

***50 GPM DEFUELING MODULE
AIR LOG P/N 122082 "FARP II"***



OPERATIONS MANUAL AND PARTS BREAKDOWN

Revised 8.22.2014

(Includes data for P/N 122070 "FARP I" Module)



AIR LOGISTICS CORPORATION
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50 GPM DEFUELING MODULE

AIR LOG P/N 122082 "FARP II"

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AIR LOGISTICS CORPORATION

50 GPM DEFUELING MODULE

AIR LOG P/N 122082 "FARP II"



This unit is electrically-powered (24-28 VDC-from aircraft) and is configured to allow free flow of fuel during refueling through a 2" manifold. After fueling is completed, the manifold valve is closed, the pump inlet valve opened and the pump activated to defuel hoses and return fuel to the source.

The unit is supplied with a 30' power cord and 2" dry-break unisex couplings. The basic power cord is compatible with the C130 aircraft power connection. A pigtail is available for connection to C17 aircraft.

DETAILS:

Height: 14.5"

Width: 11.75"

Length: 31.6"

Weight: 50 Lbs.



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50 GPM DEFUELING MODULE

AIR LOG P/N 122070 "FARP I"

Fuel Source Connection

Fuel Delivery Connection



This unit is electrically-powered (24-28 VDC-from aircraft) and is configured to allow free flow of fuel through the upper manifold and defuel hoses or pump units after fueling is complete. This is a commercial, off-the-shelf solution to defueling problems, especially in forward areas and uneven terrain.

The upper manifold is 3" in diameter, so the unit can be supplied with 2" or 3" dry-break couplings. The 2" is easily upgraded to 3", if desired at a later time.

SPECIFICATIONS:

Height: 17" Length: 42" Width: 16.5" Weight: 105 Lbs.



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50 GPM DEFUELING MODULE

AIR LOG P/N 122082 "FARP II"

OPERATING INSTRUCTIONS

Fuel Delivery Operations:

The module should be connected in line with the delivery hose via the dry break unisex connections, with the "inbound" connection facing the fuel source. The manifold valve should be opened and the pump valve closed. The pump should NOT be operated during delivery operations.

Defueling Mode:

After fuel delivery is complete, the manifold valve should be closed and the pump valve opened. Switching on the pump will route fuel in the hoses through the pump and back into the source. When hoses are sufficiently defueled, close the pump valve and turn off the the pump. Disconnect the module at the unisex couplings.

Note Regarding the P/N 122070 "FARP I" Module:

The operating sequence to employ this Module is exactly the same. The differences in manifold size and chassis configuration do not affect operations.



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PARTS LIST, AIR LOGISTICS

DISCHARGE MANIFOLD ASSEMBLY

ITEM	QTY	PART NO.	DESCRIPTION	
1	2	6432022	UNISEX COUPLER	2" NP MALE PIPE
2	1	122092	MANIFOLD, SUCTION	ALUMINUM
3	1	122089	MANIFOLD, DISCHARGE	ALUMINUM
4	1	1 1/4 S/77	VICTAULIC COUPLER	GASKET: GRADE "T", NITRITE, ORANGE STRIPE
5	1	2-290-828540	ULTRAFLO, VALVE 2" VITON SEAL	VITON SEAT
6	1	300-206-23-5	ULTRAFLO, SQUEEZE TRIGGER HANDLE	ALUMINUM
7	1	200-207-26-10	ULTRAFLO, THROTTLING POSITION PLATE	ALUMINUM
8	1	122091	PIPE NIPPLE, DISCHARGE	ALUMINUM

SUCTION VALVE ASSEMBLY

9	1	122095	ELBOW MANIFOLD, SUCTION	ALUMINUM
4	1	1 1/4 S/77	VICTAULIC COUPLER	GASKET: GRADE "T", NITRITE, ORANGE STRIPE
10	1	4629K46	BALL VALVE, FEMALE X MALE 1 1/4"NP	LOCKABLE LEVER

