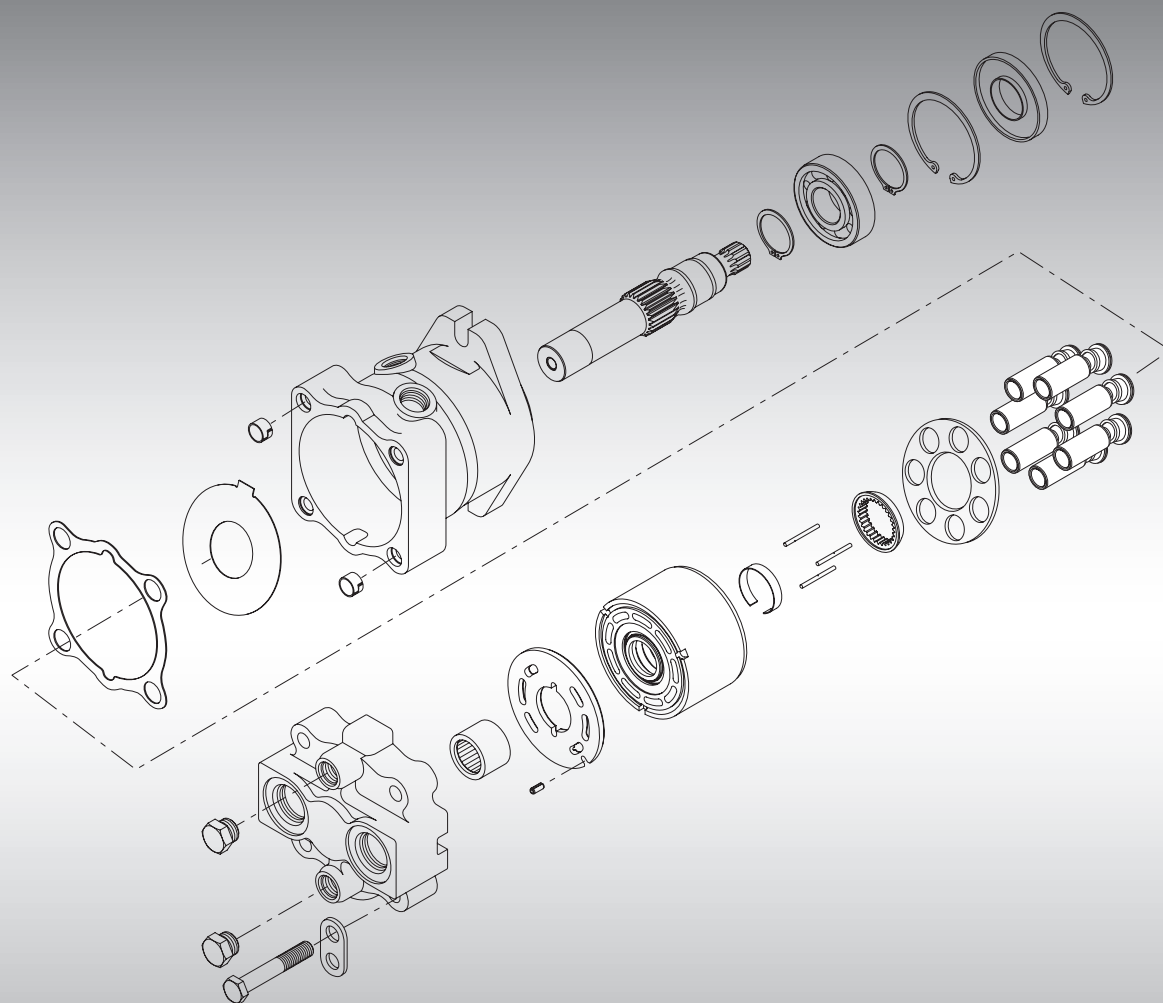




Parts Manual

Series 40 M46 Axial Piston Motors





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General information

Service parts identification

The following information and procedure is used to identify the module group, item number, manufacture date, part number, and part name of the parts included in the series 40 M46 fixed displacement motor and variable displacement motor.

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

Nameplate

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

Model Code

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

Model Number

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

Serial Number

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

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

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.



General information

Date code

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

EXAMPLE: The service part desired is Item H10

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Usage
	3113	86-23		4460407	Thrust plate	1
	3113	84-31	86-22	4460033	Thrust plate	1

All units using this order code with a date code of 84-31 and up to and including 86-22, must use part number "4460013". All units with a date code of 86-23 and newer must use part number "4460407".

Service bulletins

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

Procedure to identify a part

General

The modular design of series 40 units results in a simplified service parts list and part number identification procedure. The same item numbers are used for same part names on all units within a product type. (Example: The lip seal - Item 3201 has the same item number on all motors.)

A part number that has another number following it in parentheses is done to make this a world wide manual. The first number is sold in Germany. The number in parentheses is sold in the United States. (Example: 5000731, customers would order 373282 (9001315-0011) if ordering the part in the United States.)

Example of a Part Identification

The nameplate on an M46 fixed displacement motor has an Order Code of MMF046C A E A B B NNN. Use the following procedures to determine the part number of the drive shaft used on this motor.

- 1) Referring to the output shaft module in the Order Code (see page 7), the output shaft option for this motor is identified by the code "E". (MMF046C A **E** A B B NNN)
- 2) Referring to the Service Parts List, find the shaft group. Next find the order code that relates to this unit, which is "E". The shaft is found to be item 3301 and part number 4460582.

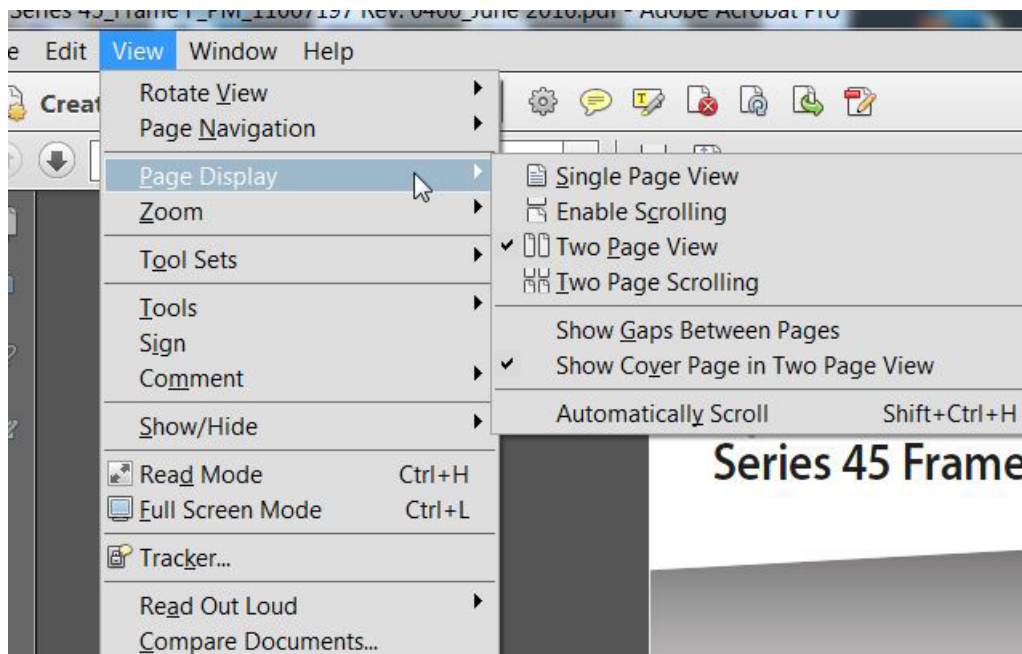


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Adobe Acrobat 2-page viewing

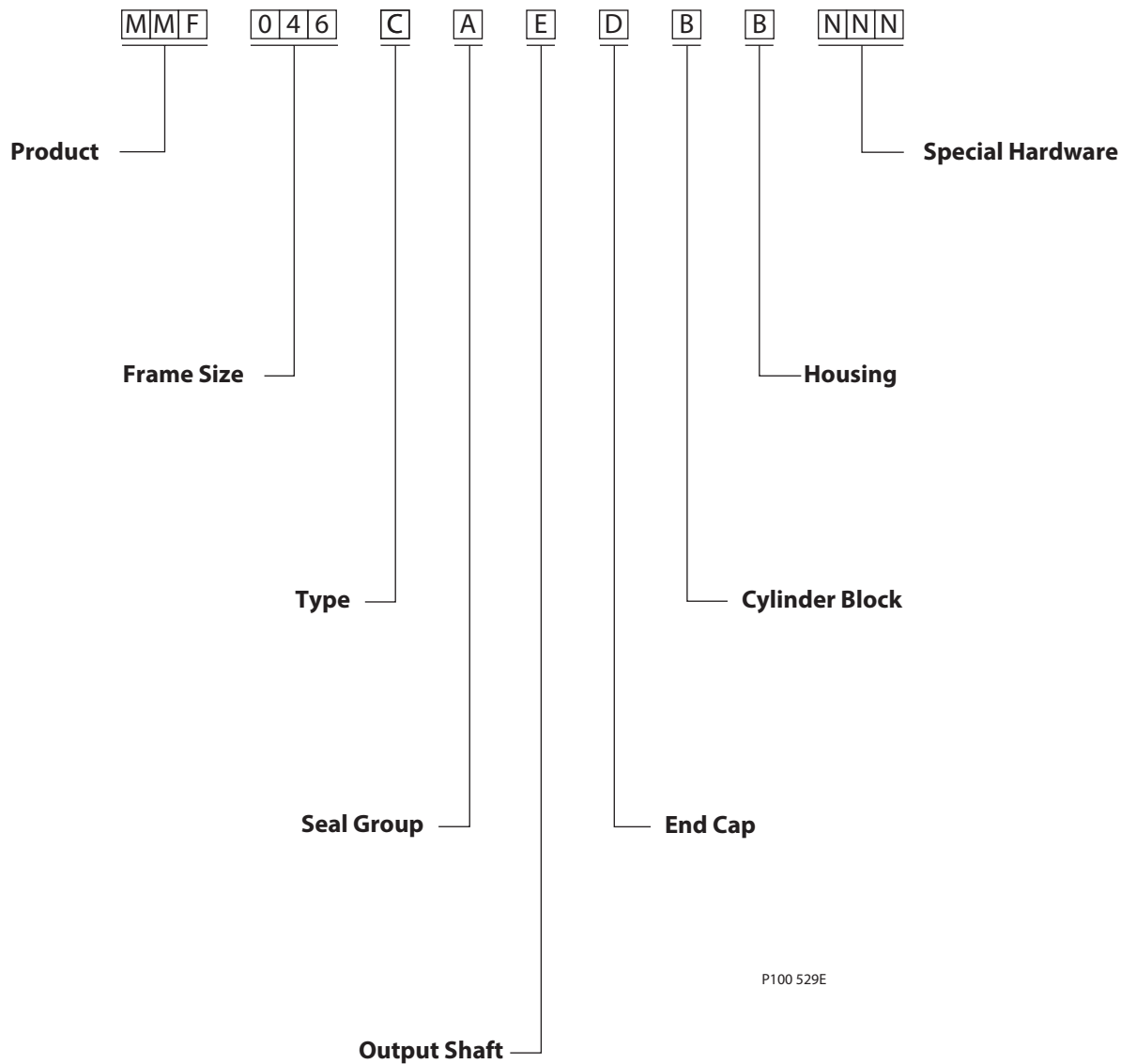
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1. With open document
2. Select "View" --> "Page Display" --> "Two Page View"
3. Select "View" --> "Page Display" --> "Show Cover Page in Two Page View"



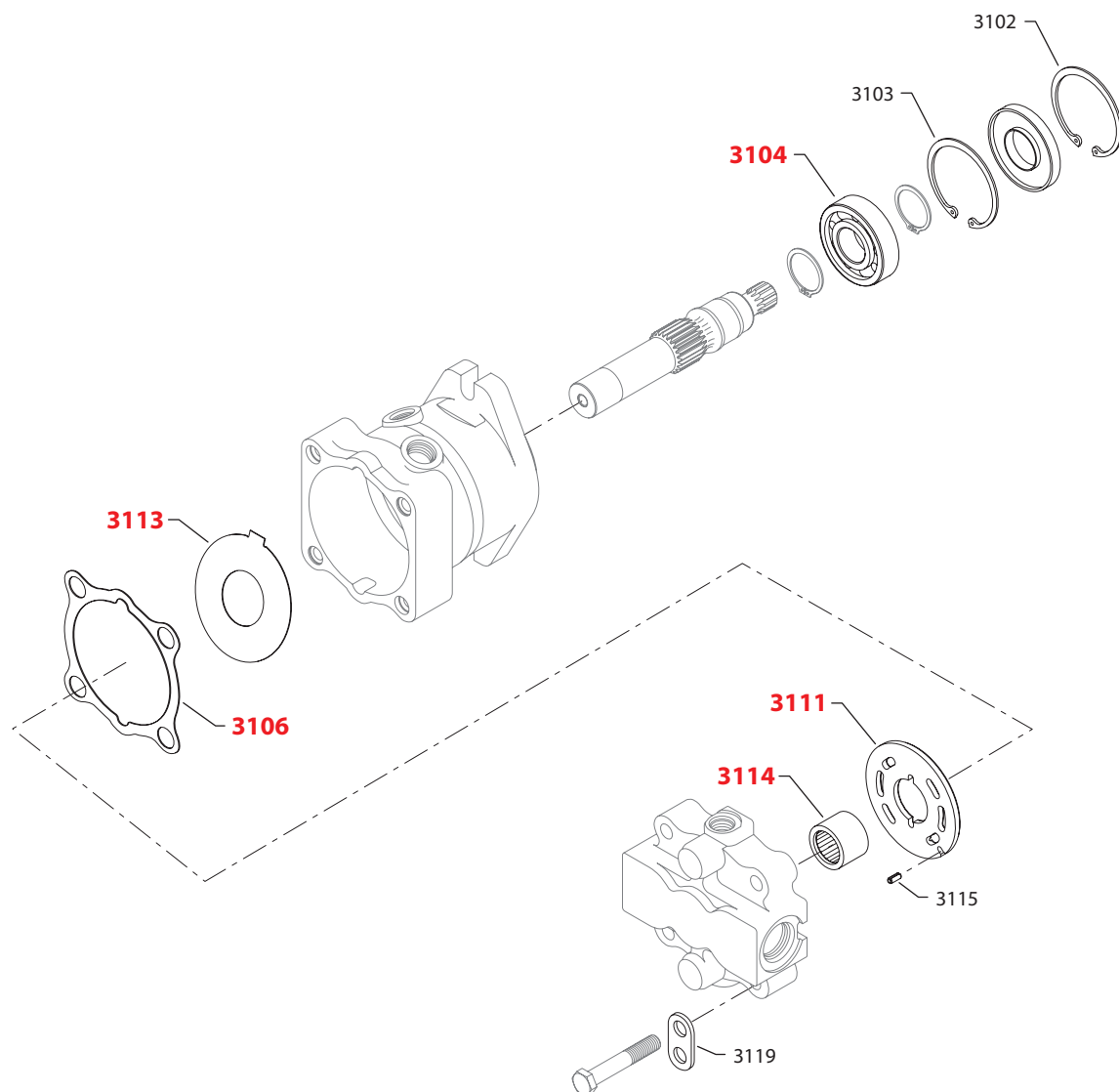


Order code



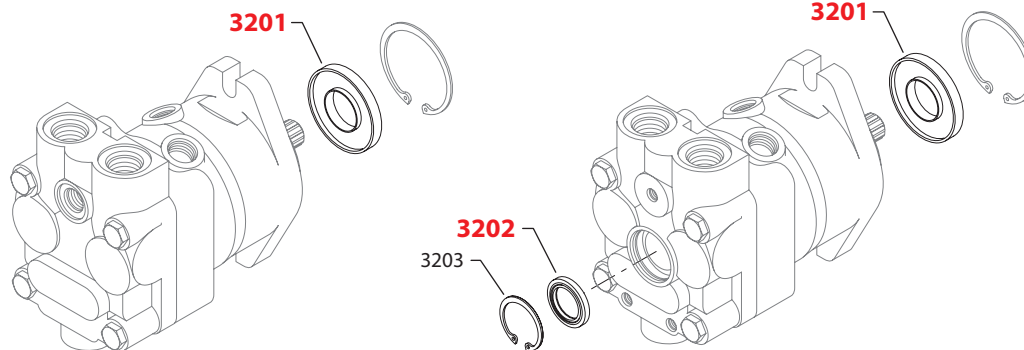


Fixed displacement motor



(A)

(B)



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

Fixed displacement motor
Common parts

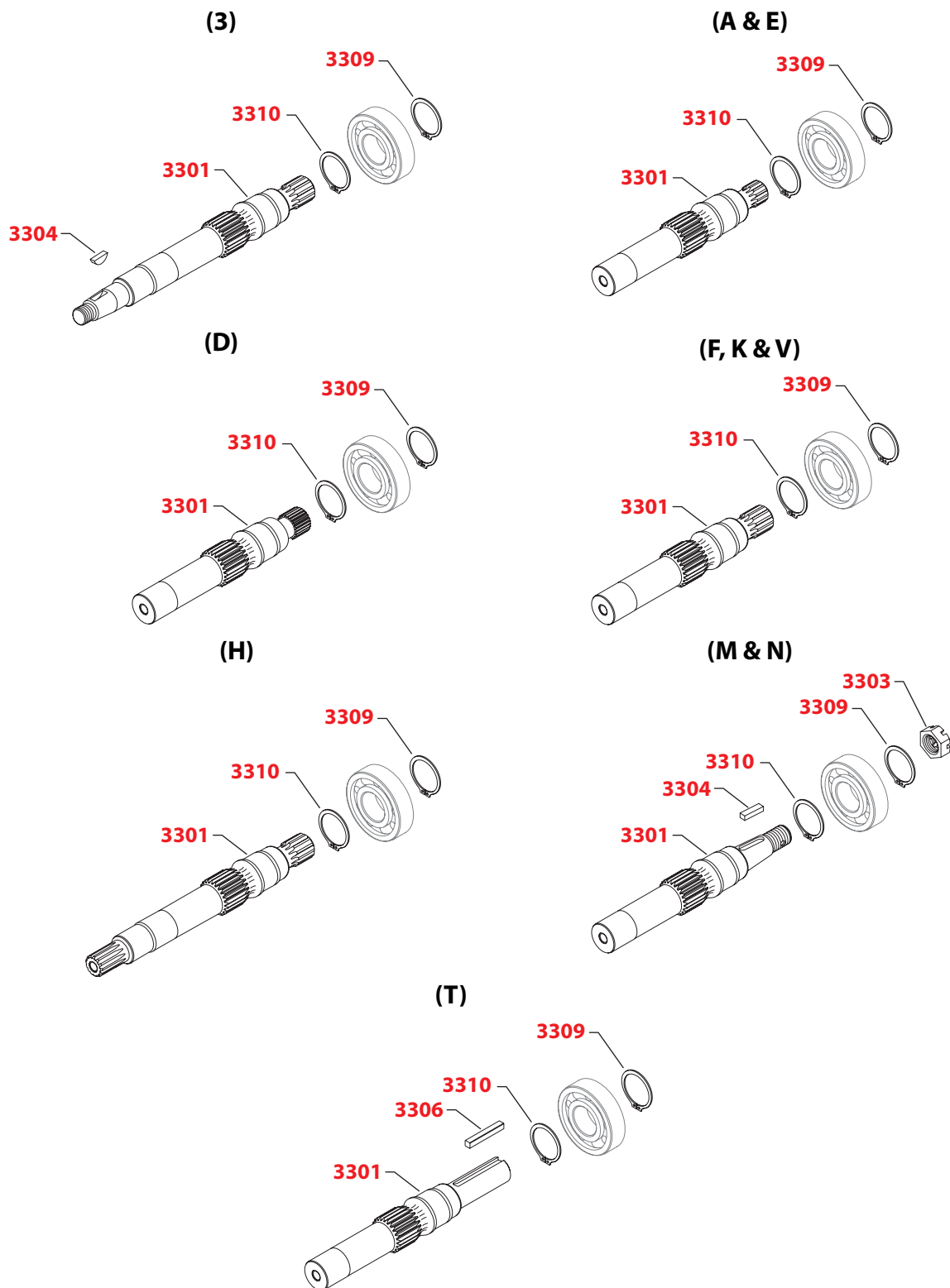
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	3102	86-30		9006200-0281	Retaining ring	1
	3103	84-31		9006200-0281	Retaining ring	1
	3104	84-31		5000731	Ball bearing	1
	3106	84-31		4460999	End cap gasket (SB-1999-018)	1
	3111	84-31		4461105	Valve plate (SB-1999-058)	1
	3113	86-23		4460407	Thrust plate	1
	3113	84-31	86-22	4460033	Thrust plate	1
	3114	84-31		9001465-0010	Needle bearing	1
	3115	84-31		9004700-1907	Pin	1
	3119	84-31		9801000	Lifting bracket	1
	3309	84-31		9006300-0137	Retaining ring	1
	3310	84-31		9006300-0137	Retaining ring	1

Seal group

A	3201	84-31		9008000-0121	Lip seal	1
B	3201	84-31		9008000-0121	Lip seal	1
	3202	84-31		9008000-0131	Lip seal	1
	3205	84-31		9006200-0169	Retaining ring	1



Fixed displacement motor



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

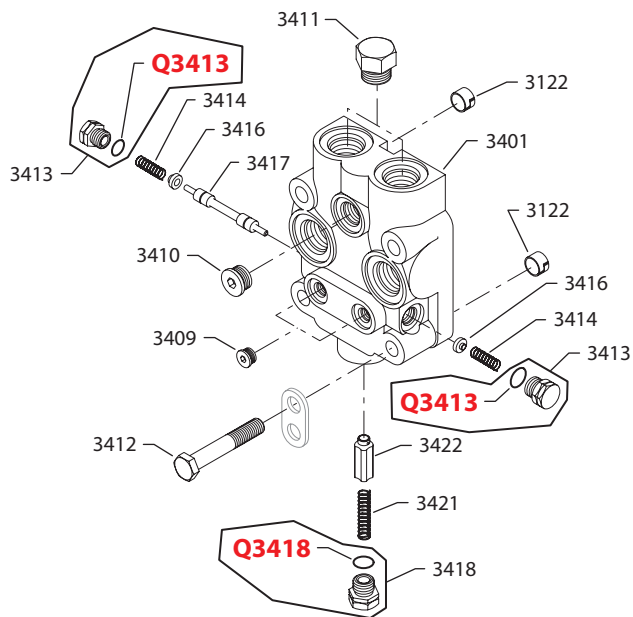
Fixed displacement motor
Shaft

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
all	3309	89-09		9006300-0137	Retaining ring	1
	3310	89-09		9006300-0137	Retaining ring	1
3	3301	01-05		4461143	Shaft 13 tooth, tapered auxiliary	1
	3304	01-05		9003310-1910	Key	1
A	3301	84-31	89-39	4460485	Shaft, 13 tooth (SB-1989-010)	1
D	3301	95-12		4460812	Shaft, 19 tooth	1
E	3301	84-31		4460582	Shaft, 13 tooth	1
F	3301	84-31	89-39	4460121	Shaft, 15 tooth (SB-1989-010)	1
H	3301	84-31		4460312	Shaft, 15 tooth/13 tooth auxiliary	1
K	3301	84-31		4460285	Shaft, 15 tooth	1
M	3301	89-09		4461309	Shaft, tapered (SB-2002-021)	1
	3303	89-09		9003575-0071	Nut	1
	3304	02-35		5000664	Key, square	1
	3304	89-09	02-34	9003310-2514	Key, woodruff	1
N	3301	84-31	89-39	4461309	Shaft, tapered (SB-1989-010)	1
	3303	84-31	89-39	9003575-0071	Nut	1
	3304	84-31	89-39	5000664	Key	1
T	3301	89-10		4460578	Shaft, straight key	1
	3306	89-10		9003261-2526	Key	1
V	3301	84-31		670364	Shaft, 14 tooth	1

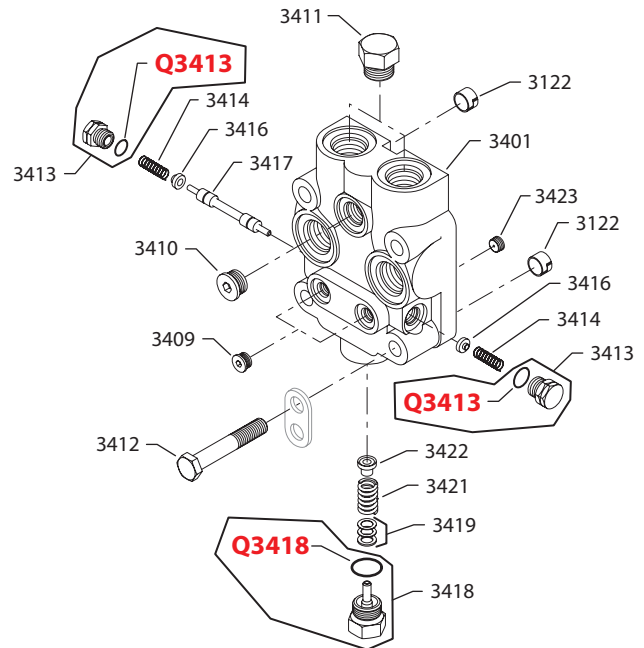


Fixed displacement motor

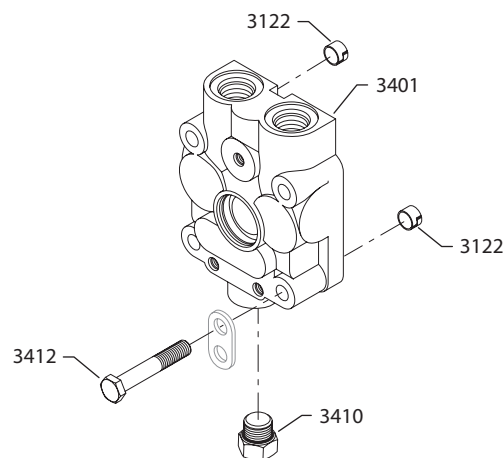
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(8)



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Parts Manual

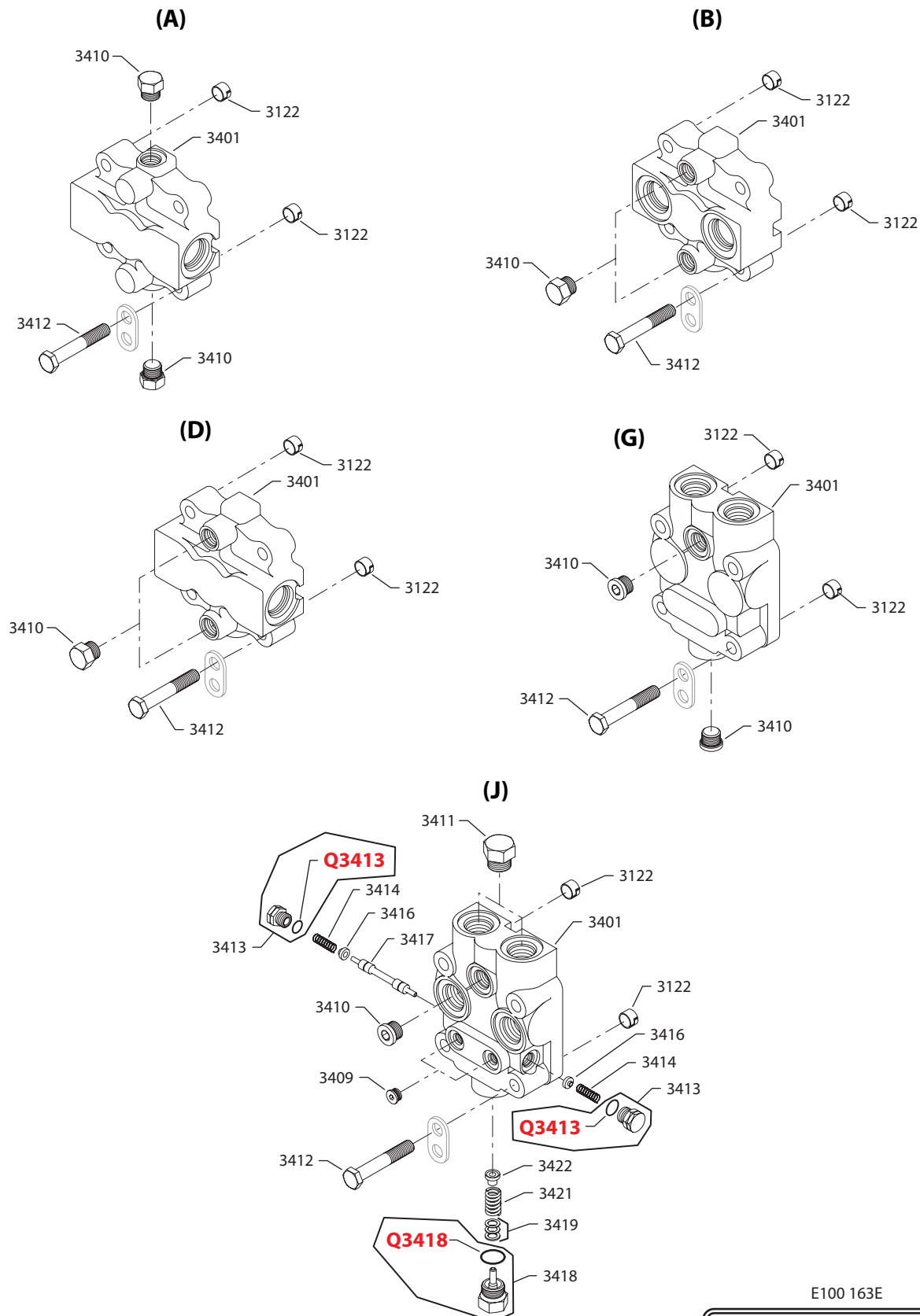
Series 40 M46 Axial Piston Motors

Fixed displacement motor

End cap

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
2	3122	97-25		5000397	Pin	2
	3401	97-25		4460874	End cap	1
	3409	97-25		327007 (9005110-4400)	Plug assembly	2
	3410	97-25		681296 (9005110-7500)	Plug assembly	1
	3411	97-25		093625 (9005100-9000)	Plug assembly	2
	3412	97-25		753632 (9007200-5036)	Screw	4
	3413	97-25		4800365	Plug assembly	2
	3414	97-25		4800225	Spring	2
	3416	97-25		512257	Spring guide	2
	3417	97-25		365544 (8800550)	Shuttle spool	1
	3418	97-25		4800280	Plug assembly	1
	3421	97-25		768853	Spring	1
	3422	97-25		4800397	Poppet	1
	Q3413	97-25		085043 (9004201-3700)	O-ring	2
	Q3418	97-25		015818 (9004201-3100)	O-ring	1
6	3122	99-48		5000397	Pin	2
	3401	99-48		4460873	End cap	1
	3409	99-48		327007 (9005110-4400)	Plug assembly	2
	3410	99-48		681296 (9005110-7500)	Plug assembly	1
	3411	99-48		093625 (9005100-9000)	Plug assembly	2
	3412	99-48		753632 (9007200-5036)	Screw	4
	3413	99-48		4800365	Plug assembly	2
	3414	99-48		4800225	Spring	2
	3416	99-48		512257	Spring guide	2
	3417	99-48		365544 (8800550)	Shuttle spool	1
	3418	99-48		4800308	Plug assembly	1
	3419	99-48		4510027	Shim kit	1
	3421	99-48		4800176	Spring	1
	3422	99-48		4800134	Poppet	1
	3423	99-48		8800242-0001	Orifice plug	1
	Q3413	97-25		085043 (9004201-3700)	O-ring	2
	Q3418	97-25		015818 (9004201-3100)	O-ring	1
8	3122	01-05		5000397	Pin	2
	3401	01-05		4461142	End cap	1
	3410	01-05		681296 (9005110-7500)	Plug assembly	1
	3412	01-05		9007200-5036	Screw	4

Fixed displacement motor



E100 163E

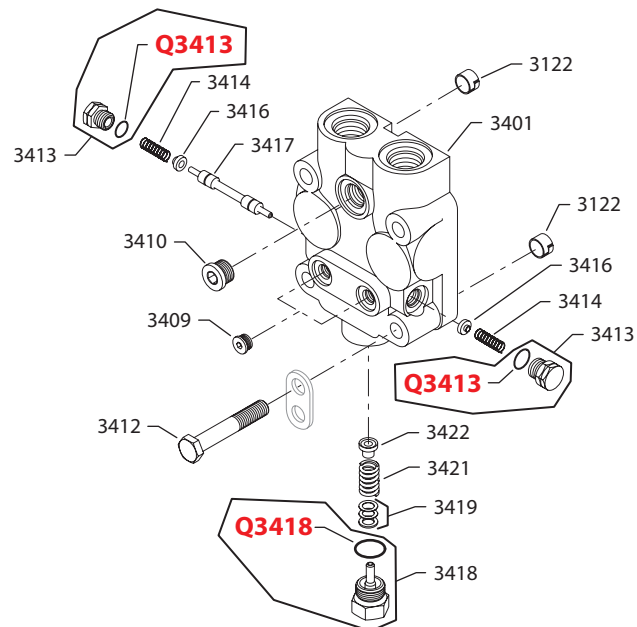
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Fixed displacement motor
End cap

