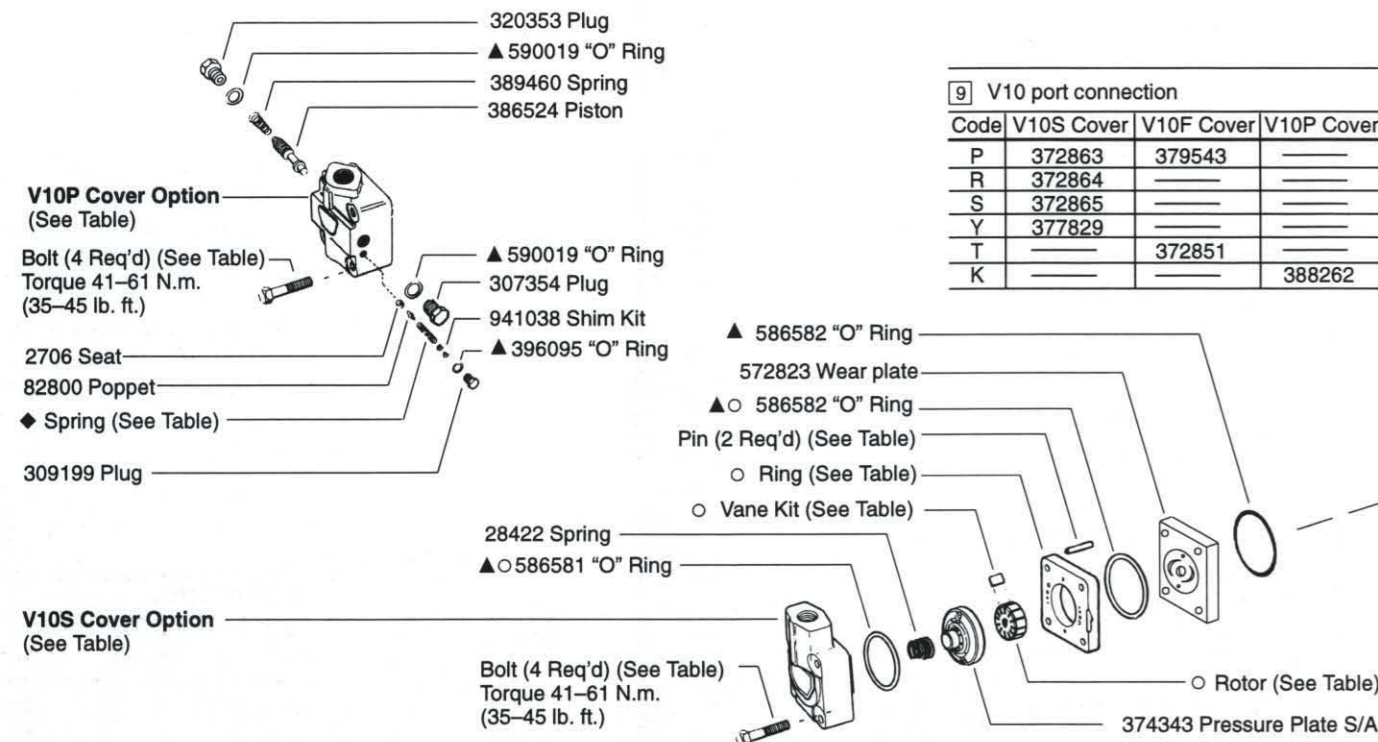


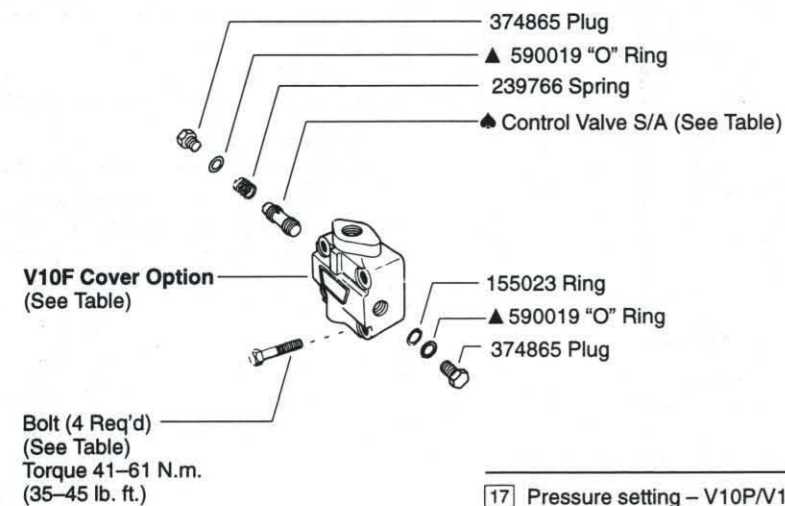
10 SAE rated capacity (V10 cover end cartridge)