FRAME

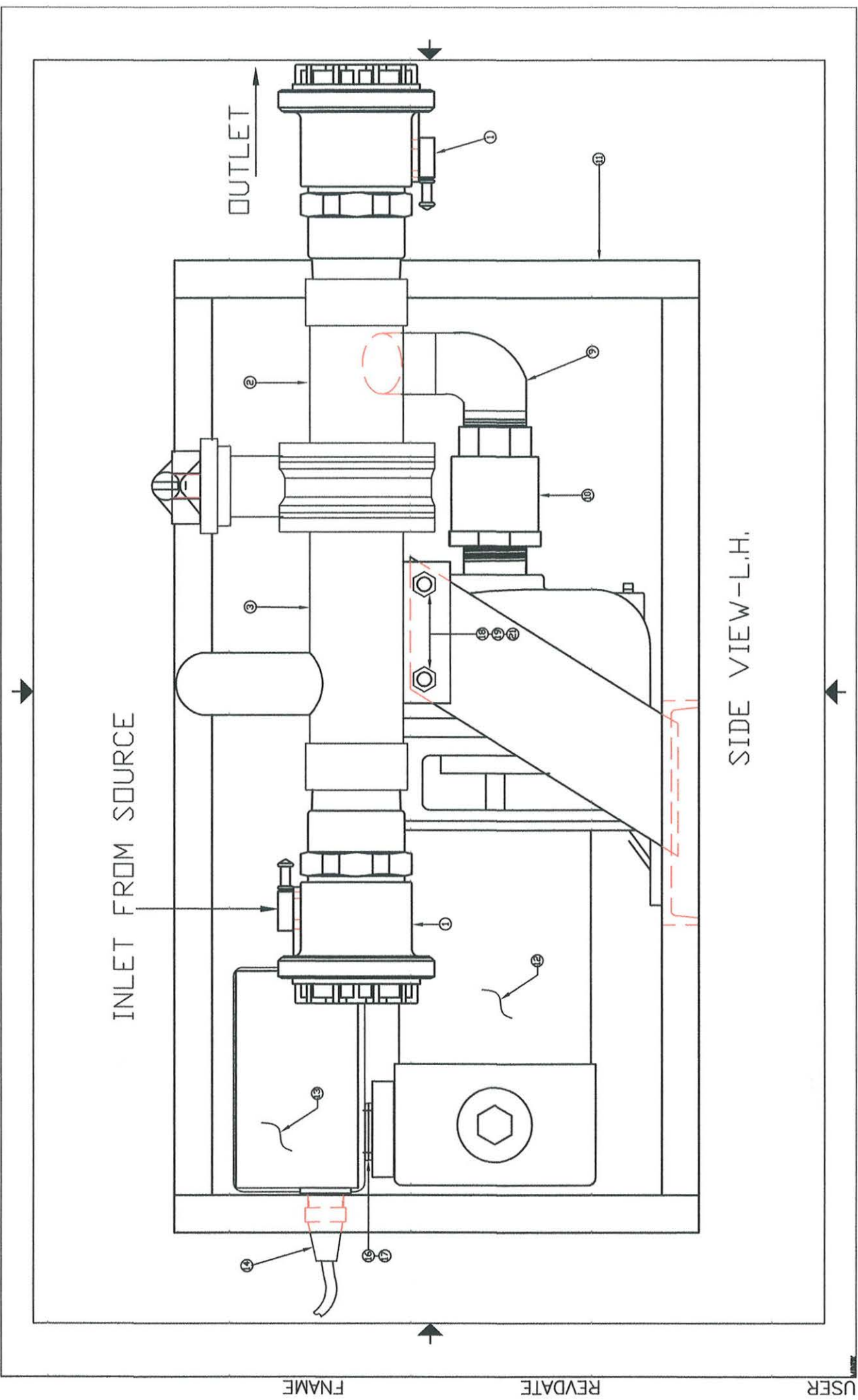
11	1	122083A	FRAME	ALUMINUM
MOTOR MOUNT, MANIFOLD SUPPORT BRACE				

MOTOR & PUMP

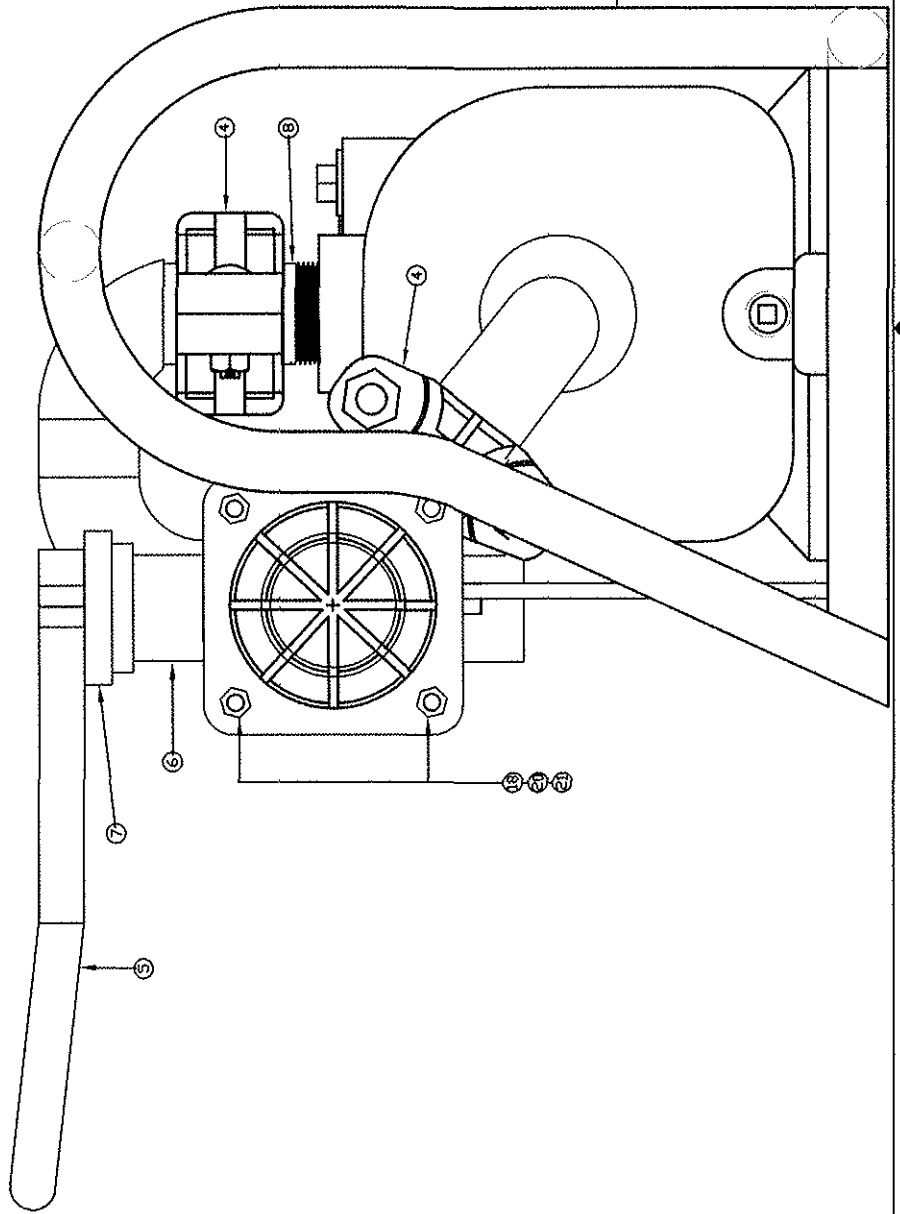
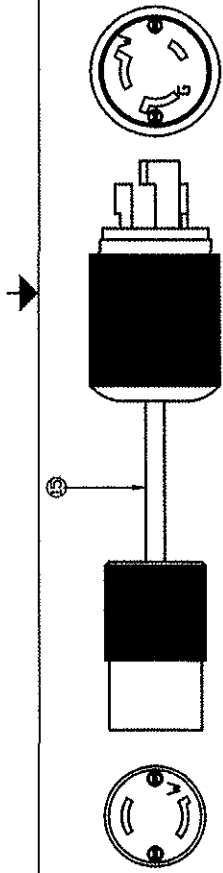
12	1	81 1/4A17 X .50 DC	MOTOR & PUMP	
13	1	122194	POWER CONTROL BOX	
14	1	117784-501	CABLE ASSY, POWER PLUG	30' LG
15	1	122090	CABLE ASSY, POWER PLUG	PIGTAIL
16	1	118464-14	JAM NUT	STEEL
17	1	122196	EXTERNAL TOOTH LOCK WASHER	STEEL

HARDWARE

18	20	95729A490	WASHERS	NAS1149 ZINC PLATED STEEL
19	6	AN6-15A	BOLTS	ZINC PLATED STEEL
20	4	AN6-30A	BOLTS	ZINC PLATED STEEL
21	10	95615A150	NUTS, NYLON LOCKING	ZINC PLATED STEEL



