	9003261-2526	Key	1
W	405	84-31 →	4460390	Shaft, straight key, 9 t. 'A' flange dr.	1
	406	84-31 →	9003261-2526	Key	1
X	401	96-31 →	4460848	Shaft, 15 t. special, 13 t. 'B' flange dr.	1

Bold Items indicate recommended parts to be stocked for servicing

M46 Variable Displacement Pump



E100 201

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



Common Parts

<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
	140	86-14 →	9004700-1907	Pin	1
	141	84-31 →	9004375-0023	O-ring	1
	142	84-31 →	9700864	Temper load ring	1
	155	84-31 →	4800108-0001	Gerotor cover	1

Rotation

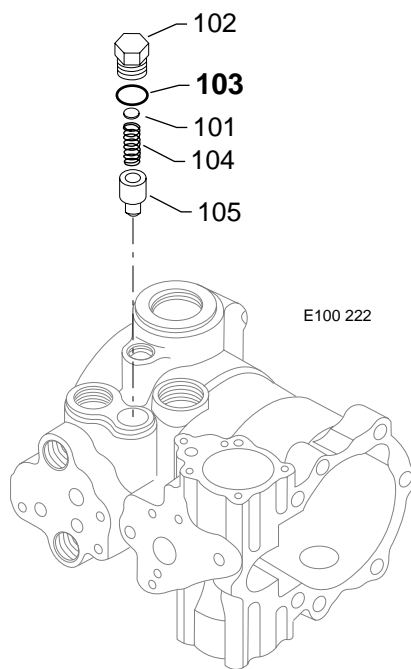
<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
B	501	84-31 →	4460119	Valve plate, bi-directional	1
L	501	86-27 →	4460418	Valve plate, ccw, bal. (SB-8711)	1
	"	86-18 → 86-26	4460319	Valve plate, ccw, non-balanced	1
	"	84-31 → 86-17	4460109	Valve plate, ccw	1
R	501	86-27 →	4460417	Valve plate, cw, bal. (SB-8711)	1
	"	86-18 → 86-26	4460318	Valve plate, cw, non-balanced	1
	"	84-31 → 86-17	4460108	Valve plate, cw	1
S	501	93-20 →	4460683	Valve plate, cw, quiet	1
T	501	93-20 →	4460684	Valve plate, ccw, quiet	1

Charge Pump Displacement

<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
A	606	84-31 →	9005110-9200	Plug	1
	606A	84-31 →	9004201-9000	Plug	1
B	603	84-31 →	4800054-0001	Gerotor assembly	1
	604	86-05 →	9004800-1913	Pin	1
	"	84-31 → 86-04	9004875-0083	Pin	1
	605	84-31 →	9003301-0906	Key	1

Bold Items indicate recommended parts to be stocked for servicing

M46 Variable Displacement Pump



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



Common Charge Relief Valve Parts

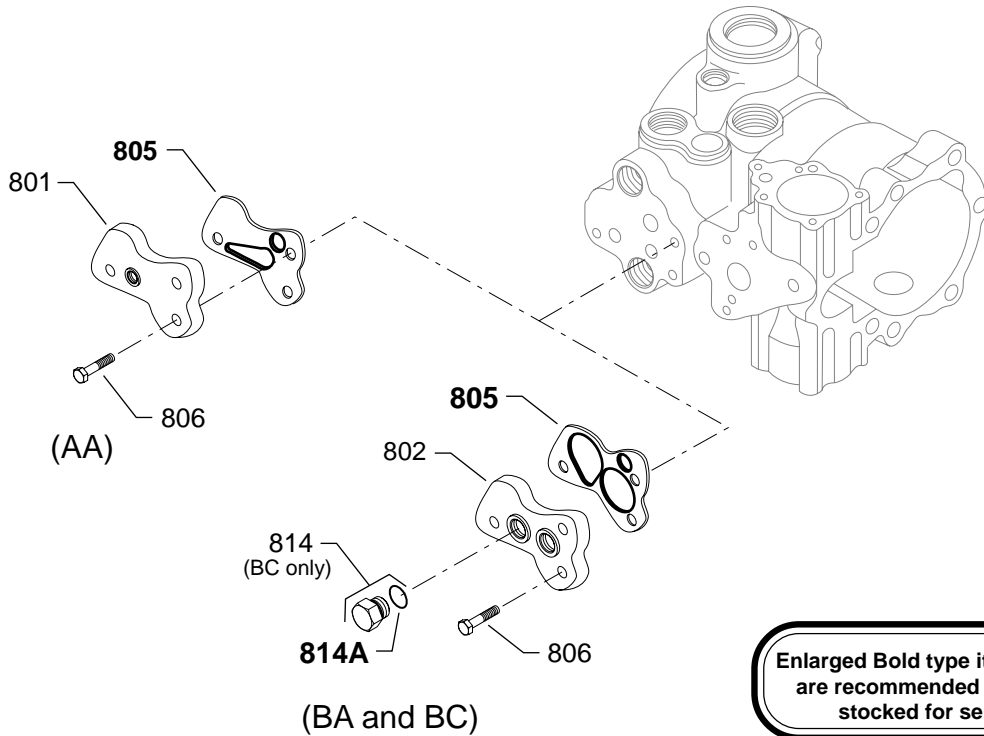
<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
	101	86-14 →	9510445	Shim kit	1
	"	84-31 → 86-13	9510362	Shim kit	1
	102	86-14 →	9005475-0058	Plug	1
	"	84-31 → 86-13	3102818	Plug	1
	103	86-14 →	9004201-6200	O-ring	1
	"	84-31 → 86-13	9004201-5000	O-ring	1
	104	86-14 →	4800431	Charge relief spring	1
	"	84-31 → 86-13	3102280	Charge relief spring	1

Charge Pressure Relief Setting

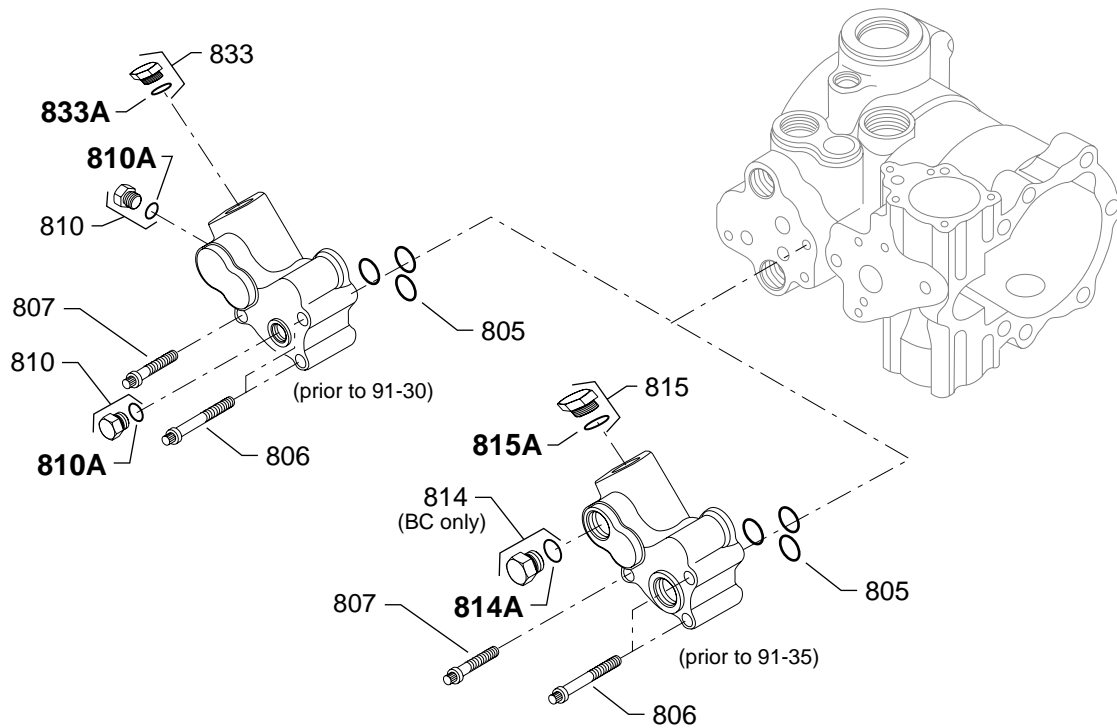
<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
A	105	86-14 →	9800965	Relief valve, 16.0 bar/230 psi	1
	"	84-31 → 86-13	3102274	Relief valve, 16.0 bar/230 psi	1
B	105	86-14 →	9800965	Relief valve, 19.5 bar/285 psi	1
	"	84-31 → 86-13	3102274	Relief valve, 19.5 bar/285 psi	1
C	105	86-14 →	9800965	Relief valve, 18.0 bar/260 psi	1
	"	84-31 → 86-13	3102274	Relief valve, 18.0 bar/260 psi	1
D	105	86-14 →	9800965	Relief valve, 17.0 bar/250 psi	1
	"	84-31 → 86-13	3102274	Relief valve, 17.0 bar/250 psi	1
J	105	86-14 →	9800965	Relief valve, 22.0 bar/315 psi	1
	"	84-31 → 86-13	3102274	Relief valve, 22.0 bar/315 psi	1
M	105	86-14 →	9800965	Relief valve, 28.3 bar/410 psi	1
	"	84-31 → 86-13	3102274	Relief valve, 28.3 bar/410 psi	1
S	105	86-14 →	9800965	Relief valve, 25.0 bar/360 psi	1
	"	84-31 → 86-13	3102274	Relief valve, 25.0 bar/360 psi	1
T	105	94-08 →	4800356	Relief valve, .050 orifice, 29.0 bar	1
U	105	86-14 →	9800965	Relief valve, 27.0 bar/390 psi	1
	"	84-31 → 86-13	3102274	Relief valve, 27.0 bar/390 psi	1

Bold Items indicate recommended parts to be stocked for servicing

M46 Variable Displacement Pump



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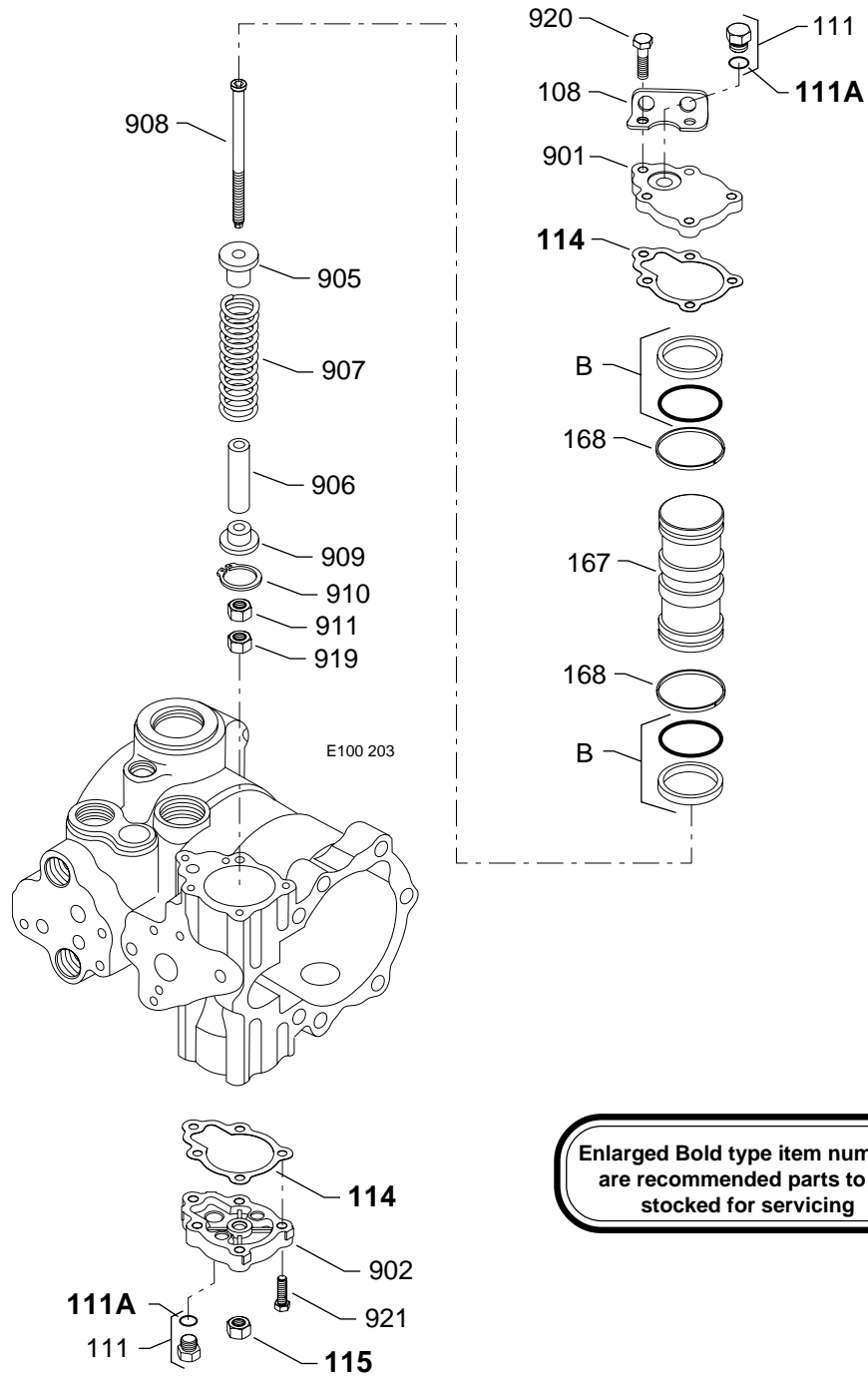


Filtration

<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
AA	801	91-31 →	4460643	Suction adaptor (SB-9017)	1-
	"	86-14 → 91-30	4460345	Suction adaptor	1
	"	84-31 → 86-13	4460257	Suction adaptor	1
	805	91-31 →	4460655	Filter adaptor seal (SB-9017)	1
	"	86-14 → 91-30	9004101-0170	O-ring	3
	"	84-31 → 86-13	9004104-0180	O-ring	2
	806	91-31 →	9007206-3116	Screw (SB-9017)	3
	"	86-14 → 91-30	9007500-3130	Screw	2
	"	84-31 → 86-13	9007200-3124	Screw	2
	807	86-14 → 91-30	9007500-3124	Screw (SB-9017)	1
	"	84-31 → 86-13	9007200-3124	Screw	1
	810	91-31 →	9005100-5600	Plug	1
	"	84-31 → 91-30	9005100-5600	Plug	3
	810A	91-31 →	9004201-3700	O-ring	1
	"	84-31 → 91-30	9004201-3700	O-ring	3
	833	84-31 → 91-30	9005100-5600	Plug	3
	833A	84-31 → 91-30	9004201-3700	O-ring	3
BA & BC	802	91-36 →	4460644	Remote adaptor (SB-9017)	1
	"	86-40 → 91-35	4460434	Remote adaptor	1
	"	84-38 → 86-39	4460327	Remote adaptor	1
	805	91-36 →	4460656	Filter adaptor seal (SB-9017)	1
	"	86-40 → 91-35	9004101-0170	O-ring	3
	"	84-38 → 86-39	9004104-0180	O-ring	2
	806	91-36 →	9007206-3116	Screw (SB-9017)	3
	"	86-40 → 91-35	9007500-3130	Screw	2
	"	84-38 → 86-39	9007200-3124	Screw	2
	807	86-40 → 91-35	9007500-3124	Screw (SB-9017)	1
	"	84-38 → 86-39	9007200-3124	Screw	1
	814	84-31 →	9005100-8700	Plug (option BC only)	1
	814A	84-31 →	9004201-6200	O-ring (option BC only)	1
	815	86-40 → 91-35	9005100-5600	Plug	1
	"	86-14 → 86-39	9005219-0120	Expansion plug	1
	815A	86-40 →	9004201-3700	O-ring	1

Bold Items indicate recommended parts to be stocked for servicing

M46 Variable Displacement Pump





Common Parts

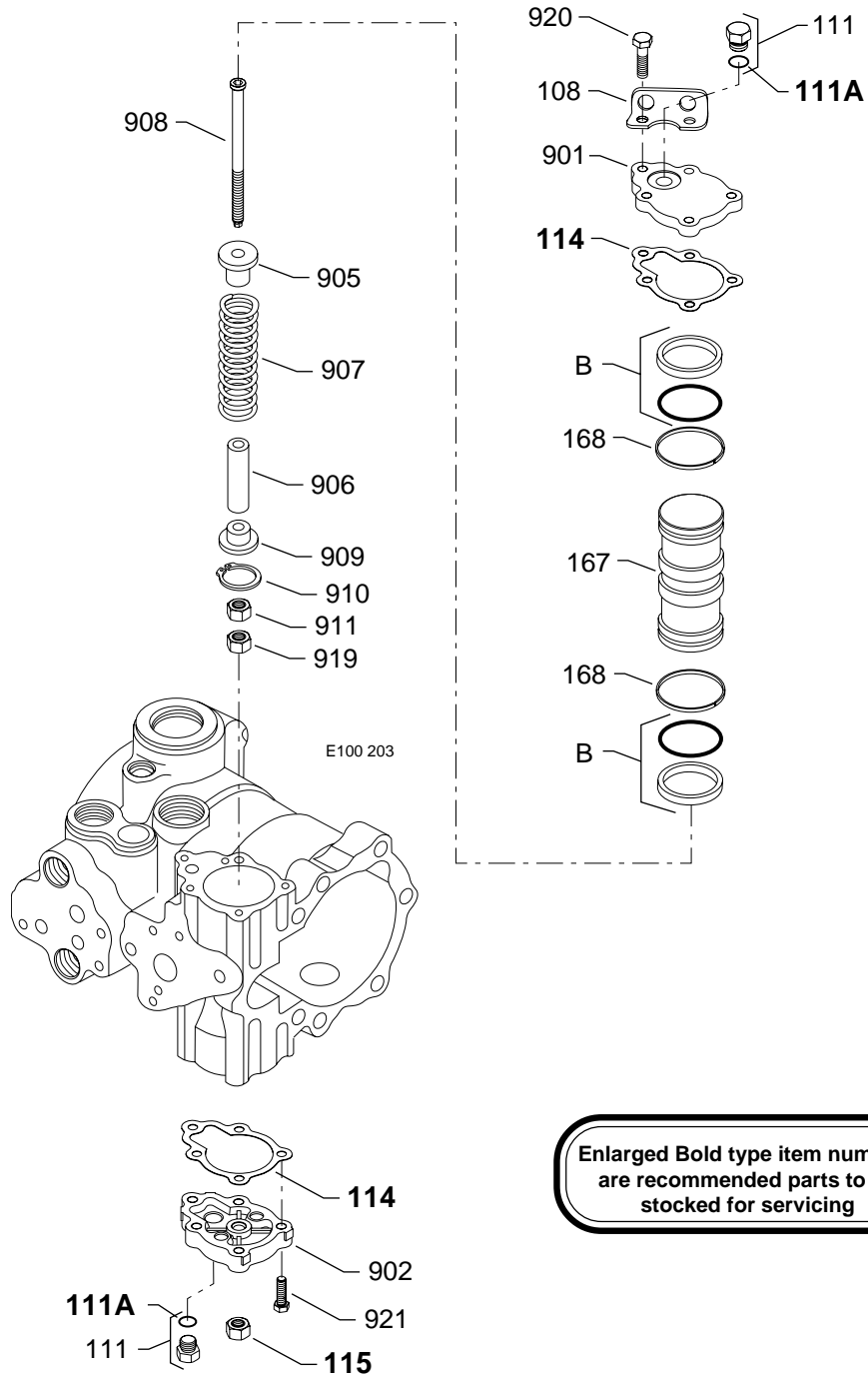
<u>Order Code</u>	<u>Item</u>	<u>Date Code Begin → End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
	B	88-01 →	4510002	Servo piston ring kit	2
	108	85-37 →	4460311	Lifting bracket	1
	111	87-41 →	9005100-5600	Plug	2
	"	84-31 → 87-40	9005100-4400	Plug	2
	111A	87-41 →	9004201-3700	O-ring	2
	"	84-31 → 87-40	9004201-2500	O-ring	2
	114	84-31 →	4460413	Servo cover gasket	2
	115	84-31 →	9003575-0083	Seal nut	1
	167	88-01 →	4460474	Servo piston	1
	168	88-05 →	4460648	Bearing ring (SB-9109)	2

Maximum Displacement

<u>Order Code</u>	<u>Item</u>	<u>Date Code Begin → End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
A	901	87-41 →	4460455-0004	Servo cover, full displ. (SB-8729)	1
	902	87-41 →	4460455-0002	Servo cover (SB-8729)	1
	905	84-31 →	4461034	Spring guide (SB-9851)	1
	906	84-31 →	4460303-0001	Servo stop, 46 cc/rev.	1
	907	84-31 →	4460164	Servo spring	1
	908	84-31 →	4461033	Servo screw (SB-9851)	1
	909	84-31 →	4460302	Spring guide	1
	910	84-31 →	9006220-0131	Retaining ring	1
	911	84-31 →	9003535-3700	Hex nut	1
	919	87-40 →	5000480	Hex nut	1
	920	84-31 →	9007276-0134	Screw	5
	921	84-31 →	9007276-0134	Screw	5
B	901	87-41 →	4460455-0004	Servo cover, full displ. (SB-8729)	1
	902	87-41 →	4460455-0002	Servo cover (SB-8729)	1
	905	84-31 →	4461034	Spring guide (SB-9851)	1
	906	84-31 →	4460303-0002	Servo stop, 41 cc/rev.	1
	907	84-31 →	4460164	Servo spring	1
	908	84-31 →	4461033	Servo screw (SB-9851)	1
	909	84-31 →	4460302	Spring guide	1
	910	84-31 →	9006220-0131	Retaining ring	1
	911	84-31 →	9003535-3700	Hex nut	1
	919	87-40 →	5000480	Hex nut	1
	920	84-31 →	9007276-0134	Screw	5
	921	84-31 →	9007276-0134	Screw	5

Bold Items indicate recommended parts to be stocked for servicing

M46 Variable Displacement Pump





Common Parts

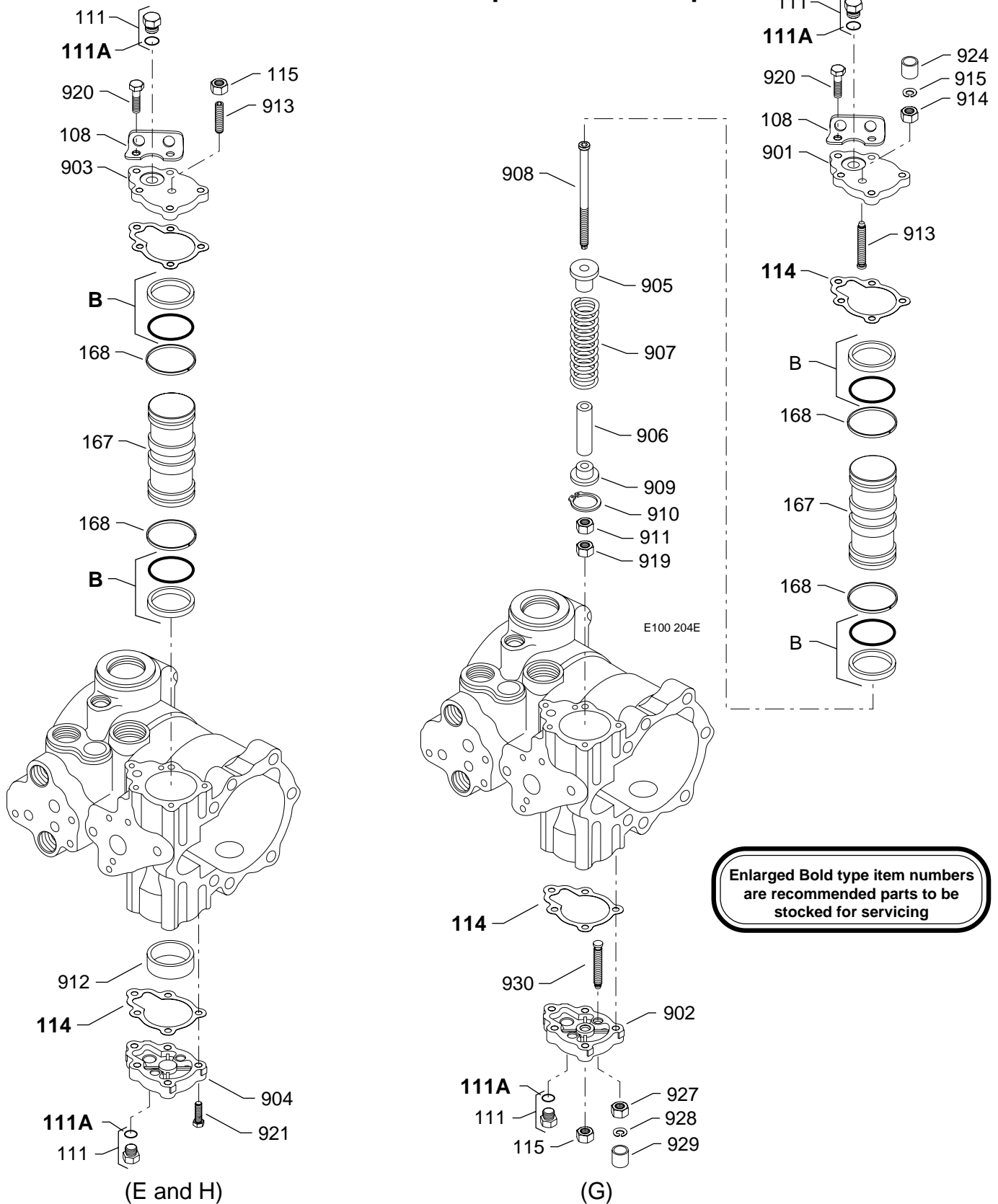
<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
	B	88-01 →	4510002	Servo piston ring kit	2
	108	85-37 →	4460311	Lifting bracket	1
	111	87-41 →	9005100-5600	Plug	2
	"	84-31 → 87-40	9005100-4400	Plug	2
	111A	87-41 →	9004201-3700	O-ring	2
	"	84-31 → 87-40	9004201-2500	O-ring	2
	114	84-31 →	4460413	Servo cover gasket	2
	115	84-31 →	9003575-0083	Seal nut	1
	167	88-01 →	4460474	Servo piston	1
	168	88-05 →	4460648	Bearing ring (SB-9109)	2

Maximum Displacement

<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
C	901	87-41 →	4460455-0004	Servo cover, full displ. (SB-8729)	1
	902	87-41 →	4460455-0002	Servo cover (SB-8729)	1
	905	84-31 →	4461034	Spring guide (SB-9851)	1
	906	84-31 →	4460303-0003	Servo stop, 37.7 cc/rev.	1
	907	84-31 →	4460164	Servo spring	1
	908	84-31 →	4461033	Servo screw (SB-9851)	1
	909	84-31 →	4460302	Spring guide	1
	910	84-31 →	9006220-0131	Retaining ring	1
	911	84-31 →	9003535-3700	Hex nut	1
	919	87-40 →	5000480	Hex nut	1
	920	84-31 →	9007276-0134	Screw	5
	921	84-31 →	9007276-0134	Screw	5
D	901	87-41 →	4460455-0004	Servo cover, full displ. (SB-8729)	1
	902	87-41 →	4460455-0002	Servo cover (SB-8729)	1
	905	84-31 →	4461034	Spring guide (SB-9851)	1
	906	84-31 →	4460303-0004	Servo stop, 34.4 cc/rev.	1
	907	84-31 →	4460164	Servo spring	1
	908	84-31 →	4461033	Servo screw (SB-9851)	1
	909	84-31 →	4460302	Spring guide	1
	910	84-31 →	9006220-0131	Retaining ring	1
	911	84-31 →	9003535-3700	Hex nut	1
	919	87-40 →	5000480	Hex nut	1
	920	84-31 →	9007276-0134	Screw	5
	921	84-31 →	9007276-0134	Screw	5

Bold Items indicate recommended parts to be stocked for servicing

M46 Variable Displacement Pump





Common Parts

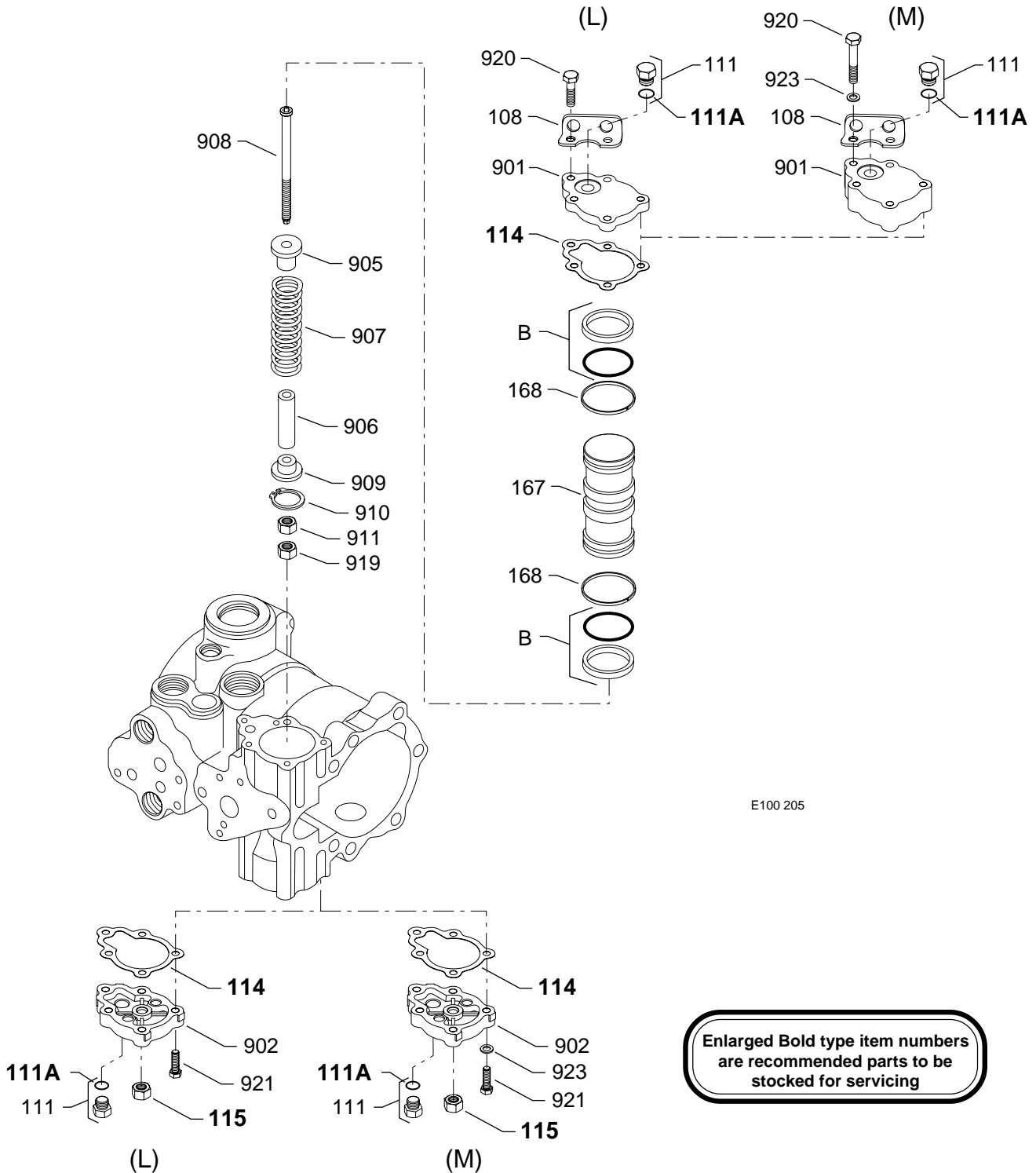
<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
	B	88-01 →	4510002	Servo piston ring kit	2
	108	85-37 →	4460311	Lifting bracket	1
	111	87-41 →	9005100-5600	Plug	2
	"	84-31 → 87-40	9005100-4400	Plug	2
	111A	87-41 →	9004201-3700	O-ring	2
	"	84-31 → 87-40	9004201-2500	O-ring	2
	114	84-31 →	4460413	Servo cover gasket	2
	115	84-31 →	9003575-0083	Seal nut	1
	167	88-01 →	4460474	Servo piston	1
	168	88-05 →	4460648	Bearing ring (SB-9109)	2

Maximum Displacement

<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
E	903	87-41 →	4460455-0002	Servo cover (SB-8729)	1
	904	87-41 →	4460455-0004	Servo cover (SB-8729)	1
	912	85-37 →	4460352-0001	Servo stop, 2.8 - .96 CIR	1
	913	85-37 →	9007705-3716	Set screw	1
	920	84-31 →	9007276-0134	Screw	5
	921	84-31 →	9007276-0134	Screw	5
G	901	87-41 →	4460455-0003	Servo cover, full displ. (SB-8729)	1
	902	87-41 →	4460455-0001	Servo cover (SB-8729)	1
	905	84-31 →	4461034	Spring guide (SB-9851)	1
	906	84-31 →	4460303-0001	Servo stop, 34.4 cc/rev.	1
	907	84-31 →	4460164	Servo spring	1
	908	84-31 →	4461033	Servo screw (SB-9851)	1
	909	84-31 →	4460302	Spring guide	1
	910	84-31 →	9006220-0131	Retaining ring	1
	911	84-31 →	9003535-3700	Hex nut	1
	913	84-31 →	4460603	Servo stop	1
	914	84-31 →	9003575-0094	Nut	1
	915	84-31 →	9006326-0025	Retaining ring	1
	919	87-40 →	5000480	Hex nut	1
	920	84-31 →	9007276-0134	Screw	5
	921	84-31 →	9007276-0134	Screw	5
	924	84-31 →	4800174	Servo adjust cover	1
	927	84-31 →	9003575-0094	Nut	1
	928	84-31 →	9006326-0025	Retaining ring	1
	929	84-31 →	4800174	Servo adjust cover	1
	930	84-31 →	4460603	Servo stop	1
H	903	87-41 →	4460455-0002	Servo cover (SB-8729)	1
	904	87-41 →	4460455-0004	Servo cover (SB-8729)	1
	912	86-24 →	4460352-0003	Servo stop	1
	913	86-24 →	9007705-3716	Set screw	1
	920	84-31 →	9007276-0134	Screw	5
	921	84-31 →	9007276-0134	Screw	5

