

**PARTS MANUAL**  
**F20-991-2402A**

# Hydra-Cell®

## INDUSTRIAL PUMPS

**IMPORTANT**

Record your pump model number and serial number here for easy reference:

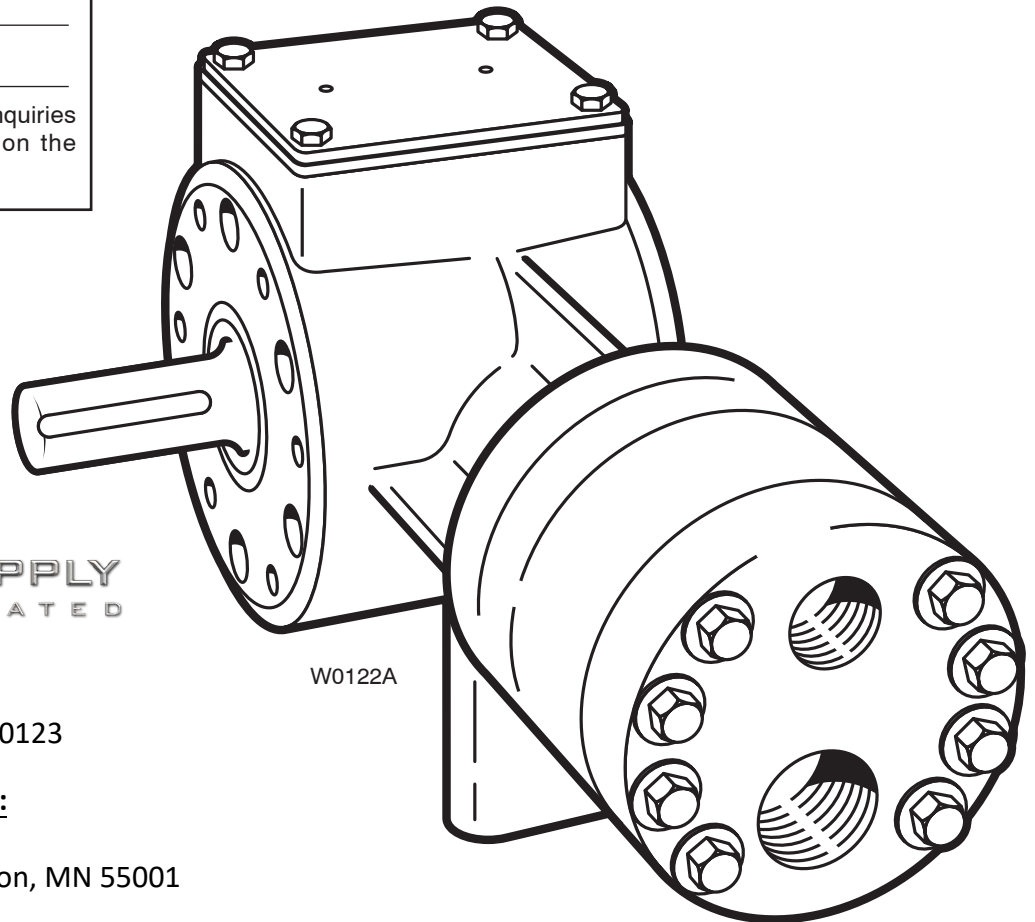
Model No. \_\_\_\_\_

Serial No. \_\_\_\_\_

Date of Purchase \_\_\_\_\_

When ordering parts or making inquiries about this pump, please mention the model and serial numbers.