USgpm	○ Rotor	○ Vane Kit (12 vanes)	○ Ring	Pin (V10S)	Pin (V10F/V10P)	Bolt (V10S)	Bolt (V10F)	Bolt (V10P)	○ Cartridge Kit
1			317674						923471
2	317681	923499	317675	2456	2456	11156	295344	295344	923470
3			317676						923496
4			317677						923469
5	351247	923500	317678	16662	16662	1278	432511	432511	923468
6			355641						923497
7	357286	923501	331813	179341	179341	432509	295346	295346	923498



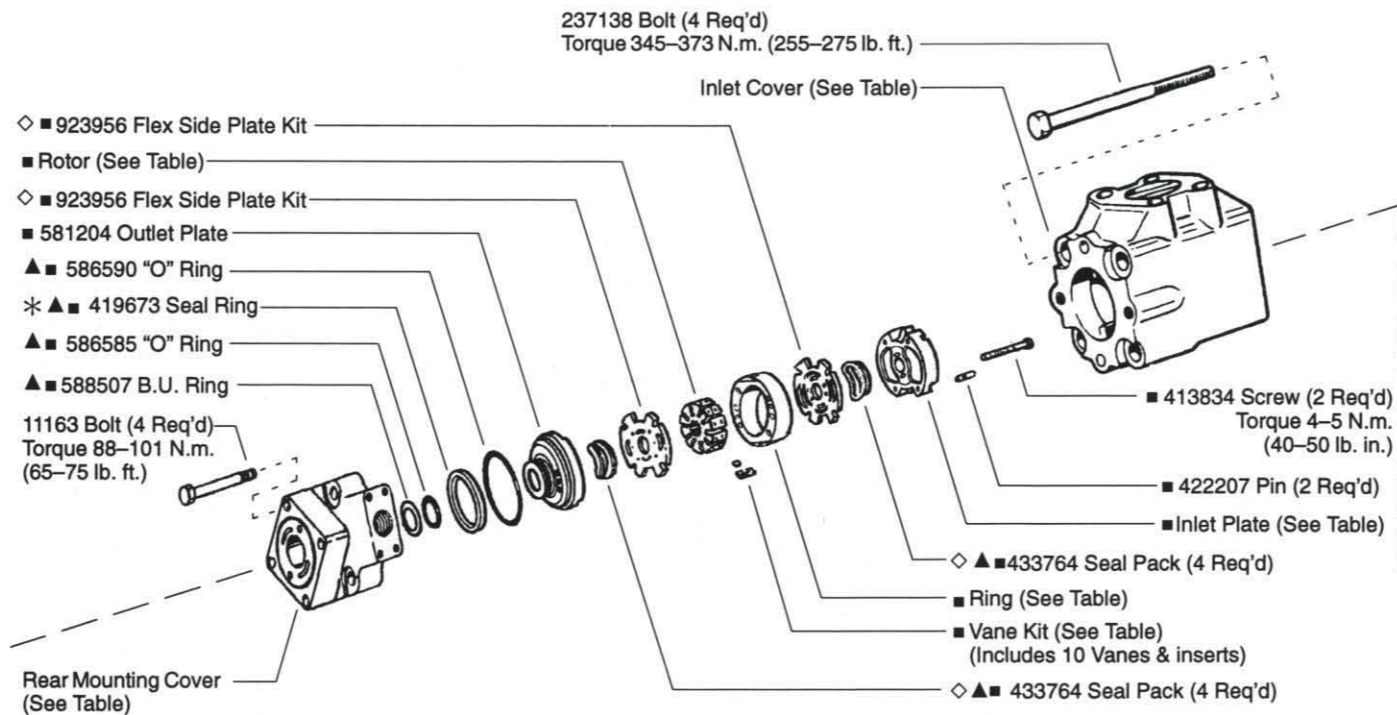
9 V10 port connection

Code	V10S Cover	V10F Cover	V10P Cover
P	372863	379543	
R	372864		
S	372865		
Y	377829		
T		372851	
K			388262