Bold Items indicate recommended parts to be stocked for servicing

M46 Variable Displacement Pump



E100 205

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



Common Parts

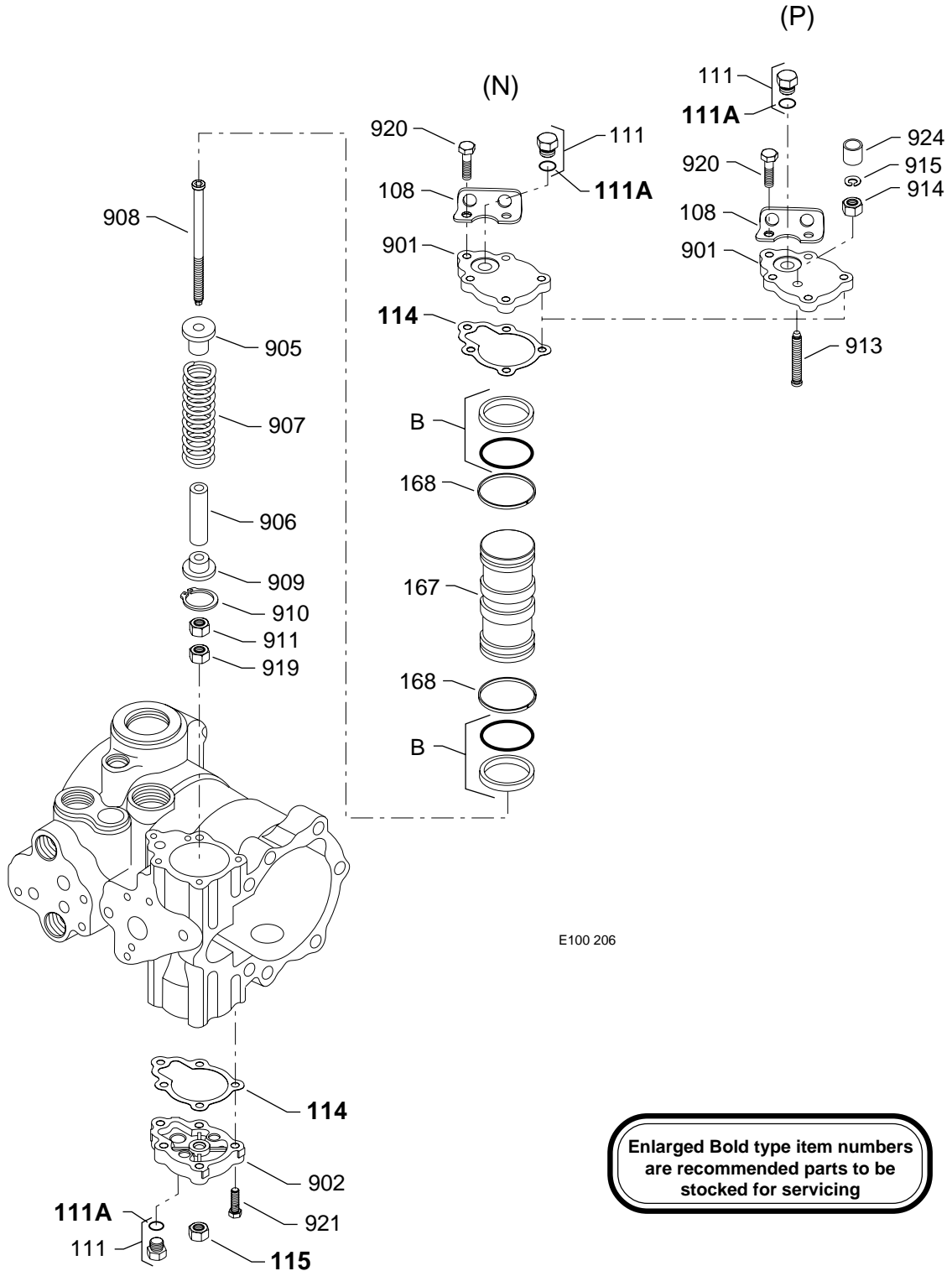
<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
	B	88-01 →	4510002	Servo piston ring kit	2
	108	85-37 →	4460311	Lifting bracket	1
	111	87-41 →	9005100-5600	Plug	2
	"	84-31 → 87-40	9005100-4400	Plug	2
	111A	87-41 →	9004201-3700	O-ring	2
	"	84-31 → 87-40	9004201-2500	O-ring	2
	114	84-31 →	4460413	Servo cover gasket	2
	115	84-31 →	9003575-0083	Seal nut	1
	167	88-01 →	4460474	Servo piston	1
	168	88-05 →	4460648	Bearing ring (SB-9109)	2

Maximum Displacement

<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
L	901	87-41 →	4460455-0004	Servo cover, full displ. (SB-8729)	1
	902	87-41 →	4460455-0002	Servo cover (SB-8729)	1
	905	84-31 →	4461034	Spring guide (SB-9851)	1
	906	84-31 →	4460303-0005	Servo stop, 16.4 cc/rev.	1
	907	84-31 →	4460164	Servo spring	1
	908	84-31 →	4461033	Servo screw (SB-9851)	1
	909	84-31 →	4460302	Spring guide	1
	910	84-31 →	9006220-0131	Retaining ring	1
	911	84-31 →	9003535-3700	Hex nut	1
	919	87-40 →	5000480	Hex nut	1
	920	84-31 →	9007276-0134	Screw	5
	921	84-31 →	9007276-0134	Screw	5
M	901	87-41 →	4460562	Servo cover, full displ. (SB-8729)	1
	902	87-41 →	4460455-0002	Servo cover (SB-8729)	1
	905	84-31 →	4461034	Spring guide (SB-9851)	1
	906	84-31 →	4460303-0001	Servo stop, 34.4 cc/rev.	1
	907	84-31 →	4460164	Servo spring	1
	908	84-31 →	4461033	Servo screw (SB-9851)	1
	909	84-31 →	4460302	Spring guide	1
	910	84-31 →	9006220-0131	Retaining ring	1
	911	84-31 →	9003535-3700	Hex nut	1
	919	87-40 →	5000480	Hex nut	1
	920	84-31 →	9007206-2528	Screw	5
	921	91-13 →	9007206-2522	Screw	5
	923	88-30 →	9009610-2850	Washer	10

Bold Items indicate recommended parts to be stocked for servicing

M46 Variable Displacement Pump



E100 206

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



Common Parts

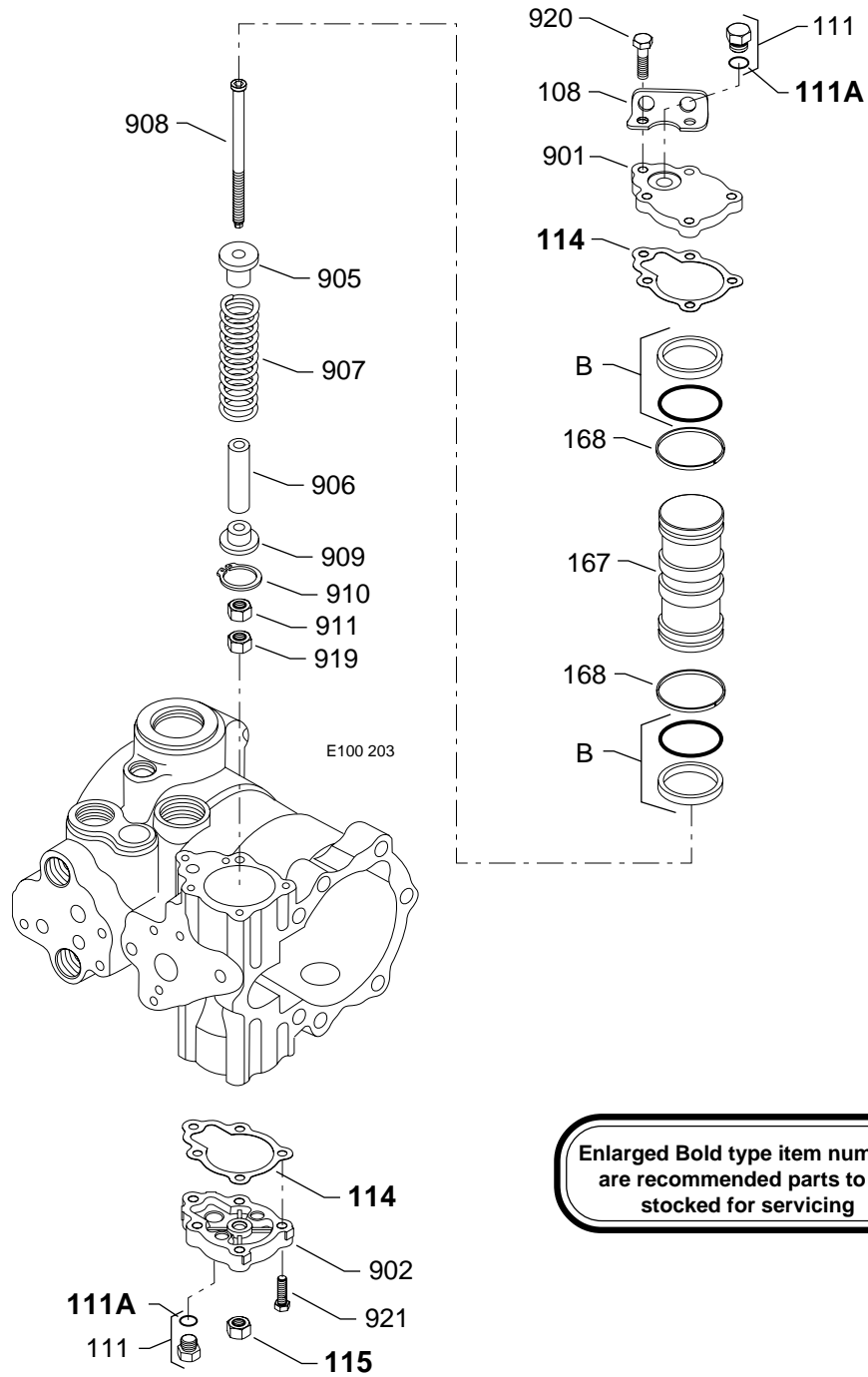
<u>Order Code</u>	<u>Item</u>	<u>Date Code Begin → End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
	B	88-01 →	4510002	Servo piston ring kit	2
	108	85-37 →	4460311	Lifting bracket	1
	111	87-41 →	9005100-5600	Plug	2
	"	84-31 → 87-40	9005100-4400	Plug	2
	111A	87-41 →	9004201-3700	O-ring	2
	"	84-31 → 87-40	9004201-2500	O-ring	2
	114	84-31 →	4460413	Servo cover gasket	2
	115	84-31 →	9003575-0083	Seal nut	1
	167	88-01 →	4460474	Servo piston	1
	168	88-05 →	4460648	Bearing ring (SB-9109)	2

Maximum Displacement

<u>Order Code</u>	<u>Item</u>	<u>Date Code Begin → End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
N	901	89-39 →	4460455-0004	Servo cover, full displ.	1
	902	89-39 →	4460455-0002	Servo cover	1
	905	89-39 →	4460605	Spring guide (SB-9851)	1
	906	89-39 →	4460303-0001	Servo stop, 46 cc/rev.	1
	907	89-39 →	4460604	Servo spring	1
	908	89-39 →	4461033	Servo screw (SB-9851)	1
	909	89-39 →	4460602	Spring guide	1
	910	89-39 →	9006220-0131	Retaining ring	1
	911	89-39 →	9003535-3700	Hex nut	1
	919	89-39 →	5000480	Hex nut	1
	920	89-39 →	9007276-0134	Screw	5
	921	89-39 →	9007276-0134	Screw	5
	P	901	91-20 →	4460455-0003	Servo cover, full displ.
902		91-20 →	4460455-0002	Servo cover	1
905		91-20 →	4461034	Spring guide (SB-9851)	1
906		91-20 →	4460303-0002	Servo stop, 41 cc/rev	1
907		91-20 →	4460164	Servo spring	1
908		91-20 →	4461033	Servo screw (SB-9851)	1
909		91-20 →	4460302	Spring guide	1
910		91-20 →	9006220-0131	Retaining ring	1
911		91-20 →	9003535-3700	Hex nut	1
913		91-20 →	4460603	Servo stop, 33 cc/rev	1
914		91-20 →	9003575-0094	Seal nut	1
915		91-20 →	9006326-0025	Retaining ring	1
919		91-20 →	5000480	Hex nut	1
920		91-20 →	9007276-0134	Screw	5
921		91-20 →	9007276-0134	Screw	5
924		91-20 →	4800174	Servo adjust cover	1

Bold Items indicate recommended parts to be stocked for servicing

M46 Variable Displacement Pump





Common Parts

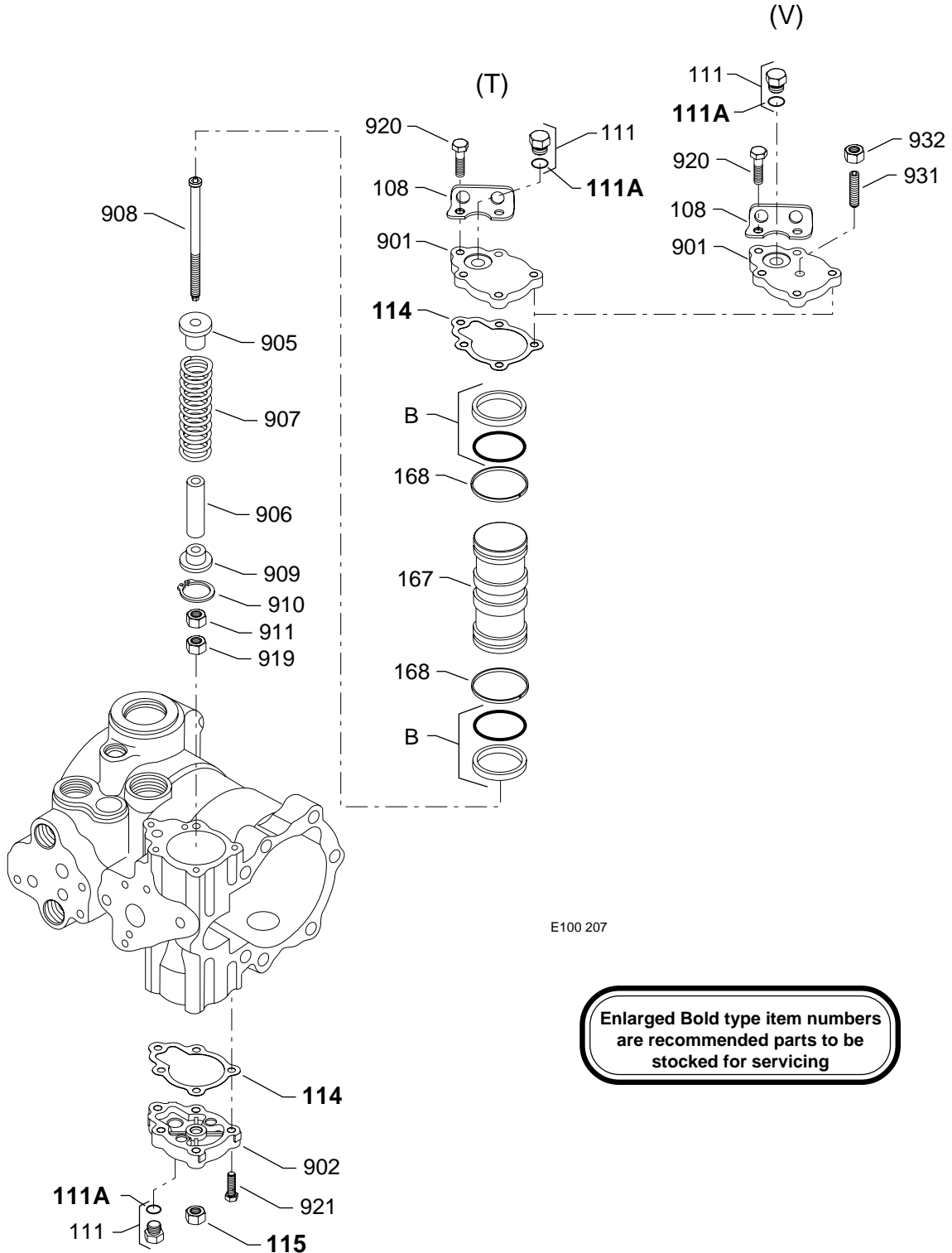
<u>Order Code</u>	<u>Item</u>	<u>Date Code Begin → End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
	B	88-01 →	4510002	Servo piston ring kit	2
	108	85-37 →	4460311	Lifting bracket	1
	111	87-41 →	9005100-5600	Plug	2
	"	84-31 → 87-40	9005100-4400	Plug	2
	111A	87-41 →	9004201-3700	O-ring	2
	"	84-31 → 87-40	9004201-2500	O-ring	2
	114	84-31 →	4460413	Servo cover gasket	2
	115	84-31 →	9003575-0083	Seal nut	1
	167	88-01 →	4460474	Servo piston	1
	168	88-05 →	4460648	Bearing ring (SB-9109)	2

Maximum Displacement

<u>Order Code</u>	<u>Item</u>	<u>Date Code Begin → End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
R	901	92-30 →	4460455-0004	Servo cover, full displ.	1
	902	92-30 →	4460455-0002	Servo cover)	1
	905	92-30 →	4461034	Spring guide (SB-9851)	1
	906	92-30 →	4460303-0006	Servo stop, 42.9 cc/rev.	1
	907	92-30 →	4460164	Servo spring	1
	908	92-30 →	4461033	Servo screw (SB-9851)	1
	909	92-30 →	4460302	Spring guide	1
	910	92-30 →	9006220-0131	Retaining ring	1
	911	92-30 →	9003535-3700	Hex nut	1
	919	92-30 →	5000480	Hex nut	1
	920	92-30 →	9007276-0134	Screw	5
	921	92-30 →	9007276-0134	Screw	5
	S	901	93-38 →	4460455-0004	Servo cover, full displ.
902		93-38 →	4460455-0002	Servo cover	1
905		93-38 →	4461034	Spring guide (SB-9851)	1
906		93-38 →	4460721	Servo stop, 38.2 cc/rev.	1
907		93-38 →	4460164	Servo spring	1
908		93-38 →	4461033	Servo screw (SB-9851)	1
909		93-38 →	4460302	Spring guide	1
910		93-38 →	9006220-0131	Retaining ring	1
911		93-38 →	9003535-3700	Hex nut	1
919		93-38 →	5000480	Hex nut	1
920		93-38 →	9007276-0134	Screw	5
921		93-38 →	9007276-0134	Screw	5

Bold Items indicate recommended parts to be stocked for servicing

M46 Variable Displacement Pump



E100 207

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



Common Parts

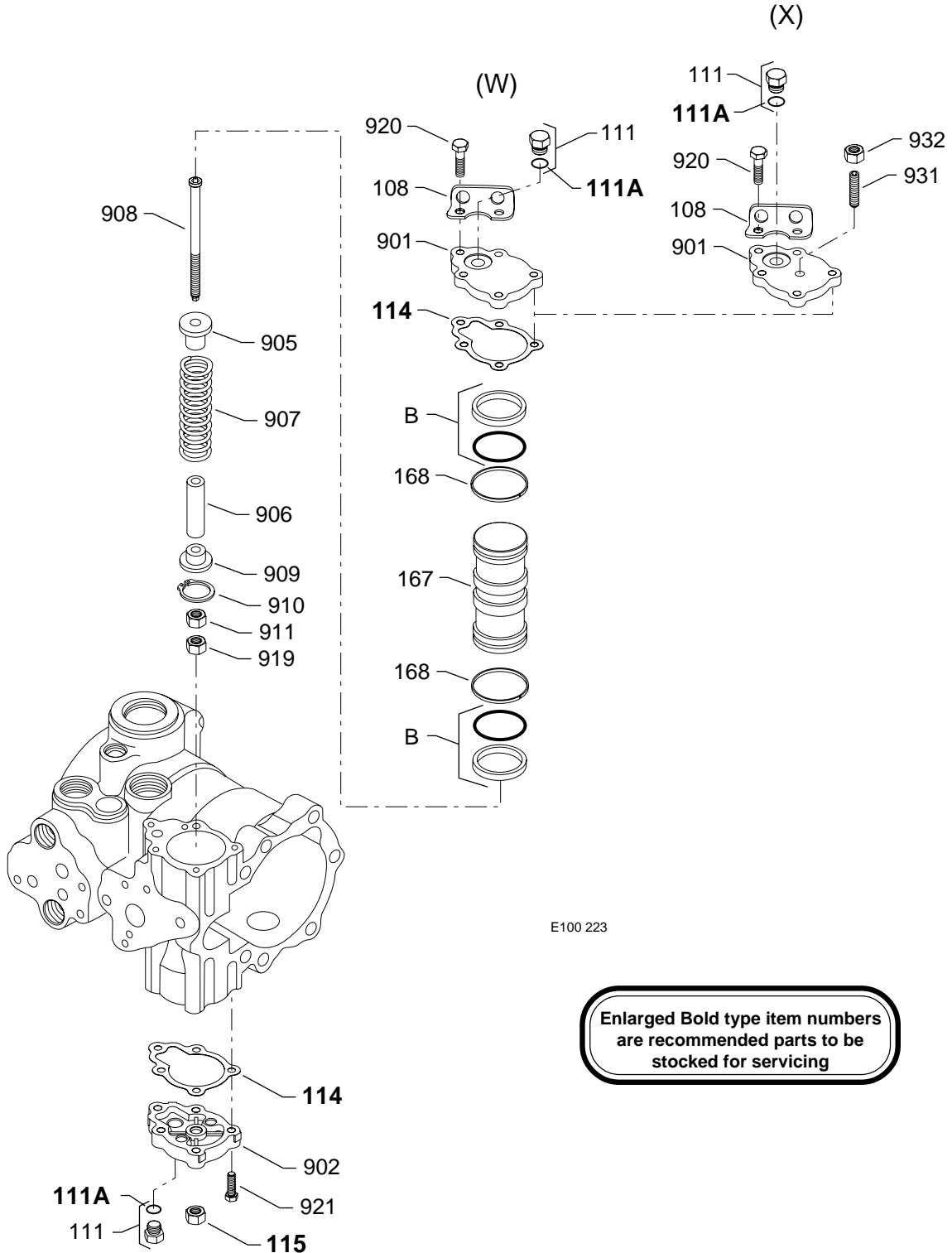
<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
	B	88-01 →	4510002	Servo piston ring kit	2
	108	85-37 →	4460311	Lifting bracket	1
	111	87-41 →	9005100-5600	Plug	2
	"	84-31 → 87-40	9005100-4400	Plug	2
	111A	87-41 →	9004201-3700	O-ring	2
	"	84-31 → 87-40	9004201-2500	O-ring	2
	114	84-31 →	4460413	Servo cover gasket	2
	115	84-31 →	9003575-0083	Seal nut	1
	167	88-01 →	4460474	Servo piston	1
	168	88-05 →	4460648	Bearing ring (SB-9109)	2

Maximum Displacement

<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
T	901	93-38 →	4460455-0004	Servo cover, full displ.	1
	902	93-38 →	4460455-0002	Servo cover	1
	905	93-38 →	4461034	Spring guide (SB-9851)	1
	906	93-38 →	4460722	Servo stop, 32 cc/rev.	1
	907	93-38 →	4460164	Servo spring	1
	908	93-38 →	4461033	Servo screw (SB-9851)	1
	909	93-38 →	4460302	Spring guide	1
	910	93-38 →	9006220-0131	Retaining ring	1
	911	93-38 →	9003535-3700	Hex nut	1
	919	93-38 →	5000480	Hex nut	1
	920	93-38 →	9007276-0134	Screw	5
	921	93-38 →	9007276-0134	Screw	5
V	901	97-26 →	4460455-0002	Servo cover, full displ.	1
	902	97-26 →	4460455-0002	Servo cover	1
	905	97-26 →	4461034	Spring guide (SB-9851)	1
	906	97-26 →	4460303-0001	Servo stop, 46 cc/rev.	1
	907	97-26 →	4460164	Servo spring	1
	908	97-26 →	4461033	Servo screw (SB-9851)	1
	909	97-26 →	4460302	Spring guide	1
	910	97-26 →	9006220-0131	Retaining ring	1
	911	97-26 →	9003535-3700	Hex nut	1
	919	97-26 →	5000480	Hex nut	1
	920	97-26 →	9007276-0134	Screw	5
	921	97-26 →	9007276-0134	Screw	5
	931	97-26 →	4460946	Servo stop	1
	932	97-26 →	9003575-0083	Seal nut	1

Bold Items indicate recommended parts to be stocked for servicing

M46 Variable Displacement Pump



E100 223

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



Common Parts

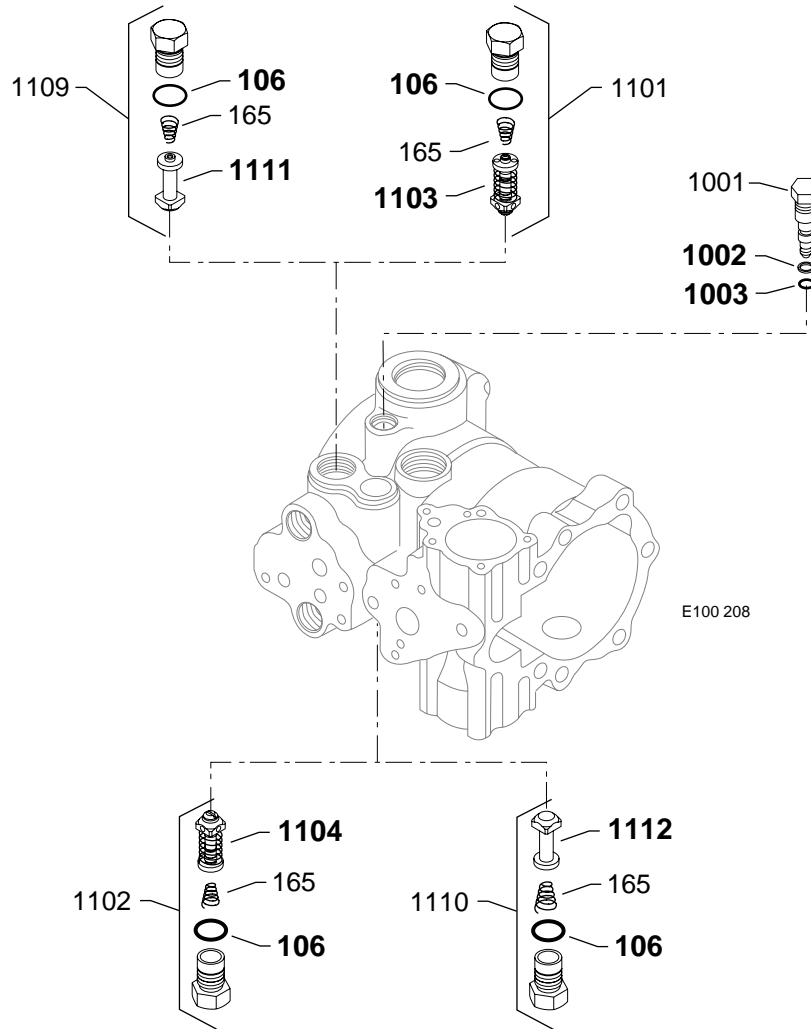
<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
	B	88-01 →	4510002	Servo piston ring kit	2
	108	85-37 →	4460311	Lifting bracket	1
	111	87-41 →	9005100-5600	Plug	2
	"	84-31 → 87-40	9005100-4400	Plug	2
	111A	87-41 →	9004201-3700	O-ring	2
	"	84-31 → 87-40	9004201-2500	O-ring	2
	114	84-31 →	4460413	Servo cover gasket	2
	115	84-31 →	9003575-0083	Seal nut	1
	167	88-01 →	4460474	Servo piston	1
	168	88-05 →	4460648	Bearing ring (SB-9109)	2

Maximum Displacement

<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
W	901	98-09 →	4460455-0004	Servo cover, full displ.	1
	902	98-09 →	4460455-0002	Servo cover	1
	905	98-09 →	4461034	Spring guide (SB-9851)	1
	906	98-09 →	4460997	Servo stop, 36 cc/rev.	1
	907	98-09 →	4460164	Servo spring	1
	908	98-09 →	4461033	Servo screw (SB-9851)	1
	909	98-09 →	4460302	Spring guide	1
	910	98-09 →	9006220-0131	Retaining ring	1
	911	98-09 →	9003535-3700	Hex nut	1
	919	98-09 →	5000480	Hex nut	1
	920	98-09 →	9007276-0134	Screw	5
	921	98-09 →	9007276-0134	Screw	5
X	901	99-26 →	4460455-0002	Servo cover, full displ.	1
	902	99-26 →	4460455-0002	Servo cover	1
	905	99-26 →	4461034	Spring guide	1
	906	99-26 →	4460303-0002	Servo stop, 41 cc/rev.	1
	907	99-26 →	4460164	Servo spring	1
	908	99-26 →	4461033	Servo screw	1
	909	99-26 →	4460302	Spring guide	1
	910	99-26 →	9006220-0131	Retaining ring	1
	911	99-26 →	9003535-3700	Hex nut	1
	919	99-26 →	5000480	Hex nut	1
	920	99-26 →	9007276-0134	Screw	5
	921	99-26 →	9007276-0134	Screw	5
	931	99-26 →	4460946	Servo stop	1
	932	99-26 →	9003575-0083	Seal nut	1

Bold Items indicate recommended parts to be stocked for servicing

M46 Variable Displacement Pump



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



Common Parts

Order Code	Item	Date Code Begin → End	Part Number	Description	Qty. per Model/Kit
	106	84-31 →	9004201-7500	O-ring	2
	165	84-31 →	4800661	Spring (SB-9732)	2
	1002	84-31 →	9006110-0120	Back up ring	1
	1003	84-31 →	9004100-0120	O-ring	1

Bypass Valve

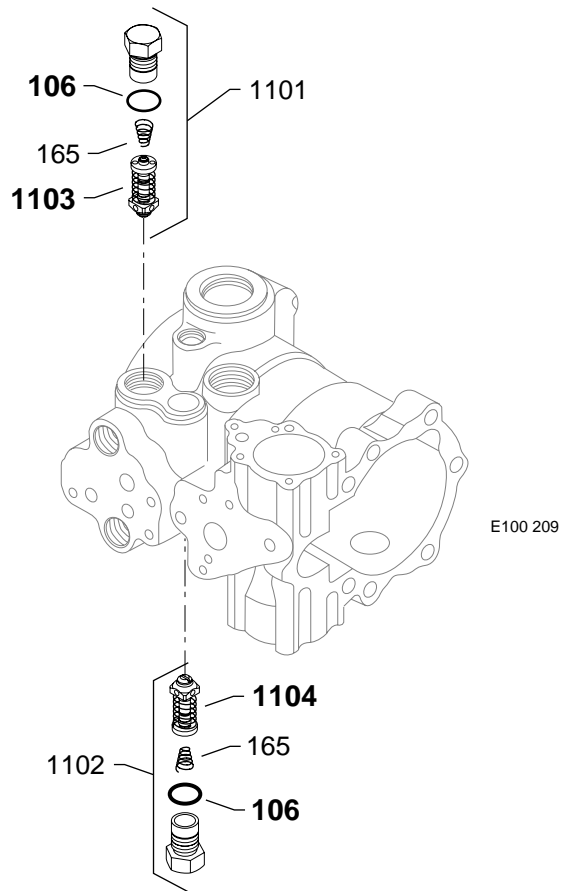
Order Code	Item	Date Code Begin → End	Part Number	Description	Qty. per Model/Kit
A	1001	84-31 →	4460547-0001	Bypass valve	1
B	1001	87-18 →	4460547-0002	Bypass valve, .031 orifice	1
C	1001	87-30 →	4460547-0003	Bypass valve, .040 orifice	1

System Pressure Protection

Order Code	Item	Date Code Begin → End	Part Number	Description	Qty. per Model/Kit
AAA	1109	87-38 →	4510004-0000	Check valve kit (SB-8724)	1
	"	84-31 → 87-37	4510001-0000	Check valve kit	1
	1110	87-38 →	4510004-0000	Check valve kit (SB-8724)	1
	"	84-31 → 87-37	4510001-0000	Check valve kit	1
	1111	87-38 →	3103348	Check valve (SB-8724)	1
	1112	87-38 →	3103348	Check valve (SB-8724)	1
BBB	1101	87-38 →	4510004-0175	SCR valve kit, 175 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0050	SCR valve kit, 175 bar/2538 psi	1
	1102	87-38 →	4510004-0175	SCR valve kit, 175 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0050	SCR valve kit, 175 bar/2538 psi	1
	1103	87-38 →	3103375-0175	SCR valve, 175 bar (SB-8724)	1
	1104	87-38 →	3103375-0175	SCR valve, 175 bar (SB-8724)	1
BBF	1101	87-38 →	4510004-0175	SCR valve kit, 175 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0050	SCR valve kit, 175 bar/2538 psi	1
	1102	87-38 →	4510004-0250	SCR valve kit, 250 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0053*	SCR valve kit, 250 bar/3625 psi	1
	1103	87-38 →	3103375-0175	SCR valve, 175 bar (SB-8724)	1
	1104	87-38 →	3103375-0250	SCR valve, 250 bar (SB-8724)	1
BBG	1101	87-38 →	4510004-0175	SCR valve kit, 175 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0050	SCR valve kit, 175 bar/2538 psi	1
	1102	87-38 →	4510004-0280	SCR valve kit, 280 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0054*	SCR valve kit, 280 bar/4060 psi	1
	1103	87-38 →	3103375-0175	SCR valve, 175 bar (SB-8724)	1
	1104	87-38 →	3103375-0280	SCR valve, 175 bar (SB-8724)	1
BBJ	1101	87-38 →	4510004-0175	SCR valve kit, 175 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0050	SCR valve kit, 175 bar	1
	1102	87-38 →	4510004-0345	SCR valve kit, 345 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0056	SCR valve kit, 345 bar/5000 psi	1
	1103	87-38 →	3103375-0175	SCR valve, 175 bar (SB-8724)	1
	1104	87-38 →	3103375-0345	SCR valve, 345 bar (SB-8724)	1

