



Series 20

Heavy Duty

Variable Pumps

Service Parts Manual

BLN-2-41652 Rev. B

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Service Part Identification

The following information and procedure is used to identify the item number, manufactured date, part number, and the part name of the parts included in the 21-27 Series Variable Displacement Pumps.

The parts listed include all parts which may be used when performing either "Minor Repairs", "Major Repairs, or "Conversions" on the 21-27 Series Variable Displacement Pumps.

Name Plate

Each pump will have a name plate affixed to the housing The name plate will include the following information:

Model Number

The Sundstrand-Sauer model number indicates a specific unit and must be used when ordering the complete unit or for part number inquiries.

Serial Number

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

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

The first number (2 digits) indicates the year of manufacture. Example: "87" would indicate the unit was manufactured in 1987.

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.

Manufacturing (Mfg.) Date

The manufacturing (Mfg.) date is defined as the year and week of manufacture. The same reference number may list more than one part number. This indicates that there is more than one configuration for that reference number. You will see that there are different manufactured dates for the different part numbers. Find the manufactured date of your unit via the name plate to determine which service part number you need to order.

EXAMPLE: The service part desired is Item XX

<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
XX	88-22	YYYYYYY	Part (SB-____)	1
"	87-13	ZZZZZZZ	Part	1

All units using this item number with a manufacturing date of 87-13 and up to and including 88-21 must use part number "ZZZZZZZ". All units with a manufacturing date of 88-22 and up must use part number "YYYYYYY".

Service Bulletins

A Service Bulletin Number (SB-____) may follow the "Description" of the part you desire. You must read that Service Bulletin prior to ordering that part. The Service Bulletin contains more detailed information such as interchangeability, what additional parts are involved, etc.

Procedure to Identify a Given Part/Part Number

Step 1. Locate the model number on the name plate affixed to the housing.

Step 2. Match the model number on the name plate to that in the "Model to Group Cross Reference".

Step 3. Using the appropriate "Exploded View Drawing", locate the service part and corresponding "Item" number desired.

Step 4 Using the "Item" number from the drawing, refer to the "Common Parts List" or "Options Parts List". Locate the heading "Item", move down the page to find that Item number. Then move across the page to the "Part Number", "Description", and "Quantity Per Model".

Step 5 If the Item number is found in the "Options Parts List" and is listed more than once in that Group, refer to the "Model to Group Cross Reference". Locate your Model number and move across the page to the option number found directly under that group name. Refer to the appropriate Group and Option number locate the proper part number, description, and quantity per model.

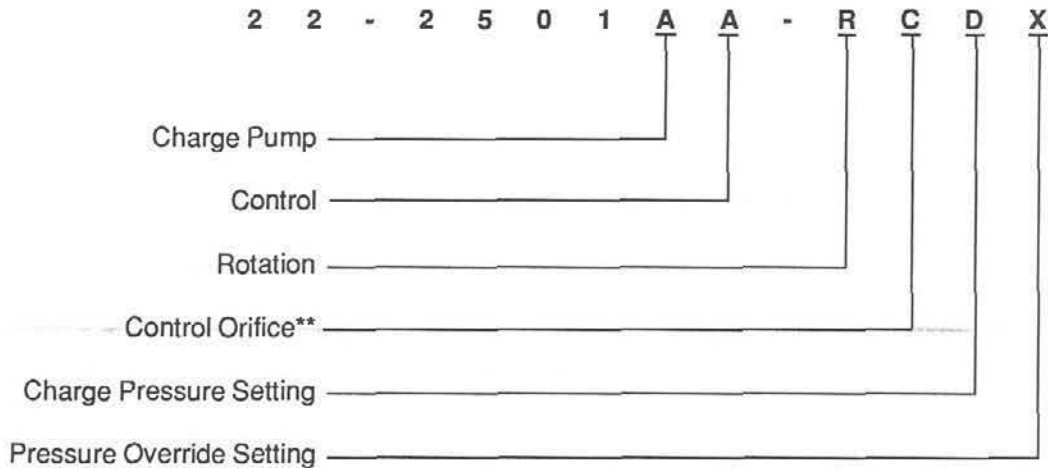
Charge Pumps and Controls

Step 1 Match the Model number on the name plate to that portion of the Model number in the "Model to Group Cross Reference".

Step 2 Move across the page to the Charge Pump or Control group. Refer to the "Table of Contents" to find the page number of the appropriate Option number

Step 3 When you have located the drawing and parts list for the appropriate Option number, enter the portion of your Model number required in the blanks provided. Refer to the parts drawing and parts list to locate the part's Item number and corresponding Part number desired.

**Variable Displacement Pump Letter Designation
for Pumps Using Gear Style Charge Pumps**



Code	Charge Pump	Control	Rot.	Orifice	Charge Pressure	POR Pressure
A	.75	Manual Displacement (MDC)		.025		1000 psi
B	1.1	MDC/Neutral Start Switch		.036	160/180	1500 psi
C	1.1 Large Inlet	MDC/POR		.042	180/200	2000 psi
D	1.15	MDC/POR/NSS		.052	200/220	2500 psi
E		MDC/Annular		.060	220/240	3000 psi
F	2.0	MDC/Annular/NSS			240/260	3500 psi
G	4.0	MDC/Annular/POR			260/280	4000 psi
H	4.0 w/P.F.	MDC/Annular/POR/NSS			280/300	4500 psi
J		Slave Plate			300/320	5000 psi
K		Shipping Plate			320/340	5500 psi @
L		EDC	LH		340/360	6000 psi @
M		EDC/POR	LI*		360/380	
N		EDC/Annular			380/400	
P		EDC/Annular/POR			400/420	Defeated
R	Running Cover	HDC	RH		420/440	
S		HDC/POR				
T		HDC/Annular				
U		HDC/Annular/POR				
W		MDC/Lip Seal				
X	None/No Change	None/No Charge		None	None/NoChange	None/no Change
Y		MDC/NSS/Electric Destroke				
Z	Special	Special	Spcl.	Special	Special	Special

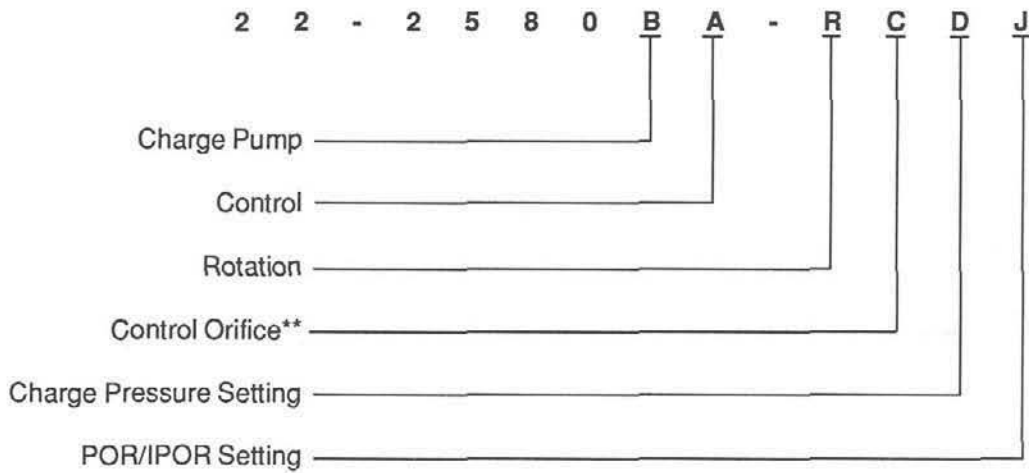
Note: Place the Orifices in the servo passages when an EDC is used without a Pressure Override. Charge pressure specified at 1780 rpm.

* LI = Left hand indexed valve plate

** The control orifice is always referred to in line 1 only of the model number for standard and non-standard units.

@ Application review required

**Variable Displacement Pump Letter Designation
for Pumps Using Gerotor Style Charge Pumps**



Code	Charge Pump	Control	Rot.	Orifice	Charge Pressure	POR/IPOR Press.
A	.85	Manual Displacement (MDC)		.025		1000 psi
B	.85 IPOR/PF	MDC/Neutral Start Switch		.036	160/180	1500 psi
C	.85 'B' Pad	MDC/POR		.042	180/200	2000 psi
D	.85 'B'/IPOR/PF	MDC/POR/NSS		.052	200/220	2500 psi
E	1.06	MDC/Annular		.060	220/240	3000 psi
F	1.06 IPOR/PF	MDC/Annular/NSS			240/260	3500 psi
G	1.06 'B' Pad	MDC/Annular/POR			260/280	4000 psi
H	1.06 'B'/IPOR/PF	MDC/Annular/POR/NSS			280/300	4500 psi
J	1.3	Slave Plate			300/320	5000 psi
K	1.3 IPOR/PF	Shipping Plate			320/340	5500 psi @
L	1.3 'B' Pad	EDC	LH		340/360	6000 psi @
M	1.3 'B'/IPOR/PF	EDC/POR	LI*		360/380	
N	1.9	EDC/Annular			380/400	
P	1.9 IPOR/PF	EDC/Annular/POR			400/420	Defeated
R	1.9 'B' Pad	HDC	RH		420/440	
S	1.9 'B'/IPOR/PF	HDC/POR				
T	1.9 Chute	HDC/Annular				
U		HDC/Annular/POR				
W		MDC/Lip Seal				
X	None/No Change	None/No Charge		None	None/NoChange	None/no Change
Y		MDC/NSS/Electric Destroke				
Z	Special	Special	Spcl.	Special	Special	Special

Note: Place the Orifices in the servo passages when an EDC is used without a Pressure Override. Charge pressure specified at 1780 rpm.

* LI = Left hand indexed valve plate

** The control orifice is always referred to in line 1 only of the model number for standard and non-standard units.

@ Application review required

**Variable Displacement Pump Letter Designation
for Non-Standard Pumps**

2 2 M - X X X X X X - X X X X
 | | | | | | | | | |
 1 2 3 4 5 6 7 8 9 10

- 1. Miscellaneous
- 2. Swashplate Angle
- 3. End Cap
- 4. Shaft
- 5. Charge Pump *
- 6. Control *
- 7. Rotation *
- 8. Not Applicable
- 9. Charge Pressure Relief Setting *
- 10. IPOR Pressure Setting *

* Refer to appropriate "Letter Designation" chart for coding
(Gear or Gerotor Style Charge Pumps)

Code	Miscellaneous	Swashplate	End Cap	Shaft
A	Standard Servo Sleeve - I	18 deg.	1" - 3000 psi	13 T.
B	Tapped Servo Sleeve - I	17 deg.	1" - 6000 psi	13 T. Tapered Root
C	Stroke Limiters - @	16 deg.		14 T.
D	Welded/Bi-metal - I	15 deg.	1 1/2" - 6000 psi	19 T.
E	No Feedback Link - I	14 deg.		20 T. Tapped
F	Control Pressure Passage Blocked - E	13 deg.		21 T.
G		12 deg.		23 T. Tapped
H		11 deg.		23 T. Special Length
J	Blocked Servo Line - E	10 deg.		27 T.
K	Control Pressure Passage Open - E	9 deg.		Straight Key Tapped
L	Special Control Handle - E	8 deg.		Tapered
M	Hose Plan - E	7 deg.		15 T.
N		6 deg.	Non-Drilled	40 T.
P	.042 End Cap Orifice - I	5 deg.		21 T. Tapped
Q		4 deg.		
R	Remote Pressure Filtration - E	3 deg.		13 T. 7" Length
S	Integral Pressure Filtration - E	2 deg.		20 T.
T	Pressure Filtration Bypass Manifold - E	1 deg.		1.5" Tapered
U		0 deg.		
W	Auxiliary Pump Added - E	-1 deg.		
X	No Change	No Change	No Change	No Change
Y				
Z	Special - I or E	Special	Special	Special

I = Internal Change

E = External Change

@ = External Change if servo was tapped; Internal Change if servo must be changed.

Model to Group Cross Reference for all
21 Series Variable Displacement Pumps

	Common Parts	Shaft	End Cap	Servo Sleeve	Servo Piston	Cylinder Block Kit	Special	Port Adapter	POR Hardware	Charge Pump	Control
21-2501AA-xxxx		1	1	1	1	1	1	3	1	1	
21-2501AB-xxxx		1	1	1	1	1	1	3	1	2	
21-2501CA-xxxx		1	1	1	1	1	1	3	2	1	
21-2502AL-xxxx		1	1	1	1	1	1	3	1	6-A	
21-2503AA-xxxx		1	1	1	1	1	1	3	1	1	
21-2504AL-xxxx		3	1	1	1	1	1	3	1	6-A	
21-2504AR-xxxx		3	1	1	1	1	1	3	1	8-A	
21-2505AA-xxxx		3	1	1	1	1	1	3	1	1	
21-2505AF-xxxx		3	1	1	1	1	1	3	1	2	
21-2505AC-xxxx		3	1	1	1	1	1	2	1	3	
21-2506AE-xxxx		5	1	1	1	2	1	1	1	1	
21-2580AL-xxxx		4	2	1	1	1	1	1	6	6-A	
21-2581BB-xxxx		4	2	1	1	1	1	1	7	2	

Common Parts for all 21 Series Variable Displacement Pumps

<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
7	87-13	9004800-3110	Pin	1
8	87-13	9004800-3708	Pin	2
9	87-13	9210204	End cap gasket	1
10	87-13	9210295	Variable housing	1
11	87-13	9004100-2280	O ring	2
12	87-13	9210293	Thrust plate	1
13	87-13	9510254	Trunnion bearing kit	2
14	87-13	9004800-3708	Pin	2
15	87-13	9210279	Variable swashplate	1
21	87-13	9510251	Front bearing kit	1
26	87-13	9210200	Front cover	1
29	87-13	9210201	Front cover gasket	1
30	87-13	9510422-0002	Trunnion shim kit	2
31	87-13	9210018	Trunnion	2
34	87-13	9210478	Valve plate (21-xxxxxx-Rxxx)	1
"	87-13	9210479	Valve plate (21-xxxxxx-Lxxx)	1
36	87-13	9510253	Rear bearing kit	1
38	87-13	9803390	Control screen filter	1
41	87-13	9006326-0025	Retaining ring	1
42	87-13	9802396	Feedback link pin	1
43	87-13	9802016	Feedback link	1
"	87-13	9800906	Feedback link (with EDC & HDC)	1
44	87-13	9007600-1103	Drive screw	2
47	87-13	9009610-3459	Washer	6
49	87-13	9007200-3736	Screw	5
50	87-13	9007200-3728	Screw	3
51	87-13	9009610-4069	Washer	9
52	87-13	9007276-0011	Torx screw	4
53	87-13	9200087	Servo sleeve retainer	2
55	87-13	9800999	Lifting bracket	1
56	87-13	9800999	Lifting bracket	1
60	87-13	9004100-1390	O ring	2
62	87-13	9004100-1360	O ring	2
68	87-13	9006300-0050	Retaining ring	8
69	87-13	9004830-0012	Pin	4
70	87-13	9009610-4069	Washer	13
71	87-13	9007200-3722	Screw	12
77	87-13	9005001-1200	Pipe plug	1
78	87-13	9005100-4400	Plug	1
80	87-13	9004101-0140	O ring	1
91	87-13	9007200-3112	Screw	6
107	87-13	9210620	Servo Link	2
108	87-13	9210046	Spring guide	2
109	87-13	9007575-0012	Screw	2
110	87-13	9009625-2604	Washer	2
111	87-13	9210529	Spring	2
126	87-13	9510423-0002	Shim kit	1

Common Parts for all 21 Series Variable Displacement Pumps

<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
B2	87-13	9210308	Bearing plate pilot	1
B3	87-13	9006250-0212	Retaining ring	1
B4	87-13	9210014	Retainer spring	1
B5	87-13	9210015	Spring guide	1
B6	87-13	9220011	Cylinder block spring	1
B7	87-13	9210013	Spring seat	1
B8	87-13	9200228	Pin	1
B9	87-13	9210576	Cylinder block	1
B10	87-13	9210577	Slipper retainer guide spring	6
B11	87-13	9210219	Slipper retainer guide	1
B12	87-13	9210292	Slipper retainer	1
C	87-13	9510189	Shaft seal kit	1
C1	87-13	9510022	Seal kit	1
C2	87-13	9004104-1290	O ring	2
C3	87-13	9220242	Spring	6
C4	87-13	9004100-2340	O ring	1
C5	87-13	9510441	Seal retainer	1
C6	87-13	9006201-0334	Retaining ring	1
F	87-13	9800648	Check valve	2
F1	87-13	9004101-0150	O ring	2

Other Commonly Used Parts

<u>Description</u>	<u>Part Number</u>	<u>Qty.</u>
Overhaul gasket kit	9510227	1
Front & rear lifting bracket	9800999	2
3000 psi port covers	9700729	2
6000 psi port covers	9700730	2
Case drian plastic plug	9005200-8700	2

Options for all 21 Series Variable Displacement Pumps

Shaft Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1	23	87-13	9210205	'F' 21 T. Spline (gear charge pump)	1
2	23	87-13	9210673	'F' 21 T. Spline (gerotor charge pump)	1
3	23	87-23	9210467	'C' 14 T. Spline (gear charge pump)	1
4	23	87-13	9210663	'C' 14 T. Spline (gerotor charge pump)	1
5	23	87-13	9210428	'L' Tapered (gear charge pump)	1
	4	87-13	9700169	Slotted nut	1
	98	87-13	9003310-3724	Key	1
6	23	87-13	9210538	'K' Straight key (gear charge pump)	1
	98	87-13	9003261-3132	Key	1

End Cap Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1	6	87-13	9210485	'A' 1" - 3000 psi (gear charge pump)	1
2	6	87-13	9210711	'A' 1" - 3000 psi (gerotor charge pump)	1
3	6	87-13	9210532	'B' 1" - 6000 psi (gear charge pump)	1

Servo Sleeve Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1	61	87-13	9200528	Servo sleeve assembly (standard)	2
2	61	87-13	9200529	Servo sleeve assembly (plugged)	2
	57	87-13	9200516	Plug (7/8" thread)	2
3	61	87-13	9200529	Servo sleeve assembly (stroke limiter)	2
	D	87-13	9200515	Stroke limiter kit	2
	D1	87-13	9006375-0029	Retaining ring	2
	D2	87-13	9004104-1110	O ring	2
	D3	87-13	9004100-0210	O ring	2
	D4	87-13	9200595	Housing	2
	D5	87-13	9200512	Limiter rod	2
	D6	87-13	9003561-5600	Nut	2

Options for all 21 Series Variable Displacement Pumps

Servo Piston Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1	106	87-13	9200488	Servo piston	2

Cylinder Block Kit Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1	B	88-25	9210668	Cylinder block kit (filled, bi-metal)	1
	B1	88-25	9210658	Bearing plate (bi-metal)	1
	B13	88-25	9210553	Piston assembly ((filled)	9
2	B	87-13	9210696	Cylinder block kit (welded, bi-metal)	1
	B1	87-13	9210658	Bearing plate (bi-metal)	1
	B13	87-13	9510408-0010	Piston assembly (welded)	3

Special Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1			Not Applicable		
2	99	87-13	9230206	Control pressure plug	1
3	137	87-13	9230206	Control pressure plug	1

Port Adapter Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1			Not Applicable		
2	G	87-13	9510529-0004	Port adapter kit (1" - 3000 psi)	1
	G1	87-13	9802633	Port Adapter (1" - 3000 psi)	1
	G2	87-13	9004101-2190	O ring	1
3	G	87-13	9510529-0003	Port adapter kit (1" - 6000 psi)	1
	G1	87-13	9802632	Port adapter (1" - 6000 psi)	1
	G2	87-13	9004101-2190	O ring	1

**Options for all 21 Series
Variable Displacement Pumps**

Pressure Override Hardware Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1			Not Applicable		
2	19	87-13	9002102-2544	Straight Connector (low pressure)	2
	129	87-13	9700202-07	Hose 10 1/4" (female ends)	1
	130	87-13	9700202-01	Hose 9" (female ends)	1
3	17	87-13	9005100-4400	Plug	2
4	19	87-13	9001007-0001	Straight Connector (high pressure)	2
	129	87-13	9700720-0004	Hose 24" (male ends)	1
	130	87-13	9700720-0004	Hose 24" (male ends)	1

Model to Group Cross Reference for all
22 Series Variable Displacement Pumps

Model	Common Parts	Shaft	End Cap	Servo Sleeve	Servo Piston	Cylinder Block Kit	Special	Port Adapter	POR Hardware	Charge Pump	Control
22-2501AA-xxxx	1	1	1	1	1	2	1	3	1	1	1
22-2501AB-xxxx	1	1	1	1	1	2	1	3	1	1	2
22-2501BE-xxxx	1	1	1	1	1	1	1	3	1	1	1
22-2501CA-xxxx	1	1	1	1	1	2	1	3	2	1	1
22-2502CA-xxxx	1	2	1	1	1	2	1	3	2	1	1
22-2503AA-xxxx	3	1	1	1	1	2	1	3	1	1	1
22-2503AB-xxxx	3	1	1	1	1	1	1	3	1	1	2
22-2503AC-xxxx	3	1	1	1	1	2	1	4	1	1	3
22-2503AD-xxxx	3	1	1	1	1	2	1	4	1	1	4
22-2503BA-xxxx	3	1	1	1	1	2	1	3	1	1	1
22-2503BB-xxxx	3	1	1	1	1	2	1	3	1	1	2
22-2503BC-xxxx	3	1	1	1	1	2	1	4	1	1	3
22-2503BD-xxxx	3	1	1	1	1	2	1	2	1	1	4
22-2504BL-xxxx	3	1	1	1	1	2	1	3	1	1	6-A
22-2505BK-xxxx	3	1	1	1	1	1	4	3	1	1	12
22-2506AB-xxxx	3	2	1	1	1	2	1	3	1	1	2
22-2506BW-xxxx	3	2	1	1	1	1	1	3	1	1	10
22-2506CW-xxxx	3	2	1	1	1	1	1	3	2	1	10
22-2507RA-xxxx	3	4	1	1	1	2	1	3	5	1	1
22-2508AA-xxxx	7	1	1	1	1	2	1	3	1	1	1
22-2509AM-xxxx	7	1	1	1	1	2	1	4	1	1	7-A
22-2510AA-xxxx	5	1	1	1	1	2	1	3	1	1	1
22-2510AE-xxxx	5	1	1	1	1	2	1	3	1	1	1
22-2510BA-xxxx	5	1	1	1	1	2	1	3	1	1	1
22-2511AB-xxxx	9	1	1	1	1	2	1	3	1	1	2
22-2511AY-xxxx	9	1	1	2	1	1	1	3	1	1	11
22-2512AL-xxxx	5	1	1	1	1	1	1	3	1	1	6-A
22-2513BC-xxxx	10	1	1	1	1	2	1	2	1	1	3
22-2514BA-xxxx	10	2	2	1	1	2	1	3	1	1	1
22-2580AB-xxxx	4	3	1	1	1	2	1	1	6	1	2
22-2580BA-xxxx	4	3	1	1	1	2	1	1	7	1	1
22-2580JA-xxxx	4	3	1	1	1	2	1	1	6	1	1
22-2580KB-xxxx	4	3	1	1	1	2	1	1	7	1	2
22-2581BL-xxxx	4	3	1	1	1	2	1	1	7	1	6-A
22-2581HL-xxxx	4	3	1	1	1	2	1	1	7	1	6-A
22-2581LM-xxxx	4	3	1	1	1	2	1	2	5	6	7-A
22-2582CF-xxxx	2	3	1	1	1	2	1	5	1	6	2
22-2582EK-xxxx	2	3	1	1	1	2	1	1	1	6	12
22-2583GE-xxxx	4	3	1	1	1	2	1	1	1	6	1
22-2584HL-xxxx	4	3	1	1	1	2	1	1	1	7	6-B