**MODELS:**  
**F-20, F-21, F-22**



**Illinois Location:**

(847) 841-7867

860 Church Rd Elgin, IL 60123

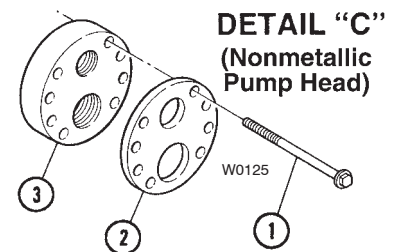
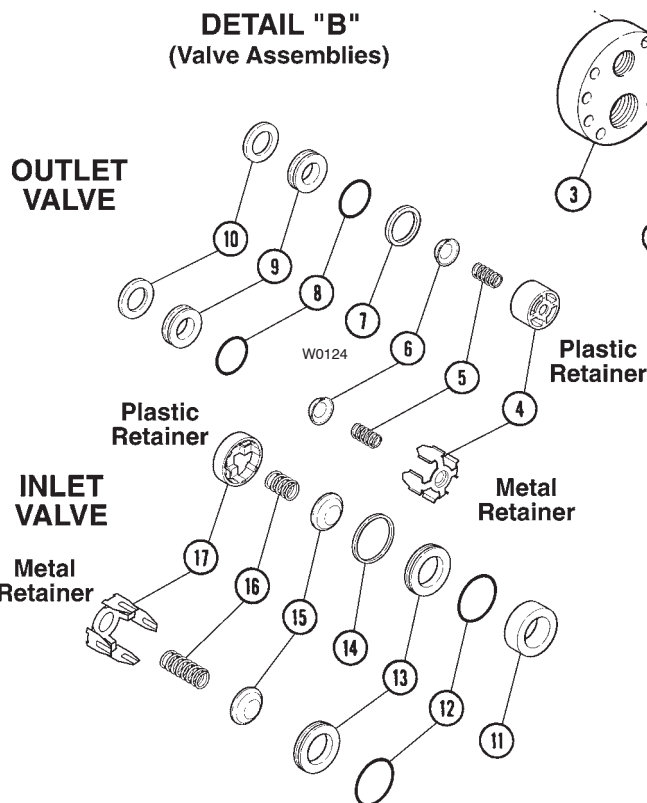
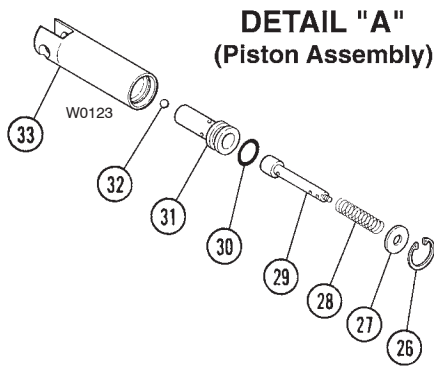
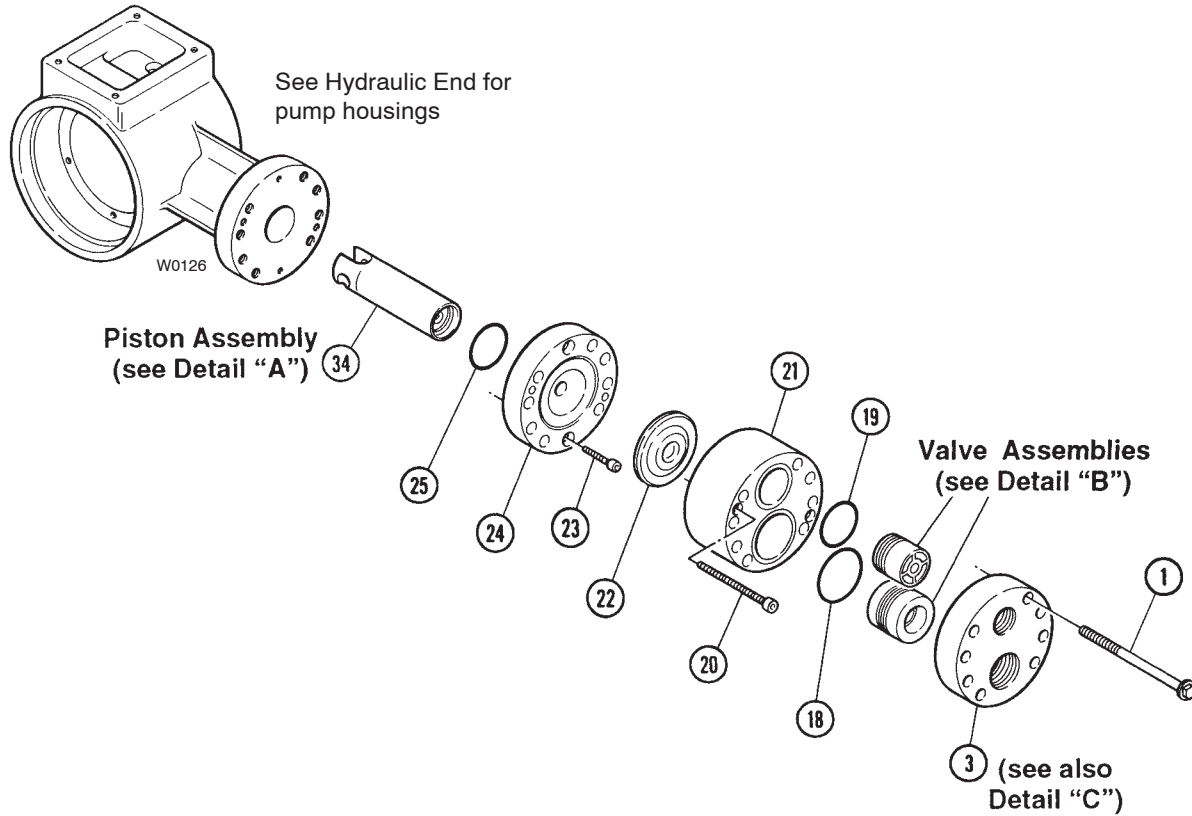
**Minnesota Location:**