* Obsolete, no longer available as a service part

M46 Variable Displacement Pump



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Common Parts

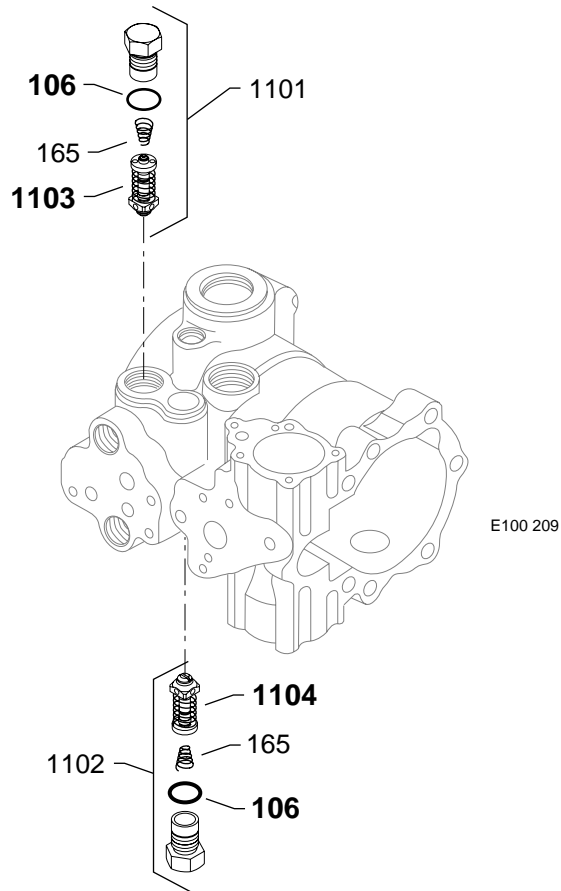
<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
	106	84-31 →	9004201-7500	O-ring	2
	165	84-31 →	4800661	Spring (SB-9732)	2

System Pressure Protection

<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
BCC	1101	87-38 →	4510004-0190	SCR valve kit, 190 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0058*	SCR valve kit, 190 bar/2755 psi	1
	1102	87-38 →	4510004-0190	SCR valve kit, 190 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0058*	SCR valve kit, 190 bar/2755 psi	1
	1103	87-38 →	3103375-0190	SCR valve, 190 bar (SB-8724)	1
	1104	87-38 →	3103375-0190	SCR valve, 190 bar (SB-8724)	1
BDD	1101	87-38 →	4510004-0210	SCR valve kit, 210 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0051*	SCR valve kit, 210 bar/3045 psi	1
	1102	87-38 →	4510004-0210	SCR valve kit, 210 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0051*	SCR valve kit, 210 bar/3045 psi	1
	1103	87-38 →	3103375-0210	SCR valve, 210 bar (SB-8724)	1
	1104	87-38 →	3103375-0210	SCR valve, 210 bar (SB-8724)	1
BEE	1101	87-38 →	4510004-0230	SCR valve kit, 230 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0052	SCR valve kit, 230 bar/3335psi	1
	1102	87-38 →	4510004-0230	SCR valve kit, 230 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0052	SCR valve kit, 230 bar/3335 psi	1
	1103	87-38 →	3103375-0230	SCR valve, 230 bar (SB-8724)	1
	1104	87-38 →	3103375-0230	SCR valve, 230 bar (SB-8724)	1
BFD	1101	87-38 →	4510004-0250	SCR valve kit, 250 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0053*	SCR valve kit, 250 bar/3625 psi	1
	1102	87-38 →	4510004-0210	SCR valve kit, 210 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0051*	SCR valve kit, 210 bar/3045 psi	1
	1103	87-38 →	3103375-0250	SCR valve, 250 bar (SB-8724)	1
	1104	87-38 →	3103375-0210	SCR valve, 210 bar (SB-8724)	1
BFF	1101	87-38 →	4510004-0250	SCR valve kit, 250 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0053*	SCR valve kit, 250 bar/3625 psi	1
	1102	87-38 →	4510004--0250	SCR valve kit, 250 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0053*	SCR valve kit, 250 bar/3625 psi	1
	1103	87-38 →	3103375-0250	SCR valve, 250 bar (SB-8724)	1
	1104	87-38 →	3103375-0250	SCR valve, 250 bar (SB-8724)	1
BFM	1101	87-38 →	4510004-0250	SCR valve kit, 250 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0053*	SCR valve kit, 250 bar/3625 psi	1
	1102	95-02 →	4510004--0140	SCR valve kit, 140 bar/2030 psi	1
	1103	87-38 →	3103375-0250	SCR valve, 250 bar (SB-8724)	1
	1104	95-02 →	3103375-0140	SCR valve, 140 bar/2030 psi	1

* Obsolete, no longer available as a service part

M46 Variable Displacement Pump



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Common Parts

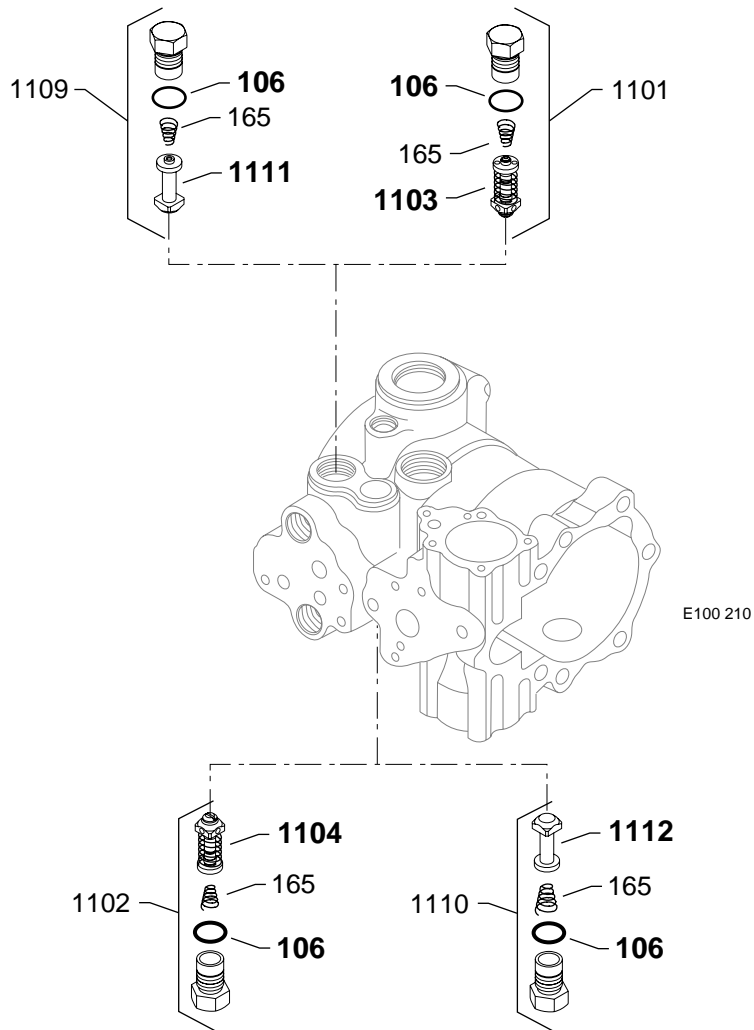
Order Code	Item	Date Code Begin → End	Part Number	Description	Qty. per Model/Kit
	106	84-31 →	9004201-7500	O-ring	2
	165	84-31 →	4800661	Spring (SB-9732)	2

System Pressure Protection

Order Code	Item	Date Code Begin → End	Part Number	Description	Qty. per Model/Kit
BGB	1101	87-38 →	4510004-0280	SCR valve kit, 280 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0054*	SCR valve kit, 280 bar/4060 psi	1
	1102	87-38 →	4510004-0175	SCR valve kit, 175 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0050	SCR valve kit, 175 bar/2538 psi	1
	1103	87-38 →	3103375-0280	SCR valve, 280 bar (SB-8724)	1
	1104	87-38 →	3103375-0175	SCR valve, 175 bar (SB-8724)	1
BGE	1101	87-38 →	4510004-0280	SCR valve kit, 280 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0054*	SCR valve kit, 280 bar/4060 psi	1
	1102	87-38 →	4510004-0230	SCR valve kit, 230 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0052	SCR valve kit, 230 bar/3335 psi	1
	1103	87-38 →	3103375-0280	SCR valve, 280 bar (SB-8724)	1
	1104	87-38 →	3103375-0230	SCR valve, 230 bar (SB-8724)	1
BGG	1101	87-38 →	4510004-0280	SCR valve kit, 280 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0054*	SCR valve kit, 280 bar/4060 psi	1
	1102	87-38 →	4510004-0280	SCR valve kit, 280 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0054*	SCR valve kit, 280 bar/4060 psi	1
	1103	87-38 →	3103375-0280	SCR valve, 280 bar (SB-8724)	1
	1104	87-38 →	3103375-0280	SCR valve, 280 bar (SB-8724)	1
BHH	1101	87-38 →	4510004-0300	SCR valve kit, 300 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0055*	SCR valve kit, 300 bar/4350 psi	1
	1102	87-38 →	4510004-0300	SCR valve kit, 300 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0055*	SCR valve kit, 300 bar/4350 psi	1
	1103	87-38 →	3103375-0300	SCR valve, 300 bar (SB-8724)	1
	1104	87-38 →	3103375-0300	SCR valve, 300 bar (SB-8724)	1
BHJ	1101	87-38 →	4510004-0300	SCR valve kit, 300 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0055*	SCR valve kit, 300 bar/4350 psi	1
	1102	87-38 →	4510004-0345	SCR valve kit, 345 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0056	SCR valve kit, 345 bar/5000 psi	1
	1103	87-38 →	3103375-0300	SCR valve, 300 bar (SB-8724)	1
	1104	87-38 →	3103375-0345	SCR valve, 345 bar (SB-8724)	1
BJB	1101	87-38 →	4510004-0345	SCR valve kit, 345 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0056	SCR valve kit, 345 bar/5000 psi	1
	1102	87-38 →	4510004-0175	SCR valve kit, 175 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0050	SCR valve kit, 175 bar/2538 psi	1
	1103	87-38 →	3103375-0345	SCR valve, 345 bar (SB-8724)	1
	1104	87-38 →	3103375-0175	SCR valve, 175 bar (SB-8724)	1

* Obsolete, no longer available as a service part

M46 Variable Displacement Pump



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Common Parts

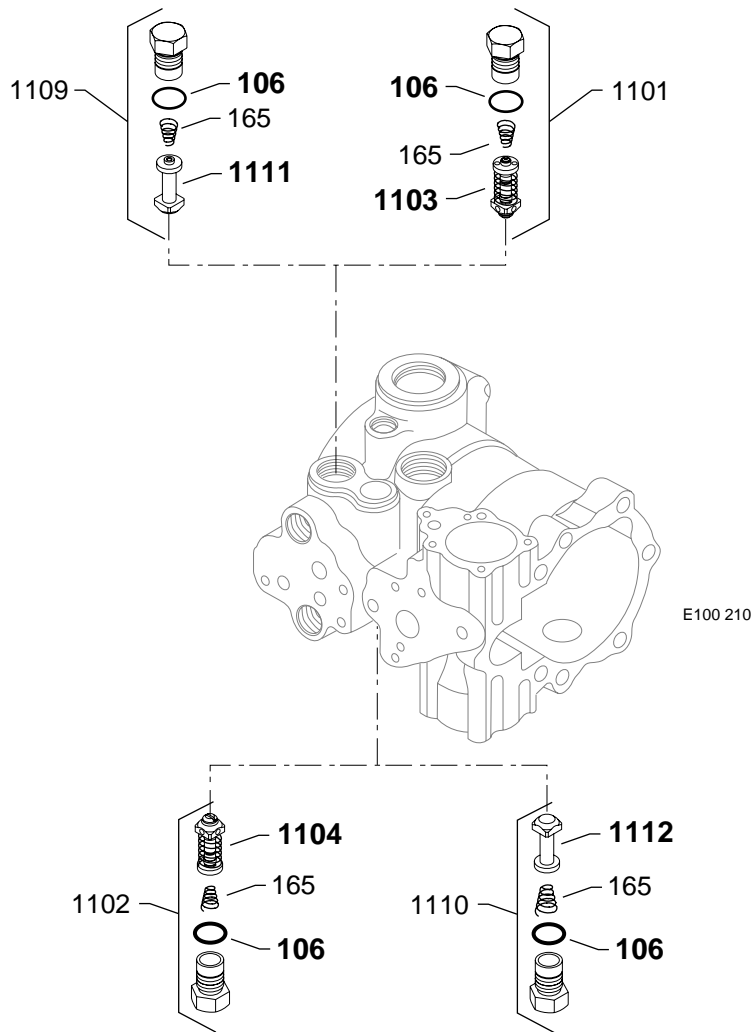
Order Code	Item	Date Code Begin → End	Part Number	Description	Qty. per Model/Kit
	106	84-31 →	9004201-7500	O-ring	2
	165	84-31 →	4800661	Spring (SB-9732)	2

System Pressure Protection

Order Code	Item	Date Code Begin → End	Part Number	Description	Qty. per Model/Kit
BJJ	1101	87-38 →	4510004-0345	SCR valve kit, 345 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0056	SCR valve kit, 345 bar/5000 psi	1
	1102	87-38 →	4510004-0345	SCR valve kit, 345 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0056	SCR valve kit, 345 bar/5000 psi	1
	1103	87-38 →	3103375-0345	SCR valve, 345 bar (SB-8724)	1
	1104	87-38 →	3103375-0345	SCR valve, 345 bar (SB-8724)	1
BKK	1101	87-38 →	4510004-0360	SCR valve kit, 360 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0062*	SCR valve kit, 360 bar/5220 psi	1
	1102	87-38 →	4510004-0360	SCR valve kit, 360bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0062*	SCR valve kit, 360 bar/5220 psi	1
	1103	87-38 →	3103375-0360	SCR valve, 360 bar (SB-8724)	1
	1104	87-38 →	3103375-0360	SCR valve, 360 bar (SB-8724)	1
BLL	1101	87-38 →	4510004-0415	SCR valve kit, 415 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0057*	SCR valve kit, 415 bar/6020 psi	1
	1102	87-38 →	4510004-0415	SCR valve kit, 415 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0057*	SCR valve kit, 415 bar/6020 psi	1
	1103	87-38 →	3103375-0415	SCR valve, 415 bar (SB-8724)	1
	1104	87-38 →	3103375-0415	SCR valve, 415 bar (SB-8724)	1
BMM	1101	90-31 →	4510004-0140	SCR valve kit, 140 bar/2030 psi	1
	1102	90-31 →	4510004-0140	SCR valve kit, 140 bar/2030 psi	1
	1103	90-31 →	3103375-0140	SCR valve, 140 bar/2030 psi	1
	1104	90-31 →	3103375-0140	SCR valve, 140 bar/2030 psi	1
BRR	1101	95-10 →	4510004-0325	SCR valve kit, 325 bar/4712 psi	1
	1102	95-10 →	4510004-0325	SCR valve kit, 325 bar/4712 psi	1
	1103	95-10 →	3103375-0325	SCR valve, 325 bar/4712 psi	1
	1104	95-10 →	3103375-0325	SCR valve, 325 bar/4712 psi	1
CBA	1101	87-38 →	4510004-0175	SCR valve kit, 175 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0050	SCR valve kit, 175 bar/2538 psi	1
	1110	87-38 →	4510004-0000	Check valve kit (SB-8724)	1
	"	84-31 → 87-37	4510001-0000	Check valve kit	1
	1103	87-38 →	3103375-0175	SCR valve, 175 bar (SB-8724)	1
	1112	87-38 →	3103348	Check valve (SB-8724)	1
CCA	1101	87-38 →	4510004-0190	SCR valve kit, 190 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0058*	SCR valve kit, 190 bar/2755 psi	1
	1110	87-38 →	4510004-0000	Check valve kit (SB-8724)	1
	"	84-31 → 87-37	4510001-0000	Check valve kit	1
	1103	87-38 →	3103375-0190	SCR valve, 190 bar (SB-8724)	1
	1112	87-38 →	3103348	Check valve (SB-8724)	1

* Obsolete, no longer available as a service part

M46 Variable Displacement Pump



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Common Parts

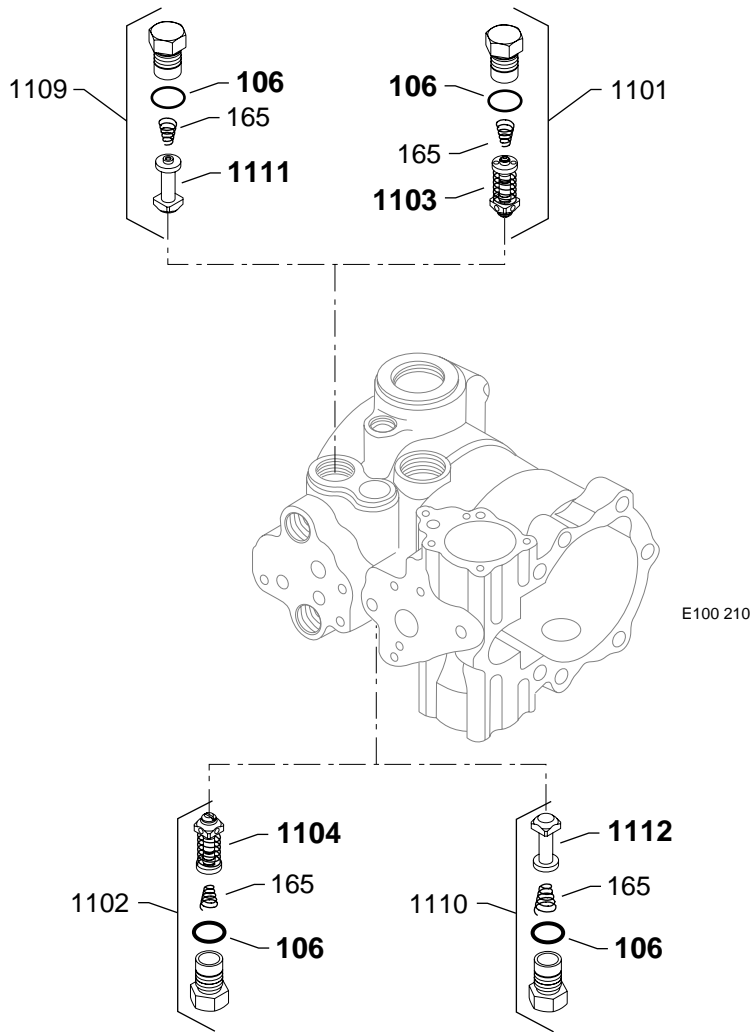
Order Code	Item	Date Code Begin → End	Part Number	Description	Qty. per Model/Kit
	106	84-31 →	9004201-7500	O-ring	2
	165	84-31 →	4800661	Spring (SB-9732)	2

System Pressure Protection

Order Code	Item	Date Code Begin → End	Part Number	Description	Qty. per Model/Kit
CDA	1101	87-38 →	4510004-0210	SCR valve kit, 210 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0051*	SCR valve kit, 210 bar/3045 psi	1
	1110	87-38 →	4510004-0000	Check valve kit (SB-8724)	1
	"	84-31 → 87-37	4510001-0000	Check valve kit	1
	1103	87-38 →	3103375-0210	SCR valve, 210 bar (SB-8724)	1
1112	87-38 →	3103348	Check valve (SB-8724)	1	
CEA	1101	87-38 →	4510004-0230	SCR valve kit, 230 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0052	SCR valve kit, 230 bar/3335 psi	1
	1110	87-38 →	4510004-0000	Check valve kit (SB-8724)	1
	"	84-31 → 87-37	4510001-0000	Check valve kit	1
	1103	87-38 →	3103375-0230	SCR valve, 230 bar (SB-8724)	1
1112	87-38 →	3103348	Check valve (SB-8724)	1	
CFA	1101	87-38 →	4510004-0250	SCR valve kit, 250 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0053*	SCR valve kit, 250 bar/3625 psi	1
	1110	87-38 →	4510004-0000	Check valve kit (SB-8724)	1
	"	84-31 → 87-37	4510001-0000	Check valve kit	1
	1103	87-38 →	3103375-0250	SCR valve, 250 bar (SB-8724)	1
1112	87-38 →	3103348	Check valve (SB-8724)	1	
CGA	1101	87-38 →	4510004-0280	SCR valve kit, 280 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0054*	SCR valve kit, 280 bar/4060 psi	1
	1110	87-38 →	4510004-0000	Check valve kit (SB-8724)	1
	"	84-31 → 87-37	4510001-0000	Check valve kit	1
	1103	87-38 →	3103375-0280	SCR valve, 280 bar (SB-8724)	1
1112	87-38 →	3103348	Check valve (SB-8724)	1	
CHA	1101	87-38 →	4510004-0300	SCR valve kit, 300 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0055*	SCR valve kit, 300 bar/4350 psi	1
	1110	87-38 →	4510004-0000	Check valve kit (SB-8724)	1
	"	84-31 → 87-37	4510001-0000	Check valve kit	1
	1103	87-38 →	3103375-0300	SCR valve, 300 bar (SB-8724)	1
1112	87-38 →	3103348	Check valve (SB-8724)	1	
CJA	1101	87-38 →	4510004-0345	SCR valve kit, 345 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0056	SCR valve kit, 345 bar/5000 psi	1
	1110	87-38 →	4510004-0000	Check valve kit (SB-8724)	1
	"	84-31 → 87-37	4510001-0000	Check valve kit	1
	1103	87-38 →	3103375-0345	SCR valve, 345 bar (SB-8724)	1
1112	87-38 →	3103348	Check valve (SB-8724)	1	

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M46 Variable Displacement Pump



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Common Parts

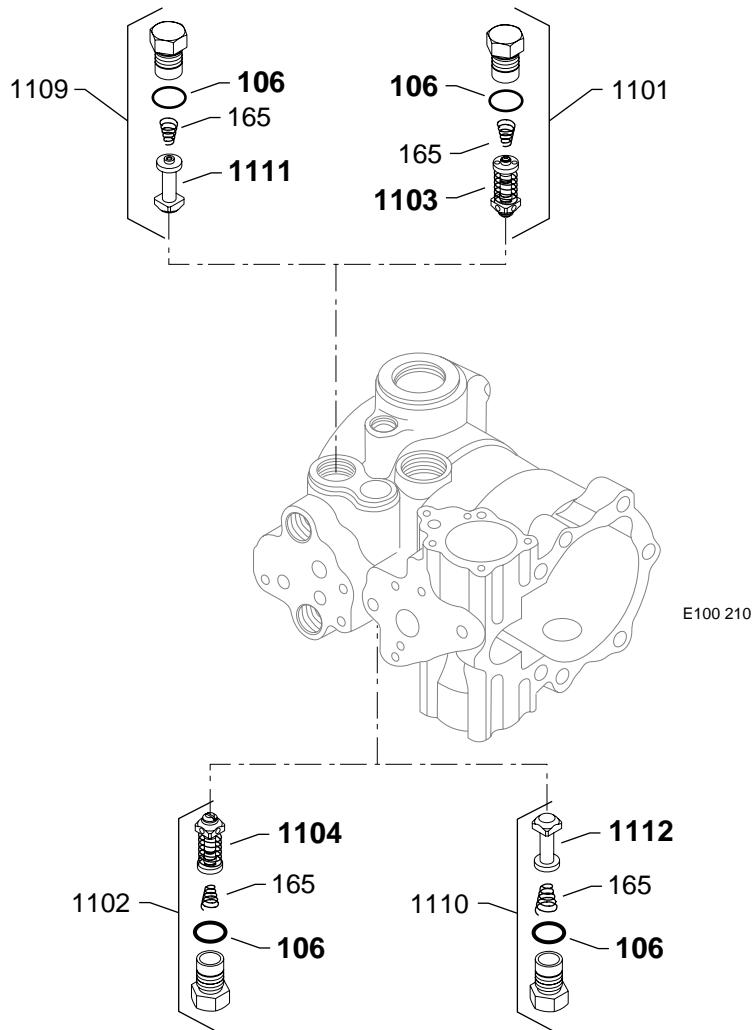
<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
	106	84-31 →	9004201-7500	O-ring	2
	165	84-31 →	4800661	Spring (SB-9732)	2

System Pressure Protection

<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
CKA	1101	87-38 →	4510004-0360	SCR valve kit, 360 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0062*	SCR valve kit, 360 bar/5220 psi	1
	1110	87-38 →	4510004-0000	Check valve kit (SB-8724)	1
	"	84-31 → 87-37	4510001-0000	Check valve kit	1
	1103	87-38 →	3103375-0360	SCR valve, 360 bar (SB-8724)	1
	1112	87-38 →	3103348	Check valve (SB-8724)	1
CMA	1101	90-06 →	4510004-0140	SCR valve kit, 140bar (SB-8724)	1
	1110	87-38 →	4510004-0000	Check valve kit (SB-8724)	1
	"	84-31 → 87-37	4510001-0000	Check valve kit	1
	1103	90-06 →	3103375-0140	SCR valve, 140 bar (SB-8724)	1
	1112	87-38 →	3103348	Check valve (SB-8724)	1
DAB	1102	87-38 →	4510004-0175	SCR valve kit, 175 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0050	SCR valve kit, 175 bar/2538 psi	1
	1109	87-38 →	4510004-0000	Check valve kit (SB-8724)	1
	"	84-31 → 87-37	4510001-0000	Check valve kit	1
	1104	87-38 →	3103375-0175	SCR valve, 175 bar (SB-8724)	1
1111	87-38 →	3103348	Check valve (SB-8724)	1	
DAC	1102	87-38 →	4510004-0190	SCR valve kit, 190 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0058*	SCR valve kit, 190 bar/2755 psi	1
	1109	87-38 →	4510004-0000	Check valve kit (SB-8724)	1
	"	84-31 → 87-37	4510001-0000	Check valve kit	1
	1104	87-38 →	3103375-0190	SCR valve, 190 bar (SB-8724)	1
1111	87-38 →	3103348	Check valve (SB-8724)	1	
DAD	1102	87-38 →	4510004-0210	SCR valve kit, 210 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0051*	SCR valve kit, 210 bar/3045 psi	1
	1109	87-38 →	4510004-0000	Check valve kit (SB-8724)	1
	"	84-31 → 87-37	4510001-0000	Check valve kit	1
	1104	87-38 →	3103375-0210	SCR valve, 210 bar (SB-8724)	1
1111	87-38 →	3103348	Check valve (SB-8724)	1	
DAE	1102	87-38 →	4510004-0230	SCR valve kit, 230 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0052	SCR valve kit, 230 bar/3335 psi	1
	1109	87-38 →	4510004-0000	Check valve kit (SB-8724)	1
	"	84-31 → 87-37	4510001-0000	Check valve kit	1
	1104	87-38 →	3103375-0230	SCR valve, 230 bar (SB-8724)	1
1111	87-38 →	3103348	Check valve (SB-8724)	1	

* Obsolete, no longer available as a service part

M46 Variable Displacement Pump



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



Common Parts

<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
	106	84-31 →	9004201-7500	O-ring	2
	165	84-31 →	4800661	Spring (SB-9732)	2

System Pressure Protection

<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
DAF	1102	87-38 →	4510004-0250	SCR valve kit, 250 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0053*	SCR valve kit, 250 bar/3625 psi	1
	1109	87-38 →	4510004-0000	Check valve kit (SB-8724)	1
	"	84-31 → 87-37	4510001-0000	Check valve kit	1
	1104	87-38 →	3103375-0250	SCR valve, 250 bar (SB-8724)	1
1111	87-38 →	3103348	Check valve (SB-8724)	1	
DAG	1102	87-38 →	4510004-0280	SCR valve kit, 280 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0054*	SCR valve kit, 280 bar/4060 psi	1
	1109	87-38 →	4510004-0000	Check valve kit (SB-8724)	1
	"	84-31 → 87-37	4510001-0000	Check valve kit	1
	1104	87-38 →	3103375-0280	SCR valve, 280 bar (SB-8724)	1
1111	87-38 →	3103348	Check valve (SB-8724)	1	
DAH	1102	87-38 →	4510004-0300	SCR valve kit, 300 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0055*	SCR valve kit, 300 bar/4350 psi	1
	1109	87-38 →	4510004-0000	Check valve kit (SB-8724)	1
	"	84-31 → 87-37	4510001-0000	Check valve kit	1
	1104	87-38 →	3103375-0300	SCR valve, 300 bar (SB-8724)	1
1111	87-38 →	3103348	Check valve (SB-8724)	1	
DAJ	1102	87-38 →	4510004-0345	SCR valve kit, 345 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0056	SCR valve kit, 345 bar/5000 psi	1
	1109	87-38 →	4510004-0000	Check valve kit (SB-8724)	1
	"	84-31 → 87-37	4510001-0000	Check valve kit	1
	1104	87-38 →	3103375-0345	SCR valve, 345 bar (SB-8724)	1
1111	87-38 →	3103348	Check valve (SB-8724)	1	
DAK	1102	87-38 →	4510004-0360	SCR valve kit, 360 bar (SB-8724)	1
	"	84-31 → 87-37	4510001-0062*	SCR valve kit, 360 bar/5220 psi	1
	1109	87-38 →	4510004-0000	Check valve kit (SB-8724)	1
	"	84-31 → 87-37	4510001-0000	Check valve kit	1
	1104	87-38 →	3103375-0360	SCR valve, 360 bar (SB-8724)	1
1111	87-38 →	3103348	Check valve (SB-8724)	1	

* Obsolete, no longer available as a service part



Common MDC Parts

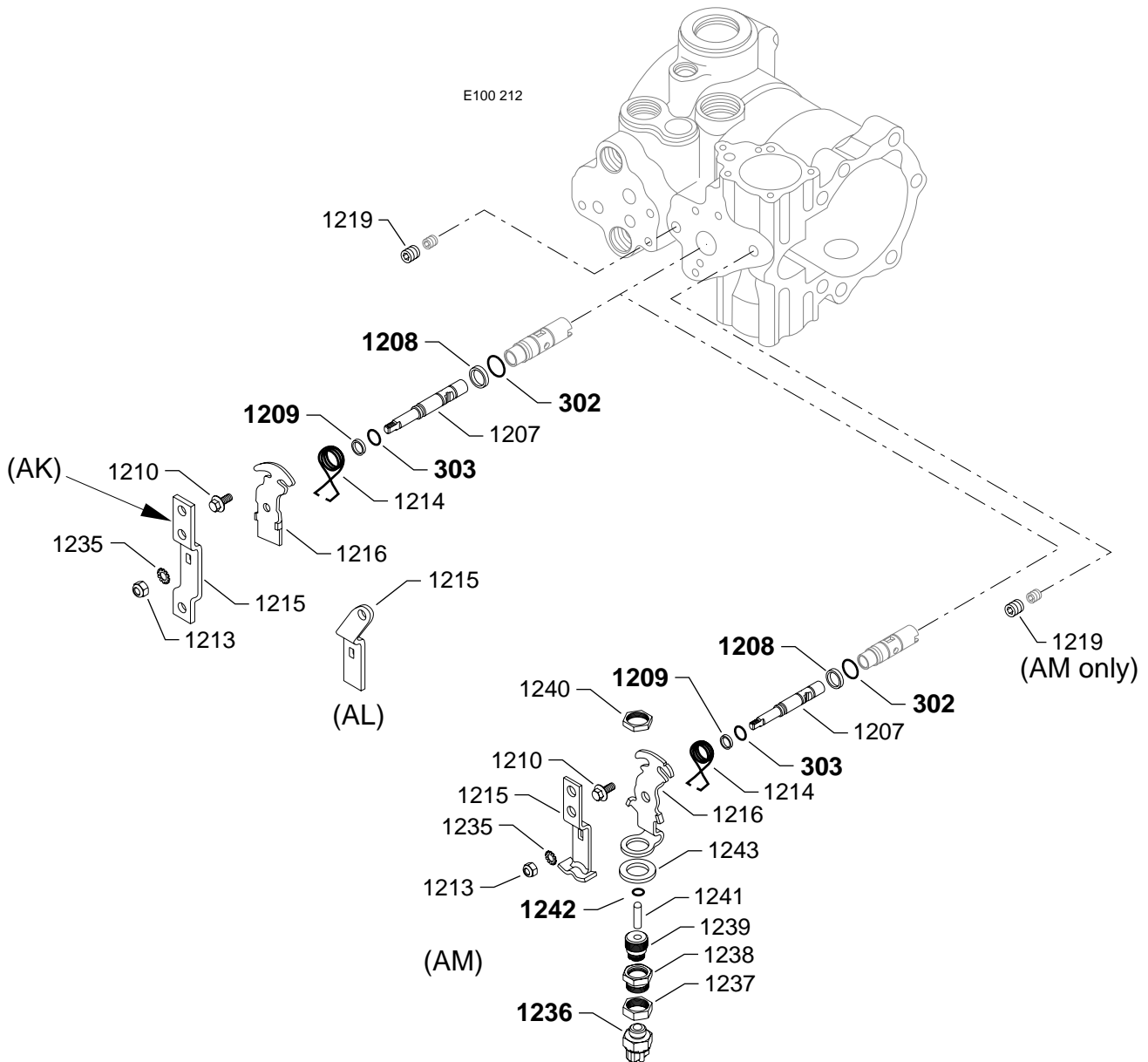
Order Code	Item	Date Code Begin → End	Part Number	Description	Qty. per Model/Kit
	302	84-31 →	9004100-0160	O-ring	1
	303	84-31 →	9004100-0120	O-ring	1
	1208	84-31 →	9006110-0160	Back up ring	1
	1209	84-31 →	9006110-0120	Back up ring	1
	1213	84-31 →	9003575-0102	Lock nut	1
	1219	86-14 →	9005001-1200	Pipe plug	2
	"	84-31 → 86-13	9005100-4400	Plug	2
	1235	84-31 →	9009660-3100	Toothlock washer	1