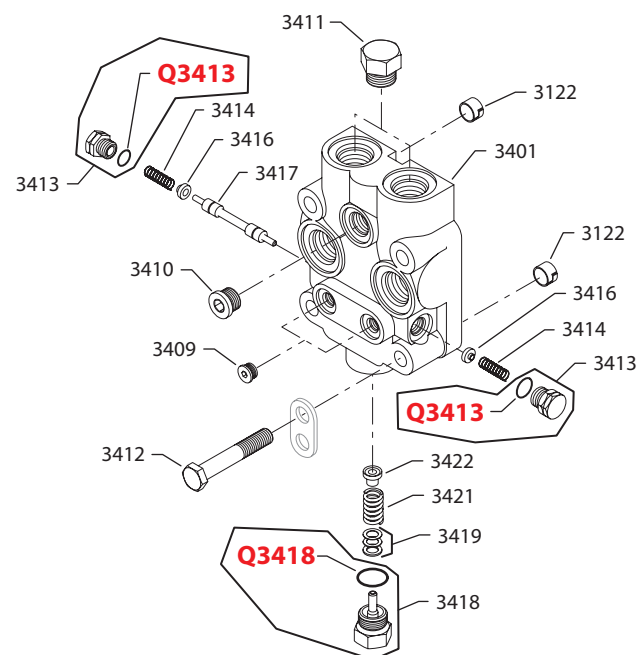
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
A	3122	97-41		5000397	Pin (SB-1996-022)	2
	3401	84-31		4460868	End cap (SB-1996-022)	1
	3410	84-31		001529 (9005100-7500)	Plug assembly	2
	3412	84-31		9007200-5030	Screw	4
B	3122	97-41		5000397	Pin (SB-1996-022)	2
	3401	84-31		4460867	End cap (SB-1996-022)	1
	3410	84-31		001529 (9005100-7500)	Plug assembly	2
	3412	84-31		9007200-5030	Screw	4
D	3122	00-49		5000397	Pin	2
	3405	00-49		4461041	End cap	1
	3410	00-49		001529 (9005100-7500)	Plug assembly	2
	3412	00-49		9007200-5030	Screw	4
G	3122	97-14		5000397	Pin	2
	3401	97-14		4460964	End cap	1
	3410	97-14		681296 (9005110-7500)	Plug assembly	2
	3412	97-14		753632 (9007200-5036)	Screw	4
J	3122	97-08		5000397	Pin (SB-1996-022)	2
	3401	97-08		4460871	End cap (SB-1996-022)	1
	3409	92-19		327007 (9005110-4400)	Plug assembly	2
	3410	92-19		681296 (9005110-7500)	Plug assembly	1
	3411	92-19		001537 (9005100-8700)	Plug assembly	2
	3412	92-19		753632 (9007200-5036)	Screw	4
	3413	92-19		4800365	Plug assembly	2
	3414	92-19		4800225	Spring	2
	3416	92-19		512257	Spring guide	2
	3417	92-19		365544 (8800550)	Shuttle spool	1
	3418	92-19		4800308	Plug assembly	1
	3419	92-19		4510027	Shim kit	1
	3421	92-19		4800176	Spring	1
	3422	92-19		4800134	Poppet	1
	Q3413	92-19		085043 (9004201-3700)	O-ring	2
	Q3418	92-19		001149 (9004201-6200)	O-ring	1

Fixed displacement motor

(K)



(L)



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Parts Manual

Series 40 M46 Axial Piston Motors

Fixed displacement motor

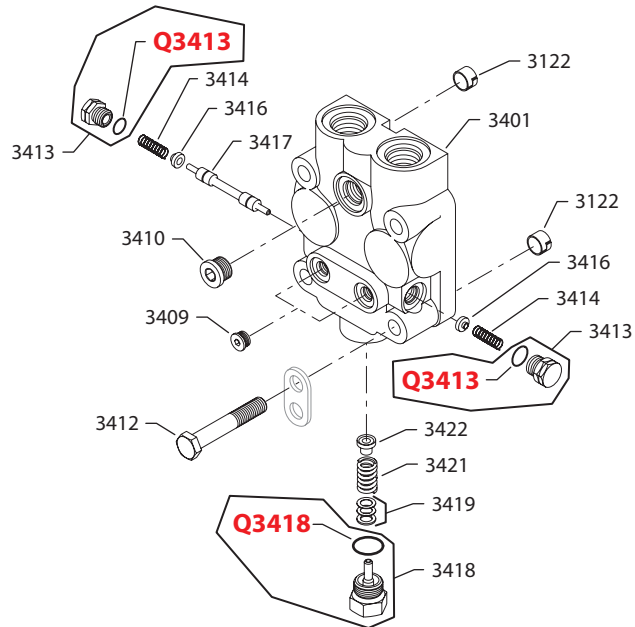
End cap

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
K	3122	97-01		5000397	Pin (SB-1996-022)	2
	3401	97-01		4460872	End cap (SB-1996-022)	1
	3409	93-08		327007 (9005110-4400)	Plug assembly	2
	3410	93-08		681296 (9005110-7500)	Plug assembly	1
	3412	93-08		753632 (9007200-5036)	Screw	4
	3413	93-08		4800365	Plug assembly	2
	3414	93-08		4800225	Spring	2
	3416	93-08		512257	Spring guide	2
	3417	93-08		365544 (8800550)	Shuttle spool	1
	3418	93-08		4800308	Plug assembly	1
	3419	93-08		4510027	Shim kit	1
	3421	93-08		8800496	Spring	1
	3422	93-08		4800134	Poppet	1
	Q3413	93-08		085043 (9004201-3700)	O-ring	2
	Q3418	93-08		001149 (9004201-6200)	O-ring	1
L	3122	97-01		5000397	Pin (SB-1996-022)	2
	3401	97-01		4460871	End cap (SB-1996-022)	1
	3409	92-19		327007 (9005110-4400)	Plug assembly	2
	3410	92-19		681296 (9005110-7500)	Plug assembly	1
	3411	92-19		001537 (9005100-8700)	Plug assembly	2
	3412	92-19		753632 (9007200-5036)	Screw	4
	3413	92-19		4800365	Plug assembly	2
	3414	92-19		4800225	Spring	2
	3416	92-19		512257	Spring guide	2
	3417	92-19		365544 (8800550)	Shuttle spool	1
	3418	92-19		4800308	Plug assembly	1
	3419	92-19		4510027	Shim kit	1
	3421	92-19		8800496	Spring	1
	3422	92-19		4800134	Poppet	1
	Q3413	92-19		085043 (9004201-3700)	O-ring	2
	Q3418	92-19		001149 (9004201-6200)	O-ring	1

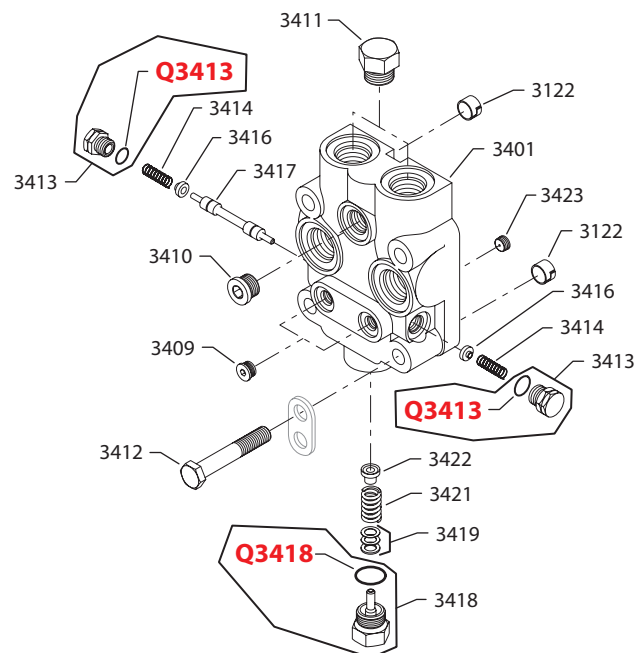


Fixed displacement motor

(N)



(P)



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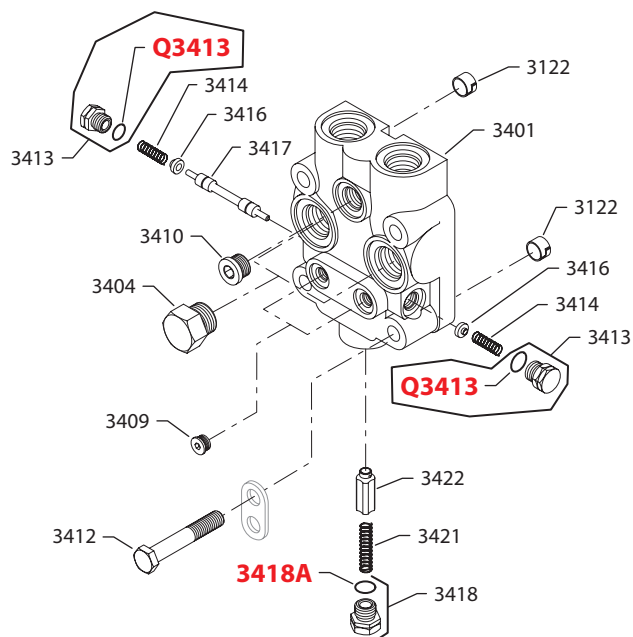
Fixed displacement motor
End cap

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
N	3122	97-01		5000397	Pin (SB-1996-022)	2
	3401	97-01		4460872	End cap (SB-1996-022)	1
	3409	93-44		327007 (9005110-4400)	Plug assembly	2
	3410	93-44		681296 (9005110-7500)	Plug assembly	1
	3412	93-44		753632 (9007200-5036)	Screw	4
	3413	93-44		4800365	Plug assembly	2
	3414	93-44		4800225	Spring	2
	3416	93-44		512257	Spring guide	2
	3417	93-44		365544 (8800550)	Shuttle spool	1
	3418	93-44		4800308	Plug assembly	1
	3419	93-44		4510027	Shim kit	1
	3421	93-44		8800496	Spring	1
	3422	93-44		4800134	Poppet	1
	Q3413	93-44		085043 (9004201-3700)	O-ring	2
	Q3418	93-44		001149 (9004201-6200)	O-ring	1
P	3122	97-01		5000397	Pin (SB-1996-022)	2
	3401	97-01		4460873	End cap (SB-1996-022)	1
	3409	92-19		327007 (9005110-4400)	Plug assembly	2
	3410	92-19		681296 (9005110-7500)	Plug assembly	1
	3411	92-19		001537 (9005100-8700)	Plug assembly	2
	3412	92-19		753632 (9007200-5036)	Screw	4
	3413	92-19		4800365	Plug assembly	2
	3414	92-19		4800225	Spring	2
	3416	92-19		512257	Spring guide	2
	3417	92-19		365544 (8800550)	Shuttle spool	1
	3418	92-19		4800308	Plug assembly	1
	3419	92-19		4510027	Shim kit	1
	3421	92-19		8800496	Spring	1
	3422	92-19		4800134	Poppet	1
	3423	92-19		11061969	Orifice plug	1
	Q3413	92-19		085043 (9004201-3700)	O-ring	2
	Q3418	92-19		001149 (9004201-6200)	O-ring	1

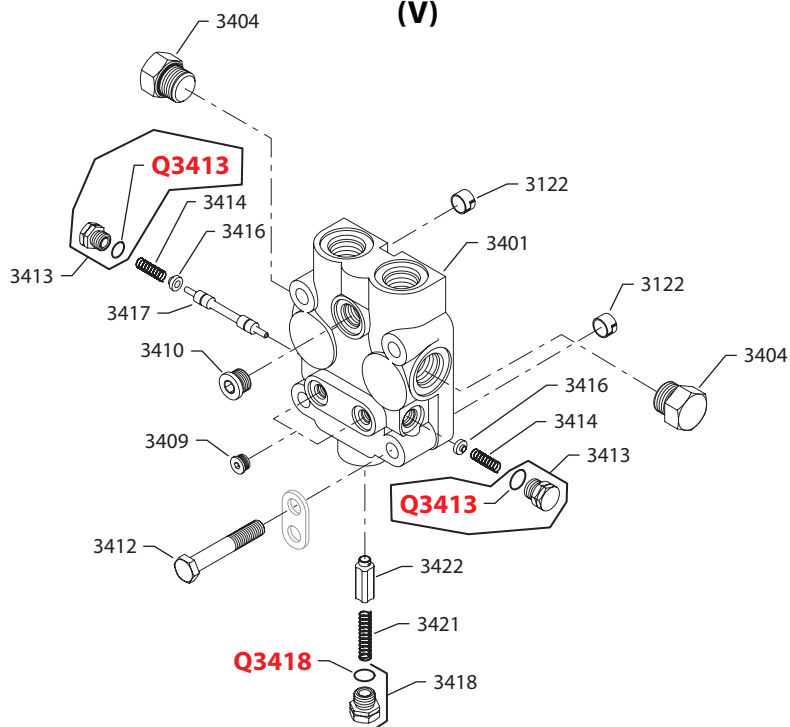


Fixed displacement motor

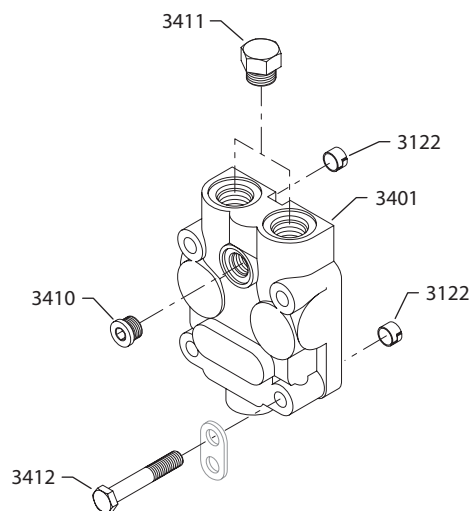
(R)



(V)



(W)



E100 166E

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Parts Manual

Series 40 M46 Axial Piston Motors

Fixed displacement motor

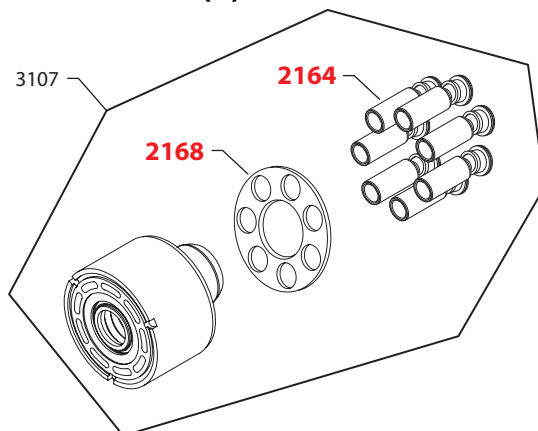
End cap

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
R	3122	97-01		5000397	Pin	2
	3401	97-01		4460874	End cap	1
	3404	95-05		093625 (9005100-9000)	Plug assembly	2
	3409	95-05		327007 (9005110-4400)	Plug assembly	2
	3410	95-05		681296 (9005110-7500)	Plug assembly	1
	3412	95-05		753632 (9007200-5036)	Screw	4
	3413	95-05		4800365	Plug assembly	2
	3414	95-05		4800225	Spring	2
	3416	95-05		512257	Spring guide	2
	3417	95-05		365544 (8800550)	Shuttle spool	1
	3418	95-05		4800280	Plug assembly	1
	3421	95-05		768853	Spring	1
	3422	95-05		4800397	Poppet	1
	Q3413	95-05		085043 (9004201-3700)	O-ring	2
	Q3418	95-05		001149 (9004201-6200)	O-ring	1
V	3122	97-01		5000397	Pin (SB-1996-022)	2
	3401	97-01		4460876	End cap (SB-1996-022)	1
	3404	96-07		093625 (9005100-9000)	Plug assembly	2
	3409	96-07		327007 (9005110-4400)	Plug assembly	2
	3410	96-07		681296 (9005110-7500)	Plug assembly	1
	3412	96-07		753632 (9007200-5036)	Screw	4
	3413	96-07		4800365	Plug assembly	2
	3414	96-07		4800225	Spring	2
	3416	96-07		512257	Spring guide	2
	3417	96-07		365544 (8800550)	Shuttle spool	1
	3418	96-07		4800280	Plug assembly	1
	3421	96-07		768853	Spring	1
	3422	96-07		4800397	Poppet	1
	Q3413	96-07		085043 (9004201-3700)	O-ring	2
	Q3418	96-07		001149 (9004201-6200)	O-ring	1
W	3122	97-25		5000397	Pin	2
	3401	97-25		4460875	End cap	1
	3410	97-25		681296 (9005110-7500)	Plug assembly	2
	3411	97-25		093625 (9005100-9000)	Plug assembly	2
	3412	97-25		753632 (9007200-5036)	Screw	4

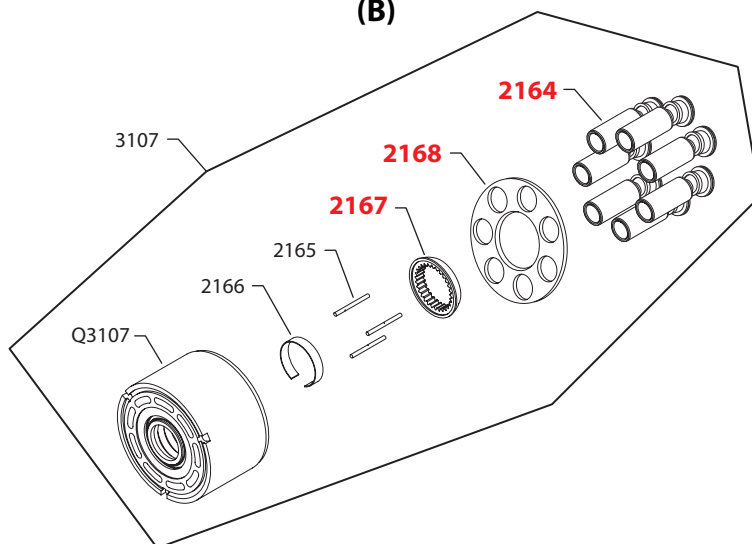


Fixed displacement motor

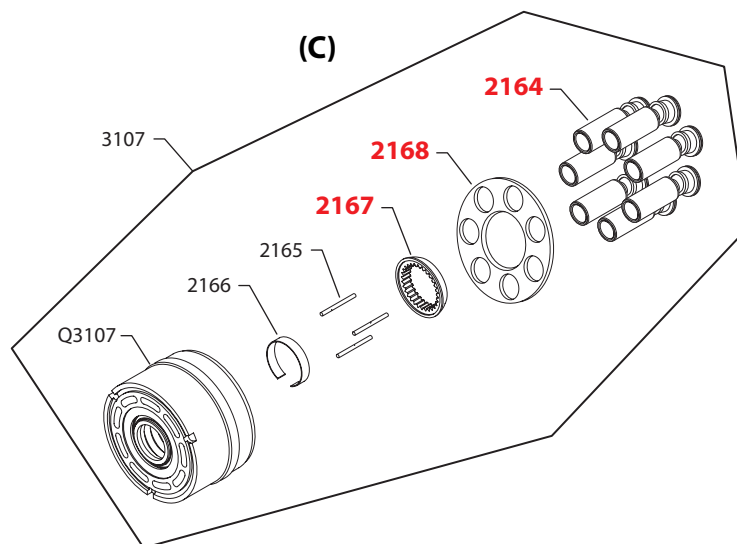
(A)



(B)



(C)



E100 167E

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

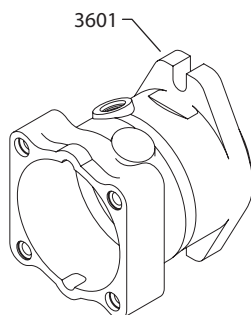

Fixed displacement motor
Cylinder block

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
A	2164	84-31	89-39	4461032	Piston assembly	7
	2168	84-31	89-39	4460032	Slipper retainer	1
	3107	84-31	89-39	4460290	Cylinder block kit (SB-1995-020)	1
B	2164	84-31		4461032	Piston assembly	7
	2165	84-31		9004875-0113	Hold down pin	3
	2166	84-31		4460028	Hold down pin retainer	1
	2167	84-31		4460180	Retainer guide	1
	2168	84-31		4460009	Slipper guide	1
	3107	84-31		4460890	Cylinder block kit (SB-1995-020)	1
	Q3107	84-31		11183528	Cylinder block assembly	1
C	2164	84-31		4461032	Piston assembly	7
	2165	84-31		9004875-0113	Hold down pin	3
	2166	84-31		4460028	Hold down pin retainer	1
	2167	84-31		4460180	Retainer guide	1
	2168	84-31		4460009	Slipper guide	1
	3107	84-31		4460891	Cylinder block kit, with speed ring	1
	Q3107	84-31		11183529	Cylinder block assembly, with speed ring	1

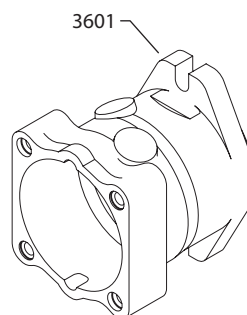


Fixed displacement motor

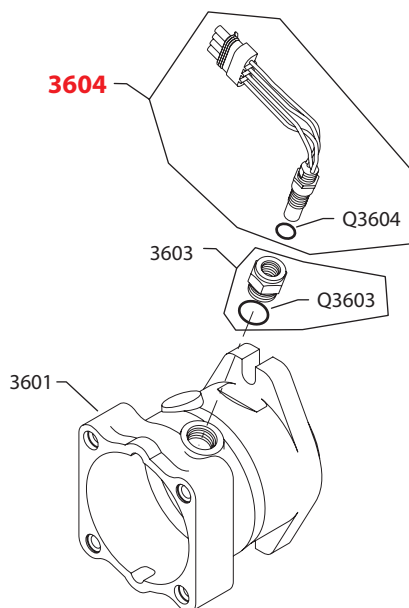
(A)



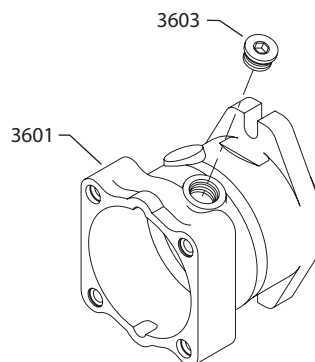
(B)



(D)



(H)



E101 740E

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


Fixed displacement motor
Housing

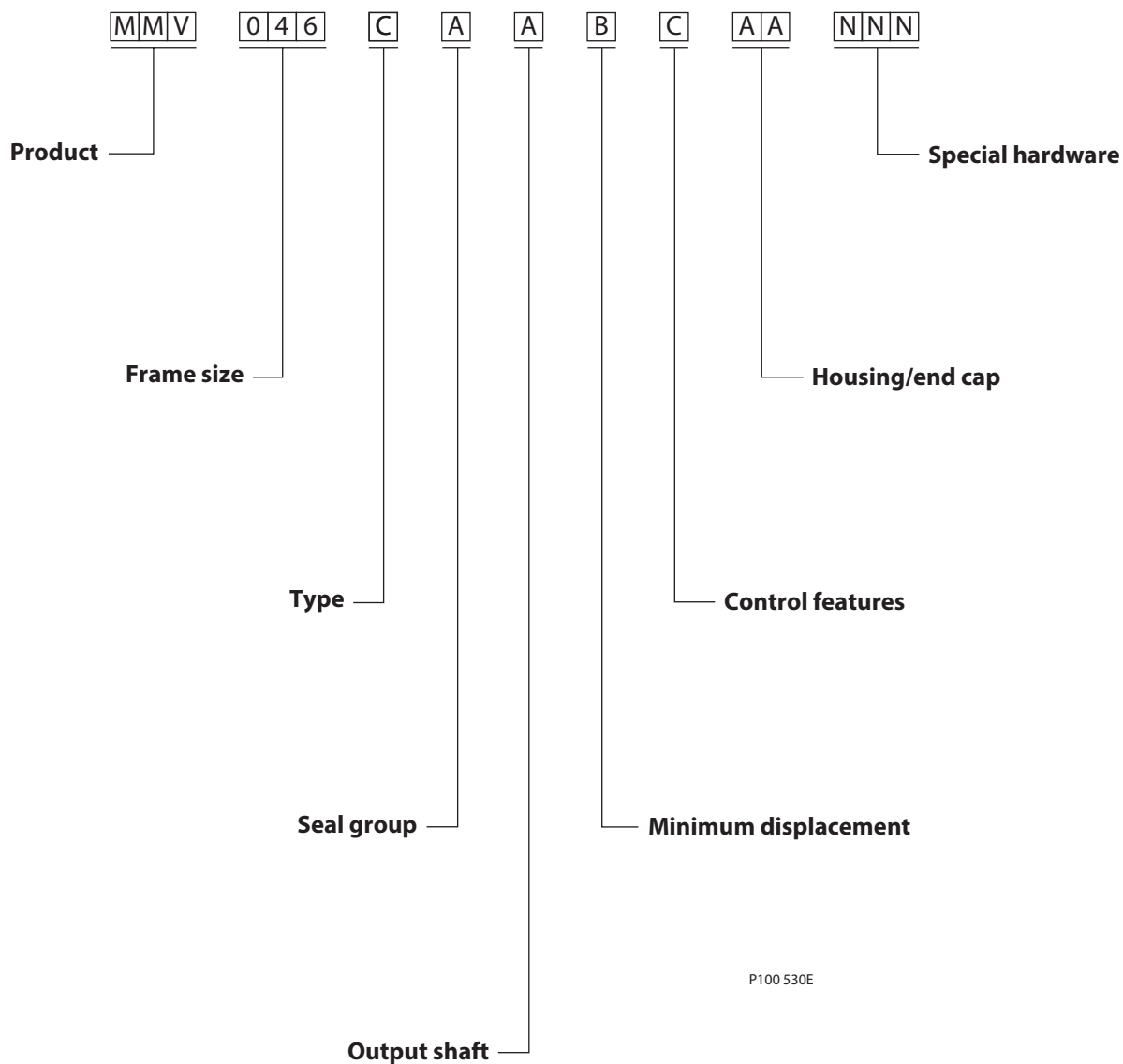
Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
A	3601	86-30		4460865	Housing	1
B	3601	86-23		4460864	Housing	1
D	3601	95-46	06-12	4460866	Housing	1
	3603	95-46	06-12	4800432	Adapter assembly	1
	Q3603	95-46	06-12	001149 (9004201-6200)	O-ring	1
	3604	95-46	06-12	KPPG13408	Speed sensor	1
	Q3604	95-46	06-12	085043 (9004201-3700)	O-ring	1
H	3601	98-24		4460866	Housing	1
	3603	98-24		315325 (9005110-8700)	Plug assembly	1



Notes



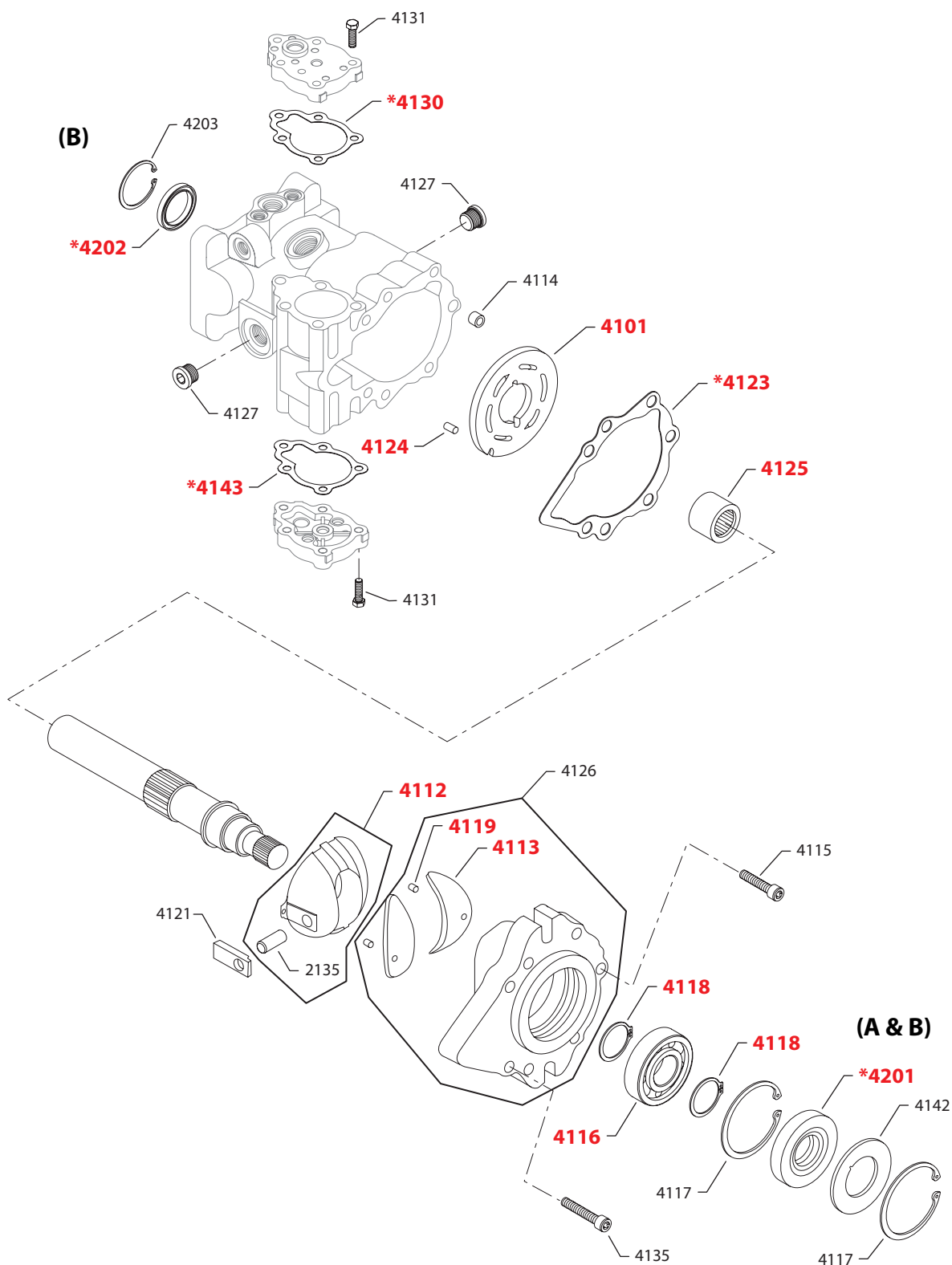
Order code



P100 530E



Variable displacement motor



E100 170E

* = included in overhaul seal kit Q210

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

Parts Manual

Series 40 M46 Axial Piston Motors

Variable displacement motor

Common parts

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	2135	84-31		9004820-4416	Pin, straight	1
	4101	84-31		4461105	Valve plate (SB-1999-058)	1
	4112	86-23		4510072	Swashplate assembly (SB-1994-002)	1
	4113	84-31		11110521	Journal bearing (SB-1994-011 & SB-2012-013)	2
	4114	84-31		4400090	Dowel pin (SB-2015-054)	1
	4115	84-31		5000208	Screw (SB-1994-037)	1
	4116	84-31		5000731	Ball bearing	1
	4117	84-31		615237 (9006200-0281)	Retaining ring	2
	4118	84-31		615245 (9006300-0137)	Retaining ring	2
	4119	84-31		5000116	Pin, coil (SB-1994-011)	2
	4121	84-31		4460162	Bearing sleeve	1
	4122	98-15		4460993	Front cover	1
	4122	89-23	98-14	4460563	Front cover (SB-1998-014)	1
	4122	84-31	89-22	4460392	Front cover (SB-1989-013)	1
	4123	84-31		4460564	Front cover gasket (SB-1989-013)	1
	4124	84-31		9004700-1907	Pin, slotted	1
	4125	84-31		615252 (9001465-0010)	Needle bearing	1
	4126	98-15		4461355	Front cover assembly	1
	4127	84-31		664524 (9005110-9000)	Plug assembly	2
	4130	87-49		4461311	Servo cover gasket (SB-2002-037)	1
	4130	84-31	87-48	4460208	Servo cover gasket (SB-1987-032)	1
	4131	87-05		9007276-0134	Screw (SB-1987-032 & SB-1990-012)	10
	4131	84-31	87-04	9007200-2516	Screw	10
	4135	89-23		5000207	Screw (SB-1994-037)	6
	4135	84-31	89-22	9007510-3716	Screw (SB-1989-013)	6
	4142	98-15		11083729	Support washer (SB-1998-014)	1
	4143	87-49		4461311	Servo cover gasket (SB-2002-037)	1
	4143	84-31	87-48	4460208	Servo cover gasket (SB-1987-032)	1