(651) 758-7867

330 Mill Bay South Suite 1511 Afton, MN 55001

PumpSupplyInc.com

# F-20/F-21/F-22 Fluid End



### Bolt Torque Specifications

Ref. #	Assembly Torque
1	90 in-lbs
20	14 in-lbs
22	10 in-lbs
23	14 in-lbs

# F-20/F-21/F-22 Fluid End



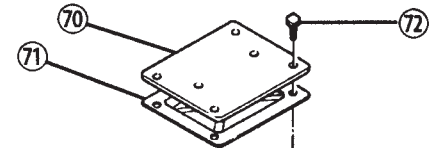
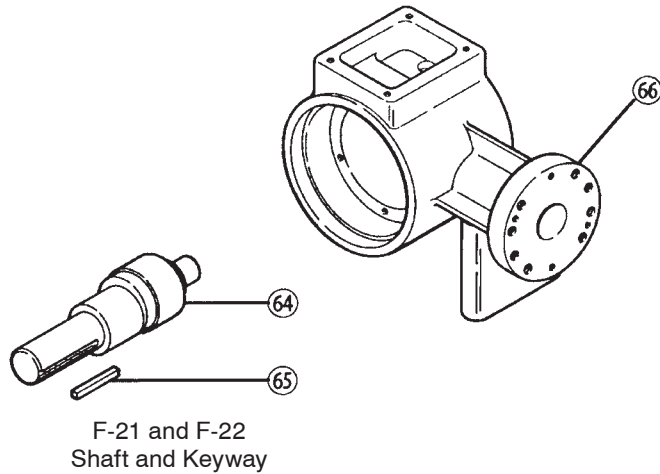
Ref. No.	Part Number	Description	Quantity/ Pump
1	G20-024-2010	Bolt, hex-head	8
2	F20-100-1010	Plate, manifold support (nonmetallic heads)	1
	F20-100-1011	Plate, manifold support, painted (nonmetallic heads)	1
3	F20-004-1010	Manifold, brass, NPT	1
	F20-004-1012	Manifold, 316 SST, NPT	1
	F20-004-1017	Manifold, Hastelloy C, NPT	1
	F20-004-1050	Manifold, polypropylene, NPT	1
	F20-004-1053	Manifold, Kynar, NPT	1
4	D03-023-1010	Retainer, outlet valve spring, 17-7 SST	1
	D03-023-1017	Retainer, outlet valve spring, Hastelloy C	1
	D03-023-2310	Retainer, outlet valve spring, Celcon	1
	D03-023-2316	Retainer, outlet valve spring, Nylon	1
	D03-023-2317	Retainer, outlet valve spring, polypropylene	1
	D03-023-2318	Retainer, outlet valve spring, Kynar	1
5	D03-022-3113	Valve Spring, outlet, Hastelloy C	1
	D03-022-3114	Valve Spring, outlet, Elgiloy	1
6	D03-021-1002	Outlet Valve, 17-7 SST	1
	D03-021-1011	Outlet Valve, Nitronic	1
	D03-021-1016	Outlet Valve, Tungsten Carbide	1
	D03-021-1017	Outlet Valve, Hastelloy C	1
	D03-021-3300	Outlet Valve, ceramic	1
7	D03-092-2110	Tetra Seal, outlet, Buna	1
	D03-092-2111	Tetra Seal, outlet, Viton	1
	D03-092-2112	Tetra Seal, outlet, Neoprene	1
	D03-092-2113	Tetra Seal, outlet, EPDM	1
	D03-035-2118	Tetra Seal, outlet, PTFE	1
8	D03-035-2112	O-ring, outlet valve seat, Neoprene	1
	D03-035-2113	O-ring, outlet valve seat, EPDM	1
	D03-035-2118	O-ring, outlet valve seat, PTFE	1
	D25-046-2110	O-ring, outlet valve seat, Buna	1
	D25-046-2111	O-ring, outlet valve seat, Viton	1
9	D03-020-1001	Valve Seat, outlet, 316 SST	1
	D03-020-1002	Valve Seat, outlet, 17-4 SST	1
	D15-020-1016	Valve Seat, outlet, Tungsten Carbide	1
	D03-020-1017	Valve Seat, outlet, Hastelloy C	1
	D03-020-3300	Valve Seat, outlet, ceramic	1
10	D03-125-2310	Washer, outlet dampening, Celcon	1
	D03-125-2316	Washer, outlet dampening, Nylon	1
	D03-125-2317	Washer, outlet dampening, polypropylene	1
	D03-125-2318	Washer, outlet dampening, Kynar	1
11	D10-125-2310	Washer, inlet dampening, Celcon	1
	D10-125-2316	Washer, inlet dampening, Nylon	1
	D10-125-2317	Washer, inlet dampening, polypropylene	1
	D10-125-2318	Washer, inlet dampening, Kynar	1
12	D10-035-2110	O-ring, inlet valve seat, Buna	1
	D10-035-2111	O-ring, inlet valve seat, Viton	1
	D10-035-2112	O-ring, inlet valve seat, Neoprene	1
	D10-035-2113	O-ring, inlet valve seat, EPDM	1
	D10-035-2118	O-ring, inlet valve seat, PTFE	1
13	D10-020-1010	Valve Seat, inlet, 17-4 SST, HT	1
	D10-020-1011	Valve Seat, inlet, 316 SST	1
	D10-020-1016	Valve Seat, inlet, Tungsten Carbide	1
	D10-020-1017	Valve Seat, inlet, Hastelloy C	1
	D10-020-3300	Valve Seat, inlet, ceramic	1