Control

Order Code	Item	Date Code Begin → End	Part Number	Description	Qty. per Model/Kit
AB	1207	86-14 →	4460468	Spool	1
	"	84-31 → 86-13	4460316	Spool	1
	1210	84-31 →	9007276-0123	Screw (SB-8720)	1
	1214	84-31 →	4800315	Neutral return spring	1
	1215	84-31 →	4800086-0002	Handle	1
	1216	84-31 →	4800084	Neutral return bracket	1
AC	1207	86-14 →	4460468	Spool	1
	"	84-31 → 86-13	4460316	Spool	1
	1210	84-31 →	9007276-0123	Screw (SB-8720)	1
	1214	84-31 →	4800315	Neutral return spring	1
	1215	84-31 →	4800153	Handle	1
	1216	84-31 →	4800084	Neutral return bracket	1
AE	1207	86-14 →	4460468	Spool	1
	"	84-31 → 86-13	4460316	Spool	1
	1210	84-31 →	9007276-0123	Screw (SB-8720)	1
	1214	84-31 →	4800315	Neutral return spring	1
	1215	84-31 →	4800086-0002	Handle	1
	1216	84-31 →	4800084	Neutral return bracket	1
AF	1207	86-14 →	4460906	Spool (SB-9740)	1
	"	84-31 → 86-13	4460316	Spool	1
	1210	84-31 →	9007276-0123	Screw (SB-8720)	1
	1214	84-31 →	4800315	Neutral return spring	1
	1215	84-31 →	4800137	Handle	1
	1216	84-31 →	4800084	Neutral return bracket	1
AG	1207	86-14 →	4460468	Spool	1
	"	84-31 → 86-13	4460316	Spool	1
	1210	84-31 →	9007276-0123	Screw (SB-8720)	1
	1214	84-31 →	4800315	Neutral return spring	1
	1215	84-31 →	4800086-0002	Handle	1
	1216	84-31 →	4800089	Neutral return bracket	1

Bold Items indicate recommended parts to be stocked for servicing

M46 Variable Displacement Pump



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Common MDC Parts

<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
	302	84-31 →	9004100-0160	O-ring	1
	303	84-31 →	9004100-0120	O-ring	1
	1208	84-31 →	9006110-0160	Back up ring	1
	1209	84-31 →	9006110-0120	Back up ring	1
	1213	84-31 →	9003575-0102	Lock nut	1
	1219	86-14 →	9005001-1200	Pipe plug	2
	1235	84-31 →	9009660-3100	Toothlock washer	1

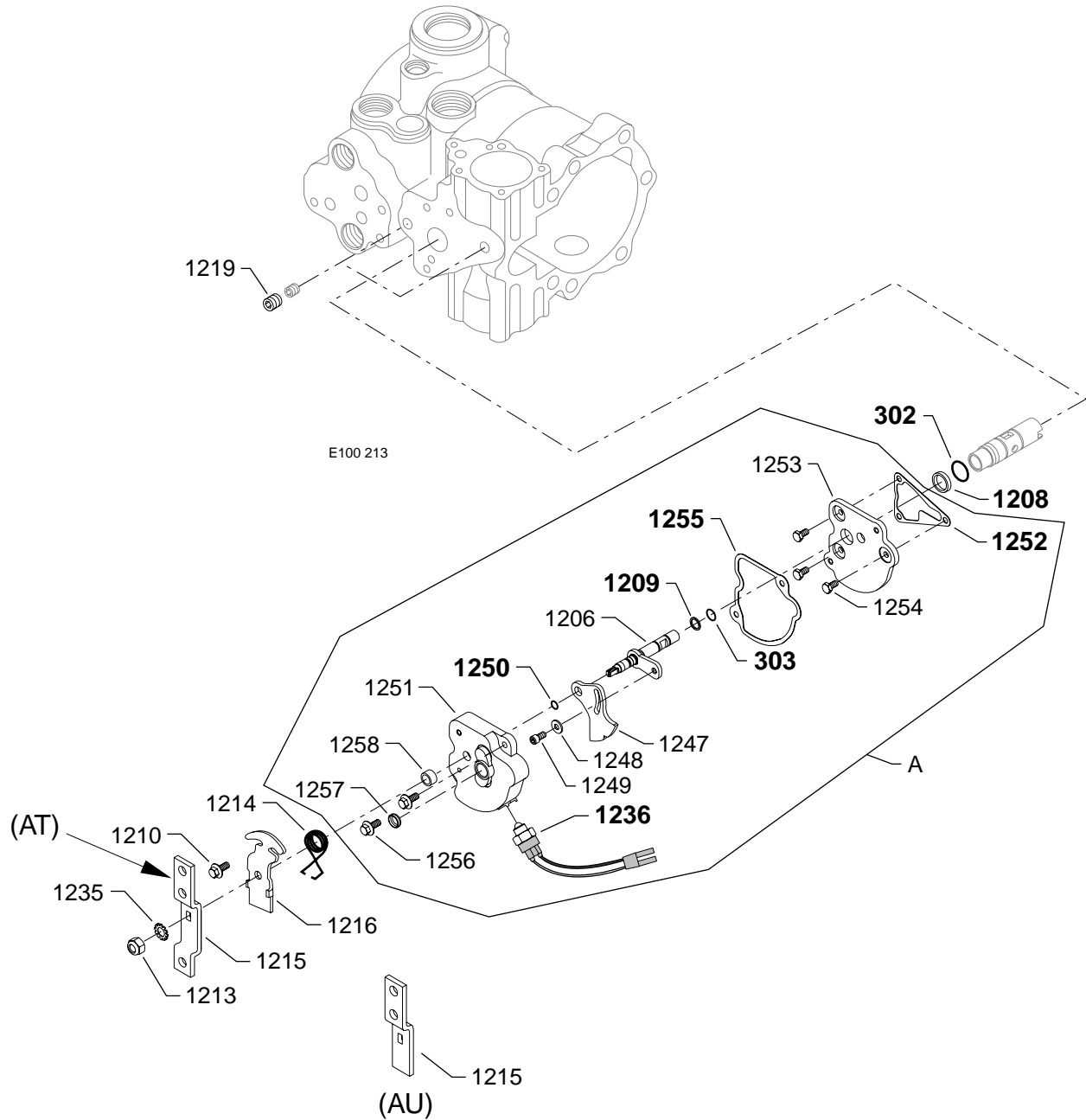
Control

<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
AK	1207	89-02 →	4460906	Spool (SB-9740)	1
	1210	89-02 →	9007276-0123	Screw	1
	1214	89-02 →	4800315	Neutral return spring	1
	1215	89-02 →	4800153	Handle	1
	1216	89-02 →	4800084	Neutral return bracket	1
AL	1207	89-39 →	4460468	Spool	1
	1210	89-39 →	9007276-0123	Screw	1
	1214	89-39 →	4800315	Neutral return spring	1
	1215	89-39 →	4800184	Handle	1
	1216	89-39 →	4800084	Neutral return bracket	1
AM	1207	90-37 →	4460468	Spool	1
	1210	90-37 →	9007276-0123	Screw (SB-8720)	1
	1214	90-37 →	4800315	Neutral return spring	1
	1215	90-37 →	4800087-0001	Handle	1
	1216	90-37 →	4800083	Neutral return bracket	1
	1236	90-37 →	8700104	Neutral start switch	1
	1237	90-37 →	9003575-0049	Nut	1
	1238	90-37 →	9802587	Nut	1
	1239	90-37 →	4800451	Eccentric plug	1
	1240	90-37 →	718536	Nut	1
	1241	90-37 →	718569	Pin	1
	1242	90-37 →	9004100-0100	O-ring	1
	1243	90-37 →	718551	Washer	1

AS Replaced by 'AK'

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M46 Variable Displacement Pump



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stocked for servicing**



Common Parts for 'AT' & 'AU' Controls

<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
	302	95-24 →	9004100-0160	O-ring	1
	303	95-24 →	9004100-0120	O-ring	1
	1207	95-24 →	4800630	Spool assembly	1
	1208	95-24 →	9006110-0160	Back up ring	1
	1209	95-24 →	9006110-0120	Back up ring	1
	1210	95-24 →	9007276-0123	Screw	1
	1213	95-24 →	9003575-0102	Lock nut	1
	1214	95-24 →	4800315	Neutral return spring	1
	1216	95-24 →	4800084	Neutral return bracket	1
	1219	95-24 →	9005001-1200	Pipe plug	2
	1235	95-24 →	9009660-3100	Toothlock washer	1
	1247	95-24 →	4460787	Neutral locator cam	1
	1248	95-24 →	9009600-2662	Washer	1
	1249	95-24 →	5000356	Screw	1
	1250	95-24 →	9004100-0110	O-ring	1
	1251	95-24 →	4461049	Cover (SB-99005)	1
	1252	95-24 →	4460789	NSS mounting plate gasket *	1
	1253	95-24 →	4461051	NSS plate assembly	1
	1254	95-24 →	5000385	Screw	3
	1255	95-24 →	4461053	NSS mounting cover gasket *	1
	1256	95-24 →	9007276-0123	Screw	2
	1257	95-24 →	9005215-6200	Expansion plug	1
	1258	95-24 →	4460817	Spacer	1

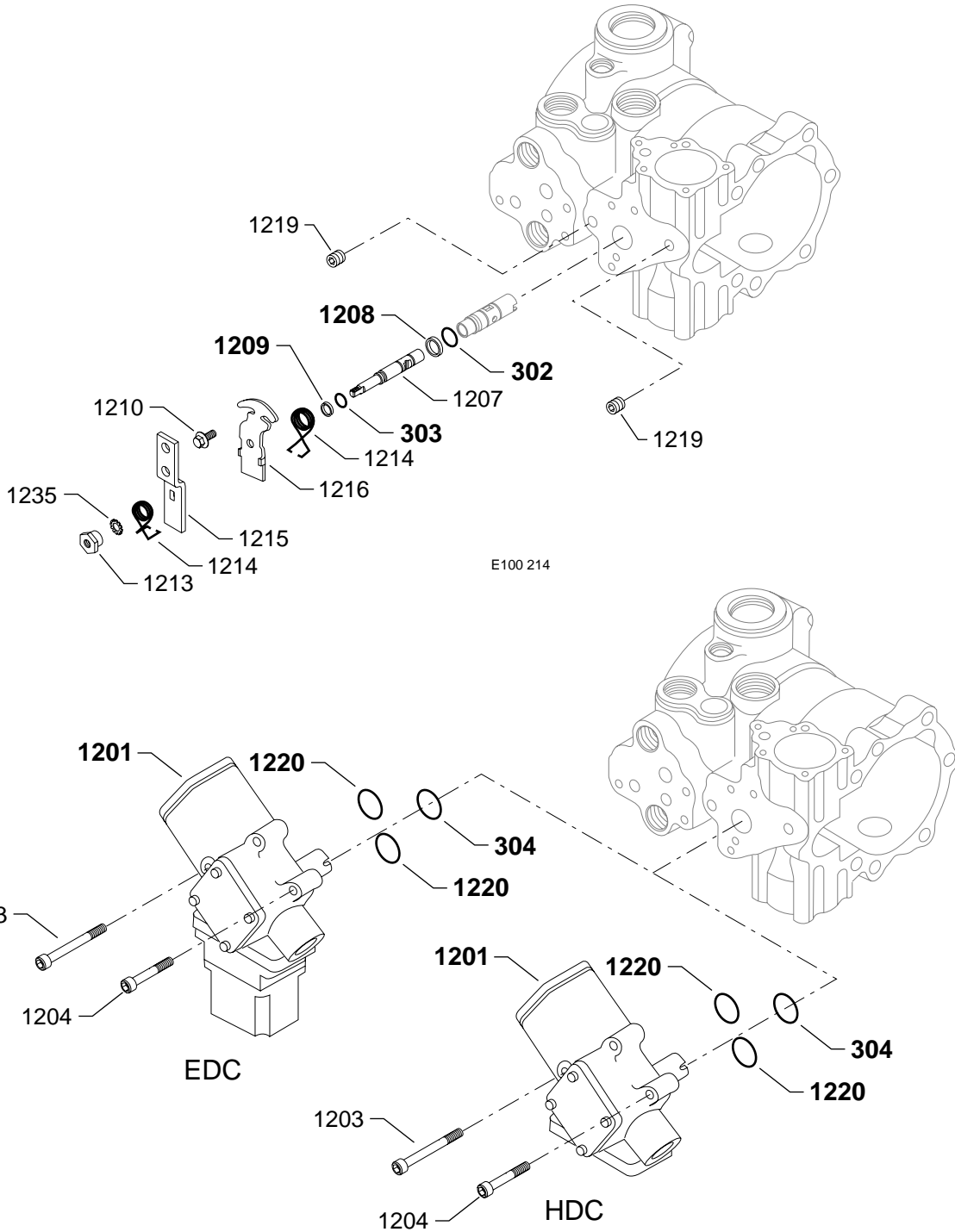
* Refer to Service Bulletin SB-99005

Control

<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
AT	A	95-24 →	4510118	Neutral start switch kit (SB-99005)	1
	1215	95-24 →	4800153	Handle	1
	1236	95-24 →	4700033	Neutral start switch	1
AU	A	95-24 →	4510154	Neutral start switch kit (SB-99005)	1
	1215	95-24 →	4800086-0002	Handle	1
	1236	95-24 →	503545	Neutral start switch	1

Bold Items indicate recommended parts to be stocked for servicing

M46 Variable Displacement Pump



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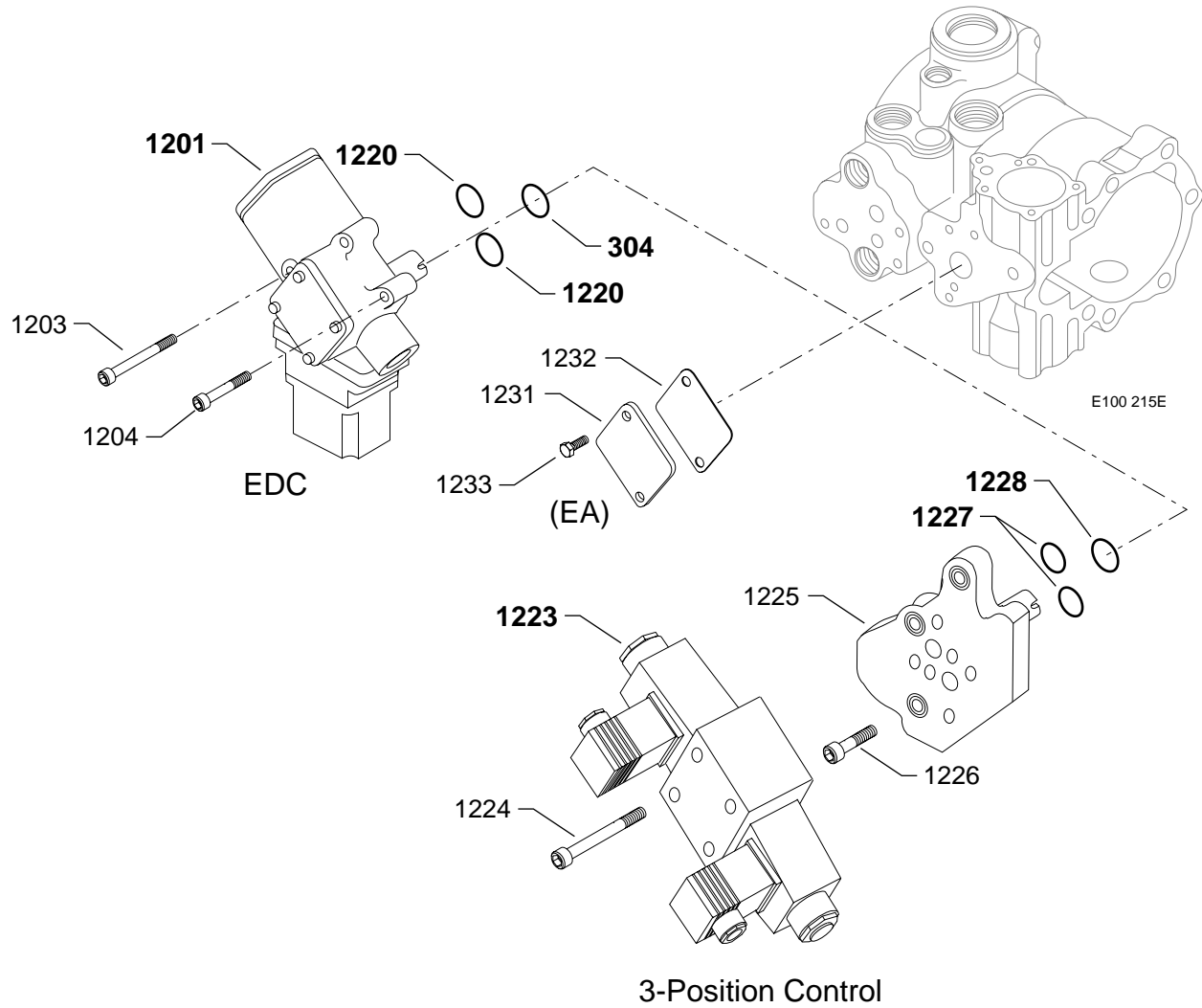


Control

Order Code	Item	Date Code Begin → End	Part Number	Description	Qty. per Model/Kit
AY	302	97-21 →	9004100-0160	O-ring	1
	303	97-21 →	9004100-0120	O-ring	1
	1207	97-21 →	4460906	Spool (SB-9740)	1
	1208	97-21 →	9006110-0160	Back up ring	1
	1209	97-21 →	9006110-0120	Back up ring	1
	1210	97-21 →	9007276-0123	Screw	1
	1213	97-21 →	4460926	Control handle spring retainer	1
	1214	97-21 →	4800908	Neutral return spring	2
	1215	97-21 →	4800086-0002	Handle	1
	1216	97-21 →	4800084	Neutral return bracket	1
	1219	97-21 →	9005001-1200	Pipe plug	2
	1235	97-21 →	9009660-3100	Toothlock washer	1
	BA	304	98-33 →	9004101-1190	O-ring, for HDC (SB-9852)
"		85-37 → 98-32	9004100-0210	O-ring, for HDC	1
1201		85-37 →	MCV108C3011	HDC (SB-9852 & SB-9701)	1
1203		85-37 →	9007300-2532	Screw	2
1204		85-37 →	9007300-2512	Screw	2
1220		85-37 →	9004101-0140	O-ring	2
BB	304	98-33 →	9004101-1190	O-ring, for HDC (SB-9852)	1
	"	90-17 → 98-32	9004100-0210	O-ring, for HDC	1
	1201	90-17 →	MCV108C3014	HDC (SB-9852 & SB-9701)	1
	1203	90-17 →	9007300-2532	Screw	2
	1204	90-17 →	9007300-2512	Screw	2
	1220	90-17 →	9004101-0140	O-ring	2
BC	304	98-33 →	9004101-1190	O-ring, for HDC (SB-9852)	1
	"	90-17 → 98-32	9004100-0210	O-ring, for HDC	1
	1201	90-17 →	MCV108C3015	HDC (SB-9852 & SB-9701)	1
	1203	90-17 →	9007300-2532	Screw	2
	1204	90-17 →	9007300-2512	Screw	2
	1220	90-17 →	9004101-0140	O-ring	2
CA	Replaced by 'CB' (SB-8901)				
CB	304	98-31 →	9004101-1190	O-ring, for EDC (SB-9852)	1
	"	85-37 → 98-30	9004100-0210	O-ring, for EDC	1
	1201	85-37 →	MCV105C3022	EDC (SB-9852, -9701, -8901)	1
	1203	85-37 →	9007300-2532	Screw	2
	1204	85-37 →	9007300-2512	Screw	2
	1220	85-37 →	9004101-0140	O-ring	2
CC	Replaced by 'CD' (SB-8901)				
CD	304	98-31 →	9004101-1190	O-ring, for EDC (SB-9852)	1
	"	85-37 → 98-30	9004100-0210	O-ring, for EDC	1
	1201	85-37 →	MCV105C3026	EDC (SB-9852, -9701, -8901)	1
	1203	85-37 →	9007300-2532	Screw	2
	1204	85-37 →	9007300-2512	Screw	2
	1220	85-37 →	9004101-0140	O-ring	2

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M46 Variable Displacement Pump



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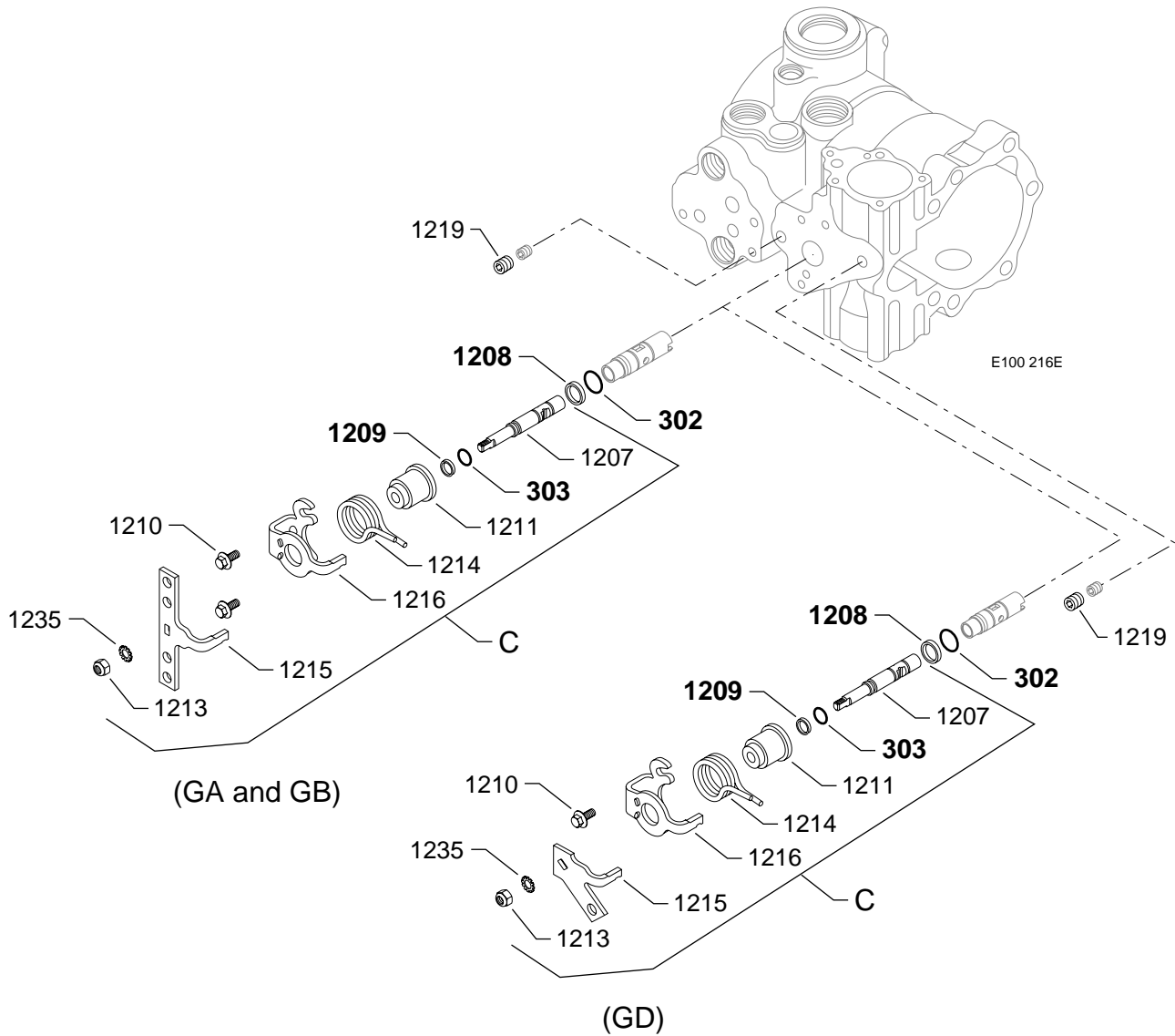


Control

Order Code	Item	Date Code Begin → End	Part Number	Description	Qty. per Model/Kit
CE	304	98-31 →	9004101-1190	O-ring, for EDC (SB-9852)	1
	"	85-37 → 98-30	9004100-0210	O-ring, for EDC	1
	1201	85-37 →	MCV105C3023	EDC (SB-9852, -9701, -8901)	1
	1203	85-37 →	9007300-2532	Screw	2
	1204	85-37 →	9007300-2512	Screw	2
	1220	85-37 →	9004101-0140	O-ring	2
CG	304	98-31 →	9004101-1190	O-ring, for EDC (SB-9852)	1
	"	85-37 → 98-30	9004100-0210	O-ring, for EDC	1
	1201	85-37 →	MCV105C3027	EDC (SB-9852, -9701, -8901)	1
	1203	85-37 →	9007300-2532	Screw	2
	1204	85-37 →	9007300-2512	Screw	2
	1220	85-37 →	9004101-0140	O-ring	2
CH	304	98-31 →	9004101-1190	O-ring, for EDC (SB-9852)	1
	"	94-23 → 98-30	9004100-0210	O-ring, for EDC	1
	1201	94-23 →	MCV105C3046	EDC (SB-9852)	1
	1203	94-23 →	9007300-2532	Screw	2
	1204	94-23 →	9007300-2512	Screw	2
	1220	94-23 →	9004101-0140	O-ring	2
CM	304	99-21 →	9004101-1190	O-ring, for EDC	1
	1201	99-21 →	MCV105C3028	EDC	1
	1203	99-21 →	9007300-2532	Screw	2
	1204	99-21 →	9007300-2512	Screw	2
	1220	99-21 →	9004101-0140	O-ring	2
CN	304	99-21 →	9004101-1190	O-ring, for EDC	1
	1201	99-21 →	MCV105C3029	EDC	1
	1203	99-21 →	9007300-2532	Screw	2
	1204	99-21 →	9007300-2512	Screw	2
	1220	99-21 →	9004101-0140	O-ring	2
DA	1223	91-07 →	9700873	Solenoid vale, 12 volt	1
	1224	91-07 →	9007315-0507	Screw	4
	1225	91-07 →	4460590	Manifold assembly	1
	1226	91-07 →	9007300-2510	Screw	3
	1227	91-07 →	9004101-0140	O-ring	2
	1228	91-07 →	9004100-0200	O-ring	1
DB	1223	91-07 →	9700918	Solenoid vale, 24 volt	1
	1224	91-07 →	9007315-0507	Screw	4
	1225	91-07 →	4460590	Manifold assembly	1
	1226	91-07 →	9007300-2510	Screw	3
	1227	91-07 →	9004101-0140	O-ring	2
	1228	91-07 →	9004100-0200	O-ring	1
EA	1231	91-07 →	4460379	Cover plate	1
	1232	91-07 →	4460380	Cover plate gasket	1
	1233	91-07 →	9007200-2508	Screw	2

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M46 Variable Displacement Pump



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Common MDC Parts

<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
	302	97-43 →	9004100-0160	O-ring	1
	303	97-43 →	9004100-0120	O-ring	1
	1208	97-43 →	9006110-0160	Back up ring	1
	1209	97-43 →	9006110-0120	Back up ring	1
	1213	97-43 →	9003575-0102	Lock nut	1
	1219	97-43 →	9005001-1200	Pipe plug	2
	1235	97-43 →	9009660-3100	Toothlock washer	1

Control

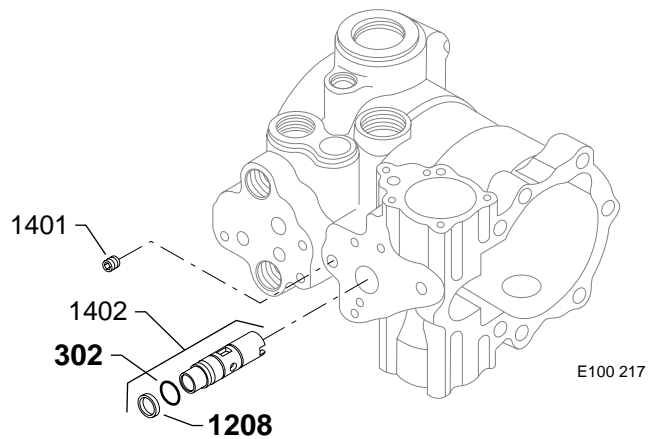
<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
GA	C	97-43 →	4510308	Heavy return spring control kit	1
	1207	97-43 →	4460960	Spool	1
	1210	97-43 →	9007276-0123	Screw	2
	1211	97-43 →	4461080	Spring guide (SB-9836 & SB-99042)	1
	1214	97-43 →	4461061	Neutral return spring (SB-99042)	1
	1215	97-43 →	4461065	Handle (SB-99042)	1
	1216	97-43 →	4461063	Neutral return bracket (SB-99042)	1
GB	C	97-43 →	4510185	Heavy return spring control kit	1
	1207	97-43 →	4460974	Spool, metered	1
	1210	97-43 →	9007276-0123	Screw	2
	1211	97-43 →	4461080	Spring guide (SB-9836 & SB-99042)	1
	1214	97-43 →	4461061	Neutral return spring (SB-99042)	1
	1215	97-43 →	4461065	Handle (SB-99042)	1
	1216	97-43 →	4461063	Neutral return bracket (SB-99042)	1
GD	C	97-43 →	4510309	22 in. lb. return spring control kit	1
	1207	97-43 →	4460974	Spool, metered	1
	1210	97-43 →	9007276-0123	Screw	1
	1211	97-43 →	4461080	Spring guide (SB-9836 & SB-99042)	1
	1214	97-43 →	4461060	Neutral return spring (SB-99042)	1
	1215	97-43 →	4461067	Handle, 38 degree (SB-99042)	1
	1216	97-43 →	4461064	Neutral return bracket (SB-9868)	1

Control Handle Position

<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
A				Not Applicable (no control handle)	
B				Both up and down	
D				Down	
U				Up	

Bold Items indicate recommended parts to be stocked for servicing

M46 Variable Displacement Pump



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Common Parts

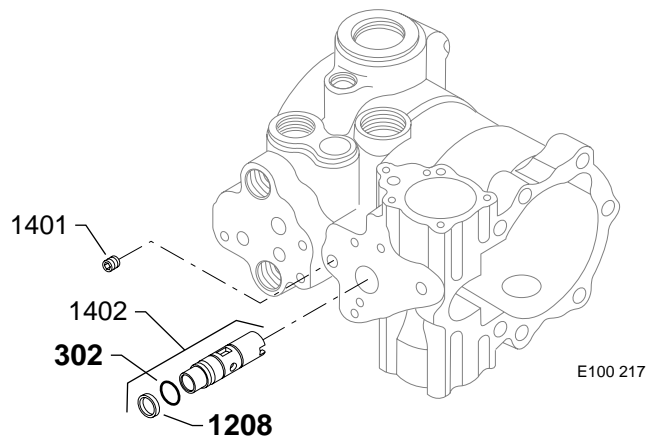
<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
	302	84-31 →	9004100-0160	O-ring	1
	1208	84-31 →	9006110-0160	Back up ring	1

Control Orifice

<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
AA	1401	86-14 →	4800155-0006	Orifice/screen, .031"	1
	1402	86-14* →	4510160	Sleeve assembly, .031" (SB-9701)	1
	"	*Also replace control spool with p/n 4460468 if manufacturing date is 86-14 thru 87-31			
	"	84-31 → 86-13	4800092-0003	Sleeve	1
AB	1401	86-14 →	4800155-0006	Orifice/screen, .031"	1
	1402	86-14* →	4510158	Sleeve assembly, .036" (SB-9701)	1
	"	*Also replace control spool with p/n 4460468 if manufacturing date is 86-14 thru 87-31			
	"	84-31 → 86-13	4800092-0005	Sleeve	1
AD	1401	86-14 →	4800155-0006	Orifice/screen, .031"	1
	1402	86-14* →	4510159	Sleeve assembly, .046" (SB-9701)	1
	"	*Also replace control spool with p/n 4460468 if manufacturing date is 86-14 thru 87-31			
	"	84-31 → 86-13	4800092-0002	Sleeve	1
AF	1401	88-33 →	4800155-0006	Orifice/screen, .031"	1
	1402	88-33 →	4510157	Sleeve assembly, .250" (SB-9701)	1
BA	1401	86-14 →	4800155-0001	Orifice/screen, .036"	1
	1402	86-14* →	4510160	Sleeve assembly, .031" (SB-9701)	1
	"	*Also replace control spool with p/n 4460468 if manufacturing date is 86-14 thru 87-31			
	"	84-31 → 86-13	4800092-0003	Sleeve	1
BB	1401	86-14 →	4800155-0001	Orifice/screen, .036"	1
	1402	86-14* →	4510158	Sleeve assembly, .036" (SB-9701)	1
	"	*Also replace control spool with p/n 4460468 if manufacturing date is 86-14 thru 87-31			
	"	84-31 → 86-13	4800092-0005	Sleeve	1
BD	1401	86-14 →	4800155-0001	Orifice/screen, .036"	1
	1402	86-14* →	4510159	Sleeve assembly, .046" (SB-9701)	1
	"	*Also replace control spool with p/n 4460468 if manufacturing date is 86-14 thru 87-31			
	"	84-31 → 86-13	4800092-0002	Sleeve	1
BF	1401	86-14 →	4800155-0001	Orifice/screen, .036"	1
	1402	86-14 →	4510157	Sleeve assembly, .250" (SB-9701)	1
	"	*Also replace control spool with p/n 4460468 if manufacturing date is 86-14 thru 87-31			
	"	84-31 → 86-13	4800092-0004	Sleeve	1
BP	1401	98-16 →	4800155-0001	Orifice/screen, .036"	1
	1402	98-16 →	4461007	Sleeve assembly, .062"	1
CA	1401	86-14 →	4800155-0004	Orifice/screen, .041"	1
	1402	86-14* →	4510160	Sleeve assembly, .031" (SB-9701)	1
	"	*Also replace control spool with p/n 4460468 if manufacturing date is 86-14 thru 87-31			
	"	84-31 → 86-13	4800092-0003	Sleeve	1