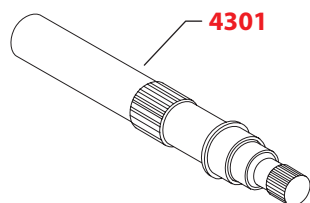
Seal group

A	4201	84-31		9008000-0121	Lip seal	1
B	4201	84-31		9008000-0121	Lip seal	1
	4202	92-43		9008000-0131	Lip seal	1
	4202	84-31	92-42	9008000-0102	Lip seal	1
	4203	84-31		9006200-0169	Retaining ring	1

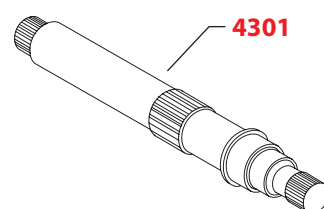


Variable displacement motor

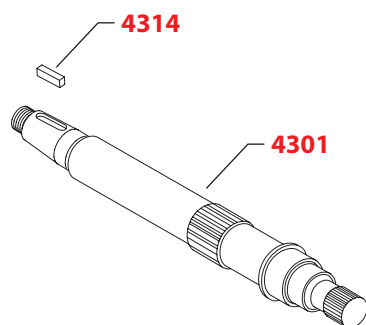
(A,D & E)



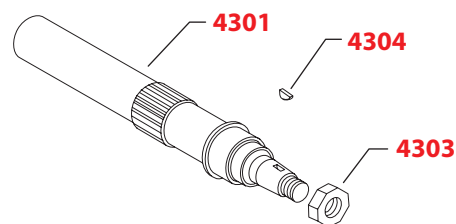
(B & F)



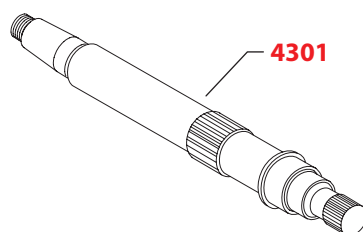
(G)



(J)



(L & M)



E100 171E

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


Variable displacement motor
Shaft

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
A	4301	84-31		4460251	Shaft, 13 tooth, no auxiliary drive	1
B	4301	84-31		4460254	Shaft, 13 tooth, 13 tooth auxiliary drive	1
D	4301	95-12		11041625	Shaft, 19 tooth, no auxiliary drive	1
E	4301	84-31		4460166	Shaft, 15 tooth, no auxiliary drive	1
F	4301	84-31		4460255	Shaft, 15 tooth/13 tooth auxiliary drive	1
G	4301	95-24		4461306	Shaft, 13 tooth/tapered auxiliary drive (SB-2002-021)	1
	4314	02-40		5000664	Key, square (SB-2002-021)	1
	4314	95-24	02-39	9003310-2514	Key, woodruff	1
J	4301	91-07		4460252	Shaft, tapered	1
	4303	91-07		9003575-0071	Nut	1
	4304	91-07		9003310-2514	Key, woodruff	1
L	4301	08-12		11041624	Shaft, 19 tooth/tapered auxiliary drive	1
M	4301	08-39		11052235	Shaft, 15 tooth/tapered auxiliary drive	1

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

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Parts Manual

Series 40 M46 Axial Piston Motors

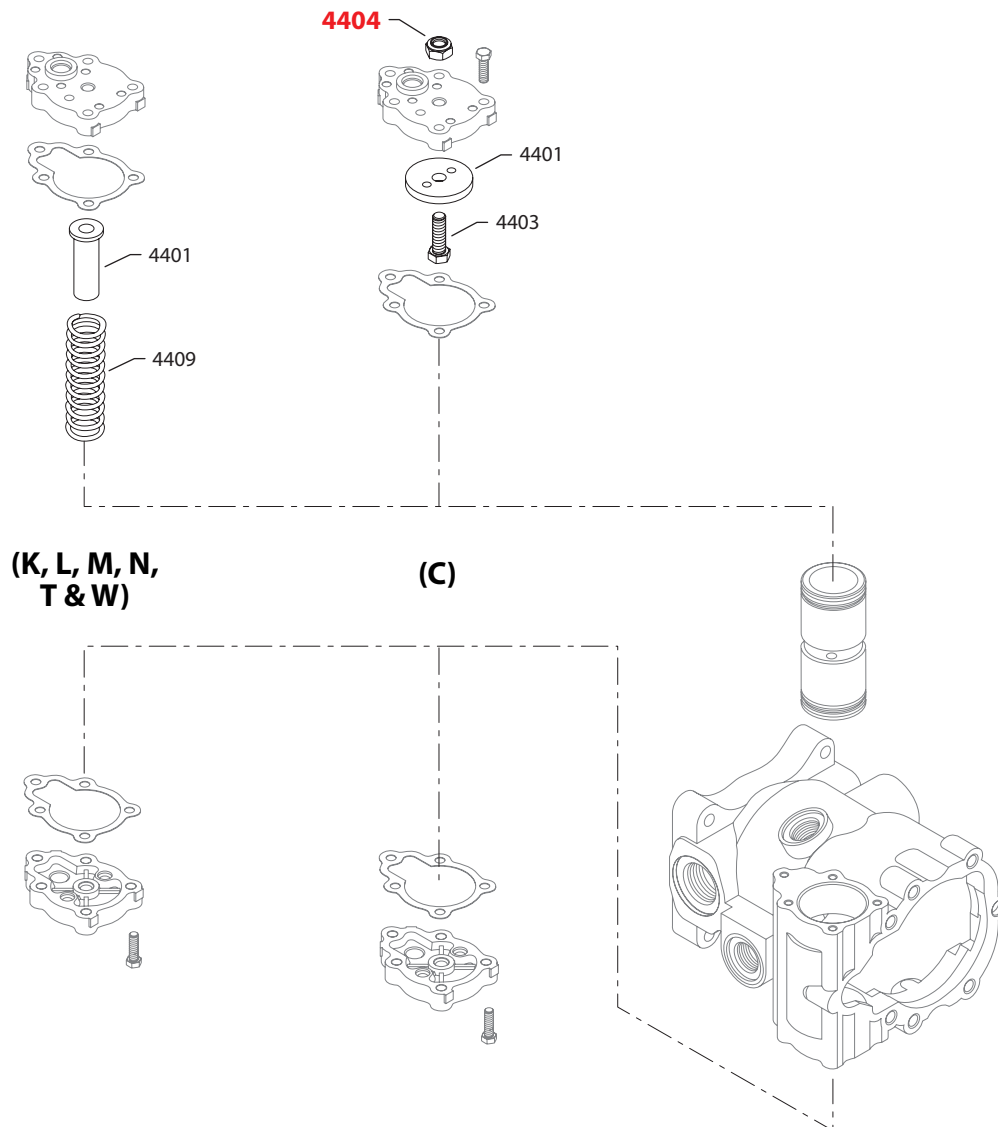
Variable displacement motor

Displacement

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
2	4401	01-07		4461221	Servo stop, 11.75°	1
	4409	01-07		4460086	Servo spring	1
3	4401	01-32		4461312	Servo stop, 0°	1
	4409	01-32		4460086	Spring	1
4	4401	08-26		4460445-0005	Servo stop, 4°	1
	4409	08-26		4460086	Spring	1
5	4401	09-06		4460445-0005	Servo stop, 9.8°	1
	4409	09-06		4460086	Spring	1
6	4401	09-06		4460445-0005	Servo stop, 4.6°	1
	4409	09-06		4460086	Spring	1
A	4401	86-42		4460445-0001	Servo stop, 11°	1
	4401	84-31	86-41	4460250-0003	Spring seat	1
	4409	86-42		4460086	Spring	1
B	4401	86-42		4460445-0003	Servo stop, 7°	1
	4401	84-31	86-41	4460250-0002	Spring seat	1
	4409	86-42		4460086	Spring	1
C	4401	89-35		4460599	Servo stop	1
	4403	89-35		9007201-3722	Screw	1
	4404	89-35		9003575-0083	Seal nut	2
	4405	89-35		4460445-0010	Servo stop	1
	4406	89-35		9007301-3732	Screw	1
	4407	89-35		9003575-0094	Seal nut	1
	4408	89-35		048090 (9007201-3112)	Screw	1
	4409	89-35		4460086	Spring	1
D	4401	86-42		4460445-0004	Servo stop, 6°	1
	4401	84-31	86-41	4460250-0004	Spring seat	1
	4409	86-42		4460086	Spring	1
E	4401	86-42		4460445-0005	Servo stop, 1°	1
	4401	84-31	86-41	4460250-0005	Spring seat	1
	4409	86-42		4460086	Spring	1
F	4401	86-42		4460445-0002	Servo stop, 9°	1
	4401	84-31	86-41	4460250-0002	Spring seat	1
	4409	86-42		4460086	Spring	1
G	4401	86-44	01-31	4460445-0006	Servo stop, -1°	1
	4409	86-44	01-31	4460086	Spring	1
H	4401	86-44		4460445-0007	Servo stop, 8.5°	1
	4409	86-44		4460086	Spring	1



Variable displacement motor



E100 173E

* = included in overhaul seal kit Q210

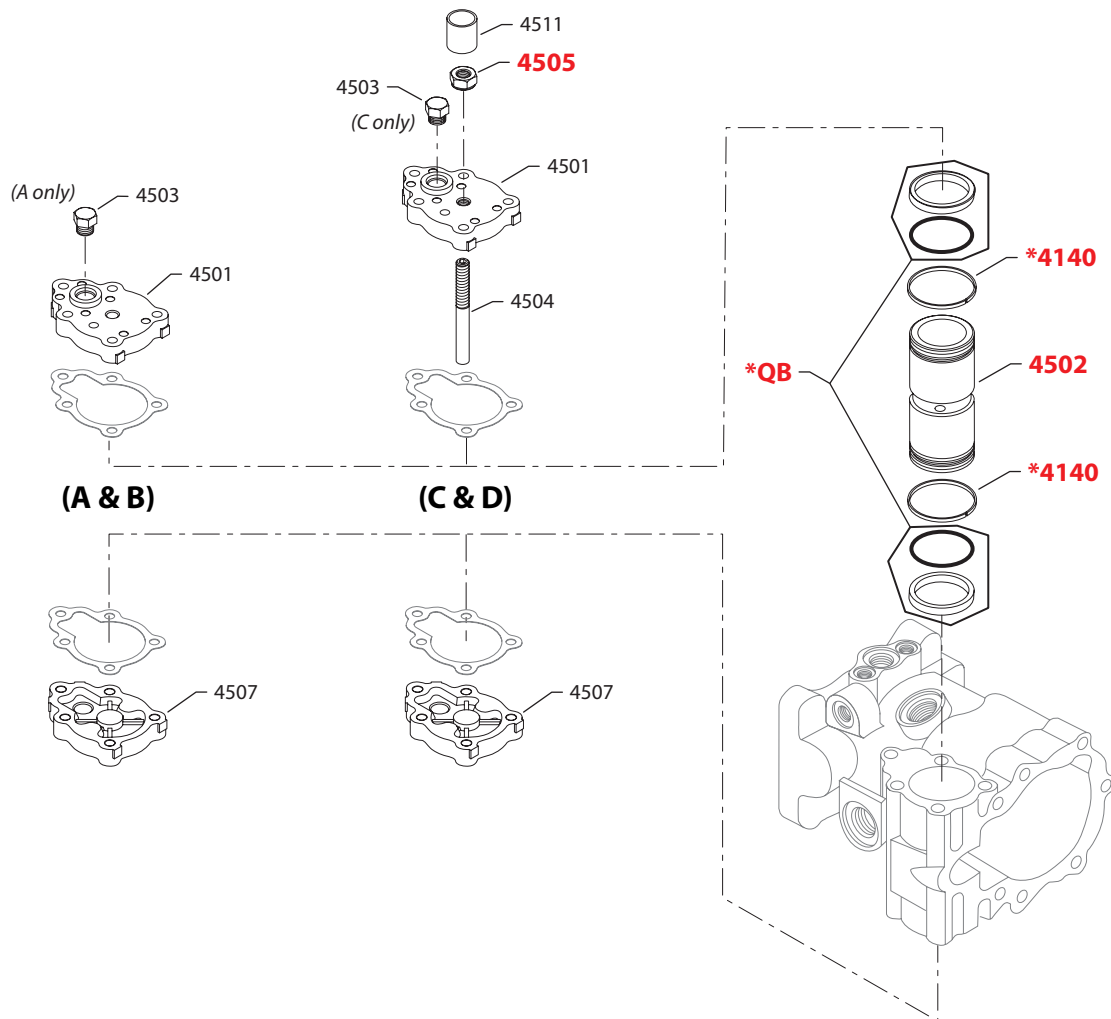
Enlarged **bold** type item numbers are recommended part to stock for servicing.

Variable displacement motor
Displacement

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
K	4401	86-44		11074804	Servo stop, 5.5°	1
	4409	86-44		4460086	Spring	1
L	4401	86-44		4460445-0008	Servo stop, 5°	1
	4409	86-44		4460086	Spring	1
M	4401	86-44		4460445-0009	Servo stop, 8°	1
	4409	86-44		4460086	Spring	1
N	4401	86-44		4460445-0011	Servo stop, 10°	1
	4409	86-44		4460086	Spring	1
P	4401	93-50		4460727	Servo stop, 7°	1
	4403	93-50		9007201-3722	Screw	1
	4404	93-50		9003575-0083	Seal nut	1
R	4401	94-16		4460733	Servo stop, 9°	1
	4403	94-16		9007201-3722	Screw	1
	4404	94-16		9003575-0083	Seal nut	1
T	4401	96-14		4460825	Servo stop, 12.75°	1
	4409	96-14		4460086	Spring	1
W	4401	99-14		4461076	Servo stop, 7.5°	1
	4409	99-14		4460086	Spring	1



Variable displacement motor



E100 174E

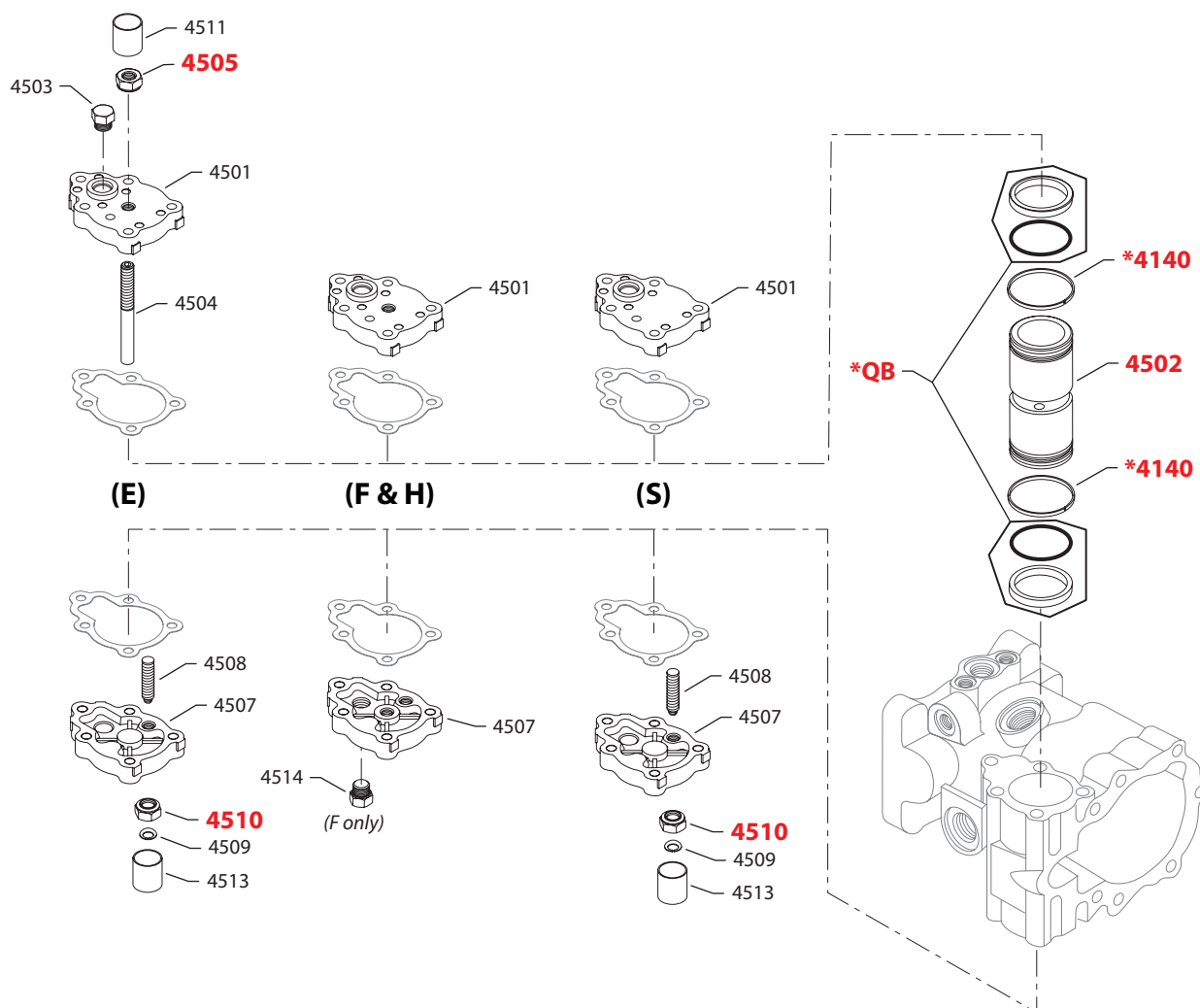
* = included in overhaul seal kit Q210

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

Variable displacement motor
Control features

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
A	QB	86-42		4510002	Servo piston ring kit	1
	4140	88-05		4460648	Bearing ring (SB-1988-002 & SB-1991-009)	2
	4501	87-49		4460455-0004	Servo cover (SB-1987-032)	1
	4502	86-42		4460471	Servo piston	1
	4502	84-31	86-41	4460385	Servo piston	1
	4503	87-49		046151 (9005100-5600)	Plug assembly	1
	4507	87-49		4460455-0004	Servo cover (SB-1987-032)	1
B	QB	87-49		4510002	Servo piston ring kit	1
	4140	88-05		4460648	Bearing ring (SB-1988-002 & SB-1991-009)	2
	4501	87-49		4460455-0004	Servo cover (SB-1987-032)	1
	4502	86-42		4510023	Servo piston assembly	1
	4502	84-31	86-41	4460385	Servo piston (plug not included)	1
	4507	87-49		4460455-0004	Servo cover (SB-1987-032)	1
C	QB	87-49		4510002	Servo piston ring kit	1
	4140	88-05		4460648	Bearing ring (SB-1988-002 & SB-1991-009)	2
	4501	87-49		4460455-0002	Servo cover (SB-1987-032)	1
	4502	86-42		4460471	Servo piston	1
	4502	84-31	86-41	4460385	Servo piston	1
	4503	87-49		046151 (9005100-5600)	Plug assembly	1
	4503A	87-49		085043 (9004201-3700)	O-ring	1
	4504	86-42		4460448	Servo stop	1
	4505	84-31		9003575-0083	Seal nut	1
	4507	87-49		4460455-0004	Servo cover (SB-1987-032)	1
	4511	89-23		718262 (4800175)	Servo adjust cover	1
D	QB	87-49		4510002	Servo piston ring kit	1
	4140	88-05		4460648	Bearing ring (SB-1988-002 & SB-1991-009)	2
	4501	87-49		4460455-0002	Servo cover (SB-1987-032)	1
	4502	86-42		4510023	Servo piston assembly	1
	4502	84-31	86-41	4460385	Servo piston (plug not included)	1
	4504	86-42		4460448	Servo stop	1
	4505	84-31		9003575-0083	Seal nut	1
	4507	87-49		4460455-0004	Servo cover (SB-1987-032)	1
	4511	89-23		718262 (4800175)	Servo adjust cover	1

Variable displacement motor



E100 175E

* = included in overhaul seal kit Q210

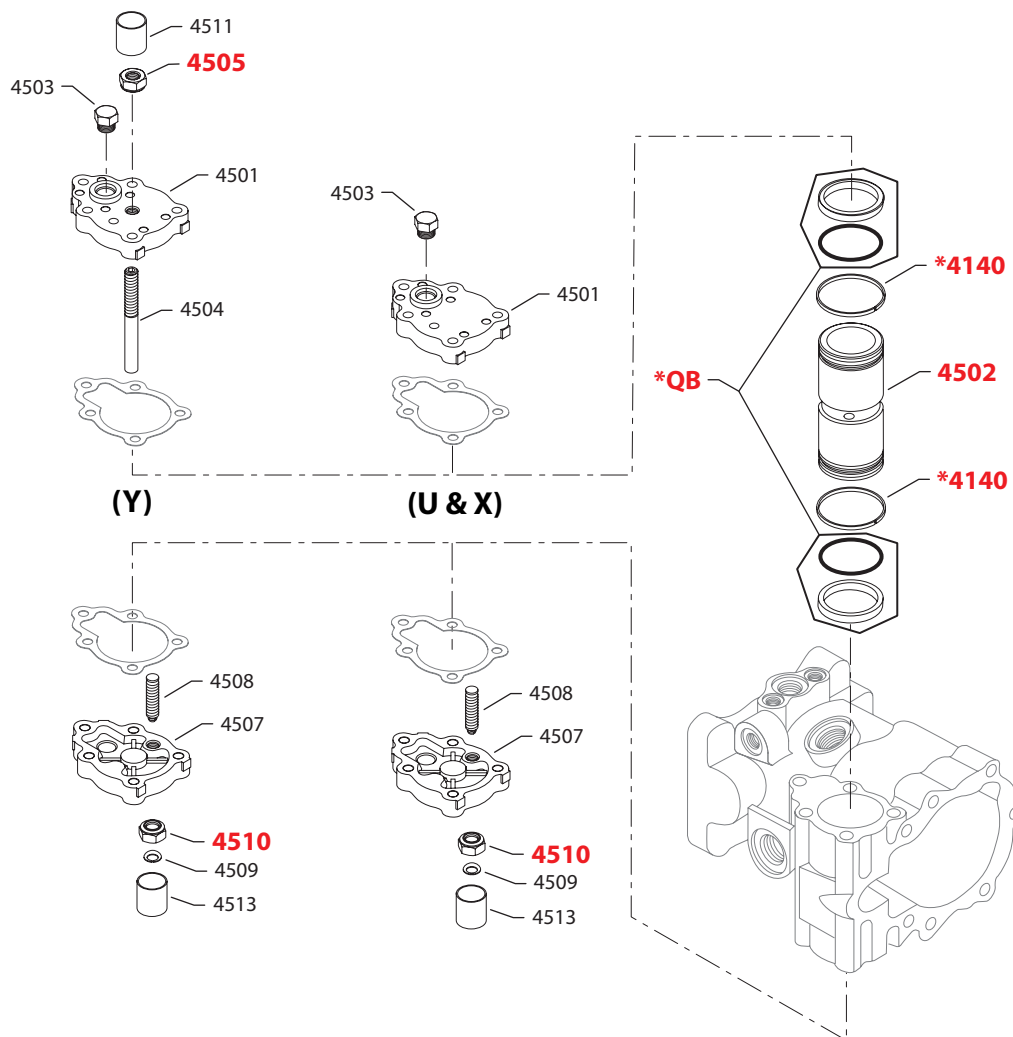
Enlarged **bold** type item numbers are recommended part to stock for servicing.

Variable displacement motor
Control features

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
E	QB	87-49		4510002	Servo piston ring kit	1
	4140	87-49		4460648	Bearing ring (SB-1988-002 & SB-1991-009)	2
	4501	87-49		4460455-0002	Servo cover	1
	4502	87-49		4460471	Servo piston	1
	4503	87-49		046151 (9005100-5600)	Plug assembly	1
	4504	87-49		4460448	Servo stop	1
	4505	87-49		9003575-0083	Seal nut	1
	4507	87-49		4460455-0003	Servo cover	1
	4508	87-49		4460603	Servo stop	1
	4509	87-49		9006326-0025	Retaining ring	1
	4510	87-49		9003575-0094	Seal nut	1
	4511	89-23		718262 (4800175)	Servo adjust cover	1
	4513	89-23		4800174	Servo adjust cover	1
F	QB	87-49		4510002	Servo piston ring kit	1
	4140	87-49		4460648	Bearing ring (SB-1988-002 & SB-1991-009)	2
	4501	89-35		4460455-0002	Servo cover	1
	4502	89-35		4510024	Servo piston assembly	1
	4507	89-35		4460455-0001	Servo cover	1
	4514	87-49		046151 (9005100-5600)	Plug assembly	1
H	QB	93-51		4510002	Servo piston ring kit	1
	4140	93-51		4460648	Bearing ring	2
	4501	93-51		4460455-0002	Servo cover	1
	4502	93-51		4510023	Servo piston assembly	1
	4507	93-51		4460455-0004	Servo cover	1
S	QB	94-22		4510002	Servo piston ring kit	1
	4140	94-22		4460648	Bearing ring	2
	4501	94-22		4460455-0004	Servo cover	1
	4502	94-22		4510023	Servo piston assembly	1
	4507	94-22		4460455-0003	Servo cover	1
	4508	94-22		4460603	Servo stop	1
	4509	94-22		9006326-0025	Retaining ring	1
	4510	94-22		9003575-0094	Seal nut	1
	4513	94-22		4800174	Servo adjust cover	1



Variable displacement motor



E101 742E

* = included in overhaul seal kit Q210

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

Parts Manual

Series 40 M46 Axial Piston Motors

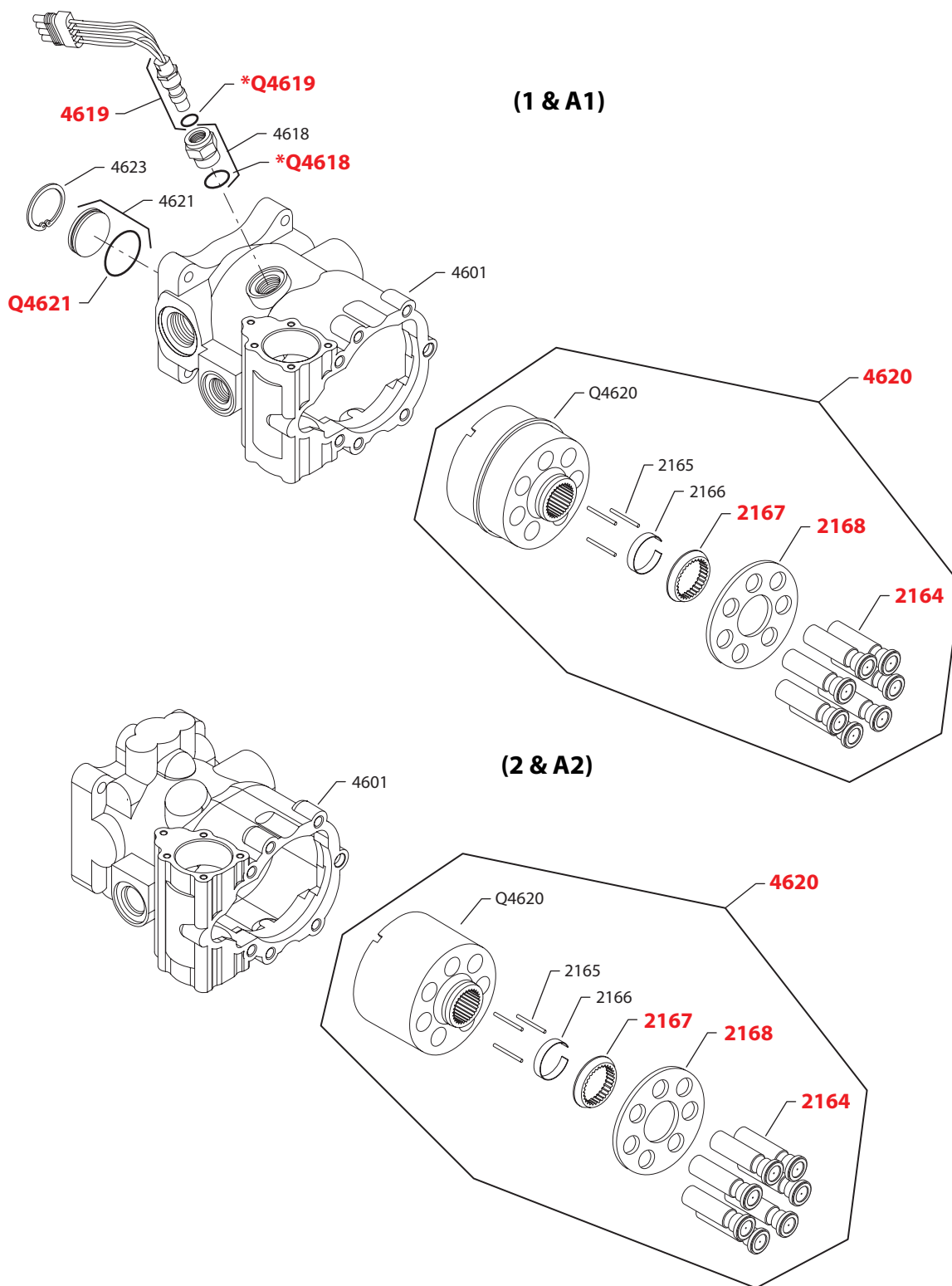
Variable displacement motor

Control features

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
U	QB	01-33		4510002	Servo piston ring kit	1
	4140	01-33		4460648	Bearing ring	2
	4501	01-33		4460455-0004	Servo cover	1
	4502	01-33		4460471	Servo piston	1
	4503	01-33		046151 (9005100-5600)	Plug assembly	1
	4507	01-33		4460455-0003	Servo cover	1
	4508	01-33		4460603	Servo stop	1
	4509	01-33		9006326-0025	Retaining ring	1
	4510	01-33		9003575-0094	Seal nut	1
	4513	01-33		4800174	Servo adjust cover	1
X	QB	96-34		4510002	Servo piston ring kit	1
	4140	96-34		4460648	Bearing ring	2
	4501	96-34		4460455-0004	Servo cover	1
	4502	96-34		4460471	Servo piston	1
	4503	96-34		046151 (9005100-5600)	Plug assembly	1
	4507	96-34		4460455-0003	Servo cover	1
	4508	96-34		4460603	Servo stop	1
	4509	96-34		9006326-0025	Retaining ring	1
	4510	96-34		9003575-0094	Seal nut	1
	4513	96-34		4800174	Servo adjust cover	1
Y	QB	10-46		4510002	Servo piston ring kit	1
	4140	10-46		4460648	Bearing ring	2
	4501	10-46		4460455-0002	Servo cover	1
	4502	10-46		4460471	Servo piston	1
	4503	10-46		046151 (9005100-5600)	Plug assembly	1
	4504	10-46		4460448	Servo stop	1
	4505	10-46		9003575-0083	Seal nut	1
	4507	10-46		4460455-0003	Servo cover	1
	4508	10-46		4460603	Servo stop	1
	4509	10-46		9006326-0025	Retaining ring	1
	4510	10-46		9003575-0094	Seal nut	1
	4511	10-46		4800175	Servo adjust cover	1
	4513	10-46		4800174	Servo adjust cover	1