ELECTRICAL CONNECTOR C-17

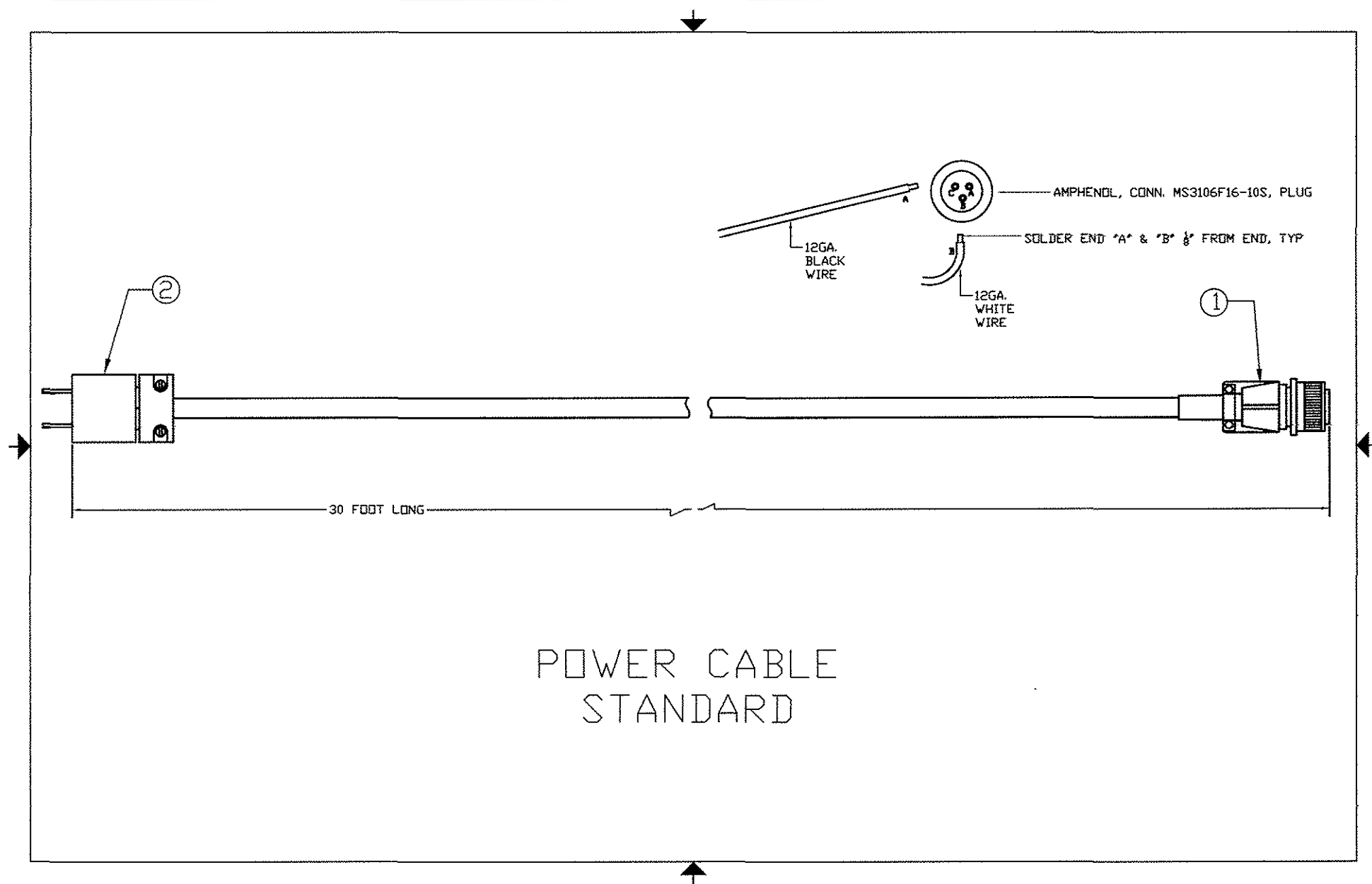


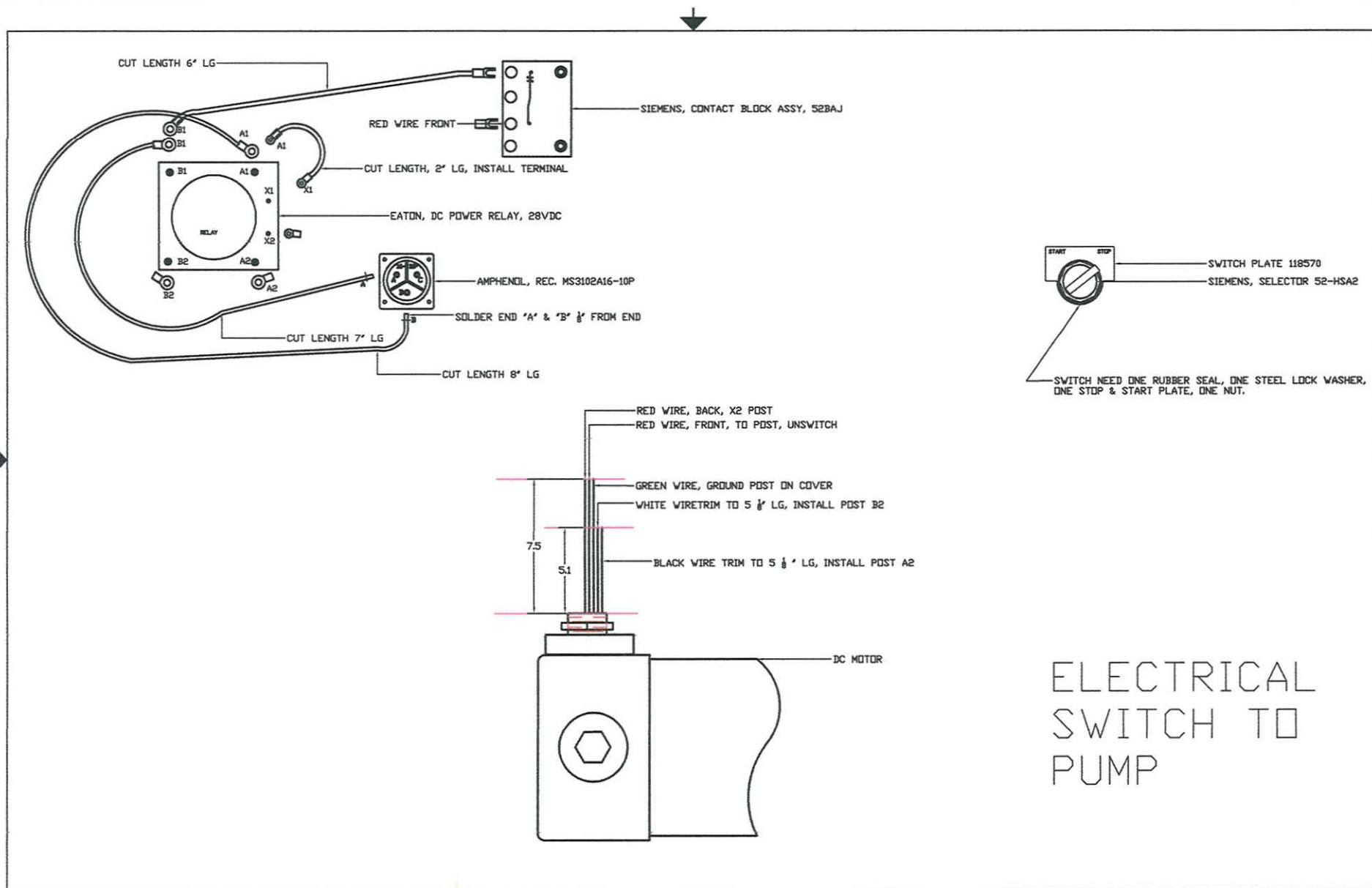
REAR VIEW

FNAME

REVDATE

USER

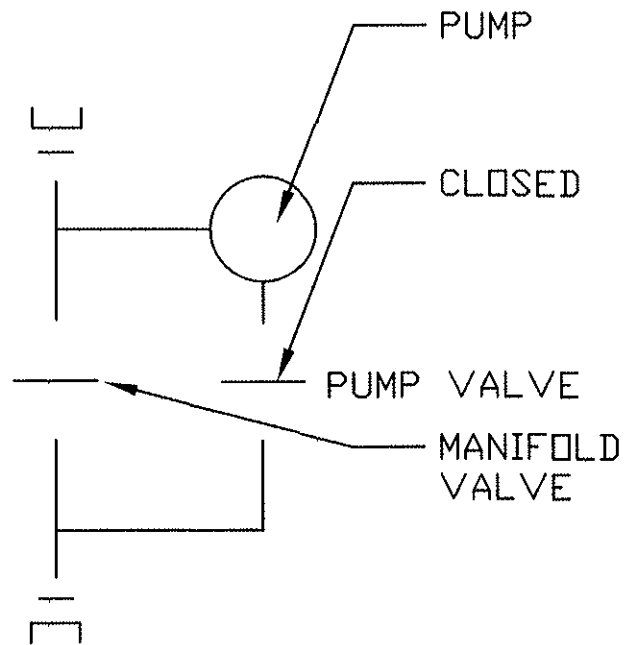




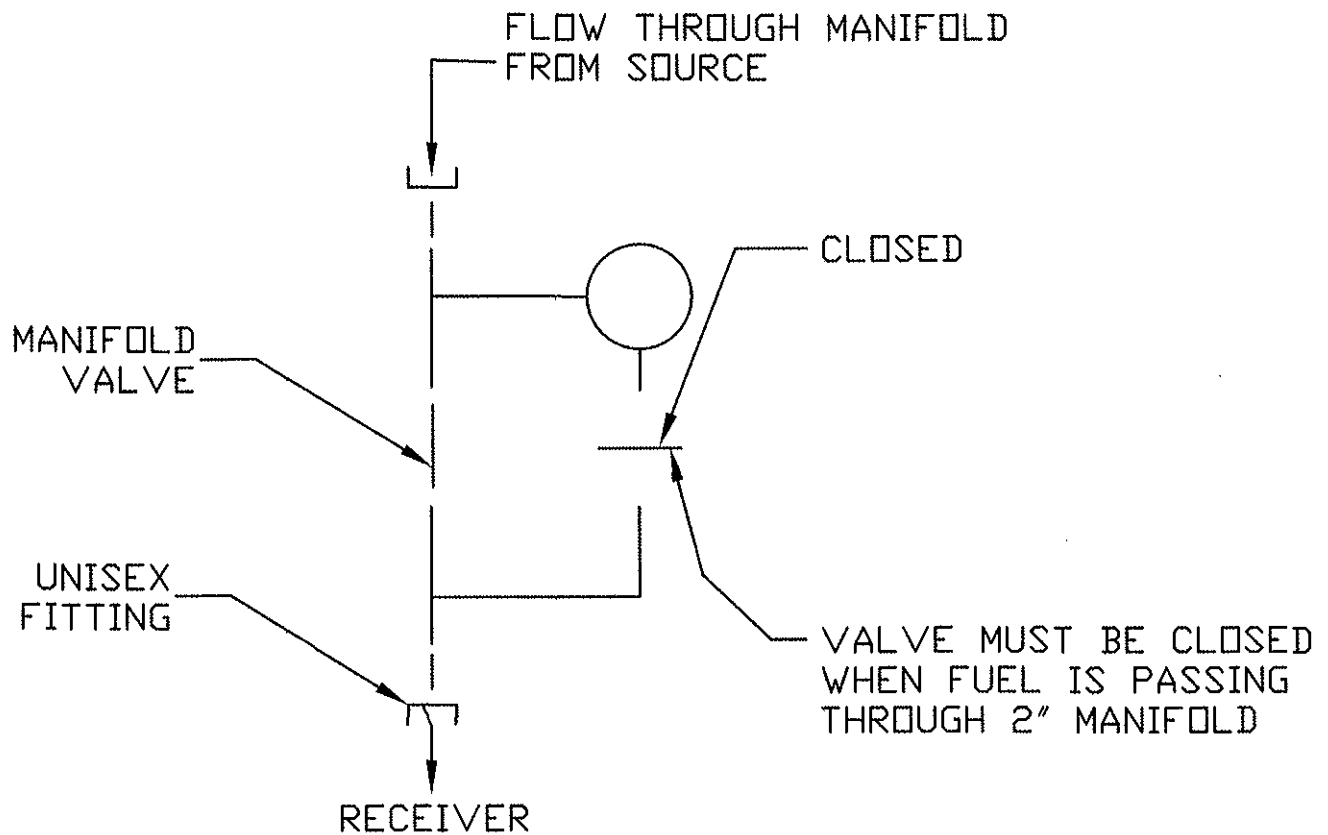
ELECTRICAL
SWITCH TO
PUMP

NOTE:
VALVES ARE "OPEN"
WHEN
HANDLE IS PARALLEL
TO FLOW PATH

VALVES ARE CLOSED
WHEN HANDLE IS
PERPENDICULAR TO
FLOW PATH



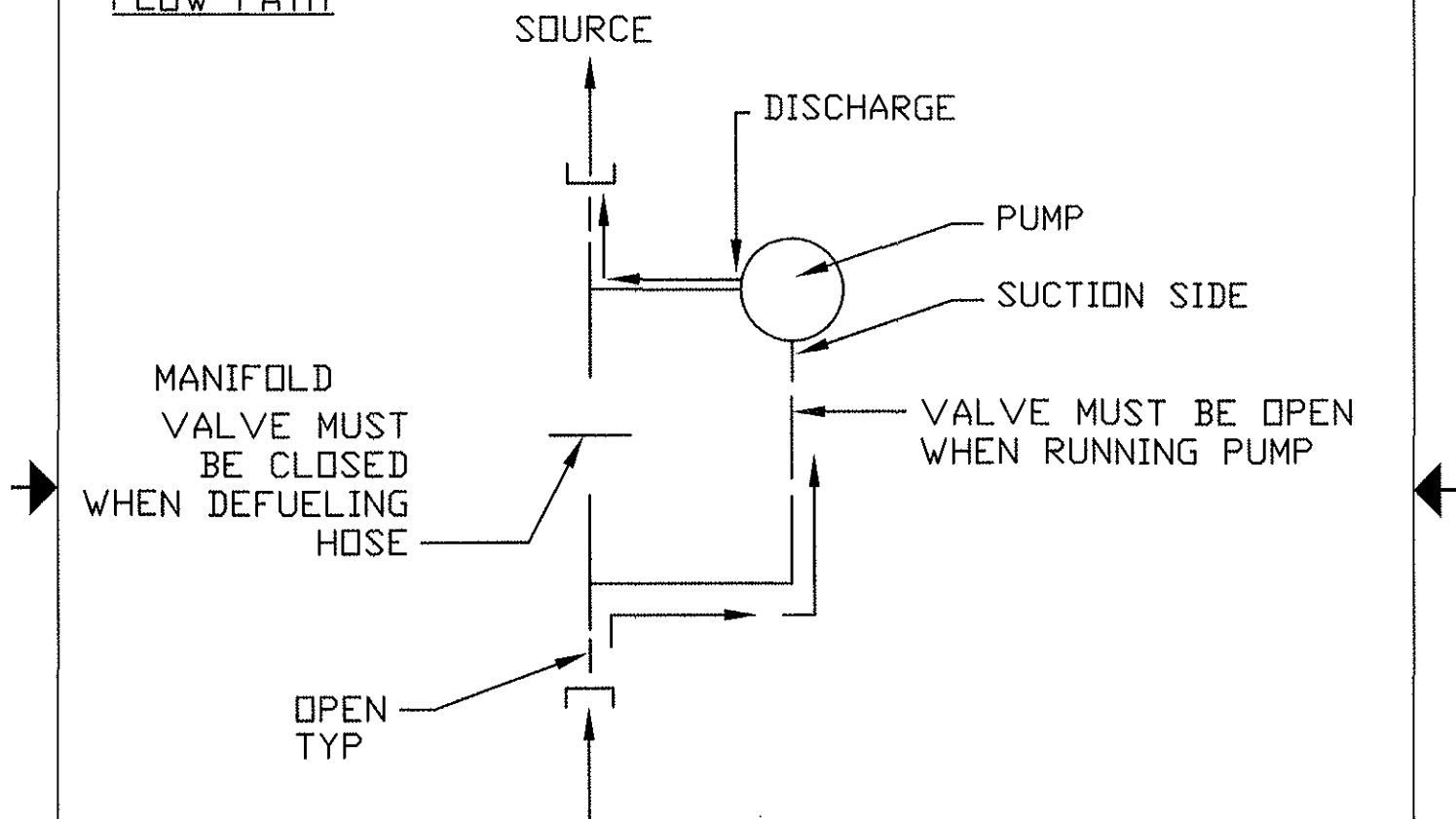
FUEL DELIVERY



VALVE POSITION
FUEL TRANSFER & REFUEL

NOTE:
VALVES ARE "OPEN"
WHEN
HANDLE IS PARALLEL
TO FLOW PATH

VALVES ARE CLOSED
WHEN HANDLE IS
PERPENDICULAR TO
FLOW PATH



WHEN DEFUELING HOSES,
HOSE THAT IS BEING DEFUEL
MUST BE INSTALL ON SUCTION
SIDE OF PUMP.
WHEN CHANGING TO THE NEXT
HOSE MAKE SURE TO CLOSE
UNISEX COUPLER VALVE FIRST.

VALVE POSITION
FUEL TRANSFER & REFUEL

**INSTALLATION, OPERATION,
AND MAINTENANCE MANUAL**
WITH PARTS LIST



80 SERIES PUMPS

MODEL
81 1/4A17-X.50 DC

THE GORMAN-RUPP COMPANY • MANSFIELD, OHIO

www.grpumps.com

GORMAN-RUPP OF CANADA LIMITED • ST. THOMAS, ONTARIO, CANADA

Printed in U.S.A.

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INSTALLATION, OPERATION, AND MAINTENANCE MANUAL

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OPERATION – SECTION C

Review all **SAFETY** information in Section A.

Follow the instructions on all tags, labels and decals attached to the pump.



This pump is designed to pump petroleum products. Do not attempt to pump liquids which may damage the pump or endanger personnel as a result of pump failure.

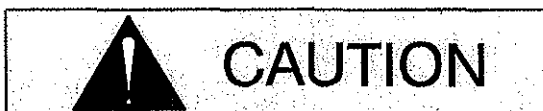


Pump speed and operating condition points must be within the continuous performance range shown on the curve (See Section E, Page 1).

PRIMING