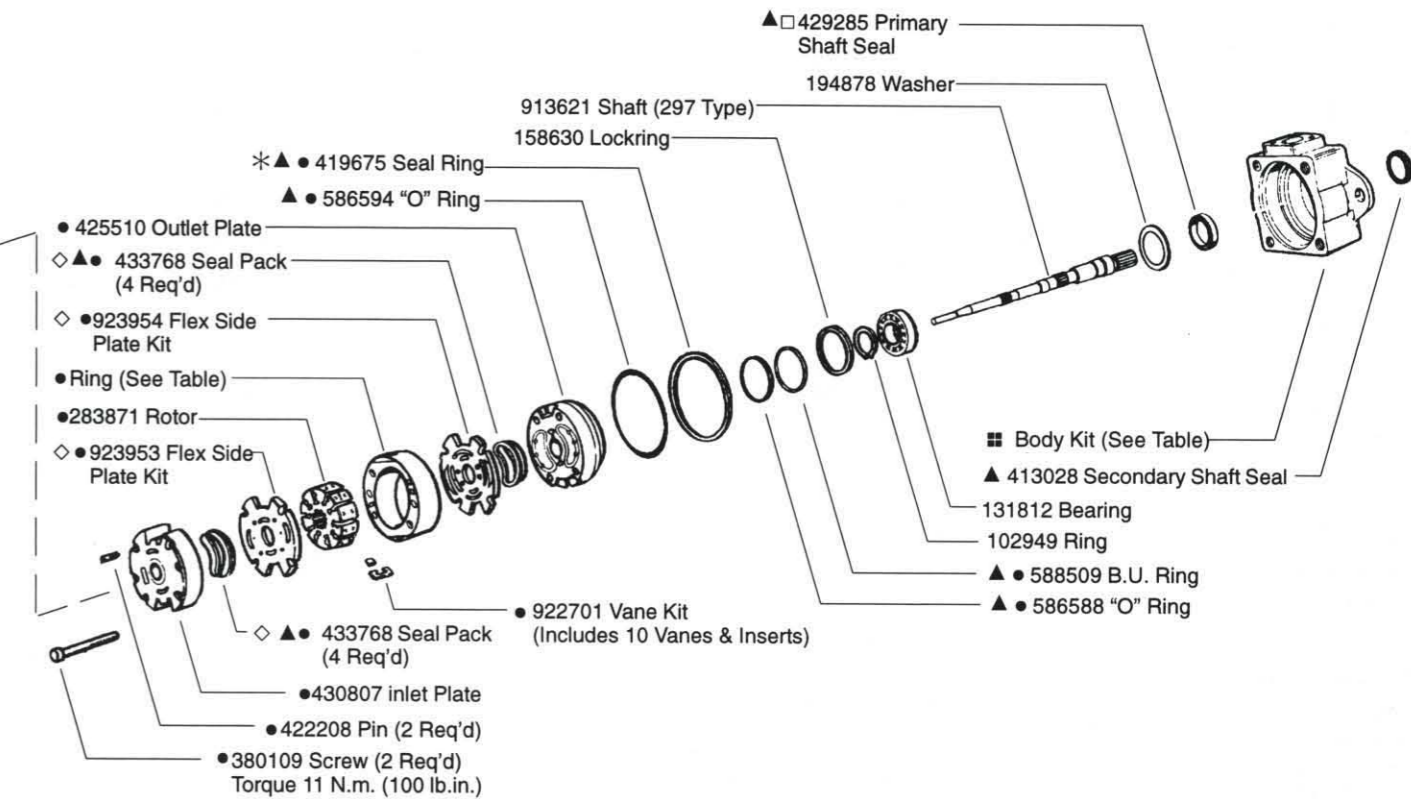
17 Pressure setting – V10P/V10F (Omit for V10S)