Variable displacement motor



E100 178E

* = included in overhaul seal kit Q210

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

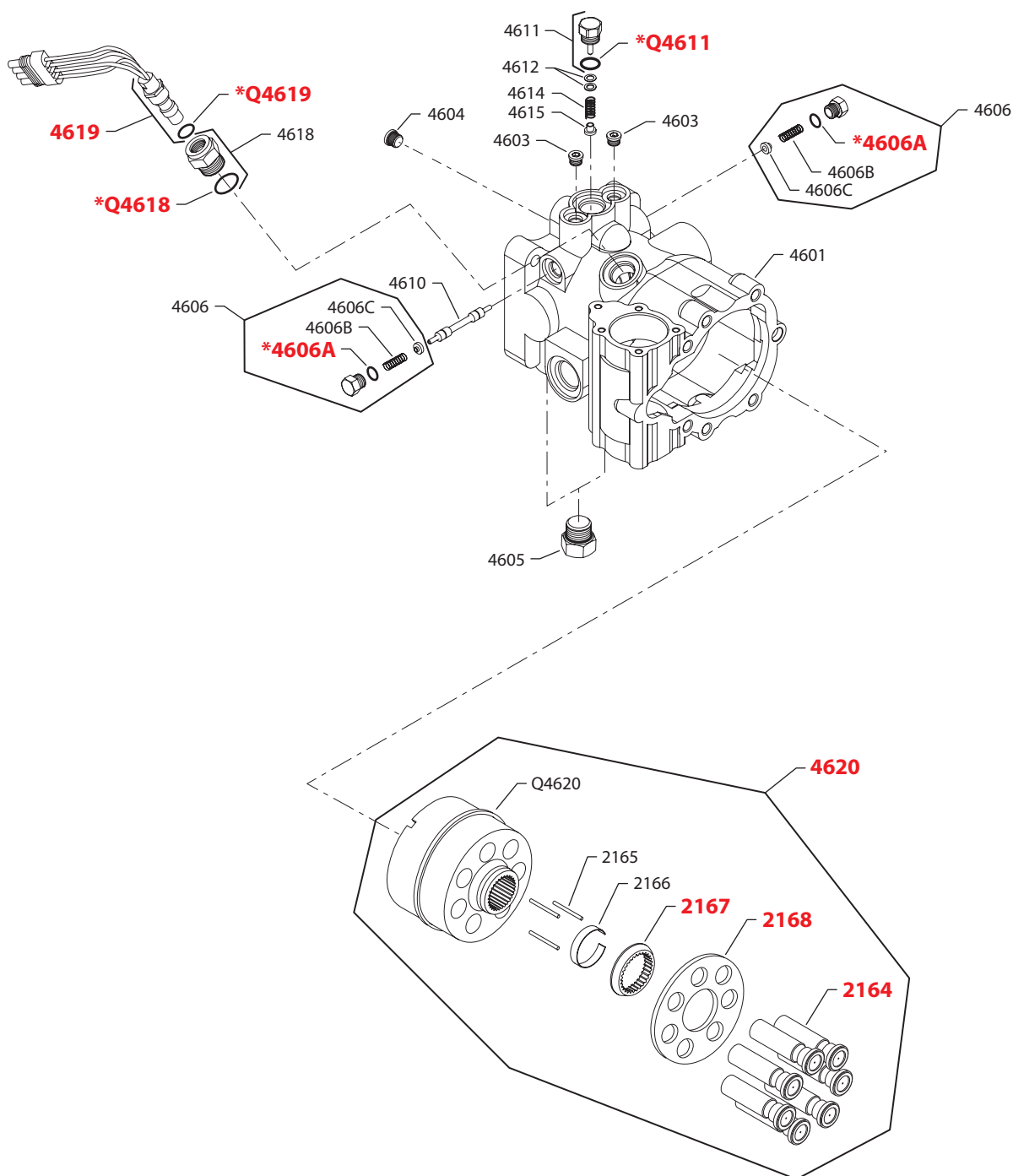

Variable displacement motor
Housing

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
1 & A1	2164	06-46		4461032	Piston assembly	7
	2165	06-46		9004875-0113	Hold down pin	3
	2166	06-46		4460028	Hold down pin retainer	1
	2167	06-46		4460180	Retainer guide	1
	2168	06-46		4460009	Slipper guide	1
	4601	06-46		4461044	Housing	1
	4618	06-46		4800432	Adapter assembly	1
	4619	06-46		KPPG16008	Speed sensor assembly	1
	4620	06-46		4460891	Cylinder block kit, with speed ring	1
	4621	06-46		4461003	Plug assembly	1
	4623	06-46		9006200-0169	Retaining ring	1
	Q4618	06-46		001149 (9004201-6200)	O-ring	1
	Q4619	06-46		085043 (9004201-3700)	O-ring	1
	Q4620	06-46		11183529	Cylinder block assembly, with speed ring	1
	Q4621	06-46		327189 (9004100-0290)	O-ring	1
2 & A2	2164	08-12		4461032	Piston assembly	7
	2165	08-12		9004875-0113	Hold down pin	3
	2166	08-12		4460028	Hold down pin retainer	1
	2167	08-12		4460180	Retainer guide	1
	2168	08-12		4460009	Slipper guide	1
	4601	08-12		11041623	Housing	1
	4620	08-12		4460890	Cylinder block kit	1
	Q4620	08-12		11183528	Cylinder block assembly	1



Variable displacement motor

(3 & A3)



E101 743E

* = included in overhaul seal kit Q210

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

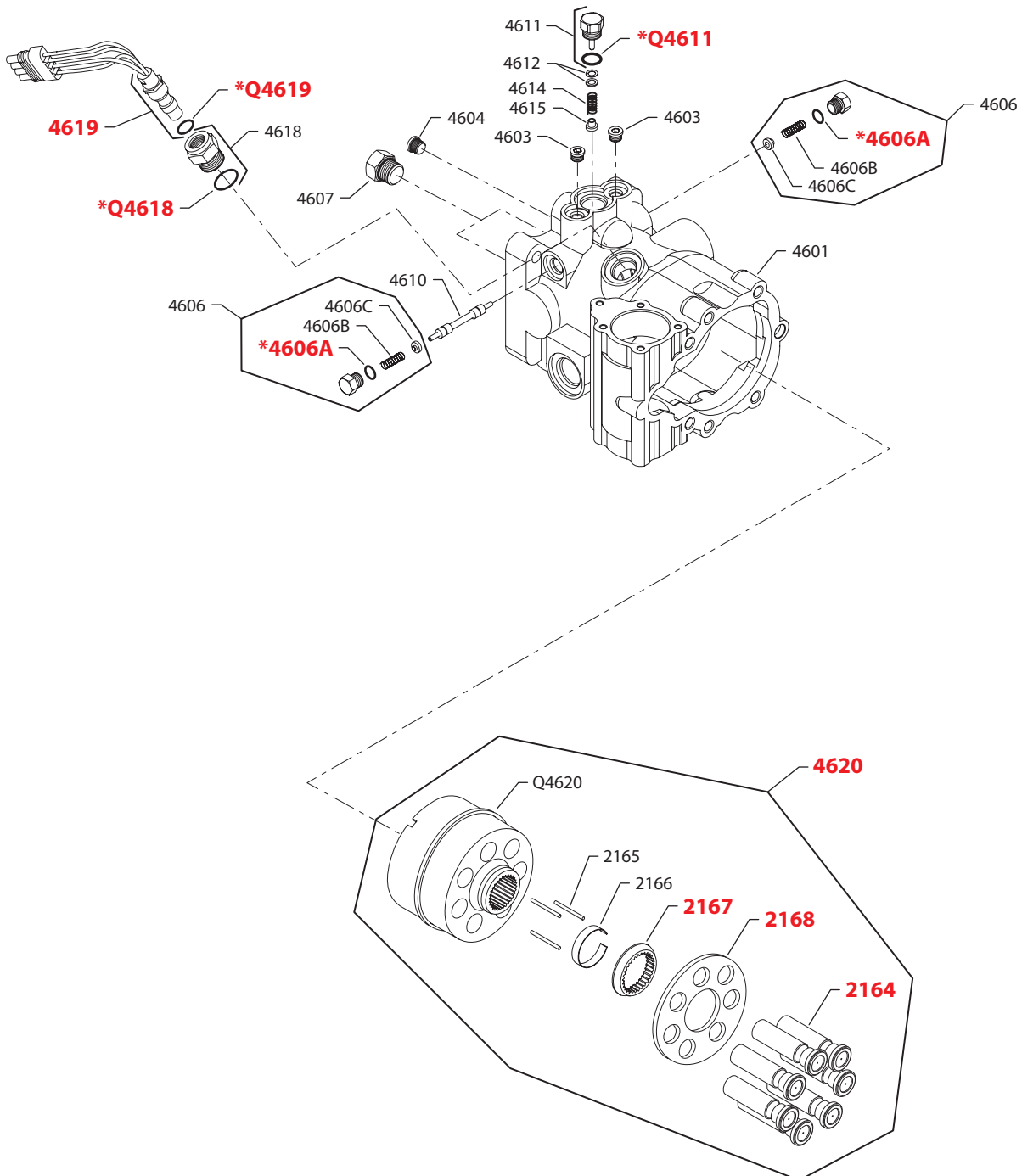
Variable displacement motor
Housing

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
3 & A3	2164	08-19		4461032	Piston assembly	7
	2165	08-19		9004875-0113	Hold down pin	3
	2166	08-19		4460028	Hold down pin retainer	1
	2167	08-19		4460180	Retainer guide	1
	2168	08-19		4460009	Slipper guide	1
	4601	08-19		4461224	Housing	1
	4603	08-19		327007 (9005110-4400)	Plug assembly	2
	4604	08-19		515965 (9005110-5600)	Plug assembly	1
	4605	08-19		093625 (9005100-9000)	Plug assembly	2
	4606	08-19		4800912	Loop flushing spool spring assembly	2
	4606A	08-19		085043 (9004201-3700)	O-ring	2
	4606B	08-19		4800887	Spring	2
	4606C	08-19		512257	Spring guide	2
	4610	08-19		365544 (8800550)	Spool	1
	4611	08-19		4800308	Plug assembly	1
	4612	08-19		4510027	Shim kit	1
	4614	08-19		4800176	Spring	1
	4615	08-19		4800134	Poppet	1
	4618	08-19		4800432	Adapter assembly	1
	4619	08-19		KPPG15408	Speed sensor assembly	1
	4620	08-19		4460891	Cylinder block kit, with speed ring	1
Q4611	08-19			001149 (9004201-6200)	O-ring	1
	08-19			001149 (9004201-6200)	O-ring	1
	08-19			085043 (9004201-3700)	O-ring	1
	08-19			11183529	Cylinder block assembly, with speed ring	1



Variable displacement motor

(4 & A4)



E101 744E

* = included in overhaul seal kit Q210

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

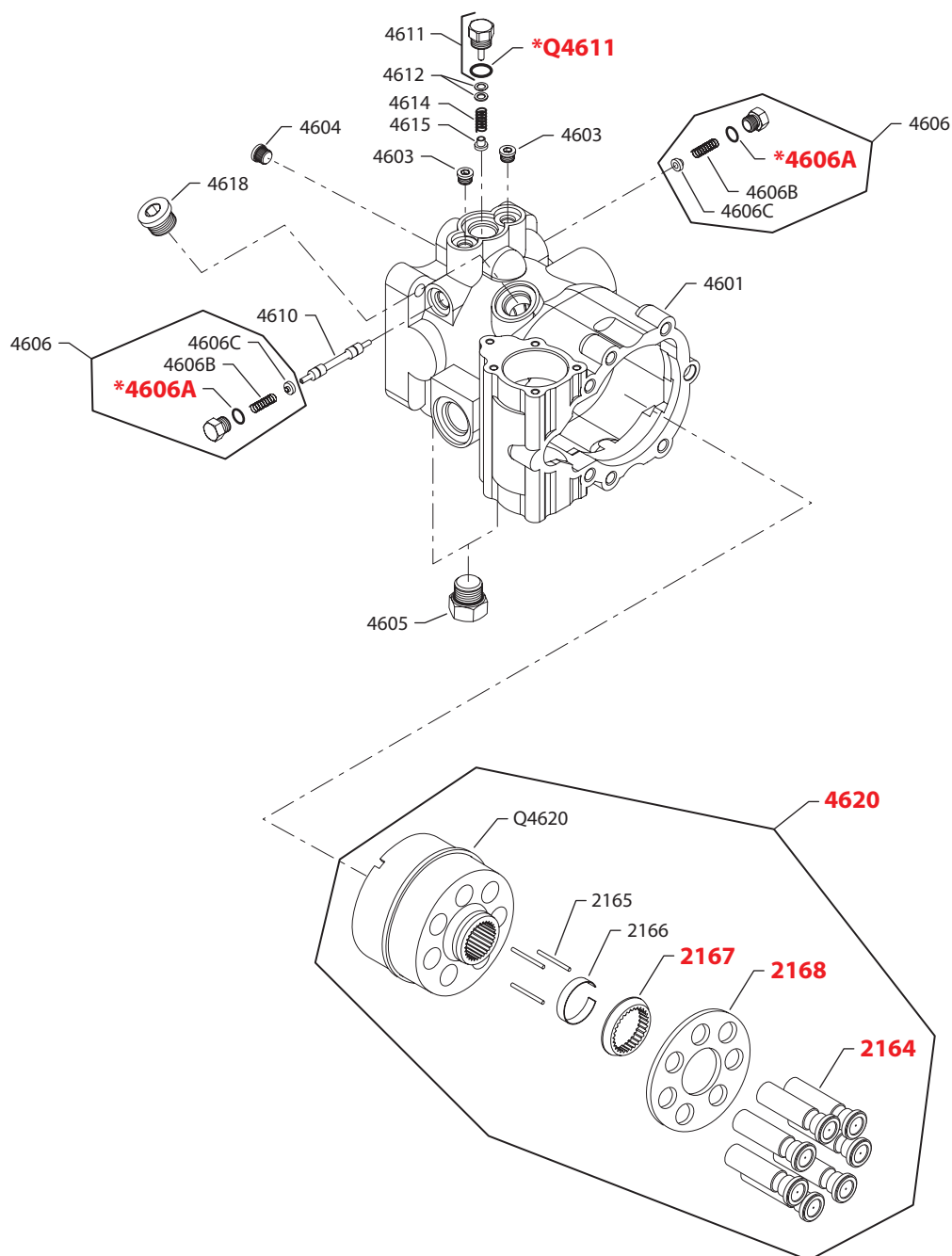
Variable displacement motor
Housing

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
4 & A4	2164	08-19		4461032	Piston assembly	7
	2165	08-19		9004875-0113	Hold down pin	3
	2166	08-19		4460028	Hold down pin retainer	1
	2167	08-19		4460180	Retainer guide	1
	2168	08-19		4460009	Slipper guide	1
	4601	08-19		4461224	Housing	1
	4603	08-19		327007 (9005110-4400)	Plug assembly	2
	4604	08-19		515965 (9005110-5600)	Plug assembly	1
	4606	08-19		4800912	Loop flushing spool spring assembly	2
	4606A	08-19		085043 (9004201-3700)	O-ring	2
	4606B	08-19		4800887	Spring	2
	4606C	08-19		512257	Spring guide	2
	4607	08-19		093625 (9005100-9000)	Plug assembly	2
	4610	08-19		365544 (8800550)	Spool	1
	4611	08-19		4800308	Plug assembly	1
	4612	08-19		4510027	Shim kit	1
	4614	08-19		4800176	Spring	1
	4615	08-19		4800134	Poppet	1
	4618	08-19		4800432	Adapter assembly	1
	4619	08-19		KPPG13408	Speed sensor assembly	1
	4620	08-19		4460891	Cylinder block kit, with speed ring	1
	Q4611	08-19		001149 (9004201-6200)	O-ring	1
	Q4618	08-19		001149 (9004201-6200)	O-ring	1
	Q4619	08-19		085043 (9004201-3700)	O-ring	1
	Q4620	08-19		11183529	Cylinder block assembly, with speed ring	1



Variable displacement motor

(5 & A5)



E101 745E

* = included in overhaul seal kit Q210

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

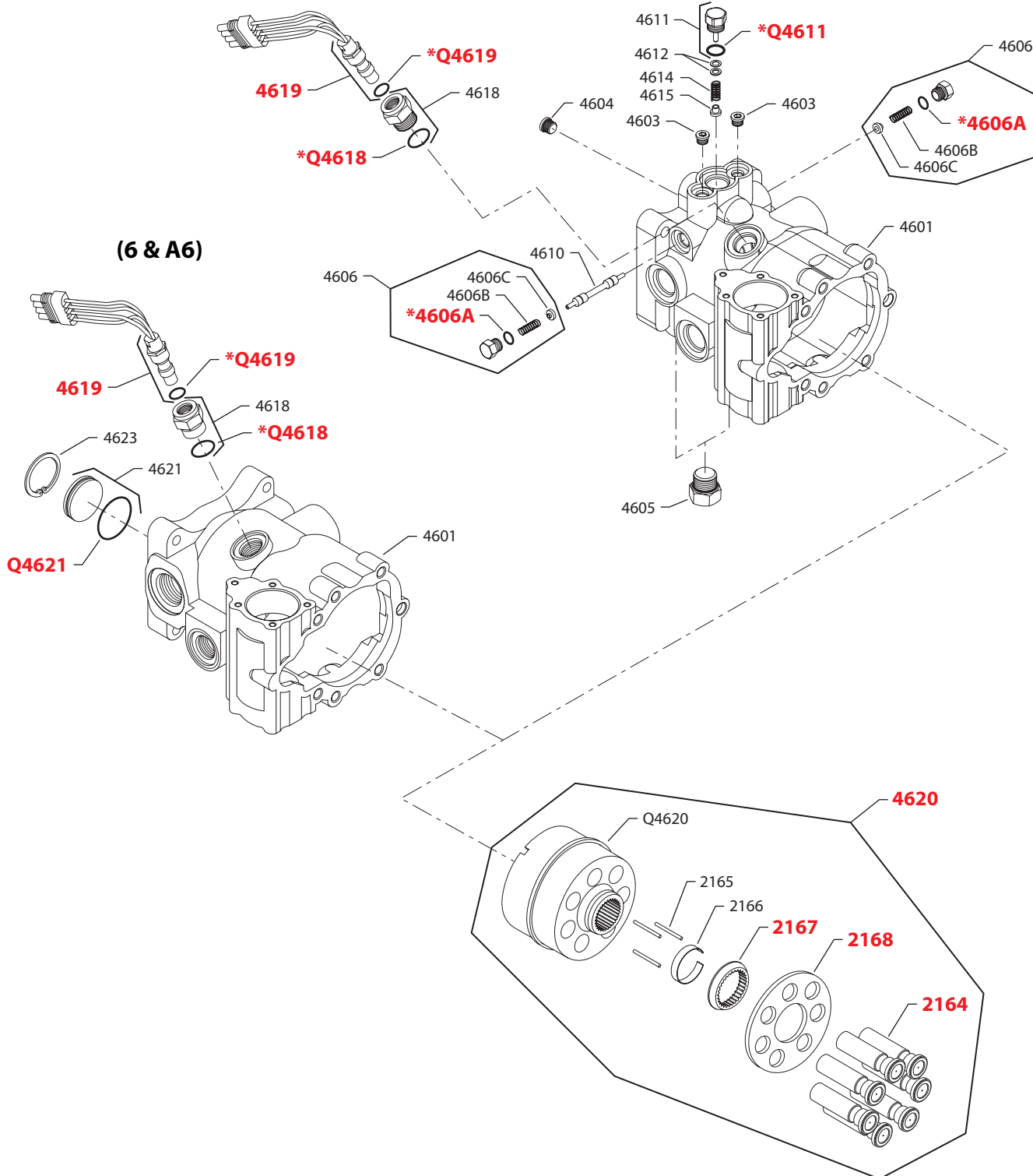

Variable displacement motor
Housing

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
5 & A5	2164	08-19		4461032	Piston assembly	7
	2165	08-19		9004875-0113	Hold down pin	3
	2166	08-19		4460028	Hold down pin retainer	1
	2167	08-19		4460180	Retainer guide	1
	2168	08-19		4460009	Slipper guide	1
	4601	08-19		4461224	Housing	1
	4603	08-19		327007 (9005110-4400)	Plug assembly	2
	4604	08-19		515965 (9005110-5600)	Plug assembly	1
	4605	08-19		093625 (9005100-9000)	Plug assembly	2
	4606	08-19		4800912	Loop flushing spool spring assembly	2
	4606A	08-19		085043 (9004201-3700)	O-ring	2
	4606B	08-19		4800887	Spring	2
	4606C	08-19		512257	Spring guide	2
	4610	08-19		365544 (8800550)	Spool	1
	4611	08-19		4800308	Plug assembly	1
	4612	08-19		4510027	Shim kit	1
	4614	08-19		4800176	Spring	1
	4615	08-19		4800134	Poppet	1
	4618	08-19		315325 (9005110-8700)	Plug assembly	1
	4620	08-19		4460891	Cylinder block kit, with speed ring	1
	Q4611	08-19		001149 (9004201-6200)	O-ring	1
	Q4620	08-19		11183529	Cylinder block assembly, with speed ring	1



Variable displacement motor

(8 & A8)



E101 746E

* = included in overhaul seal kit Q210

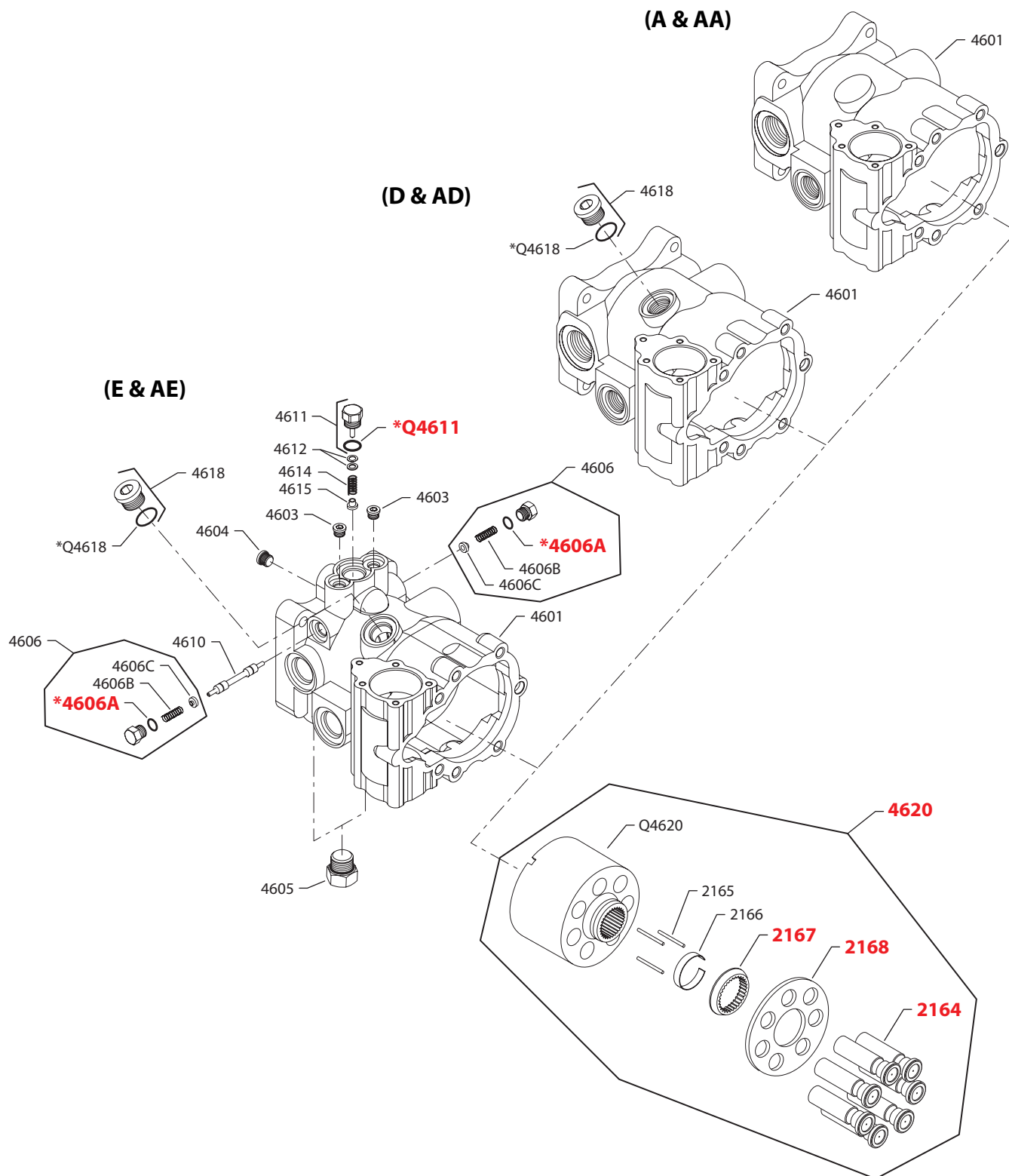
Enlarged **bold** type item numbers are recommended part to stock for servicing.

Variable displacement motor
Housing

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
6 & A6	2164	06-46		4461032	Piston assembly	7
	2165	06-46		9004875-0113	Hold down pin	3
	2166	06-46		4460028	Hold down pin retainer	1
	2167	06-46		4460180	Retainer guide	1
	2168	06-46		4460009	Slipper guide	1
	4601	06-46		4461044	Housing	1
	4618	06-46		4800432	Adapter assembly	1
	4619	06-46		KPPG16408	Speed sensor assembly	1
	4620	06-46		4460891	Cylinder block kit, with speed ring	1
	4621	06-46		4461003	Plug assembly	1
	4623	06-46		9006200-0169	Retaining ring	1
	Q4618	06-46		001149 (9004201-6200)	O-ring	1
	Q4619	06-46		085043 (9004201-3700)	O-ring	1
	Q4620	06-46		11183529	Cylinder block assembly, with speed ring	1
	Q4621	06-46		9004100-0290	O-ring	1
8 & A8	2164	08-19		4461032	Piston assembly	7
	2165	08-19		9004875-0113	Hold down pin	3
	2166	08-19		4460028	Hold down pin retainer	1
	2167	08-19		4460180	Retainer guide	1
	2168	08-19		4460009	Slipper guide	1
	4601	08-19		11048268	Housing	1
	4603	08-19		327007 (9005110-4400)	Plug assembly	2
	4604	08-19		515965 (9005110-5600)	Plug assembly	1
	4605	08-19		093625 (9005100-9000)	Plug assembly	2
	4606	08-19		4800912	Loop flushing spool spring assembly	2
	4606A	08-19		085043 (9004201-3700)	O-ring	2
	4606B	08-19		4800887	Spring	2
	4606C	08-19		512257	Spring guide	2
	4610	08-19		365544 (8800550)	Spool	1
	4611	08-19		4800308	Plug assembly	1
	4612	08-19		4510027	Shim kit	1
	4614	08-19		4800176	Spring	1
	4615	08-19		4800134	Poppet	1
	4618	08-19		4800432	Adapter assembly	1
	4619	08-19		KPPG13408	Speed sensor assembly	1
	4620	08-19		4460891	Cylinder block kit, with speed ring	1
	Q4611	08-19		001149 (9004201-6200)	O-ring	1
	Q4618	08-19		001149 (9004201-6200)	O-ring	1
	Q4619	08-19		085043 (9004201-3700)	O-ring	1
	Q4620	08-19		11183529	Cylinder block assembly, with speed ring	1



Variable displacement motor



E100 176E

* = included in overhaul seal kit Q210

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

Parts Manual

Series 40 M46 Axial Piston Motors

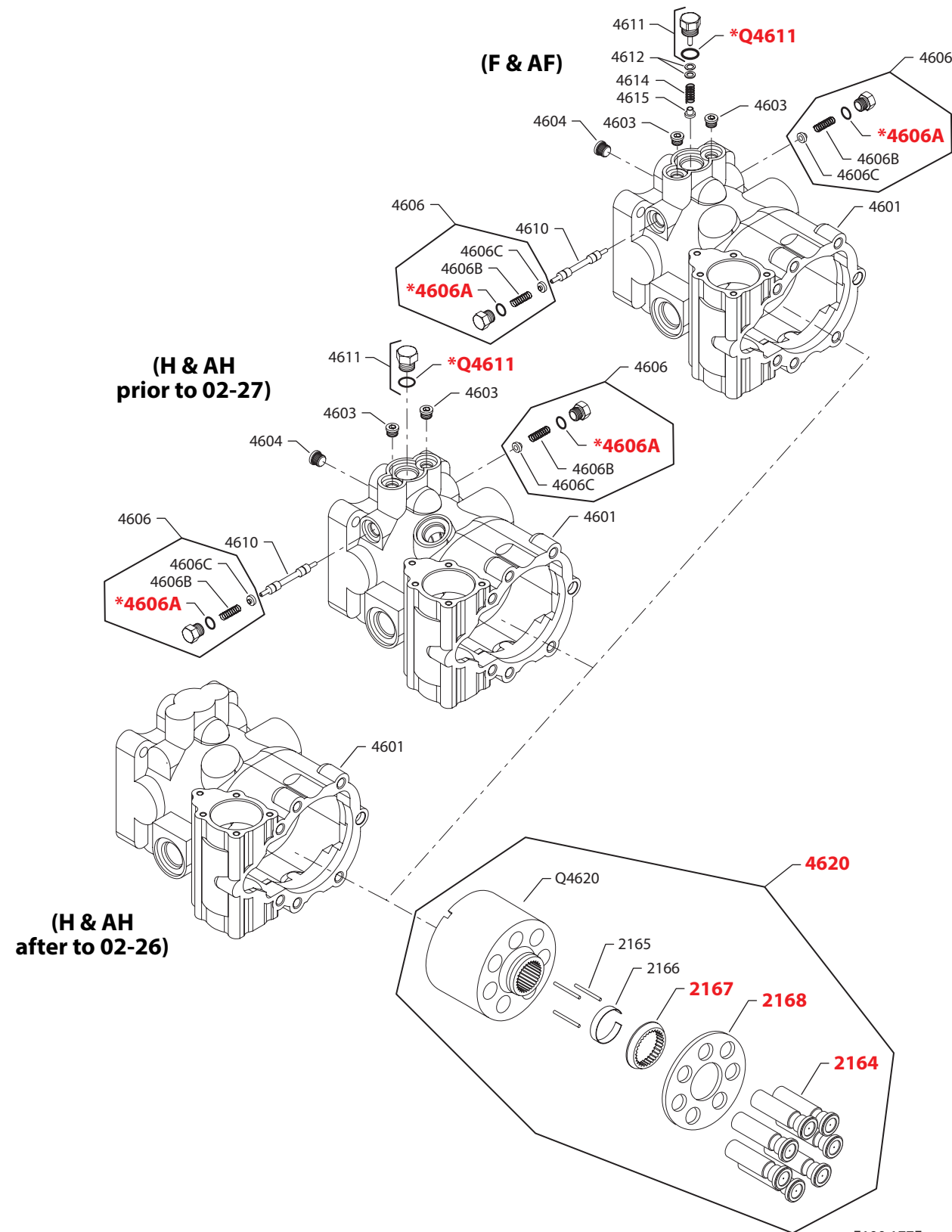
Variable displacement motor

Housing

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
A & AA	2164	86-30		4461032	Piston assembly	7
	2165	86-30		9004875-0113	Hold down pin	3
	2166	86-30		4460028	Hold down pin retainer	1
	2167	86-30		4460180	Retainer guide	1
	2168	86-30		4460009	Slipper guide	1
	4601	86-30		4461043	Housing (SB-1989-013 & SB-1998-075)	1
	4620	86-30		4460890	Cylinder block kit	1
	Q4620	86-30		11183528	Cylinder block assembly	1
D & AD	2164	86-30		4461032	Piston assembly	7
	2165	86-30		9004875-0113	Hold down pin	3
	2166	86-30		4460028	Hold down pin retainer	1
	2167	86-30		4460180	Retainer guide	1
	2168	86-30		4460009	Slipper guide	1
	4601	91-07		4461044	Housing (SB-1998-026 & SB-1998-075)	1
	4618	91-07		315325 (9005110-8700)	Plug assembly	1
	4620	91-07		4460890	Cylinder block kit	1
	Q4618	09-08		001149 (9004201-6200)	O-ring	1
	Q4620	91-07		11183528	Cylinder block assembly	1
E & AE	4601	92-19		4461224	Housing	1
	4603	92-19		327007 (9005110-4400)	Plug assembly	2
	4604	92-19		515965 (9005110-5600)	Plug assembly	1
	4605	92-19		093625 (9005100-9000)	Plug assembly	2
	4606	92-19		4800912	Loop flushing plug/spring assembly	2
	4606A	92-19		085043 (9004201-3700)	O-ring	2
	4606B	92-19		4800887	Spring	2
	4606C	92-19		512257	Spring guide	2
	4610	92-19		365544 (8800550)	Spool	1
	4611	92-19		4800308	Plug assembly	1
	4612	92-19		4510027	Shim kit	1
	4614	92-19		4800176	Spring	1
	4615	92-19		4800134	Poppet	1
	4618	92-19		315325 (9005110-8700)	Plug assembly	1
	4620	92-19		4460890	Cylinder block kit	1
	Q4611	92-19		001149 (9004201-6200)	O-ring	1
	Q4618	09-08		001149 (9004201-6200)	O-ring	1
	Q4620	91-07		11183528	Cylinder block assembly	1