Ref. No.	Part Number	Description	Quantity/ Pump
14	D10-092-2110	Tetra Seal, inlet, Buna	1
	D10-092-2111	Tetra Seal, inlet, Viton	1
	D10-092-2112	Tetra Seal, inlet, Neoprene	1
	D10-092-2113	Tetra Seal, inlet, EPDM	1
	D10-092-2118	Tetra Seal, inlet, PTFE	1
15	D10-021-1010	Inlet Valve, 17-7 SST, stamped HT	1
	D10-021-1011	Inlet Valve, Nitronic	1
	D10-021-1016	Inlet Valve, Tungsten Carbide	1
	D10-021-1017	Inlet Valve, Hastelloy C	1
	D10-021-3300	Inlet Valve, ceramic	1
16	D10-022-3113	Valve Spring, inlet, Hastelloy C (plastic retainers)	1
	D10-022-3114	Valve Spring, inlet, Elgiloy (plastic retainers)	1
	D10-022-3117	Valve Spring, inlet, Elgiloy (metal retainers)	1
	D10-022-3123	Valve Spring, inlet, Hastelloy C (metal retainers)	1
17	D10-023-1010	Retainer, inlet valve spring, 17-7 SST	1
	D10-023-1017	Retainer, inlet valve spring, Hastelloy C	1
	D10-023-2314	Retainer, inlet valve spring, Celcon	1
	D10-023-2316	Retainer, inlet valve spring, Nylon	1
	D10-023-2317	Retainer, inlet valve spring, polypropylene	1
	D10-023-2319	Retainer, inlet valve spring, Kynar	1
18	F20-074-2110	O-ring, inlet manifold, Buna	1
	F20-074-2111	O-ring, inlet manifold, Viton	1
	F20-074-2112	O-ring, inlet manifold, Neoprene	1
	F20-074-2113	O-ring, inlet manifold, EPDM	1
	F20-074-2118	O-ring, inlet manifold, PTFE	1
19	F20-073-2110	O-ring, outlet manifold, Buna	1
	F20-073-2111	O-ring, outlet manifold, Viton	1
	F20-073-2112	O-ring, outlet manifold, Neoprene	1
	F20-073-2113	O-ring, outlet manifold, EPDM	1
	F20-073-2118	O-ring, outlet manifold, PTFE	1
20	G20-029-2010	Cap Screw, socket-head	2
21	F20-003-1010	Valve Plate, brass	1
	F20-003-1012	Valve Plate, 316 SST	1
	F20-003-1017	Valve Plate, Hastelloy C	1
	F20-003-1050	Valve Plate, polypropylene	1
	F20-003-1053	Valve Plate, Kynar	1
22	D03-018-1212	Diaphragm, Neoprene	1
	D03-018-1213	Diaphragm, EPDM	1
	D03-018-1215	Diaphragm, Viton-XT	1
	D03-018-1218	Diaphragm, PTFE	1
	D03-018-1220	Diaphragm, Buna-N-XS	1
23	G20-088-2010	Cap-Screw, socket-head	2
24	F20-002-1010	Diaphragm Plate	1
25	D03-075-2110	O-ring, diaphragm plate, Buna	1
26	D03-048-2210	Snap Ring	1
27	D03-049-1000	Washer	1
28	D03-045-3110	Spring, sleeve valve	1
	D03-045-3111	Spring, sleeve valve for PTFE diaphragm	1
29	D03-044-1000	Valve Plunger	1
30	D03-034-2110	O-ring, valve cylinder, Buna	1
31	D03-043-1000	Valve Cylinder	1
32	D10-015-3010	Ball	1
33	D03-014-1004	Piston	1
34	D03-014-1210	Piston Assembly	1