Code	Pressure setting V10P/V10F	◆ V10P Spring	▲ V10F control valve S/A
A	250 psi	252886	229613
B	500 psi	2280	233018
C	750 psi		232794
D	1000 psi	2282	232795
E	1250 psi		232796
F	1500 psi		232797
G	1750 psi	2281	232798
H	2000 psi		232799
J	2250 psi		233019
K	2500 psi		233020



8 SAE rated capacity (25 VQ center cartridge)**

USgpm	Ring	Inlet Plate	Rotor	Vane Kit	F3 Cart. Kit
12	326984				581851
14	326985				581852
17	326986	419080	270597	922710	581853
19	326987				581854
21	326988				581855



6 SAE rated capacity (45VQ shaft end cartridge)**

USgpm	Ring	F3 Cart. Kit
42	297510	419511
47	297718	421954
50	297502	419510
57	306772	421955
60	297503	419509

- Included in 45** VQ shaft end cartridge kit.
- Included in **25 VQ center cartridge kit.
- Included in V10 cover end cartridge kit.
- ▲ Included in 02-315623 seal kit. (Kit contains F3 components & both shaft seals.)
- ◇ Included in flex side plate kit; bronze face of plate must be installed toward the rotor. Kit also contains four seal packs.
- Assemble seal with spring loaded sealing member towards bearing. Seals to be completely wetted with oil prior to assembly.
- * Install 419675 & 419673 sealing ring into body, then install cartridge kit.

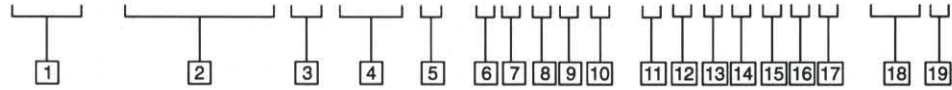
7 Port connections

Connection Type	Body Kit	Inlet Cover	Rear Mounting Cover
A – 4 Bolt Flange (Inch)	02-136923	370078	581863
AM – 4 Bolt Flange (Metric)	02-136924	478508	995240

NOTE: Body kit includes body, ball, and plug. (Ball and plug not shown)

Model Code

(F3) - 4525VQ S V10 * - * * * * - * * * * * - 20 *



- 1 Special seals**
F3 - Viton O-Rings and shaft seals

- 2 Pump series designation**
45**VQ - Shaft end pump
**25VQ - Center pump

- 3 Body mounting flange**
S - SAE mounting per J-744 101-2

- 4 Pump series designation**
V10 cover end pump

- 5 V10 pump cover options**
S - Standard cover
F - Flow control and relief cover
P - Priority valve and relief cover

- 6 SAE rated capacity (VQ shaft - end cartridge)**
Code Code
42 - 42 USgpm 57 - 57 USgpm
47 - 47 USgpm 60 - 60 USgpm
50 - 50 USgpm

- 7 VQ port connections (inlet & outlet #1 & #2)**
A - 4 bolt flange (Inch threads)
AM - 4 bolt flange (Metric threads)

- 8 SAE rated capacity (VQ center cartridge)**
Code Code
12 - 12 USgpm 19 - 19 USgpm
14 - 14 USgpm 21 - 21 USgpm
17 - 17 USgpm

- 9 V10 port connections**
V10S standard covers and outlet # 3
Code
S - .750-16 Str. thd.
P - 1/2" - NPT thd.
Y - .875-14 Str. thd.
R - 1.062-12 Str. thd.

- V10F flow/relief control cover**
Code Outlet # 3 Tank port
T - .750-16 Str. thd .750-16 Str. thd.
P - .750-16 Str. thd. 1/2" - NPT thd.

- V10P priority control covers**
Primary Secondary Tank port
port port Str. thd
Code Str. thd Str. thd
K - .5625-18 .750-16 .5625-18

- 10 SAE rated capacity (V10 cover end cartridge)**
Code Code
1 - 1 USgpm 5 - 5 USgpm
2 - 2 USgpm 6 - 6 USgpm
3 - 3 USgpm 7 - 7 USgpm
4 - 4 USgpm

- 11 Shaft seal**
Blank - Single seal
S - Double seal

- 12 Shaft type**
297 - All series

- 13 Port orientation (Outlet #1)**
(Viewed from cover end of pump; refer to table on next page)

- 14 Port orientation (Outlet #2)**
(Viewed from cover end of pump; refer to table on next page)