Variable displacement motor



* = included in overhaul seal kit Q210

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

Parts Manual

Series 40 M46 Axial Piston Motors

Variable displacement motor

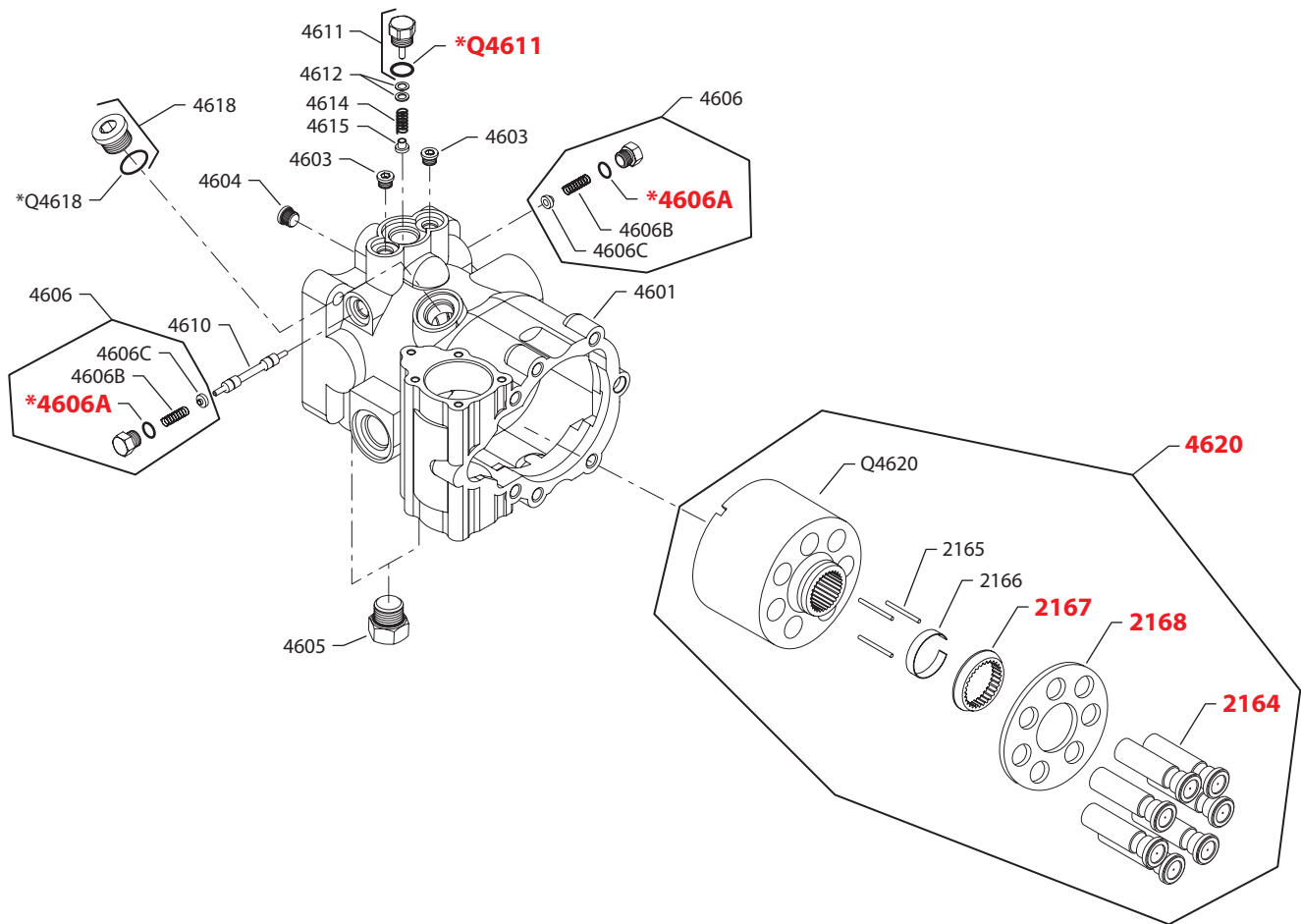
Housing

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
F & AF	2164	86-30		4461032	Piston assembly	7
	2165	86-30		9004875-0113	Hold down pin	3
	2166	86-30		4460028	Hold down pin retainer	1
	2167	86-30		4460180	Retainer guide	1
	2168	86-30		4460009	Slipper guide	1
	4601	96-36		4460903	Housing (SB-1997-002)	1
	4603	96-36		327007 (9005110-4400)	Plug assembly	2
	4604	96-36		515965 (9005110-5600)	Plug assembly	1
	4606	96-36		4800912	Loop flushing plug/spring assembly	2
	4606A	96-36		085043 (9004201-3700)	O-ring	2
	4606B	96-36		4800887	Spring	2
	4606C	96-36		512257	Spring guide	2
	4610	96-36		365544 (8800550)	Spool	1
	4611	96-36		4800308	Plug assembly	1
	4612	96-36		4510027	Shim kit	1
	4614	96-36		4800176	Spring	1
	4615	96-36		4800134	Poppet	1
	4620	96-36		4460890	Cylinder block kit	1
	Q4611	96-36		001149 (9004201-6200)	O-ring	1
	Q4620	96-36		11183528	Cylinder block assembly	1
H & AH	4601	97-04		4461265	Housing (SB-2002-017)	1
	4603	97-04	02-26	327007 (9005110-4400)	Plug assembly	2
	4603A	97-04	02-26	001123 (9004201-2500)	O-ring	2
	4604	97-04	02-26	515965 (9005110-5600)	Plug assembly	1
	4604A	97-04	02-26	085043 (9004201-3700)	O-ring	1
	4606	97-04	02-26	046151 (9005100-5600)	Plug assembly	2
	4606A	97-04	02-26	085043 (9004201-3700)	O-ring	2
	4610	97-04	02-26	8800668	Spool	1
	4611	97-04	02-26	001537 (9005100-8700)	Plug assembly	1
	4620	97-04		4460890	Cylinder block kit	1
	Q4611	97-04	02-26	001149 (9004201-6200)	O-ring	1
	Q4620	97-04		11183528	Cylinder block assembly	1



Variable displacement motor

(I & AI)



* = included in overhaul seal kit Q210

E101 747E

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

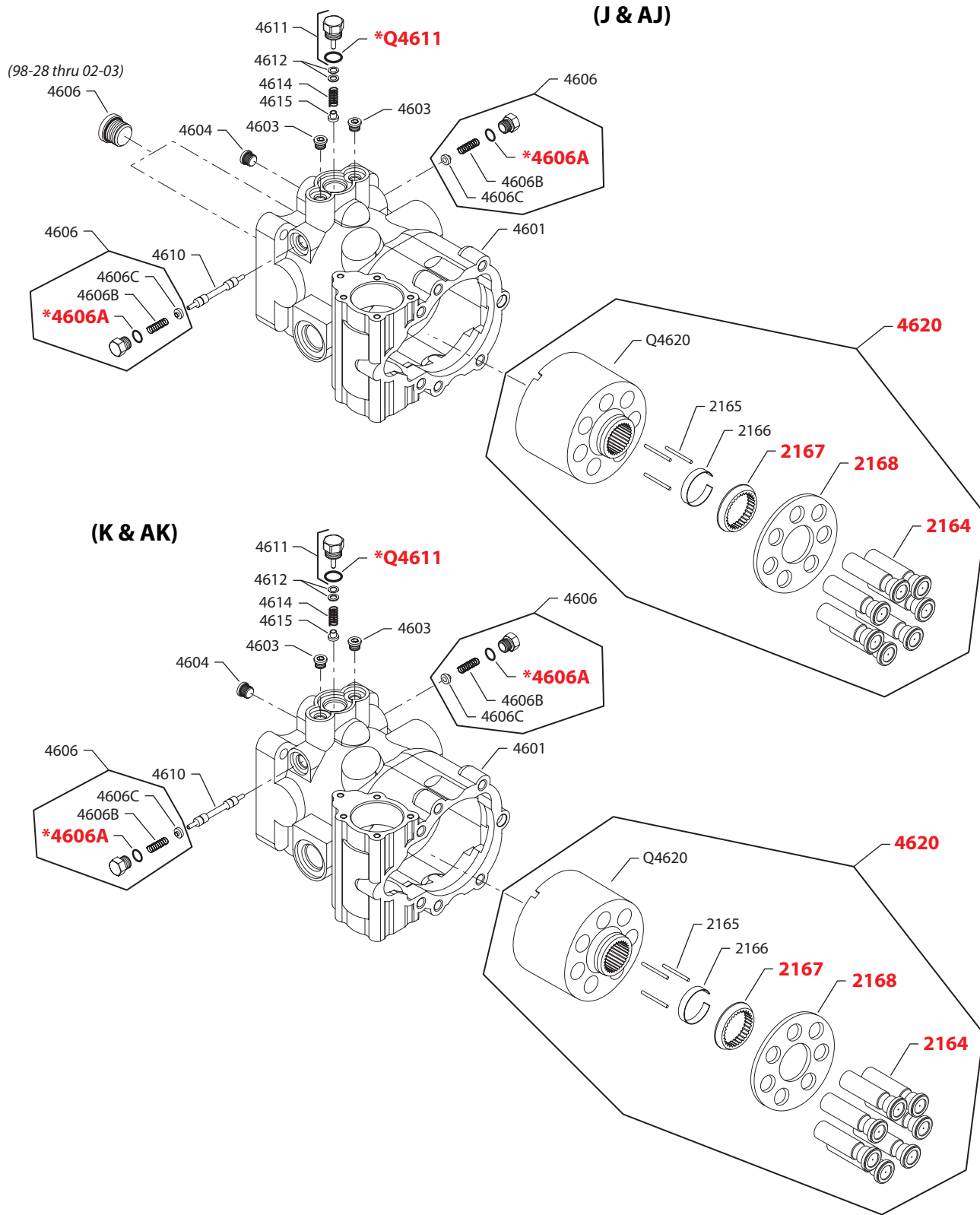
Variable displacement motor
Housing

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
I & AI	2164	09-08		4461032	Piston assembly	7
	2165	09-08		9004875-0113	Hold down pin	3
	2166	09-08		4460028	Hold down pin retainer	1
	2167	09-08		4460180	Retainer guide	1
	2168	09-08		4460009	Slipper guide	1
	4601	09-08		4461224	Housing	1
	4603	09-08		327007 (9005110-4400)	Plug assembly	2
	4604	09-08		515965 (9005110-5600)	Plug assembly	1
	4605	09-08		093625 (9005100-9000)	Plug assembly	2
	4606	09-08		4800912	Loop flushing plug/spring assembly	2
	4606A	09-08		085043 (9004201-3700)	O-ring	2
	4606B	09-08		4800887	Spring	2
	4606C	09-08		512257	Spring guide	2
	4610	09-08		365544 (8800550)	Spool	1
	4611	09-08		4800308	Plug assembly	1
	4612	09-08		4510027	Shim kit	1
	4614	09-08		4800176	Spring	1
	4615	09-08		4800134	Poppet	1
	4618	09-08		315325 (9005110-8700)	Plug assembly	1
	4620	09-08		4460890	Cylinder block kit	1
	Q4611	09-08		001149 (9004201-6200)	O-ring	1
	Q4618	09-08		001149 (9004201-6200)	O-ring	1
	Q4620	09-08		11183528	Cylinder block assembly	1



Variable displacement motor

(J & AJ)



E101 748E

* = included in overhaul seal kit Q210

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

Parts Manual

Series 40 M46 Axial Piston Motors

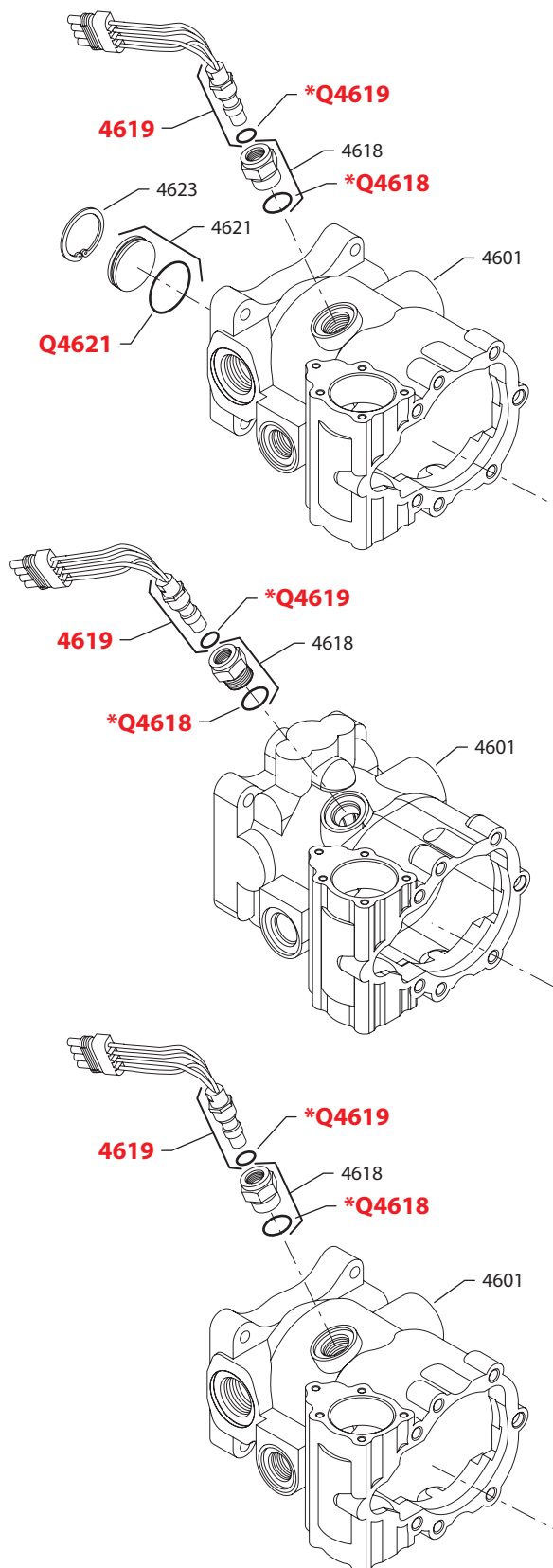
Variable displacement motor

Housing

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
J & AJ	2164	94-38		4461032	Piston assembly	7
	2165	94-38		9004875-0113	Hold down pin	3
	2166	94-38		4460028	Hold down pin retainer	1
	2167	94-38		4460180	Retainer guide	1
	2168	94-38		4460009	Slipper guide	1
	4601	94-38		4460903	Housing (SB-1997-002)	1
	4602	98-28	02-03	9005110-9200	Plug assembly	2
	4603	94-38		327007 (9005110-4400)	Plug assembly	2
	4604	94-38		515965 (9005110-5600)	Plug assembly	1
	4606	94-38		4800912	Loop flushing plug/spring assembly	2
	4606A	94-38		085043 (9004201-3700)	O-ring	2
	4606B	94-38		4800887	Spring	2
	4606C	94-38		512257	Spring guide	2
	4610	94-38		365544 (8800550)	Spool	1
	4611	94-38		4800308	Plug assembly	1
	4612	94-38		4510027	Shim kit	1
	4614	94-38		8800496	Spring	1
	4615	94-38		4800134	Poppet	1
	4620	94-38		4460890	Cylinder block kit	1
	Q4611	94-38		001149 (9004201-6200)	O-ring	1
	Q4620	94-38		11183528	Cylinder block assembly	1
K & AK	2164	94-44		4461032	Piston assembly	7
	2165	94-44		9004875-0113	Hold down pin	3
	2166	94-44		4460028	Hold down pin retainer	1
	2167	94-44		4460180	Retainer guide	1
	2168	94-44		4460009	Slipper guide	1
	4601	94-44		4460903	Housing (SB-1997-002)	1
	4603	94-44		327007 (9005110-4400)	Plug assembly	2
	4604	94-44		515965 (9005110-5600)	Plug assembly	1
	4606	94-44		4800912	Loop flushing plug/spring assembly	2
	4606A	94-44		085043 (9004201-3700)	O-ring	2
	4606B	94-44		4800887	Spring	2
	4606C	94-44		512257	Spring guide	2
	4610	94-44		365544 (8800550)	Spool	1
	4611	94-44		4800308	Plug assembly	1
	4612	94-44		4510027	Shim kit	1
	4614	94-44		8800496	Spring	1
	4615	94-44		4800134	Poppet	1
	4620	94-44		4460890	Cylinder block kit	1
	Q4611	94-44		001149 (9004201-6200)	O-ring	1
	Q4620	94-44		11183528	Cylinder block assembly	1



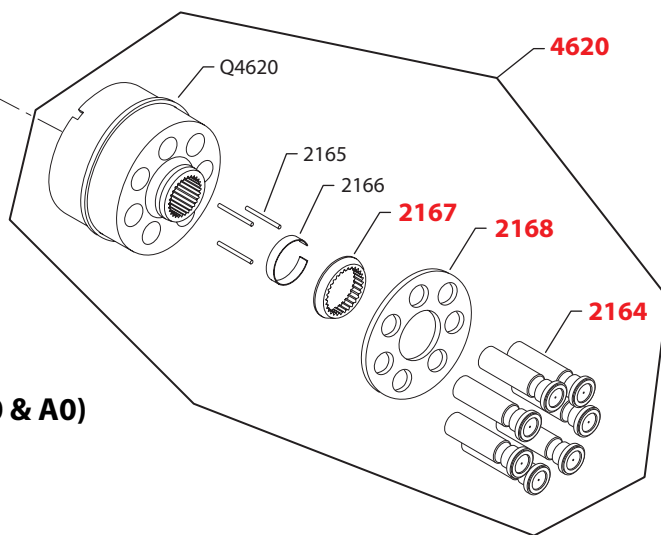
Variable displacement motor



(M, AM,
N & AN)

(O & A0)

(P & AP)



* = included in overhaul seal kit Q210

E101 749E

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

Parts Manual

Series 40 M46 Axial Piston Motors

Variable displacement motor

Common cylinder block kit parts

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	2164	94-38		4461032	Piston assembly	7
	2165	94-38		9004875-0113	Hold down pin	3
	2166	94-38		4460028	Hold down pin retainer	1
	2167	94-38		4460180	Retainer guide	1
	2168	94-38		4460009	Slipper guide	1

Housing

M & AM	4601	95-37		4461044	Housing (SB-1998-026 & SB-1998-075)	1
	4618	95-37		4800432	Adapter assembly	1
	4619	95-37		KPPG13408	Speed sensor assembly	1
	4620	95-37		4460891	Cylinder block kit, with speed ring	1
	4621	95-37		4461003	Plug assembly	1
	4623	95-37		9006200-0169	Retaining ring	1
	Q4618	95-37		001149 (9004201-6200)	O-ring	1
	Q4619	95-37		085043 (9004201-3700)	O-ring	1
	Q4620	95-37		11183529	Cylinder block assembly, with speed ring	1
	Q4621	95-37		327189 (9004100-0290)	O-ring	1

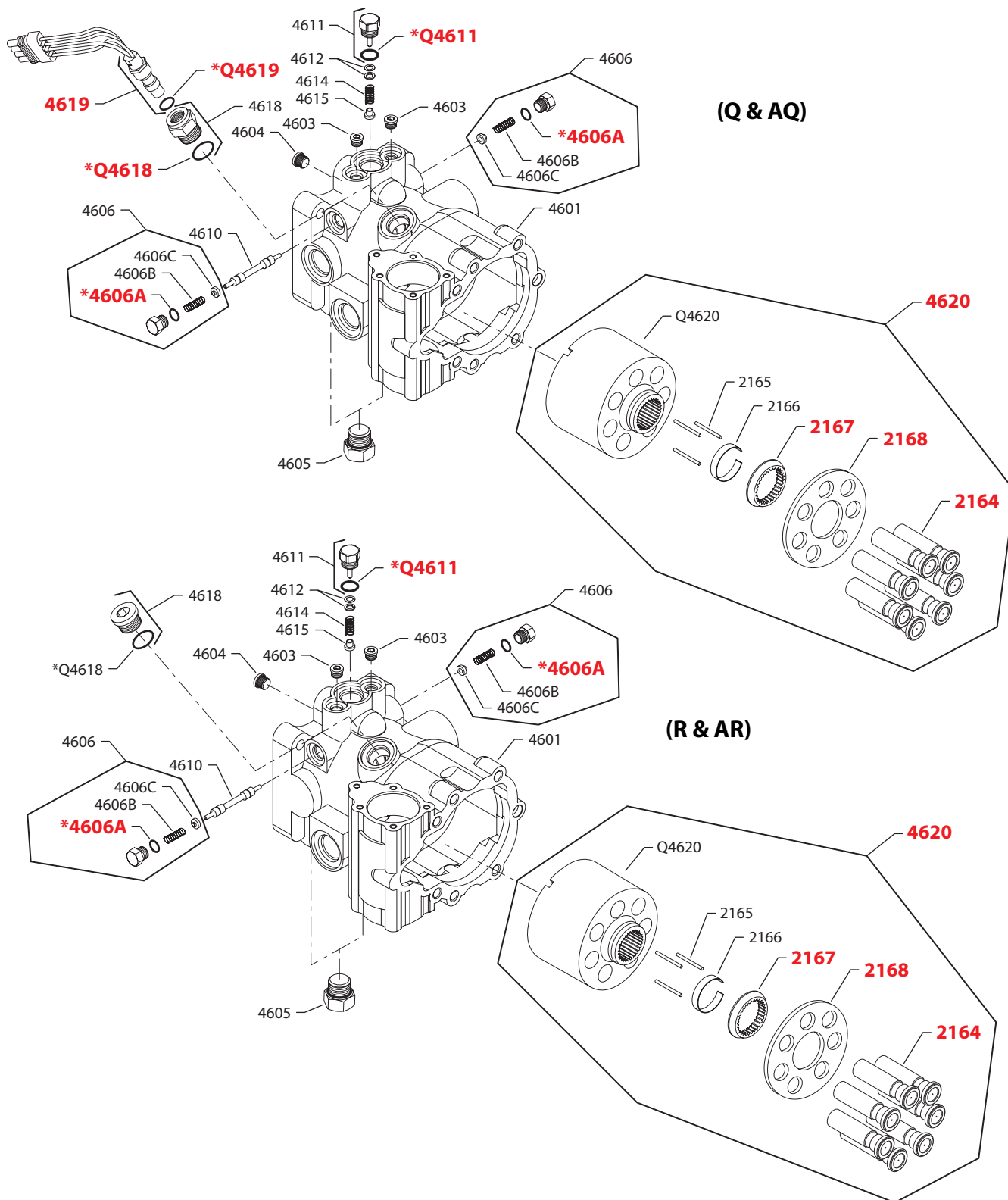
N & AN	4601	95-37		4461044	Housing (SB-1998-026 & SB-1998-075)	1
	4618	95-37		4800432	Adapter assembly	1
	4619	95-37		KPPG12408	Speed sensor assembly	1
	4620	95-37		4460891	Cylinder block kit, with speed ring	1
	4621	95-37		4461003	Plug assembly	1
	4623	95-37		9006200-0169	Retaining ring	1
	Q4618	95-37		001149 (9004201-6200)	O-ring	1
	Q4619	95-37		085043 (9004201-3700)	O-ring	1
	Q4620	95-37		11183529	Cylinder block assembly, with speed ring	1
	Q4621	95-37		327189 (9004100-0290)	O-ring	1

O & AO	4601	10-31		4461265	Housing	1
	4618	10-31		4800432	Adapter assembly	1
	4619	10-31		KPPG13408	Speed sensor assembly	1
	4620	10-31		4460891	Cylinder block kit, with speed ring	1
	Q4618	10-31		001149 (9004201-6200)	O-ring	1
	Q4619	10-31		085043 (9004201-3700)	O-ring	1
	Q4620	10-31		11183529	Cylinder block assembly, with speed ring	1

P & AP	4601	96-46		4461044	Housing (SB-1998-026 & SB-1998-075)	1
	4618	96-46		4800432	Adapter assembly	1
	4619	96-46		KPPG13408	Speed sensor assembly	1
	4620	96-46		4460891	Cylinder block kit, with speed ring	1
	Q4618	96-46		001149 (9004201-6200)	O-ring	1
	Q4619	96-46		085043 (9004201-3700)	O-ring	1
	Q4620	96-46		11183529	Cylinder block assembly, with speed ring	1



Variable displacement motor



E103 525E

* = included in overhaul seal kit Q210

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

Parts Manual

Series 40 M46 Axial Piston Motors

Variable displacement motor

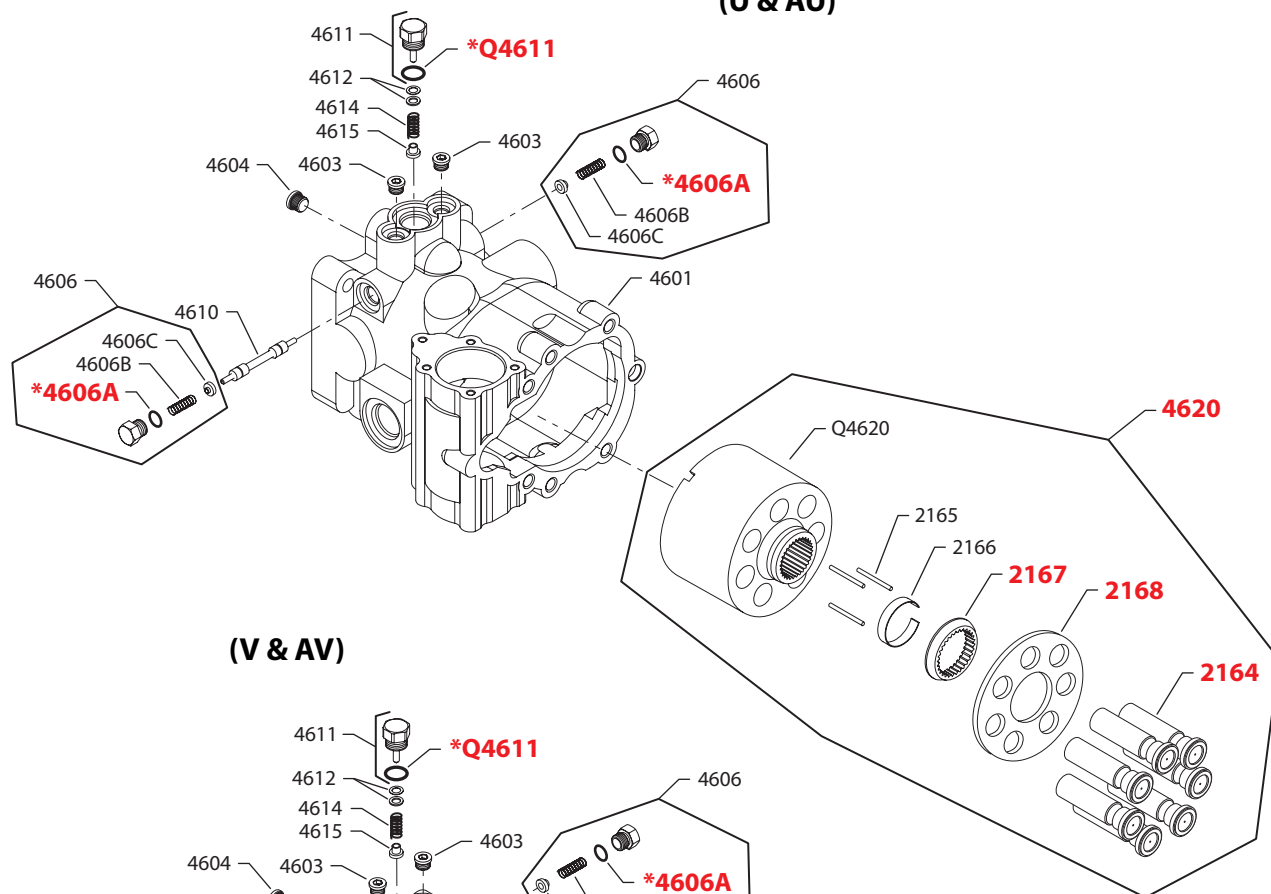
Housing

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
Q & AQ	2164	94-38		4461032	Piston assembly	7
	2165	94-38		9004875-0113	Hold down pin	3
	2166	94-38		4460028	Hold down pin retainer	1
	2167	94-38		4460180	Retainer guide	1
	2168	94-38		4460009	Slipper guide	1
	4601	09-18		4461224	Housing	1
	4603	09-18		327007 (9005110-4400)	Plug assembly	2
	4604	09-18		515965 (9005110-5600)	Plug assembly	1
	4605	09-18		093625 (9005100-9000)	Plug assembly	2
	4606	09-18		4800912	Loop flushing plug/spring assembly	2
	4606A	09-18		085043 (9004201-3700)	O-ring	2
	4606B	09-18		4800887	Spring	2
	4606C	09-18		512257	Spring guide	2
	4610	09-18		365544 (8800550)	Spool	1
	4611	09-18		4800308	Plug assembly	1
	4612	09-18		4510027	Shim kit	1
	4614	09-18		4800176	Spring	1
	4615	09-18		4800134	Poppet	1
	4618	09-18		4800432	Adapter assembly	1
	4619	09-18		KPPG16708	Speed sensor assembly	1
	4620	09-18		4460891	Cylinder block kit, with speed ring	1
	Q4611	09-18		001149 (9004201-6200)	O-ring	1
	Q4618	09-18		001149 (9004201-6200)	O-ring	1
	Q4620	09-18		11183529	Cylinder block assembly, with speed ring	1
R & AR	2164	09-18		4461032	Piston assembly	7
	2165	09-18		9004875-0113	Hold down pin	3
	2166	09-18		4460028	Hold down pin retainer	1
	2167	09-18		4460180	Retainer guide	1
	2168	09-18		4460009	Slipper guide	1
	4601	09-18		110408268	Housing	1
	4603	09-18		327007 (9005110-4400)	Plug assembly	2
	4604	09-18		515965 (9005110-5600)	Plug assembly	1
	4605	09-18		093625 (9005100-9000)	Plug assembly	2
	4606	09-18		4800912	Loop flushing plug/spring assembly	2
	4606A	09-18		085043 (9004201-3700)	O-ring	2
	4606B	09-18		4800887	Spring	2
	4606C	09-18		512257	Spring guide	2
	4610	09-18		365544 (8800550)	Spool	1
	4611	09-18		4800308	Plug assembly	1
	4612	09-18		4510027	Shim kit	1
	4614	09-18		4800176	Spring	1
	4615	09-18		4800134	Poppet	1
	4620	09-18		4460890	Cylinder block kit	1
	4618	09-18		315325 (9005110-8700)	Plug assembly	1
	Q4611	09-18		001149 (9004201-6200)	O-ring	1
	Q4618	09-18		001149 (9004201-6200)	O-ring	1
	Q4620	09-18		11183528	Cylinder block assembly	1

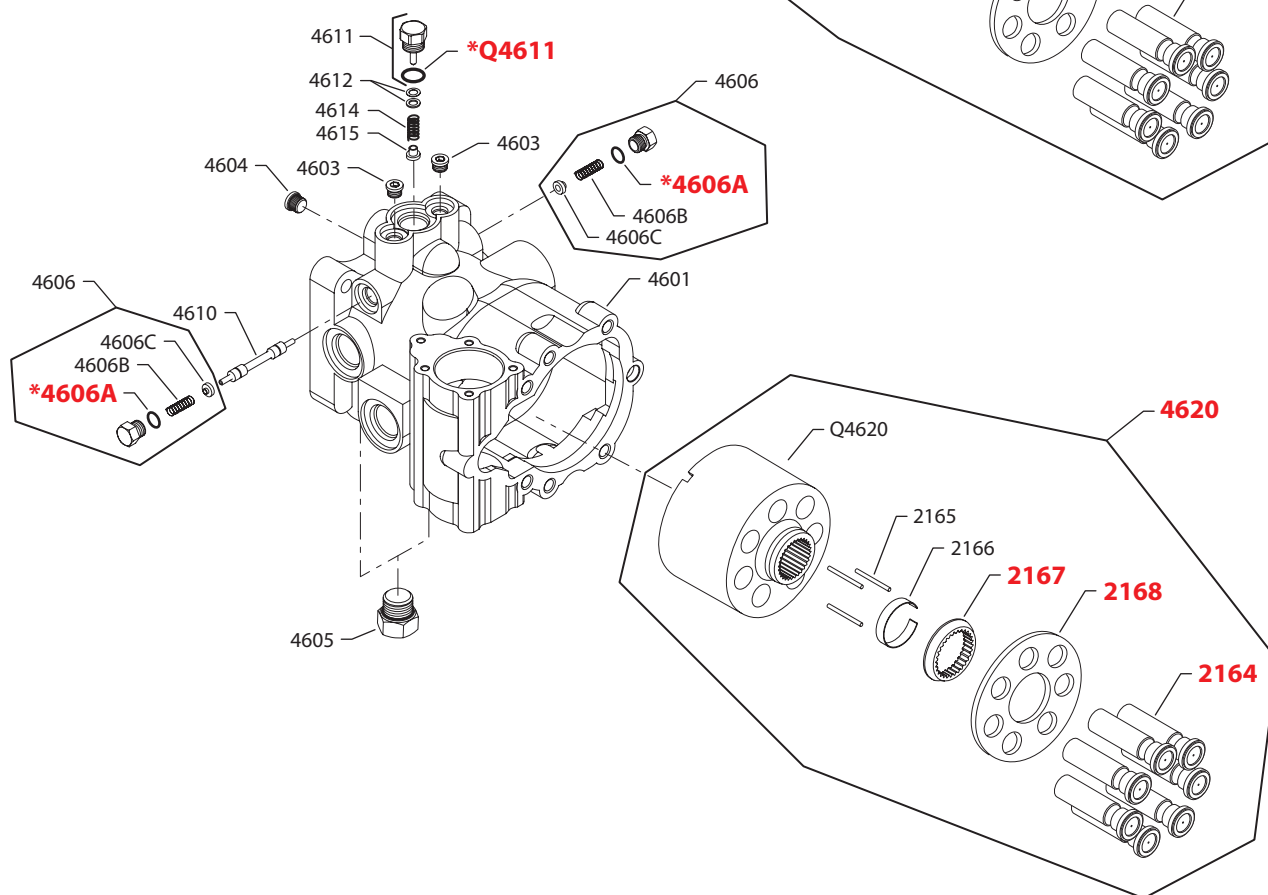


Variable displacement motor

(U & AU)