**Common Parts for all 22 Series
Variable Displacement Pumps**

<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
7	87-13	9004800-3110	Pin	1
8	87-13	9004800-3708	Pin	2
9	87-13	9221337	End cap gasket	1
10	87-13	9221250	Variable housing	1
11	87-13	9004100-2300	O ring	2
12	87-13	9220626	Thrust plate	1
13	87-13	9510257	Trunnion bearing kit	2
14	87-13	9004800-3708	Pin	2
15	87-13	9220570	Variable swashplate - 18°	1
21	87-13	9510258	Front bearing kit	1
26	87-13	9220418	Front cover	1
29	87-13	9221213	Front cover gasket	1
30	87-13	9510422-0003	Trunnion shim kit	2
31	87-13	9220018	Trunnion	2
34	87-13	9220990	Valve plate (22-xxxxxx-Rxxx)	1
"	87-13	9220991	Valve plate (22-xxxxxx-Lxxx)	1
36	87-13	9510255	Rear bearing kit	1
38	87-13	9803390	Control screen filter	1
41	87-13	9006326-0025	Retaining ring	1
42	87-13	9802396	Feedback link pin	1
43	87-13	9802016	Feedback link	1
"	87-13	9800906	Feedback link (with EDC & HDC)	1
44	87-13	9007600-1103	Drive screw	2
47	87-13	9009610-4069	Washer	6
49	87-13	9007200-3736	Screw	5
50	87-13	9007200-3728	Screw	3
51	87-13	9009610-4069	Washer	9
52	87-13	9007276-0011	Torx screw	4
53	87-13	9220419	Servo sleeve retainer	2
55	87-13	9800999	Lifting bracket	1
56	87-13	9800999	Lifting bracket	1
60	87-13	9004100-1430	O ring	2
62	87-13	9004100-1410	O ring	2
68	87-13	9006300-0062	Retaining ring	8
69	87-13	9004830-0010	Pin	4
70	87-13	9009610-4069	Washer	13
71	87-13	9007200-3722	Screw	12
77	87-13	9005001-1200	Pipe plug	1
78	87-13	9005100-4400	Plug	1
80	87-13	9004101-0140	O ring	1
91	87-13	9007200-3712	Screw	6
107	87-13	9221367	Servo Link	2
111	87-13	9230583	Spring	2
126	87-13	9510423-0003	Shim kit	1

Common Parts for all 22 Series Variable Displacement Pumps

<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
B1	87-13	9221335	Bearing plate (bi-metal)	1
B2	87-13	9220633	Bearing plate pilot	1
B3	87-13	9006250-0231	Retaining ring	1
B4	87-13	9220043	Retainer spring	1
B5	87-13	9220015	Spring guide	1
B6	87-13	9230627	Cylinder block spring	1
B7	87-13	9220042	Spring seat	1
B8	87-13	9240217	Pin	1
B9	87-13	9221102	Cylinder block	1
B10	87-13	9221105	Slipper retainer guide spring	6
B11	87-13	9220500	Slipper retainer guide	1
B12	87-13	9220628	Slipper retainer	1
B13	87-13	9510408-0001	Piston kit	3
C	87-13	9510189	Shaft seal kit	1
C1	87-13	9510022	Seal kit	1
C2	87-13	9004104-1290	O ring	2
C3	87-13	9220242	Spring	6
C4	87-13	9004100-2340	O ring	1
C5	87-13	9510441	Seal retainer	1
C6	87-13	9006201-0334	Retaining ring	1
F	87-13	9800648	Check valve	2
F1	87-13	9004101-0150	O ring	2

Other Commonly Used Parts

<u>Description</u>	<u>Part Number</u>	<u>Qty.</u>
Overhaul gasket kit	9510230	1
Front & rear lifting bracket	9800999	2
3000 psi port covers	9700729	2
6000 psi port covers	9700730	2
Case drian plastic plug	9005200-8700	2

**Options for all 22 Series
Variable Displacement Pumps**

Shaft Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1	23	87-13	9220417	'F' 21 T. Spline (gear charge pump)	1
2	23	87-13	9221441	'F' 21 T. Spline (gerotor charge pump)	1
3	23	87-23	9220944	'C' 14 T. Spline (gear charge pump)	1
4	23	87-13	9221447	'C' 14 T. Spline (gerotor charge pump)	1
5	23	87-13	9220527	'E' 20 T. Spline tapped (gear charge pump)	1
6	23	87-13	9221475	'E' 20 T. Spline tapped (gerotor charge pump)	1
7	23	87-13	9220884	'L' Tapered (gear charge pump)	1
	4	87-13	9700169	Slotted nut	1
	98	87-13	9003310-3724	Key	1
8	23	87-13	9221491	'L' Tapered (gerotor charge pump)	1
	4	87-13	9700169	Slotted nut	1
	98	87-13	9003310-3724	Key	1
9	23	87-13	9220515	'D' 19 T. Spline tapped (gear charge pump)	1
10	23	87-13	9221065	'K' Straight key (gear charge pump)	1
	98	87-13	9003261-3132	Key	1

End Cap Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1	6	87-13	9220997	'A' 1" - 3000 psi (gear charge pump)	1
2	6	87-13	9221053	'A' 1" - 6000 psi (gear charge pump)	1
3	6	87-13	9221506	'B' 1" - 3000 psi (gerotor charge pump)	1
4	6	87-13	9220999	'B' 1" - 6000 psi (motor)	1

Options for all 22 Series Variable Displacement Pumps

Servo Sleeve Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1	61	87-13	9221149	Servo sleeve assembly (standard)	2
2	61	87-13	9221153	Servo sleeve assembly (plugged)	2
	57	87-13	9005110-9000	Plug (1 1/16" thread)	2
3	61	87-13	9221153	Servo sleeve assembly (stroke limiter)	2
	D	87-13	9221078	Stroke limiter kit	2
	D1	87-13	9006371-5000	Retaining ring	2
	D2	87-13	9004104-1130	O ring	2
	D3	87-13	9004201-7500	O ring	2
	D4	87-13	9221431	Housing	2
	D5	87-13	9221081	Limiter rod	2
	D6	87-13	9003561-7500	Nut	2

Servo Piston Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1	106	87-13	9221012	Servo piston	2
	108	87-13	9220479	Spring guide	2
	109	87-13	9007276-0049	Screw	2
	110	87-13	9009625-0034	Washer	2
2	106	87-13	9230982	Sevo piston	2
	108	87-13	9230983	Spring guide	2
	109	87-13	9007300-2528	Screw	2
	110	87-13	9009625-0109	Washer	2
	112	87-13	9230984	Spacer	2
	113	87-13	9230985	Spring	2

Cylinder Block Kit Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1	B	88-25	9221448	Cylinder block kit (welded, bi-metal)	1
2	B	87-13	9221444	Cylinder block kit (filled, bi-metal)	1

Options for all 22 Series Variable Displacement Pumps

Special Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1			Not Applicable		
2	99	87-13	9230206	Control pressure plug	1
3	137	87-13	9230206	Control pressure plug	1
4	41	87-13	Removed	Retaining ring	1
	42	87-13	Removed	Feedback link pin	1
	43	87-13	Removed	Feedback link	1
5	15	88-40	9220428	Variable swashplate - 16°	1

Port Adapter Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1			Not Applicable		
2	G	87-13	9510529-0004	Port adapter kit (1" - 3000 psi)	1
	G1	87-13	9802633	Port Adapter (1" - 3000 psi)	1
	G2	87-13	9004101-2190	O ring	1
3	G	87-13	9510529-0003	Port adapter kit (1" - 6000 psi)	1
	G1	87-13	9802632	Port adapter (1" - 6000 psi)	1
	G2	87-13	9004101-2190	O ring	1

Pressure Override Hardware Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1			Not Applicable		
2	19	87-13	9002102-2544	Straight Connector (low pressure)	2
	129	87-13	9700202-07	Hose 10 1/4" (female ends)	1
	130	87-13	9700202-01	Hose 9" (female ends)	1
3	17	87-13	9005100-4400	Plug	2
4	19	87-13	9001007-0001	Straight Connector (high pressure)	2
	129	87-13	9700720-0004	Hose 24" (male ends)	1
	130	87-13	9700720-0004	Hose 24" (male ends)	1
5	17	87-13	9005100-4400	Plug (high pressure with port adapter)	1
	19	87-13	9001007-0001	Straight Connector (high pressure)	1
	177	87-13	9005100-4400	Plug (high pressure with port adapter)	1
	238	87-13	9001007-0001	Straight Connector (high pressure)	1
	129	87-13	9700720-0004	Hose 24" (male ends)	1
	130	87-13	9700720-0004	Hose 24" (male ends)	1

Model to Group Cross Reference for all 23 Series Variable Displacement Pumps

	Common Parts	Shaft	End Cap	Servo Sleeve	Servo Piston	Cylinder Block Kit	Special	Port Adapter	POR Hardware	Charge Pump	Control
23-2501AA-xxxx		9	1	1	1	2	1	4	1	1	1
23-2501AC-xxxx		9	1	1	1	2	1	3	1	1	3
23-2501AL-xxxx		9	1	1	1	2	1	4	1	1	6-A
23-2501AR-xxxx		9	1	1	1	2	1	4	1	1	8-B
23-2501BA-xxxx		9	1	1	1	2	1	4	1	1	1
23-2501BN-xxxx		9	1	1	1	2	1	4	1	1	6-D
23-2501BP-xxxx		9	1	1	1	2	1	5	1	1	7-A
23-2501CA-xxxx		9	1	1	1	1	1	4	2	1	1
23-2502AG-xxxx		9	1	3	1	2	1	4	1	1	3
23-2502AH-xxxx		9	1	3	1	2	1	4	1	1	4
23-2503AA-xxxx		9	2	1	1	2	2	4	1	1	1
23-2504AA-xxxx		9	2	1	1	2	2	4	1	1	1
23-2504AC-xxxx		9	2	1	1	1	2	5	1	1	3
23-2505CD-xxxx		9	1	1	1	1	1	2	2	2	4
23-2506AA-xxxx		4	1	1	1	2	1	4	1	1	1
23-2507BK-xxxx		4	1	1	1	1	1	4	1	1	12
23-2507CA-xxxx		4	1	1	1	1	1	4	2	1	1
23-2508CJ-xxxx		4	1	1	1	1	4	4	2	1	5
23-2509CW-xxxx		4	1	1	2	1	1	4	2	1	10
23-2510BA-xxxx		4	2	2	1	1	1	4	1	1	1
23-2511AA-xxxx		6	1	1	1	1	1	4	1	1	1
23-2511BA-xxxx		6	1	1	1	2	1	4	1	1	1
23-2512BN-xxxx		3	1	1	1	1	1	4	1	1	6-B
23-2513AA-xxxx		1	1	1	1	1	1	4	1	1	1
23-2513BA-xxxx		1	1	1	1	1	1	4	1	1	1
23-2514BE-xxxx		1	1	1	1	2	1	4	1	1	1
23-2580FB-xxxx		10	3	1	1	1	1	1	7	1	2
23-2580HA-xxxx		10	3	1	1	1	1	1	7	1	1
23-2580JR-xxxx		10	3	1	1	1	1	1	6	1	8-B
23-2580JT-xxxx		10	3	1	1	1	1	1	6	1	8-A
23-2581FB-xxxx		10	3	1	1	1	1	1	7	1	2
23-2582EA-xxxx		8	3	1	1	1	1	1	6	1	1
23-2583FA-xxxx		13	3	1	1	1	1	1	7	1	1
23-2584FB-xxxx		2	3	1	1	2	1	1	7	1	2
23-2584NA-xxxx		2	3	1	1	2	1	1	6	1	1
23-2584TA-xxxx		2	3	1	1	2	1	1	8	1	1
23-2585NA-xxxx		7	3	1	1	2	1	1	6	1	1
23-2585TA-xxxx		7	3	1	1	2	1	1	8	1	1
23-2586NA-xxxx		7	4	1	1	1	1	1	6	1	1
23-2587EA-xxxx		5	3	1	1	2	1	1	6	1	1
23-2587FB-xxxx		5	3	1	1	2	1	1	7	1	2

Common Parts for all 23 Series Variable Displacement Pumps

<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
7	87-13	9004800-3110	Pin	1
8	87-13	9004800-3708	Pin	2
9	87-13	9230127	End cap gasket	1
10	87-13	9230783	Variable housing	1
11	87-13	9004100-2320	O ring	2
12	87-13	9230235	Thrust plate	1
13	88-01	9510639	Trunnion bearing kit (SB-8710)	2
"	87-13	9510260	Trunnion bearing kit	2
14	87-13	9004800-3708	Pin	2
15	88-01	9230992	Variable swashplate (SB-8710)	1
"	87-13	9230225	Variable swashplate	1
"	87-13	9230129 *	Variable swashplate-16 degree	1
21	87-13	9510259	Front bearing kit	1
26	87-13	9230128	Front cover	1
29	87-13	9230124	Front cover gasket	1
30	87-13	9510422-0004	Trunnion shim kit	2
31	88-01	9240643	Trunnion (SB-8710)	2
"	87-13	9230018	Trunnion	2
34	87-13	9230560	Valve plate (23-xxxxxx-Rxxx)	1
"	87-13	9230561	Valve plate (23-xxxxxx-Lxxx)	1
"	87-13	9230986	Valve plate (23-xxxxxx-Mxxx)	1
36	87-13	9510258	Rear bearing kit	1
38	87-13	9803390	Control screen filter	1
41	87-13	9006326-0025	Retaining ring	1
42	87-13	9802396	Feedback link pin	1
43	87-13	9800906	Feedback link	1
44	87-13	9007600-1103	Drive screw	2
47	87-13	9009610-4778	Washer	6
49	87-13	9007200-4438	Screw	4
50	87-13	9007200-4430	Screw	4
51	87-13	9009610-4778	Washer	9
52	87-13	9007276-0011	Torx screw	4
53	87-13	9220419	Servo sleeve retainer	2
55	87-13	9801000	Lifting bracket	1
56	87-13	9801000	Lifting bracket	1
60	87-13	9004100-1430	O ring	2
62	87-13	9004100-1410	O ring	2
68	87-13	9006300-0062	Retaining ring	8
69	87-13	9004830-0010	Pin	4
70	87-13	9009610-4778	Washer	13
71	87-13	9007200-4424	Screw	8
77	87-13	9005001-1200	Pipe plug	1
78	87-13	9005100-4400	Plug	1
80	87-13	9004101-0140	O ring	1
91	87-13	9007200-4416	Screw	6
93	87-13	9007200-4422	Screw	4
107	87-13	9230787	Servo Link	2
111	87-13	9230583	Spring	2
126	87-13	9510423-0004	Shim kit	1

* The 16 degree swashplate is only used in the 23-2503AA-xxxx base model. This swashplate will continue to use the 9230018 trunnion and 9510260 trunnion bearing kit.

Common Parts for all 23 Series Variable Displacement Pumps

<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
B1	87-13	9230881	Bearing plate (bi-metal)	1
B2	87-13	9230707	Bearing plate pilot	1
B3	87-13	9006250-0250	Retaining ring	1
B4	87-13	9230014	Retainer spring	1
B5	87-13	9230015	Spring guide	1
B6	87-13	9230974	Cylinder block spring	1
B7	87-13	9230013	Spring seat	1
B8	87-13	9240217	Pin	1
B9	87-13	9230651	Cylinder block	1
B10	87-13	9230655	Slipper retainer guide spring	6
B11	87-13	9230158	Slipper retainer guide	1
B12	87-13	9230234	Slipper retainer	1
B13	87-13	9510408-0002	Piston kit	3
C	87-13	9510190	Shaft seal kit	1
C1	87-13	9510021	Seal kit	1
C2	87-13	9004104-1360	O ring	2
C3	87-13	9220242	Spring	6
C4	87-13	9004100-2380	O ring	1
C5	87-13	9510442	Seal retainer	1
C6	87-13	9006201-0387	Retaining ring	1
F	87-13	9800648	Check valve	2
F1	87-13	9004101-0150	O ring	2

Other Commonly Used Parts

<u>Description</u>	<u>Part Number</u>	<u>Qty.</u>
Overhaul gasket kit	9510233	1
Front & rear lifting bracket	9801000	2
3000 psi port covers	9700729	2
6000 psi port covers	9700730	2
Case drian plastic plug	9005200-8700	2

Options for all 23 Series Variable Displacement Pumps

Shaft Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1	23	87-13	9230173	'G' 23 T. Spline tapped (gear charge pump)	1
2	23	87-13	9231014	'G' 23 T. Spline tapped (gerotor charge pump)	1
3	23	87-13	9230194	'D' 19 T. Spline tapped (gear charge pump)	1
4	23	87-13	9230325	'F' 21 T. Spline (gear charge pump)	1
5	23	87-13	9230968	'F' 21 T. Spline (gerotor charge pump)	1
6	23	87-13	9230445	'L' Tapered (gear charge pump)	1
	4	87-13	9700169	Slotted nut	1
	98	87-13	9003310-3724	Key	1
7	23	87-13	9230989	'L' Tapered (gerotor charge pump)	1
	4	87-13	9700169	Slotted nut	1
	98	87-13	9003310-3724	Key	1
8	23	87-13	9231075	'L' 1.5" Tapered (gerotor charge pump)	1
	4	87-13	9700169	Slotted nut	1
	98	87-13	9003310-3724	Key	1
9	23	87-23	9230476	'C' 14 T. Spline (gear charge pump)	1
10	23	87-13	9230951	'C' 14 T. Spline (gerotor charge pump)	1
11	23	87-13	9230147	'F' 21 T. Spline (gear charge pump)	1
12	23	87-13	9230626	'K' Straight key (gear charge pump)	1
	98	87-13	9003261-3732	Key	1
13	23	87-13	9231076	'B' 13 T.Spline (gerotor charge pump)	1

End Cap Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1	6	87-13	9230578	'A' 1" - 3000 psi (gear charge pump)	1
2	6	87-13	9230593	'A' 1" - 6000 psi (gear charge pump)	1
3	6	87-13	9231077	'B' 1" - 3000 psi (gerotor charge pump)	1
4	6	87-13	9231078	'B' 1" - 6000 psi (gerotor charge pump)	1

Options for all 23 Series Variable Displacement Pumps

Servo Sleeve Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1	61	87-13	9221149	Servo sleeve assembly (standard)	2
2	61	87-13	9221153	Servo sleeve assembly (plugged)	2
	57	87-13	9005110-9000	Plug (1 1/16" thread)	2
3	61	87-13	9221153	Servo sleeve assembly (stroke limiter)	2
	D	87-13	9221078	Stroke limiter kit	2
	D1	87-13	9006371-5000	Retaining ring	2
	D2	87-13	9004104-1130	O ring	2
	D3	87-13	9004201-7500	O ring	2
	D4	87-13	9221431	Housing	2
	D5	87-13	9221081	Limiter rod	2
	D6	87-13	9003561-7500	Nut	2

Servo Piston Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1	106	87-13	9221012	Servo piston	2
	108	87-13	9220479	Spring guide	2
	109	87-13	9007276-0049	Screw	2
	110	87-13	9009625-0034	Washer	2
2	106	87-13	9230982	Sevo piston	2
	108	87-13	9230983	Spring guide	2
	109	87-13	9007300-2528	Screw	2
	110	87-13	9009625-0109	Washer	2
	112	87-13	9230984	Spacer	2
	113	87-13	9230985	Spring	2

Cylinder Block Kit Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1	B	87-13	9230973	Cylinder block kit (welded, bi-metal)	1
2	B	87-13	9230941	Cylinder block kit (filled, bi-metal)	1

Options for all 23 Series Variable Displacement Pumps

Special Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1			Not Applicable		
2	99	87-13	9230206	Control pressure plug	1
3	137	87-13	9230206	Control pressure plug	1
4	41	87-13	Removed	Retaining ring	1
	42	87-13	Removed	Feedback link pin	1
	43	87-13	Removed	Feedback link	1

Port Adapter Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1			Not Applicable		
2	G	87-13	9510529-0004	Port adapter kit (1" - 3000 psi)	1
	G1	87-13	9802633	Port Adapter (1" - 3000 psi)	1
	G2	87-13	9004101-2190	O ring	1
3	G	87-13	9510529-0003	Port adapter kit (1" - 6000 psi)	1
	G1	87-13	9802632	Port adapter (1" - 6000 psi)	1
	G2	87-13	9004101-2190	O ring	1

Pressure Override Hardware Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1			Not Applicable		
2	17	87-13	9005100-4400	Plug (high pressure with port adapter)	1
	19	87-13	9001007-0001	Straight Connector (high pressure)	1
	177	87-13	9001003-0001	Straight Connector (high pressure)	1
	238	87-13	9005100-4400	Plug	1
	129	87-13	9700720-0004	Hose 24" (male ends)	1
	130	87-13	9700720-0007	Hose 22" (male ends)	1
3	19	87-13	9002102-2544	Straight Connector (low pressure)	2
	129	87-13	9700202-07	Hose 10 1/4" (female ends)	1
	130	87-13	9700202-01	Hose 9" (female ends)	1
4	17	87-13	9005100-4400	Plug	2
5	19	87-13	9001007-0001	Straight Connector (high pressure)	2
	129	87-13	9700720-0004	Hose 24" (male ends)	1
	130	87-13	9700720-0004	Hose 24" (male ends)	1

Model to Group Cross Reference for all
24 Series Variable Displacement Pumps

	Common Parts	Shaft	End Cap	Servo Sleeve	Servo Piston	Cylinder Block Kit	Special	Port Adapter	POR Hardware	Charge Pump	Control
24-2501DE-xxxx		1	1	1	1	1	1	2	3	1	
24-2501DG-xxxx		1	1	1	1	1	1	3	3	3	
24-2501FE-xxxx		1	1	1	1	1	1	2	3	1	
24-2501FL-xxxx		1	1	1	1	1	1	2	3	6-A	
24-2502DE-xxxx		3	1	1	1	1	1	2	3	1	
24-2503DF-xxxx		5	1	1	1	1	1	2	3	2	
24-2503FE-xxxx		5	1	1	1	1	1	2	3	1	
24-2504DL-xxxx		1	3	1	1	1	1	2	3	6-A	
24-2580KF-xxxx		2	2	1	1	1	1	1	7	2	
24-2581NE-xxxx		4	2	1	1	1	1	1	6	1	
24-2582JL-xxxx		2	2	1	1	1	1	1	6	6-A	

**Common Parts for all 24 Series
Variable Displacement Pumps**

<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
7	87-13	9004800-3110	Pin	1
8	87-13	9004800-3708	Pin	2
9	87-13	9240549	End cap gasket	1
10	87-13	9240461	Variable housing	1
11	87-13	9004100-2340	O ring	2
12	87-13	9240124	Thrust plate	1
13	87-13	9510262	Trunnion bearing kit	2
14	87-13	9004800-3708	Pin	2
15	87-13	9240197	Variable swashplate	1
21	87-13	9510259	Front bearing kit	1
26	87-13	9240069	Front cover	1
29	87-13	9240427	Front cover gasket	1
30	87-13	9510422-0005	Trunnion shim kit	2
31	87-13	9240018	Trunnion	2
34	87-13	9240277	Valve plate (24-xxxxxx-Rxxx)	1
"	87-13	9240278	Valve plate (24-xxxxxx-Lxxx)	1
36	87-13	9510261	Rear bearing kit	1
38	87-13	9803390	Control screen filter	1
41	87-13	9006326-0025	Retaining ring	1
42	87-13	9802396	Feedback link pin	1
43	87-13	9800245	Feedback link	1
44	87-13	9007600-1103	Drive screw	2
47	87-13	9009610-5387	Washer	6
49	87-13	9007200-5042	Screw	6
50	87-13	9007500-5044	Screw	2
51	87-13	9009610-5387	Washer	7
52	87-13	9007276-0011	Torx screw	4
53	87-13	9240076	Servo sleeve retainer	2
55	87-13	9801000	Lifting bracket	1
56	87-13	9801000	Lifting bracket	1
60	87-13	9004100-1510	O ring	2
62	87-13	9004100-1500	O ring	2
68	87-13	9006300-0075	Retaining ring	8
69	87-13	9004830-0008	Pin	4
70	87-13	9009610-5387	Washer	13
71	87-13	9007200-5026	Screw	12
77	87-13	9005001-1200	Pipe plug	1
78	87-13	9005100-4400	Plug	1
80	87-13	9004101-0140	O ring	1
91	87-13	9007200-5022	Screw	6
107	87-13	9240584	Servo Link	2
108	87-13	9240087	Spring guide	2
109	87-13	9007276-0050	Screw	2
110	87-13	9009625-3801	Washer	2
111	87-13	9250400	Spring	2
126	87-13	9510423-0005	Shim kit	1