Install the pump and piping as described in **INSTALLATION**. Make sure that the piping connections are tight, the pump is securely mounted, and the rotation is correct. Check that the pump is properly lubricated (see **LUBRICATION** in **MAINTENANCE AND REPAIR**).

This pump is self-priming, but the pump should never be operated unless there is liquid in the pump casing.



Never operate this pump unless there is liquid in the pump casing. The pump will not prime when dry. Extended operation of a dry pump will destroy the seal assembly.

Add fuel to the pump casing when:

1. The pump is being put into service for the first time.

2. The pump has not been used for a considerable length of time.
3. The fuel in the pump casing has evaporated, or has been displaced because of vehicle traveling over rough terrain.

Once the pump casing has been filled, the pump will prime and reprime as necessary.

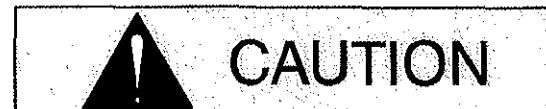


After filling the pump casing, reinstall and tighten the fill plug. Do not attempt to operate the pump unless all connecting piping is securely installed. Otherwise, liquid in the pump forced out under pressure could cause injury to personnel.

To fill the pump, remove the pump casing fill cover or fill plug in the top of the casing, and add clean fuel until the casing is filled. Replace the fill cover or fill plug before operating the pump.

GROUNDING

To eliminate electrostatic build-up when pumping petroleum products, the pump must be grounded by attaching a ground wire to a ground rod. Install the ground rod in accordance with the National Electric Code and all local codes. Be sure the clamp or fastener has made a tight electrical connection with the rod.