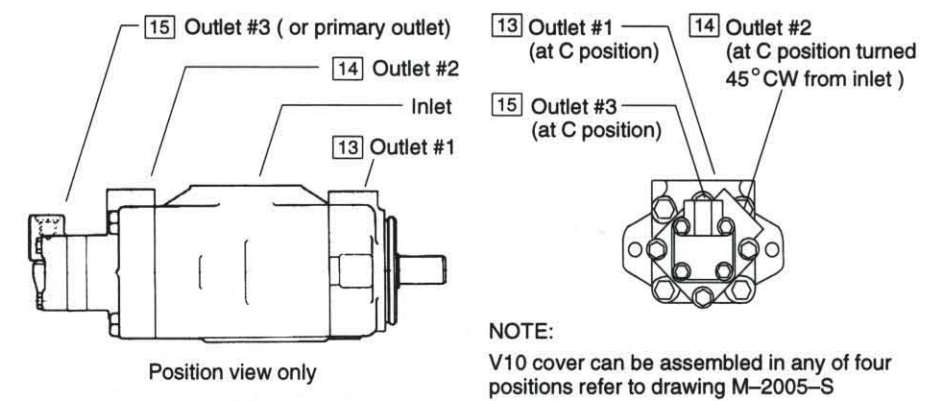
- 15 Port orientation (Outlet #3 or primary outlet)**
(Viewed from cover end of pump; refer to table on next page)

- 16 Controlled flow rate, V10F & V10P**
(Omit for standard cover)
Code Code
3 - 3 USgpm 6 - 6 USgpm
4 - 4 USgpm 7 - 7 USgpm
5 - 5 USgpm 8 - 8 USgpm

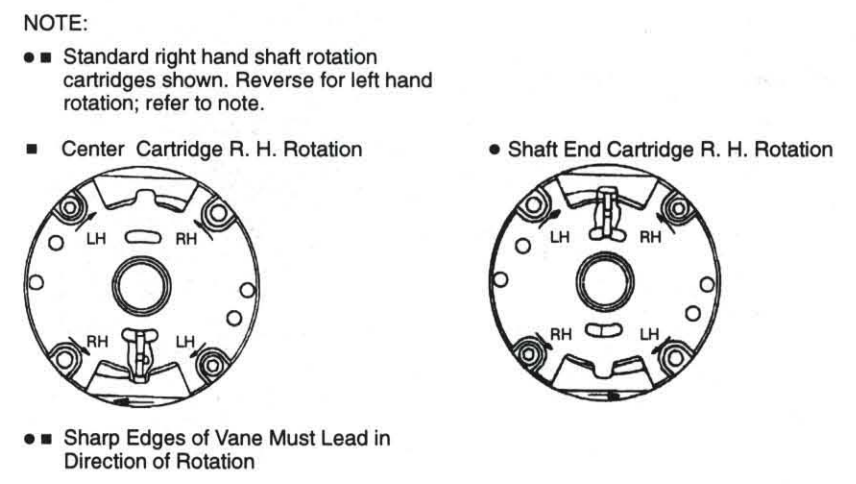
- 17 Relief valve pressure setting, V10F & V10P**
(Omit for standard cover)
Code Code
A - 250 psi F - 1500 psi
B - 500 psi G - 1750 psi
C - 750 psi H - 2000 psi
D - 1000 psi J - 2250 psi
E - 1250 psi K - 2500 psi

- 18 Design**

- 19 Rotation**
(Viewed from shaft end of pump)
L - Left hand for counterclockwise
R - Right hand for clockwise



NOTE:
V10 cover can be assembled in any of four positions refer to drawing M-2005-S



NOTE:
Sharp Edges of Vane Must Lead in Direction of Rotation

13 14 15 Port orientation code
(Viewed from cover end of pump)

Outlet	13 #1	14 #2	15 #3
Opposite inlet	A	A	A
135° CCW from inlet		A	
90° CCW from inlet	B		B
45° CCW from inlet		B	
Inline with inlet	C		C
45° CW from inlet		C	
90° CW from inlet	D		D
135° CW from inlet		D	