Common Parts for all 24 Series Variable Displacement Pumps

<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
B1	87-13	9240560	Bearing plate	1
B2	87-13	9240135	Bearing plate pilot	1
B3	87-13	9006250-0275	Retaining ring	1
B4	87-13	9240014	Retainer spring	1
B5	87-13	9240015	Spring guide	1
B6	87-13	9240518	Cylinder block spring	1
B7	87-13	9240013	Spring seat	1
B8	87-13	9240217	Pin	1
B9	87-13	9240394	Cylinder block	1
B10	87-13	9240393	Slipper retainer guide spring	6
B11	87-13	9240097	Slipper retainer guide	1
B12	87-13	9240125	Slipper retainer	1
B13	87-13	9510408-0004	Piston kit	3
C	87-13	9510190	Shaft seal kit	1
C1	87-13	9510021	Seal kit	1
C2	87-13	9004104-1360	O ring	2
C3	87-13	9220242	Spring	6
C4	87-13	9004100-2380	O ring	1
C5	87-13	9510442	Seal retainer	1
C6	87-13	9006201-0387	Retaining ring	1

Other Commonly Used Parts

<u>Description</u>	<u>Part Number</u>	<u>Qty.</u>
Overhaul gasket kit	9510236	1
Front & rear lifting bracket	9801000	2
3000 psi port covers	9700729	2
6000 psi port covers	9700730	2
Case drian plastic plug	9005200-8700	2

Options for all 24 Series Variable Displacement Pumps

Shaft Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1	23	87-13	9240737	'A' 13 T. Spline, tapped (gear charge pump)	1
2	23	87-13	9240685	'A' 13 T. Spline (gerotor charge pump)	1
3	23	87-13	9240231	'L' Tapered (gear charge pump)	1
	4	87-13	9700189	Slotted nut	1
	98	87-13	9003326-0005	Key	1
4	23	87-13	9240713	'L' Tapered (gerotor charge pump)	1
	4	87-13	9700189	Slotted nut	1
	98	87-13	9003326-0005	Key	1
5	23	87-13	9240736	'J' 27 T. Spline, tapped (gear charge pump)	1
6	23	87-13	9240316	'K' Straight key (gear charge pump)	1
	98	87-13	9003261-3732	Key	1

End Cap Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1	6	87-13	9240283	'A' 1" - 3000 psi (gear charge pump)	1
	F	87-13	9800687	Check valve (20 gpm)	1
	F1	87-13	9004101-1170	O ring	1
2	6	87-13	9240716	'A' 1" - 3000 psi (gerotor charge pump)	1
	F	87-13	9800648	Check valve (10 gpm)	1
	F1	87-13	9004101-0150	O ring	1
3	6	87-13	9240271	'B' 1" - 6000 psi (gear charge pump)	1
	F	87-13	9800687	Check valve (20 gpm)	1
	F1	87-13	9004101-1170	O ring	1

Options for all 24 Series Variable Displacement Pumps

Servo Sleeve Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1	61	87-13	9510705	Servo sleeve assembly (standard)	2
2	61	87-13	9510704	Servo sleeve assembly (plugged)	2
	57	87-13	9005110-9100	Plug (1 3/16" thread)	2
3	61	87-13	9510704	Servo sleeve assembly (stroke limiter)	2
	D	87-13	9240326	Stroke limiter kit	2
	D1	87-13	9006371-5600	Retaining ring	2
	D2	87-13	9004104-1140	O ring	2
	D3	87-13	9004201-8700	O ring	2
	D4	87-13	9240627	Housing	2
	D5	87-13	9240323	Limiter rod	2
	D6	87-13	9003561-7500	Nut	2

Servo Piston Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1	106	87-13	9240297	Servo piston	2

Cylinder Block Kit Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1	B	87-13	9240641	Cylinder block kit (welded, bi-metal)	1

Special Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1			Not Applicable		
2	99	87-13	9230206	Control pressure plug	1
3	99	87-13	9801094	Orifice	1
4	137	87-13	9230206	Control pressure plug	1
5	41	87-13	Removed	Retaining ring	1
	42	87-13	Removed	Feedback link	1
	43	87-13	Removed	Feedback link	1

**Options for all 24 Series
Variable Displacement Pumps**

Port Adapter Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1			Not Applicable		
2	G	87-13	9510529-0004	Port adapter kit (1" - 3000 psi)	1
	G1	87-13	9802633	Port Adapter (1" - 3000 psi)	1
	G2	87-13	9004101-2190	O ring	1
3	G	87-13	9510529-0003	Port adapter kit (1" - 6000 psi)	1
	G1	87-13	9802632	Port adapter (1" - 6000 psi)	1
	G2	87-13	9004101-2190	O ring	1

Pressure Override Hardware Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1			Not Applicable		
2	17	87-13	9005100-4400	Plug	2
3	19	87-13	9001007-0001	Straight Connector (high pressure)	2
	129	87-13	9700720-0004	Hose 24" (male ends)	1
	130	87-13	9700720-0004	Hose 24" (male ends)	1

Model to Group Cross Reference for all
25 Series Variable Displacement Pumps

	Common Parts	Shaft	End Cap	Servo Sleeve	Servo Piston	Cylinder Block Kit	Special	Port Adapter	POR Hardware	Charge Pump	Control
25-2501FE-xxxx		1	1	1	1	1	1	2	3	1	
25-2501FG-xxxx		1	1	1	1	1	1	3	3	3	
25-2501FH-xxxx		1	1	1	1	1	1	3	3	4	
25-2501GE-xxxx		1	1	1	1	1	1	2	4	1	
25-2501GM-xxxx		1	1	1	1	1	2	4	4	7-A	
25-2503FG-xxxx		3	1	1	1	1	1	3	3	3	
25-2503FE-xxxx		2	1	2	1	1	1	2	3	1	
25-2504FK-xxxx		3	1	4	1	1	1	2	3	12	

Common Parts for all 25 Series Variable Displacement Pumps

<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
7	87-13	9004800-3110	Pin	1
8	87-13	9004810-5012	Pin	2
9	87-13	9250587	End cap gasket	1
10	87-13	9250524	Variable housing	1
11	87-13	9004100-2360	O ring	2
12	87-13	9250171	Thrust plate	1
13	87-13	9510265	Trunnion bearing kit	2
14	87-13	9004810-5012	Pin	2
15	87-13	9250164	Variable swashplate	1
21	87-13	9510264	Front bearing kit	1
26	87-13	9250156	Front cover	1
29	87-13	9250158	Front cover gasket	1
30	87-13	9510422-0006	Trunnion shim kit	2
31	87-13	9250018	Trunnion	2
34	87-13	9250652	Valve plate (25-xxxxxx-Rxxx)	1
"	87-13	9250653	Valve plate (25-xxxxxx-Lxxx)	1
36	87-13	9510263	Rear bearing kit	1
38	87-13	9803390	Control screen filter	1
41	87-13	9006326-0025	Retaining ring	1
42	87-13	9802396	Feedback link pin	1
43	87-13	9802754	Feedback link	1
44	87-13	9007600-1103	Drive screw	2
47	87-13	9009610-6690	Washer	6
49	87-13	9007200-6248	Screw	6
50	87-13	9007200-6238	Screw	2
51	87-13	9009610-6690	Washer	7
52	87-13	9007276-0011	Torx screw	4
53	87-13	9240076	Servo sleeve retainer	2
55	87-13	9801000	Lifting bracket	1
56	87-13	9801000	Lifting bracket	1
60	87-13	9004100-1510	O ring	2
62	87-13	9004100-1500	O ring	2
68	87-13	9006300-0075	Retaining ring	8
69	87-13	9004830-0008	Pin	4
70	87-13	9009610-5387	Washer	13
71	87-13	9007200-5026	Screw	12
77	87-13	9005001-1200	Pipe plug	1
78	87-13	9005100-4400	Plug	1
80	87-13	9004101-0140	O ring	1
91	87-13	9007200-6221	Screw	6
107	87-13	9250617	Servo Link	2
108	87-13	9240087	Spring guide	2
109	87-13	9007276-0054	Screw	2
110	87-13	9009625-3801	Washer	2
111	87-13	9250400	Spring	2
126	87-13	9510423-0006	Shim kit	1

Common Parts for all 25 Series Variable Displacement Pumps

<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
B1	87-13	9250627	Bearing plate	1
B2	87-13	9250628	Bearing plate pilot	1
B3	87-13	9006250-0314	Retaining ring	1
B4	87-13	9250179	Retainer spring	1
B5	87-13	9250015	Spring guide	1
B6	87-13	9250676	Cylinder block spring	1
B7	87-13	9250013	Spring seat	1
B8	87-13	9240217	Pin	1
B9	87-13	9250470	Cylinder block	1
B10	87-13	9250471	Slipper retainer guide spring	6
B11	87-13	9250073	Slipper retainer guide	1
B12	87-13	9250170	Slipper retainer	1
B13	87-13	9510408-0005	Piston kit	3
C	87-13	9510190	Shaft seal kit	1
C1	87-13	9510021	Seal kit	1
C2	87-13	9004104-1360	O ring	2
C3	87-13	9220242	Spring	6
C4	87-13	9004100-2380	O ring	1
C5	87-13	9510442	Seal retainer	1
C6	87-13	9006201-0387	Retaining ring	1
F	87-13	9802028	Check valve assembly	2
F1	87-13	9004101-0270	O ring	2

Other Commonly Used Parts

<u>Description</u>	<u>Part Number</u>	<u>Qty.</u>
Overhaul gasket kit	9510239	1
Rear lifting bracket	9801001	1
Front lifting bracket	9801000	1
6000 psi port covers	9700731	2
Case drian plastic plug	9005200-9200	2

Options for all 25 Series Variable Displacement Pumps

Shaft Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1	23	87-13	9250327	'A' 13 T. Spline	1
2	23	87-13	9250409	'K' Straight key	1
	98	87-13	9003261-3732	Key	1
3	23	87-13	9250713	'J' 27 T. Spline tapped	1

End Cap Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1	6	87-13	9250480	End cap	1

Servo Sleeve Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1	61	87-13	9510705	Servo sleeve assembly (standard)	2
2	61	87-13	9510704	Servo sleeve assembly (plugged)	2
	57	87-13	9005110-9100	Plug (1 3/16" thread)	2
3	61	87-13	9240358	Servo sleeve assembly (stroke limiter)	2
	D	87-13	9240326	Stroke limiter kit	2
	D1	87-13	9006371-5600	Retaining ring	2
	D2	87-13	9004104-1140	O ring	2
	D3	87-13	9004201-8700	O ring	2
	D4	87-13	9240627	Housing	2
	D5	87-13	9240323	Limiter rod	2
	D6	87-13	9003561-7500	Nut	2
4	61	88-	9510706	Servo sleeve assembly (plugged)	2
	57	88-	9005110-9200	Plug (1 5/16 thread)	2

Servo Piston Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1	106	87-13	9240297	Servo piston	2

Options for all 25 Series Variable Displacement Pumps

Cylinder Block Kit Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1	B	87-13	9240658	Cylinder block kit (welded, bi-metal)	1

Special Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1			Not Applicable		

Port Adapter Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1			Not Applicable		
2	G	87-13	9510529-0006	Port adapter kit	1
	G1	87-13	9802779	Port Adapter	1
	G2	87-13	9004101-2250	O ring	1

Pressure Override Hardware Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1			Not Applicable		
2	17	87-13	9005100-4400	Plug	2
3	19	87-13	9001007-0001	Straight Connector (high pressure)	2
	129	87-13	9700720-0001	Hose 26" (male ends)	1
	130	87-13	9700720-0001	Hose 26" (male ends)	1
4	17	87-13	9005100-4400	Plug	1
	19	87-13	9001007-0001	Straight Connector (high pressure)	1
	129	87-13	9700720-0001	Hose 26" (male ends)	1
	130	87-13	9700720-0001	Hose 26" (male ends)	1
	177	87-13	9001003-0001	Straight Connector (high pressure)	1
	238	87-13	9005100-4400	Plug	1

Model to Group Cross Reference for all
26 Series Variable Displacement Pumps

	Common Parts	Shaft	End Cap	Servo Sleeve	Servo Piston	Cylinder Block Kit	Special	Port Adapter	POR Hardware	Charge Pump	Control
26-2501FE-xxxx		1	1	1	1	1	1	2	3	1	
26-2501FG-xxxx		1	1	1	1	1	1	3	3	3	
26-2501GE-xxxx		1	1	1	1	1	1	2	4	1	
26-2501GL-xxxx		1	1	1	1	1	1	2	4	6-A	
26-2502FG-xxxx		1	1	2	1	1	1	3	3	3	
26-2503GG-xxxx		1	1	1	1	1	2	4	4	3	
26-2504FE-xxxx		2	1	1	1	1	1	2	3	1	
26-2505GK-xxxx		3	1	3	1	1	1	2	4	12	

**Common Parts for all 26 Series
Variable Displacement Pumps**

<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
7	87-13	9004800-3110	Pin	1
8	87-13	9004810-5012	Pin	2
9	87-13	9260144	End cap gasket	1
10	87-13	9260280	Variable housing	1
11	87-13	9004100-2400	O ring	2
12	87-13	9260073	Thrust plate	1
13	87-13	9510268	Trunnion bearing kit	2
14	87-13	9004810-5012	Pin	2
15	87-13	9260152	Variable swashplate	1
21	87-13	9510267	Front bearing kit	1
26	87-13	9260138	Front cover	1
29	87-13	9260145	Front cover gasket	1
30	87-13	9510422-0007	Trunnion shim kit	2
31	87-13	9260136	Trunnion	2
34	87-13	9260355	Valve plate (26-xxxxxx-Rxxx)	1
"	87-13	9260356	Valve plate (26-xxxxxx-Lxxx)	1
"	87-13	9260402	Valve plate (26-xxxxxx-Mxxx)	1
36	87-13	9510266	Rear bearing kit	1
38	87-13	9803390	Control screen filter	1
41	87-13	9006326-0025	Retaining ring	1
42	87-13	9802396	Feedback link pin	1
43	87-13	9801232	Feedback link	1
44	87-13	9007600-1103	Drive screw	2
47	87-13	9009610-6690	Washer	6
49	87-13	9007200-7552	Screw	8
51	87-13	9009610-8092	Washer	8
52	87-13	9007276-0011	Torx screw	4
53	87-13	9270178	Servo sleeve retainer	2
55	87-13	9801001	Lifting bracket	1
56	87-13	9801000	Lifting bracket	1
60	87-13	9004100-1560	O ring	2
62	87-13	9004100-2430	O ring	2
68	87-13	9006300-0087	Retaining ring	8
69	87-13	9004830-0009	Pin	4
70	87-13	9009610-5387	Washer	13
71	87-13	9007200-5026	Screw	12
77	87-13	9005001-1200	Pipe plug	1
78	87-13	9005100-4400	Plug	1
80	87-13	9004101-0140	O ring	1
91	87-13	9007200-6222	Screw	6
107	87-13	9260252	Servo Link	2
108	87-13	9270234	Spring guide	2
109	87-13	9007276-0055	Screw	2
110	87-13	9009625-0035	Washer	2
111	87-13	9270236	Spring	2
126	87-13	9510423-0007	Shim kit	1

**Common Parts for all 26 Series
Variable Displacement Pumps**

<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
B1	87-13	9260321	Bearing plate	1
B2	87-13	9260358	Bearing plate pilot	1
B3	87-13	9006250-0343	Retaining ring	1
B4	87-13	9260014	Retainer spring	1
B5	87-13	9260015	Spring guide	1
B6	87-13	9260326	Cylinder block spring	1
B7	87-13	9260013	Spring seat	1
B8	87-13	9260088	Pin	1
B9	87-13	9260231	Cylinder block	1
B10	87-13	9260232	Slipper retainer guide spring	6
B11	87-13	9260047	Slipper retainer guide	1
B12	87-13	9260072	Slipper retainer	1
B13	87-13	9510408-0006	Piston kit	3
C	87-13	9510275	Shaft seal kit	1
C2	87-13	9004104-1440	O ring	2
C3	87-13	9220242	Spring	6
C4	87-13	9004100-2420	O ring	1
C5	87-13	9260050	Seal retainer	1
C6	87-13	9006201-0433	Retaining ring	1
F	87-13	9802028	Check valve assembly	2
F1	87-13	9004101-0270	O ring	2

Other Commonly Used Parts

<u>Description</u>	<u>Part Number</u>	<u>Qty.</u>
Overhaul gasket kit	9510316	1
Rear lifting bracket	9801001	1
Front lifting bracket	9801000	1
6000 psi port covers	9700731	2
Case drian plastic plug	9005200-9700	2

Options for all 26 Series Variable Displacement Pumps

Shaft Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1	23	87-13	9260140	'A' 13 T. Spline	1
2	23	87-13	9260176	'K' Straight key	1
	98	87-13	9003261-5040	Key	1
3	23	87-13	9260423	'J' 27 T. Spline tapped	1

End Cap Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1	6	87-13	9260235	End cap	1

Servo Sleeve Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1	61	87-13	9510707	Servo sleeve assembly (plugged)	2
	57	87-13	9005110-9500	Plug (1 5/8" thread)	2
2	61	87-13	9510707	Servo sleeve assembly (stroke limiter)	2
	D	87-13	9260185	Stroke limiter kit	2
	D1	87-13	9006371-6900	Retaining ring	2
	D2	87-13	9004104-1160	O ring	2
	D3	87-13	9004201-9200	O ring	2
	D4	87-13	9260364	Housing	2
	D5	87-13	9260194	Limiter rod	2
	D6	87-13	9003561-8700	Nut	2
4	61	88-	9510708	Servo sleeve assembly (plugged)	2
	57	88-	9005110-9200	Plug (1 5/16" thread)	2

Servo Piston Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1	106	87-13	9270355	Servo piston	2

Options for all 26 Series Variable Displacement Pumps

Cylinder Block Kit Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1	B	87-13	9260369	Cylinder block kit (welded, bi-metal)	1

Special Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1			Not Applicable		

Port Adapter Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1			Not Applicable		
2	G	87-13	9510529-0006	Port adapter kit	1
	G1	87-13	9802779	Port Adapter	1
	G2	87-13	9004101-2250	O ring	1
	141	87-13	9007200-6320	Screw	2

Pressure Override Hardware Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1			Not Applicable		
2	17	87-13	9005100-4400	Plug	2
3	19	87-13	9001007-0001	Straight Connector (high pressure)	2
	129	87-13	9700720-0001	Hose 26" (male ends)	1
	130	87-13	9700720-0001	Hose 26" (male ends)	1
4	17	87-13	9005100-4400	Plug	1
	19	87-13	9001007-0001	Straight Connector (high pressure)	1
	129	87-13	9700720-0011	Hose 26" (male ends)	1
	130	87-13	9700720-0001	Hose 26" (male ends)	1
	177	87-13	9001003-0001	90 Degree Connector (high pressure)	1
	238	87-13	9005100-4400	Plug	1

Model to Group Cross Reference for all
27 Series Variable Displacement Pumps

	Common Parts	Shaft	End Cap	Servo Sleeve	Servo Piston	Cylinder Block Kit	Special	Port Adapter	POR Hardware	Charge Pump	Control
27-2501GE-xxxx	1	1	1	1	1	1	1	2	4	1	
27-2501GG-xxxx	1	1	1	1	1	1	1	3	4	3	
27-2501RK-xxxx	1	1	1	1	1	1	1	2	5	12	
27-2502GG-xxxx	3	1	1	1	1	1	1	3	4	3	
27-2502GE-xxxx	3	1	1	1	1	1	1	2	4	1	
27-2503GE-xxxx	2	1	1	1	1	1	1	2	4	1	
27-2504GK-xxxx	3	1	3	1	1	1	1	2	4	12	

Common Parts for all 27 Series Variable Displacement Pumps

<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
7	87-13	9004800-3110	Pin	1
8	87-13	9004810-5012	Pin	2
9	87-13	9270710	End cap gasket	1
10	87-13	9270586	Variable housing	1
11	87-13	9004100-2450	O ring	2
12	87-13	9270482	Thrust plate	1
13	87-13	9510271	Trunnion bearing kit	2
14	87-13	9004810-5012	Pin	2
15	87-13	9270462	Variable swashplate	1
21	87-13	9510270	Front bearing kit	1
26	87-13	9270188	Front cover	1
29	87-13	9270175	Front cover gasket	1
30	87-13	9510422-0008	Trunnion shim kit	2
31	87-13	9270018	Trunnion	2
34	87-13	9270683	Valve plate (27-xxxxxx-Rxxx)	1
"	87-13	9270684	Valve plate (27-xxxxxx-Lxxx)	1
36	87-13	9510386	Rear bearing kit	1
38	87-13	9803390	Control screen filter	1
41	87-13	9006326-0025	Retaining ring	1
42	87-13	9802396	Feedback link pin	1
43	87-13	9800589	Feedback link	1
44	87-13	9007600-1103	Drive screw	2
47	87-13	9009650-6200	Washer	6
49	87-13	9007200-7552	Screw	4
50	87-13	9007200-7556	Screw	2
51	87-13	9009610-8092	Washer	9
52	87-13	9007276-0011	Torx screw	4
53	87-13	9270178	Servo sleeve retainer	2
55	87-13	9801001	Lifting bracket	1
56	87-13	9801000	Lifting bracket	1
60	87-13	9004100-1560	O ring	2
62	87-13	9004100-2430	O ring	2
68	87-13	9006300-0087	Retaining ring	8
69	87-13	9004830-0009	Pin	4
70	87-13	9009610-5387	Washer	15
71	87-13	9007200-5026	Screw	14
77	87-13	9005001-1200	Pipe plug	1
78	87-13	9005100-4400	Plug	1
80	87-13	9004101-0140	O ring	1
91	87-13	9007200-6222	Screw	6
101	87-13	9007200-7542	Screw	2
107	87-13	9270653	Servo Link	2
108	87-13	9270234	Spring guide	2
109	87-13	9007276-0055	Screw	2
110	87-13	9009625-0035	Washer	2
111	87-13	9270236	Spring	2
126	87-13	9510423-0008	Shim kit	1

**Common Parts for all 27 Series
Variable Displacement Pumps**

<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
B1	87-13	9270657	Bearing plate	1
B2	87-13	9270656	Bearing plate pilot	1
B3	87-13	9006250-0400	Retaining ring	1
B4	87-13	9270209	Retainer spring	1
B5	87-13	9270015	Spring guide	1
B6	87-13	9270448	Cylinder block spring	1
B7	87-13	9270013	Spring seat	1
B8	87-13	9260088	Pin	1
B9	87-13	9270495	Cylinder block	1
B10	87-13	9270496	Slipper retainer guide spring	6
B11	87-13	9270105	Slipper retainer guide	1
B12	87-13	9270486	Slipper retainer	1
B13	87-13	9510408-0009	Piston kit	3
C	87-13	9510191	Shaft seal kit	1
C2	87-13	9004104-1490	O ring	2
C3	87-13	9220242	Spring	6
C4	87-13	9004100-2430	O ring	1
C5	87-13	9510454	Seal retainer	1
C6	87-13	9006201-0450	Retaining ring	1
F	87-13	9802028	Check valve assembly	2
F1	87-13	9004101-0270	O ring	2

Other Commonly Used Parts

<u>Description</u>	<u>Part Number</u>	<u>Qty.</u>
Overhaul gasket kit	9510242	1
Rear lifting bracket	9801001	1
Front lifting bracket	9801000	1
6000 psi port covers	9700731	2
Case drian plastic plug	9005200-9700	2

Options for all 27 Series Variable Displacement Pumps

Shaft Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1	23	87-13	9270422	'M' 15 T. Spline	1
2	23	87-13	9270427	'K' Straight key	1
	98	87-13	9003261-6244	Key	1
3	23	87-13	9270738	'N' 40 T. Spline tapped	1

End Cap Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1	6	87-13	9270473	End cap	1