Inspect and test the ground wire assembly for conductivity. Replace broken or frayed wire before resuming operation.

STARTING

Consult the operations manual furnished with the motor.



WARNING!

The pump is not designed for continuous operation. Do not run the motor continuously longer than 1 hour.

Rotation

The correct direction of pump rotation is counter-clockwise when facing the impeller. If the pump is operated in the wrong direction, the impeller could become loosened from the shaft and seriously damage the pump.



CAUTION

Only operate this pump in the direction indicated by the arrow on the pump body and on the accompanying decal. Otherwise, the impeller could become loosened from the shaft and seriously damage the pump.

Consult the operating manual furnished with the motor before attempting to start the motor.

OPERATION

Lines With a Bypass

Close the discharge throttling valve (if so equipped) so that the pump will not have to prime against the weight of the fuel in the discharge line. Air from the suction line will be discharged through the bypass line back to the wet well during the priming cycle. When the pump is fully primed and liquid is flowing steadily from the bypass line, open the discharge throttling valve. Liquid will then continue to circulate through the bypass line while the pump is in operation.

Lines Without a Bypass

Open all valves in the discharge line and start the motor. Priming is indicated by a positive reading on the discharge pressure gauge or by a quieter operation. The pump may not prime immediately be-

cause the suction line must first fill with liquid. If the pump fails to prime within five minutes, stop it and check the suction line for leaks.

After the pump has been primed, partially close the discharge line throttling valve in order to fill the line slowly and guard against excessive shock pressure which could damage pipe ends, gaskets, sprinkler heads, and any other fixtures connected to the line. When the discharge line is completely filled, adjust the throttling valve to the required flow rate.

Leakage

No leakage should be visible at pump mating surfaces, or at pump connections or fittings. Keep all line connections and fittings tight to maintain maximum pump efficiency.

Liquid Temperature And Overheating

The **maximum** liquid temperature for this pump is 160° F (71°C). Do not apply it at a higher operating temperature.

Overheating can occur if operated with the valves in the suction or discharge lines closed. Operating against closed valves could bring the fuel to a boil, build pressure, and cause the pump to rupture or explode. If overheating occurs, stop the pump and allow it to cool before servicing it. Refill the pump casing with cool fuel.



WARNING!

Do not remove plates, covers, gauges, pipe plugs, or fittings from an overheated pump. Vapor pressure within the pump can cause parts being disengaged to be ejected with great force. Allow the pump to cool before servicing.

The motor thermostat is designed to sense motor temperature before the ignition temperature of the fuel being pumped is reached. The self-resetting thermostat, normally closed, will open at 260° F. The thermostat has a pilot duty of 375VA, and must be wired into a control box to cut power to the motor.

The pump motor may remain dangerously hot after the power is cut off. If overheating occurs, stop the pump, and allow it to cool before servicing it.

Strainer Check

If a suction strainer has been shipped with the pump or installed by the user, check the strainer regularly, and clean it as necessary. The strainer should also be checked if pump flow rate begins to drop. If a vacuum suction gauge has been installed, monitor and record the readings regularly to detect strainer blockage.

Never introduce air or steam pressure into the pump casing or piping to remove a blockage. This could result in personal injury or damage to the equipment. If backflushing is absolutely necessary, **liquid pressure** must be limited to 50% of the maximum permissible operating pressure shown on the pump performance curve (see Section E, Page 1).

Pump Vacuum Check

With the pump inoperative, install a vacuum gauge in the system, using pipe dope on the threads. Block the suction line and start the pump. At operating speed the pump should pull a vacuum of 20 inches (508,0 mm) or more of mercury. If it does not, check for air leaks in the seal, gasket, or discharge valve.

Open the suction line, and read the vacuum gauge with the pump primed and at operation speed. Shut off the pump. The vacuum gauge reading will immediately drop proportionate to static suction lift, and should then stabilize. If the vacuum reading falls off rapidly after stabilization, an air leak exists. Before checking for the source of the leak, check the point of installation of the vacuum gauge.

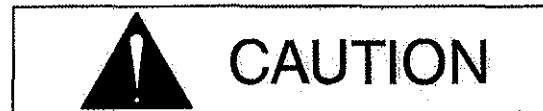
Before checking for the source of the leak, check the point of installation of the vacuum gauge.

NOTE

Petroleum products are very sensitive to changes in temperature. Warmer temperatures elevate the product vapor pressure, resulting in low vacuum readings. Do not mistake temperature problems for faulty pump installation or performance.

STOPPING

Never halt the flow of liquid suddenly. If the liquid being pumped is stopped abruptly, damaging shock waves can be transmitted to the pump and piping system. Close all connecting valves slowly.



If the application involves a high discharge head, gradually close the discharge throttling valve before stopping the pump.

After stopping the pump, lock out or disconnect the motor to ensure that the pump will remain inoperative.

Cold Weather Preservation

Since the application of this pump is limited to petroleum products, normal freezing conditions will not damage the pump. However, during extremely severe conditions care should be exercised during start-up, especially if the pump has been idle for more than a few hours.

TROUBLESHOOTING — SECTION D

Review all SAFETY information in Section A.



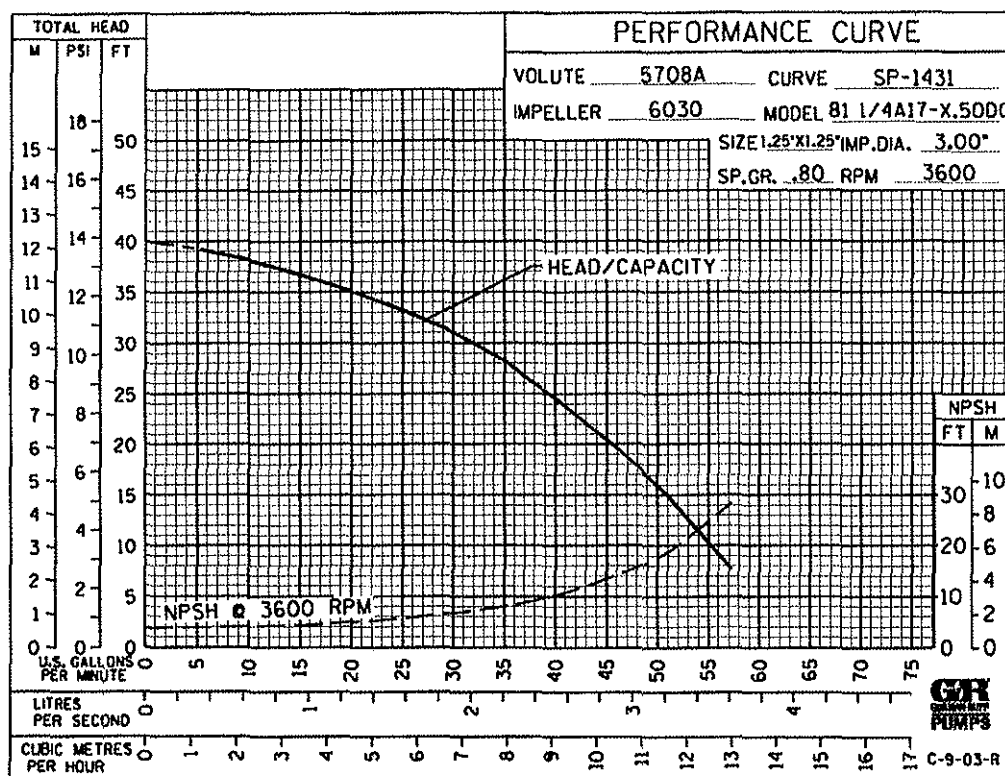
Before attempting to open or service the pump:

1. Familiarize yourself with this manual.
2. Lock out or disconnect the motor to ensure that the pump will remain in-operative.
3. Allow the pump to completely cool if overheated.
4. Check the temperature before opening any covers, plates, or plugs.
5. Close the suction and discharge valves.
6. Vent the pump slowly and cautiously.
7. Drain the pump.