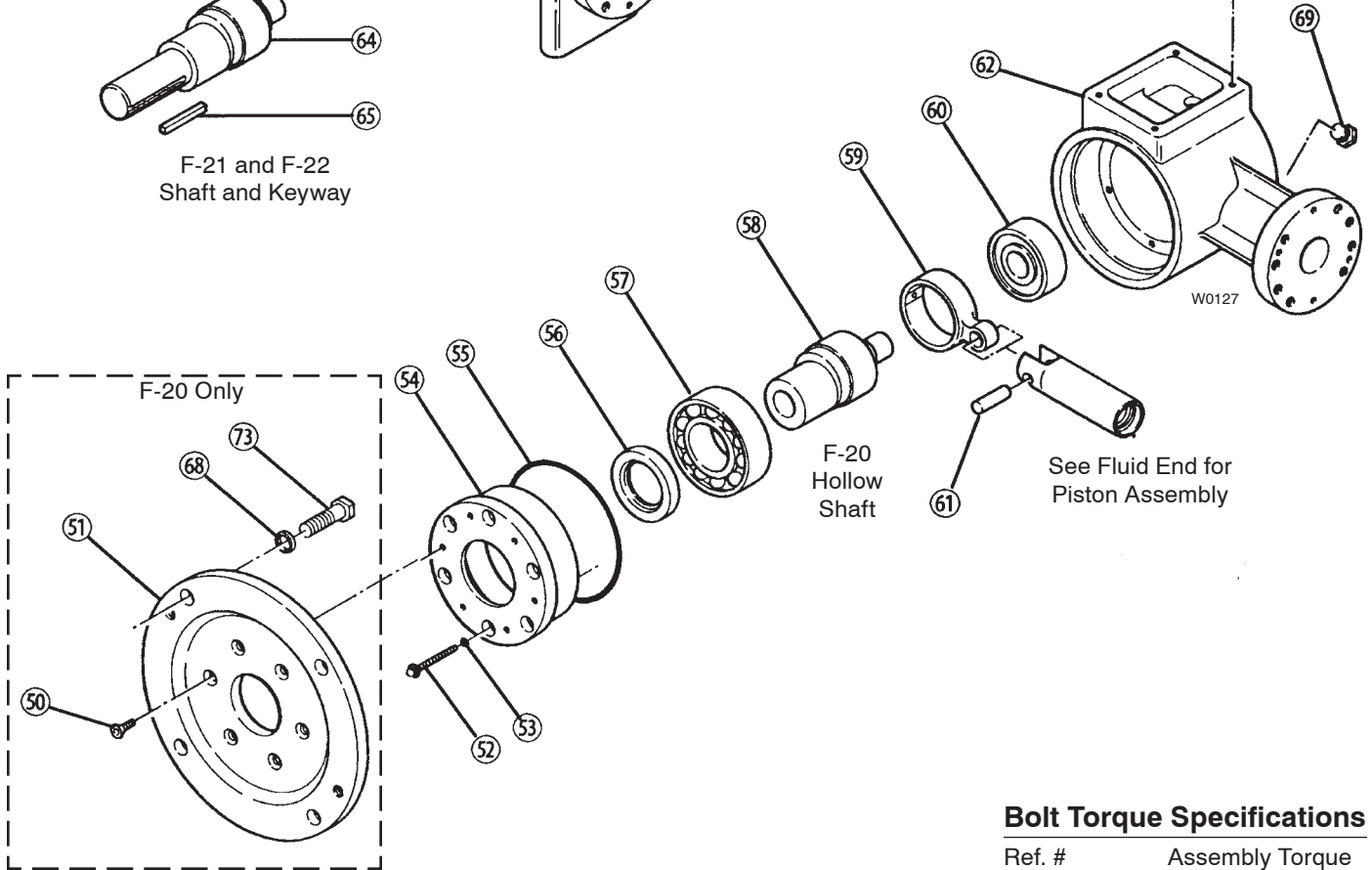
# F-20/F-21/F-22 Hydraulic End



## F-21 Pump Housing



## F-20 and F-22 Pump Housing



### Bolt Torque Specifications

Ref. #	Assembly Torque
50	35 in-lbs
52	14 in-lbs
72	10 in-lbs
75	35 in-lbs



**Illinois Location:**

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860 Church Rd Elgin, IL 60123

**Minnesota Location:**

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330 Mill Bay South Suite 1511 Afton, MN 55001