Servo Sleeve Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1	61	87-13	9510707	Servo sleeve assembly (plugged)	2
	57	87-13	9005110-9500	Plug (1 5/8" thread)	2
2	61	87-13	9510707	Servo sleeve assembly (stroke limiter)	2
	D	87-13	9260185	Stroke limiter kit	2
	D1	87-13	9006371-6900	Retaining ring	2
	D2	87-13	9004104-1160	O ring	2
	D3	87-13	9004201-9200	O ring	2
	D4	87-13	9260364	Housing	2
	D5	87-13	9260194	Limiter rod	2
	D6	87-13	9003561-8700	Nut	2
4	61	88-	9510708	Servo sleeve assembly (plugged)	2
	57	88-	9005110-9200	Plug (1 5/16" thread)	2

Servo Piston Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1	106	87-13	9270355	Servo piston	2

Options for all 27 Series Variable Displacement Pumps

Cylinder Block Kit Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1	B	87-13	9270658	Cylinder block kit (welded, bi-metal)	1

Special Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1			Not Applicable		

Port Adapter Group

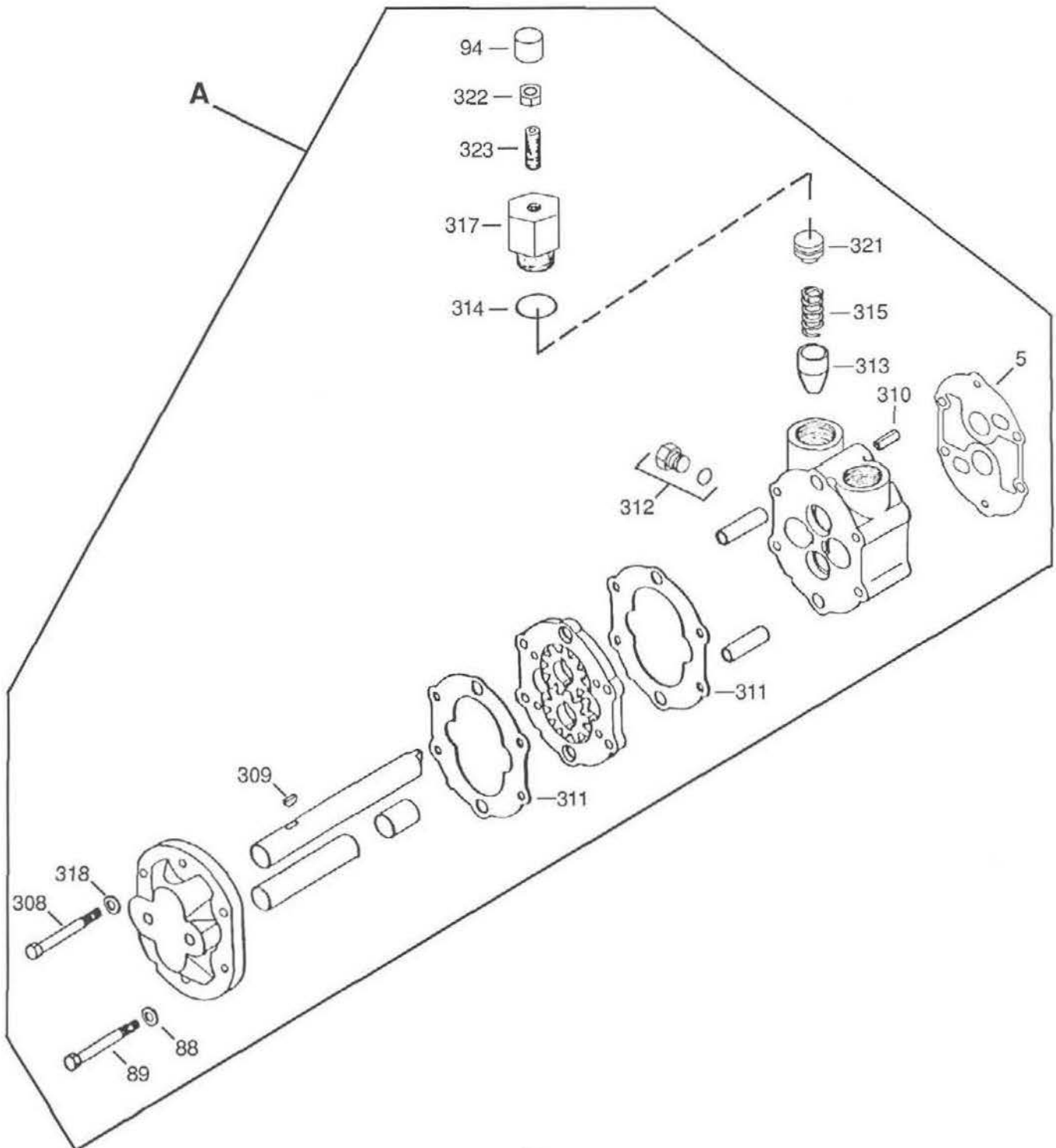
<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1			Not Applicable		
2	G	87-13	9510529-0006	Port adapter kit	1
	G1	87-13	9802779	Port Adapter	1
	G2	87-13	9004101-2250	O ring	1
	141	87-13	9007200-6320	Screw	2

Pressure Override Hardware Group

<u>Option No.</u>	<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty. per Model</u>
1			Not Applicable		
2	17	87-13	9005100-4400	Plug	2
3	19	87-13	9001007-0001	Straight Connector (high pressure)	2
	129	87-13	9700720-0001	Hose 26" (male ends)	1
	130	87-13	9700720-0001	Hose 26" (male ends)	1

NOTES

Option # 1 (.75 & 1.1 CID)
Aluminum Gear Style Charge Pump



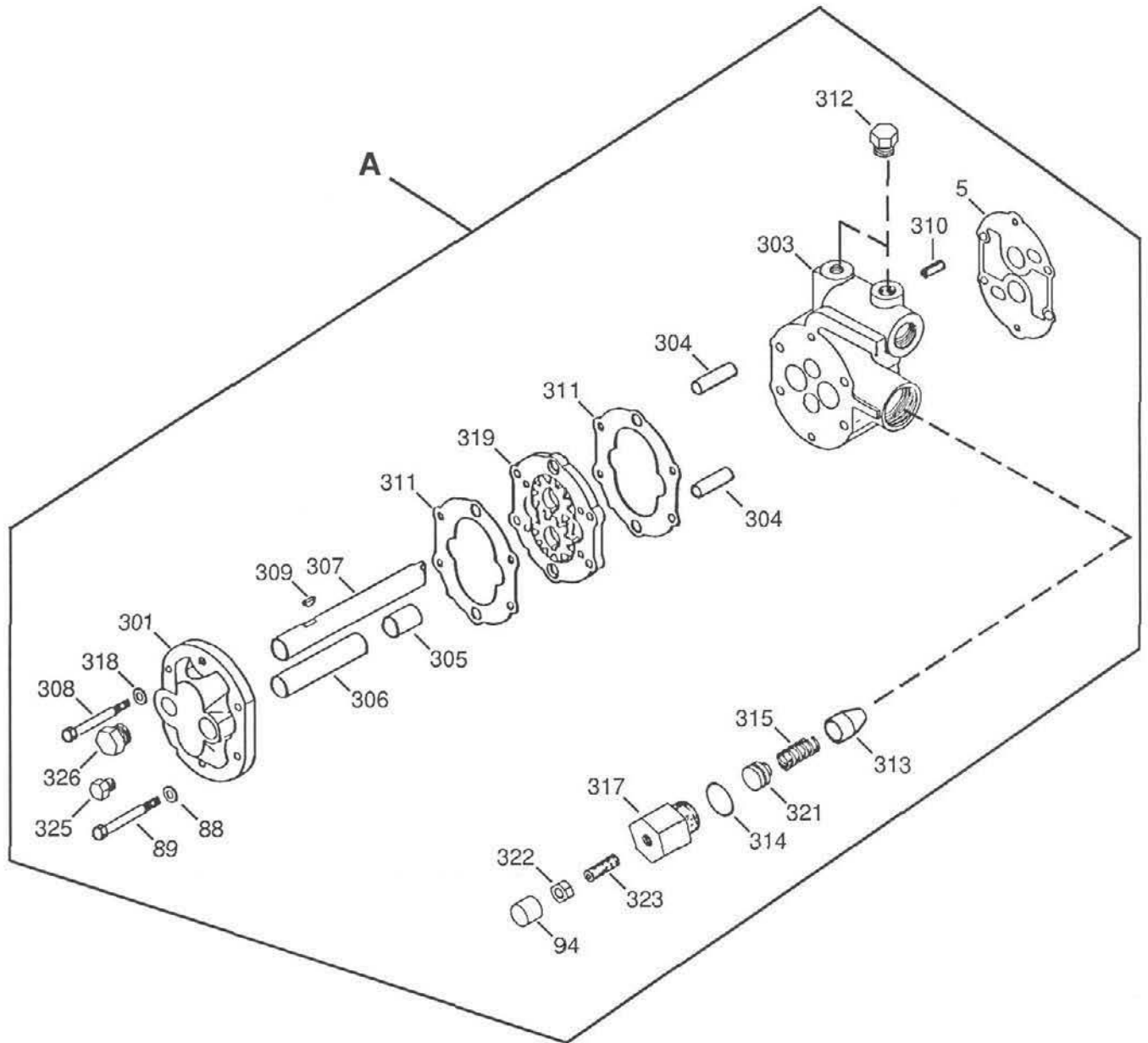
Option # 1 (.75 & 1.1 CID)
Aluminum Gear Style Charge Pump

<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty.</u>
A	87-13	See Table Below	Charge pump kit	1
5	87-13	9801235	Gasket	1
88	87-13	9009610-2850	Washer	4
89	87-13	See Table Below	Screw	4
94	87-40	4800080	Charge relief valve cover	1
308	87-13	See Table Below	Screw	2
309	87-13	9003310-1206	Key	1
310	87-13	9004700-2209	Roll pin	1
311	87-13	9802225-0002	Gasket	2
312	87-13	9005100-4400	Plug	1
313	87-13	9800965	Charge relief valve cone	1
314	87-13	9004201-6200	O ring	1
315	87-13	9800966	Charge relief valve spring	1
317	87-13	9803517	Charge relief valve plug	1
318	87-13	9009610-2850	Washer	2
321	87-13	9803462	Charge relief valve plunger	1
322	87-40	9003575-0083	Jam nut	1
323	87-13	9007774-0007	Set screw	1

2 x - 25 x x A x - x x or 2 x - 25 x x B x - x x
 9510655 - 9510656 -

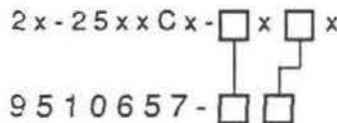
Frame Size	Gear Chg. Pump Code Letter	Item 'A' Chg. Pump Kit	Item 89 Screw	Item 308 Screw
21-23	A	9510655-__	9007200-2536	9007200-2536
	B	9510656-__	9007200-2540	9007200-2540

Option # 2 (1.1 CID Large Inlet)
Aluminum Gear Style Charge Pump



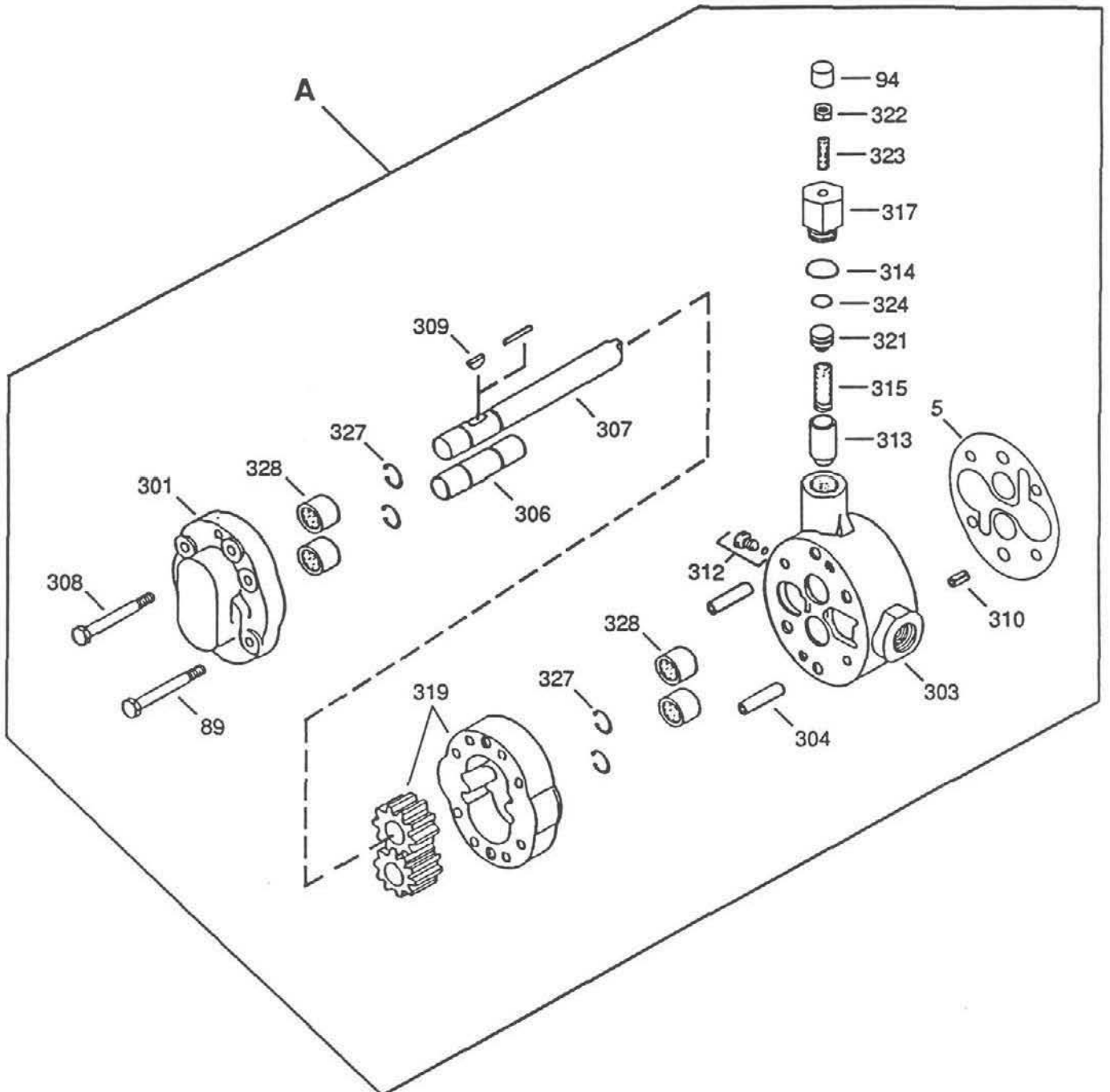
Option # 2 (1.1 CID Large Inlet)
Aluminum Gear Style Charge Pump

Item	Mfg. Date	Part Number	Description	Qty.
A	87-13	See Table Below	Charge pump kit	1
5	87-13	9801235	Gasket	1
88	87-13	9009610-2850	Washer	4
89	87-13	9007200-2546	Screw	4
94	87-13	9803352	Charge pump relief valve cover	1
301	87-13	9802018	Charge pump end cap	1
303	87-13	9802301	Charge pump body	1
304	87-13	9004840-3703	Hollow pin	2
305	87-13	9801166	Idler shaft spacer	2
306	87-13	9004810-6232	Idler shaft pin	1
307	87-13	9801615	Charge pump shaft	1
308	87-13	9007201-2534	Screw	2
309	87-13	9003310-1212	Key	1
310	87-13	9004700-2209	Roll pin	1
311	87-13	9802225-0002	Gasket	2
312	87-13	9005100-5600	Plug	2
313	87-13	9802240	Charge pump relief valve cone	1
314	87-13	9004201-7500	O ring	1
315	87-13	9803557	Charge relief valve spring	1
317	87-13	98703519	Charge relief valve plug	1
318	87-13	9009610-2850	Washer	2
319	87-13	9802224-0004	Spacer plate/gear assembly	1
321	87-13	9803518	Charge relief valve plunger	1
322	87-13	9003561-3700	Jam nut	1
323	87-13	9007774-0007	Set screw	1
325	87-13	9005100-7500	Plug	1
326	87-13	9005100-4400	Plug	1



Frame Size	Item 'A' Gear Pump Kit
21-23	9510657- __

Option # 3 (1.15 & 2.0 CID)
Cast Iron Gear Style Charge Pump



Option # 3 (1.15 & 2.0 CID)
Cast Iron Gear Style Charge Pump

Item	Mfg. Date	Part Number	Description	Qty.
A	87-13	See Table Below	Charge pump kit	1
5	87-13	9801604	Gasket	1
89	87-13	See Table Below	Screw	4
94	87-13	9803352	Charge relief valve cover	1
301	87-13	9801497	Charge pump end cap	1
303	87-13	9803056-0004	Charge pump body	1
304	87-13	See Table Below	Hollow pin	2
306	87-13	See Table Below	Idler shaft	1
307	87-13	See Table Below	Charge pump shaft	1
308	87-13	See Table Below	Screw	2
309	87-13	See Table Below	Key	1
310	87-13	9004700-3712	Roll pin	1
312	87-13	9005100-4400	Plug	1
313	87-13	9800474	Charge relief valve cone	1
314	87-13	9004201-7500	O ring	1
315	87-13	9801087	Charge relief valve spring	1
317	87-13	9803519	Charge relief valve plug	1
319	87-13	See Table Below	Spacer plate/gear assembly	1
321	87-13	9803518	Charge relief valve plunger	2
322	87-13	9003561-3700	Jam nut	1
323	87-13	9007774-0007	Set screw	1
324	87-13	9004100-0150	O ring	1
327	87-13	9006370-8100	Retaining ring	4
328	87-13	9001460-0004	Needle bearing	4

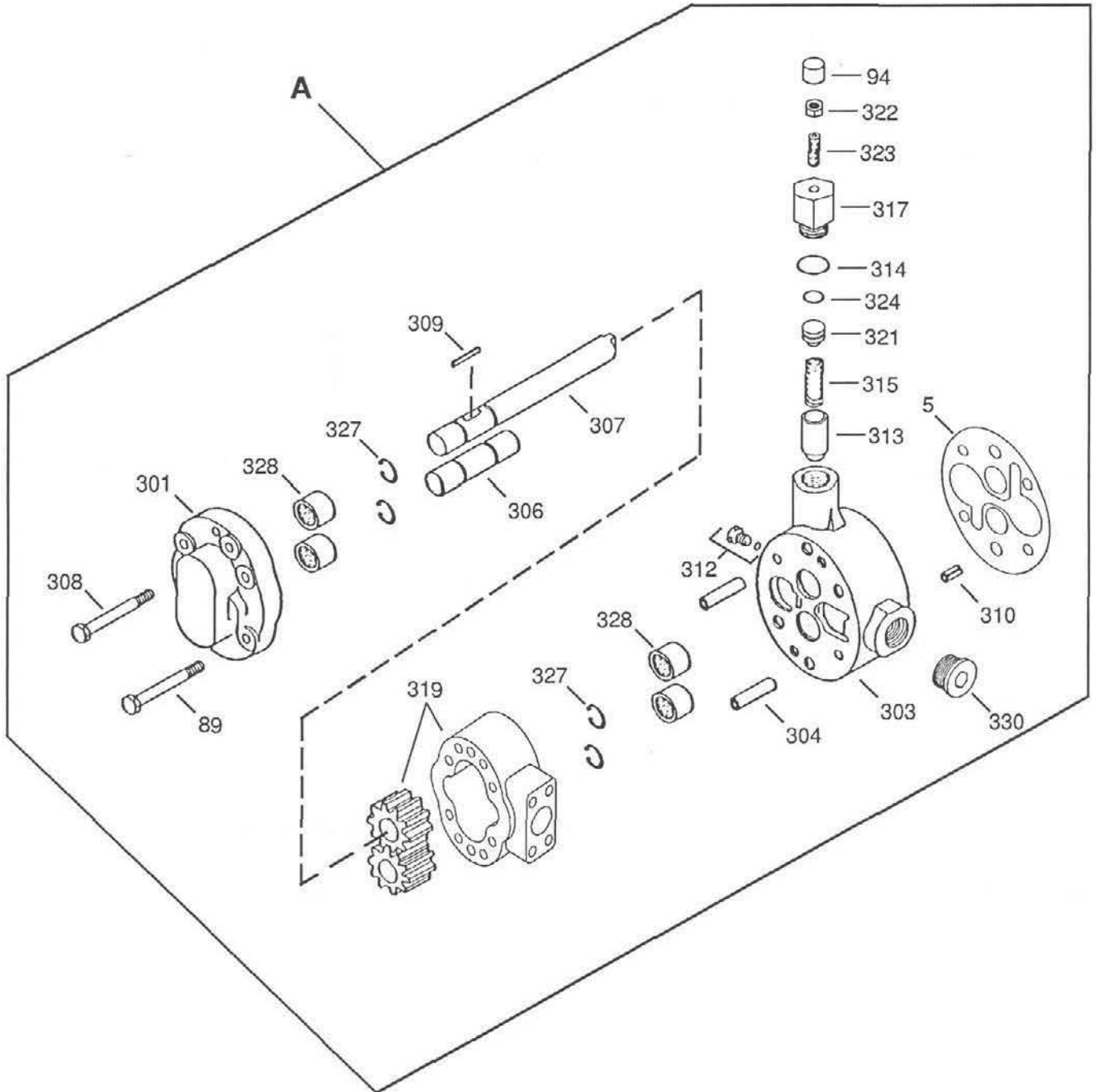
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Frame Size	Gear Chg. Pump Code Letter	Item 'A' Chg. Pump Kit	Item 89 Screw	Item 304 Pin	Item 306 Pin	Item 307 Shaft
24	D	9510665-14-___	9007200-3748	9004810-4424	9801208	9240285
	F	9510665-24-___	9007200-3752	9004810-4428	9801199	9240286
25	F	9510665-25-___	9007200-3752	9004810-4428	9801199	9250352
26	F	9510665-26-___	9007200-3752	9004810-4428	9801199	9270396

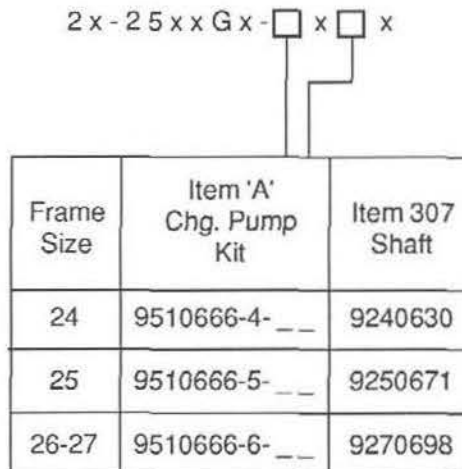
Frame Size	Gear Chg. Pump Code Letter	Item 308 Screw	Item 309 Key	Item 319 Spacer
24	D	9007200-3748	9003310-1208	9800872
	F	9007200-3752	9003312-1212	9800892
25	F	9007200-3752	9003312-1212	9800892
26	F	9007200-3752	9003312-1212	9800892