TROUBLE	POSSIBLE CAUSE	PROBABLE REMEDY
PUMP FAILS TO PRIME	Air leak in suction line. Lining of suction hose collapsed. Leaking or worn seal or pump gasket. Check valve installed in suction line clogged or binding. Suction lift or discharge head too high.	Correct leak. Replace suction hose. Check pump vacuum. Replace leaking or worn seal or gasket. Clean valve; replace if necessary. Check piping installation and install bypass line if needed. See INSTALLATION .
PUMP STOPS OR FAILS TO DELIVER RATED FLOW OR PRESSURE	Air leak in suction line. Lining of suction hose collapsed. Leaking or worn seal or pump gasket. Impeller clearance incorrect; wearing parts of pump worn or damaged.	Correct leak. Replace suction hose. Check pump vacuum. Replace leaking or worn seal or gasket. Check impeller clearance; check wear ring, shaft seal, and other wearing parts, and replace as necessary (see MAINTENANCE AND REPAIR).

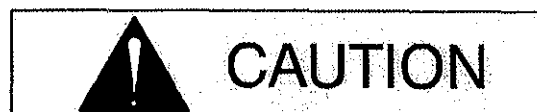
PUMP MAINTENANCE AND REPAIR – SECTION E

MAINTENANCE AND REPAIR OF THE WEARING PARTS OF THE PUMP WILL MAINTAIN PEAK OPERATING PERFORMANCE.



* STANDARD PERFORMANCE FOR PUMP MODEL 81 1/4A17-X.50 DC

* Based on 70° F (21 ° C) clear water at sea level corrected to 0.80 specific gravity. Since pump installations are seldom identical, your performance may be different due to such factors as viscosity, specific gravity, elevation, temperature, and impeller trim.



CAUTION

Pump speed and operating condition points must be within the continuous performance range shown on the curve.

SECTION DRAWING

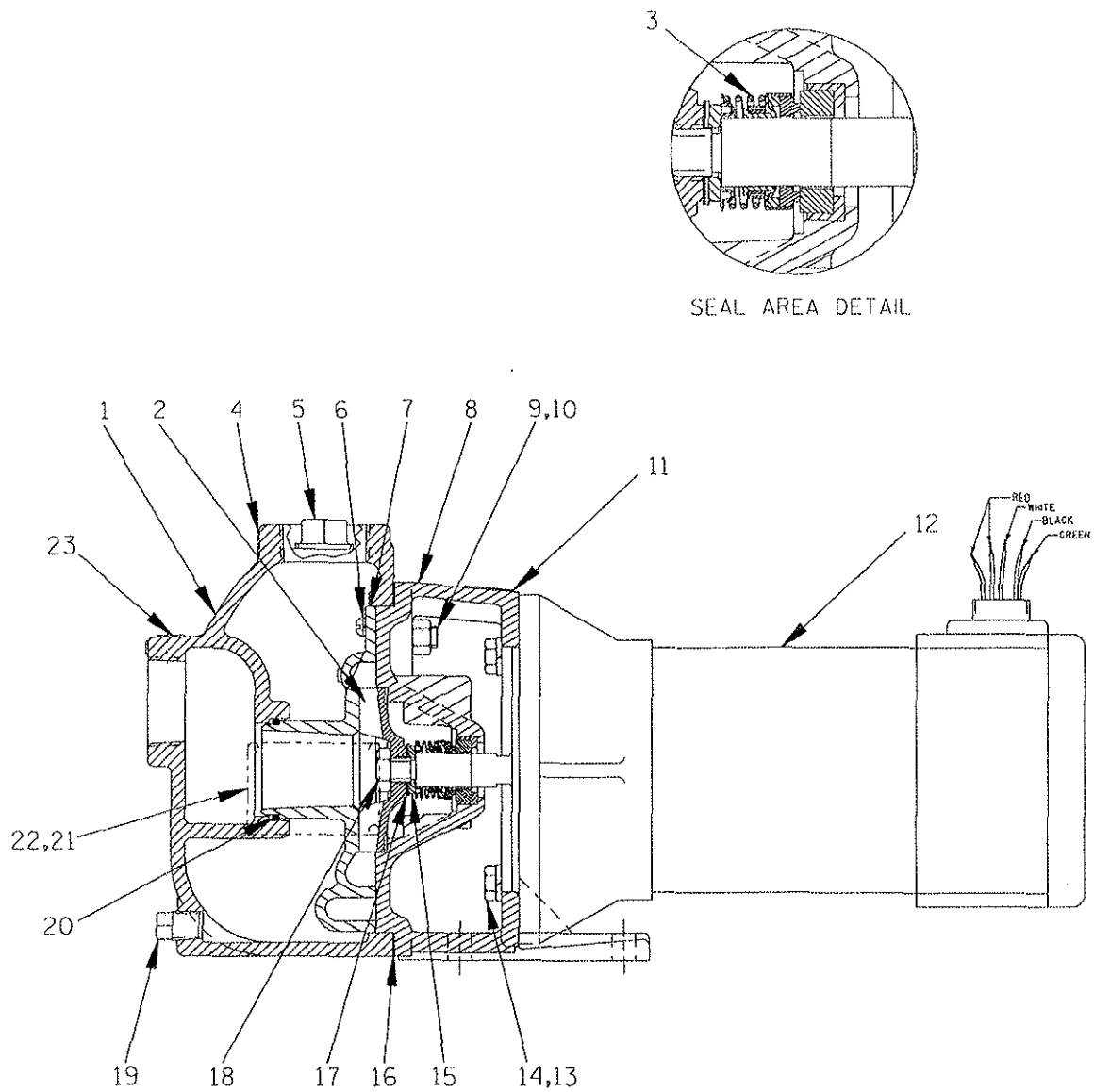


Figure 1. Pump Model 81 1/4A17-X.50 DC

PARTS LIST
Pump Model 81 1/4A17-X.50 DC
 (From S/N 1094303 up)

ITEM NO.	PART NAME	PART NUMBER	MAT'L CODE	QTY	ITEM NO.	PART NAME	PART NUMBER	MAT'L CODE	QTY
1	PUMP HOUSING	5709	13040	1	16 *	PUMP HOUSING GSKT	5709GA	20000	1
2 *	IMPELLER	6030	14010	1	17	IMP ADJ SHIM SET	5889	17000	1
3 *	SEAL ASSY	25271-821	----	1	18	JAM NUT	AT07S	14990	1
4	DISCHARGE STICKER	6588BJ	----	1	19	PUMP HSG DRAIN PLUG	P04	14990	1
5	FILL PLUG	P12	14990	1	20 *	VANE PLATE O-RING	S1616	----	1
6	RD HD MACH SCREW	X#10-02	14990	2	21	NAME PLATE	38812-041	13990	1
7	VANE PLATE	5708A	14010	1	22	DRIVE SCREW	BM#04-03	17000	4
8	INTERMEDIATE	5711	13040	1	23	SUCTION STICKER	6588AG	----	1
9	STUD	C0605	14990	4	NOT SHOWN:				
10	HEX NUT	D06	14990	4		WARNING DECAL	2613FF	----	1
11	ROTATION DECAL	2613M	----	1		INSTRUCTION TAG	38817-027	----	1
12	.50 HP DC MOTOR	28119-308	----	1		PRIMING STICKER	6588AH	----	1
13	HEX HD CAPSCREW	21672-595	----	4	OPTIONAL:				
14	LOCKWASHER	J06	15991	4		MOTOR BRUSH SET	28313-021	----	1
15	SEAL WASHER	6087	14110	1					

* INDICATES PARTS RECOMMENDED FOR STOCK

PUMP AND SEAL DISASSEMBLY AND REASSEMBLY

Review all SAFETY information in Section A.

Follow the instructions on all tags, label and decals attached to the pump.

This pump requires little service due to its rugged, minimum-maintenance design. However, if it becomes necessary to inspect or replace the wearing parts, follow these instructions which are keyed to the sectional view (see Figure 1) and the accompanying parts list.

Before attempting to service the pump, lock out or disconnect the motor to ensure that it will remain inoperative. Close all valves in the suction and discharge lines.

For motor disassembly and repair, consult the literature supplied with the motor, or contact your local motor representative.



Before attempting to open or service the pump:

1. Familiarize yourself with this manual.
2. Lock out or disconnect the motor to ensure that the pump will remain inoperative.
3. Allow the pump to completely cool if overheated.
4. Check the temperature before opening any covers, plates, or plugs.
5. Close the suction and discharge valves.
6. Vent the pump slowly and cautiously.
7. Drain the pump.



Use lifting and moving equipment in good repair and with adequate capacity to prevent injuries to personnel or damage to equipment. Suction and discharge hoses and piping must be removed from the pump before lifting.