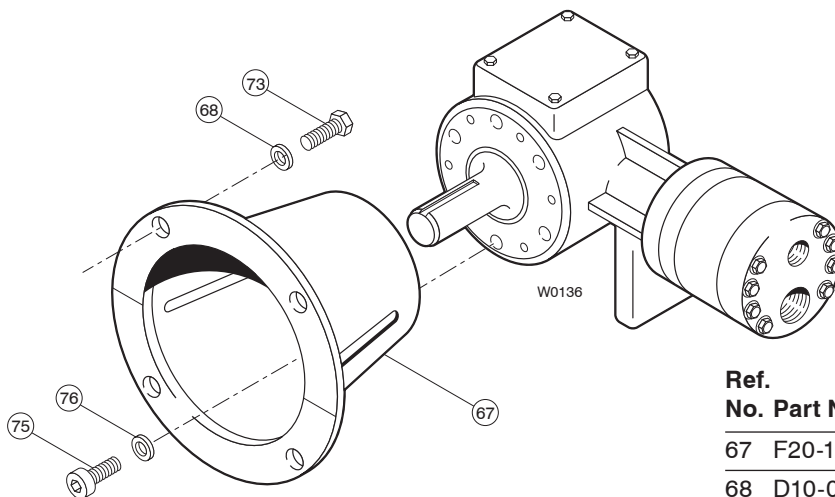
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# F-20/F-21/F-22 Hydraulic End

Ref. No.	Part Number	Description	Quantity/ Pump
50	G20-089-2010	Screw, flat-head .....	6
51	F20-120-1010	Flange .....	1
52	G20-086-2010	Cap Screw, hex-flange-head .....	6
53	F20-036-2110	O-ring, back cover screws, Buna.....	6
54	G20-131-1010	Cover.....	1
55	F20-037-2110	O-ring, cover, Buna.....	1
56	F20-031-2110	Seal, Buna.....	1
57	D03-010-2910	Back Bearing.....	1
58	F20-009-1002	(E) Hollow Shaft, NEMA 56C direct ..... drive, 5/8" ID, close-coupled, 0.73 GPM @ 1750 RPM.....	1
	F20-009-1003	(X) Hollow Shaft, NEMA 56C direct ..... drive, 5/8" ID, close-coupled, 0.96 GPM @ 1750 RPM.....	1
	F20-009-1011	(B) Hollow Shaft, NEMA 56C direct ..... drive, 5/8" ID, close-coupled, 0.33 GPM @ 1750 RPM.....	1
	F20-009-1018	(S) Hollow Shaft, NEMA 56C direct ..... drive, 5/8" ID, close-coupled, 0.55 GPM @ 1750 RPM.....	1
	F20-009-1067	(G) Hollow Shaft, NEMA 56C direct ..... drive, 5/8" ID, close-coupled, 0.20 GPM @ 1750 RPM.....	1
59	D03-132-1000	Connecting Rod .....	1
60	F20-010-2910	Front Bearing .....	1
61	D03-133-1000	Pin .....	1

Ref. No.	Part Number	Description	Quantity/ Pump
62	G20-001-1010	Pump Housing .....	1
64	F21-009-1002	(E) Crank Shaft, shaft-driven, 5/8" OD 0.73 GPM @ 1750 RPM.....	1
	F21-009-1003	(X) Crank Shaft, shaft-driven, 5/8" OD 0.96 GPM @ 1750 RPM.....	1
	F21-009-1011	(B) Crank Shaft, shaft-driven, 5/8" OD 0.33 GPM @ 1750 RPM.....	1
	F21-009-1018	(S) Crank Shaft, shaft-driven, 5/8" OD 0.55 GPM @ 1750 RPM.....	1
	F21-009-1067	(G) Crank Shaft, shaft-driven, 5/8" OD 0.20 GPM @ 1750 RPM.....	1
65	D10-085-2210	Key, shaft .....	1
66	G21-001-1010	Pump Housing .....	1
68	D10-048-2010	Lockwasher, 3/8".....	4
69	D10-038-2210	Plug, drain .....	1
70	F20-105-1010	Cover, oil reservoir .....	1
71	F20-091-1010	Diaphragm, oil reservoir.....	1
72	G20-090-2010	Cap Screw, hex-head.....	4
73	D10-029-2010	Cap Screw, hex-head, 3/8-16 x 1".....	4