Option # 4 (4.0 CID)
Cast Iron Gear Style Charge Pump



Option # 4 (4.0 CID)
Cast Iron Gear Style Charge Pump

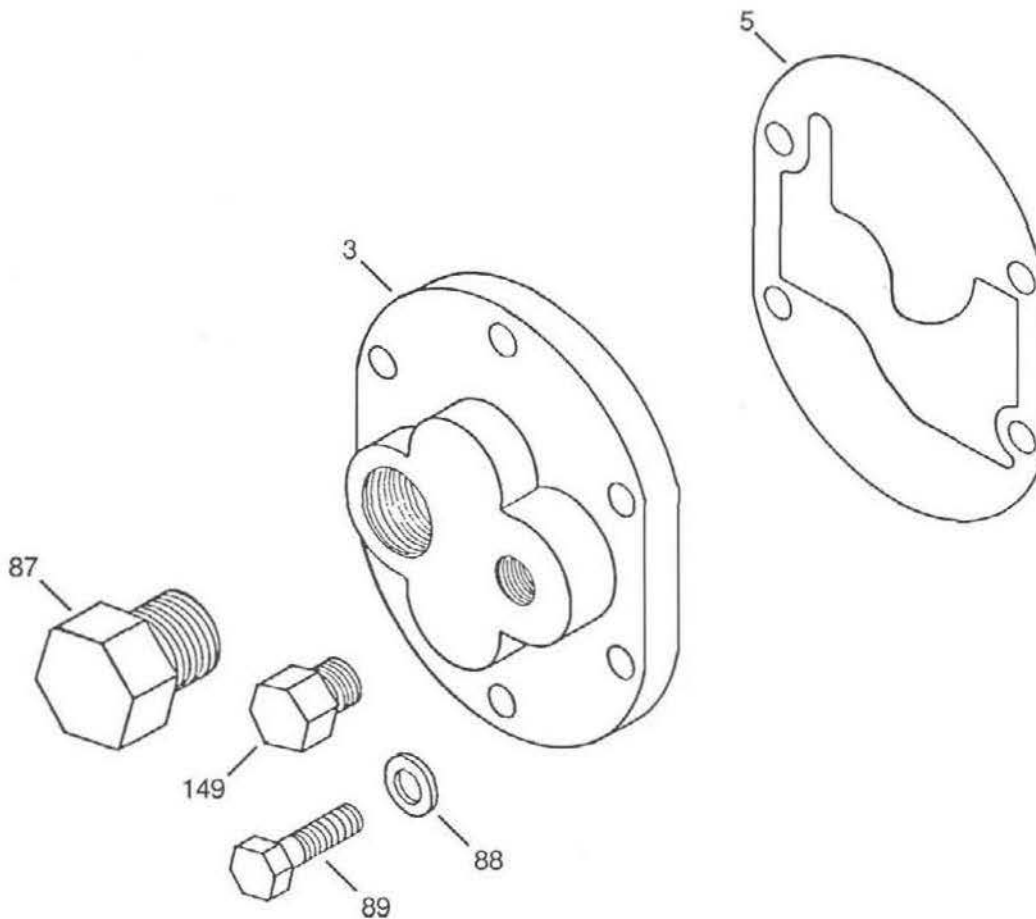
Item	Mfg. Date	Part Number	Description	Qty.
A	87-13	See Table Below	Charge pump kit	1
5	87-13	9801604	Gasket	1
89	87-13	9007200-3762	Screw	4
94	87-13	9803352	Charge relief valve cover	1
301	87-13	9801497	Charge pump end cap	1
303	87-13	9803056-0004	Charge pump body	1
304	87-13	9004810-4438	Hollow pin	2
306	87-13	9801250	Idler shaft	1
307	87-13	See Table Below	Charge pump shaft	1
308	87-13	9007200-3744	Screw	2
309	87-13	9003276-0007	Key	1
310	87-13	9004700-3712	Roll pin	1
312	87-13	9005100-4400	Plug	1
313	87-13	9800474	Charge relief valve cone	1
314	87-13	9004201-7500	O ring	1
315	87-13	9801087	Charge relief valve spring	1
317	87-13	9803519	Charge relief valve plug	1
319	87-13	9802540	Spacer plate/gear assembly	1
321	87-13	9803518	Charge relief valve plunger	2
322	87-13	9003561-3700	Jam nut	1
323	87-13	9007774-0007	Set screw	1
324	87-13	9004100-0150	O ring	1
327	87-13	9006370-8100	Retaining ring	4
328	87-13	9001460-0004	Needle bearing	4
330	87-13	9005110-9200	Plug	1



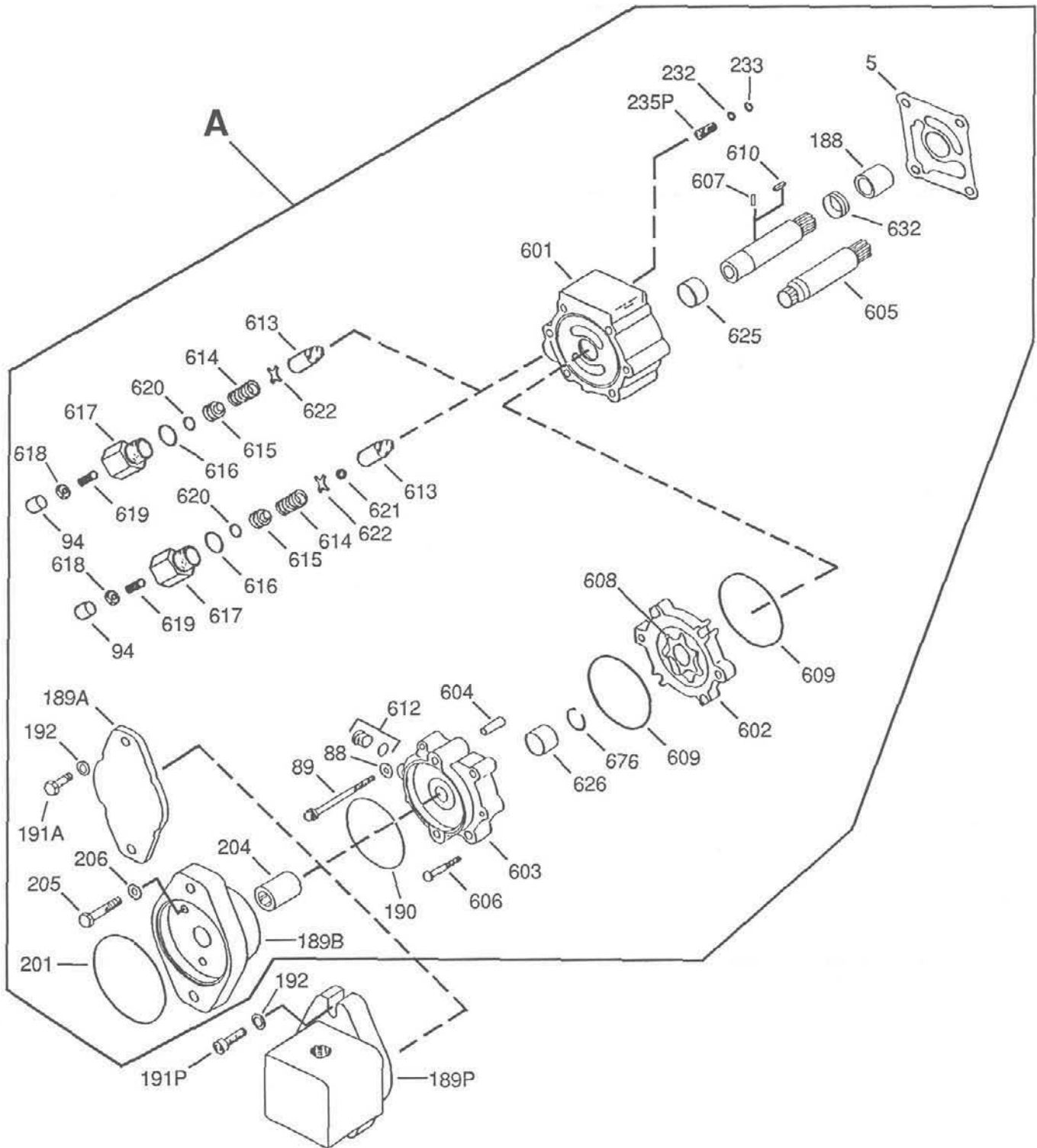
Option # 5
Charge Pump Running Cover

<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty.</u>
3	87-13	See Table Below	Cover plate	1
5	87-13	See Table Below	Charge pump gasket	1
87	87-13	See Table Below	Plug	1
88	87-13	See Table Below	Washer	4
89	87-13	See Table Below	Screw	4
149	87-13	See Table Below	Plug	1

Frame Size	Item 3 Plate	Item 5 Gasket	Item 87 Plug	Item 88 Washer	Item 89 Screw	Item 149 Plug
21-23	9801537	9803470	9005200-7500	9009610-2850	9007200-2514	9005100-4400
24-27	9803363	9802023	- - -	- - -	9007200-3726	9005200-9000



Option # 6 (.85, 1.06, 1.3 & 1.9 CID)
Gerotor Style Charge Pump



Option # 6 (.85, 1.06, 1.3 & 1.9 CID)
Gerotor Style Charge Pump

<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty.</u>
A	87-13	See Table Below	Charge pump kit	1
5	87-13	9803252	Gasket	1
88	87-13	9009610-4069	Washer	4
89	87-13	See Table Below	Screw	4
94	87-40	9803352	Charge relief valve cover	1
188	87-13	9830234	Coupling	1
189A	87-13	9802336	Cover plate	1
189B	87-13	9830469	Adaptor	1
189P	87-13	See Pump Serial Tag	Auxiliary pump	1
190	87-13	9004100-0420	O ring	1
191A	87-13	9007200-3716	Screw	2
191P	87-13	9007300-3722	Screw	2
192	87-13	9009610-4069	Washer	2
201	87-13	9004100-0450	O ring	1
204	87-13	9830234	Coupling	1
205	87-13	9007206-3732	Screw	3
206	87-13	9009610-4069	Washer	3
232	87-13	9004101-0100	O ring	2
233	87-13	9006150-0100	Backup ring	2
235P	87-13	9803464	IPOR plug	2
601	87-13	See Table Below	Charge pump body	1
602	87-13	See Table Below	Spacer plate	1
603	87-13	See Table Below	Charge pump end cap	1
604	87-13	See Table Below	Hollow pin	2
605	87-13	See Table Below	Charge pump shaft	1
606	87-13	See Table Below	Screw	2
607	87-13	9004875-0057	Pin	1
608	87-13	See Table Below	Gerotor assembly	1
609	87-13	9004100-1530	O ring	2
610	87-13	9003301-1910	Key	1
612	87-13	9005110-5600	Plug	1
613	87-13	9830296	Charge relief valve cone	1
614	87-13	9830367	Charge relief valve spring	1
615	87-13	9803518	Charge relief valve plunger	1
616	87-13	9004201-7500	O ring	1
617	87-13	9803519	Charge relief valve plug	1
618	87-13	9003561-3700	Jam nut	1
619	87-13	9007774-0007	Set screw	1
620	87-13	9004100-0150	O ring	1
621	87-13	9001214-5000	Charge relief bypass ball	1
622	87-13	9830297	Ball retainer	1
625	87-13	9700866-0002	DU bearing	1
626	87-13	9700866-0002	DU bearing	1
632	87-13	9830059	Pilot	1
676	87-13	9806252-0100	Retaining ring	1

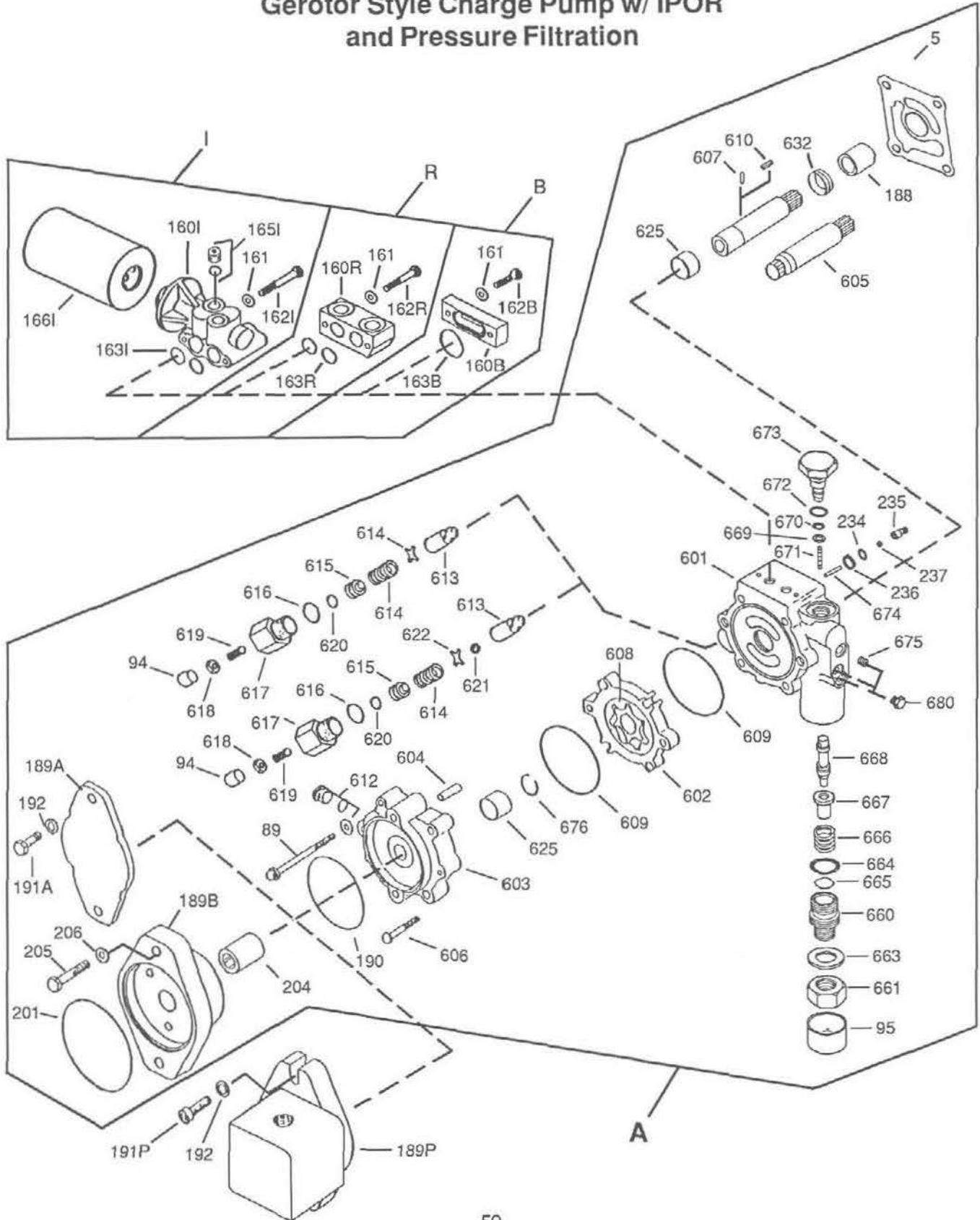
Option # 6 (.85, 1.06, 1.3 & 1.9 CID)
Gerotor Style Charge Pump

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Frame Size	Gear Chg. Pump Code Letter	Item 'A' Chg. Pump Kit	Item 89 Screw	Item 188 Coupling	Item 601 Body	Item 602 Spacer
21	A	9510661-11-__	9007510-3746	3102600	9803386	9803330-0001
	E	9510661-21-__	9007510-3748	3102600	9803386	9803330-0002
	P	9510661-41-__	9007510-3752	3102600	9803385	9803330-0002
22-23	A	9510661-12-__	9007510-3746	9830234	9803386	9803330-0001
	C	9510661-14-__	9007510-3746	9830234	9803386	9803330-0001
	E	9510661-22-__	9007510-3748	9830234	9803386	9803330-0002
	G	9510661-24-__	9007510-3748	9830234	9803386	9803330-0002
	J	9510661-32-__	9007510-3748	9830234	9803386	9803330-0003
	L	9510661-34-__	9007510-3748	9830234	9803386	9803330-0003
	N	9510661-42-__	9007510-3752	9830234	9803385	9803330-0004
24	J	9510661-33-__	9007510-3748	9830234	9803386	9803330-0003
	L	9510661-35-__	9007510-3748	9830234	9803386	9803330-0003
	N	9510661-43-__	9007510-3752	9830234	9803385	9803330-0004
	R	9510661-45-__	9007510-3752	9830234	9803385	9803330-0004

Frame Size	Gear Chg. Pump Code Letter	Item 603 End cap	Item 604 Pin	Item 605 Shaft	Item 606 Screw	Item 608 Gerotor
21	A	9803383-0002	9004840-3702	9803108-0001	9007276-0061	9700719-0003
	E	9803383-0002	9004840-0011	9803108-0002	9007276-0062	9700719-0004
	P	9803383-0002	9004840-3703	9803543	9007200-2534	9700719-0002
22-23	A	9803383-0002	9004840-3702	9803161-0001	9007276-0061	9700719-0003
	C	9803513	9004840-3702	9803162-0001	9007276-0061	9700719-0003
	E	9803383-0002	9004840-0011	9803161-0002	9007276-0062	9700719-0004
	G	9803513	9004840-0011	9803162-0002	9007276-0062	9700719-0004
	J	9803383-0002	9004840-3701	9803164-0001	9007200-2532	9700719-0001
	L	9803513	9004840-3701	9803165-0001	9007200-2532	9700719-0001
	N	9803383-0002	9004840-3703	9803164-0002	9007200-2534	9700719-0002
24	J	9803383-0002	9004840-3701	9803164-0003	9007200-2532	9700719-0001
	L	9803513	9004840-3701	9803165-0003	9007200-2532	9700719-0001
	N	9803383-0002	9004840-3703	9803164-0004	9007200-2534	9700719-0002
	R	9803513	9004840-3703	9803165-0004	9007200-2534	9700719-0002

Option # 7 (.85, 1.06, 1.3 & 1.9 CID)
Gerotor Style Charge Pump w/ IPOR
and Pressure Filtration



Option # 7 (.85, 1.06, 1.3 & 1.9 CID)
Gerotor Style Charge Pump w/ IPOR
and Pressure Filtration

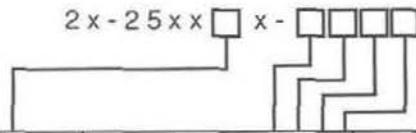
<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty.</u>
A	87-13	See Table	Charge pump kit	1
B	87-13	9510671	Bypass pressure filtration kit	1
I	87-13	9510672	Integral pressure filtration kit	1
R	87-13	9510673	Remote pressure filtration kit	1
5	87-13	9803241	Gasket	1
88	87-13	9009610-4069	Washer	4
89	87-13	See Table	Screw	4
94	87-40	9803352	Charge relief valve cover	1
160B	87-13	9803510	Bypass pressure filtration manifold	1
160I	87-13	9830370	Integral pressure filtration manifold	1
160R	87-13	9830522	Remote pressure filtration manifold	1
161	87-13	9009610-3459	Washer	2
162B	87-13	9007200-3122	Screw	2
162I	87-13	9007200-3138	Screw	2
162R	87-13	9007200-3128	Screw	2
163B	87-13	9004101-0300	O ring	1
163I	87-13	9004104-0180	O ring	2
163R	87-13	9004104-0180	O ring	2
165I	87-13	9005110-7500	Plug	2
166I	87-13	9700810	Filter	1
188	87-13	9830234	Coupling	1
189A	87-13	9802336	Cover plate	1
189B	87-13	9830469	Adaptor	1
189P	87-13	See Pump Serial Tag	Auxiliary pump	1
190	87-13	9004100-0420	O ring	1
191A	87-13	9007200-3716	Screw	2
191P	87-13	9007300-3722	Screw	2
192	87-13	9009610-4069	Washer	2
201	87-13	9004100-0450	O ring	1
204	87-13	9830234	Coupling	1
205	87-13	9007206-3732	Screw	3
206	87-13	9009610-4069	Washer	3
234	87-13	9004101-0150	O ring	2
235	87-13	9803465	IPOR seat	2
236	87-13	9802288	Backup ring	2
237	87-13	9001210-3100	Ball	1
601	87-13	See Table	Charge pump body	1
602	87-13	See Table	Spacer plate	1
603	87-13	See Table	Charge pump end cap	2
604	87-13	See Table	Hollow pin	1
605	87-13	See Table	Charge pump shaft	2
606	87-13	See Table	Shaft	1
607	87-13	9004875-0057	Drive pin	1
608	87-13	See Table	Gerotor assembly	2
609	87-13	9004100-1530	O ring	1
610	87-13	9003301-1910	Key	1
612	87-13	9005110-5600	Plug	1

**Option # 7 (.85, 1.06, 1.3 & 1.9 CID)
Gerotor Style Charge Pump w/ IPOR
and Pressure Filtration**

Page 3 of 4

<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty.</u>
613	87-13	9830296	Charge relief valve cone	1
614	87-13	9830367	Charge relief valve spring	1
615	87-13	9803518	Charge relief valve plunger	1
616	87-13	9004201-7500	O ring	1
617	87-13	9803519	Charge relief valve plug	1
618	87-13	9003561-3700	Jam nut	1
618	87-13	9007774-0007	Set screw	1
620	87-13	9004100-0150	O ring	1
621	87-13	9001214-5000	Charge relief bypass ball	1
622	87-13	9830297	Ball retainer	1
625	87-13	9700866-0002	DU bearing	1
626	87-13	9700866-0002	DU bearing	1
632	87-13	9830059	Pilot	1
659	87-13	9009610-2850	Washer	2
660	87-13	9802776	Threaded plug	1
661	87-13	9003561-8700	Nut	1
663	87-13	9009625-0084	Washer	1
664	87-13	9004100-1210	O ring	1
665	87-13	9803247	Shim	1
666	87-13	9801029	Spring	1
667	87-13	9802774	Spring seat	1
668	87-13	9802773	Valve spool	1
669	87-13	9006110-0120	Backup ring	1
670	87-13	9004101-0120	O ring	1
671	87-13	9802490	Piston	1
672	87-13	9004201-5000	O ring	1
673	87-13	9802772	Piston plug	1
674	87-13	9004690-2522	Spring pin	2
675	87-13	9001695-0006	Plug	1
676	87-13	9006252-0100	Retaining ring	1
680	87-13	9005100-3100	Plug	3

**Option # 7 (.85, 1.06, 1.3 & 1.9 CID)
Gerotor Style Charge Pump w/ IPOR
and Pressure Filtration**



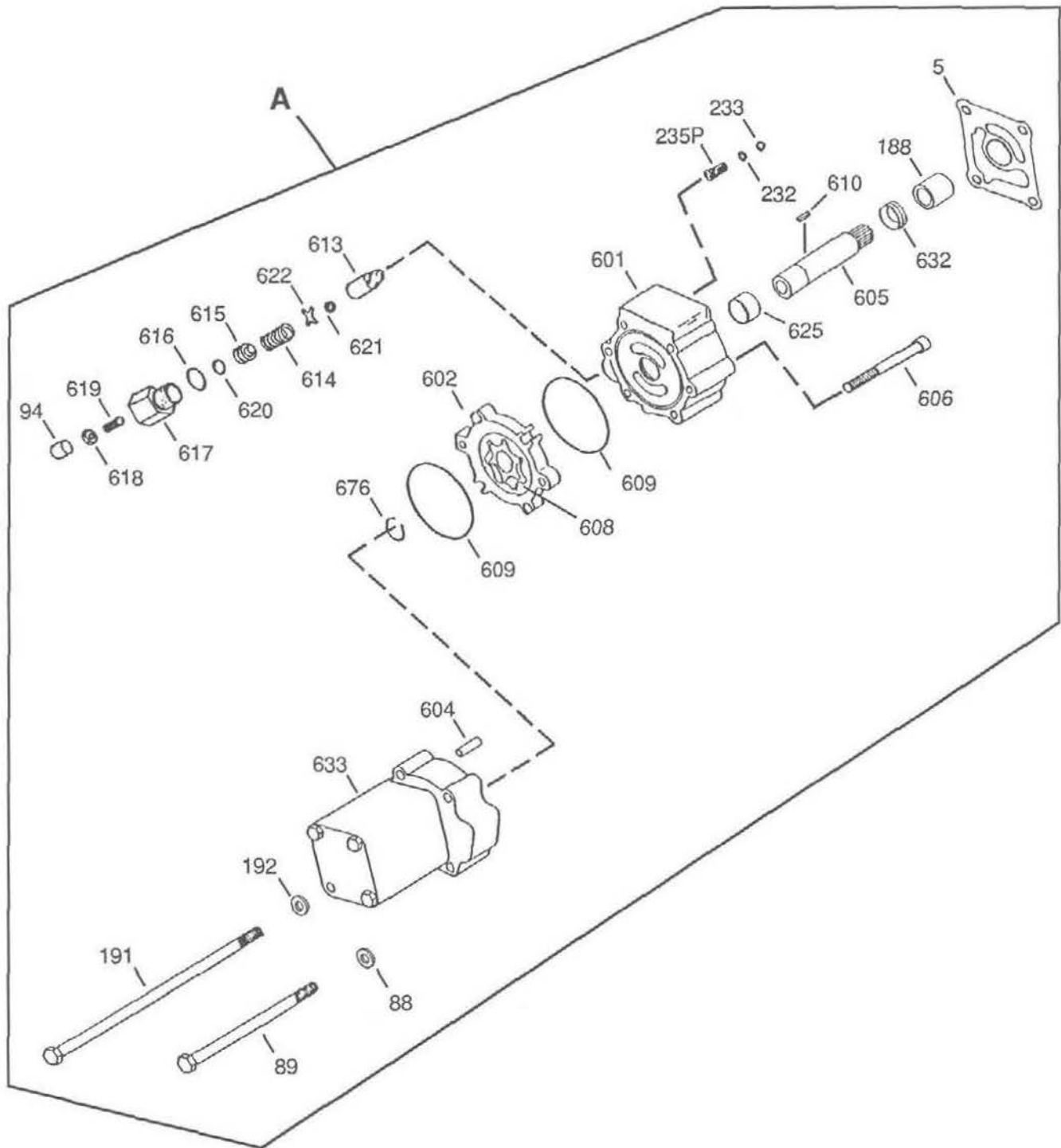
Frame Size	Gear Chg. Pump Code Letter	Item 'A' Chg. Pump Kit	Item 89 Screw	Item 188 Coupling	Item 601 Body	Item 602 Spacer
21	B	9510662-11-	9007510-3746	3102600	9803486	9803330-0001
22-23	B	9510662-12-	9007510-3746	9830234	9803486	9803330-0001
	D	9510662-14-	9007510-3746	9830234	9803486	9803330-0001
	F	9510662-22-	9007510-3748	9830234	9803486	9803330-0002
	H	9510662-24-	9007510-3748	9830234	9803486	9803330-0002
	K	9510662-32-	9007510-3748	9830234	9803486	9803330-0003
	M	9510662-34-	9007510-3748	9830234	9803486	9803330-0003
	P	9510662-42-	9007510-3752	9830234	9803497	9803330-0004
24	S	9510662-44-	9007510-3752	9830234	9803497	9803330-0004
	K	9510662-33-	9007510-3752	9830234	9803486	9803330-0003
	P	9510662-43-	9007510-3752	9830234	9803497	9803330-0002

CAUTION: If the unit has an Electrical Displacement Control (EDC), the charge pump kit ordered MUST be one without an orifice.