Pump Casing and Vane Plate Removal

Before attempting to service the pump, remove the pump housing drain plug (19) and drain the pump. Clean and reinstall the drain plug.

To service the impeller (2), vane plate (7) or seal assembly (3), disconnect the suction and discharge piping.

Remove the nuts (10) securing the pump housing (1) to the intermediate (8). Remove the pump housing by pulling straight away.

Remove the housing gasket (16) and vane plate O-ring (20).

To remove the vane plate, disengage the machine screws (6).

Impeller Removal

Immobilize the impeller by wedging a block of wood or a brass rod between the vanes. Remove the impeller jam nut (18).

With the impeller immobilized, use a 1/2 inch open end wrench on the flats on the motor shaft, and turn the shaft counterclockwise as viewed from the motor end. When the impeller breaks loose, remove the wood block and unscrew it from the shaft. Use caution when removing the impeller; tension on the seal spring will be released as the impeller is unscrewed.

Inspect the impeller and replace it if cracked or badly worn. Slide the impeller adjusting shims (17) off the impeller shaft. Tie and tag the shims, or measure and record their thickness for ease of reassembly.

2" UNISEX COUPLINGS MIL-C-53071

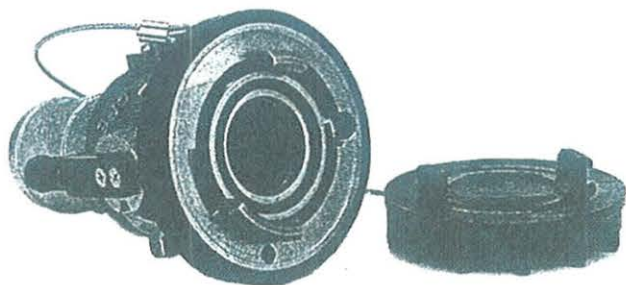


CARTER GROUND FUELING CO.
A Division of J.C. Carter Co., Inc.

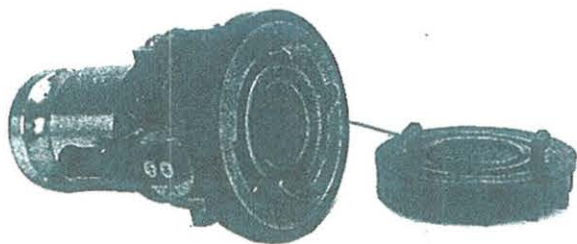
Models 64019, 64020, 64022, 64023, 64029 & 64030

64020 COUPLINGS WITH VALVES

Carter valved unisex couplings are designed in accordance with MIL-C-53071 and are completely interchangeable with similar couplings made by Aeroquip. The basic unisex coupling is featured under model number 64020. Variations of the units that have more than a single unisex coupling on a unit are covered under other model numbers as noted herein. The unisex couplings, as the name implies, are designed to mate with each other allowing for the connection of hose assemblies regardless of the end fitting.



64020E Unisex Coupling
with 2" Hose Barb Inlet



64020F Unisex Coupling
with 2" Male Camlock Inlet

FEATURES:

- Interchanges with similar Aeroquip units.
- Unisex connection allows indiscriminate mating.
- Manual ball valve included.
- Interlock feature prevents disconnection of unit with ball valve open.
- Pressure tight dust cap included on all units.
- Dust seal incorporated between connected units - protects mating surfaces.
- Units are easily repairable.
- Variety of inlet fittings to suit system needs.
- Tan color standard, green optional.
- Hose swivel integral to part.

TECHNICAL INFORMATION

- Nominal two-inch line size.
- Qualified in accordance with MIL-C-53071 .
- Pressure drop: 3 psi max. at 200 gpm (64020H).
- Operating Pressure: 100 psi.
- Burst Pressure: 300 psi.
- Hose Swivel Torque: 240 in.-lb. max. (at 100 psi).
- Operating Temperatures: -25°F to +155°F.
- Inlets to mate male or female NPT, camlocks & hose barbs available. Special inlets on request.

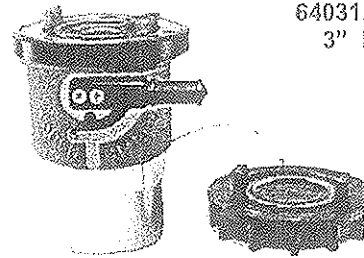
Bulletin 64020 10/94

671 W. 17th St., Costa Mesa, CA 92627 • (714) 548-3421 • FAX (714) 752-2997 • ESL 6284742671

ORDERING INFORMATION

64031 3" COUPLINGS WITH VALVES

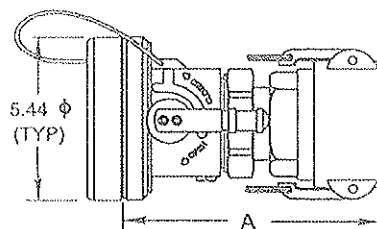
The basic model may be ordered with various options by adding one, or more of the letters or numbers listed in the table below. The basic unit has no inlet fitting and meets the tan color requirement, hence an option letter or number must be specified to achieve a complete unit. Options with multiple couplings are available. Ask for information.



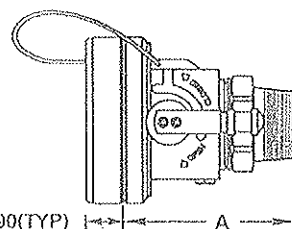
64031R - 3" Unisex with
3" Female NPT Inlet

OPTION LETTER	DESCRIPTION	OPTION LETTER	DESCRIPTION
C	Adds 10-mesh Strainer.	P	Adds 4" Male Camlock inlet.
D	Adds 3" Hose Barb inlet	Q	Adds Dust Cap/Plug to option appropriate inlet..
E	Adds 4" Hose Barb inlet	R	Adds 3" Female NPT inlet.
F	Adds 2" Male Camlock inlet	S	Adds 3" Male NPT inlet.
G	Adds 2" Female Camlock inlet	T	Adds MS33786-48 Flanged inlet with O-ring.
J	Adds 2" Male NPT inlet	U	Adds MIL-C-10387 Pipe Grooved inlet.
H	Adds D-1/D-2 Nozzle Inlet Flange	V	Changes exterior color to green.
L	Adds 3" Female Camlock inlet	W	Adds 4" Male BSPP inlet.
M	Adds 4" Female Camlock inlet	Z	Replaces Zinc-aluminum interface locking lugs with high strength stainless steel.
N	Adds 1 1/2" Male NPT inlet.		

