

**Vickers®**

**Service Data**

# **Vane Pumps**

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**EAT•N**

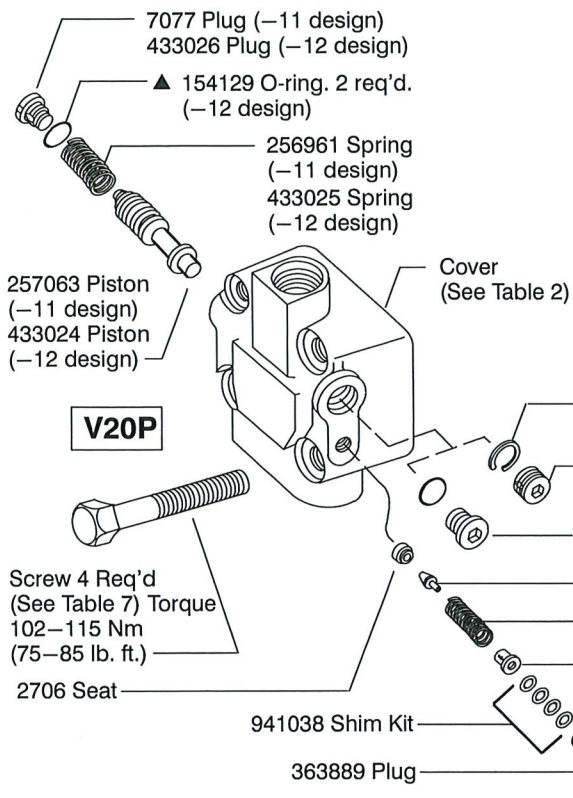
## **Vane Type Single Pump**

**(F3)-V20(\*) Series -11, 12 & 22 Designs**

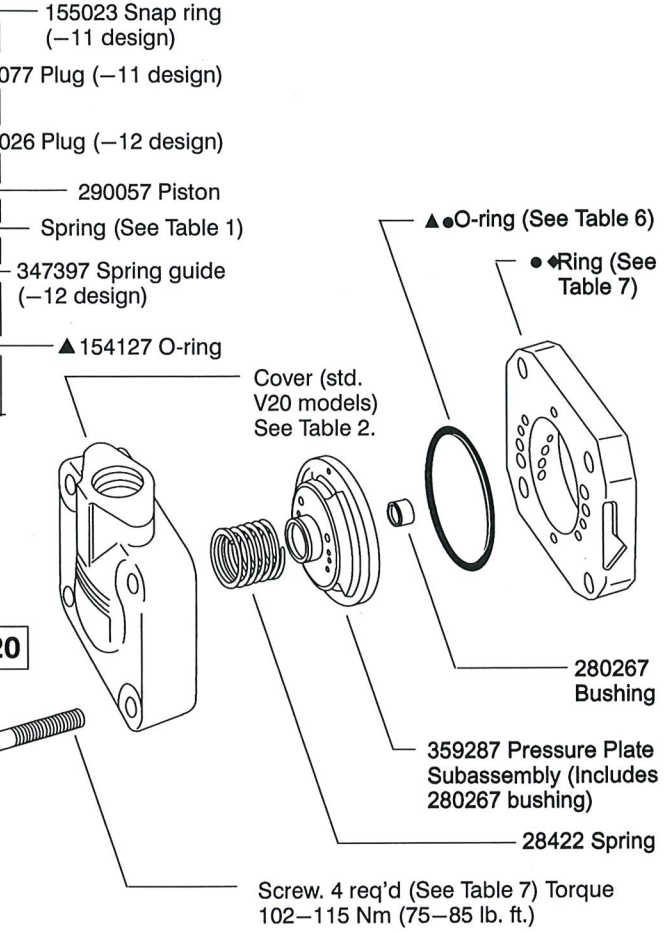
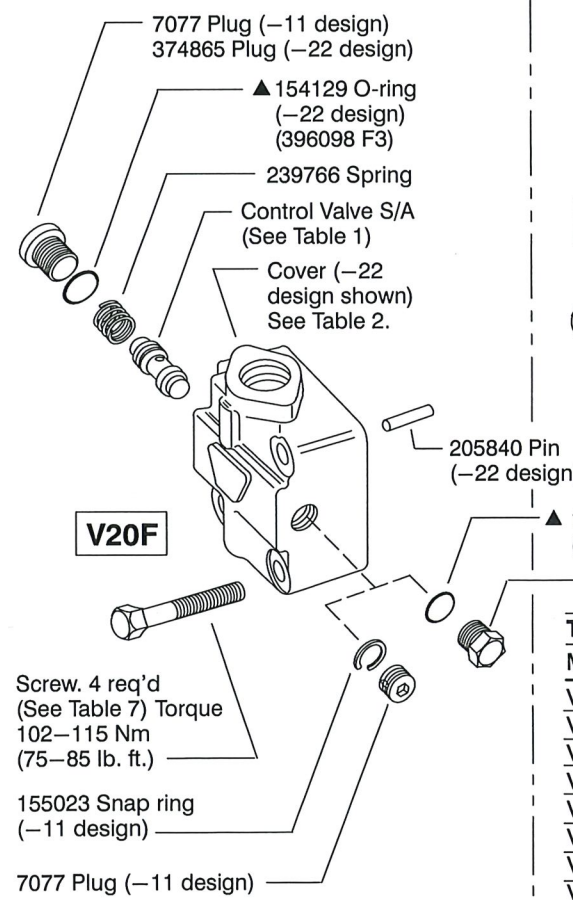
**VICKERS**