Bold Items indicate recommended parts to be stocked for servicing

M46 Variable Displacement Pump



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



Common Parts

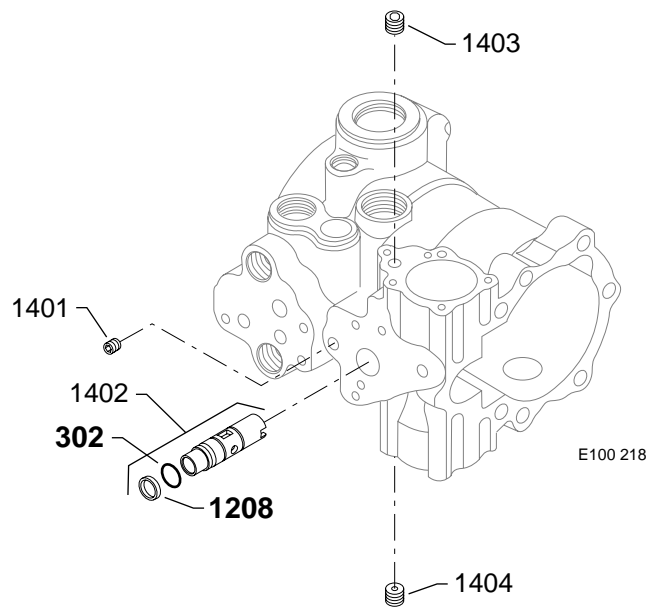
Order Code	Item	Date Code Begin → End	Part Number	Description	Qty. per Model/Kit
	302	84-31 →	9004100-0160	O-ring	1
	1208	84-31 →	9006110-0160	Back up ring	1

Control Orifice

Order Code	Item	Date Code Begin → End	Part Number	Description	Qty. per Model/Kit
CB	1401	86-14 →	4800155-0004	Orifice/screen, .041"	1
	1402	86-14* →	4510158	Sleeve assembly, .036" (SB-9701)	1
	"	*Also replace control spool with p/n 4460468 if manufacturing date is 86-14 thru 87-31 84-31 → 86-13	4800092-0005	Sleeve	1
CD	1401	86-14 →	4800155-0004	Orifice/screen, .041"	1
	1402	86-14* →	4510159	Sleeve assembly, .046" (SB-9701)	1
	"	*Also replace control spool with p/n 4460468 if manufacturing date is 86-14 thru 87-31 84-31 → 86-13	4800092-0002	Sleeve	1
CF	1401	86-14 →	4800155-0004	Orifice/screen, .041"	1
	1402	86-14 →	4510157	Sleeve assembly, .250" (SB-9701)	1
	"	*Also replace control spool with p/n 4460468 if manufacturing date is 86-14 thru 87-31 84-31 → 86-13	4800092-0004	1	1
DA	1401	86-14 →	4800155-0002	Orifice/screen, .046"	1
	1402	86-14* →	4510160	Sleeve assembly, .031" (SB-9701)	1
	"	*Also replace control spool with p/n 4460468 if manufacturing date is 86-14 thru 87-31 84-31 → 86-13	4800092-0003	Sleeve	1
DB	1401	86-14 →	4800155-0002	Orifice/screen, .046"	1
	1402	86-14* →	4510158	Sleeve assembly, .036" (SB-9701)	1
	"	*Also replace control spool with p/n 4460468 if manufacturing date is 86-14 thru 87-31 84-31 → 86-13	4800092-0005	Sleeve	1
DD	1401	86-14 →	4800155-0002	Orifice/screen, .046"	1
	1402	86-14* →	4510159	Sleeve assembly, .046" (SB-9701)	1
	"	*Also replace control spool with p/n 4460468 if manufacturing date is 86-14 thru 87-31 84-31 → 86-13	4800092-0002	Sleeve	1
DF	1401	86-14 →	4800155-0002	Orifice/screen, .046"	1
	1402	86-14 →	4510157	Sleeve assembly, .250" (SB-9701)	1
	"	*Also replace control spool with p/n 4460468 if manufacturing date is 86-14 thru 87-31 84-31 → 86-13	4800092-0004	Sleeve	1
EA	1401	86-14 →	4800155-0003	Orifice/screen, .054"	1
	1402	86-14* →	4510160	Sleeve assembly, .031" (SB-9701)	1
	"	*Also replace control spool with p/n 4460468 if manufacturing date is 86-14 thru 87-31 84-31 → 86-13	4800092-0003	Sleeve	1
EB	1401	86-14 →	4800155-0003	Orifice/screen, .054"	1
	1402	86-14* →	4510158	Sleeve assembly, .036" (SB-9701)	1
	"	*Also replace control spool with p/n 4460468 if manufacturing date is 86-14 thru 87-31 84-31 → 86-13	4800092-0005	Sleeve	1

Bold Items indicate recommended parts to be stocked for servicing

M46 Variable Displacement Pump



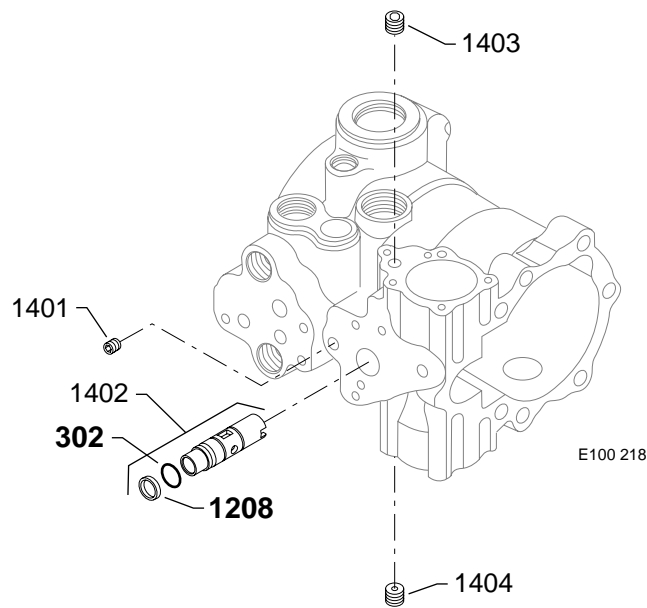
**Enlarged Bold type item numbers
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Control Orifice

Order Code	Item	Date Code Begin → End	Part Number	Description	Qty. per Model/Kit
ED	302	84-31 →	9004100-0160	O-ring	1
	1208	84-31 →	9006110-0160	Back up ring	1
	1401	86-14 →	4800155-0003	Orifice/screen, .054"	1
	1402	86-14* →	4510159	Sleeve assembly, .046" (SB-9701)	1
	"	*Also replace control spool with p/n 4460468 if manufacturing date is 86-14 thru 87-31 84-31 → 86-13	4800092-0002	Sleeve	1
EF	302	84-31 →	9004100-0160	O-ring	1
	1208	84-31 →	9006110-0160	Back up ring	1
	1401	86-14 →	4800155-0003	Orifice/screen, .054"	1
	1402	86-14 →	4510157	Sleeve assembly, .250" (SB-9701)	1
	"	*Also replace control spool with p/n 4460468 if manufacturing date is 86-14 thru 87-31 84-31 → 86-13	4800092-0004	1	1
FA	302	84-31 →	9004100-0160	O-ring	1
	1208	84-31 →	9006110-0160	Back up ring	1
	1401	86-14 →	4800155-0007	Orifice/screen, .156"	1
	1402	86-14* →	4510160	Sleeve assembly, .031" (SB-9701)	1
	"	*Also replace control spool with p/n 4460468 if manufacturing date is 86-14 thru 87-31 84-31 → 86-13	4800092-0003	Sleeve	1
FB	302	84-31 →	9004100-0160	O-ring	1
	1208	84-31 →	9006110-0160	Back up ring	1
	1401	86-14 →	4800155-0007	Orifice/screen, .156"	1
	1402	86-14* →	4510158	Sleeve assembly, .036" (SB-9701)	1
	"	*Also replace control spool with p/n 4460468 if manufacturing date is 86-14 thru 87-31 84-31 → 86-13	4800092-0005	Sleeve	1
FD	302	84-31 →	9004100-0160	O-ring	1
	1208	84-31 →	9006110-0160	Back up ring	1
	1401	86-14 →	4800155-0007	Orifice/screen, .156"	1
	1402	86-14* →	4510159	Sleeve assembly, .046" (SB-9701)	1
	"	*Also replace control spool with p/n 4460468 if manufacturing date is 86-14 thru 87-31 84-31 → 86-13	4800092-0003	Sleeve	1
FF	302	84-31 →	9004100-0160	O-ring	1
	1208	84-31 →	9006110-0160	Back up ring	1
	1401	86-14 →	4800155-0007	Orifice/screen, .156"	1
	1402	86-14 →	4510157	Sleeve assembly, .250" (SB-9701)	1
	"	*Also replace control spool with p/n 4460468 if manufacturing date is 86-14 thru 87-31 84-31 → 86-13	4800092-0004	Sleeve	1
GG	1401	84-31 →	4800155-0007	Orifice/screen, .156"	1
	1403	84-31 →	4460333-0003	Orifice, .055"	1
	1404	84-31 →	4460333-0003	Orifice, .055"	1
GJ	1401	84-31 →	4800155-0007	Orifice/screen, .156"	1
	1403	84-31 →	4460333-0003	Orifice, .055"	1
HH	1401	84-31 →	4800155-0007	Orifice/screen, .156"	1
	1403	84-31 →	4460333-0001	Orifice, .037"	1
	1404	84-31 →	4460333-0001	Orifice, .037"	1

M46 Variable Displacement Pump



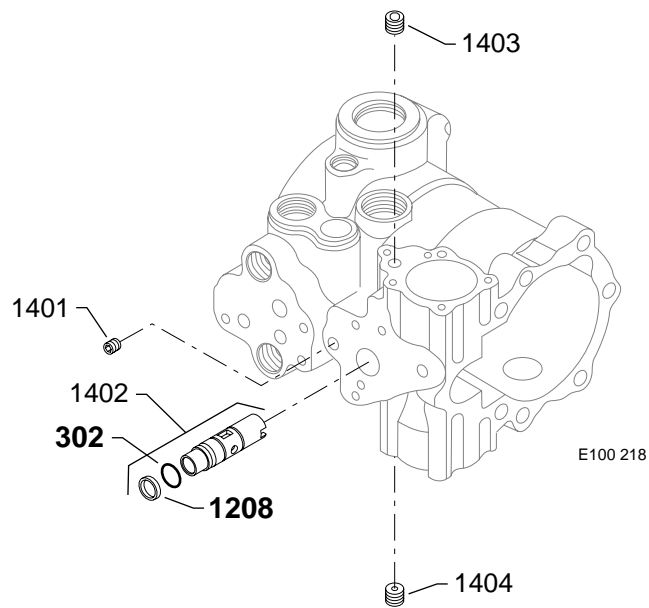
**Enlarged Bold type item numbers
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Control Orifice

<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
JJ	1401	84-31 →	4800155-0007	Orifice/screen, .156"	1
LA	1401	89-01 →	4800155-0011	Orifice/screen, .028"	1
	1402	89-01 →	4510160	Sleeve assembly (SB-9701)	1
PF	1401	87-32 →	4800155-0005	Orifice/screen, .062"	1
	1402	87-32 →	4510157	Sleeve assembly (SB-9701)	1
RR	1401	84-31 →	4800155-0007	Orifice/screen, .156"	1
	1403	84-31 →	4460333-0005	Orifice, .031"	1
	1404	84-31 →	4460333-0005	Orifice, .031"	1
SA	1401	84-31 →	9005001-0600	Pipe plug	1
	1402	87-31 →	4510160	Sleeve assembly (SB-9701)	1
SS	1401	84-31 →	4800155-0007	Orifice/screen, .156"	1
	1403	84-31 →	4460333-0002	Orifice, .046"	1
	1404	84-31 →	4460333-0002	Orifice, .046"	1
TT	1401	84-31 →	4800155-0007	Orifice/screen, .156"	1
	1403	84-31 →	4460333-0007	Orifice, .028"	1
	1404	84-31 →	4460333-0007	Orifice, .028"	1
UU	1401	92-50 →	4800155-0007	Orifice/screen, .156"	1
	1403	92-50 →	4460691	Orifice, .024"	1
	1404	92-50 →	4460691	Orifice, .024"	1
VV	1401	98-45 →	4800155-0007	Orifice/screen, .156"	1
	1403	98-45 →	4461047	Orifice, .034"	1
	1404	98-45 →	4461047	Orifice, .034"	1
YG	1401	97-24 →	4800155-0011	Orifice/screen, .028"	1
	1402	97-24 →	4510159	Sleeve assembly	1
	1403	97-24 →	4460333-0003	Orifice, .054"	1
	1404	97-24 →	4460333-0003	Orifice, .054"	1
YH	1401	98-04 →	4800155-0006	Orifice/screen, .031"	1
	1402	98-04 →	4510160	Sleeve assembly	1
	1403	98-04 →	4460333-0007	Orifice, .028"	1
	1404	98-04 →	4460333-0007	Orifice, .028"	1
ZA	1401	96-36 →	4800155-0001	Orifice/screen, .036"	1
ZB	1401	94-43 →	4800155-0002	Orifice/screen, .046"	1
	1403	94-43 →	4460333-0001	Orifice, .036"	1
	1404	94-43 →	4460333-0001	Orifice, .036"	1
ZD	1401	94-09 →	4800155-0012	Orifice/screen, .020"	1
	1403	94-09 →	4460333-0005	Orifice, .031"	1
	1404	94-09 →	4460333-0005	Orifice, .031"	1
ZE	1401	97-10 →	4800155-0003	Orifice/screen, .054	1
	1402	97-10 →	4510159	Sleeve assembly (SB-9701)	1
	1403	97-10 →	4460333-0002	Orifice, .046"	1
	1404	97-10 →	4460333-0002	Orifice, .046"	1

M46 Variable Displacement Pump



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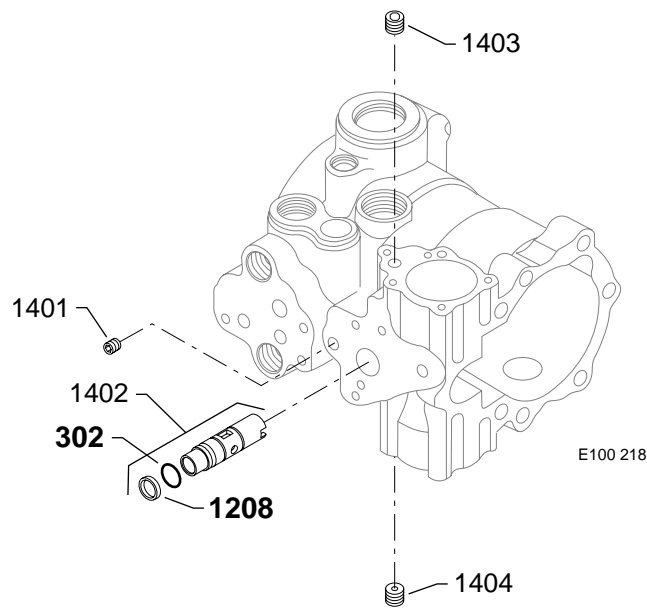


Control Orifice

<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
ZF	1401	92-42 →	4800155-0006	Orifice/screen, .031"	1
	1403	92-42 →	4460333-0005	Orifice, .031"	1
	1404	92-42 →	4460333-0005	Orifice, .031"	1
ZG	1401	92-31 →	4800155-0002	Orifice/screen, .046"	1
	1403	92-31 →	4460333-0007	Orifice, .028"	1
	1404	92-31 →	4460333-0007	Orifice, .028"	1
ZH	1401	91-22 →	4800155-0012	Orifice/screen, .020"	1
	1403	91-22 →	4460333-0002	Orifice, .046"	1
	1404	91-22 →	4460333-0002	Orifice, .046"	1
ZJ	1401	90-42 →	4800155-0007	Orifice/screen, .156"	1
	1402	90-42 →	4510157	Sleeve assembly	1
	1403	90-42 →	4460333-0005	Orifice, .031"	1
	1404	90-42 →	4460333-0005	Orifice, .031"	1
ZK	1401	90-35 →	4800155-0003	Orifice/screen, .054"	1
	1402	90-35 →	4510159	Sleeve assembly	1
	1403	90-35 →	4460333-0001	Orifice, .037"	1
	1404	90-35 →	4460333-0001	Orifice, .037"	1
ZL	1401	90-31 →	4800155-0004	Orifice/screen, .041"	1
	1402	90-31 →	4510160	Sleeve assembly (SB-9701)	1
	1403	90-31 →	4460333-0005	Orifice, .031"	1
	1404	90-31 →	4460333-0005	Orifice, .031"	1
ZM	1401	90-26 →	4800155-0001	Orifice/screen, .036"	1
	1402	90-26 →	4510160	Sleeve assembly (SB-9701)	1
	1403	90-26 →	4460333-0005	Orifice, .031"	1
	1404	90-26 →	4460333-0005	Orifice, .031"	1
ZP	1401	89-13 →	4800155-0001	Orifice/screen, .036"	1
	1402	89-13 →	4510157	Sleeve assembly (SB-9701)	1
	1403	89-13 →	4460333-0006	Plug	1
	1404	89-13 →	4460333-0006	Plug	1
ZR	1401	89-02 →	4800155-0006	Orifice/screen, .031"	1
	1402	89-02 →	4510159	Sleeve assembly (SB-9701)	1
	1403	89-02 →	4460333-0005	Orifice, .031"	1
	1404	89-02 →	4460333-0005	Orifice, .031"	1
ZS	1401	88-09 →	4800155-0007	Orifice/screen, .156"	1
	1402	88-09 →	4510157	Sleeve assembly (SB-9701)	1
	1403	88-09 →	4460333-0002	Orifice, .046"	1
	1404	88-09 →	4460333-0002	Orifice, .046"	1
ZT	1401	88-02 →	4800155-0003	Orifice/screen, .054"	1
	1402	88-02 →	4510159	Sleeve assembly (SB-9701)	1
	1403	88-02 →	4460333-0007	Orifice, .028"	1
	1404	88-02 →	4460333-0007	Orifice, .028"	1

Bold Items indicate recommended parts to be stocked for servicing

M46 Variable Displacement Pump



**Enlarged Bold type item numbers
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stocked for servicing**

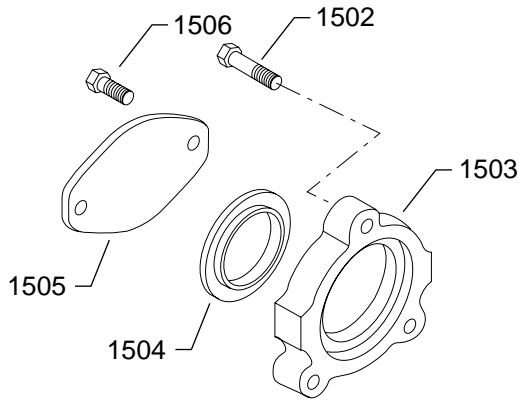


Control Orifice

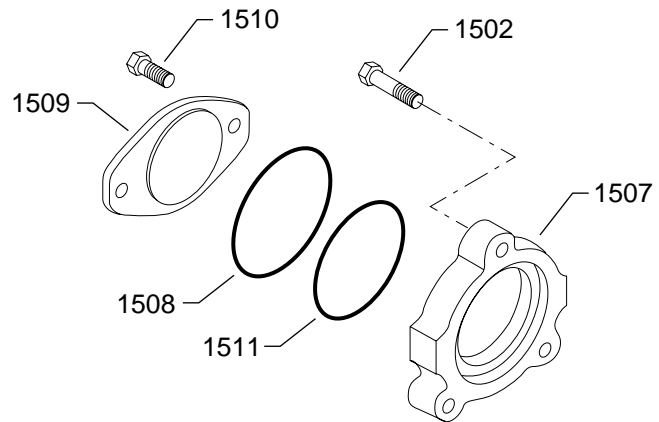
<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
ZU	1401	88-02 →	4800155-0007	Orifice/screen, 156	1
	1402	88-02 →	4510159	Sleeve assembly (SB-9701)	1
	1403	88-02 →	4460333-0007	Orifice, .028"	1
	1404	88-02 →	4460333-0007	Orifice, .028"	1
ZV	1401	87-50 →	4800155-0006	Orifice/screen, .031"	1
	1402	87-50 →	4510160	Sleeve assembly (SB-9701)	1
	1403	87-50 →	4460333-0003	Orifice, .055"	1
	1404	87-50 →	4460333-0005	Orifice, .031"	1
ZW	1401	87-50 →	9005001-0600	Pipe plug	1
	1402	87-50 →	4510159	Sleeve assembly (SB-9701)	1
	1403	87-50 →	4460333-0006	Plug	1
	1404	87-50 →	4460333-0006	Plug	1
ZX	1401	96-37 →	4800155-0004	Orifice/screen, .041"	1
	1402	96-37 →	4510159	Sleeve assembly (SB-9701)	1
	1403	96-37 →	4460333-0003	Orifice, .054"	1
	1404	96-37 →	4460333-0003	Orifice, .054"	1
ZY	1401	87-35 →	4800155-0006	Orifice/screen, .031"	1
	1402	87-35 →	4510160	Sleeve assembly (SB-9701)	1
	1403	87-35 →	4460333-0005	Orifice, .031"	1
	1404	87-35 →	4460333-0005	Orifice, .031"	1
ZZ	1401	87-22 →	4800155-0006	Orifice/screen, .031"	1
	1402	87-22 →	4510160	Sleeve assembly (SB-9701)	1
	1403	87-22 →	4460333--0005	Orifice, .031"	1

Bold Items indicate recommended parts to be stocked for servicing

M46 Variable Displacement Pump

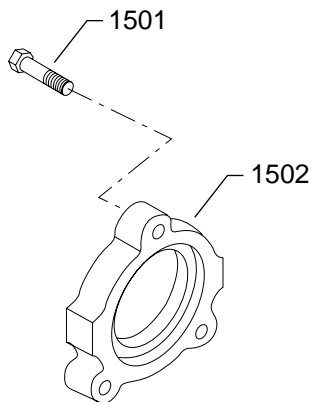


(A, D, H, J)

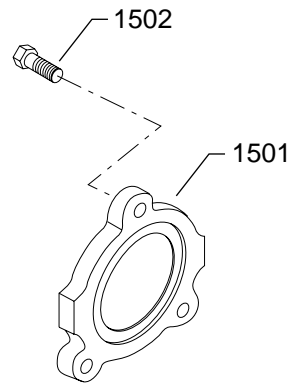


(B)

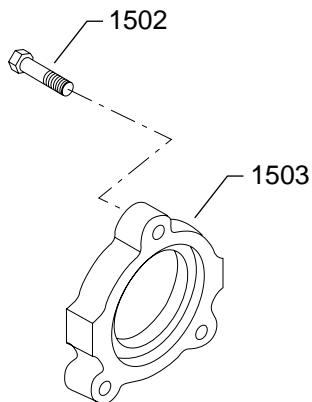
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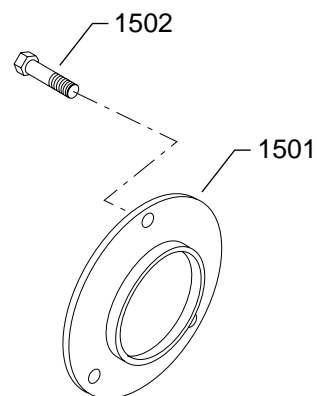
(C)



(G)



(K & L)



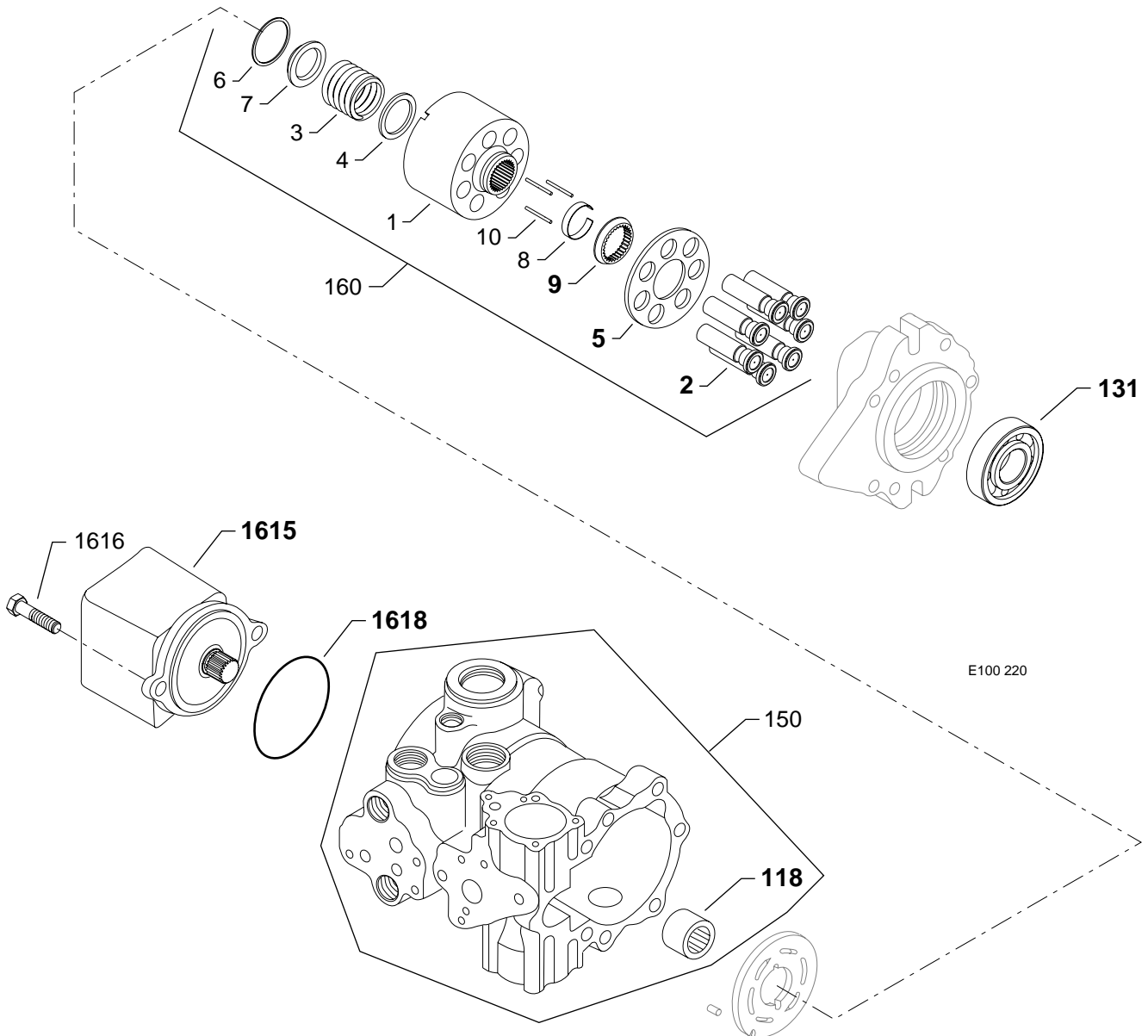
(R)



Auxiliary Mounting Pad

<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
A	1502	86-18 →	9007200-3716	Screw	3
	1503	86-18 →	4460405	Adapter flange	1
	1504	89-43 →	4800482	A pad seal (SB-8921 & SB-9519)	1
	1505	89-43 →	4460586	Cover plate (SB-8921)	1
	1506	86-18 →	9007200-3716	Screw	2
	B	1502	85-37 →	9007200-3716	Screw
1507		86-29 →	4460433	Adapter flange	1
1508		86-29 →	9004100-0440	O-ring	1
1509		85-37 →	4460370	Cover plate	1
1510		85-37 →	9007200-5022	Screw	2
1511		85-37 →	9004375-0020	O-ring	1
C		1501	84-31 →	4460326	Charge pump cover
	1502	84-31 →	9007200-3716	Screw	3
D	1502	86-18 →	9007200-3716	Screw	3
	1503	86-18 →	4460405	Adapter flange	1
	1504	89-43 →	4800482	A pad seal (SB-8921 & SB-9519)	1
	1505	89-43 →	4460586	Cover plate (SB-8921)	1
	1506	86-18 →	9007200-3716	Screw	2
	G	1501	93-49 →	678904	Charge pump cover
1502		93-49 →	9007200-3710	Screw	3
H	1502	94-33 →	9007200-3716	Screw	3
	1503	94-33 →	4460744	Adapter flange	1
	1504	94-33 →	4800482	A pad seal (SB-9519)	1
	1505	94-33 →	4460586	Cover plate (SB-8921)	1
	1506	94-33 →	9007210-1006	Screw	2
	J	1502	94-33 →	9007200-3716	Screw
1503		94-33 →	4460744	Adapter flange	1
1504		94-33 →	4800482	A pad seal (SB-9519)	1
1505		94-33 →	4460586	Cover plate (SB-8921)	1
1506		94-33 →	9007210-1006	Screw	2
K		1502	95-05 →	9007200-3716	Screw
	1503	95-05 →	4460405	Adapter flange	1
L	1502	95-05 →	9007200-3716	Screw	3
	1503	95-05 →	4460405	Adapter flange	1
R	1501	96-45 →	509618	Charge pump cover	1
	1502	96-45 →	5000451	Screw	3

M46 Variable Displacement Pump



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



Common Parts

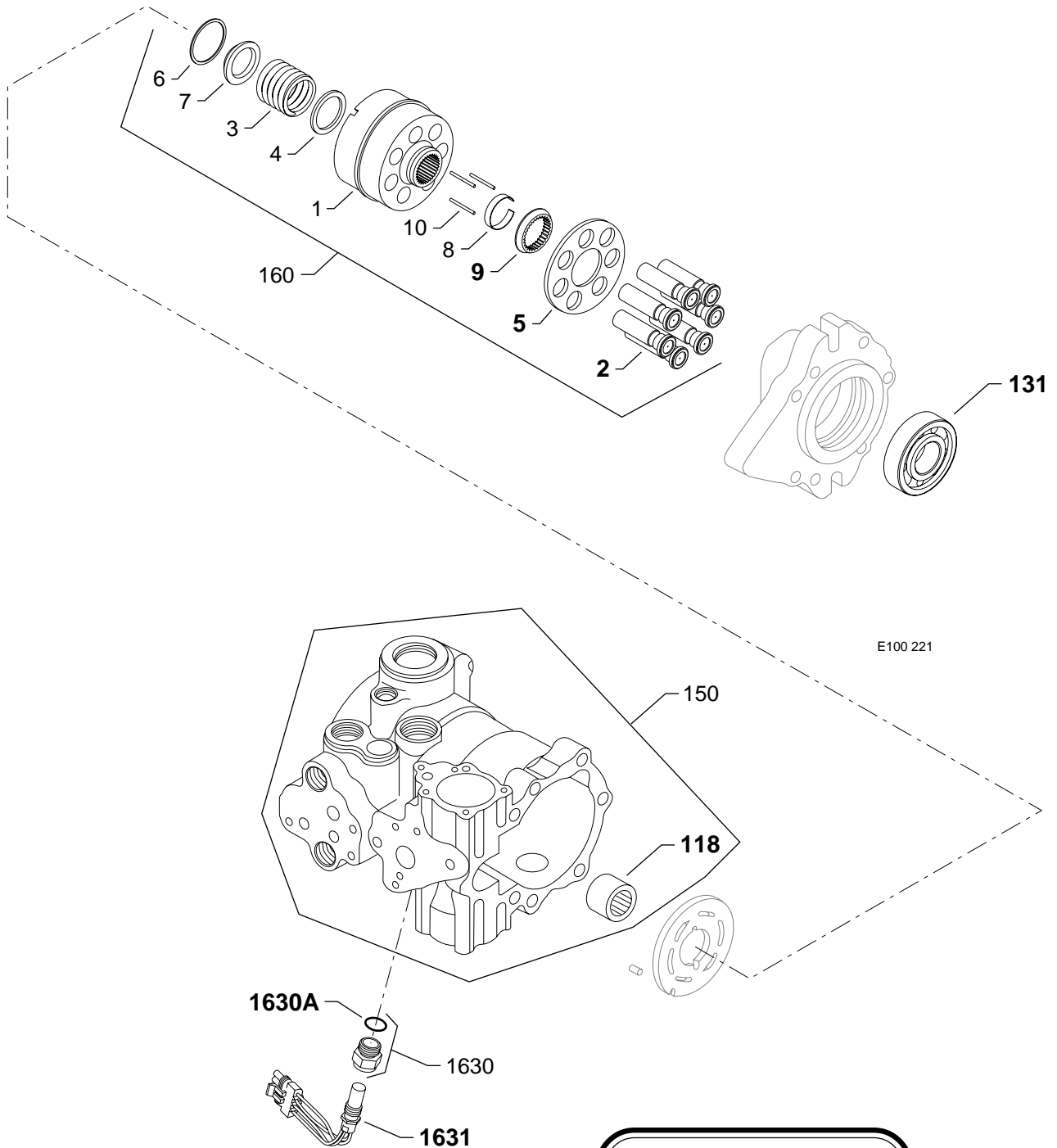
Order Code	Item	Date Code Begin → End	Part Number	Description	Qty. per Model/Kit
	1	86-18 →	4460832	Cylinder block (SB-9520)	1
	"	84-31 → 86-17	4460174	Cylinder block	1
	2	84-31 →	4461032	Piston assembly (SB-9877)	7
	3	84-31 →	4460111	Cylinder block spring	1
	4	84-31 →	9009625-0108	Washer	1
	5	84-31 →	4460009	Slipper retainer	1
	6	84-31 →	9009650-0162	Retaining ring	1
	7	84-31 →	9009625-0105	Washer	1
	8	84-31 →	4460028	Hold down pin retainer	1
	9	84-31 →	4460180	Slipper retainer guide	1
	10	84-31 →	9004875-0113	Hold down pin	3
	118	84-31 →	9001465-0010	Needle bearing	1
	150	84-31 →	4460579	Housing assembly (SB-8711 & 8724)	1
	160	86-18 →	4460890	Cylinder block kit (SB-9520)	1
	"	84-31 → 86-17	4460110	Cylinder block kit	1

Special Hardware

Order Code	Item	Date Code Begin → End	Part Number	Description	Qty. per Model/Kit
GNH	131	84-31 →	9001315-0011	Ball bearing	1
	1615	95-05 →	00111.20.130.00	Gear pump (Orientated at 180°)	1
	1616	95-05 →	9007200-3716	Screw	2
	1618	95-05 →	5000373	O-ring	1
GNM	131	84-31 →	9001315-0011	Ball bearing	1
	1615	95-05 →	B18122-00200	Gear pump (Orientated at 180°)	1
	1616	95-05 →	9007200-3716	Screw	2
	1618	95-05 →	5000373	O-ring	1
GRL	131	84-31 →	9001315-0011	Ball bearing	1
	1615	95-05 →	00111.20.130.00	Gear pump (Orientated at 0°)	1
	1616	95-05 →	9007200-3716	Screw	2
	1618	95-05 →	5000373	O-ring	1
GRM	131	84-31 →	9001315-0011	Ball bearing	1
	1615	95-05 →	00111.20.134.00	Gear pump (Orientated at 0°)	1
	1616	95-05 →	9007200-3716	Screw	2
	1618	95-05 →	5000373	O-ring	1
NNN	131	84-31 →	9001315-0011	Ball bearing	1
NNR	131	92-50 →	5000461	Roller bearing	1
NNZ			Replaced by 'NNN' (SB-9710)		

Bold Items indicate recommended parts to be stocked for servicing

M46 Variable Displacement Pump



E100 221

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



Common Parts

<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
	1	97-44 →	4461045	Cylinder block w/speed ring	1
	2	97-44 →	4461032	Piston assembly (SB-9877)	7
	3	97-44 →	4460111	Cylinder block spring	1
	4	97-44 →	9009625-0108	Washer	1
	5	97-44 →	4460009	Slipper retainer	1
	6	97-44 →	9009650-0162	Retaining ring	1
	7	97-44 →	9009625-0105	Washer	1
	8	97-44 →	4460028	Hold down pin retainer	1
	9	97-44 →	4460180	Slipper retainer guide	1
	10	97-44 →	9004875-0113	Hold down pin	3
	118	97-44 →	9001465-0010	Needle bearing	1
	150	97-44 →	4460969	Housing assembly	1
	160	97-44 →	4460891	Cylinder block kit w/speed ring	1

Special Hardware

<u>Order Code</u>	<u>Item</u>	<u>Date Code</u> <u>Begin</u> → <u>End</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model/Kit</u>
PPF	131	97-44 →	9001315-0011	Ball bearing	1
	1630	97-44 →	4800432	Speed sensor adapter assembly	1
	1630A	97-44 →	9004201-6200	O-ring	1
	1631	97-44 →	KPPF13408	Speed sensor (SB-99025)	1
PPM	131	97-44 →	9001315-0011	Ball bearing	1
	1630	97-44 →	4800432	Speed sensor adapter assembly	1
	1630A	97-44 →	9004201-6200	O-ring	1
	1631	97-44 →	KPPF13408	Speed sensor (SB-99025)	1

Bold Items indicate recommended parts to be stocked for servicing



M46 Variable Displacement Pump

Overhaul Seal Kit

	84-31 →	4510017	Overhaul seal kit, M46 PV	1
B	84-31 →	4510002	Servo piston ring kit	1
106	84-31 →	9004201-7500	O-ring	2
103	84-31 →	9004201-6200	Oring	1
141	84-31 →	9004375-0023	O-ring	1
142	84-31 →	9700864	Temper load ring	1
114	84-31 →	4460413	Servo gasket	2
115	84-31 →	9003575-0083	Seal nut	1
137	84-31 →	4460564	Front cover gasket	1
168	84-31 →	4460648	Bearing ring	2
301	84-31 →	9008000-0121	Lip seal	1
302	84-31 →	9004100-0160	O-ring	1
303	84-31 →	9004100-0120	O-ring	1
304	98-32 →	9004100-0210	O-ring	1
304	90-10 → 98-32	9004101-1190	O-ring	1
805	84-31 → 91-35	9004101-0170	O-ring	3
805	91-36 →	4460655	Filter adapter seal	1
805	91-36 →	4460656	Filter adapter seal	1
1002	84-31 →	9006110-0120	Back up ring	1
1003	84-31 →	9004100-0120	O-ring	1
1208	84-31 →	9006110-0160	Back up ring	1
1209	84-31 →	9006110-0120	Back up ring	1
1220	84-31 →	9004101-0140	O-ring	2



Notes

Service Bulletin SB-8711

PRODUCTS AFFECTED: M46 Single & Tandem Variable Displacement Pump

SUBJECT: Parts Identification

The M46 Single and Tandem Variable Displacement Pump Service Parts Manuals, 2-40608 and 2-40610, clearly define which part number cylinder block, valve plate, and housing belong to specific vintage pumps.