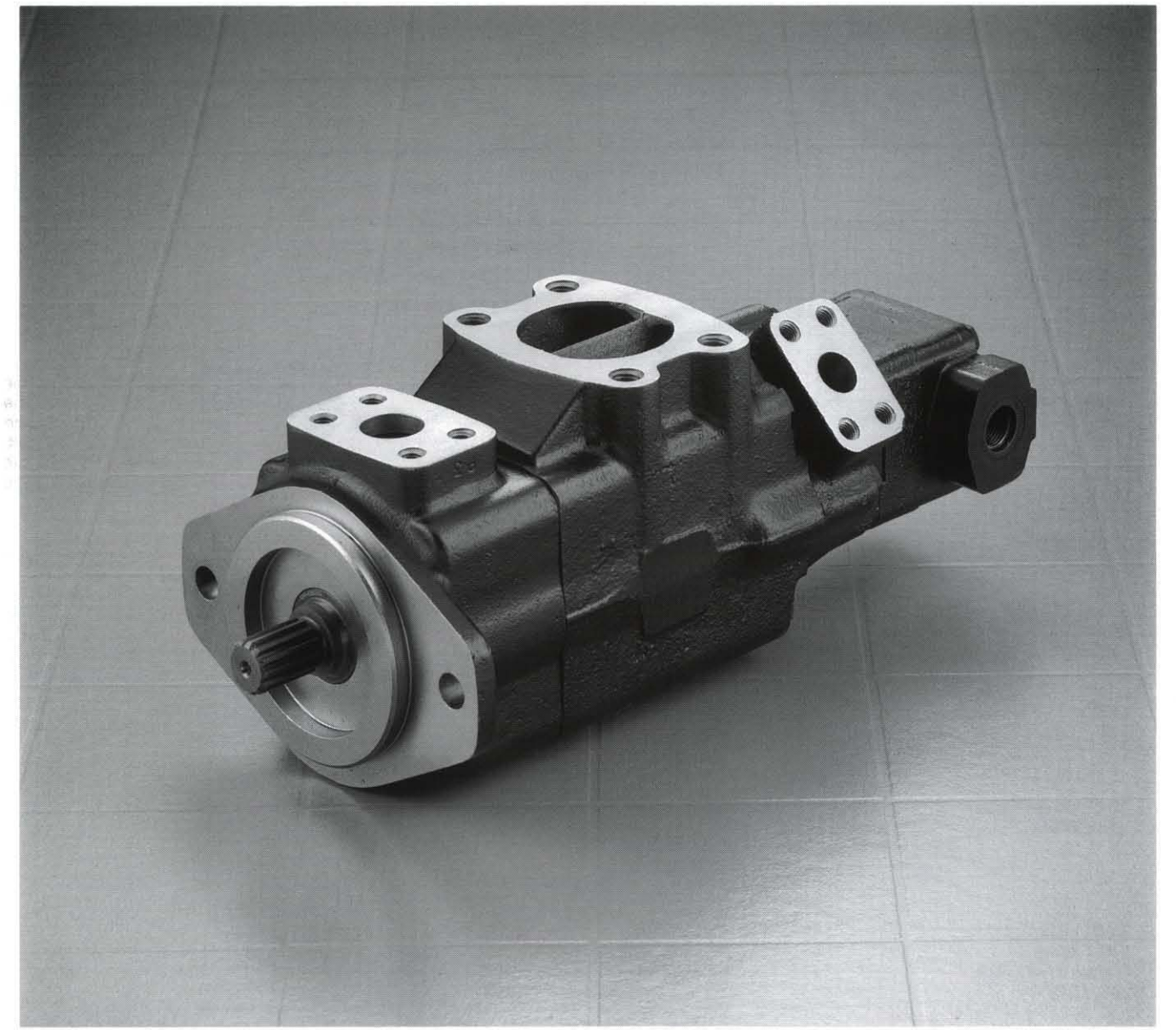
- NOTE:
- To reverse cartridge kit rotation, remove the two screws and reverse the location of the inlet support plate and the outlet support plate. Reinstall the two screws hand tight. Use pump cover to align all sections of the cartridge. Carefully remove the cover and tighten the screws.
 - When ordering spare cartridge parts, it is recommended they be obtained in cartridge kits. Kits are assembled and tested for either right or left hand rotation. If left hand rotation is required, it should be specified on parts order by adding suffix "L" to cartridge kit number.

Service Data



Vane Type Triple Pump

(F3)-4525VQSV10*-*****-*****-20*



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