Example: The charge pump kit for 22-2584HL-LDDP is 9510662-24-LXDP

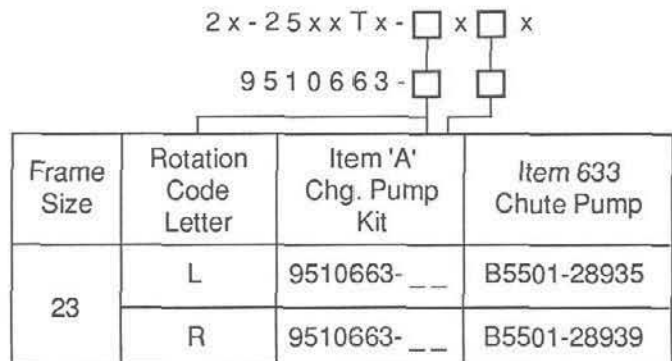
Frame Size	Gear Chg. Pump Code Letter	Item 603 End cap	Item 604 Pin	Item 605 Shaft	Item 606 Screw	Item 608 Gerotor
21	B	9803383-0002	9004840-3702	9803108-0001	9007200-2528	9700719-0003
22-23	B	9803383-0002	9004840-3702	9803161-0001	9007200-2528	9700719-0003
	D	9803513	9004840-3702	9803162-0001	9007200-2528	9700719-0003
	F	9803383-0002	9004840-0011	9803161-0002	9007200-2530	9700719-0004
	H	9803513	9004840-0011	9803162-0002	9007200-2530	9700719-0004
	K	9803383-0002	9004840-3701	9803164-0001	9007200-2530	9700719-0001
	M	9803513	9004840-3701	9803165-0001	9007200-2530	9700719-0001
	P	9803383-0002	9004840-3703	9803164-0002	9007200-2534	9700719-0002
	S	9803513	9004840-3703	9803165-0002	9007200-2534	9700719-0002
24	K	9803383-0002	9004840-3701	9803164-0003	9007200-2530	9700719-0001
	P	9803383-0002	9004840-3703	9803164-0004	9007200-2534	9700719-0002

Option # 8 (1.9 CID)
Gerotor Style Charge Pump w/8cc
Integral Chute Pump

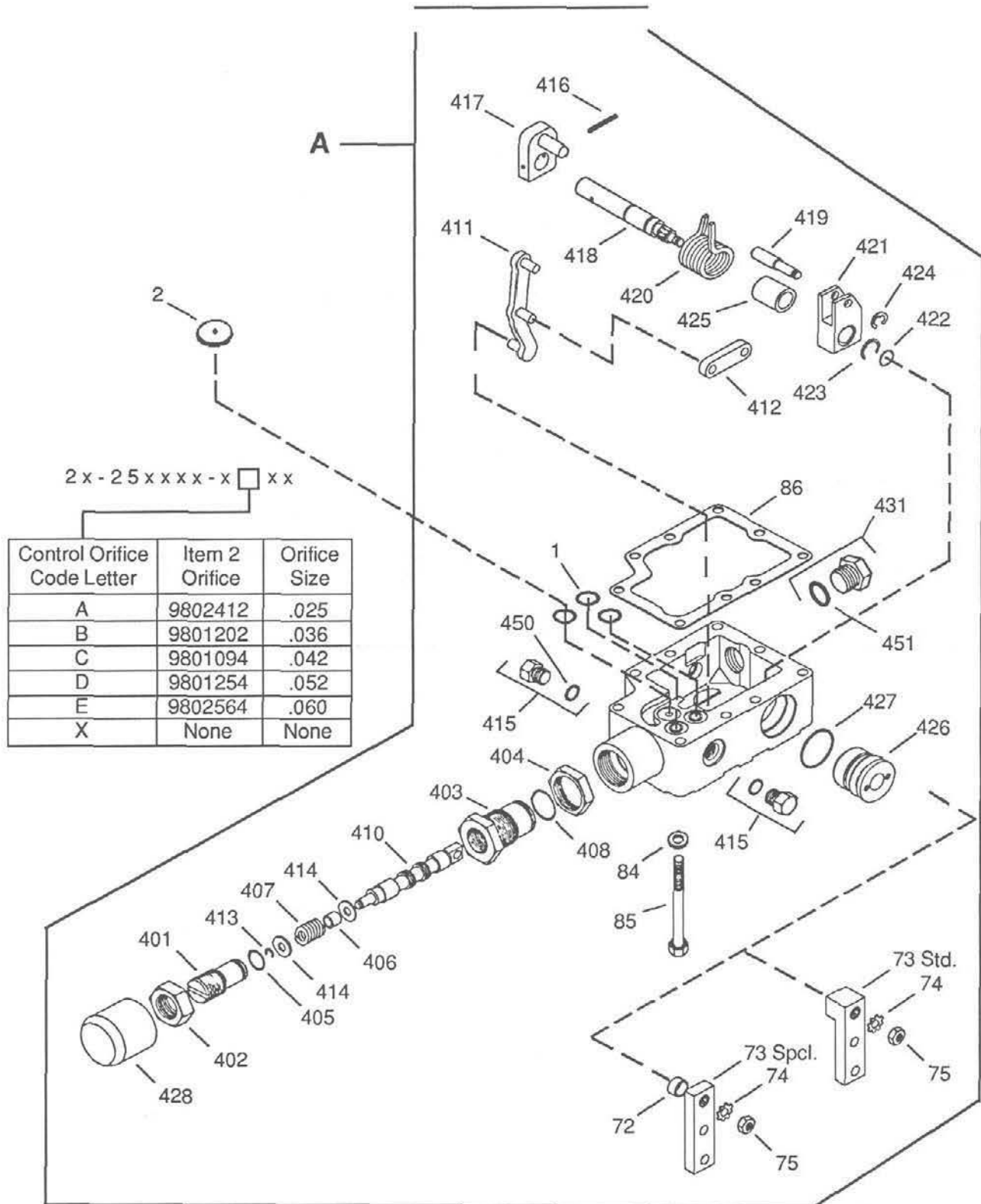


Option # 8 (1.9 CID)
Gerotor Style Charge Pump w/8cc
Integral Chute Pump

<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty.</u>
A	87-13	See Table Below	Charge pump kit	1
5	87-13	9803252	Gasket	1
88	87-13	9009610-4069	Washer	3
89	87-13	9007200-3759	Screw	3
94	87-13	9803352	Charge relief valve cover	1
188	87-13	9830234	Coupling	1
191	87-13	9007200-3780	Screw	1
192	87-13	9009625-3803	Washer	1
232	87-13	9004101-0100	O ring	2
233	87-13	9006150-0100	Backup ring	2
235P	87-13	9803464	IPOR plug	2
601	87-13	9803454	Charge pump body	1
602	87-13	9803330-0004	Spacer plate	1
604	87-13	9004840-3703	Hollow pin	2
605	87-13	9803164-0002	Charge pump shaft	1
606	87-13	9007300-2534	Screw	2
608	87-13	9700719-0002	Gerotor assembly	1
609	87-13	9004100-1530	O ring	2
610	87-13	9003301-1910	Key	1
613	87-13	9830296	Charge relief valve cone	1
614	87-13	9830367	Charge relief valve spring	1
615	87-13	9803518	Charge relief valve plunger	1
616	87-13	9004201-7500	O ring	1
617	87-13	9803519	Charge relief valve plug	1
618	87-13	9003561-3700	Jam nut	1
619	87-13	9007774-0007	Set screw	1
620	87-13	9004100-0150	O ring	1
621	87-13	9001214-5000	Charge relief valve bypass ball	1
622	87-13	9830297	Ball retainer	1
625	87-13	9700866-0002	DU bearing	1
627	87-13	9005110-9200	Plug	1
632	87-13	9830059	Pilot	1
633	87-13	See Table Below	Chute pump	1
676	87-13	9806252-0100	Retaining ring	1



Option # 1 (Std. & Annular)
Manual Displacement Control



**Option # 1 (Std. & Annular)
Manual Displacement Control**

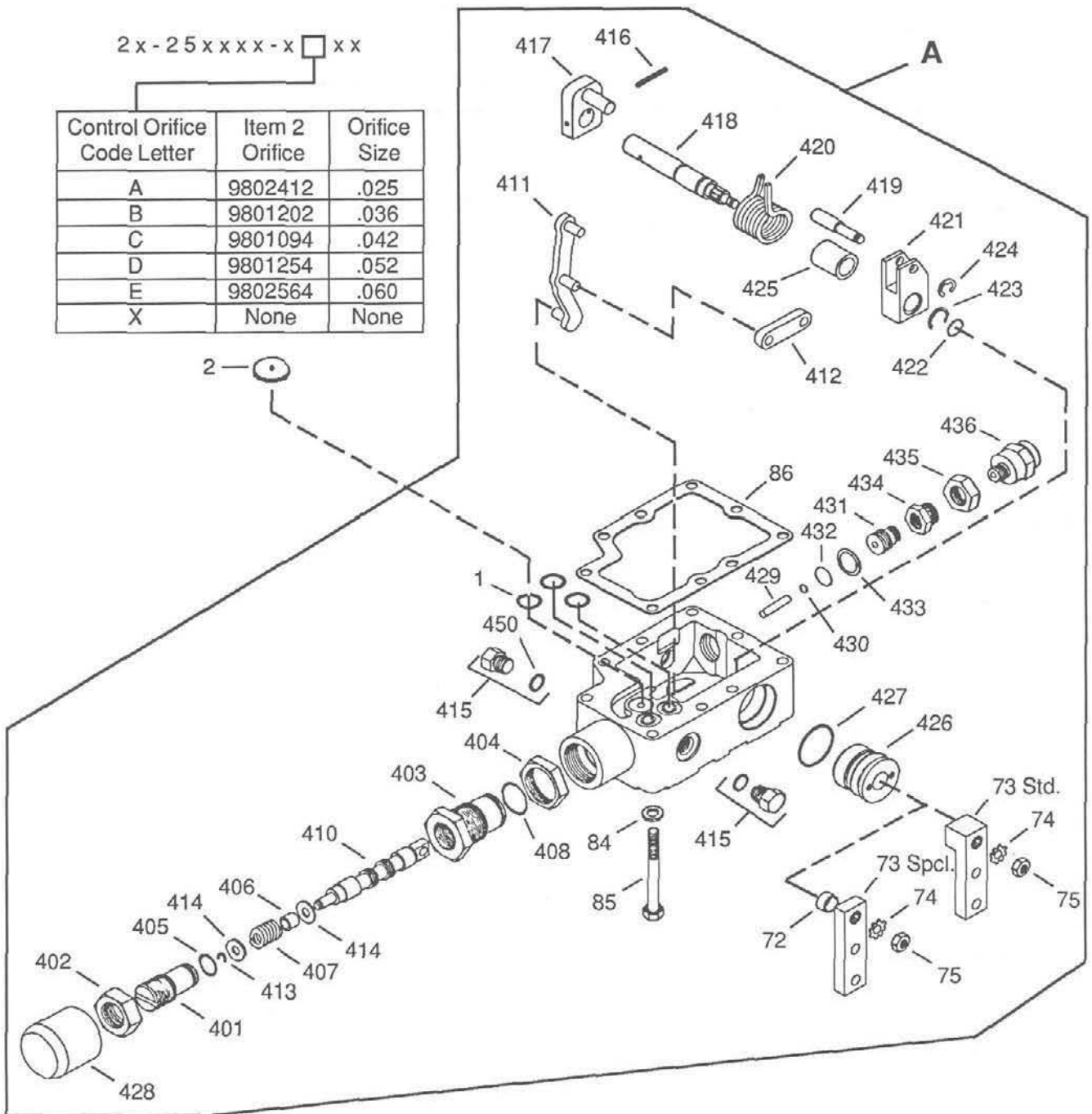
<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty.</u>
A	87-13	See Table Below	Control kit	1
1	87-13	9004101-0140	O ring	3
2	87-13	See Table	Orifice	1
72	87-13	9800917	Spacer	1
73 Std.	87-13	9803418	Control shaft handle	1
73 Spcl.	87-13	9802360	Control shaft handle	1
74	87-13	9009660-2500	Toothlock washer	1
75	87-13	9003560-2500	Jam nut	1
84	87-13	9009610-2850	Washer	9
85	87-13	9007200-2530	Screw	9
86	87-13	9803340	Gasket	1
401	87-13	9803304	Spring adjusting screw	1
402	87-13	9003561-7500	Nut	1
403	87-13	9800214	Centering spring housing	1
404	87-13	9003575-0001	Locking nut	1
405	87-13	9004101-0140	O ring	1
406	87-13	9801035	Sleeve	1
407	87-13	9801036	Spring	1
408	87-13	9004100-0190	O ring	1
410	87-13	9803303	Spool	1
411	87-13	See Table Below	Control valve link assembly	1
412	87-13	See Table Below	Link	1
413	87-13	9006326-0025	Retaining ring	1
414	87-13	9009625-2502	Centering spring washer	2
415	87-13	9005100-4400	Plug	2
416	87-13	9004700-1216	Spring pin	1
417	87-13	9800213	Actuator	1
418	87-13	9800204	Control shaft	1
419	87-13	9800908	Return spring stop	1
420	87-13	9801931	Spring	1
421	87-13	9800909	Control shaft link	1
422	87-13	9004101-0120	O ring	1
423	87-13	9006320-0050	Retaining ring	1
424	87-13	9006375-0026	Retaining ring	1
425	87-13	9801930	Spring sleeve	1
426	87-13	9800997	Control shaft bushing	1
427	87-13	9004100-0230	O ring	1
428	87-13	9800883	Cover	1
431	87-13	9005100-7500	Plug assembly	1
450	87-13	9004201-2500	O ring	2
451	87-13	9004201-5000	O ring	1

Frame Size	Item 411 Link ass'y	Item 412 Link	2x-25xxxA-xxxx Non-Annular Control Kit w/Std. Handle	2x-25xxxE-xxxx Annular Control Kit w/Std. Handle
21-22	9801721	9800905	9510368-2001	9510368-2003
23	9802041	9800907	9510368-2002	9510368-2004
24	9801749	9800905	9510368-2012	9510368-2005
25-26	9801747	9800906	not available	9510368-2006
27	9801748	9800907	not available	9510368-2007

Option # 2 (Std. & Annular)
 Manual Displacement Control w/Neutral Start Switch

2 x - 25 x x x x - x □ x x

Control Orifice Code Letter	Item 2 Orifice	Orifice Size
A	9802412	.025
B	9801202	.036
C	9801094	.042
D	9801254	.052
E	9802564	.060
X	None	None



Option # 2 (Std. & Annular)

Manual Displacement Control w/Neutral Start Switch

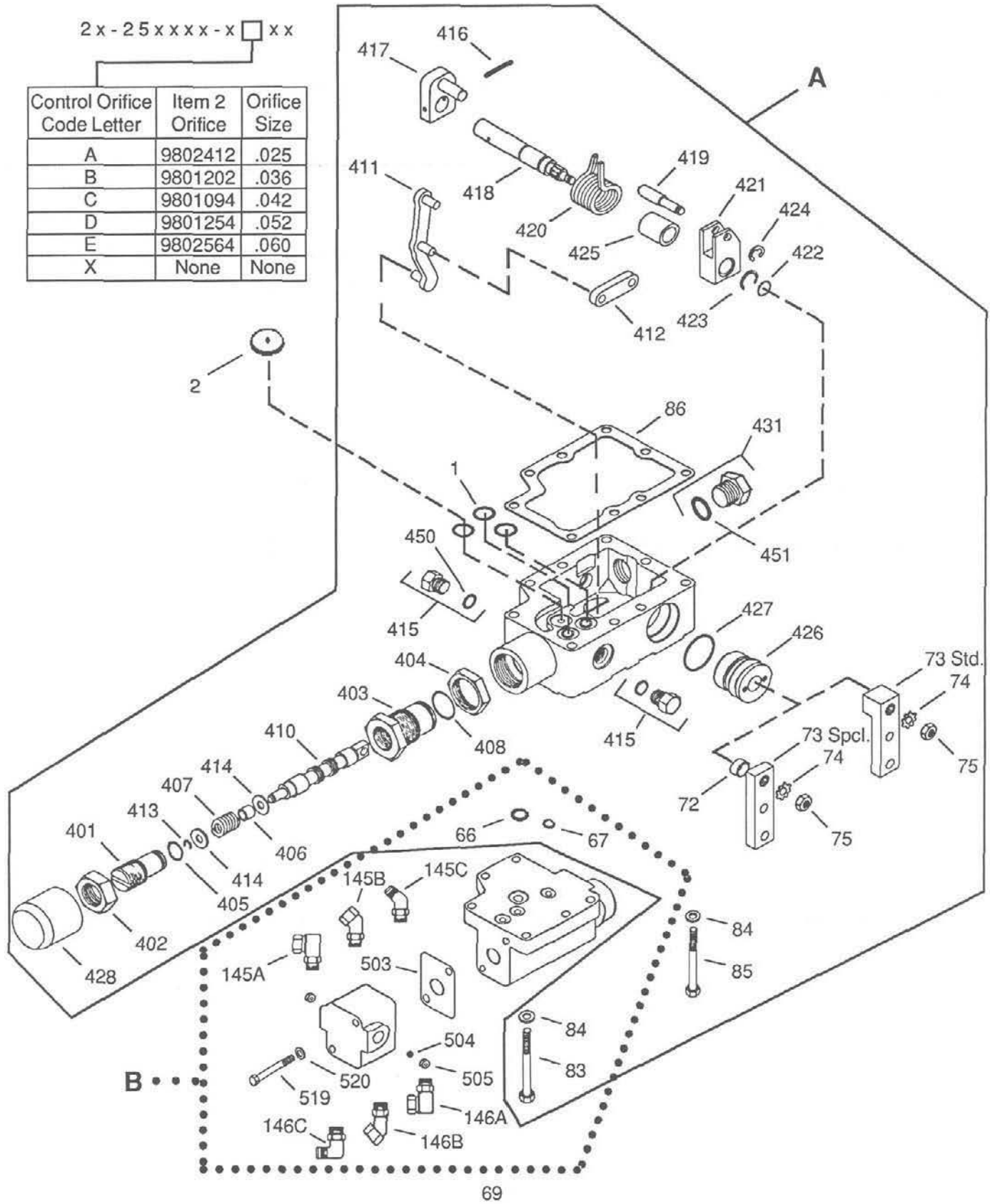
Item	Mfg. Date	Part Number	Description	Qty.
A	87-13	See Table	Control kit	1
1	87-13	9004101-0140	O ring	3
2	87-13	See Table	Orifice	1
72	87-13	9800917	Spacer	1
73 Std.	87-13	9803418	Control shaft handle	1
73 Spcl.	87-13	9802360	Control shaft handle	1
74	87-13	9009660-2500	Toothlock washer	1
75	87-13	9003560-2500	Jam nut	1
84	87-13	9009610-2850	Washer	9
85	87-13	9007200-2530	Screw	9
86	87-13	9803340	Gasket	1
401	87-13	9803304	Spring adjusting screw	1
402	87-13	9003561-7500	Nut	1
403	87-13	9800214	Centering spring housing	1
404	87-13	9003575-0001	Locking nut	1
405	87-13	9004101-0140	O ring	1
406	87-13	9801035	Sleeve	1
407	87-13	9801036	Spring	1
408	87-13	9004100-0190	O ring	1
410	87-13	9803333	Spool	1
411	87-13	See Table	Control valve link assembly	1
412	87-13	See Table	Link	1
413	87-13	9006326-0025	Retaining ring	1
414	87-13	9009625-2502	Centering spring washer	2
415	87-13	9005100-4400	Plug	2
416	87-13	9004700-1216	Spring pin	1
417	87-13	9802589	Actuator	1
418	87-13	9800204	Control shaft	1
419	87-13	9800908	Return spring stop	1
420	87-13	9801931	Spring	1
421	87-13	9800909	Control shaft link	1
422	87-13	9004101-0120	O ring	1
423	87-13	9006320-0050	Retaining ring	1
424	87-13	9006375-0026	Retaining ring	1
425	87-13	9801930	Spring sleeve	1
426	87-13	9800997	Control shaft bushing	1
427	87-13	9004100-0230	O ring	1
428	87-13	9800883	Cover	1
429	87-13	9004875-0055	Pin	1
430	87-13	9004100-0100	O ring	1
431	87-13	9802586	Plug	1
432	87-13	9004201-5000	O ring	1
433	87-13	9009625-0081	Washer	1
434	87-13	9802587	Nut	1
435	87-13	9003575-0049	Locknut	1
436	87-13	9700824	Neutral start switch	1
450	87-13	9004201-2500	O ring	2
451	87-13	9004201-5000	O ring	1

Frame Size	Item 411 Link ass'y	Item 412 Link	2x-25xxxB-xxxx Non-Annular Neutral Start Control Kit	2x-25xxxF-xxxx Annular Neutral Start Control Kit
21-22	9801721	9800905	9510482-2001	9510482-2003
23	9802041	9800907	9510482-2002	not available
	9802041	9800907	9510482-2102	not available
24	9801749	9800905	not available	9510482-2005
25-26	9801747	9800906	not available	not available
27	9801748	9800907	not available	not available

Option # 3 (Std. & Annular)
Manual Displacement Control w/Pressure Override

2x - 25xxxx-x □ xx

Control Orifice Code Letter	Item 2 Orifice	Orifice Size
A	9802412	.025
B	9801202	.036
C	9801094	.042
D	9801254	.052
E	9802564	.060
X	None	None