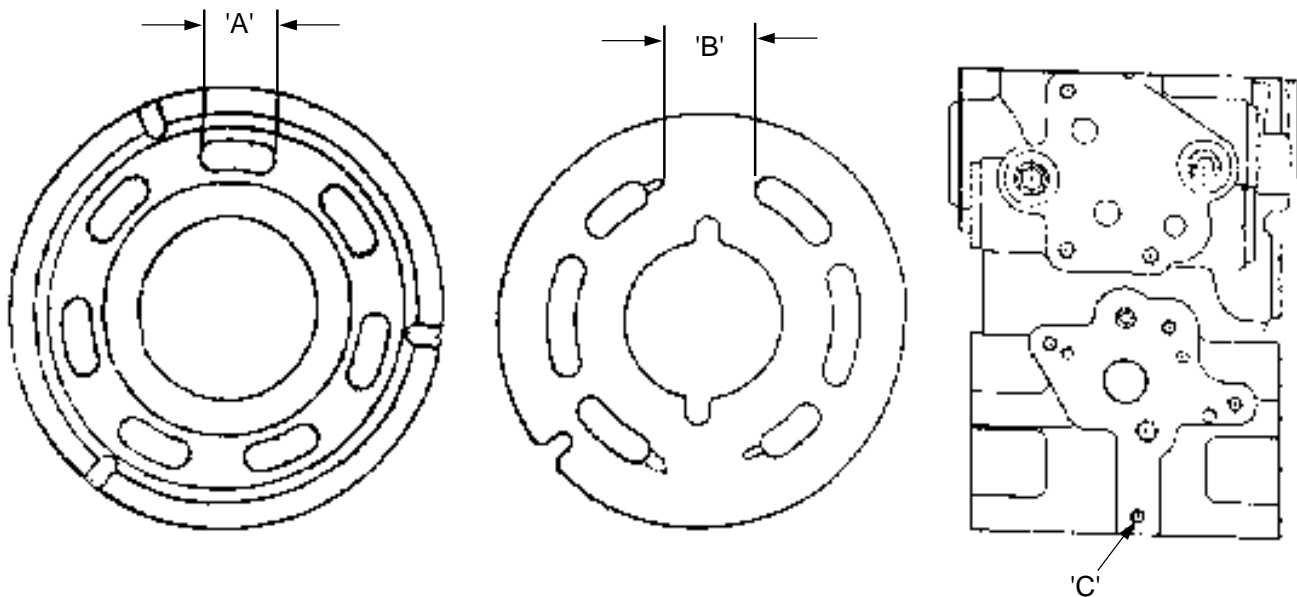
The purpose of this bulletin is to assist in easy identification of M46 cylinder blocks, valve plates, and housings, should they get “mixed up” in your stock.

IMPORTANT: For satisfactory pump efficiency, you must use the correct vintage housing, plate, and cylinder block within a given pump.

HOUSINGS: There are (2) vintages of housings, the current, which will accept EDC/HDC, and MDC, and the old version (prior to 86-14), which will accept only one or the other control. An easy housing identifier is that the current design housing has threaded hole “C”, and the pre 86-14 has no hole in that area.

CYLINDER BLOCKS: There are (2) vintages of pump cylinder blocks. On the current, P/N 4460288, “A” dimension is approximately 1” and on the older P/N 4460174, “A” dimension is approximately .7”

VALVE PLATES: There are (3) vintages of pump valve plates. “B” dimension is approximately .55” on P/N 4460108 and P/N 4460109, .9” on P/N 4460318 and P/N 4460319, and 1.01” on P/N 4460417 and P/N 4460418.



Service Bulletin SB-8711

MODELS AFFECTED:

All M46 Single and Tandem Pumps

SERIAL NUMBERS AFFECTED:

All M46 Single and Tandem Pumps

PART NUMBERS AFFECTED:

See applicable Service Parts Manuals.

PARTS DISPOSITION:

- Not Applicable
- Interchangeable
- Non-Interchangeable
- Use Parts in Stock
- Scrap Used Parts
- Return New Parts for Credit
- Order Replacement Parts
- Rework Parts in Stock
- Revise Existing Part Orders
- Scrap New Parts and Supply for Credit

DISTRIBUTION:

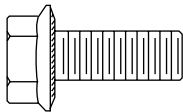
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Service Bulletin SB-8720

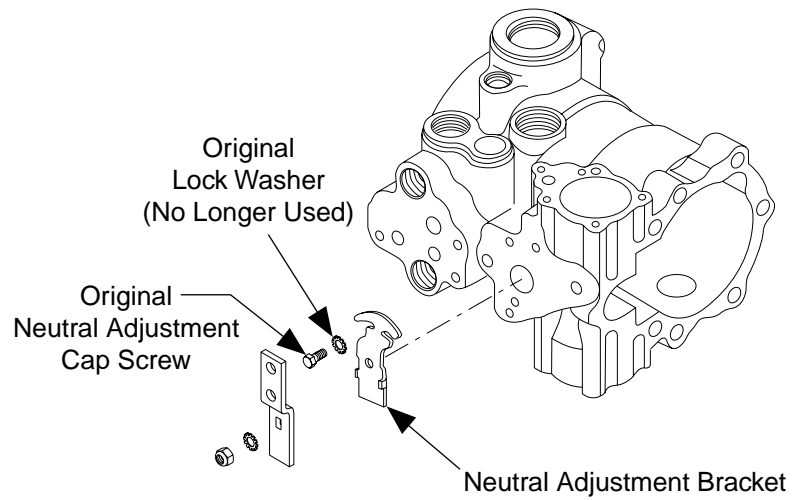
PRODUCTS AFFECTED: All M46 Variable Displacement Motors & Pumps with Mechanical Displacement Control

SUBJECT: Improved Neutral Adjustment Cap Screw

As a product improvement, Sundstrand-Sauer is changing the neutral adjustment cap screw on all M46 mechanical displacement control pumps and motors from a standard cap screw and star lock washer, to a locking flange headed cap screw. There is no washer used with the new cap screw.



General appearance of New Locking Flange Headed Cap Screw



Service Bulletin SB-8720

MODELS AFFECTED:

All M46-2xxx single pumps, M91-46xxx tandem pumps, and M46-4xxx variable motors with mechanical displacement controls

SERIAL NUMBERS AFFECTED:

New hardware incorporated at S/N 87-28-xxxxx

PART NUMBERS AFFECTED:

New cap screw is part number 9007276-0123.

PARTS DISPOSITION:

- Not Applicable
- Interchangeable
- Non-Interchangeable
- Use Parts in Stock
- Scrap Used Parts
- Return New Parts for Credit
- Order Replacement Parts
- Rework Parts in Stock
- Revise Existing Part Orders
- Scrap New Parts and Supply for Credit

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Service Bulletin SB-8724

PRODUCTS AFFECTED: All M46 Single and Tandem Pumps and Model 90-7001 Transmissions

SUBJECT: Notice of High Pressure Relief/Check Valve Change

DESCRIPTION:

Service Bulletin 8704, dated 6/15/87, announced an upcoming high pressure relief/check valve change to M46 and 90-7001 transmissions. This change, which takes affect October 1987, provides a higher performance and more cost effective design.

The new design part will affect the housing and relief/check valve on M46 pumps and the center section and relief/check valve on the Model 90-7001 transmission.

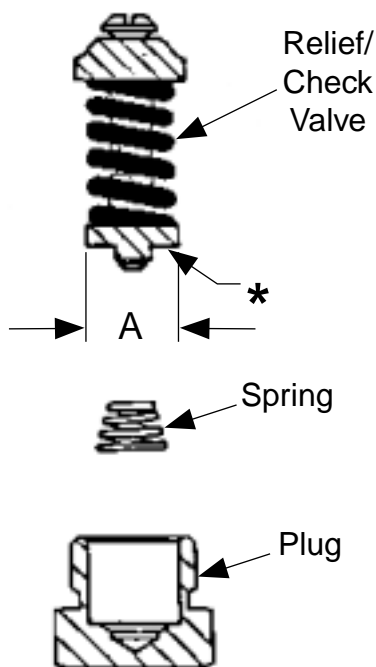
The new and current design relief valve, housing, and center section will not be interchangeable.

Sauer-Sundstrand will no longer produce the current design M46 housings and Model 90-7001 center section.

Spare part requirements for the housing or center section on units built before this change will also require the purchase of the new design relief/check valve, however, experience has shown housings or center sections are rarely needed as spare parts. Sauer-Sundstrand will continue to offer both the current and new design relief/check valve as spare parts.

New design valves will be sold in kit form only. The kit includes a relief valve plug, spring, and relief/check valve.

Should different vintage parts get mixed, below are some identifiers.



"A" diameter on the new style relief/check valve is .55". "A" diameter on the old style M46 relief/check valve is .64". "A" diameter on the old style 90-7001 relief/check valve is .467".

"B" diameter on the new style relief/check valve plug is .554". "B" diameter on the old style M46 relief/check valve plug is .65". "B" diameter on the old style 90-7001 relief/check valve plug is .475".

*The pressure setting of the relief valve, in bar, will be marked on this surface.

Service Bulletin SB-8724

MODELS AFFECTED: All M46 single and tandem pumps and Model 90-7001 transmissions.

SERIAL NUMBERS AFFECTED: On M46, new style relief/check valves will be incorporated with S/N 87-40-xxxxx. On 90-7001, new style relief/check valves will be incorporated with S/N 87-39-18820.

PART NUMBERS AFFECTED:

<u>Current Check/Relief Valve</u>	<u>M46</u> <u>Description</u>	<u>New Style Check/Relief Valve</u>
4510001-0000	Kit-Charge Check Only	4510004-0000
4510001-0050	Kit-175 Bar Relief/Check	4510004-0175
4510001-0051	Kit-210 Bar Relief/Check	4510004-0210
4510001-0052	Kit-230 Bar Relief/Check	4510004-0230
4510001-0053	Kit-250 Bar Relief/Check	4510004-0250
4510001-0054	Kit-280 Bar Relief/Check	4510004-0280
4510001-0055	Kit-300 Bar Relief/Check	4510004-0300
4510001-0056	Kit-345 Bar Relief/Check	4510004-0345
4510001-0057	Kit-415 Bar Relief/Check	4510004-0415
4510001-0058	Kit-190 Bar Relief/Check	4510004-0190
4510001-0062	Kit-360 Bar Relief/Check	4510004-0360
P/N of new style M46 single housing is 4460440		
P/N of new style M46 tandem front housing is 4460438		
P/N of new style M46 tandem rear housing is 4460439		

90-1007

<u>Current Check/Relief Valve</u>	<u>New Style Check/Relief Valve Kit</u>
9005475-0080 Plug	9510682-0415
9700860-0060 Check/Relief Valve & Spring	
Part Number of the New Style 90-7001 Center Section is P/N 3103367	

PARTS DISPOSITION:

- Not Applicable
- Interchangeable
- Non-Interchangeable
- Use Parts in Stock
- Scrap Used Parts
- Return New Parts for Credit
- Order Replacement Parts
- Rework Parts in Stock
- Revise Existing Part Orders
- Scrap New Parts and Supply for Credit

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Service Bulletin SB-8729

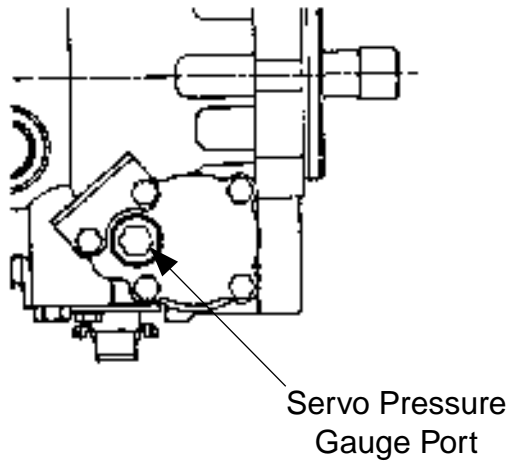
PRODUCTS AFFECTED: All M46 Single and Tandem Pumps

SUBJECT: Notice of Gauge Port Change

DESCRIPTION:

Effective in mid-October, the servo pressure gauge ports on M46 servo covers was changed from 7/16"-20 straight thread O-ring to 9/16"-18 straight thread O-ring.

This change is an effort for Sauer-Sundstrand to have consistency in gauge port sizing.



Service Bulletin SB-8729

MODELS AFFECTED:

All M46-2xxx single pumps and M91-46xxx tandem pumps.

SERIAL NUMBERS AFFECTED:

9/16"-18 gauge ports are incorporated with serial number 03-87-42-xxxx

PART NUMBERS AFFECTED:

Servo cover 4460388-xxxx is replaced by 4460455-xxxx.
4460388-xxxx servo covers are no longer available as spare parts.

PARTS DISPOSITION:

- Not Applicable
- Interchangeable as cover, but port size is different.
- Non-Interchangeable
- Use Parts in Stock
- Scrap Used Parts
- Return New Parts for Credit
- Order Replacement Parts
- Rework Parts in Stock
- Revise Existing Part Orders
- Scrap New Parts and Supply for Credit

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Service Bulletin SB-8901

PRODUCTS AFFECTED: Series 20, Series 30 and M46 Pumps

SUBJECT: Change to Silicone Filled Pilot on Electrical Displacement Controls

DESCRIPTION:

During late 1988, all Series 20, Series 30 and M46 pumps with Electrical Displacement Control (EDC) option were updated to include the silicone oil filled Pressure Control Pilot (PCP). Prior to this change the silicone oil filling was optional.

The addition of the silicone oil prevents moisture build up in the torque motor area of the valve and dampens vibrations.

The new valve is totally interchangeable with the old. The old style (dry) controls and (dry) PCP valves for controls will be obsoleted and unavailable as spare parts.

Model numbers of M46 pumps with non-silicone filled controls will be obsoleted and changed to new models with the silicone filled feature. Series 20 and 30 model numbers will not change.

Service Bulletin SB-8901

MODELS AFFECTED:

Series 20, Series 30 and M46 pumps with Electrical Displacement Controls. New M46 pump model numbers will be assigned upon order.

SERIAL NUMBERS AFFECTED:

All pumps shipped after November 28, 1988 or with s/n 88-48-xxxxx, include the silicone oil filled pilot.

PART NUMBERS AFFECTED:

<u>Control Valves</u>		<u>PCP Valves</u>	
<u>Old p/n</u>	<u>New p/n</u>	<u>Old p/n</u>	<u>New p/n</u>
MCV104Axx01	MCV104Axx02	MCV101A1214	MCV101A1255
MCV104Axx05	MCV104Axx06	MCV101A1313	MCV101A1347
MCV104Axx04	MCV104Axx03	MCV101A1222	MCV101A1248
MCV104Axx08	MCV104Axx07	MCV101A1321	MCV101A1339
MCV105Axx01	MCV105Axx02	MCV101A1063	MCV101A1006
MCV105Axx05	MCV105Axx06	MCV101A1071	MCV101A1055
MCV105Axx04	MCV105Axx03		
MCV105Axx08	MCV105Axx07		
MCV109Axx01	MCV109Axx02		
MCV109Axx04	MCV109Axx03		

PARTS DISPOSITION:

- Not Applicable
- Interchangeable
- Non-Interchangeable
- Use Parts in Stock
- Scrap Used Parts
- Return New Parts for Credit
- Order Replacement Parts
- Rework Parts in Stock
- Revise Existing Part Orders
- Scrap New Parts and Supply for Credit

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Service Bulletin SB-8913

PRODUCTS AFFECTED: M46 Variable Pumps, Tandem Pumps and Variable Motors

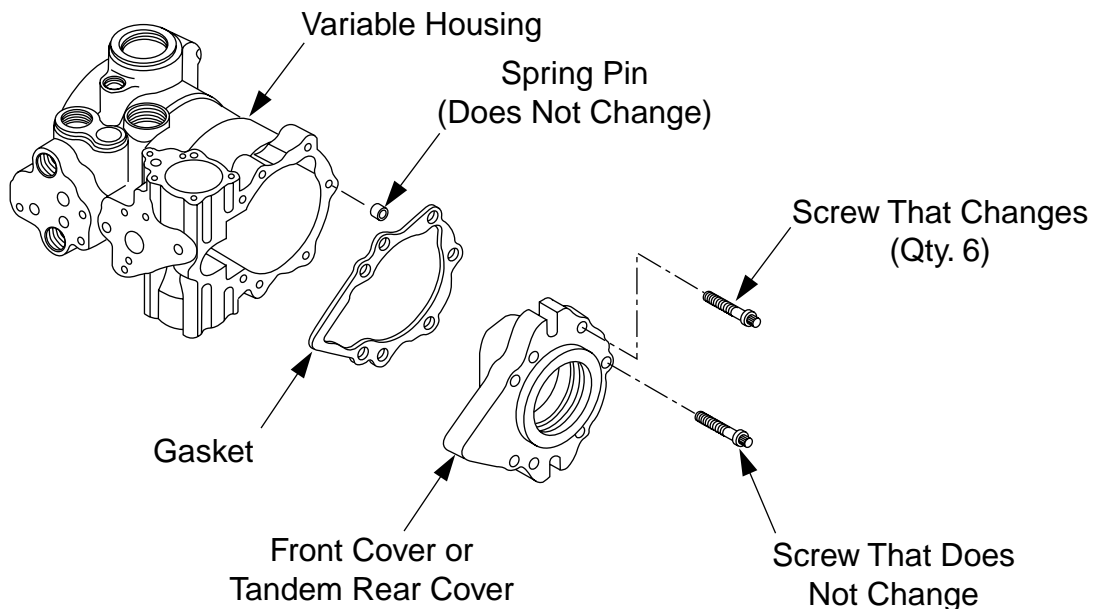
SUBJECT: Front Cover Cap Screw Change

DESCRIPTION:

As a product improvement, six (6) of the seven (7) front cover screws on M46 variable displacement units will increase in size from 3/8"-16 to 7/16"-14. This improvement increases the front cover to housing clamping force, and reduces the potential for leaks or screw breakage.

A 7/16" 12 point socket is required to remove and install the new 7/16" screws. The 3/8" screw continues to require a 3/8" 12 point socket. The installation torque is 60-74 ft.lbs. (81-100 Nm) for the 7/16" screws and 39-47 ft.lbs. (53-64 Nm) for the 3/8" screw.

All variable pump and motor housings, including both front and rear tandem pump housings, will change and the old (all 3/8" screw hole) housings will no longer be available as spare parts. Housings are rarely sold as spare part items, but if required, a new front cover and screws must be used with the new housing. The gasket will change, however, the new style gasket will fit any vintage pump. The front cover (plus rear cover on tandems) will also change, but old style covers will remain available as spare parts, and must be used to repair older vintage pumps and variable motors.



Service Bulletin SB-8913

MODELS AFFECTED:

All M46-2xxx single pumps, M91-46xxx tandem pumps and M46-4xxx variable motors..

SERIAL NUMBERS AFFECTED:

The change will take place at serial number A-89-23-xxxxx. All model number M91-46285 pumps include this feature regardless of serial number.

PART NUMBERS AFFECTED:

Description	P/N - Old Design	P/N New Design
Housing - Single Pump	*4460440	4460579
Housing - Front Tandem Pump	*4460438	4460568
Housing - Rear Tandem Pump	*4460439	4460569
Housing - Standard Variable Motor	*4460452	4460565
Housing - for Thru Shaft Variable Motor	*4460453	4460566
Cover - Front Standard	4460392	4460563
Cover - Front Special Mounting	4460478	4460573
Cover - Rear "A" Flange Tandem Pump	4460449	4460571
Cover - Rear "B" Flange Tandem Pump	4460437	4460572
Gasket - Cover	*4460409	4460564
Screws - 12 pt. cap - Quantity (6)	9007510-3716	9007510-4416

* No longer available as spare parts

PARTS DISPOSITION:

- Not Applicable
- Interchangeable
- Non-Interchangeable
- Use Parts in Stock
- Scrap Used Parts
- Return New Parts for Credit
- Order Replacement Parts
- Rework Parts in Stock
- Revise Existing Part Orders
- Scrap New Parts and Supply for Credit

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Service Bulletin SB-8921

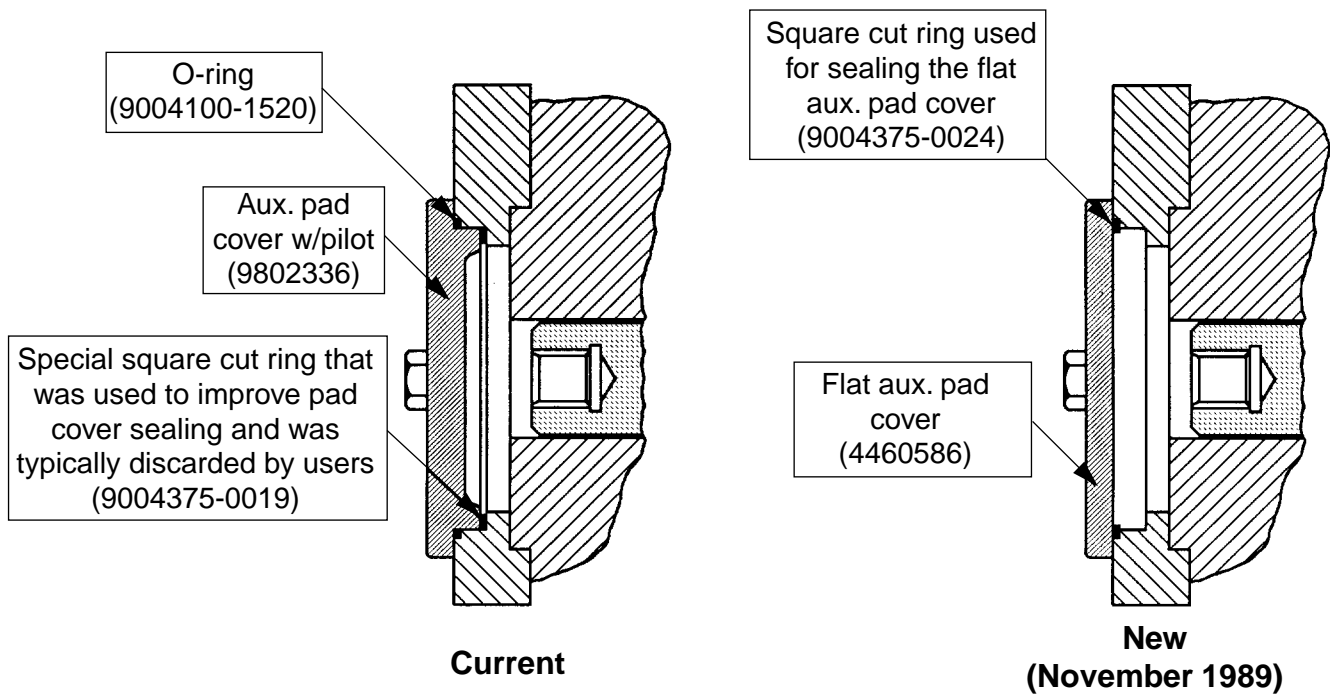
PRODUCTS AFFECTED: M25, M35, & M46 Single and Tandem Pumps with SAE "A" Auxiliary Pad

SUBJECT: Auxiliary Pad Cover Seal Change

DESCRIPTION:

Effective in November of 1989, we will no longer supply an O-ring under the auxiliary pad cover that is capable of sealing an auxiliary pump. A new pad cover, with a square cut ring designed only for sealing the pad cover, will be used. Customers currently re-using the pad cover O-ring to seal an auxiliary pump must supply their own O-ring after this change.

The O-ring required to seal an auxiliary pad is a standard 70 durometer O-ring with a .103" cross section and 3.237" I.D. with ARP 568 uniform dash number -152. This O-ring can be purchased from Sauer-Sundstrand under part number 9004100-1520.



Service Bulletin SB-8921

MODELS AFFECTED:

All M25-2xxx, M35-2xxx, and M46-2xxx single pumps; all M91-25xxx, M91-35xxx, and M91-46xxx tandem pumps with auxiliary mounting pad.

SERIAL NUMBERS AFFECTED:

Change will take place on November 6, 1989 with s/n A-89-45-xxxxx for M46-2xxx and M91-46xxx.

Change will take place on September 18, 1989 with s/n A-89-38-xxxxx for M25-2xxx, M91-25xxx, M35-2xxx, and M91-35xxx.

PART NUMBERS AFFECTED:

Refer to drawing on page one of this bulletin.

PARTS DISPOSITION:

- Not Applicable
- Interchangeable
- Non-Interchangeable
- Use Parts in Stock
- Scrap Used Parts
- Return New Parts for Credit
- Order Replacement Parts
- Rework Parts in Stock
- Revise Existing Part Orders
- Scrap New Parts and Supply for Credit

DISTRIBUTION:

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Service Bulletin SB-9017

PRODUCTS AFFECTED: M46 Single (PV) and Tandem (PT) Pumps

SUBJECT: Filtration Adapter Changes

DESCRIPTION:

This bulletin was issued in June, 1991 for advanced information. The purpose of this revision 'C' is to reflect a correct P/N for the new style installation screw. (See part numbers affected on reverse side of this page.)

As part of our overall Series 40 product improvement program, we have redesigned the filtration adapter blocks used on single and tandem M46 pumps. This change incorporates a more effective seal with the pump housing and reduces the adapter thickness, thus providing a more compact overall pump package. Three (3) O-rings seal the current filtration adapters to pump housings. The new design utilizes a single gasket for sealing.

This change will impact customers using remote filtration or an external source for charge pressure (no charge pump). Also, any vehicle with a charge pressure monitor connected to this adapter block could be affected. The new remote filtration adapter block does not have a filter inlet gauge port, however, this may be accomplished with a tee on the port leading to the remote filter. The new suction filtration adapter does not include the two (2) alternate charge pressure gauge ports.

The dimensional differences are shown on the attached comparative drawings. All port sizes remain the same.

Service Bulletin SB-9017

MODELS AFFECTED:

All M46-2xxx pumps and M91-4xxx tandem pumps

SERIAL NUMBERS AFFECTED:

Change will take place during May, 1991 for the suction filtration adapter and late 1991 for the remote filtration adapter.