(V & AV)



E101 750E

* = included in overhaul seal kit Q210

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

Parts Manual

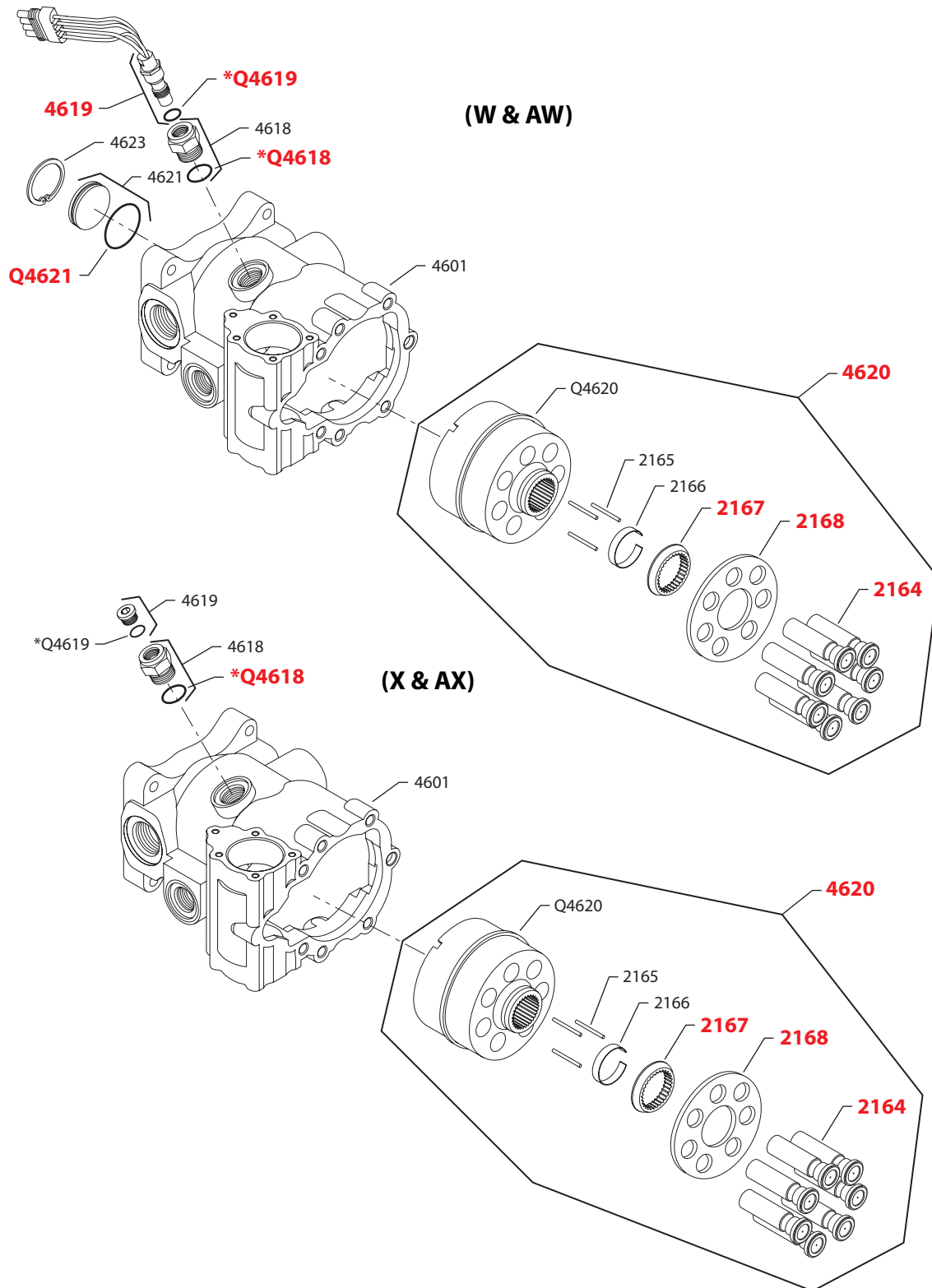
Series 40 M46 Axial Piston Motors

Variable displacement motor

Housing

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
U & AU	2164	97-02		4461032	Piston assembly	7
	2165	97-02		9004875-0113	Hold down pin	3
	2166	97-02		4460028	Hold down pin retainer	1
	2167	97-02		4460180	Retainer guide	1
	2168	97-02		4460009	Slipper guide	1
	4601	97-02		4460903	Housing	1
	4603	97-02		327007 (9005110-4400)	Plug assembly	2
	4604	97-02		515965 (9005110-5600)	Plug assembly	1
	4606	97-02		4800912	Loop flushing plug/spring assembly	2
	4606A	97-02		085043 (9004201-3700)	O-ring	2
	4606B	97-02		4800887	Spring	2
	4606C	97-02		512257	Spring guide	2
	4610	97-02		365544 (8800550)	Spool	1
	4611	97-02		4800308	Plug assembly	1
	4612	97-02		4510027	Shim kit	1
	4614	97-02		4800176	Spring	1
	4615	97-02		4800134	Poppet	1
	4620	97-02		4460890	Cylinder block kit	1
	Q4611	97-02		001149 (9004201-6200)	O-ring	1
	Q4620	97-02		11183528	Cylinder block assembly	1
V & AV	2164	97-07		4461032	Piston assembly	7
	2165	97-07		9004875-0113	Hold down pin	3
	2166	97-07		4460028	Hold down pin retainer	1
	2167	97-07		4460180	Retainer guide	1
	2168	97-07		4460009	Slipper guide	1
	4601	97-07		4460909	Housing	1
	4603	97-07		327007 (9005110-4400)	Plug assembly	2
	4604	97-07		515965 (9005110-5600)	Plug assembly	1
	4605	97-07		093625 (9005100-9000)	Plug assembly	1
	4606	97-07		4800912	Loop flushing plug/spring assembly	2
	4606A	97-07		085043 (9004201-3700)	O-ring	2
	4606B	97-07		4800887	Spring	2
	4606C	97-07		512257	Spring guide	2
	4610	97-07		365544 (8800550)	Spool	1
	4611	97-07		4800308	Plug assembly	1
	4612	97-07		4510027	Shim kit	1
	4614	97-07		4800176	Spring	1
	4615	97-07		4800134	Poppet	1
	4620	97-07		4460890	Cylinder block kit	1
	Q4611	97-07		001149 (9004201-6200)	O-ring	1
	Q4620	97-07		11183528	Cylinder block assembly	1

Variable displacement motor



E101 751E

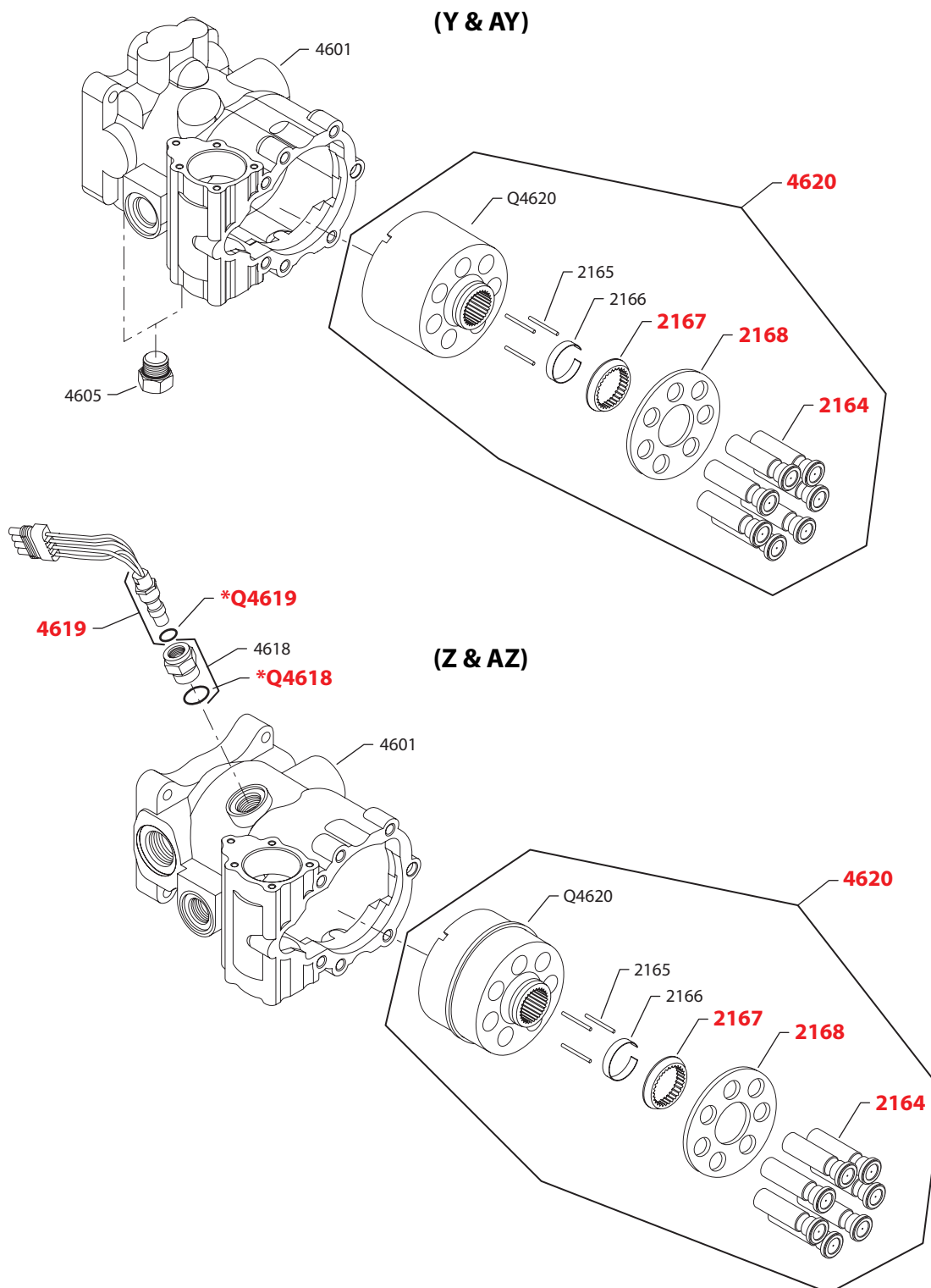
* = included in overhaul seal kit Q210

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


Variable displacement motor
Housing

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
W & AW	2164	97-02		4461032	Piston assembly	7
	2165	97-02		9004875-0113	Hold down pin	3
	2166	97-02		4460028	Hold down pin retainer	1
	2167	97-02		4460180	Retainer guide	1
	2168	97-02		4460009	Slipper guide	1
	4601	03-03		4461044	Housing	1
	4618	03-03		4800432	Adapter assembly	1
	4619	03-03		KPPG166	Speed sensor assembly	1
	4620	03-03		4460891	Cylinder block kit, with speed ring	1
	4621	03-03		4461003	Plug assembly	1
	4623	03-03		9006200-0169	Retaining ring	1
	Q4618	03-03		001149 (9004201-6200)	O-ring	1
	Q4619	03-03		085043 (9004201-3700)	O-ring	1
	Q4620	03-03		11183529	Cylinder block assembly, with speed ring	1
	Q4621	03-03		327189 (9004100-0290)	O-ring	1
X & AX	2164	97-02		4461032	Piston assembly	7
	2165	97-02		9004875-0113	Hold down pin	3
	2166	97-02		4460028	Hold down pin retainer	1
	2167	97-02		4460180	Retainer guide	1
	2168	97-02		4460009	Slipper guide	1
	4601	95-37		4461044	Housing (SB-1998-026 & SB-1998-075)	1
	4618	95-37		4800432	Adapter assembly	1
	4619	95-37		515965 (9005110-5600)	Plug assembly	1
	4620	95-37		4460891	Cylinder block kit, with speed ring	1
	4621	95-37		4461003	Plug assembly	1
	4623	95-37		9006200-0169	Retaining ring	1
	Q4621	95-37		327189 (9004100-0290)	O-ring	1
	Q4618	95-37		001149 (9004201-6200)	O-ring	1
	Q4619	95-37		085043 (9004201-3700)	O-ring	1
	Q4620	95-37		11183529	Cylinder block assembly, with speed ring	1

Variable displacement motor



E100 180E

* = included in overhaul seal kit Q210

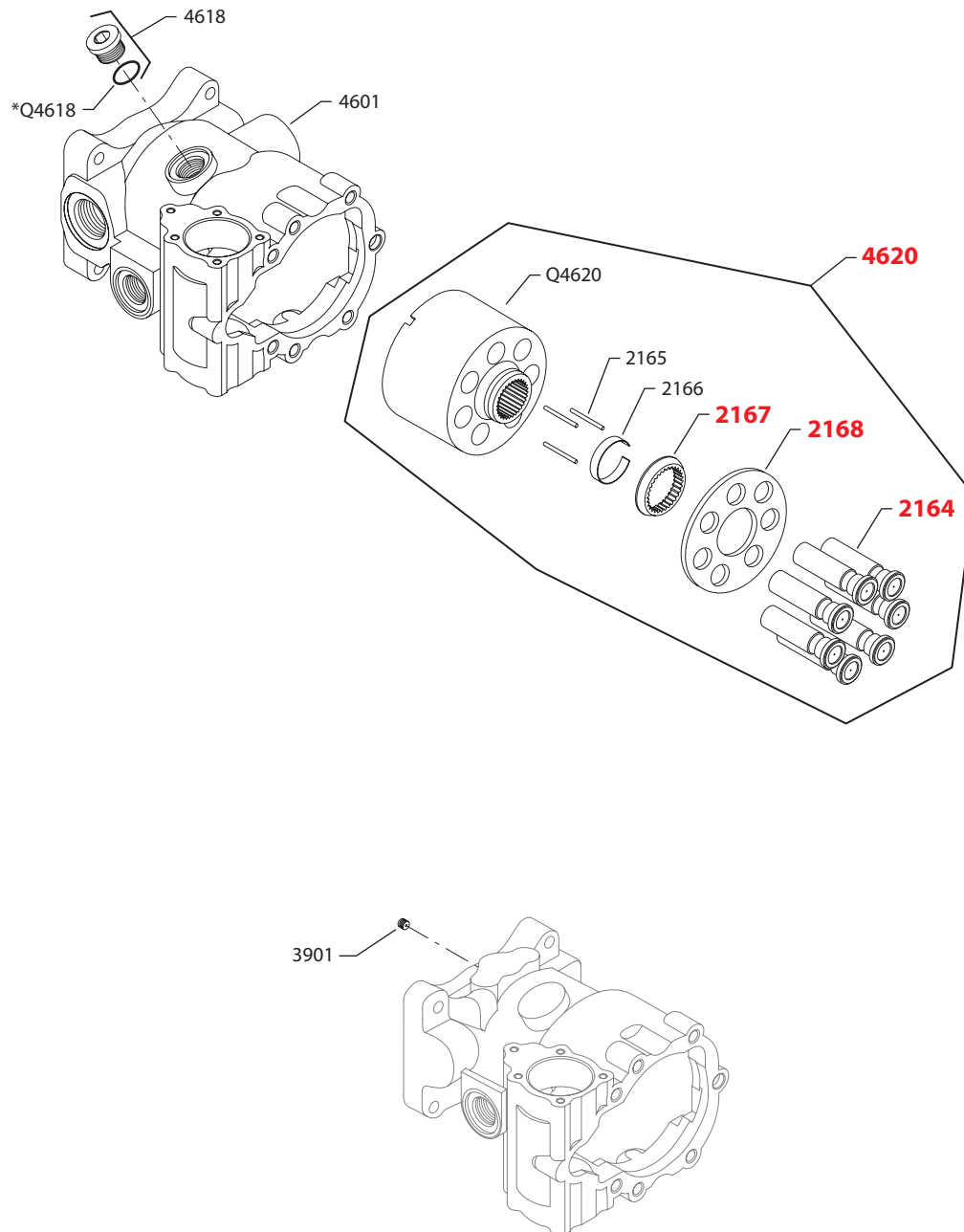
Enlarged **bold** type item numbers are recommended part to stock for servicing.

Variable displacement motor
Housing

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
Y & AY	2164	97-11		4461032	Piston assembly	7
	2165	97-11		9004875-0113	Hold down pin	3
	2166	97-11		4460028	Hold down pin retainer	1
	2167	97-11		4460180	Retainer guide	1
	2168	97-11		4460009	Slipper guide	1
	4601	97-11		4461035	Housing (SB-1998-075)	1
	4605	97-11		093625 (9005100-9000)	Plug assembly	2
	4620	97-11		4460890	Cylinder block kit,	1
	Q4620	97-11		11183528	Cylinder block assembly	1
Z & AZ	2164	97-16		4461032	Piston assembly	7
	2165	97-16		9004875-0113	Hold down pin	3
	2166	97-16		4460028	Hold down pin retainer	1
	2167	97-16		4460180	Retainer guide	1
	2168	97-16		4460009	Slipper guide	1
	4601	97-16		4461044	Housing (SB-1998-026 & SB-1998-075)	1
	4618	97-16		4800432	Adapter assembly	1
	4619	97-16		KPPG16008	Speed sensor assembly	1
	4620	97-16		4460891	Cylinder block kit, with speed ring	1
	Q4618	97-16		001149 (9004201-6200)	O-ring	1
	Q4619	97-16		085043 (9004201-3700)	O-ring	1
	Q4620	97-16		11183529	Cylinder block assembly, with speed ring	1



Variable displacement motor



E103 526E

* = included in overhaul seal kit Q210

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


Variable displacement motor
Housing

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
BG	2164	12-18		4461032	Piston assembly	7
	2165	12-18		9004875-0113	Hold down pin	3
	2166	12-18		4460028	Hold down pin retainer	1
	2167	12-18		4460180	Retainer guide	1
	2168	12-18		4460009	Slipper guide	1
	4601	12-18		11091549	Housing	1
	4618	12-18		9005110-8700	Plug assembly assembly	1
	4620	12-18		4460890	Cylinder block kit	1
	Q4618	12-18		001149 (9004201-6200)	O-ring	1
	Q4620	12-18		11183528	Cylinder block assembly	1

Special hardware

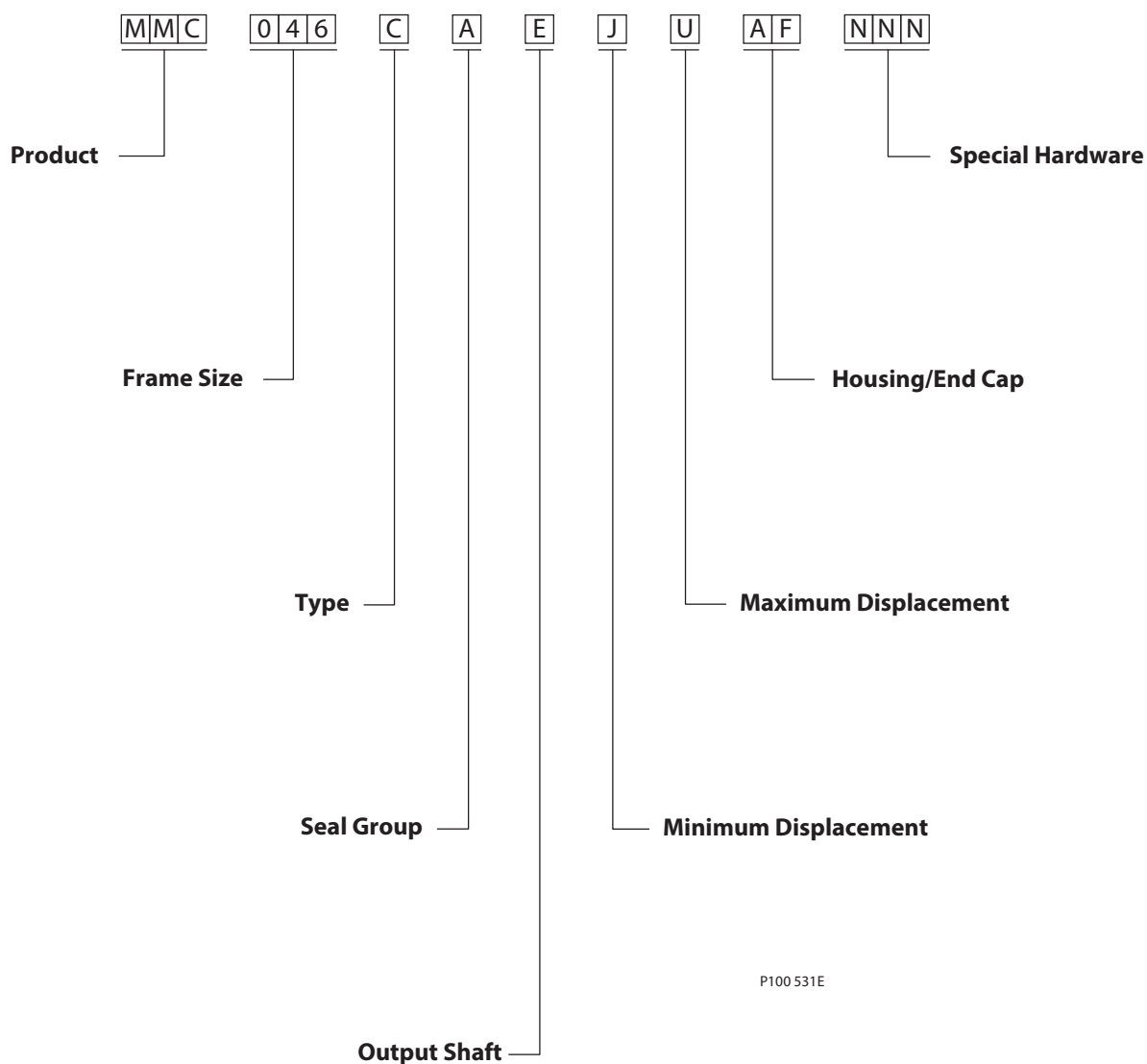
NNA-NNF				No parts		
NNG	3901	95-45		11061980	Orifice plug, .076"	1
NNH				No parts		
NNJ	3901	95-45		8800242-0001	Orifice plug, .054"	1
NNL	3901	95-45		11061992	Orifice plug, .094"	1
NNN				No parts		
VNA	3901	95-45		11061969	Orifice plug, .062"	1
VNB	3901	95-45		8800242-0001	Orifice plug, .054"	1
VNC	3901	95-45		11061980	Orifice plug, .076"	1
VND	3901	95-45		8800242-0001	Orifice plug, .054"	1
VNE	3901	95-45		8800242-0001	Orifice plug, .054"	1
VNF	3901	95-45		11061992	Orifice plug, .094"	1


Variable displacement motor
Overhaul seal kit

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	Q210	84-31		4510184	Overhaul seal kit, MMV046C	1
	4123	84-31		4460564	Front cover gasket	1
	4130	84-31		4461311	Servo cover gasket	1
	4136	84-31		8700067	Piston ring	1
	4137	84-31		8700067	Piston ring	1
	4138	84-31		673236 (9004100-1310)	O-ring, 1.674 x .103, nitrile	2
	4140	84-31		4460648	Bearing ring	2
	4143	84-31		4461311	Servo cover gasket	1
	4201	84-31		9008000-0121	Lip seal	1
	4202	84-31		9008000-0131	Lip seal	1
	4505	84-31		9003575-0083	Seal nut, .375-24	1
	4510	84-31		9003575-0094	Seal nut, .3125-24	1
	4606A	84-31		085043 (9004201-3700)	O-ring, .468 x .078, nitrile	2
	Q4611	84-31		001149 (9004201-6200)	O-ring, .755 x .097, nitrile	1
	Q4618	84-31		001149 (9004201-6200)	O-ring, .755 x .097, nitrile	1
	Q4619	84-31		085043 (9004201-3700)	O-ring, .468 x .078, nitrile	1

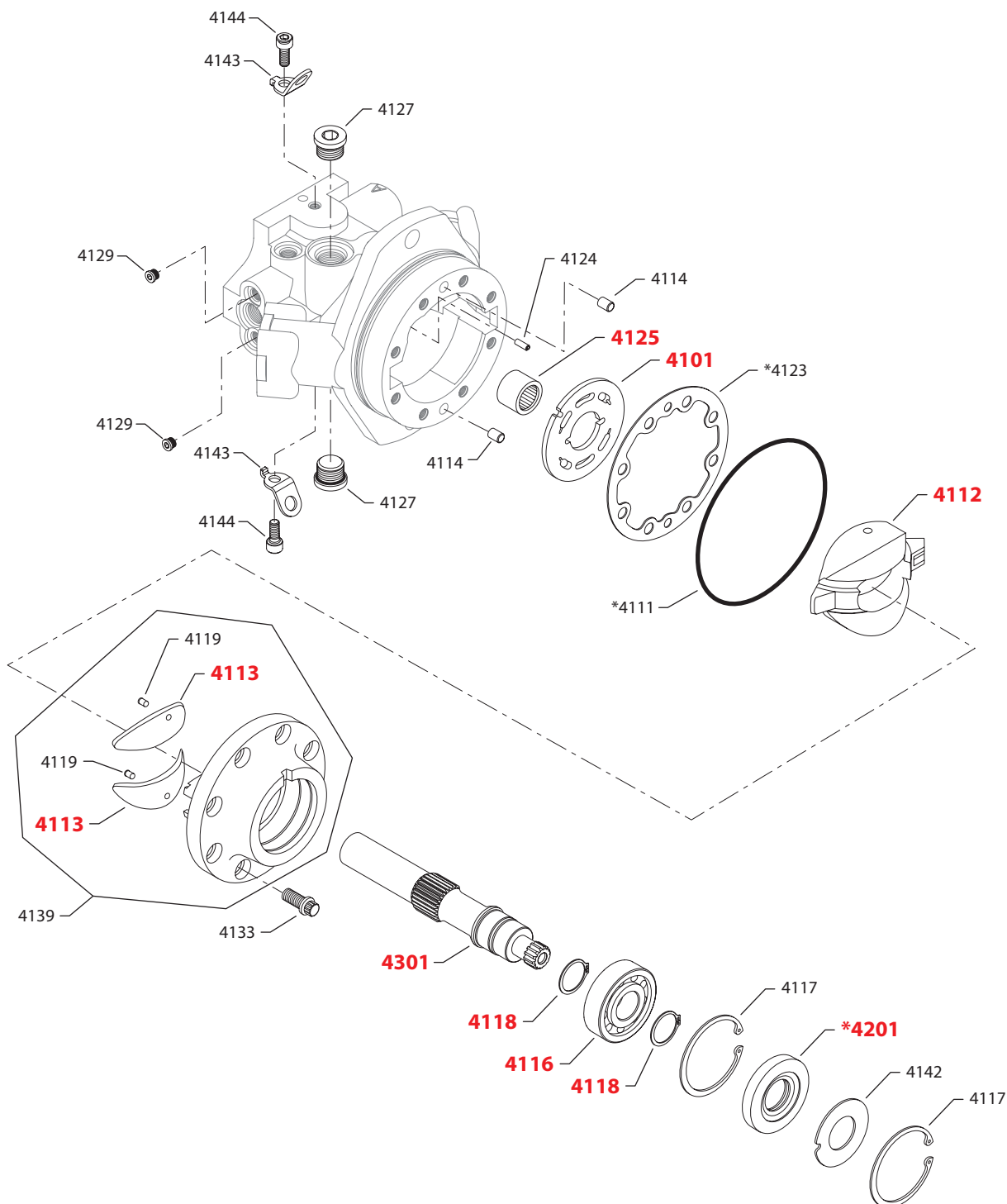


Variable displacement cartridge motor





Variable displacement cartridge motor



E100 181E

* = included in overhaul seal kit Q210

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

Variable displacement cartridge motor
Common parts

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	4101	93-39		4461105	Valve plate (SB-1999-058)	1
	4111	93-39		729319	O-ring	1
	4112	93-39		4460701	Swashplate	1
	4113	93-39		11110521	Journal bearing (SB-1994-011)	2
	4114	93-39		9004800-3708	Pin	2
	4116	93-39		5000731	Ball bearing	1
	4117	93-39		615237 (9006200-0281)	Retaining ring	2
	4118	93-39		615245 (9006300-0137)	Retaining ring	2
	4119	93-39		5000116	Pin, coil (SB-1994-011)	2
	4123	93-39		4460711	Front cover gasket	1
	4124	93-39		9004700-1907	Pin, slotted	1
	4125	93-39		615252 (9001465-0010)	Needle bearing	1
	4127	93-39		664524 (9005110-9000)	Plug assembly	2
	4129	93-39		327007 (9005110-4400)	Plug assembly	2
	4133	93-39		5000207	Screw	8
	4139	96-07		4461356	Front cover assembly (SB-1996-002)	1
	4142	96-07		11083729	Support washer (SB-1996-002)	1
	4143	12-45		11040737	Lifting bracket	2
	4144	12-45		393686	Screw	2

Seal group

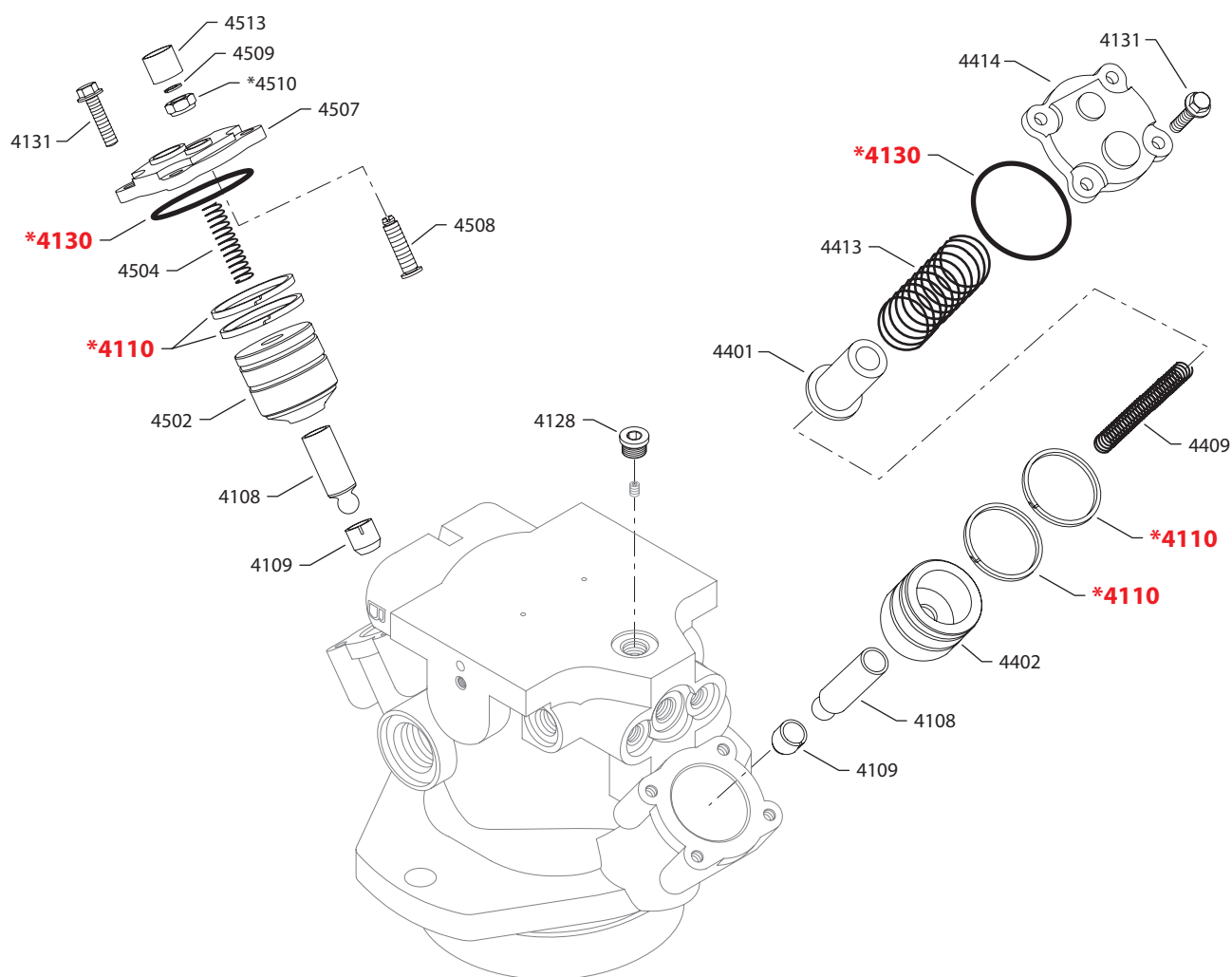
A	4201	84-31		9008000-0121	Lip seal	1
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Shaft