Revised 03/98

M-2004-S



Model	Control Valve S/A (V20F)	Spring (V20P) -11 Design	Spring (V20P) -12 Design
V20*-****-****A	229613	252886	252886
V20*-****-****B	233018	2280	2280
V20*-****-****C	232794	2280	2280
V20*-****-****D	232795	2282	435626
V20*-****-****E	232796	2282	435626
V20*-****-****F	232797	2281	2281
V20*-****-****G	232798	2281	2281
V20*-****-****H	232799	2281	2281
V20*-****-****J	233019	2281	2281
V20*-****-****K	233020	2281	2281



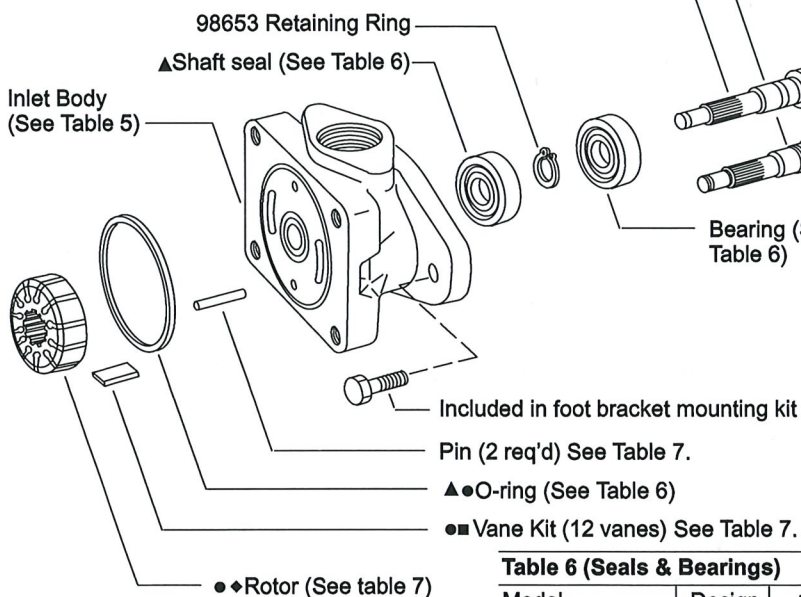
Model	-11 Design	-12 Design †	-22 Design †
V20-***F	280690	-	-
V20-***K	375468	-	-
V20-***P	313657	-	-
V20-***R	281145	-	-
V20-***S	293373	-	-
V20-***Y	291045	-	-
V20F-***P-**-2	316090	-	860418
V20F-***S-**-2	306313	-	860441
V20F-***T-**-2	306314	-	860464
V20P-***T-**-2	308121	433030	-

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† See Table 3.