PART NUMBERS AFFECTED:

Option	Current Style P/N	New Style P/N
Suction Filtration Adapter	4460345	4460643
Remote Filtration Adapter	4460434	4460644
Seal Gasket - Suction	(3) 9004101-0170 O-rings	4460655
Seal Gasket - Remote	(3) 9004101-0170 O-rings	4460656
Installation Screws	(2) 9007500-3130 (1) 9007500-3124	(3) 9007206-3116

PARTS DISPOSITION:

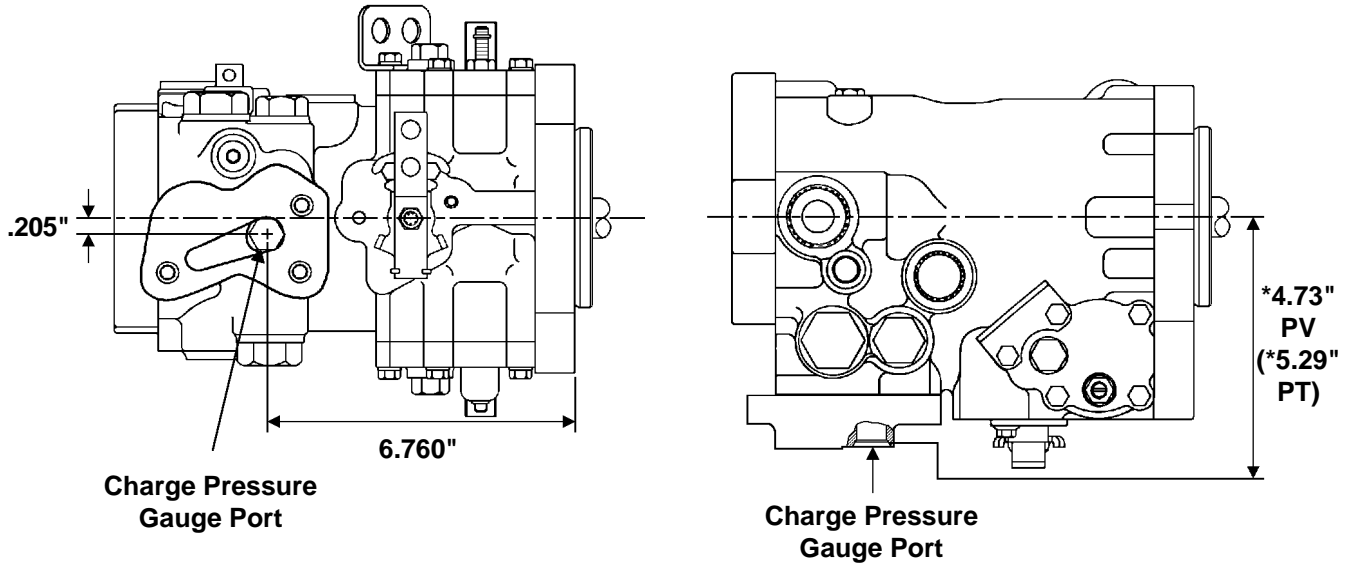
- Not Applicable
- Interchangeable - New adapter will fit all housings since s/n A-86-14-xxxxx
- Non-Interchangeable
- Use Parts in Stock
- Scrap Used Parts
- Return New Parts for Credit
- Order Replacement Parts
- Rework Parts in Stock
- Revise Existing Part Orders
- Scrap New Parts and Supply for Credit

DISTRIBUTION:

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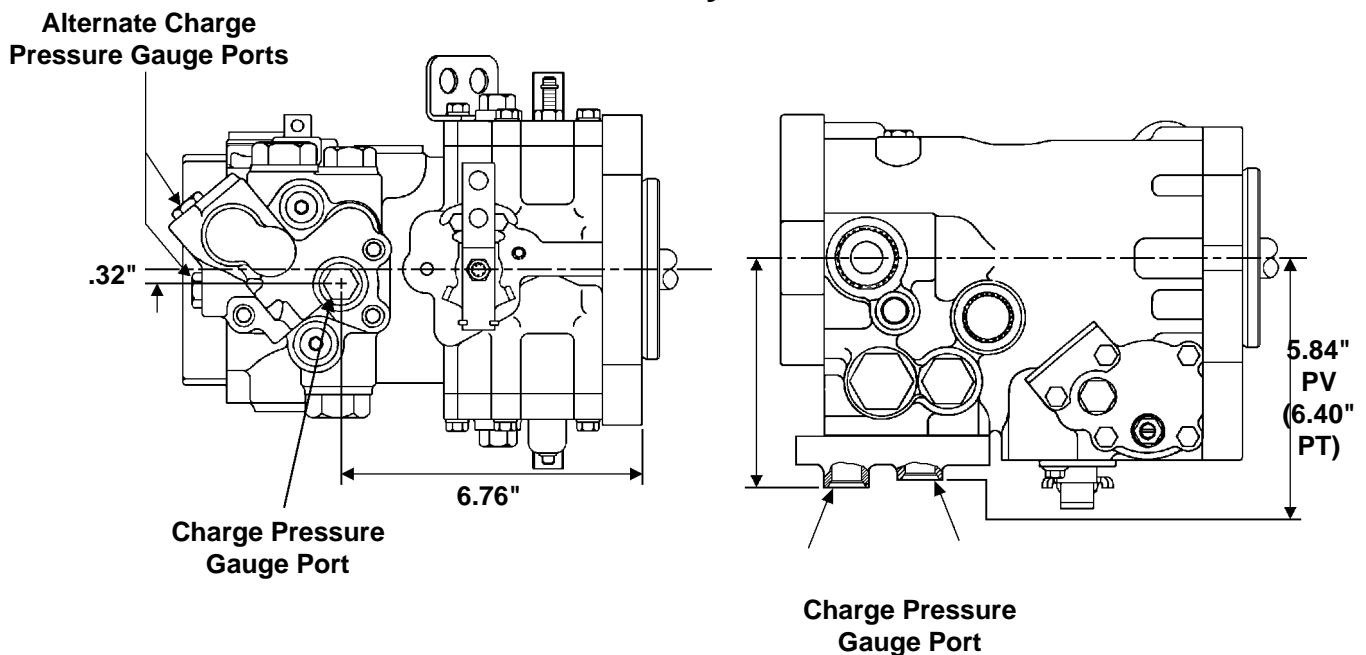
Suction Filtration Option

New Style



* On the April issue, these dimensions were 4.93" PV & 5.49" PT

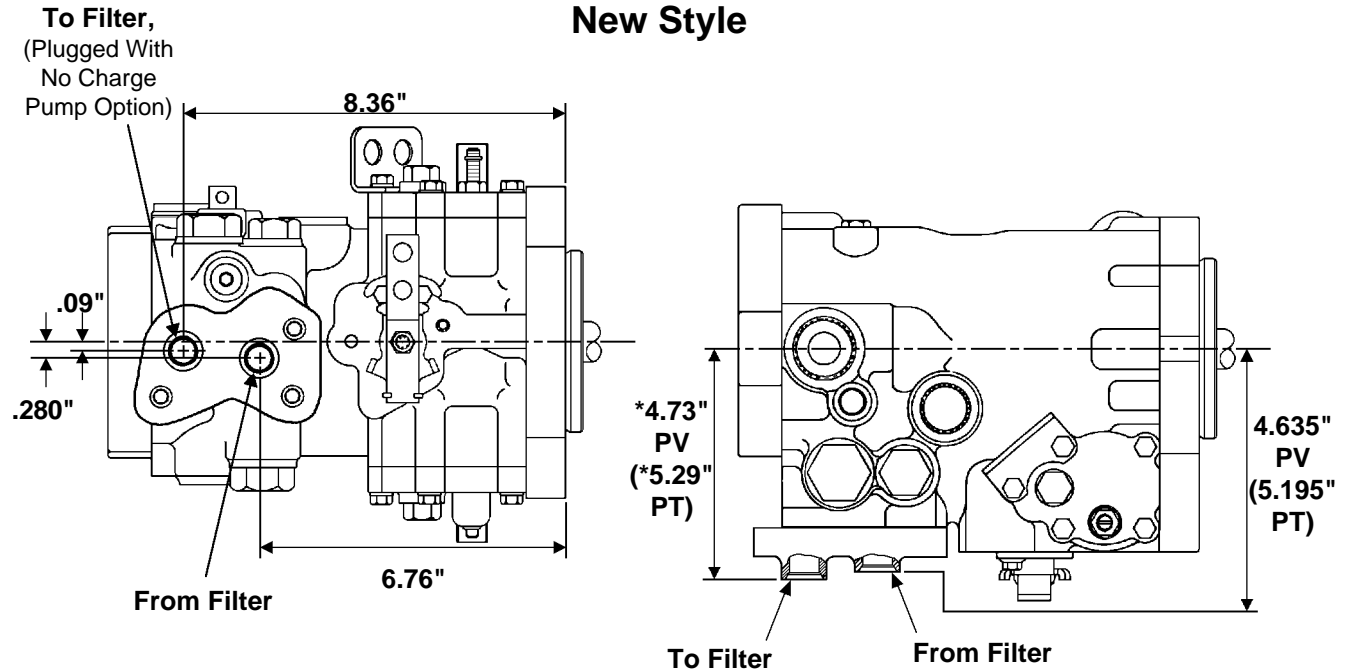
Old Style



Remote Pressure Filtration Option

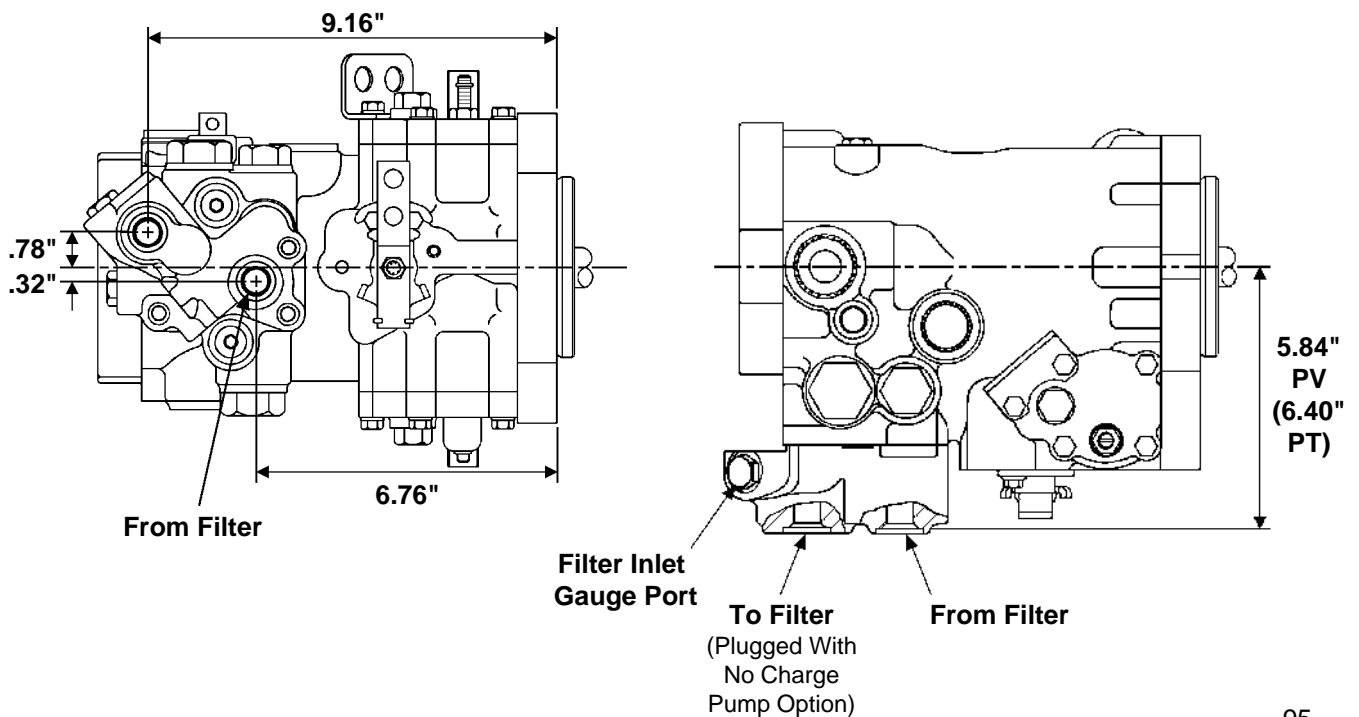
(Also "No Charge Pump Option")

New Style



* On the April issue, these dimensions were 4.93" PV and 5.49" PT

Old Style



Service Bulletin SB-9109

PRODUCTS AFFECTED: M46 Variable Displacement Pumps and Motors

SUBJECT: Brass Bearing Ring

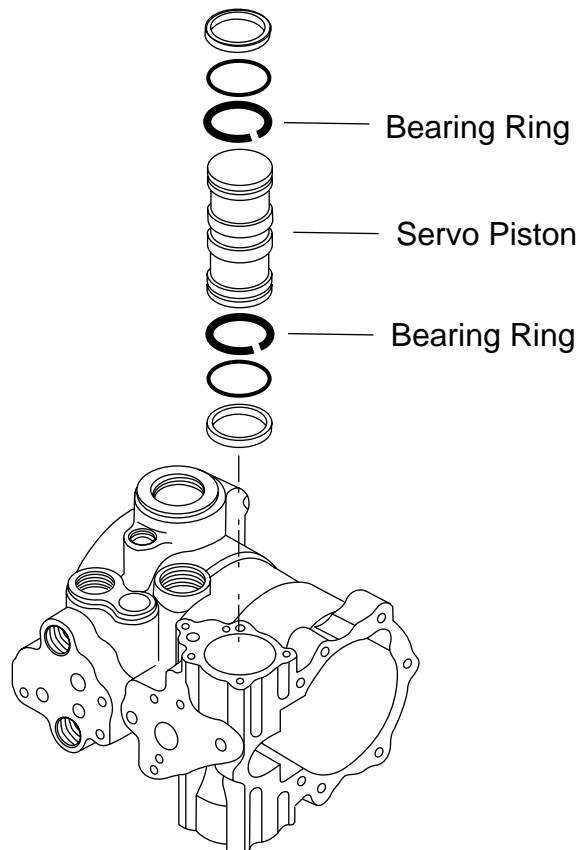
DESCRIPTION:

The part number of the nylon bearing was incorrect in the 4-26-91 version of this bulletin. The purpose of this revision "A" is to correct that error.

The bearing rings, used on all M46 servo pistons, are changing from a glass filled nylon material to brass. The brass material will provide better life in severe duty applications.

There are no functional or operational differences between the nylon and brass rings.

Assembly procedures remain the same except extreme care should be taken not to deform or twist the rings any more than necessary when sliding the rings over the piston and into their grooves.



Service Bulletin SB-9109

MODELS AFFECTED:

All M46-2xxx single pumps, M91-46xxx tandem pumps, and M46-4xxx variable motors.

SERIAL NUMBERS AFFECTED:

This change will occur in June, 1991 with serial number A-91-23-xxxxx

PART NUMBERS AFFECTED:

Bearing ring part number 4460477 (nylon) will be replaced with 4460648 (brass)

PARTS DISPOSITION:

- Not Applicable
- Interchangeable
- Non-Interchangeable
- Use Parts in Stock
- Scrap Used Parts
- Return New Parts for Credit
- Order Replacement Parts
- Rework Parts in Stock
- Revise Existing Part Orders
- Scrap New Parts and Supply for Credit

DISTRIBUTION:

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Service Bulletin SB-9411

PRODUCTS AFFECTED: M46 Variable Pump, Variable Motor and Tandem Pump

SUBJECT: Retained Swashplate Journal Bearings

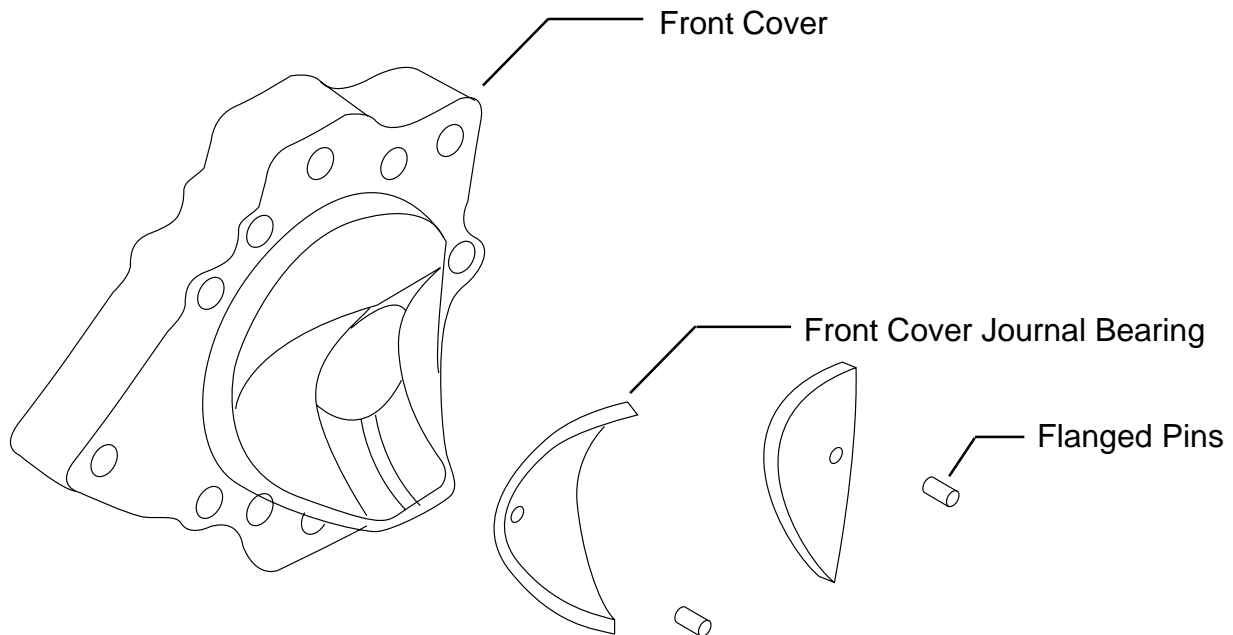
DESCRIPTION:

As a product improvement Sauer Sundstrand is changing the way the journal bearings are held in place on the front cover of the M46 variable units. This change makes it easier to assemble the unit because the bearings are retained with a flanged pin to the front cover.

The hole in the bearing, along with the OD of the pin, became larger. The hole size of the old bearing was .125 inches and the hole size of the new bearing is .137 inches. The new bearing can be used with the old pin when repairing old style units. Thus the need to pull out the old pins and replace with flanged pins and new bearings is not necessary. The old bearing with the .125 hole will be obsoleted and replaced with the new bearing with the .137 hole.

To install the new bearings and pins, install the pin through the hole in the bearing from the running surface side. Using a small hammer and punch, seat the pin into the hole of the front cover. After completing the installation process, be sure the head of the pin is below the surface of the bearing material to insure the pin does not score the swashplate mating surface.

Since the non-balanced swashplate module was inactivated in new production units in second quarter 1994, the non-balanced swashplate bearings will not change.



Service Bulletin SB-9411

MODELS AFFECTED:

All M46 variable products

SERIAL NUMBERS AFFECTED:

The change will become effective per the following chart:

Tandem pumps:	94-47 and beyond
Single pumps:	94-47 and beyond
Variable motors (flange style):	95-02 and beyond
Variable motors (cartridge style):	95-07 and beyond

PART NUMBERS AFFECTED:

ITEM	WHERE USED	OLD PART#	NEW PART#
Front cover bearing	PV & PT balanced swash	4460320-0001	4460696
Front cover bearing	PV & PT non balanced swash	4460325-0001	No Change
Front cover bearing	Variable motor (SAE flange)	4460320-0003	4460697
Front cover bearing	Variable motor (Cartridge flange)	4460320-0003	4460697
Pin slotted	All variable units*	9004700-1206	5000116

* Except variable units with the non-balanced swashplate.

Note: PV = pump variable
 PT = pump tandem

PARTS DISPOSITION:

- Not Applicable
- Interchangeable - Old Pin/New Bearing
- Non-Interchangeable - New Pin/Old Bearing
- Use Parts in Stock
- Scrap Used Parts
- Return New Parts for Credit
- Order Replacement Parts
- Rework Parts in Stock
- Revise Existing Part Orders
- Scrap New Parts and Supply for Credit

DISTRIBUTION:

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Service Bulletin SB-9437

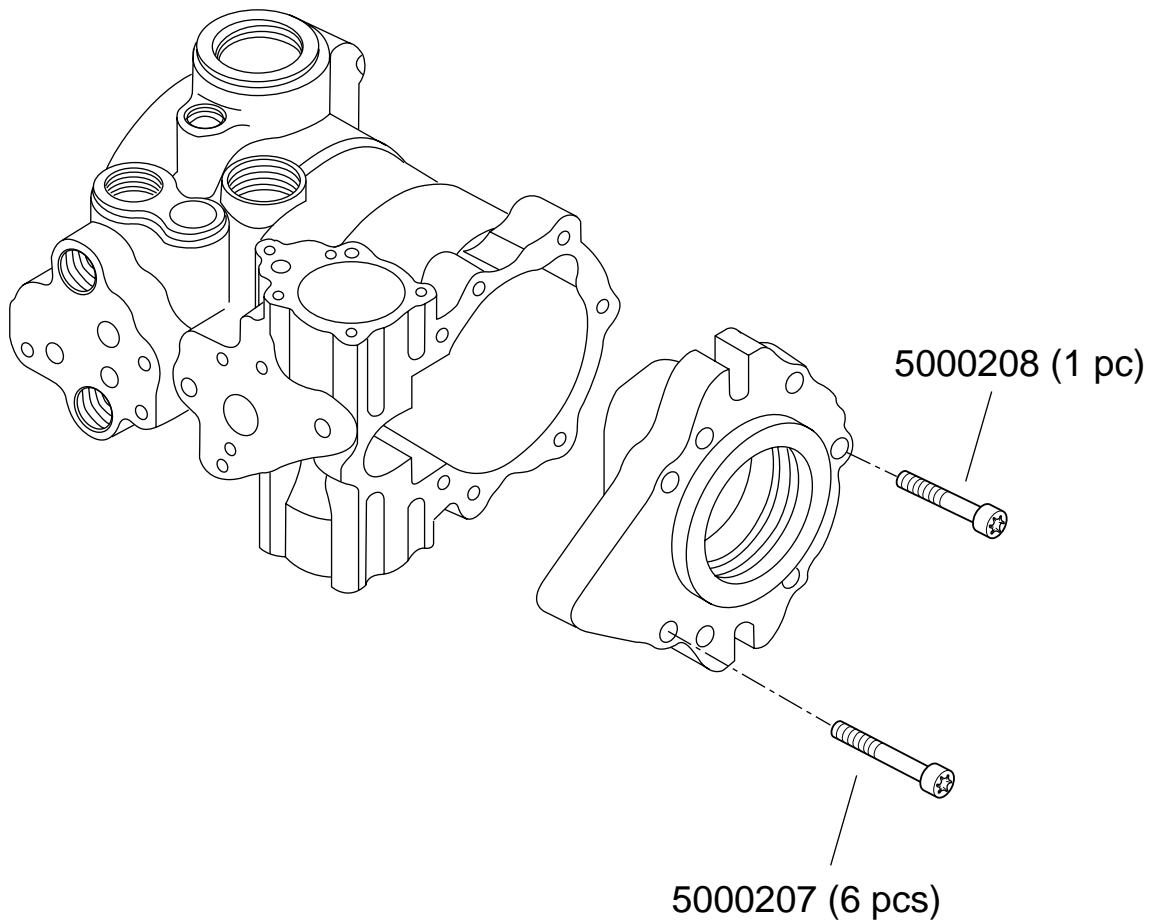
PRODUCTS AFFECTED: Series 40: M46 Variable Pump, Variable Motor and Tandem Pump

SUBJECT: Change in Front Cover Screws

DESCRIPTION:

As a product improvement, Sauer-Sundstrand is changing the screws that fasten the front cover to the housing of the M46 pumps and variable motors.

The old screws had a 7/16 12 point head or 3/8 12 point head. The new screws have an internal T50 or an internal T55 torx head. The torque will remain the same as the old screws. The old screws are obsolete and no longer available as a service part.





Service Bulletin SB-9437

MODELS AFFECTED:

All M46 Tandem Pumps, Variable Pumps, and Variable Motors.

SERIAL NUMBERS AFFECTED:

94-37-xxxxx and up

PART NUMBERS AFFECTED:

<u>Description</u>	<u>Drive Mechanism</u>	<u>Part # Old Style</u>	<u>Part # New Style</u>
Front Cover Screw	7/16 12 point	9007510-4416	XX
Front Cover Screw	3/8 12 point	9007510-3720	XX
Front cover Screw	T55	X	5000207
Front Cover Screw	T50	X	5000208

PARTS DISPOSITION:

- Not Applicable
- Interchangeable
- Non-Interchangeable
- Use Parts in Stock
- Scrap Used Parts
- Return New Parts for Credit
- Order Replacement Parts
- Rework Parts in Stock
- Revise Existing Part Orders
- Scrap New Parts and Supply for Credit

DISTRIBUTION:

- All Product Related Sauer-Sundstrand Distributors
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Service Bulletin SB-9519

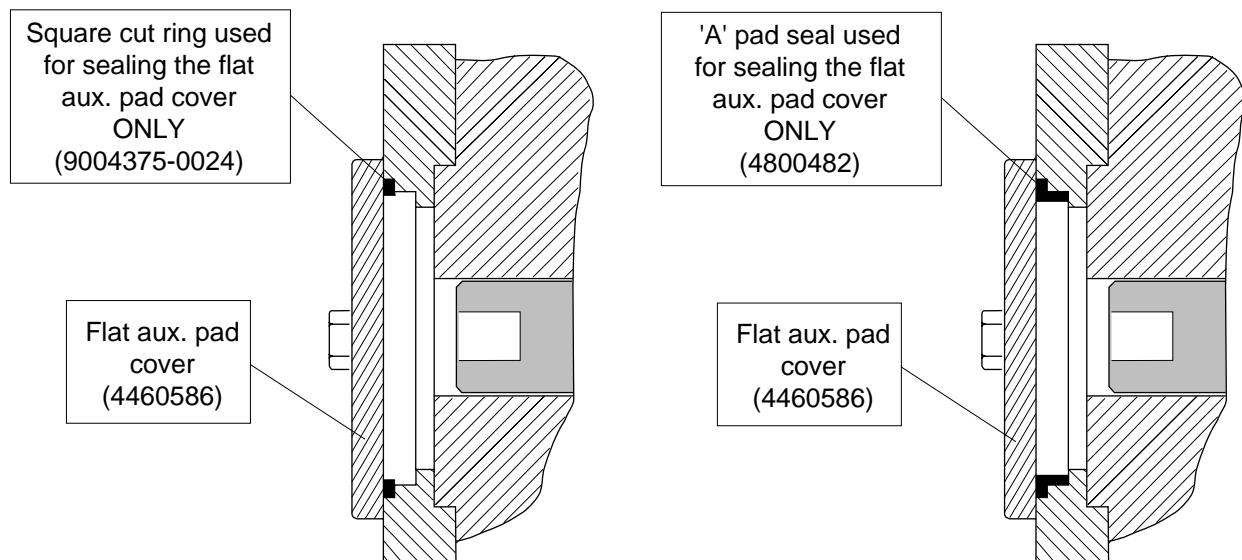
PRODUCTS AFFECTED: Series 40: M46 Variable Pump, Variable Motor and Tandem Pump

SUBJECT: Change in Front Cover Screws

DESCRIPTION:

Effective in November of 1995, Sauer-Sundstrand changed the auxiliary 'A' pad seal from a square cut ring to doughnut type seal. The sealing capacity of the new seal is equal to that of the square cut ring, but makes assembly much easier.

If the pad cover is removed to install an auxiliary pump, an O-ring must be used to seal that joint. The O-ring required is a standard 70 durometer O-ring with a .103" cross section and a 3.237" ID. This O-ring may be purchased from Sauer-Sundstrand under part number 9004100-1520.



Service Bulletin SB-9519

MODELS AFFECTED:

All 15-2xxx, M25-2xxx, M91-25xxx, M46-2xxxx and M91-46xxx with SAE "A" Pad

SERIAL NUMBERS AFFECTED:

A-95-45-xxxxx and beyond

PART NUMBERS AFFECTED:

Description	Old p/n	New p/n
Seal "A" Pad	9004375-0024	4800482

PARTS DISPOSITION:

- Not Applicable
- Interchangeable
- Non-Interchangeable
- Use Parts in Stock
- Scrap Used Parts
- Return New Parts for Credit
- Order Replacement Parts
- Rework Parts in Stock
- Revise Existing Part Orders
- Scrap New Parts and Supply for Credit

DISTRIBUTION:

- All Product Related Sauer-Sundstrand Distributors
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- All ASCs
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Service Bulletin SB-9520

PRODUCTS AFFECTED: M46 Pumps, Motors, Variable Motors

SUBJECT: Change in Cylinder Block Finish

DESCRIPTION:

As a product improvement, Sauer-Sundstrand is changing the finish on M46 cylinder block (P/N 4460583). The old cylinder blocks had a shiny steel finish, the new cylinder blocks have a dark gray finish.

Update September 1996:

All repairs that call for a new cylinder block should use the new block (P/N 4460832). Return new 4460583 cylinder blocks and 4460289 cylinder block kits for credit and reorder the new P/N's (see next page).

Service Bulletin SB-9520

MODELS AFFECTED:

All 46 pump's, variable motors and fixed motors

SERIAL NUMBERS AFFECTED:

This change will take effect in week 96-19 on all fixed motors and 96-35 for all variable pumps and variable motors.

PART NUMBERS AFFECTED:

Item	Old P/N	New P/N
Cylinder Block	4460583	4460832
Cylinder Block Kit	4460289	4460890

PARTS DISPOSITION:

- Not Applicable
- Interchangeable
- Non-Interchangeable
- Use Parts in Stock
- Scrap Used Parts
- Return New Parts for Credit
- Order Replacement Parts
- Rework Parts in Stock
- Revise Existing Part Orders
- Scrap New Parts and Supply for Credit

DISTRIBUTION:

- All Product Related Sauer-Sundstrand Distributors
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Service Bulletin SB-9701

PRODUCTS AFFECTED: Series 40 M46 single and tandem pumps

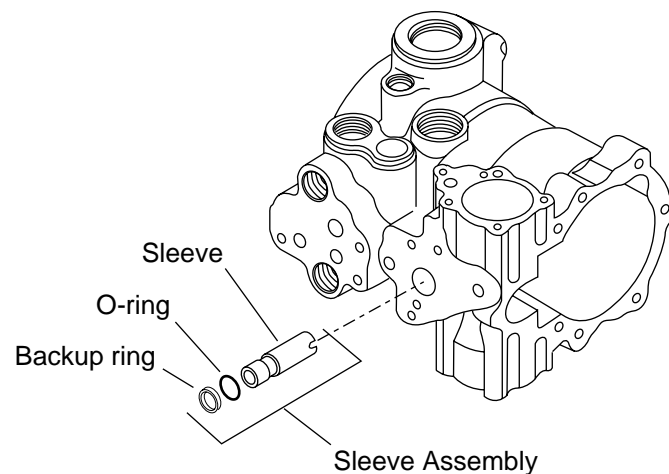
SUBJECT: Improvement in serviceability of the control sleeve

DESCRIPTION:

To improve serviceability of the M46 control sleeve, Sauer-Sundstrand is increasing the feedback slot width of the control valve sleeve. This is an interchangeable change from pump serial number A-86-14-xxxxx and newer. For pumps manufactured earlier, consult the M46 service parts manual BLN-2-41650.

When installing the new control sleeve, be sure that the slot engages the feedback roll pin. Also insure that there is no rotational free play between the feedback roll pin and the slot of the control valve sleeve. If there is rotational free play, you must change the feedback roll pin. See service bulletin SB-9522 Rev A.

A sleeve assembly has been created with the O-ring and backup ring installed. See page two for detailed part number information.



Service Bulletin SB-9701

MODELS AFFECTED:

M46-2xxx and M91-46xxx

SERIAL NUMBERS AFFECTED:

For the MDC effective serial number is A97-12-xxxxx and newer.

For the EDC/HC the effective serial number is A-97-09-xxxxx and newer.

PART NUMBERS AFFECTED:

<i>PART DESCRIPTION</i>	<i>OLD PART NUMBER</i>	<i>NEW ASSEMBLY NUMBER</i>
MDC sleeve (.046 orifice)	4460414-0002	4510159
MDC sleeve (.031 orifice)	4460414-0003	4510160
MDC sleeve (.250 orifice)	4460414-0004	4510157
MDC sleeve (.036 orifice)	4460414-0005	4510158
MDC service sleeve (.046 orifice)	4460640-0002	4510159
MDC service sleeve (.031 orifice)	4460640-0003	4510160
MDC service sleeve (.250 orifice)	4460640-0004	4510157
MDC service sleeve (.036 orifice)	4460640-0005	4510158
Electric Displacement Control	MCV105A30XX	MCV105B30XX
Hydraulic Displacement Control	MCV108A30XX	MCV108B30XX
EDC/HDC sleeve assembly	K12679	K22539*

MDC = Manual Displacement Control *Will work on MCVXXXA or MCVXXXB controls

PARTS DISPOSITION:

- Not Applicable
- Interchangeable from serial number A-86-14-XXXXX.
- Non-Interchangeable
- Use Parts in Stock
- Scrap Used Parts
- Return New Parts for Credit
- Order Replacement Parts
- Rework Parts in Stock
- Revise Existing Part Orders
- Scrap New Parts and Supply for Credit

DISTRIBUTION:

- All Product Related Sauer-Sundstrand Distributors
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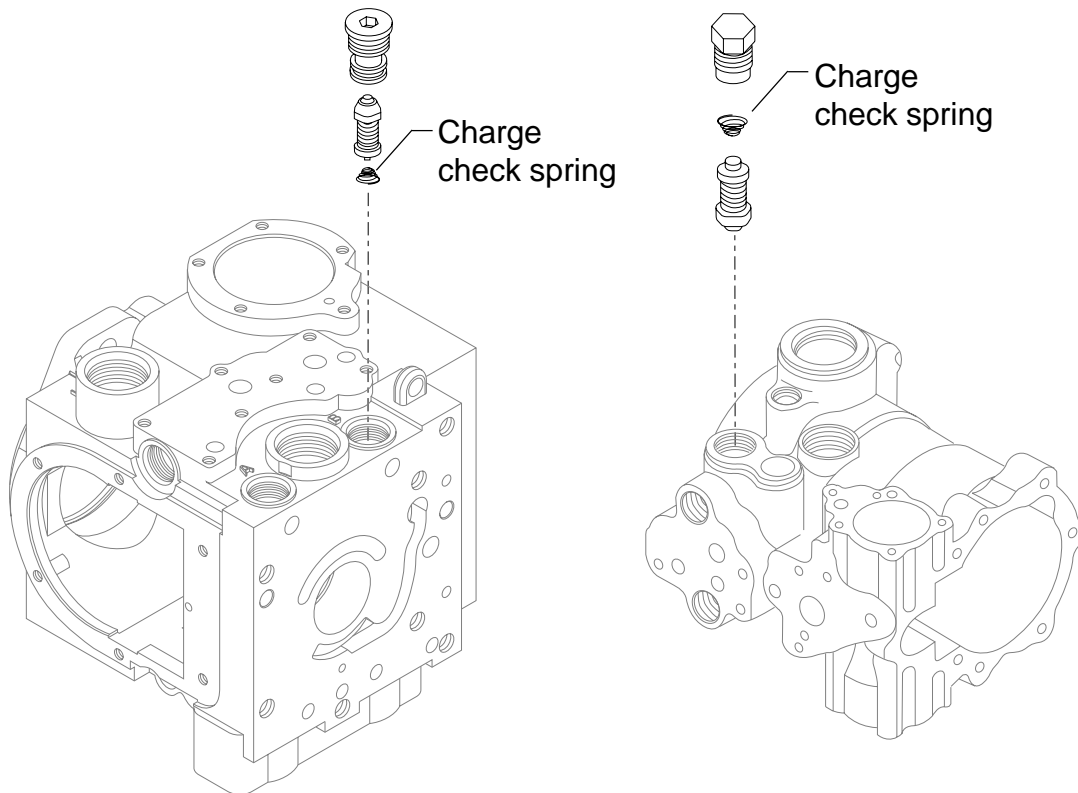
Service Bulletin SB-9732

PRODUCTS AFFECTED: Series 40 M46 PV & PT, Series 42 PV & M51 Tandems

SUBJECT: Improve charge check valve response

DESCRIPTION:

As a product improvement Sauer-Sundstrand is increasing the spring force on the check valve spring used in the listed products above. This increased force will aid in getting the check valve closed under cold system operations. The new spring is interchangeable with the old, so the old spring will no longer be available as a genuine service part.



Service Bulletin SB-9732

MODELS AFFECTED:

M46-2xxx, M91-46xxx, 428xxxx, 441xxxx and 452xxxx model numbers

SERIAL NUMBERS AFFECTED:

All M46 units with serial number 97-42-xxxxx and after.
All Series 42 units with serial number 97-45-xxxxx and after.
All M51 tandems with serial number 97-45-xxxxx and after.

PART NUMBERS AFFECTED:

<i>Description</i>	<i>Old part number</i>	<i>New part number</i>	<i>Interchangeable</i>
Check valve spring	3103319	4800661	Yes

PARTS DISPOSITION:

- Not Applicable
- Interchangeable - Do not use the old spring in place of the new one.
- Non-Interchangeable
- Use Parts in Stock
- Scrap Used Parts
- Return New Parts for Credit
- Order Replacement Parts
- Rework Parts in Stock
- Revise Existing Part Orders
- Scrap New Parts and Supply for Credit

DISTRIBUTION:

- All Product Related Sauer-Sundstrand Distributors
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Service Bulletin SB-9740

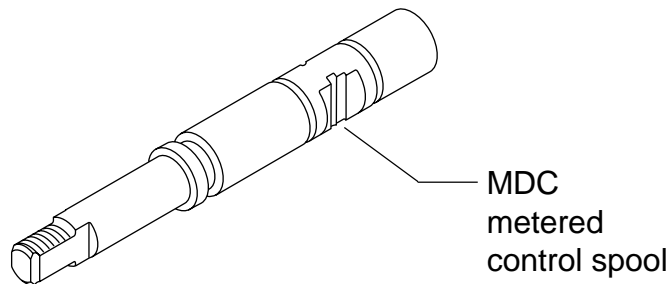
PRODUCTS AFFECTED: Series 40 M46 Pumps

SUBJECT: Increase wear resistance on MDC metered control spool

DESCRIPTION:

Sauer-Sundstrand has improved the wear resistance of the metered control spool used in select models of the Series 40 M46 pumps.