**Option # 3 (Std. & Annular)
Manual Displacement Control
w/Pressure Override**

<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty.</u>
A	87-13	See Table	Control kit	1
B	87-13	See Table	Pressure override kit	1
1	87-13	9004101-0140	O ring	3
2	87-13	See Table	Orifice	1
66	87-13	9004101-0140	O ring	1
67	87-13	9004101-0120	O ring	3
72	87-13	9800917	Spacer	1
73 Std.	87-13	9803418	Control shaft handle	1
73 Spcl.	87-13	9802360	Control shaft handle	1
74	87-13	9009660-2500	Toothlock washer	1
75	87-13	9003560-2500	Jam nut	1
83	87-13	9007200-2534	Screw	6
84	87-13	9009610-2850	Washer	9
85	87-13	9007200-2530	Screw	3
86	87-13	9803340	Gasket	1
145A	87-13	9001003-0001	Adaptor - 90 deg.	1
145B	87-13	9001006-0001	Adaptor - 45deg.	1
145C	87-13	9002813-2544	Adaptor - 45deg.	1
146A	87-13	9001003-0001	Adaptor - 90 deg.	1
146B	87-13	9001006-0001	Adaptor - 45deg.	1
146C	87-13	9002807-2544	Adaptor - 90deg.	1
401	87-13	9803304	Spring adjusting screw	1
402	87-13	9003561-7500	Nut	1
403	87-13	9800214	Centering spring housing	1
404	87-13	9003575-0001	Locking nut	1
405	87-13	9004101-0140	O ring	1
406	87-13	9801035	Sleeve	1
407	87-13	9801036	Spring	1
408	87-13	9004100-0190	O ring	1
410	87-13	9803303	Spool	1
411	87-13	See Table	Control valve link assembly	1
412	87-13	See Table	Link	1
413	87-13	9006326-0025	Retaining ring	1
414	87-13	9009625-2502	Centering spring washer	2
415	87-13	9005100-4400	Plug	2
416	87-13	9004700-1216	Spring pin	1
417	87-13	9800213	Actuator	1
418	87-13	9800204	Control shaft	1
419	87-13	9800908	Return spring stop	1
420	87-13	9801931	Spring	1
421	87-13	9800909	Control shaft link	1
422	87-13	9004101-0120	O ring	1
423	87-13	9006320-0050	Retaining ring	1
424	87-13	9006375-0026	Retaining ring	1
425	87-13	9801930	Spring sleeve	1
426	87-13	9800997	Control shaft bushing	1
427	87-13	9004100-0230	O ring	1
428	87-13	9800883	Cover	1
431	87-13	9005100-7500	Plug assembly	1

**Option # 3 (Std. & Annular)
Manual Displacement Control
w/Pressure Override**

<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty.</u>
450	87-13	9004201-2500	O ring	2
451	87-13	9004201-5000	O ring	1
503	87-13	9801765	Gasket	1
504	87-13	9001214-3100	Ball	1
505	87-13	9803478	Ball seat	2
519	87-13	9007200-2528	Screw	2
520	87-13	9009610-2850	Washer	2

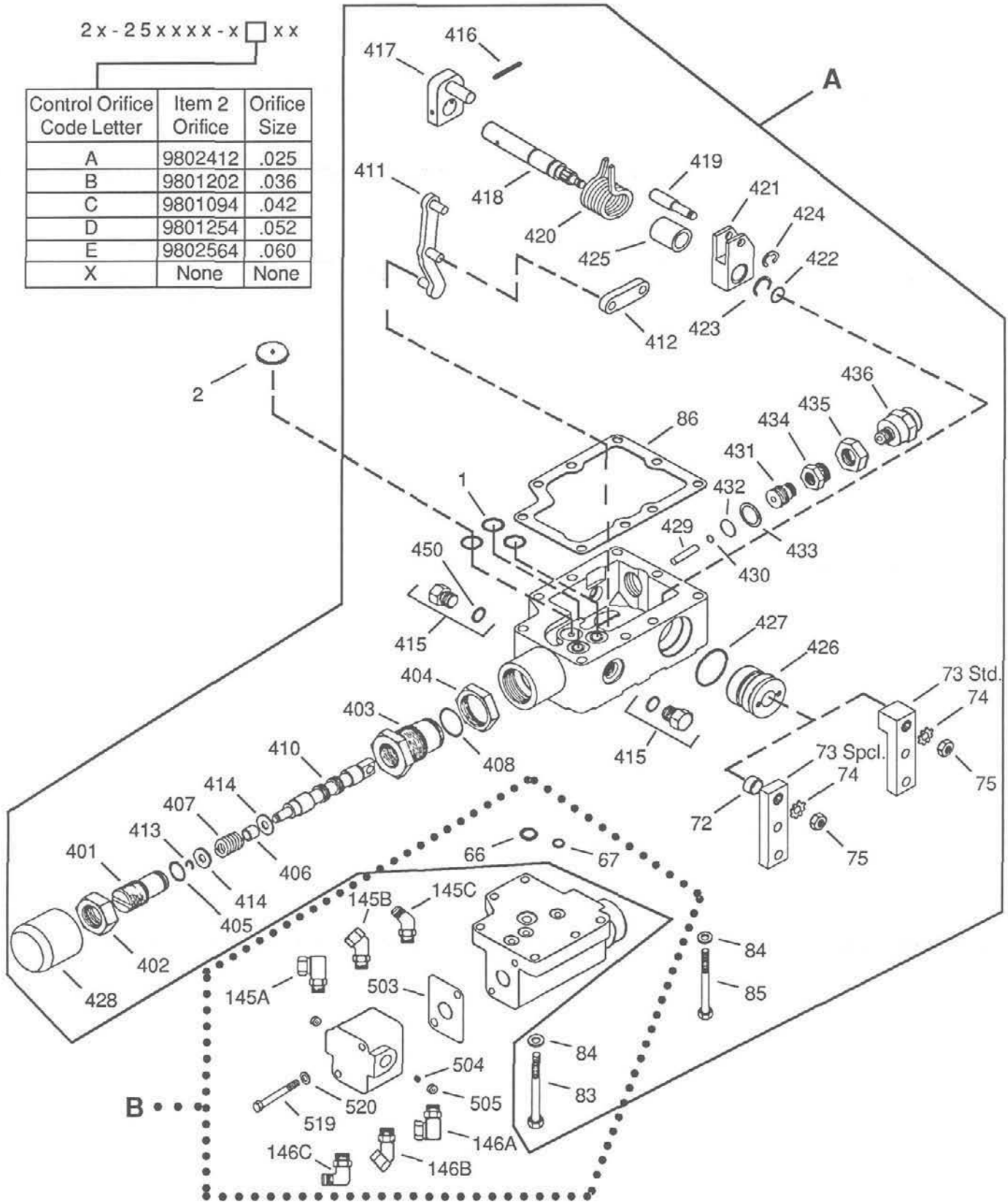
2 x - 25 x x x C - x x x or 2 x - 25 x x x G - x x x

Frame Size	Item 411 Link ass'y	Item 412 Link	2x-25xxx C-xxxx Non-Annular Control Kit 'A' w/Std. Handle	2x-25xxx G-xxxx Annular Control Kit 'A' w/Std. Handle	Kit 'B' POR kit
21-22	9801721	9800905	9510369-2001	9510369-2006	9510660 - _
23	9802041	9800907	9510369-2002	9510369-2007	9510660 - _
24	9801749	9800905	9510369-2003	9510369-2008	9510660 - _
25-26	9801747	9800906	9510369-2004	9510369-2009	9510660 - _
27	9801748	9800907	not available	9510369-2010	9510660 - _

Option # 4 (Std. & Annular) Manual Displacement Control w/Pressure Override & Neutral Start Switch

2 x - 25 x x x x - x □ x x

Control Orifice Code Letter	Item 2 Orifice	Orifice Size
A	9802412	.025
B	9801202	.036
C	9801094	.042
D	9801254	.052
E	9802564	.060
X	None	None



**Option # 4 (Std. & Annular)
Manual Displacement Control
w/Pressure Override & Neutral Start Switch**

<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty.</u>
A	87-13	See Table	Control kit	1
B	87-13	See Table	Pressure override kit	1
1	87-13	9004101-0140	O ring	3
2	87-13	See Table	Orifice	1
66	87-13	9004101-0140	O ring	1
67	87-13	9004101-0120	O ring	3
72	87-13	9800917	Spacer	1
73 Std.	87-13	9803418	Control shaft handle	1
73 Spcl.	87-13	9802360	Control shaft handle	1
74	87-13	9009660-2500	Toothlock washer	1
75	87-13	9003560-2500	Jam nut	1
83	87-13	9007200-2534	Screw	6
84	87-13	9009610-2850	Washer	9
85	87-13	9007200-2530	Screw	3
86	87-13	9803340	Gasket	1
145A	87-13	9001003-0001	Adaptor - 90 deg.	1
145B	87-13	9001006-0001	Adaptor - 45deg.	1
145C	87-13	9002813-2544	Adaptor - 45deg.	1
146A	87-13	9001003-0001	Adaptor - 90 deg.	1
146B	87-13	9001006-0001	Adaptor - 45deg.	1
146C	87-13	9002807-2544	Adaptor - 90deg.	1
401	87-13	9803304	Spring adjusting screw	1
402	87-13	9003561-7500	Nut	1
403	87-13	9800214	Centering spring housing	1
404	87-13	9003575-0001	Locking nut	1
405	87-13	9004101-0140	O ring	1
406	87-13	9801035	Sleeve	1
407	87-13	9801036	Spring	1
408	87-13	9004100-0190	O ring	1
410	87-13	9803333	Spool	1
411	87-13	See Table	Control valve link assembly	1
412	87-13	See Table	Link	1
413	87-13	9006326-0025	Retaining ring	1
414	87-13	9009625-2502	Centering spring washer	2
415	87-13	9005100-4400	Plug	2
416	87-13	9004700-1216	Spring pin	1
417	87-13	9802589	Actuator	1
418	87-13	9800204	Control shaft	1
419	87-13	9800908	Return spring stop	1
420	87-13	9801931	Spring	1
421	87-13	9800909	Control shaft link	1
422	87-13	9004101-0120	O ring	1
423	87-13	9006320-0050	Retaining ring	1
424	87-13	9006375-0026	Retaining ring	1
425	87-13	9801930	Spring sleeve	1
426	87-13	9800997	Control shaft bushing	1
427	87-13	9004100-0230	O ring	1
428	87-13	9800883	Cover	1

**Option # 4 (Std. & Annular)
Manual Displacement Control
w/Pressure Override & Neutral Start Switch**

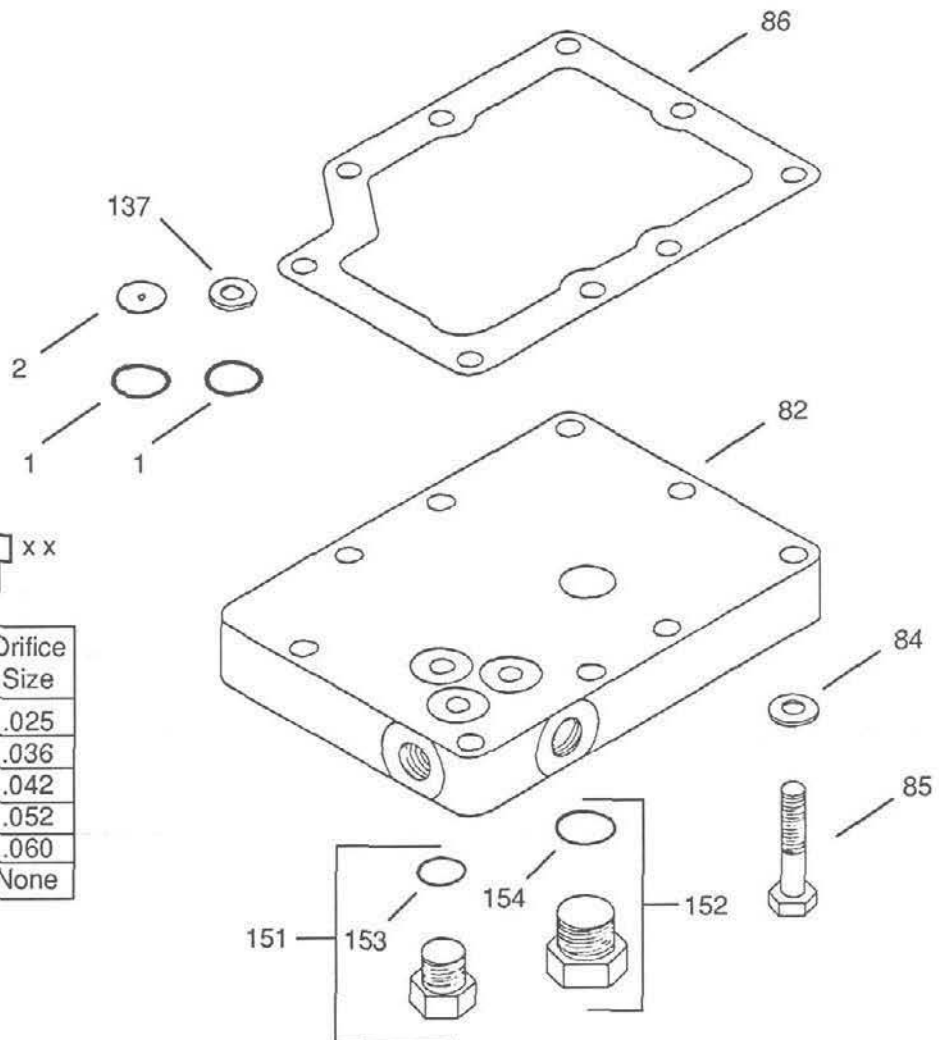
<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty.</u>
429	87-13	9004875-0055	Pin	1
430	87-13	9004100-0100	O ring	1
431	87-13	9802586	Plug	1
432	87-13	9004201-5000	O ring	1
433	87-13	9009625-0081	Washer	1
434	87-13	9802587	Nut	1
435	87-13	9003575-0049	Locknut	1
436	87-13	9700824	Neutral start switch	1
450	87-13	9004201-2500	O ring	2
451	87-13	9004201-5000	O ring	1
503	87-13	9801765	Gasket	1
504	87-13	9001214-3100	Ball	1
505	87-13	9803478	Ball seat	2
519	87-13	9007200-2528	Screw	2
520	87-13	9009610-2850	Washer	2

2x-25xxxD-xxxx or 2x-25xxxH-xxxx

Frame Size	Item 411 Link ass'y	Item 412 Link	2x-25xxxD-xxxx Non-Annular Control Kit 'A' w/Std. Handle	2x-25xxxH-xxxx Annular Control Kit 'A' w/Std. Handle	Kit 'B' POR kit
21-22	9801721	9800905	9510481-2001	not available	9510660 - _
23	9802041	9800907	9510481-2002	9510481-2007	9510660 - _
24	9801749	9800905	9510481-2003	9510481-2008	9510660 - _
25-26	9801747	9800906	9510481-2004	9510481-2009	9510660 - _
27	9801748	9800907	not available	not available	9510660 - _

Option # 5
Control Slave Plate

Item	Mfg. Date	Part Number	Description	Qty.
1	87-13	9004101-0140	O ring	3
2	87-13	See Table	Orifice	1
82	87-13	9801487	Slave plate	1
84	87-13	9009610-2850	Washer	9
85	87-13	9007200-2522	Screw	9
86	87-13	9803340	Control gasket	1
137	87-13	9803326	Plug	2
151	87-13	9005100-4400	Plug	1
152	87-13	9005100-5600	Plug	1
153	87-13	9004201-2500	O ring	1
154	87-13	9004201-3700	O ring	1



2 x - 25 x x x J - x □ x x

Control Orifice Code Letter	Item 2 Orifice	Orifice Size
A	9802412	.025
B	9801202	.036
C	9801094	.042
D	9801254	.052
E	9802564	.060
X	None	None

Option # 6 (Std. & Annular)
Electrical Displacement Control

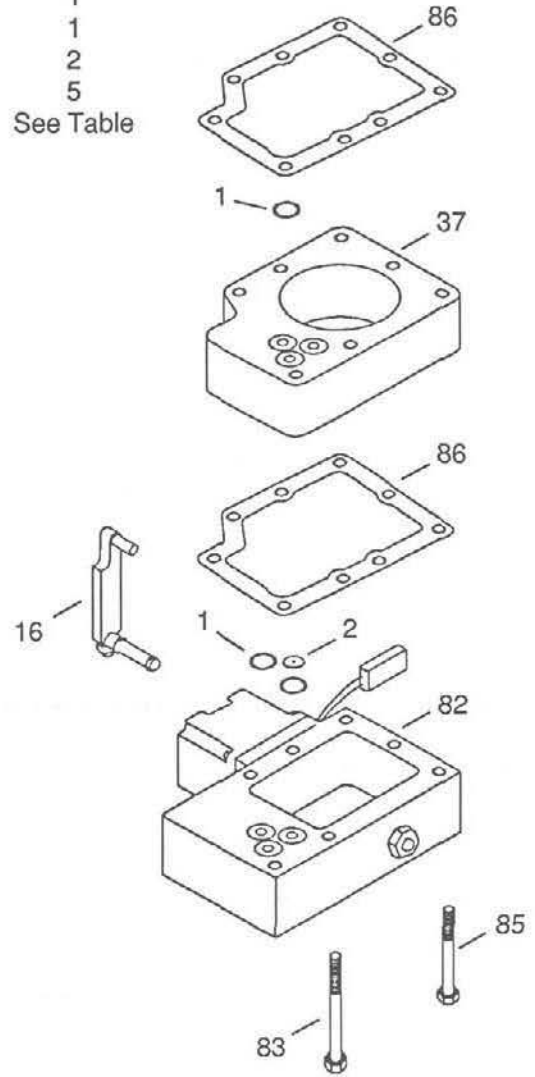
Item	Mfg. Date	Part Number	Description	Qty.
1	87-13	9004101-0140	O ring	See Table
2	87-13	See Table	Orifice	2
16	87-13	See Table	Link & ball assembly	1
37	87-13	See Table	Spacer plate	1
82	87-13	See Table	EDC	1
83	87-13	See Table	Screw	2
85	87-13	See Table	Screw	5
86	87-13	9803340	Control gasket	See Table

2 x - 25 x x x L - x □ x x or 2 x - 25 x x x N - x □ x x

Control Orifice Code Letter	Item 2 Orifice	Orifice Size
A	9802412	.025
B	9801202	.036
C	9801094	.042
D	9801254	.052
E	9802564	.060
X	None	None

Frame Size	Option Number	2 x - 25 x x x L -	2 x - 25 x x x N -
		Item 82 EDC Non-Annular	Item 82 EDC Annular
21-27	6-A	MCV104A5902	MCV104A6902
	6-B	MCV104A5903	MCV104A6903
	6-C	MCV104A5906	MCV104A6906
	6-D	MCV104A5907	MCV104A6907

NOTE: EDC's must be ordered directly from Sauer-Sundstrand Minneapolis, MN.

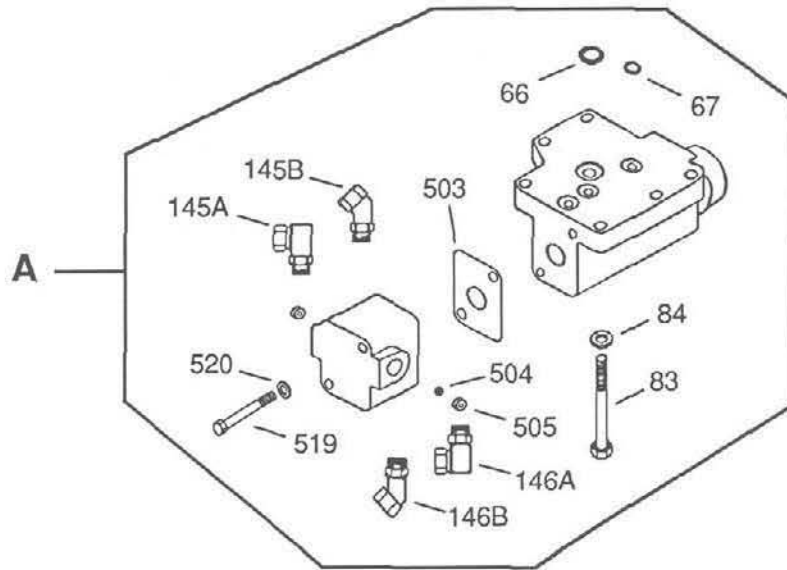
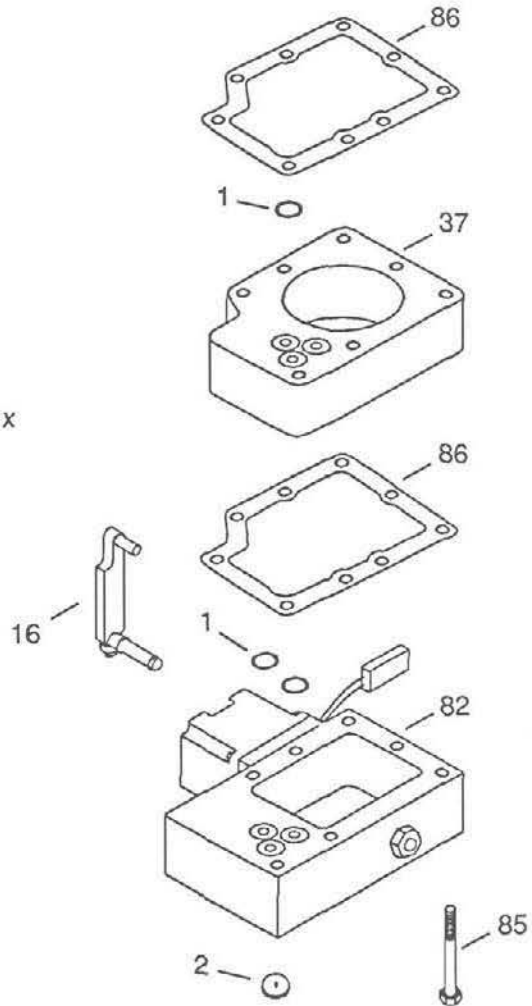


Frame Size	Item 1 O ring Qty.	Item 16 Link & Ball Assembly	Item 37 Spacer Plate	Item 83 Screw	Item 85 Screw	Item 86 Gasket Qty.
21-22	3	K03273	Not Required	9007200-2536	9007200-2530	1
23	3	K03274	Not Required	9007200-2536	9007200-2530	1
24	3	K03275	Not Required	9007200-2536	9007200-2530	1
25	3	K03276	Not Required	9007200-2536	9007200-2530	1
26	6	K03277	9803195-0002	9007200-2548	9007200-2542	2
27	3	K03278	Not Required	9007200-2536	9007200-2530	1

Option # 7 (Std. & Annular)
 Electrical Displacement Control
 w/Pressure Override

2x-25xxxM-x□xx or 2x-25xxxP-x□xx

Control Orifice Code Letter	Item 2 Orifice	Orifice Size
A	9802412	.025
B	9801202	.036
C	9801094	.042
D	9801254	.052
E	9802564	.060
X	None	None



**Option # 7 (Std. & Annular)
Electrical Displacement Control
w/Pressure Override**

<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty.</u>
A	87-13	See Table	POR kit	1
1	87-13	9004101-0140	O ring	See Table
2	87-13	See Table	Orifice	1
16	87-13	See Table	Link & ball assembly	1
37	87-13	See Table	Spacer plate	1
66	87-13	9004101-0140	O ring	1
67	87-13	9004101-0120	O ring	3
82	87-13	See Table	EDC	1
83	87-13	See Table	Screw	4
84	87-13	9009610-2850	Washer	4
85	87-13	See Table	Screw	3
86	87-13	9803340	Gasket	See Table
145A	87-13	9001003-0001	Adaptor - 90 deg.	1
145B	87-13	9001006-0001	Adaptor - 45 deg.	1
146A	87-13	9001003-0001	Adaptor - 90 deg.	1
146B	87-13	9001006-0001	Adaptor - 45 deg.	1
503	87-13	9801765	Gasket	1
504	87-13	9001214-3100	Ball	1
505	87-13	9803478	Ball seat	2
519	87-13	9007200-2528	Screw	2
520	87-13	9009610-2850	Washer	2

Frame Size	Option Number	2 x - 2 5 x x x M -	2 x - 2 5 x x x P -
		Item 82 EDC Non-Annular	Item 82 EDC Annular
21-27	7-A	MCV104A7902	MCV104A8902
	7-B	MCV104A7903	MCV104A8903
	7-C	MCV104A7906	MCV104A8906
	7-D	MCV104A7907	MCV104A8907

NOTE: EDC's must be ordered directly from Sauer-Sundstrand Minneapolis, MN.