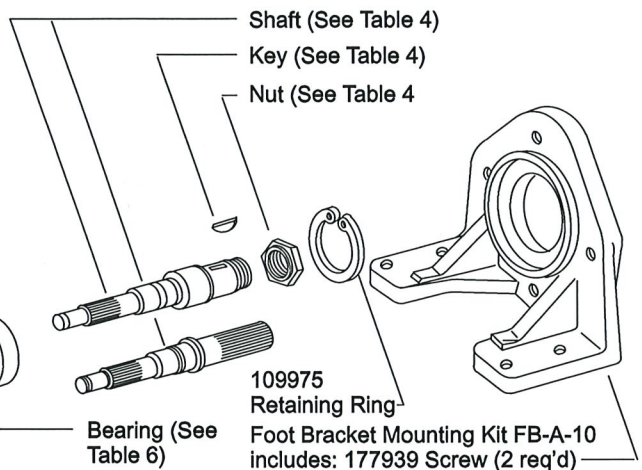
USgpm Thru Cover Orifice	Orifice (Drill) Size	
	V20F (-22 design)	V20P (-12 design)
2.5	—	.110" (#35)
3	.120" (#31)	.120" (#31)
4	.136" (#29)	.139"
5	.147" (#26)	.155"
6	.161" (#20)	.170"
7	.173" (#17)	.182"
8	.187"	.196"
9	.199" (#8)	—
10	.213" (#3)	—
11	.221" (#1)	—
12	.250"	.238"

‡ Use cover (part number shown in Table 2) with 2 USgpm orifice to make cover with larger orifice size.



- ▲ Included in seal kit (See Table 6)
- Included in cartridge kit (See Table 7)
- Vane kit (includes 12 vanes) See Table 7.
- ◆ For best performance, use complete cartridge kit (Table 7) for repair.

Model	Shaft	Key	Nut	Shaft Type
V20*-****-1	280372	5881	—	Straight keyed
V20*-****-3	280504	1615	132260	Thd. & Woodruff keyed
V20*-****-6	297330	1609	—	Woodruff-keyed stub
V20*-****-11	280515	—	—	Splined
V20*-****-15	294922	—	—	Splined
V20*-****-38	328096	—	—	Splined
V20*-****-62	582610	—	—	Splined



**Table 5 (Inlet Bodies)**

Port Type	Mounting Type		
	V20*-1	V20*-4	V20*-6
V20*-*D	583170	583172	—
V20*-*E	345486	—	324045
V20*-*F	297228	—	—
V20*-*P	280689	308628	396975
V20*-*R	313409	341340	—
V20*-*S	294266	574155	295716

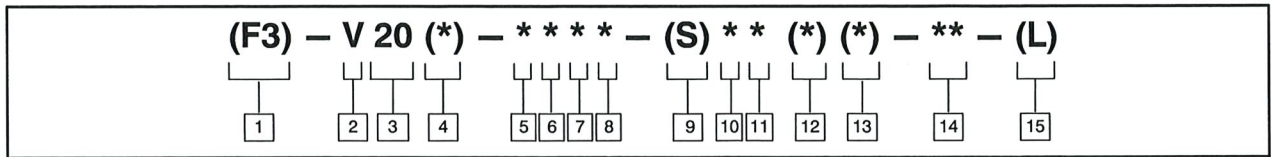
**Table 6 (Seals & Bearings)**

Model	Design	▲Seal Kit	▲●O-Ring	▲Shaft Seal	Bearing
V20	-11	922733	154090	229235	98574
F3-V20	-11	919805	586589	279499	98574
V20F	-11	922733	154090	229235	98574
F3-V20F	-11	919805	586589	279499	98574
V20F	-22	02-137555	154090	229235	98574
F3-V20F	-22	02-137556	586589	279499	98574
V20F-****-S	-22	02-137557	154090	02-133102	1704
F3-V20F-****-S	-22	02-137558	586589	02-133102	1704
V20P	-11	922733	154090	229235	98574
F3-V20P	-11	919805	586589	279499	98574
V20P	-12	922733	154090	229235	98574
F3-V20P	-12	919805	586589	279499	98574