The old and new spool are interchangeable so the old spool will no longer be available as a genuine service part.



Service Bulletin SB-9740

MODELS AFFECTED:

M46-20327, 438, 439, 440, 441, 442 & 457
M91-46130, 133, 134, 136, 141, 230, 329, 340, 345, 349, 369, 371, 407, 408, 418
M91-46422, 434, 446, 447, 483, 486, 524, 537, 544, 569, 570, 571, 575, 589, 598
M91-46606, 616, 617, 627, 628, 666, 700, 704, 910, 911, 916, 917, 918, 919, 921 & 922

SERIAL NUMBERS AFFECTED:

This change will take effect on serial number A-98-02-xxxxx

PART NUMBERS AFFECTED:

<i>Description</i>	<i>Old part number</i>	<i>New part number</i>
MDC metered control spool	4460769	4460906

PARTS DISPOSITION:

- Not Applicable
- Interchangeable
- Non-Interchangeable
- Use Parts in Stock
- Scrap Used Parts
- Return New Parts for Credit
- Order Replacement Parts
- Rework Parts in Stock
- Revise Existing Part Orders
- Scrap New Parts and Supply for Credit

DISTRIBUTION:

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Service Bulletin SB-9812

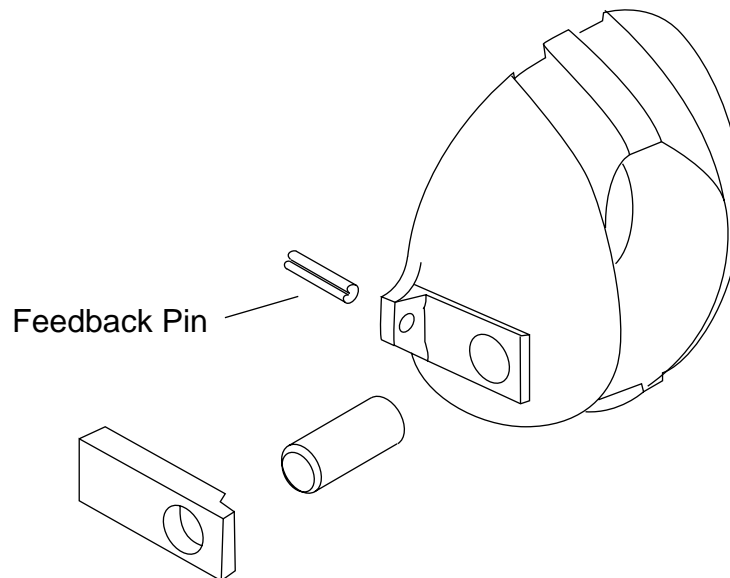
PRODUCTS AFFECTED: Series 40 M46 single and tandem pumps

SUBJECT: New part number for swashplate feedback pin

DESCRIPTION:

Sauer-Sundstrand has improved the roundness for the swashplate feedback pin used in the M46 variable pumps. If you have any of the old pins in your stock, return them for credit and order the new part number.

If you are repairing an M46 pump and the slot in the feedback pin has turned and is no longer either facing the rotating group or 180 degrees away from the rotating group or is not of increased length design, the pin must be changed. (Reference SB-9522)





Service Bulletin SB-9812

MODELS AFFECTED:

All M46-2xxx and M91-46xxx model numbers.

SERIAL NUMBERS AFFECTED:

Units built A-98-08-xxxxx and newer have the new pin.

PART NUMBERS AFFECTED:

<i>Part description</i>	<i>Old part number</i>	<i>New part number</i>	<i>Status of old part #</i>
Feedback pin	5000381	5000507	Obsolete

PARTS DISPOSITION:

- Not Applicable
- Interchangeable
- Non-Interchangeable
- Use Parts in Stock
- Scrap Used Parts
- Return New Parts for Credit
- Order Replacement Parts
- Rework Parts in Stock
- Revise Existing Part Orders
- Scrap New Parts and Supply for Credit

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Service Bulletin SB-9836

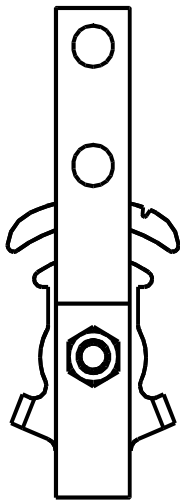
PRODUCTS AFFECTED: M46 Pumps

SUBJECT: High Force Spring Control for Manual Displacement Controls (MDC)

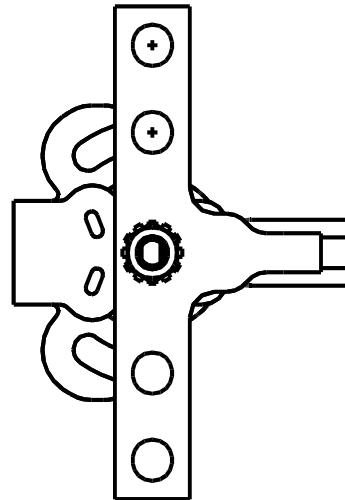
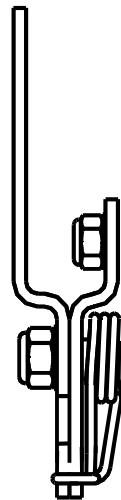
DESCRIPTION:

As a product improvement, Sauer-Sundstrand has instituted a design change that affects the high force spring control option for the manual displacement control on the M46 variable and tandem pumps. The change made is to the spring guide within the control assembly. This improvement has been implemented in order to improve the neutral setting characteristics for this control.

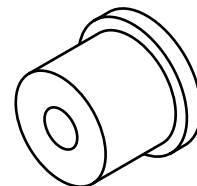
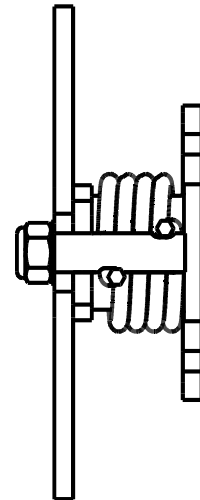
The new spring guide is interchangeable with the old one and the old spring guide is obsolete and will no longer be available as a service part.



Standard MDC Control



High Force Return MDC Control



Spring Guide

Service Bulletin SB-9836

MODELS AFFECTED:

M46-2237 M46-20500 M91-46718 M91-46733 M91-46736
M46-20476 M91-46142 M91-46731 M91-46734
M46-20499 M91-46143 M91-46732 M91-46735

SERIAL NUMBERS AFFECTED:

A-98-24-xxxxx

PART NUMBERS AFFECTED:

Description	Obsolete part number	New part number
Spring Guide	4460959	4461019

PARTS DISPOSITION:

- Not Applicable
- Interchangeable
- Non-Interchangeable
- Use Parts in Stock
- Scrap Used Parts
- Return New Parts for Credit
- Order Replacement Parts
- Rework Parts in Stock
- Revise Existing Part Orders
- Scrap New Parts and Supply for Credit

DISTRIBUTION:

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Service Bulletin SB-9851

PRODUCTS AFFECTED: Series 40 M46 Variable & Tandem Pumps

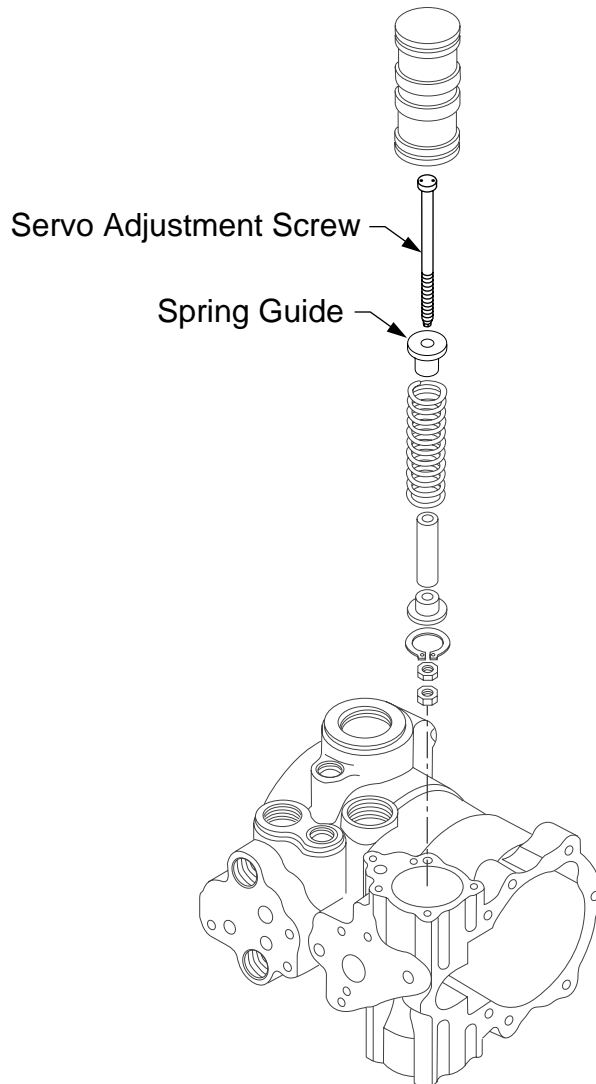
SUBJECT: Servo Adjustment Screw

DESCRIPTION:

As a product improvement, Sauer-Sundstrand has modified the design of the servo adjustment screw in order to make it more robust and lengthen its fatigue life. In conjunction with this change, and as a result of it, the spring guide has also been changed. The new spring guide is compatible with both the old and the new servo screw.

If replacement of the old servo screw is required, both the new servo screw and the new spring guide need to be replaced because, the old spring guide is not compatible with the new servo screw.

The old spring guide and the old servo adjustment screw are obsolete and no longer available as a service part.



Service Bulletin SB-9851

MODELS AFFECTED:

All M46 Variable and Tandem Pumps

SERIAL NUMBERS AFFECTED:

Units built after A-98-40-xxxxx have the old servo screw and the new spring guide
Units built after A-99-14-xxxxx have the new servo screw and the new spring guide

PART NUMBERS AFFECTED:

Item Description	Old Part Number	New Part Number
Servo Screw *	4460732	4461033
Spring Guide	4460548	4461034

If part number 4460732 is being replaced, both 4461033 and 4461034 need to be replaced.

PARTS DISPOSITION:

- Not Applicable
- Interchangeable - See text on the front page
- Non-Interchangeable - See text on the front page
- Use Parts in Stock
- Scrap Used Parts
- Return New Parts for Credit
- Order Replacement Parts
- Rework Parts in Stock
- Revise Existing Part Orders
- Scrap New Parts and Supply for Credit

DISTRIBUTION:

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Service Bulletin SB-9852

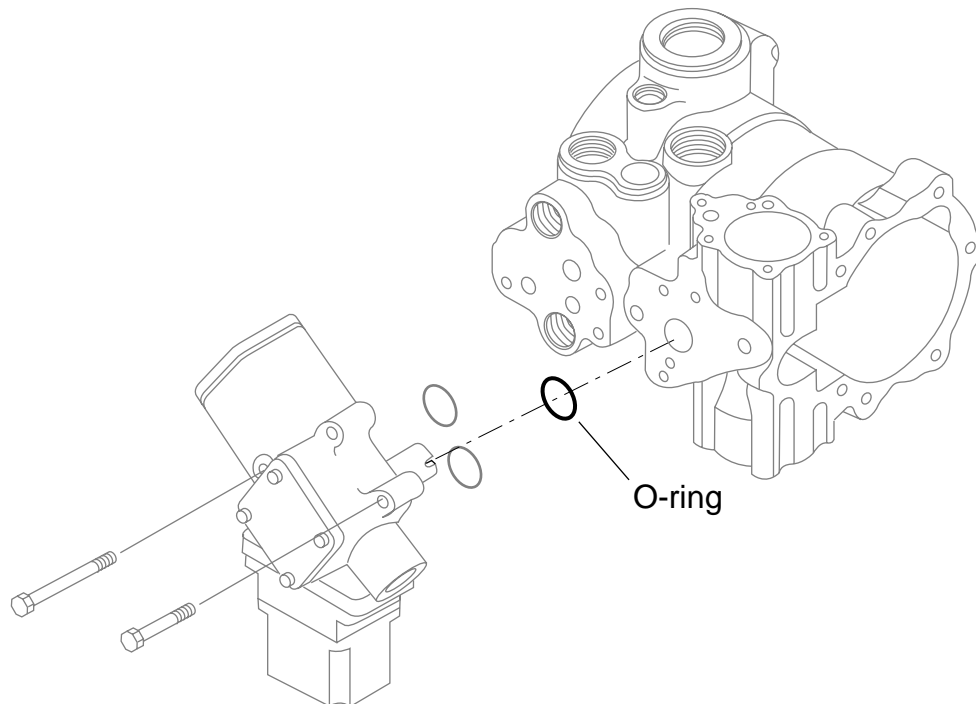
PRODUCTS AFFECTED: M46 Variable and Tandem Pumps

SUBJECT: EDC and HDC O-ring Change

DESCRIPTION:

In order to improve the robustness of the EDC and HDC control, Sauer-Sundstrand has redesigned the control housing to accept a stiffer O-ring with a larger cross section. This change requires that a deeper O-ring groove be machined into the control's housing, thus making the two O-rings non-interchangeable.

EDCs and HDCs manufactured before this change took place, will require the smaller cross-sectional diameter O-ring and this part will still be available as a service part. New EDCs and HDCs when ordered will come with the new, larger, cross-sectional diameter O-ring. Overhaul seal kits have both the old and the new O-rings in them so that any vintage pump may be serviced.



Service Bulletin SB-9852

MODELS AFFECTED:

All M46 pumps, (single and tandem), that are equipped with and EDC or an HDC control

SERIAL NUMBERS AFFECTED:

All EDC units produced prior to 98-31-xxxxx use the old O-ring

All HDC units produced prior to 98-33-xxxxx use the old O-ring

PART NUMBERS AFFECTED:

Description	Old Part Number	New Part Number
O-ring (0.070 x 0.926) 70D	9004100-0210	N/A
O-ring (0.103 x 0.924) 90D	N/A	9004101-1190

PARTS DISPOSITION:

- Not Applicable
- Interchangeable
- Non-Interchangeable
- Use Parts in Stock
- Scrap Used Parts
- Return New Parts for Credit
- Order Replacement Parts
- Rework Parts in Stock
- Revise Existing Part Orders
- Scrap New Parts and Supply for Credit

DISTRIBUTION:

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Service Bulletin SB-9868

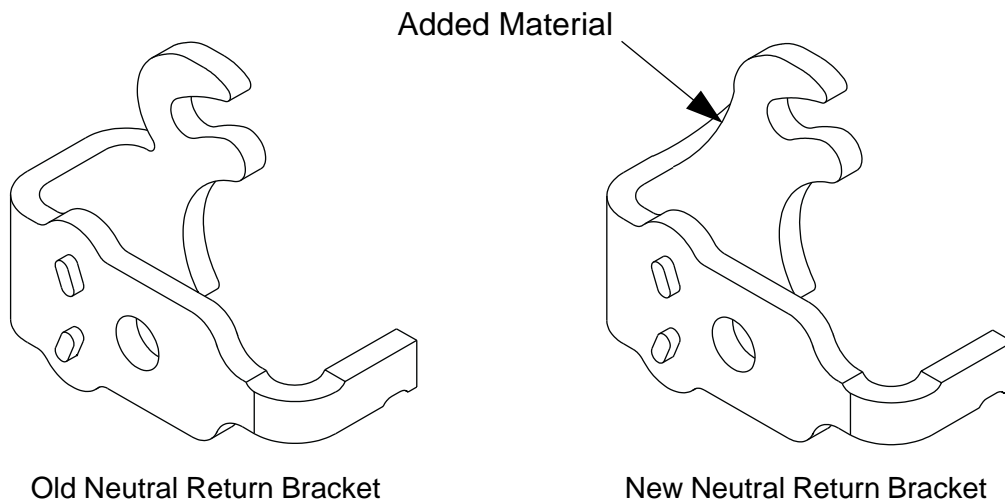
PRODUCTS AFFECTED: Series 40 M46 Pumps

SUBJECT: 38-Degree, MDC Bracket

DESCRIPTION:

In order to provide a stonger 38-degree MDC, Sauer-Sundstrand has redesigned the neutral return bracket by adding material in the control neutral adjust area of the neutral return bracket in order to make it more resistant to failing if the limit stops are exceeded.

The new bracket is interchangeable with the old bracket and the old one has been obsoleted.



Service Bulletin SB-9868

MODELS AFFECTED:

M91-46718

SERIAL NUMBERS AFFECTED:

A-98-41-xxxxx

PART NUMBERS AFFECTED:

Item Description	Old part number	New part number
Neutral return bracket	4461015	4461037

PARTS DISPOSITION:

- Not Applicable
- Interchangeable
- Non-Interchangeable
- Use Parts in Stock
- Scrap Used Parts
- Return New Parts for Credit
- Order Replacement Parts
- Rework Parts in Stock
- Revise Existing Part Orders
- Scrap New Parts and Supply for Credit

DISTRIBUTION:

- All Product Related Sauer-Sundstrand Distributors
- All Product Related OEM's
- All ASCs
- Non-Restricted Distribution

Service Bulletin SB-9877

PRODUCTS AFFECTED: Series 40 M46 Pumps and Motors

SUBJECT: Slipper Material Change

DESCRIPTION:

Sauer-Sundstrand has made a material change to the slipper component used in the piston assemblies of all Series 40 M46 pumps and motors. This change increases the robustness of the design while maintaining the consistency of the slipper's performance. To aid in tracking this change, Sauer-Sundstrand has released new part numbers for the slippers and the piston assemblies.

The new slippers and piston assemblies are fully interchangeable with the ones previously used. The previous slippers and piston assemblies have become obsolete, due to the part number changes. (The cylinder block kits all incorporate the new slippers, but none of the cylinder block kit part numbers will be changed.)

This bulletin was issued in May of 1999. The purpose of this revision is to remove the slipper part number from page two, due to the fact that it is not available as a service part.

Service Bulletin SB-9877

MODELS AFFECTED:

All Series 40 M46 Products
Variable Pumps
Tandem Pumps
Fixed Motors
Variable Motors

SERIAL NUMBERS AFFECTED:

All service parts and production units, ordered or built, after March 1, 1999 or serial number A-99-10-xxxxx

PART NUMBERS AFFECTED:

Item Description	Old Part Number	New Part Number
Piston Assembly	4460650	4461032

PARTS DISPOSITION:

- Not Applicable
- Interchangeable
- Non-Interchangeable
- Use Parts in Stock
- Scrap Used Parts
- Return New Parts for Credit
- Order Replacement Parts
- Rework Parts in Stock
- Revise Existing Part Orders
- Scrap New Parts and Supply for Credit

DISTRIBUTION:

- All Product Related Sauer-Sundstrand Distributors
- All Product Related OEM's
- All ASCs
- Non-Restricted Distribution

Service Bulletin SB-99005

PRODUCTS AFFECTED: Series 40 M46 PV & PT

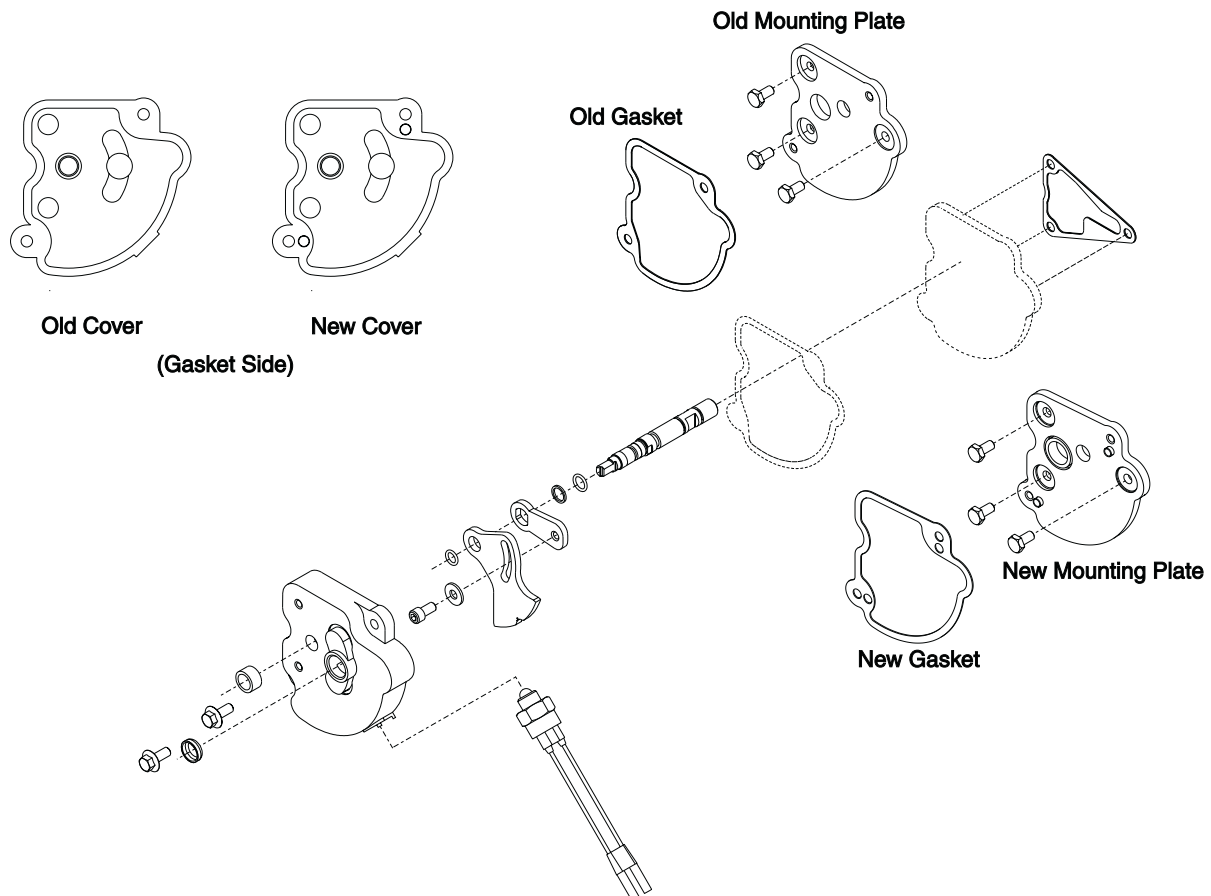
SUBJECT: Neutral Start Switch

DESCRIPTION:

As a product improvement, Sauer-Sundstrand has enhanced their design of the Neutral Start Switch, (NSS), option for the M46 variable and tandem pumps. This improvement was implemented in order to reduce the possibility of the control binding, which could result in difficulty setting neutral.

This change affects the NSS cover, the NSS cover gasket, and the NSS mounting plate. Although the new NSS cover and gasket may be used in conjunction with the old NSS mounting plate, the new NSS mounting plate will not work with the old NSS cover and gasket. Because of this incompatibility, this change is classified as non-interchangeable.

The old NSS cover, gasket, and mounting plate have been obsoleted and will no longer be available as service parts. The NSS conversion kit ordered as a service part has been updated with the new NSS cover, gasket, and mounting plate. Shelf stock should be audited to avoid mixing the two kits, as the part numbers for the NSS conversion kit will remain the same.



Service Bulletin SB-99005

MODELS AFFECTED:

M46 PV	M46-20497	M91-46622	M91-46658	M91-46739
M46-20320	M46-20498	M91-46636	M91-46659	M91-46752
M46-20335	M46-20512	M91-46637	M91-46685	M91-46762
M46-20379	M46-20522	M91-46641	M91-46686	M91-46763
M46-20395	M46 PT	M91-46651	M91-46728	M91-46764
M46-20445	M91-46573	M91-46652	M91-46729	M91-46770
M46-20486	M91-46574	M91-46653	M91-46737	M91-46771
M46-20493	M91-46583	M91-46654	M91-46738	M91-46773

SERIAL NUMBERS AFFECTED:

All units built after serial number A-99-20-xxxxx

PART NUMBERS AFFECTED:

Item Description	Old Part Number	New Part Number
Neutral Start Switch Cover	4460785	4461049
Neutral Start Switch Cover Gasket	4460790	4461053
Neutral Start Switch Mounting Plate	4460784	4461051
Neutral Start Switch Conversion Kit	4510118	4510118
Neutral Start Switch Conversion Kit *	4510154	4510154

* No lead wires on the Neutral Start Switch (terminals only)

PARTS DISPOSITION:

- Not Applicable
- Interchangeable
- Non-Interchangeable
- Use Parts in Stock
- Scrap Used Parts
- Return New Parts for Credit
- Order Replacement Parts
- Rework Parts in Stock
- Revise Existing Part Orders
- Scrap New Parts and Supply for Credit

DISTRIBUTION:

- All Product Related Sauer-Sundstrand Distributors
- All Product Related OEM's
- All ASCs
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Service Bulletin SB-99025

PRODUCTS AFFECTED: Series 90 variable displacement pumps, Series 90 variable and fixed displacement motors, Series 51 variable displacement motors, Series 42 variable displacement pumps, M46 variable displacement pumps, M46 variable and fixed displacement motors, M35 fixed displacement motors, M25 fixed displacement motors, and IHT-M15 transmissions which use the KPP Pulse Pick-up (speed sensor)

SUBJECT: KPP Pulse Pick-up Block Point Change from revision E to revision F.

DESCRIPTION:

Sauer-Sundstrand has introduced a product improvement to the KPP Hall Effect Pulse Pick-up, which can be installed in a variety of Sauer-Sundstrand hydrostatic pumps and motors. This bulletin is intended to inform you of this change so that you may update your service parts information.

The connection of the wires to the circuit board contained within the assembly has been modified to improve the robustness of the wire to board joint in extreme environments.

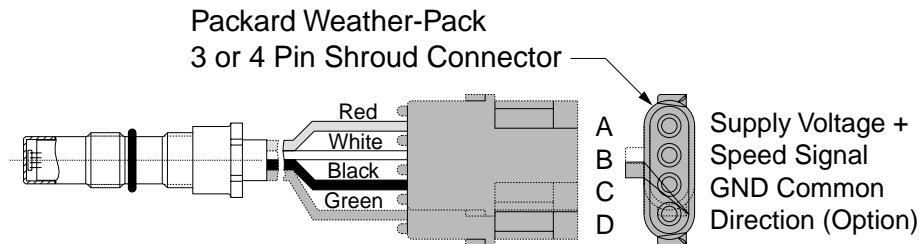
This change can be identified by examining the revision level listed on the name tag attached to the lead wires of the pulse pick-up. The tag will list the pulse pick-up model number as follows;

KPPFXXXXX

The "F" denotes the revision level of the pulse pick-up. The previous revision level was E. The remaining digits and specifications after the revision level (F) (mechanical configuration, voltage signal range, electrical connector type, and lead wire length) remain unchanged.

The revision level F sensor is completely interchangeable with the revision level E sensor. The revision level E will be obsoleted and is no longer available as a service part.

Please refer to BLN 95-9045-2 for additional details.



- X
- X
- X
- X

Service Bulletin SB-99025

MODELS AFFECTED:

Series 90 variable displacement pumps, variable, and fixed displacement motors,
Series 51 variable displacement motors,
Series 42 variable displacement pumps,
M46 variable displacement pumps, variable, and fixed displacement motors,
M35 and M44 fixed displacement motors,
M25 fixed displacement motors,
IHT-M15 transmissions
equipped with integral speed sensors.

SERIAL NUMBERS AFFECTED:

Effective in all products on serial date A-99-25-xxxxx and N-99-25-xxxxx

PART NUMBERS AFFECTED:

See Table on Page 3

Refer to BLN 95-9045-2 for information on KPP speed sensor option code.

PARTS DISPOSITION:

- Not Applicable
- Interchangeable
- Non-Interchangeable
- Use Parts in Stock
- Scrap Used Parts
- Return New Parts for Credit
- Order Replacement Parts
- Rework Parts in Stock
- Revise Existing Part Orders
- Scrap New Parts and Supply for Credit

DISTRIBUTION:

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- All Product Related OEM's
- All ASCs
- Non-Restricted Distribution

Service Bulletin SB-99025

PART NUMBERS AFFECTED:

Sensor Part No.	Where Used
KPPF12408	Series 90 pumps, Series 90 motors, M46 motors
KPPF12508	Series 90 pumps, Series 90 motors, Series 51 motors
KPPF13403	Series 90 pumps
KPPF13408	All products
KPPF13436	Series 51 motors
KPPF13808	Series 90 motors
KPPF14408	Series 90 motors
KPPF15408	Series 90 pumps, Series 51 motors
KPPF15824	Series 90 pumps, Series 90 motors, Series 51
KPPF16008	M46 motors
KPPF16408	Series 90 pumps and motors, Series 51 motors, M46 motors
KPPF16511	Series 90 motors, M35 motors
KPPF23408	Series 51 motors
KPPF23703	Series 90 motors, Series 51 motors
KPPF26408	Series 51 motors
KPPF136	Series 90 pumps, Series motors
KPPF156	All products
KPPF236	Series 51 motors
KPPF256	Series 51 motors

Series 51 speed sensor kit part numbers have been updated to include the new sensor, but the kit number remains unchanged.

796268 - Series 51 080 motor kit with KPPF12508

761411 - Series 51 110 motor kit with KPPF16508

796276 - Series 51 160 motor kit with KPPF12508

796284 - Series 51 250 motor kit with KPPF12508

Refer to BLN 95-9045-2 for information on KPP speed sensor option code.



Service Bulletin SB-99042

PRODUCTS AFFECTED: Series 40 M46 Variable Displacement Pumps and Tandem Pumps

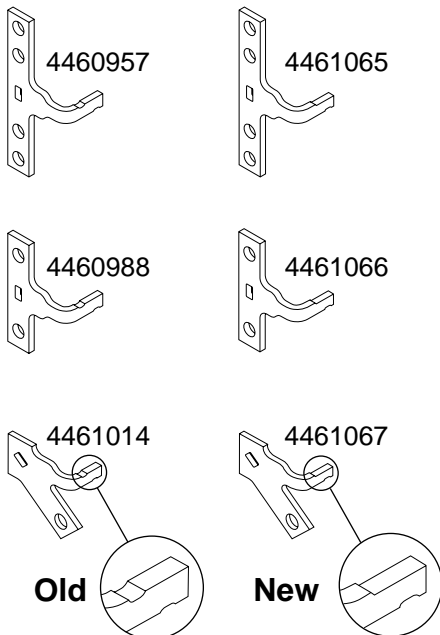
SUBJECT: New Design of the High Force MDC

DESCRIPTION:

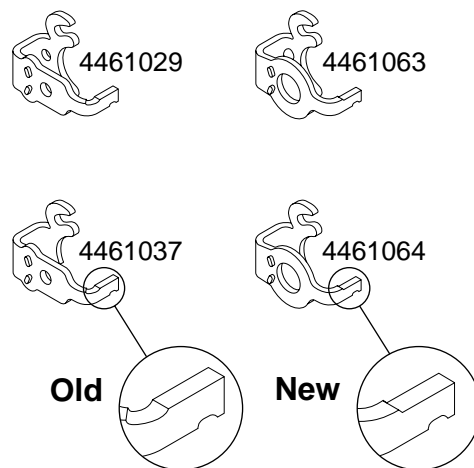
As a product improvement, Sauer-Sundstrand has redesigned the high force MDC control option used on the Series 40 variable displacement pumps and tandem pumps. This change improves the control's ability to return to the neutral position by reducing the potential of the control to bind and subsequently lead to the pump creeping out of neutral.

All of the components that comprise the control kit have been either altered or optimized and, therefore, individual components from older vintages are not interchangeable with the updated version discussed within this service bulletin. The complete control, itself, is interchangeable with the old control. The control kit part numbers obtained through service will not change, but the individual components affected by this change, within those kits, have been replaced by the new components. The old components have been obsoleted and are no longer available as a service part.

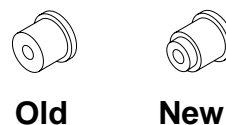
Control Handles



Neutral Return Brackets



Spring Guide



Service Bulletin SB-99042

MODELS AFFECTED:

All Series 40 - M46 variable displacement pumps and tandem pumps with the high force MDC control option

SERIAL NUMBERS AFFECTED:

This change was implemented at serial number A-99-44-xxxxx.

PART NUMBERS AFFECTED:

Item Description	Old Part Number	New Part Number
Neutral Return Bracket	4461029	4461063
Neutral Return Bracket	4461037	4461064
Control Valve Handle	4460957	4461065
Control Valve Handle	4460988	4461066
Control Valve Handle	4461014	4461067
Spring Guide	4461019	4461080
Neutral Return Spring (35 lb-in at installation)	4460958	4461061
Neutral Return Spring (22 lb-in at installation)	4460982	4461060

PARTS DISPOSITION:

- Not Applicable
- Interchangeable - Only as a complete control, (Reference the text on the front page)
- Non-Interchangeable
- Use Parts in Stock
- Scrap Used Parts
- Return New Parts for Credit
- Order Replacement Parts
- Rework Parts in Stock
- Revise Existing Part Orders
- Scrap New Parts and Supply for Credit

DISTRIBUTION:

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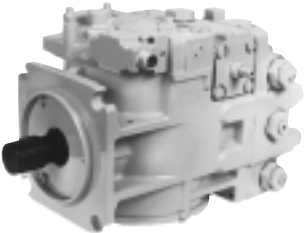



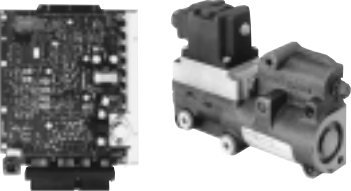
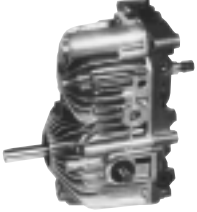

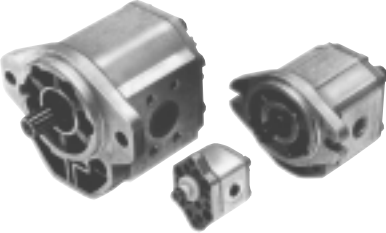

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