## F-21/F-22 Pump/Motor Adapter Kit for NEMA 56C-145TC Frame Motors (Complete Kit: Part No. A04-005-1200)



Ref. No.	Part Number	Description	Quantity/ Kit
67	F20-121-1010	Pump/Motor Adapter .....	1
68	D10-048-2010	Lockwasher, split .....	4
73	D10-029-2010	Cap Screw, hex-head.....	4
75	G20-101-2010	Cap Screw, socket-head.....	6
76	G20-050-2010	Lockwasher, split .....	6

# F-20/F-21/F-22 Replacement Parts Kits

TO ORDER REPLACEMENT PARTS KIT: A Replacement Parts Kit contains 11 digits corresponding to customer-specified design options.

1	2	3	4	5	6	7	8	9	10	11
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Digit	Order Code	Description
1-3	F20	Pump Configuration For all F-20, F-21 and F22 Pumps
4		Kit Designator
	K	Complete Fluid End Kit
	D	Diaphragm Kit
	V	Valve Kit (diaphragm not included)
5-6	52	Pump Head Version Pump Head Version
7		Diaphragm & O-ring Material
	E	EPDM
	G	Viton <sup>®</sup> -XT
	J	PTFE
	P	Neoprene
	T	Buna-N-XS
8		Valve Seat Material
	C	Ceramic
	D	Tungsten Carbide
	H	17-4 PH Stainless Steel
	S	316 Stainless Steel
	T	Hastelloy <sup>®</sup> C
	X	Not included in Diaphragm Kit
9		Valve Material
	C	Ceramic
	D	Tungsten Carbide
	H	17-7 PH Stainless Steel
	N	Nitronic 50
	T	Hastelloy <sup>®</sup> C
	X	Not included in Diaphragm Kit
10		Valve Springs
	E	Elgiloy <sup>®</sup>
	T	Hastelloy <sup>®</sup> C
	X	Not included in Diaphragm Kit
11		Valve Spring Retainers
	C	Celcon
	H	17-7 PH Stainless Steel
	M	Kynar <sup>®</sup>
	P	Polypropylene
	T	Hastelloy <sup>®</sup> C
	Y	Nylon
	X	Not included in Diaphragm Kit



### Kit Contents

Part Number*	Description	Qty	Kit Designator		
			K	D	V
D03-018-___	Diaphragm	1	.	.	.
F20-073-___	O-ring, outlet manifold	1	.	.	.
F20-074-___	O-ring, inlet manifold	1	.	.	.
D03-035-___	O-ring, outlet valve seat	1	.	.	.
D03-020-___	Valve seat, outlet	1	.	.	.
D03-021-___	Valve, outlet	1	.	.	.
D03-022-___	Valve spring, outlet	1	.	.	.
**D03-092-___	Tetra seal, outlet	1	.	.	.
D03-023-___	Retainer, outlet valve spring	1	.	.	.
D03-125-___	Washer, outlet dampening	1	.	.	.
D11-035-___	O-ring, inlet valve seat	1	.	.	.
D10-020-___	Valve seat, inlet	1	.	.	.
D10-021-___	Valve, inlet	1	.	.	.
D10-022-___	Valve spring, inlet	1	.	.	.
**D10-092-___	Tetra seal, inlet	1	.	.	.
D10-023-___	Retainer, inlet valve spring	1	.	.	.
**D10-125-___	Washer, inlet dampening	1	.	.	.
A01-113-3400	Threadlocker	1	.	.	.



### Illinois Location:

(847) 841-7867

860 Church Rd Elgin, IL 60123

### Minnesota Location:

(651) 758-7867

330 Mill Bay South Suite 1511 Afton, MN 55001

PumpSupplyInc.com

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