A	4301	93-39		4460251	Shaft, 13 tooth	1
E	4301	93-39		4460166	Shaft, 15 tooth	1



Variable displacement cartridge motor



E100 182E

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Variable displacement cartridge motor
Common parts

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
	4108	93-39		4350095	Piston	2
	4109	93-39		4460705	Slipper	2
	4110	93-39		4700031	Piston seal ring	4
	4128	93-39		515965 (9005110-5600)	Plug assembly	1
	4130	93-39		9004101-1370	O-ring	2
	4131	93-39		9007276-0134	Screw	8
	4402	93-39		4460708	Servo piston	1
	4409	93-39		4460713	Spring	1
	4413	93-39		4460712	Spring	1
	4414	93-39		4460709	Servo cover	1

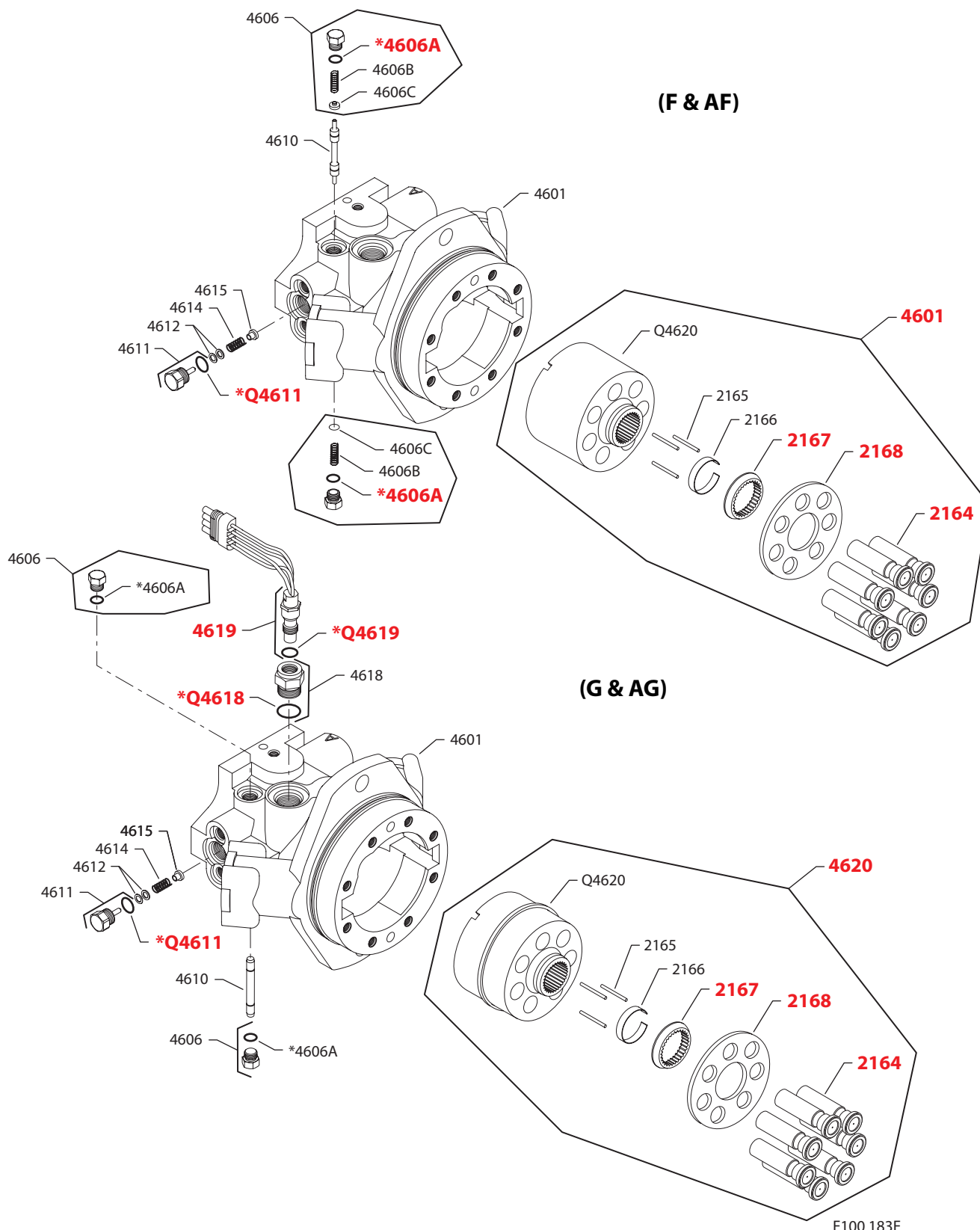
Minimum displacement

A	4401	93-39		4460754	Stop, 11 degree	1
B	4401	93-39		4460752	Stop, 7 degree	1
D	4401	93-39		4460751	Stop, 6 degree	1
E	4401	93-39		4460750	Stop, 1 degree	1
F	4401	93-39		4460753	Stop, 9 degree	1
H	4401	93-39		4460706	Stop, 8.5 degree	1
J	4401	93-39		4460761	Stop, 13 degree	1
L	4401	93-39		4460839	Stop, 5 degree	1
S	4401	93-39		4460735	Stop, 10.5 degree	1
W	4401	93-39		4461136	Stop, 7.5 degree	1

Maximum displacement

G, T, U,	4502	93-39		4460704	Servo piston	1
V, & W	4504	93-39		4460714	Spring	1
	4507	93-39		4460710	Servo cover	1
	4508	93-39		4460603	Servo stop	1
	4509	93-39		9006326-0025	Retaining ring	1
	4510	93-39		9003575-0094	Seal nut	1
	4513	93-39		4800174	Servo adjust cover	1

Variable displacement cartridge motor



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Parts Manual

Series 40 M46 Axial Piston Motors

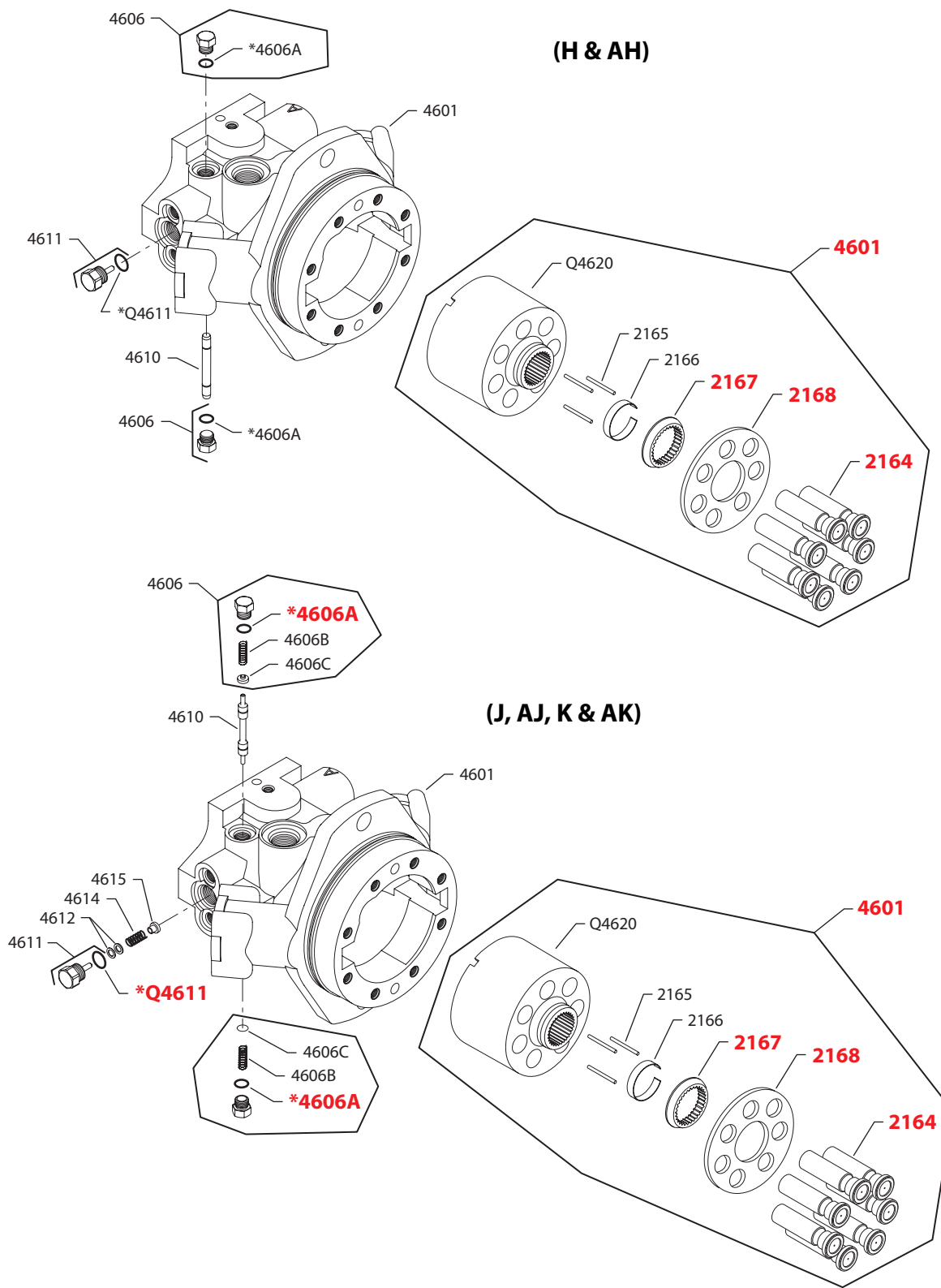
Variable displacement cartridge motor

Housing

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
F & AF	2165	93-39		9004875-0113	Hold down pin	3
	2166	93-39		4460028	Hold down pin retainer	1
	2167	93-39		4460180	Retainer guide	1
	2164	93-39		4461032	Piston assembly	7
	2168	93-39		4460009	Slipper guide	1
	4601	93-39		4460834	Housing	1
	4606	93-39		4800912	Loop flushing plug/spring assembly	2
	4606A	93-39		085043 (9004201-3700)	O-ring	2
	4606B	93-39		4800887	Spring	2
	4606C	93-39		512257	Spring guide	2
	4610	93-39		365544 (8800550)	Loop flushing spool	1
	4611	93-39		4800308	Plug assembly	1
	4612	93-39		4510027	Shim kit	1
	4614	93-39		4800176	Spring	1
	4615	93-39		4800134	Poppet	1
	4620	93-39		4460890	Cylinder block kit	1
	Q4611	93-39		001149 (9004201-6200)	O-ring	1
	Q4620	93-39		11183528	Cylinder block assembly	1
G & AG	2165	93-39		9004875-0113	Hold down pin	3
	2166	93-39		4460028	Hold down pin retainer	1
	2167	93-39		4460180	Retainer guide	1
	2164	93-39		4461032	Piston assembly	7
	2168	93-39		4460009	Slipper guide	1
	4601	93-39		4460834	Housing	1
	4606	93-39		9005100-5600	Plug assembly	4
	4606A	93-39		085043 (9004201-3700)	O-ring	2
	4610	93-39		8800668	Loop flushing spool, defeated	1
	4611	93-39		9005100-8700	Plug assembly	2
	4618	93-39		4800432	Adapter assembly	1
	4619	93-39		KPPG13408	Speed sensor	1
	4620	93-39		4460891	Cylinder block kit, with speed ring	1
	Q4611	93-39		001149 (9004201-6200)	O-ring	1
	Q4618	95-37		001149 (9004201-6200)	O-ring	1
	Q4619	95-37		085043 (9004201-3700)	O-ring	1
	Q4620	93-39		11183529	Cylinder block assembly, with speed ring	1



Variable displacement cartridge motor



E100 184E

* = included in overhaul seal kit Q210

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

Parts Manual

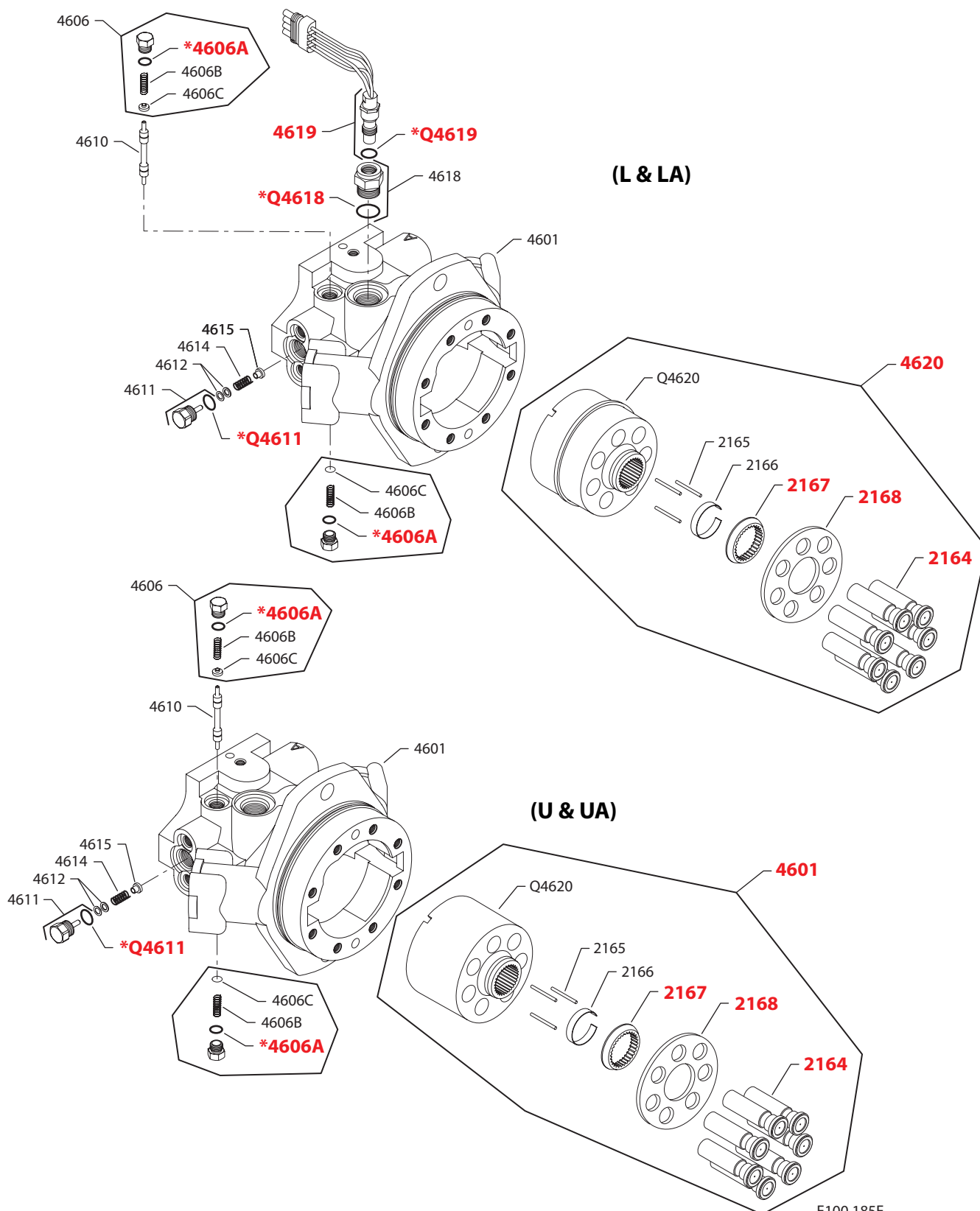
Series 40 M46 Axial Piston Motors

Variable displacement cartridge motor

Housing

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
H & AH	2165	93-35		9004875-0113	Hold down pin	3
	2166	93-35		4460028	Hold down pin retainer	1
	2167	93-35		4460180	Retainer guide	1
	2164	93-35		4461032	Piston assembly	7
	2168	93-35		4460009	Slipper guide	1
	4601	93-35		4460834	Housing	1
	4606	93-35		9005100-5600	Plug assembly	4
	4606A	93-35		085043 (9004201-3700)	O-ring	2
	4610	93-35		8800668	Loop flushing spool, defeated	1
	4611	93-35		9005100-8700	Plug assembly	2
	4620	93-35		4460890	Cylinder block kit	1
	Q4611	93-35		001149 (9004201-6200)	O-ring	1
	Q4620	93-35		11183528	Cylinder block assembly	1
J & AJ	2165	93-39		9004875-0113	Hold down pin	3
	2166	93-39		4460028	Hold down pin retainer	1
	2167	93-39		4460180	Retainer guide	1
	2164	93-39		4461032	Piston assembly	7
	2168	93-39		4460009	Slipper guide	1
	4601	93-39		4460834	Housing	1
	4606	93-39		4800912	Loop flushing plug/spring assembly	2
	4606A	93-39		085043 (9004201-3700)	O-ring	2
	4606B	93-39		4800887	Spring	2
	4606C	93-39		512257	Spring guide	2
	4610	93-39		365544 (8800550)	Loop flushing spool	1
	4611	93-39		4800308	Plug assembly	1
	4612	93-39		4510027	Shim kit	1
	4614	93-39		8800496	Spring	1
	4615	93-39		4800134	Poppet	1
	4620	93-39		4460890	Cylinder block kit	1
	Q4611	93-39		001149 (9004201-6200)	O-ring	1
	Q4620	93-39		11183528	Cylinder block assembly	1
K & AK	2165	93-39		9004875-0113	Hold down pin	3
	2166	93-39		4460028	Hold down pin retainer	1
	2167	93-39		4460180	Retainer guide	1
	2164	93-39		4461032	Piston assembly	7
	2168	93-39		4460009	Slipper guide	1
	4601	93-39		4460834	Housing	1
	4606	93-39		4800912	Loop flushing spool spring assembly	2
	4606A	93-39		085043 (9004201-3700)	O-ring	2
	4606B	93-39		4800887	Spring	2
	4606C	93-39		512257	Spring guide	2
	4610	93-39		365544 (8800550)	Loop flushing spool	1
	4611	93-39		4800308	Plug assembly	1
	4612	93-39		4510027	Shim kit	1
	4614	93-39		8800496	Spring	1
	4615	93-39		4800134	Poppet	1
	4620	93-39		4460890	Cylinder block kit	1
	Q4611	93-39		001149 (9004201-6200)	O-ring	1
	Q4620	93-39		11183528	Cylinder block assembly	1

Variable displacement cartridge motor



* = included in overhaul seal kit Q210

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

Parts Manual

Series 40 M46 Axial Piston Motors

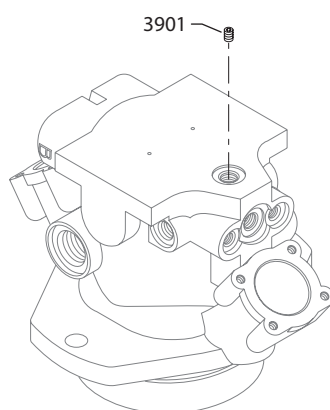
Variable displacement cartridge motor

Housing

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
L & LA	2165	95-13		9004875-0113	Hold down pin	3
	2166	95-13		4460028	Hold down pin retainer	1
	2167	95-13		4460180	Retainer guide	1
	2164	95-13		4461032	Piston assembly	7
	2168	95-13		4460009	Slipper guide	1
	4601	95-13		4460835	Housing	1
	4606	95-13		4800912	Loop flushing plug/spring assembly	2
	4606A	95-13		085043 (9004201-3700)	O-ring	2
	4606B	95-13		4800887	Spring	2
	4606C	95-13		512257	Spring guide	2
	4610	95-13		365544 (8800550)	Loop flushing spool	1
	4611	95-13		4800308	Plug assembly	1
	4612	95-13		4510027	Shim kit	1
	4614	95-13		8800496	Spring	1
	4615	95-13		4800134	Poppet	1
	4618	95-13		4800432	Adapter assembly	1
	4619	95-13		9005110-5600	Plug assembly	1
	4620	95-13		4460891	Cylinder block kit, with speed ring	1
	Q4611	95-13		001149 (9004201-6200)	O-ring	1
	Q4618	95-13		001149 (9004201-6200)	O-ring	1
	Q4619	95-13		085043 (9004201-3700)	O-ring	1
	Q4620	95-13		11183529	Cylinder block assembly, with speed ring	1
U & AU	2165	99-10		9004875-0113	Hold down pin	3
	2166	99-10		4460028	Hold down pin retainer	1
	2167	99-10		4460180	Retainer guide	1
	2164	99-10		4461032	Piston assembly	7
	2168	99-10		4460009	Slipper guide	1
	4601	99-10		4460834	Housing	1
	4606	99-10		4800912	Loop flushing plug/spring assembly	2
	4606A	99-10		085043 (9004201-3700)	O-ring	2
	4606B	99-10		4800887	Spring	2
	4606C	99-10		512257	Spring guide	2
	4610	99-10		365544 (8800550)	Loop flushing spool	1
	4611	99-10		4800308	Plug assembly	1
	4612	99-10		4510027	Shim kit	1
	4614	99-10		8800176	Spring	1
	4615	99-10		4800134	Poppet	1
	4620	99-10		4460890	Cylinder block kit	1
	Q4611	99-10		001149 (9004201-6200)	O-ring	1
	Q4620	99-10		11183528	Cylinder block assembly	1



Variable displacement cartridge motor



E101 752E

* = included in overhaul seal kit Q210

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

Variable displacement cartridge motor
Special hardware

Order Code	Item	Date Begin	Date End	Part Number	Part Name	Qty. per Model/Kit
NNA				No parts		
NNB				No parts		
NNL	3901	95-45		11061992	Orifice plug, .094"	1
NNN				No parts		
NVA	3901	95-45		11061969	Orifice plug, .062"	1
NVC	3901	95-45		11061980	Orifice plug, .076"	1
NZL				No parts		
VNA	3901	95-45		11061969	Orifice plug, .062"	1
VNC	3901	09-28		11061980	Orifice plug, .076"	1

Overhaul seal kit

Q210	93-39		4510183	Overhaul seal kit, MMV046C	1
4110	93-39		4700031	Piston seal ring	4
4111	93-39		729319	O-ring, 154 x 3 mm, nitrile	1
4123	93-39		4460711	Front cover gasket	1
4130	93-39		9004101-1370	O-ring, 2.050 x .103, nitrile	1
4201	93-39		9008000-0121	Lip seal	1
4510	93-39		9003575-0094	Seal nut, .3125-24	1
4606A	93-39		085043 (9004201-3700)	O-ring, .468 x .078, nitrile	2
Q4611	93-39		001149 (9004201-6200)	O-ring, .755 x .097, nitrile	1
Q4618	93-39		001149 (9004201-6200)	O-ring, .755 x .097, nitrile	1
Q4619	93-39		085043 (9004201-3700)	O-ring, .468 x .078, nitrile	1



Service bulletin: SB-1987-032

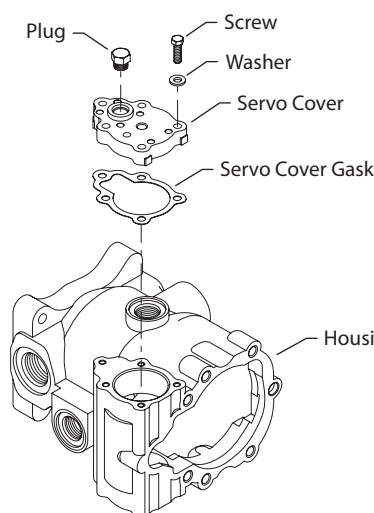
Products affected M46 variable motors

Subject Servo cover change

Description In December 1987, a change will be made to all M46 variable motor servo covers. The cover will change from a 4-bolt to a 5-bolt design, which is currently used on all M46 pumps.

The parts affected will be the housings, servo covers, servo cover gaskets, servo cover cap screws and washers. The part number of the washers and cap screws remains the same, but the quantities will change from (4) to (5).

This change will move the servo cover pressure port approximately 1.1" further from the motor front cover.



Models affected All M46-4xxx variable motors

Serial numbers This change became effective at serial number A-87-49-xxxxx.

Part numbers affected	Parts for S/N Prior		Parts for S/N 87/49	
	to 87-49		& Later	
	4460366	Standard Housing		4460452
	4460367	Housing for thru Shaft		4460453
	4460410	Special Clearance Housing		4460454
	4460262	Servo Cover	4460455-0004 w/ 046151 (9005100-5600) Plug	
	4460206	Servo Cover		4460455-0004
	4460447	Servo Cover		4460455-0002
	4460208	Gasket-Servo Cover		4460413

Parts disposition ■ Non-interchangeable

Service bulletin: SB-1988-002

Products affected	M46 pumps and variable motors
Subject	Servo piston improvements
Description	Two product improvements have taken place in the M46 product line. The first improvement involves a change in the servo backlash adjustment from one self locking nut to a stronger double nut arrangement. A .335" wide nut takes the place of the self locking nut, and is adjusted to set zero backlash as in the previous design. After backlash is set, a .225" wide nut is torqued to 18-27 ft. lbs. against the thicker nut to act as a lock nut. (Figure 2 and 3) The second improvement involves the addition of a nonmetallic bearing ring to enhance the bearing characteristics of the housing bore/servo piston interface. The rings are of a split design and simply fit into grooves located inside the current grooves for the servo piston seal rings. Before installing the bearing rings to the servo piston, the bearing rings must be preformed. Simply curl the bearing ring around your finger until its O.D. is approximately 1", and let stand for approximately (5) minutes. To assemble, install the (2) bearing rings into the bearing ring grooves, (2) O-rings into the piston ring grooves, and (1) of the (2) piston rings over its O-ring. Do not install the piston ring closest to the neutral adjustment screw (Figure 3). Spread a light film of oil on the seal and bearing ring. Next slide the servo piston into the housing bore, adjustment screw first, until the adjustment screw end piston ring groove is just exposed. Then install the second piston ring and oil and slide the piston into position in the housing. (Figure 4).
Models affected	All M46 pumps and variable motors.
Serial numbers	Double nut backlash was incorporated at serial number 87-41-xxxxx. Bearing ring was incorporated at serial number 88-05-xxxxx.
Part numbers affected	.335" nut is p/n 9003535-3700 .225" nut is p/n 9003561-3700 Bearing ring is p/n 4460477 Servo piston with groove for bearing ring is 460474
Parts disposition	■ Interchangeable - 4460474 servo piston with 4460477 ring will fit all vintages of M46 housings. See SB-1987-005 for installation instructions for older housing without a lead-in chamfer.

Service bulletin: SB-1988-002

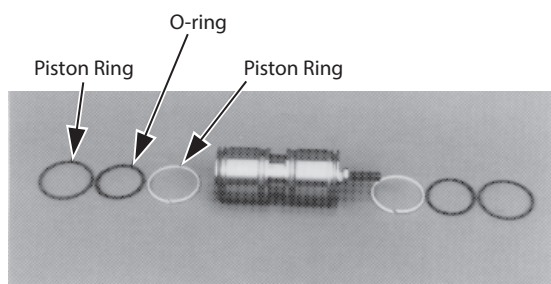


Fig. 1
Servo piston assembly with rings

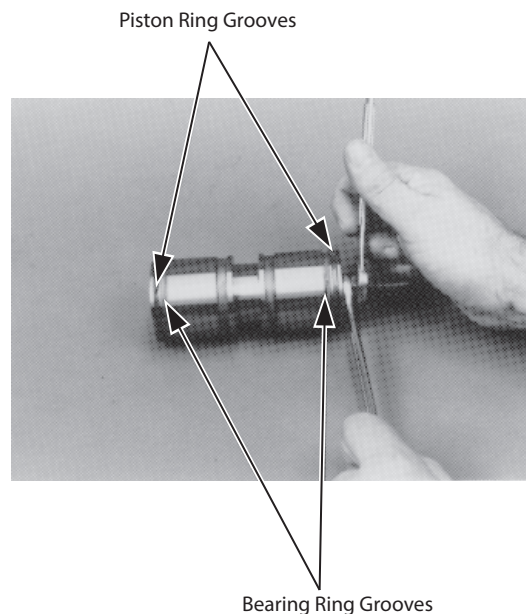


Fig. 2
Bearing ring grooves
Tightening the backlash locknut

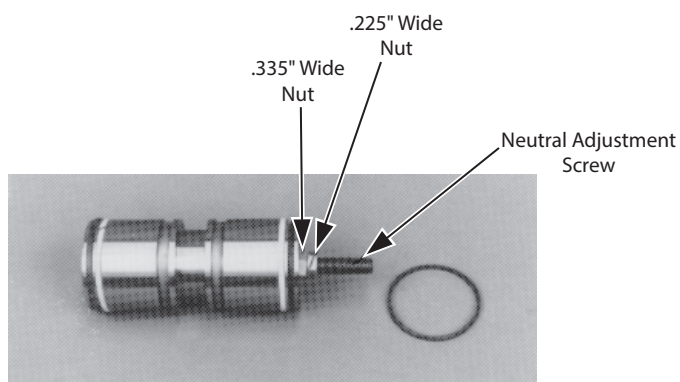


Fig. 3
Servo piston assembly with all rings
installed except the closest to the
neutral adjustment screw.

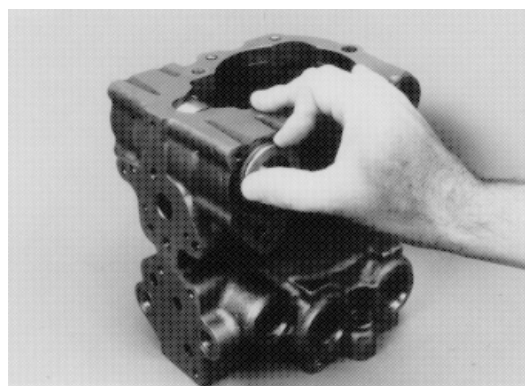


Fig. 4
Installing second piston ring

Service bulletin: SB-1989-010

Products affected

M46 fixed motors

Subject

Cylinder block kit change

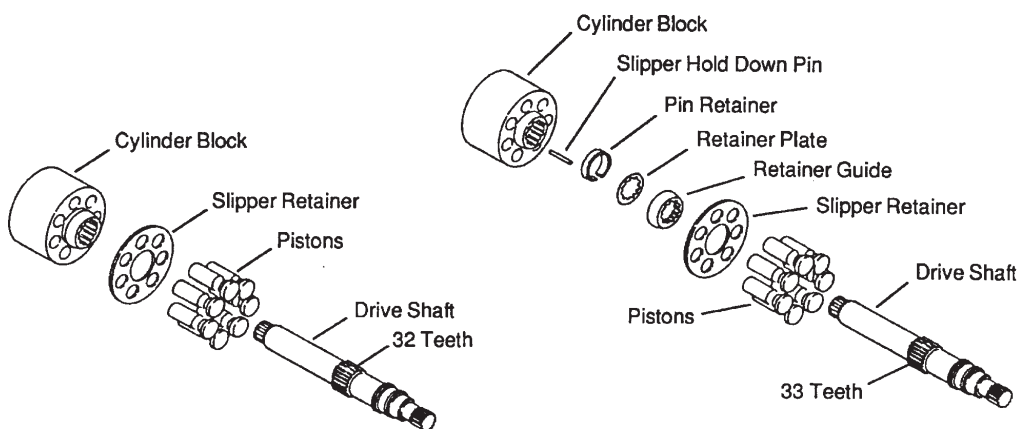
Description

Standard M46 fixed motors currently use a cylinder block kit with the slipper retainer guide (ball guide) built into the cylinder block. M46 pump (and variable motor) cylinder block kits incorporate a separate retainer guide with hold down pins to transmit pressure from the block spring to the slipper retainer. This creates positive hold down pressure on the slippers and swashplate.

As a product improvement, all M46 fixed motors will change to the pump style cylinder block kit. In the past, only selected models included this feature.

Due to differences in the mating splines on the drive shaft and cylinder block, different fixed motor drive shafts are required with this change.

Fixed motor style cylinder block kits and their corresponding drive shafts will remain available as spare part items to repair older fixed motors.



Motor style cylinder block

Pump style cylinder block

(will be used on all M46 products after this change)

Models affected

Old model number	Old shaft part number	Replacement model number	New shaft part number
M46-3002	4460121	M46-3023	4460285
M46-3004	4460124	M46-3108	4460577
M46-3011	4460485	M46-3019	4460308
M46-3014	4460121	M46-3013	4460285
M46-3015	4460485	M46-3021	4460308
M46-3020	4460122	M46-3022	4460312
M46-3027	4460398	M46-3109	4460578
M46-3029	4460485	M46-3106	4460308
M46-3031	4460398	M46-3110	4460578
M46-3104	4460121	M46-3107	4460285
M46-3105	4460398	M46-3111	4460578
M46-3901	4460121	M46-3902	4460285

Serial numbers

Serial number incorporation is not required since the motor model numbers change.