**Table 7**

Model	●◆ Ring	●◆ Rotor	●■ Vane Kit	● Cartridge Kit, Std.	● Cartridge Kit, F3	Pin	Screw (V20)	Screw (V20F & V20P)
V20*-**5	388284	502255	923485	02-137559	02-137570	2161	131485	11165
V20*-**6	328150	502255	923485	02-137560	02-137571	2161	131485	11165
V20*-**7	328152	502256	923493	02-137561	02-137572	2478	131486	9431
V20*-**8	331791	502256	923493	02-137562	02-137573	2478	131486	9431
V20*-**9	331789	502256	923493	02-137563	02-137574	2478	131486	9431
V20*-**10	374309	502257	923478	02-137564	02-137575	16662	131486	96168
V20*-**11	328156	502257	923478	02-137565	02-137576	16662	131486	96168
V20*-**12	331806	502258	923479	02-137566	02-137577	9603	1319	96168
V20*-**13	331807	502258	923479	02-137567	02-137578	9603	1319	96168

# Model Code



**1 Special seals**  
 F3 – For mineral oil & fire resistant fluids (Omit if not required)

**2 Vane pump**

**3 Series designation**

**4 Cover type**  
 F – Flow control cover  
 P – Priority valve cover  
 Omit – Standard cover

**5 Mounting**  
 1 – Flange, 2 bolt SAE A size  
 2 – Foot bracket at 12 o'clock, viewed from shaft end (11 & 12 designs only)  
 3 – Power takeoff (11 & 12 designs only)  
 4 – Face type  
 6 – Flange, 2 bolt SAE B size  
 23 – Foot bracket at 3 o'clock (11 & 12 designs only)  
 26 – Foot bracket at 6 o'clock (11 & 12 designs only)  
 29 – Foot bracket at 9 o'clock (11 & 12 designs only)

**6 Inlet port connection**  
 D – 1.312-12 UN-2B thread (22 design only)  
 E – 1.5 inch dia. 2-bolt flange  
 F – 1.156 inch dia. 2-bolt flange  
 P – 1-1/4" NPTF  
 R – 1" NPTF  
 S – 1.625-12 UN-2B thread

**7 Ring capacity**  
 (Rated capacity (USgpm) at 1200 rpm, 6.9 bar (100 psi))

5 – 5 USgpm	9 – 9 USgpm
(22 design only)	10 – 10 USgpm
6 – 6 USgpm	11 – 11 USgpm
7 – 7 USgpm	12 – 12 USgpm
8 – 8 USgpm	13 – 13 USgpm

**8 Outlet port connection(s)**

Code	Std. cover	Flow control cover	
		Pressure	Tank
F	.687 dia. (11 & 12 designs only).	—	—
P	3/4 NPT Thd. (11 & 12 designs only)	.750–16 St.Thd.	1/2 NPT Thd.
S	1.062–12 St.Thd. (11 & 12 designs only)	.750–16 St.Thd.	1.062–12 St.Thd.
T	—	.750–16 St.Thd.	.750–16 St.Thd.

Priority valve cover (11 & 12 designs only)

Code	Primary outlet	Secondary outlet	Tank
T	.750–16 St.Thd.	.750–14 St.Thd.	.750–16 St.Thd.

**9 Shaft seal type**  
 S – Double lip seal and open bearings (22 design only)  
 Omit – Single lip seal and sealed bearings

**10 Shaft type**  
 1 – Straight, keyed  
 3 – Threaded  
 6 – Straight stub, keyed  
 11 – Splined  
 15 – Splined  
 38 – Splined  
 62 – Splined

**11 Outlet or primary outlet port positions**  
 (Viewed from cover end of pump)  
 A – Opposite inlet  
 B – 90° CCW from inlet  
 C – In line with inlet  
 D – 90° CW from inlet

**12 Flow rate (V20F & V20P)**  
 (Through orifice in cover)

2 – 2 USgpm	8 – 8 USgpm
2.5 – 2.5 USgpm	9 – 9 USgpm
(11 & 12 designs only)	(22 design only)
3 – 3 USgpm	10 – 10 USgpm
4 – 4 USgpm	(22 design only)
5 – 5 USgpm	11 – 11 USgpm
(22 design only)	(22 design only)
6 – 6 USgpm	12 – 12 USgpm
7 – 7 USgpm	(22 design only)

**13 Pressure setting (V20F & V20P)**

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

**14 Design**  
 11 – V20, V20F & V20P  
 12 – V20P  
 22 – V20F

**15 Rotation**  
 (Viewed from shaft end of pump)  
 L – Left hand (counterclockwise)  
 Omit – Right hand (clockwise)