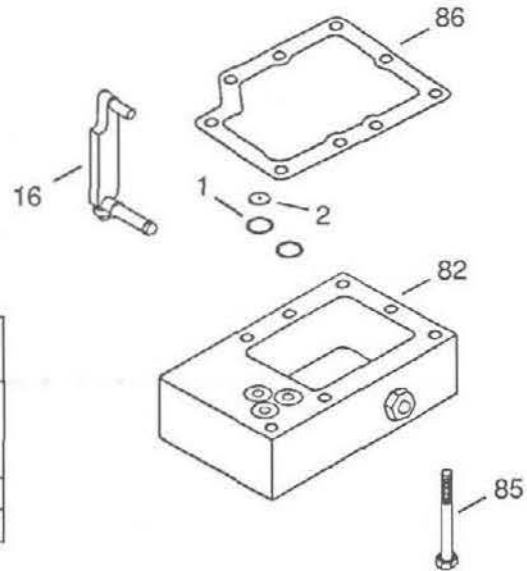
Frame Size	Item 1 O ring Qty.	Item 16 Link & Ball Assembly	Item 37 Spacer Plate	Item 83 Screw	Item 85 Screw	Item 86 Gasket Qty.	Kit 'A' POR Kit
21-22	3	K03273	Not Required	9007200-2542	9007200-2530	1	9510660 - _
23	3	K03274	Not Required	9007200-2542	9007200-2530	1	9510660 - _
24	3	K03275	Not Required	9007200-2542	9007200-2530	1	9510660 - _
25	3	K03276	Not Required	9007200-2542	9007200-2530	1	9510660 - _
26	6	K03277	9803195-0002	9007200-2554	9007200-2542	2	9510660 - _
27	3	K03278	Not Required	9007200-2542	9007200-2530	1	9510660 - _

Option # 8 (Std. & Annular)
Hydraulic Displacement Control

Item	Mfg. Date	Part Number	Description	Qty.
1	87-13	9004101-0140	O ring	3
2	87-13	See Table	Orifice	1
16	87-13	See Table	Link & ball assembly	1
82	87-13	See Table	HDC	1
85	87-13	9007200-2530	Screw	7
86	87-13	9803340	Control gasket	1

2 x - 25 x x x R - x x x or 2 x - 25 x x x T - x x x

Control Orifice Code Letter	Item 2 Orifice	Orifice Size
A	9802412	.025
B	9801202	.036
C	9801094	.042
D	9801254	.052
E	9802564	.060
X	None	None



Frame Size	Option Number	2 x - 25 x x x R -	2 x - 25 x x x T -
		Item 82 EDC Non-Annular	Item 82 EDC Annular
21-27	8-A	MCV106A5901	MCV106A6901
	8-B	MCV106A5906	- -

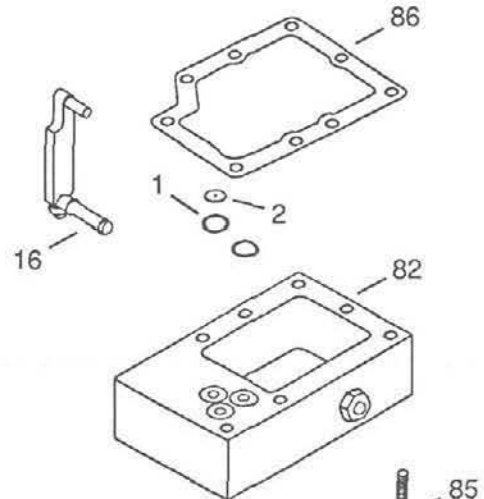
NOTE: HDC's must be ordered directly from Sauer-Sundstrand Minneapolis, MN.

Frame Size	Item 1 O ring Qty.	Item 16 Link & Ball Assembly
21-22	3	K03273
23	3	K03274
24	3	K03275
25	3	K03276
26	6	K03277
27	3	K03278

Option # 9 (Std. & Annular)
Hydraulic Displacement Control
w/ Pressure Override

Item	Mfg. Date	Part Number	Description	Qty.
A	87-13	See Table	POR kit	1
1	87-13	9004101-0140	O ring	See Table
2	87-13	See Table	Orifice	1
16	87-13	See Table	Link & ball assembly	1
37	87-13	See Table	Spacer plate	1
66	87-13	9004101-0140	O ring	1
67	87-13	9004101-0120	O ring	3
82	87-13	See Table	EDC	1
83	87-13	See Table	Screw	4
84	87-13	9009610-2850	Washer	4
85	87-13	See Table	Screw	3
86	87-13	9803340	Gasket	See Table
145A	87-13	9001003-0001	Adaptor - 90 deg.	1
145B	87-13	9001006-0001	Adaptor - 45 deg.	1
146A	87-13	9001003-0001	Adaptor - 90 deg.	1
146B	87-13	9001006-0001	Adaptor - 45 deg.	1
503	87-13	9801765	Gasket	1
504	87-13	9001214-3100	Ball	1
505	87-13	9803478	Ball seat	2
519	87-13	9007200-2528	Screw	2
520	87-13	9009610-2850	Washer	2

Frame Size	Item 1 O ring Qty.	Item 16 Link & Ball Assembly
21-22	3	K03273
23	3	K03274
24	3	K03275
25	3	K03276
26	6	K03277
27	3	K03278

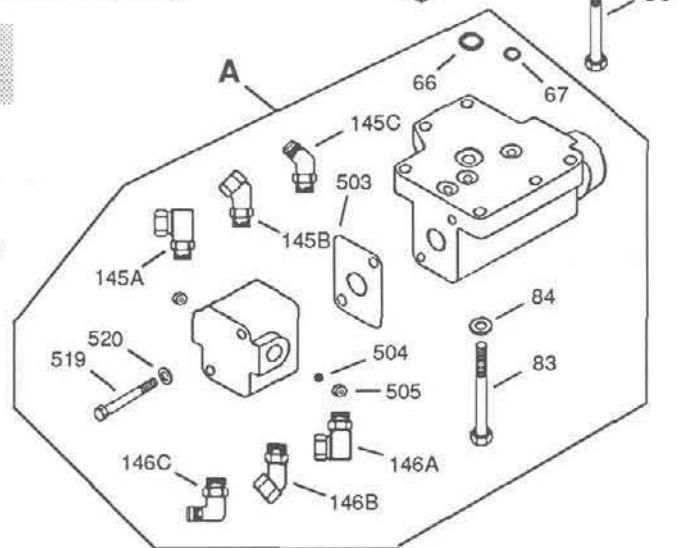


Frame Size	Option Number	Item A POR Kit	Item 82 EDC Non-Annular	Item 82 EDC Annular
21-27	8-A	9510660- _	MCV106A7901	MCV106A8905

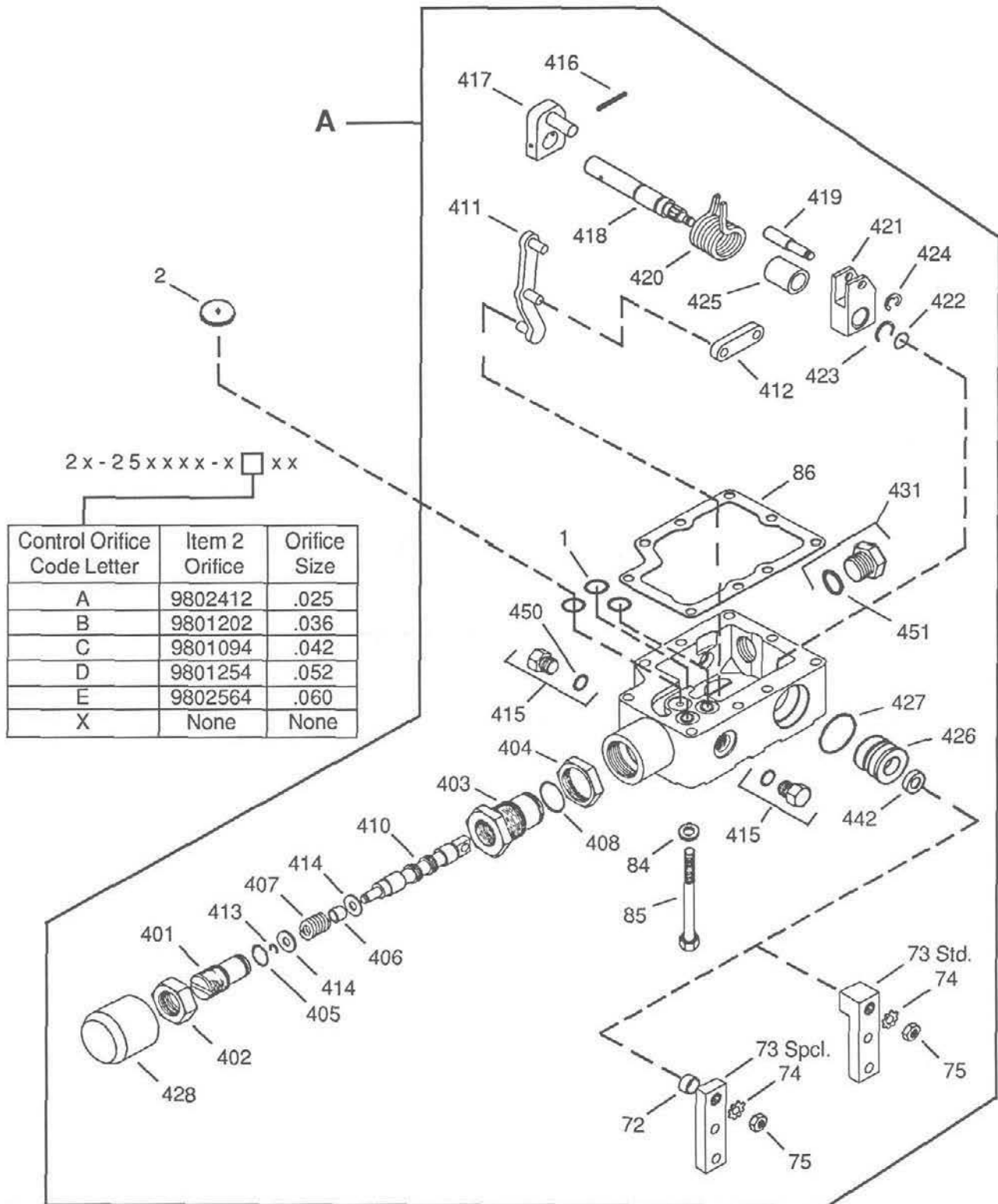
NOTE: HDC's must be ordered directly from Sauer-Sundstrand Minneapolis, MN.

2 x - 25 x x x S - x [] x x or 2 x - 25 x x x U - x [] x x

Control Orifice Code Letter	Item 2 Orifice	Orifice Size
A	9802412	.025
B	9801202	.036
C	9801094	.042
D	9801254	.052
E	9802564	.060
X	None	None



Option # 10 (Non-Annular)
Manual Displacement Control w/Lip Seal



Option # 10 (Non-Annular)
Manual Displacement Control w/Lip Seal

<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty.</u>
A	87-13	See Table Below	Control kit	1
1	87-13	9004101-0140	O ring	3
2	87-13	See Table	Orifice	1
72	87-13	9800917	Spacer	1
73 Std.	87-13	9803418	Control shaft handle	1
73 Spcl.	87-13	9802360	Control shaft handle	1
74	87-13	9009660-2500	Toothlock washer	1
75	87-13	9003560-2500	Jam nut	1
84	87-13	9009610-2850	Washer	9
85	87-13	9007200-2530	Screw	9
86	87-13	9803340	Gasket	1
401	87-13	9803304	Spring adjusting screw	1
402	87-13	9003561-7500	Nut	1
403	87-13	9800214	Centering spring housing	1
404	87-13	9003575-0001	Locking nut	1
405	87-13	9004101-0140	O ring	1
406	87-13	9801035	Sleeve	1
407	87-13	9801036	Spring	1
408	87-13	9004101-0190	O ring	1
410	87-13	9803303	Spool	1
411	87-13	See Table Below	Control valve link assembly	1
412	87-13	See Table Below	Link	1
413	87-13	9006326-0025	Retaining ring	1
414	87-13	9009625-2502	Centering spring washer	2
415	87-13	9005100-4400	Plug	2
416	87-13	9004700-1216	Spring pin	1
417	87-13	9800213	Actuator	1
418	87-13	9803525	Control shaft	1
419	87-13	9800908	Return spring stop	1
420	87-13	9801931	Spring	1
421	87-13	9800909	Control shaft link	1
422	87-13	9004101-0120	O ring	1
423	87-13	9006320-0050	Retaining ring	1
424	87-13	9006375-0026	Retaining ring	1
425	87-13	9801930	Spring sleeve	1
426	87-13	9803415	Control shaft bushing	1
427	87-13	9004100-1200	O ring	1
428	87-13	9800883	Cover	1
431	87-13	9005100-7500	Plug assembly	1
442	87-13	9008000-0097	Lip seal	1
450	87-13	9004201-2500	O ring	2
451	87-13	9004201-5000	O ring	1

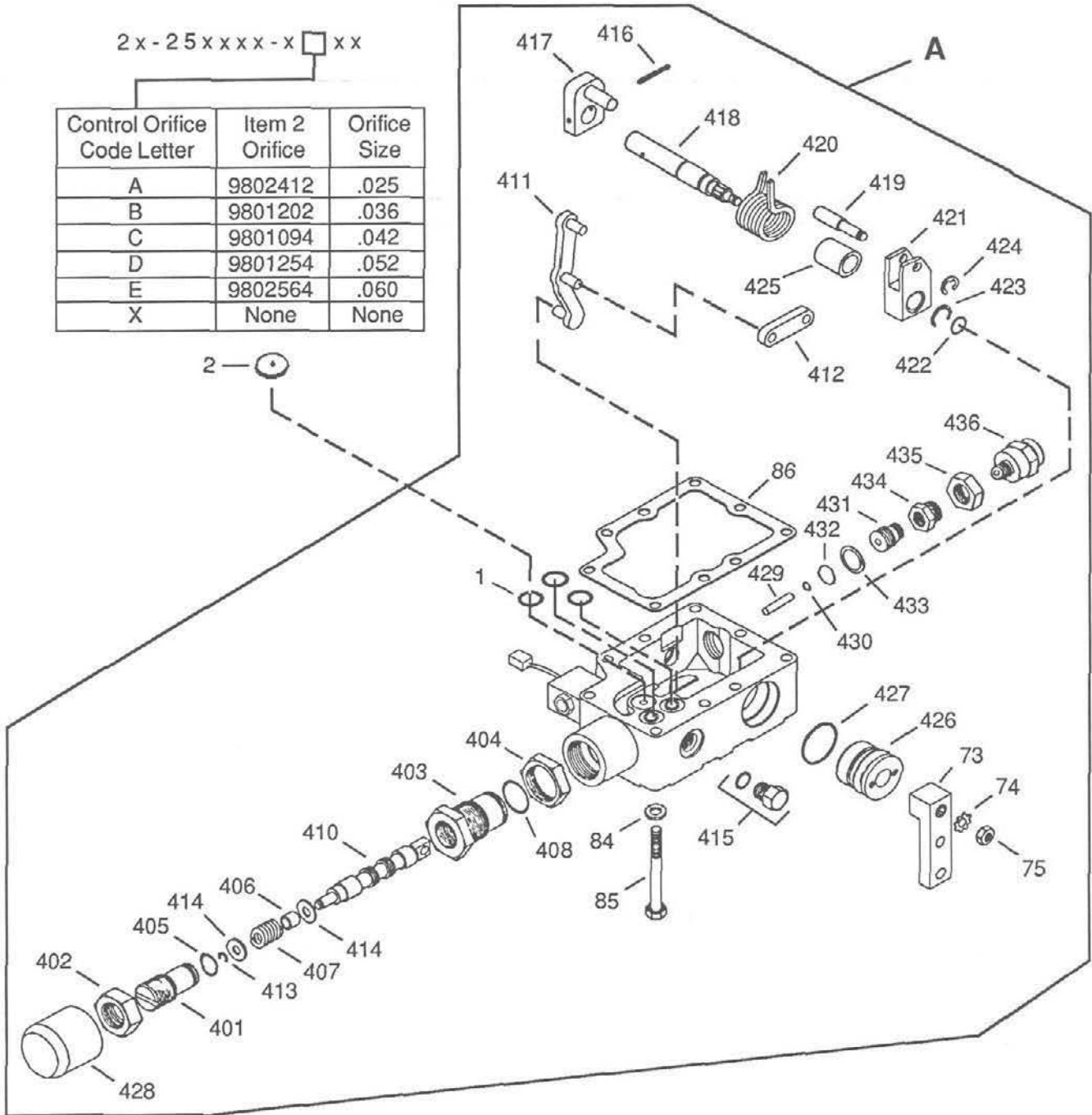
Frame Size	Item 411 Link ass'y	Item 412 Link	2x-25xxxW-xxxx Non-Annular Control Kit w/Std. Handle
21-22	9801721	9800905	9510676-2005
23	9802041	9800907	9510676-2006

Option # 11

Manual Displacement Control w/Electric Destroke
& Neutral Start Switch

2x-25xxxx-x□xx

Control Orifice Code Letter	Item 2 Orifice	Orifice Size
A	9802412	.025
B	9801202	.036
C	9801094	.042
D	9801254	.052
E	9802564	.060
X	None	None



Option # 11 (Non-Annular)

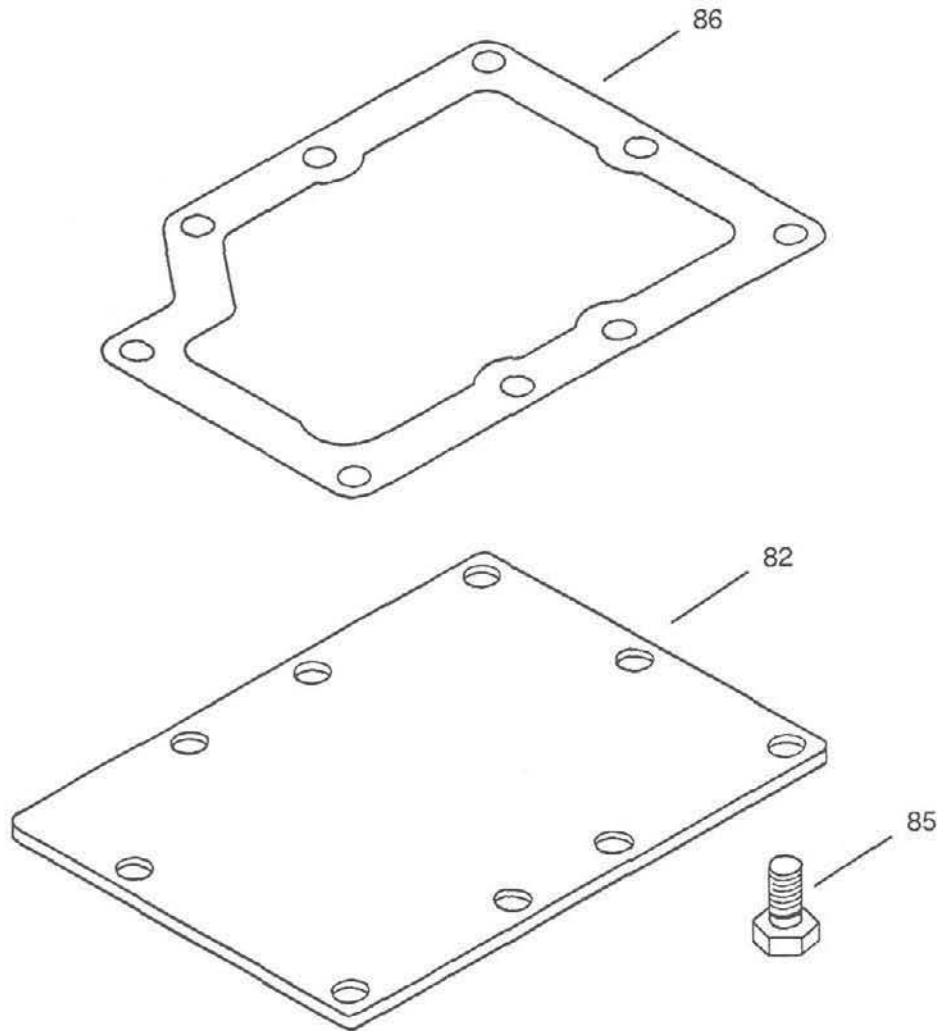
Manual Displacement Control w/Electric Destroke
& Neutral Start Switch

Item	Mfg. Date	Part Number	Description	Qty.
A	87-13	See Table	Control kit	1
1	87-13	9004101-0140	O ring	3
2	87-13	See Table	Orifice	1
73	87-13	9802360	Control shaft handle	1
74	87-13	9009660-2500	Toothlock washer	1
75	87-13	9003560-2500	Jam nut	1
84	87-13	9009610-2850	Washer	9
85	87-13	9007200-2530	Screw	9
86	87-13	9803340	Gasket	1
401	87-13	9803304	Spring adjusting screw	1
402	87-13	9003561-7500	Nut	1
403	87-13	9800214	Centering spring housing	1
404	87-13	9003575-0001	Locking nut	1
405	87-13	9004101-0140	O ring	1
406	87-13	9801035	Sleeve	1
407	87-13	9801036	Spring	1
408	87-13	9004100-0190	O ring	1
410	87-13	9803333	Spool	1
411	87-13	See Table	Control valve link assembly	1
412	87-13	See Table	Link	1
413	87-13	9006326-0025	Retaining ring	1
414	87-13	9009625-2502	Centering spring washer	2
415	87-13	9005100-4400	Plug	1
416	87-13	9004700-1216	Spring pin	1
417	87-13	9802589	Actuator	1
418	87-13	9800204	Control shaft	1
419	87-13	9800908	Return spring stop	1
420	87-13	9801931	Spring	1
421	87-13	9803323	Control shaft link	1
422	87-13	9004101-0120	O ring	1
423	87-13	9006320-0050	Retaining ring	1
424	87-13	9006375-0026	Retaining ring	1
425	87-13	9801930	Spring sleeve	1
426	87-13	9800997	Control shaft bushing	1
427	87-13	9004100-0230	O ring	1
428	87-13	9800883	Cover	1
429	87-13	9004875-0055	Pin	1
430	87-13	9004100-0100	O ring	1
431	87-13	9802586	Plug	1
432	87-13	9004201-5000	O ring	1
433	87-13	9009625-0081	Washer	1
434	87-13	9802587	Nut	1
435	87-13	9003575-0049	Locknut	1
436	87-13	9700824	Neutral start switch	1
450	87-13	9004201-2500	O ring	2
451	87-13	9004201-5000	O ring	1

Frame Size	Item 411 Link ass'y	Item 412 Link	2x-25xxxY-xxxx Non-Annular Neutral Start Control Kit
21-22	9801721	9800905	9510669-2001
23	9802041	9800907	9510669-2222

Option # 12
Control Shipping Plate

<u>Item</u>	<u>Mfg. Date</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty.</u>
82	87-13	9803308	Cover plate	1
85	87-13	9007200-2508	Screw	9
86	87-13	9803340	Control gasket	1



NOTES

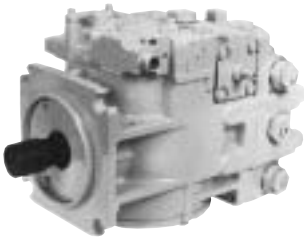


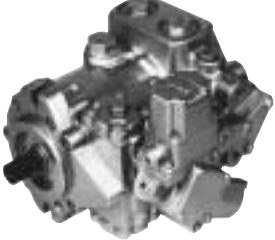
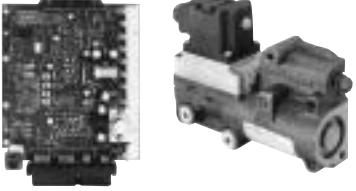
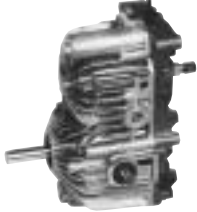

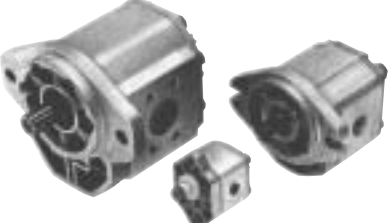

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