Service bulletin: SB-1989-010
Part numbers affected

Description	Cyl. bkl. kit	Cylinder block	Slipper retainer	Pistons	Slipper hold down pins	Pin retainer	Retainer plate	Retainer guide
Older fixed motor	4460290	4460287	4460032	4460027	N/A	N/A	N/A	N/A
Pump, variable motors and new fixed motors	4460289	4460583	4460406	4460027	9004875-0113	4460028	44604633	4460180

Parts disposition

■ Non-interchangeable

Service bulletin: SB-1989-013

Products affected

M46 variable pumps, tandem pumps, and variable motors

Subject

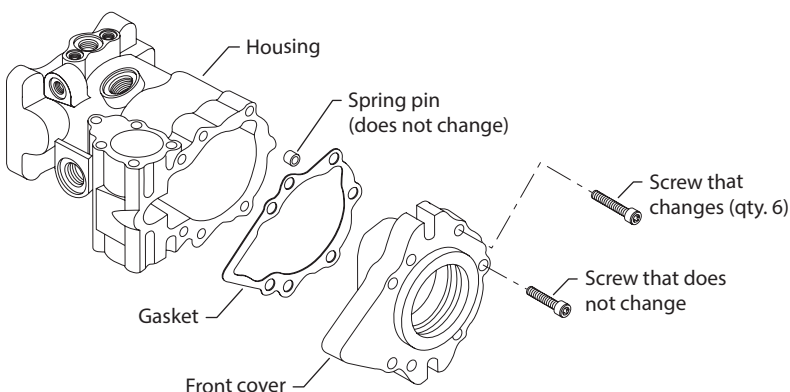
Front cover cap screw change

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 lbf·ft. (81-100 Nm) for the 7/16" screws and 39-47 lbf·ft. (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 service parts. Housings are rarely sold as service 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 service parts, and must be used to repair older vintage pumps and variable motors.



Models affected

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

Serial numbers

The change will take place at serial number A-89-23-xxxxx.

Part numbers affected

Description	Old part number	New part number
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
Front cover - standard	4460392	4460563
Front cover - special mounting	4460478	4460573
Rear cover - "A" flange tandem pump	4460449	4460571
Rear cover - "B" flange tandem pump	4460437	4460572
Cover gasket	*4460409	4460564
12 point screw (quantity 6)	9007510-3716	9007510-4416

Parts disposition

■ Interchangeable



Service bulletin: SB-1990-012

Products affected

M46 pumps & variable motors

Subject

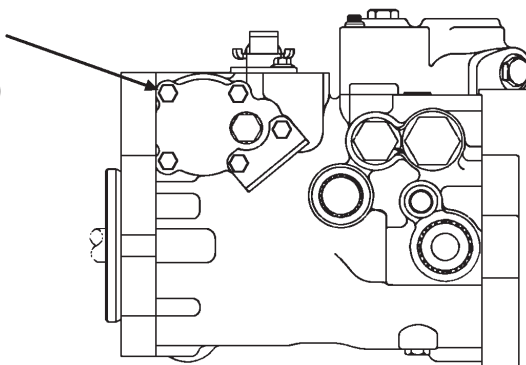
Servo cover cap screw change

Description

In the 3rd quarter of 1990, the screws that retain the servo covers to the housing will change from hex head screws with flat washers to flange head screws with no washers.

The wrench size required to remove the screws decreases from 7/16" to 3/8". The screw torque remains unchanged at 11 to 13 lbf·ft [16 Nm].

Servo cover
cap screw
(5 per cover)



Models affected

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

Serial numbers

N/A

Part numbers affected

Description	Old part number	New part number
Screw	9007206-2522	9007276-0134
Washer	9009610-2850	not used

Parts disposition

■ Interchangeable

Service bulletin: SB-1991-009A

Products affected

M46 variable displacement pumps and motors

Subject

Brass bearing ring

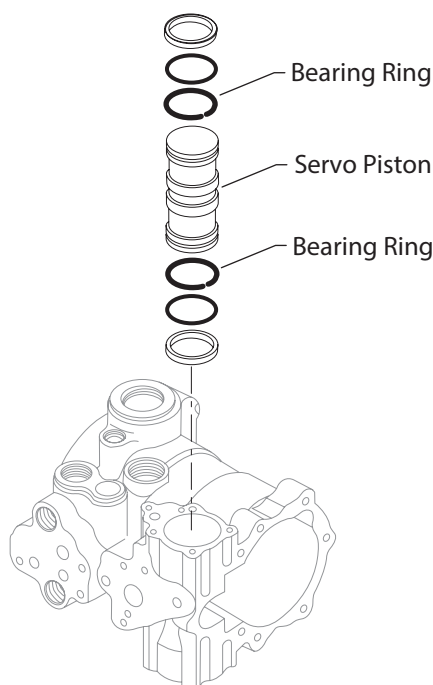
Description

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 a 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.



Models affected

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

Serial numbers

The change will take place at serial number A-89-23-xxxxx.

Part numbers affected

Description	Old part number	New part number
Bearing ring	4460477	4460648

Parts disposition

- Interchangeable
- Use parts in stock



Service bulletin: SB-1994-002

Products affected

M46 variable pumps & variable motors

Subject

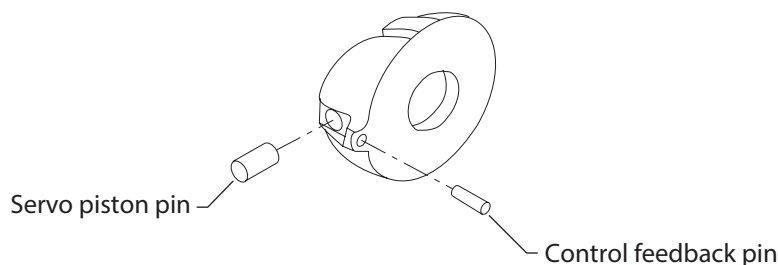
Swashplate kits

Description

When replacing the swashplate in M46 variable pumps and motors, the servo piston pin and control feedback pin also need to be replaced. Sauer-Danfoss will provide service kits containing swashplates with these pins installed. These swashplate kits will work in the variable motor with the control feedback pin installed, even though the control pin is not necessary.

Swashplates without the pins installed will no longer be available as spare parts.

These assemblies may be used in units from serial number A-86-23-xxxxx to the present.



Models affected

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

Serial numbers

A-86-23 and beyond

Part numbers affected

Description	Part number
Swashplate kit (non-balanced)	4510072
Swashplate kit (balanced)	4510073
Swashplate (non-balanced)	4460393
Swashplate (balanced)	4460394
Control feedback pin	9004700-2512
Servo piston pin	9004820-4416

Parts disposition

■ Interchangeable

Service bulletin: SB-1994-011A

Products affected

M46 fixed motors

Subject

Cylinder block kit change

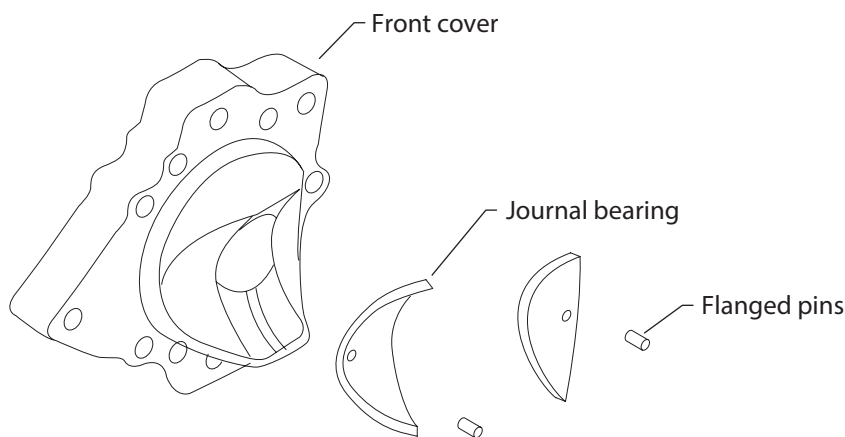
Description

As a product improvement Sauer-Danfoss 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-1994-011A
Models affected

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

Serial numbers

The change will become effective per the following chart:

Part numbers affected

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

Description	Where used	Old p/n	New p/n
Journal bearing	PV & PT balanced swashplate	4460320-0001	4460696
Journal bearing	PV & PT non-balanced swashplate	4460325-0001	No change
Journal bearing	Variable motor (SAE flange)	4460320-0003	4460397
Journal bearing	Variable motor (cartridge flange)	4460320-0003	4460697
Slotted pin	All variable units*	9004700-1206	5000116

* Except variable units with the non-balanced swashplate

Parts disposition

- Interchangeable - old pin/new bearing
- Non-interchangeable - new pin/old bearing

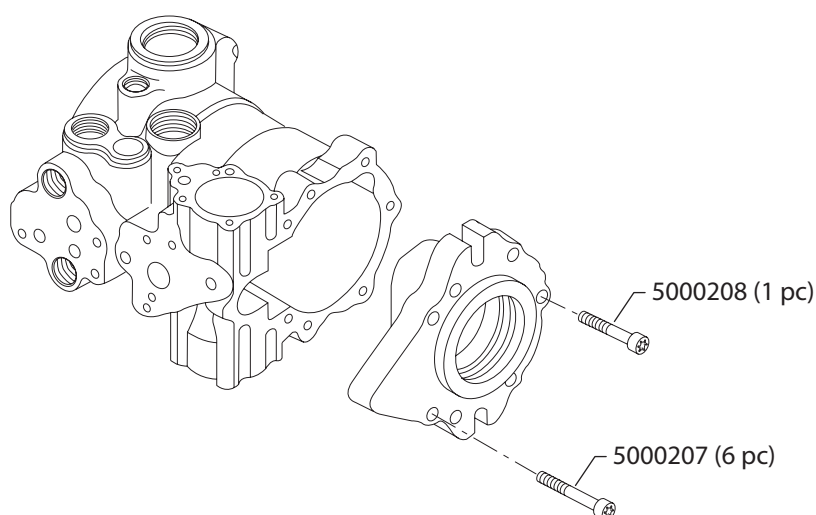
Service bulletin: SB-1994-037

Products affected M46 variable pump, tandem pump, and variable motor

Subject Front cover screws

Description As a product improvement, Sauer-Danfoss 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.



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

Serial numbers This change became effective at serial number A-94-37-xxxxx.

Part numbers affected

Description	Old part number	New part number
7/16 12 point screw	9007510-4416	-
3/8 12 point screw	9007510-3720	-
T55 torx screw	-	5000207
T50 torx screw	-	5000208

Parts disposition ■ Interchangeable


Service bulletin: SB-1995-020A

Products affected M46 variable pumps & variable motors

Subject Swashplate kits

Description As a product improvement, Sauer-Danfoss is changing the finish on M46 cylinder block. The old cylinder blocks had a shiny steel finish. The new cylinder blocks have a dark gray finish.

All repairs that call for a new cylinder block should use the new block. Return new 4460583 cylinder blocks and 4460289 cylinder block kits for credit and reorder the new part numbers.

Models affected All M46 pumps, fixed motors, and variable motors.

Serial numbers This change became effective at week 96-19 on all fixed motors, and 96-35 for all variable pumps and variable motors.

Part numbers affected

Description	Old part number	New part number
Cylinder block	4460583	4460832
Cylinder block kit	4460289	4460890

Parts disposition ■ Interchangeable

Service bulletin: SB-1996-002

Products affected

M46 variable cartridge motors

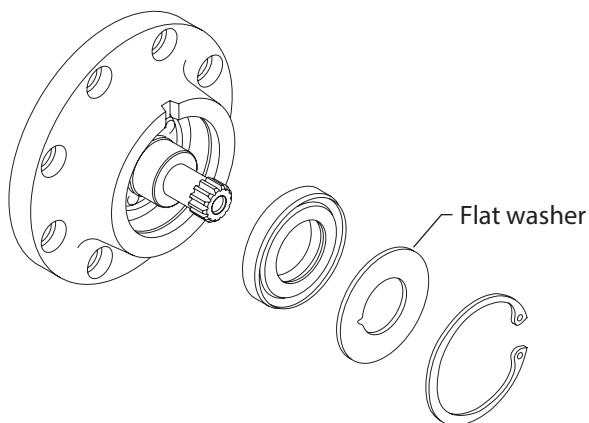
Subject

Improved seal retention

Description

As a product improvement, Sauer-Danfoss is adding a flat washer in front of the input shaft lip seal to improve seal retention. The snap ring groove moved in the front cover to make room for the washer, making this a non-interchangeable change.

The old front cover will remain available as a service part.



Models affected

All M46 cartridge variable motors.

Serial numbers

This change became effective at serial number A-96-07-xxxxx.

Part numbers affected

Description	Old part number	New part number
Front cover	4460702	4460847
Support washer	N/A	4350455

Parts disposition

■ Non-interchangeable

Service bulletin: SB-1996-022
Products affected

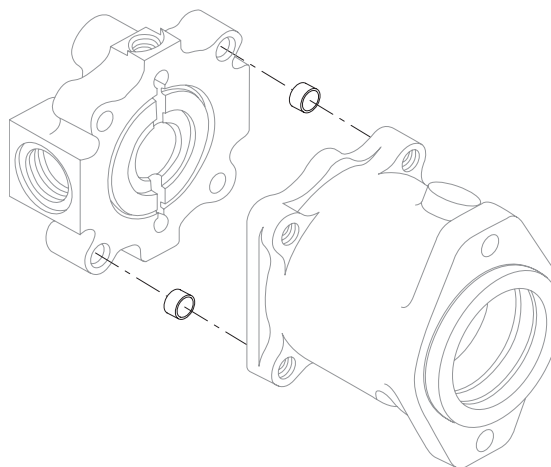
M46 fixed motors

Subject

Addition of end cap dowel pins

Description

As a product improvement, Sauer-Danfoss is adding dowel pins to the M46 fixed motor end cap and housing interface. The end caps and housings are interchangeable with each other. For example, if you have to change a housing, the new housing can be used with the old end cap and no dowel pins. The only change is the addition of the dowel pin holes in the end cap and housing and the dowel pins themselves. The old end caps, housings and gasket will become obsolete and no longer available as genuine service parts.


Models affected

All M46-4xxx variable motors.

Serial numbers

Any unit built at serial number A-98-15-xxxxx and newer will have the support washer.

Part numbers affected

Description	Old p/n	New p/n
End cap, radial port	4460117	4460868
End cap, axial port	4460116	4460867
End cap, axial port	4460844	4460875
End cap, axial port w/loop flush and orifice capability	4460725	4460873
End cap, axial port w/loop flush	4460680	4460871
End cap, twin port w/loop flush	4460692	4460872
End cap, axial port w/loop flush and series 42 relief valve	4460798	4460874
End cap, radial port w/loop flush and series 42 relief valve	4460850	4460876
Housing, fixed w/speed sensing (speed ring style)	4460695	4460865
Housing, fixed w/speed sensing (piston sensing style)	4460828	4460866
Housing, fixed without speed sensing	4460694	4460864
End cap gasket	4460127	4460877
Dowel pin	N/A	5000397

Parts disposition
 Interchangeable

Service bulletin: SB-1997-002

Products affected

M46 variable cartridge motors

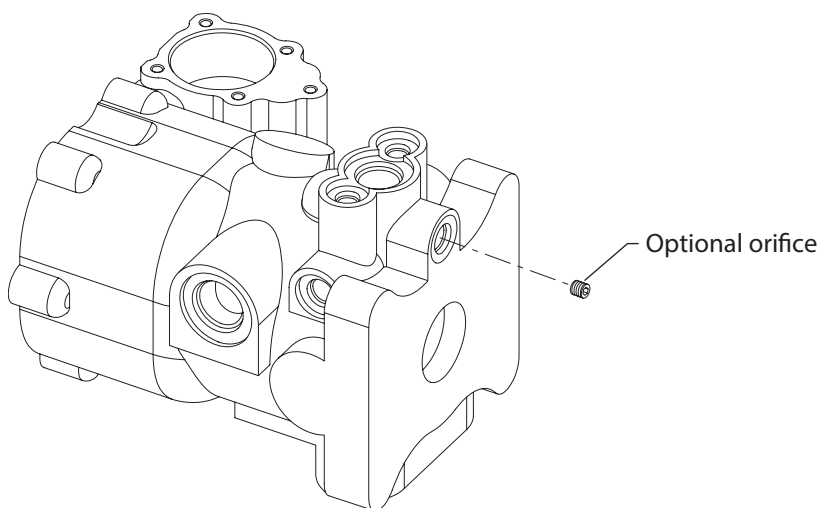
Subject

Improved seal retention

Description

As a product improvement, Sauer-Danfoss is adding a flat washer in front of the input shaft lip seal to improve seal retention. The snap ring groove moved in the front cover to make room for the washer, making this a non-interchangeable change.

The old front cover will remain available as a service part.



Models affected

M46-4156	M46-4161	M46-4168	M46-4202	M46-4188	M46-4169
M46-4158	M46-4162	M46-4170	M46-4172	M46-4197	M46-4195
M46-4159	M46-4165	M46-4176	M46-4191	M46-4200	M46-4180

Serial numbers

This change became effective for the following models at the serial numbers indicated:

A-97-10-xxxxx	A-97-10-xxxxx	A-97-10-xxxxx	A-97-10-xxxxx	A-97-02-xxxxx
M46-4156	M46-4165	M46-4172	M46-4169	M46-4180
M46-4158	M46-4168	M46-4191	M46-4195	
M46-4159	M46-4170	M46-4188		
M46-4161	M46-4176	M46-4197		
M46-4162	M46-4202	M46-4200		

Part numbers affected

Description	Old part number	New part number
Variable motor housing	4460699	4460903
Orifice plug, 0.062 dia.	N/A	8800242-0005
Orifice plug, 0.054	N/A	8800242-0001

Parts disposition

■ Interchangeable



Service bulletin: SB-1998-014

Products affected

M46 variable motors

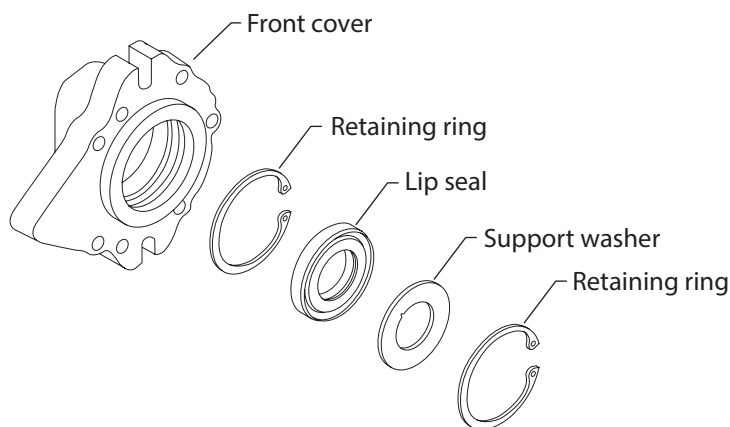
Subject

Improved seal retention

Description

As a product improvement, Sauer-Danfoss is adding a flat washer in front of the input shaft lip seal to improve seal retention. The snap ring groove moved in the front cover to make room for the washer, making this a non-interchangeable change.

The old front cover will remain available as a service part.



Models affected

All M46-4xxx variable motors.

Serial numbers

Any unit built at serial number A-98-15-xxxxx and newer will have the support washer.

Part numbers affected

Description	Old part number	New part number	Old part status
Front cover	4460563	4460993	Serviceable
Support washer	N/A	4350455	N/A

Parts disposition

■ Interchangeable

Service bulletin: SB-1998-026
Products affected

Series 40 M46 variable motors

Subject

Relocation of pulse pickup boss

Description

Sauer-Danfoss has moved the location of the pulse pickup boss on the M46 variable motor. A product information bulletin has been issued to cover the physical location of the change (PIB-9718).

The reason for this bulletin is to inform you about part number changes. See page two.

Models affected

Old model number	New model number
M46-4157	M46-4193
M46-4160	M46-4192
M46-4185	M46-4012
M46-4186	M46-4015
M46-4187	M46-4203
M46-4190	M46-4174
M46-4210	M46-4014

Serial numbers

N/A

Part numbers affected

Description	Old part number	New part number	Old part status
Housing, variable motor	4460639	4460901	Obsolete
Housing, variable motor	4460829	4460901	Obsolete
Housing, variable motor	4460879	4460565	Obsolete

Parts disposition

■ Interchangeable

Service bulletin: SB-1998-075

Products affected

M46 variable motors

Subject

Name tag orientation

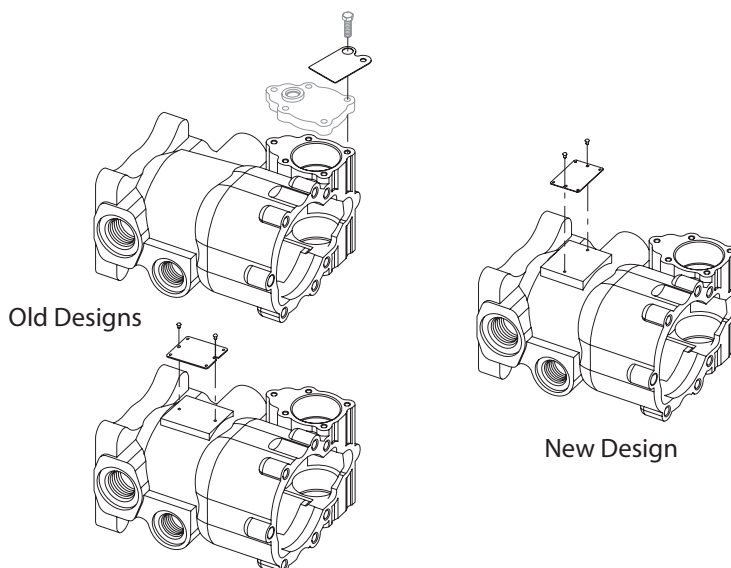
Description

As a product improvement, Sauer-Danfoss has changed the orientation of the name tag on the Series 40 M46 variable motor. This change in orientation improves the product by moving the name tag boss so that the fasteners do not interfere with the installation bolts.

On Series 40 M46 variable motors where the name tag was on the servo cover, the name tag has been moved to the housing and the housing material was changed to ductile iron.

The end result is that all of the Series 40 M46 variable motor housings will have the name tags placed on the housing, their orientation will be the same, and all of these housings will be made from the same material.

This is an interchangeable change and the old housings have been obsoleted.



Models affected

All M46-4xxx variable motors.

Serial numbers

See chart below for part number implementation dates.

Part numbers affected

Old housing p/n	New housing p/n	Serial number effectivity
N/A	4460681	A-98-44-xxxxx
4460699	4460903	A-98-44-xxxxx
N/A	4460909	A-98-44-xxxxx
4460929	4461035	A-98-44-xxxxx
4460565	4461043	A-98-49-xxxxx
4460901	4461044	A-98-49-xxxxx

Parts disposition

■ Interchangeable

Service bulletin: SB-1999-018

Products affected

Series 40 M46 fixed motors

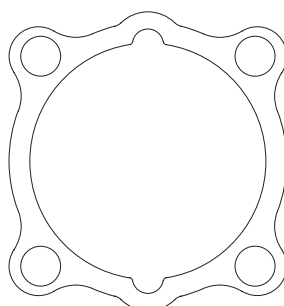
Subject

End cap gasket change

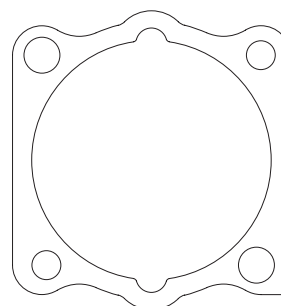
Description

As a product improvement, Sauer-Danfoss has incorporated a new design of end cap gasket for the Series 40 M46 fixed motors. This change has an extra tab which aids to verify the presence of a gasket upon visual inspection.

This change is an interchangeable change, and the old end cap gasket has become obsolete.



Old Gasket



New Gasket

Models affected

All series 40 M46 fixed motors.

Serial numbers

This change became effective at serial number A-99-26-xxxxx.

Part numbers affected

Description	Old part number	New part number
End cap gasket	4460887	4460999

Parts disposition

■ Interchangeable


Service bulletin: SB-1999-058

Products affected All series 40 motors (M25 fixed and U-style, M35, M44 and M46 fixed and variable)

Subject Valve plate change

Description As a product improvement, Sauer-Danfoss has modified the finish on all Series 40 motor valve plates. This change enhances the plates ability to develop and retain a suitable oil film, especially at initial start up.

In order to track this change, all Series 40 motor valve plate part numbers have been changed. This is an interchangeable change and the old part numbers have been obsoleted.

Models affected All M25 fixed motors and M25 motor sections within M25 U-style transmissions
All M35 and M44 fixed motors
All M46 fixed and variable motors

Serial numbers This change became effective at serial number A-99-34-xxxxx for all series 40 M25 fixed motors and M25 motor sections of U-style transmissions.

This change became effective at serial number K-00-18-xxxxx for all series 40 M35, M44 fixed motors and all M46 fixed and variable motors.

Part numbers affected

Frame size	Item description	Old part number	New part number
M25	Motor valve plate	4250073	4250143
M35 and M44	Motor valve plate	4350159	4350754
M46	Motor valve plate	4460119	4461105

Parts disposition ■ Interchangeable

Service bulletin: SB-2002-017

Products affected

Series 40 M46 variable motors

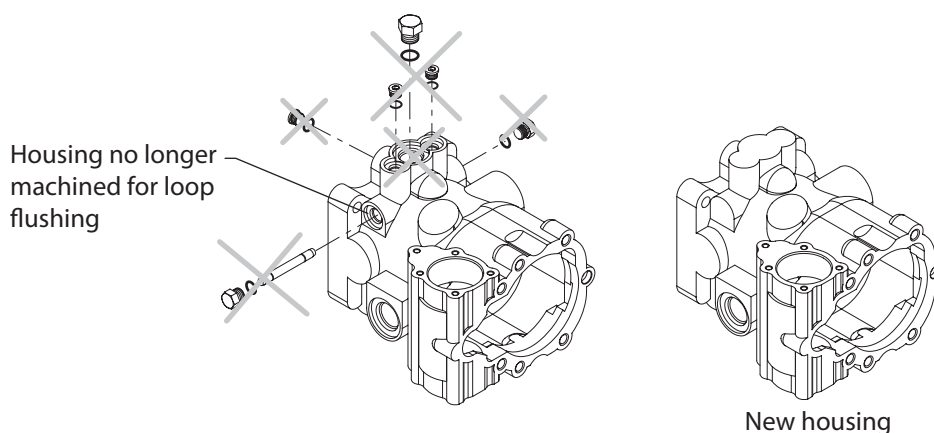
Subject

Housing option change

Description

This change affects the housing H order code for M46 variable motors. The defeated loop flushing housing assembly in the M46 housing H order code is replaced by a housing style with no loop flushing capability. The new housing is not machined for loop flushing. The parts for defeating the loop flushing are no longer required on new production units.

This is a non-interchangeable change. All parts previously used in the defeated loop flushing arrangement remain available for service.



Models affected

All series 40 M46 variable motors.

Serial numbers

This change became effective at serial number K-02-26-xxxxx.

Part numbers affected

Description	Old part number	New part number
Housing	4460903	4461265
Plug assembly	327007 (9005110-4400)	-
Plug assembly	515965 (9005110-5600)	-
Plug assembly	315325 (9005110-8700)	-
Loop flush pool, defeated	8800668	-

Parts disposition

■ Non-interchangeable



Service bulletin: SB-2002-021

Products affected

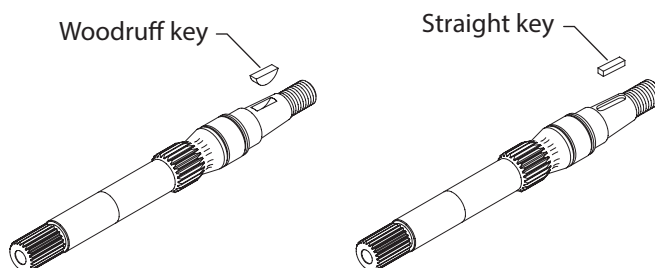
Series 40: M25, M35, M44, M46, and LV pumps and motors

Subject

Change from woodruff key to straight key on tapered shaft.

Description

Sauer-Danfoss will use a straight key rather than a woodruff key in tapered shafts on all Series 40 pumps and motors. Tapered shafts requiring a woodruff key are obsolete. The woodruff key, however, will remain available for service requirements. Customers requiring a replacement shaft need the straight key.



Models affected

Series 40: M25, M35, M44, M46, and LV models using tapered shafts.

Serial numbers

This change became effective during the 2002 build year.

Part numbers affected

Old part number	New part number	Description
9003310-2514	-	Woodruff key, .248 x .875
-	5000664	Square key, .250 x .750
4250012	4250164	Shaft, pump
4254500	4254568	Shaft, LV, tapered
4350390	4350805	Shaft, fixedv motor, tapered
4350432	4350791	Shaft, tandem, tapered
4460309	4461308	Shaft, pump, tapered/9T aux.
4461290	4461302	Shaft, pump, tapered/13T aux.
4460577	4461309	Shaft, motor, tapered
4460804	4461306	Shaft, MV, 13 tooth/1" dia. 1.5" tapered
4460772	4461307	Shaft, Tandem, tapered

Parts disposition

■ Interchangeable if shaft and key are both replaced

Service bulletin: SB-2002-037

Products affected

Series 40 M46 pumps and motors

Subject

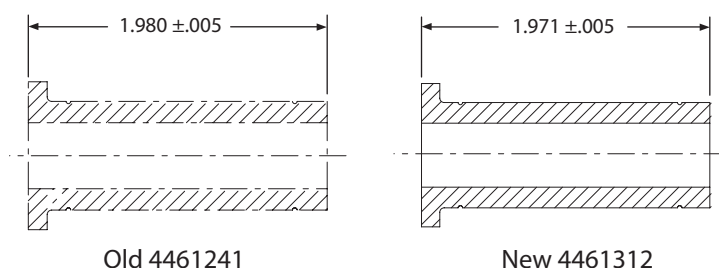
Servo gasket and 0 degree servo stop

Description

As a design improvement, Sauer-Danfoss has introduced a new servo gasket with improved sealing capability. The new servo gasket is interchangeable for service on all M46 pumps and motors, except for M46 motors, using the 0 degree servo stop option.

During service repair, if a motor has the obsolete 0 degree servo stop (4461241), and you replace the servo gaskets with the new servo gaskets (4461311), you must install a new 0 degree servo stop (4461312). This accommodates the new, thinner servo gaskets.

The old servo gasket and 0 degree servo stop are obsolete. They are no longer available.



Models affected

All series 40 M46 variable pumps and motors.

Serial numbers

This change became effective at serial number K-02-47-xxxxx.

Part numbers affected

Description	Old part number	New part number
Servo gasket	4460413	4461311
Servo stop	4461241	4461312

Parts disposition

- Interchangeable (except for motors manufactured before serial number K-02-47-xxxxx using 0 degree servo stop)


Service bulletin: SB-2012-013
Products affected

Series 40 M46 variable motors

Subject

Swashplate cradle bearing material change

Description

DH cradle bearing wear material used on M46 MV swashplate cradle bearings is no longer available to the bearing supplier. The supplier has changed to DP10 wear material. The base material of the bearing did not change. The new bearing is completely interchangeable with the old.

New part numbers have been issued for tracking purposes.

The old part number is obsolete and no longer available as a service part.

Service kit numbers did not change.

Models affected

All series 40 M46 variable motors.

Serial numbers

This change became effective at serial number A-12-24-XXXXX (15-Jun-2012)

Part numbers affected

Description	Old part number	New part number
Journal bearing	4460697	11110521

Parts disposition

■ Interchangeable

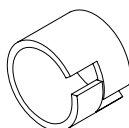
Service bulletin: SB-2015-054

Products affected Series 40 M46 variable pumps motors

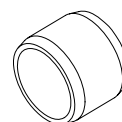
Subject Change front cover dowel pin

Description A design change has been made as a product improvement to the dowel pin between the front cover and the housing on Series 40 M46 variable pumps (PV), tandem pumps (PT) and variable motors with SAE flanges (SAE MV). The change improves the alignment between the housing and front cover.

Parts are completely interchangeable.



Old design



New design

Models affected All Series 40 M46 PV, PT and SAE MV pumps and motors

Serial numbers This change became effective at serial number A-15-32-xxxxx (4-Aug-2015)

Part numbers affected

Old description	Old part number	New description	New part number
Spring pin	9004875-0100	Hollow locator dowel	4400090

Parts disposition ■ Interchangeable



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