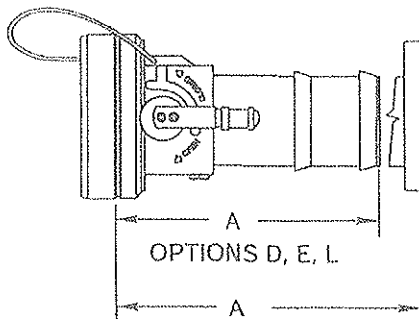
DIMENSIONAL SPECIFICATIONS



OPTIONS G, K, M

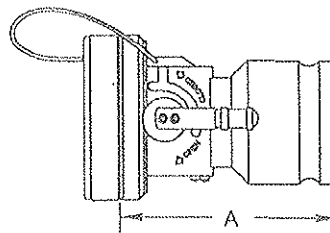


OPTIONS J, N, S, W

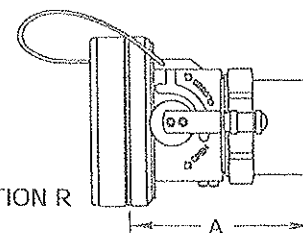


OPTIONS D, E, L

OPTIONS H, T



OPTIONS F, P



OPTION R

OPTION	"A" DIM.
D, E	9.35
F, R	6.80
G	8.45
H	6.03
J	6.35
K	9.00
L	6.36
M	9.40
N	7.73
P	7.10
S	6.50
T	6.00
U	6.15

5.9

1. VICTAULIC STYLE 77 ALUMINUM COUPLING
2. VICTAULIC STYLE 77 ALUMINUM COUPLING 1 1/4"
3. CHECK PIPE ENDS:
 - a. The outside surface of the pipe groove and pipe end must be smooth and free from indentations, projections, and roll marks to ensure a leak-tight seal for the gasket. All oil, grease, and dirt must be removed.
4. CHECK GASKET AND LUBRICATE:
 - a. Check the gasket to make sure it is suitable for the intended service. Apply a thin coat of Victaulic Lubricant or silicone lubricant to the gasket lips and exterior.
5. INSTALL GASKET:
 - a. Install the gasket over the pipe end. Make sure the gasket does not overhang the pipe end.
6. JOIN PIPE ENDS:
 - a. Align and bring the two pipe ends together. Slide the gasket into position, and make sure it is centered between the grooves on the gasket extends into the groove on either pipe.
7. INSTALL HOUSINGS:
 - a. Install the housings over the gasket. Make sure the housings' keys engage the grooves properly on both pipes.
8. INSTALL BOLTS/NUTS:
 - a. Install the bolts, and thread the nuts finger-tight onto the bolts. NOTE: Make sure the oval necks of the bolts seat properly in the bolt holes.
9. TIGHTEN NUTS:
 - a. Tighten all nuts evenly by alternating sides until metal-to-metal contact occurs at the bolt pads. Make sure the housings' keys completely engage the grooves. NOTE: It is important to tighten all nuts evenly to prevent gasket pinching.
10. WARNING!
 - b. Victaulic flexible coupling must have the nuts tightened until metal-to-metal contact occurs at the bolt pads.
 - c. Failure to follow this instruction could cause joint failure, resulting in serious personal injury and/or property damage.

Standard Flexible Coupling

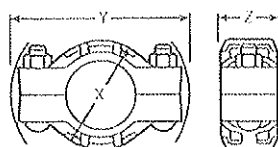
STYLE 77

DIMENSIONS

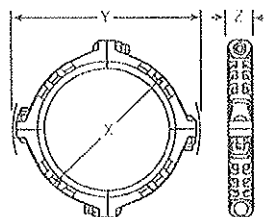
Size		Max. Work Pressure *	Max. End Load *	Allow. Pipe End Sep. †	Deflect. Fr. Cyl		Bolt/Nut® No. & Size	Dimensions – Inches/mm			Approx. Wgt. Each
		PSI	LB	IN	IN	IN		IN	IN	IN	LB
3/4	1.050	1,000	865	0 – 0.06	3" – 24"	0.72	2 – 3/8 x 7	2.13	4.00	1.75	1.1
20	26.7	6900	3850	0 – 1.6		60		54	102	44	0.5
1	1.315	1,000	1,360	0 – 0.06	2" – 43"	0.57	2 – 1/2 x 2	2.38	4.12	1.75	1.2
25	33.4	6900	6050	0 – 1.6		48		61	105	44	0.5
1 1/4	1.660	1,000	2,160	0 – 0.06	2" – 10"	0.45	2 – 3/4 x 2 1/2	2.65	5.00	1.88	2.0
32	42.2	6900	5610	0 – 1.6		38		67	127	48	0.9
1 1/2	1.900	1,000	2,835	0 – 0.06	1" – 56"	0.40	2 – 3/4 x 2 3/4	3.13	5.38	1.88	2.1
40	48.3	6900	12615	0 – 1.6		34		79	137	48	1.0
2	2.375	1,000	4,430	0 – 0.06	1" – 31"	0.32	2 – 1 1/2 x 2 3/4	3.63	5.88	1.88	2.6
50	60.3	6900	19715	0 – 1.6		26		92	149	48	1.2
2 1/2	2.875	1,000	6,490	0 – 0.06	1" – 15"	0.26	2 – 1 1/2 x 2 3/4	4.25	6.50	1.88	3.1
65	73.0	6900	28850	0 – 1.6		22		108	165	48	1.4
76.1 mm	3.000	1,000	7,070	0 – 0.06	1" – 12"	0.26	2 – 1 1/2 x 2 3/4	4.38	6.63	1.88	3.2
	76.1	6900	31460	0 – 1.6		22		111	168	48	1.5
3	3.500	1,000	9,620	0 – 0.06	1" – 2"	0.22	2 – 1 1/2 x 2 3/4	5.00	7.13	1.88	3.7
80	88.9	6900	46810	0 – 1.6		18		127	181	48	1.7
3 1/2	4.000	1,000	12,565	0 – 0.06	0" – 54"	0.19	2 – 1 1/2 x 3 1/4	5.63	8.25	1.88	5.6
90	101.6	6900	55915	0 – 1.6		16		143	210	48	2.5
4	4.500	1,000	15,500	0 – 0.13	1" – 36"	0.34	2 – 1 1/2 x 3 1/4	6.13	8.88	2.13	6.7
100	114.3	6900	70755	0 – 3.2		28		156	226	54	3.0
108.0 mm	4.250	1,000	14,180	0 – 0.13	1" – 41"	0.35	2 – 1 1/2 x 3 1/4	6.00	8.63	2.13	11.0
	108.0	6900	63100	0 – 3.2		29		152	219	54	5.0
5	5.563	1,000	24,300	0 – 0.13	1" – 18"	0.27	2 – 1 1/2 x 4 1/4	7.75	10.65	2.13	10.6
125	141.3	6900	108135	0 – 3.2		23		197	270	54	4.8
133.0 mm	5.250	1,000	21,635	0 – 0.13	1" – 21"	0.28	2 – 20 x 108	7.63	10.38	2.13	10.0
	133.0	6900	96275	0 – 3.2		24		194	264	54	4.5
139.7 mm	5.500	1,000	23,745	0 – 0.13	1" – 18"	0.28	2 – 20 x 108	8.63	10.65	2.13	10.0
	139.7	6900	105665	0 – 3.2		24		219	270	54	4.5
6	6.625	1,000	34,470	0 – 0.13	1" – 5"	0.23	2 – 1 1/2 x 4 1/4	8.63	11.88	2.13	12.0
150	168.3	6900	153390	0 – 3.2		18		219	302	54	5.4

Table continued on page 3.

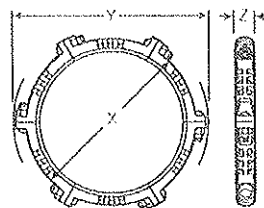
See notes on page 3.



3/4 – 12" SIZES



14 – 22" SIZES



24" SIZES

GASKET SELECTION

CAUTION

To ensure maximum gasket performance, always specify the grade for the intended service.
Failure to select the proper gasket for the service may cause joint failure, resulting in property damage.

Many factors must be considered for optimum gasket performance. Do not subject gaskets to temperatures beyond the recommended limits, since excessive temperatures will degrade gasket life and performance.

The services listed below are general service recommendations, and they apply only to Victaulic gaskets. Recommendations for a particular service do not necessarily imply compatibility of the coupling housings, related fittings, or other components for the same service. Always refer to the latest Victaulic Gasket Selection Guide (05.01) for gasket service recommendations.

NOTE: These recommendations do not apply to rubber-lined valves or other rubber-lined products. Refer to the applicable product literature, or contact Victaulic for recommendations.

NOTE: AIR LOGISTICS RECOMMENDED STANDARD GASKET "T" WITH A ORANGE STRIPE AND SPECIAL GASKET "M-2" WITH A WHITE STRIPE

Standard Gaskets (IPS)

Grade	Temp. Range	Compound	Color Code	General Service Recommendations
E	-30°F (-34°C) to +230°F (+110°C)	EPDM	Green Stripe	Recommended for hot water service within the specified temperature range, plus a variety of dilute acids, oil-free air, and many chemical services. UL classified in accordance with ANSI/NSF 61 for cold -86°F (-30°C) and -180°F (-82°C) potable. NOT RECOMMENDED FOR PETROLEUM SERVICES.
T	-20°F (-29°C) to +180°F (+82°C)	Nitrile	Orange Stripe	Recommended for petroleum products, hydrocarbons, air with oil vapors, vegetable oil, and mineral oil, within the specified temperature. NOT RECOMMENDED FOR HOT WATER SERVICE OVER +150° (+66°C) OR FOR HOT, DRY AIR OVER +140°F (+60°C).
E (Type A)	Ambient	EPDM	Violet Stripe	Applicable for wet and dry (oil-free air) sprinkler services only. For dry services. Victaulic recommends the use of FlushSeal gasket. NOT RECOMMENDED FOR HOT WATER SERVICES.

Special Gaskets (IPS)

M-2	-40°F (-40°C) to +160°F (+70°C)	Epichlorohydrin	White Stripe	Specially compounded to provide superior service for common, aromatic fuels at low temperatures. Also suitable for certain ambient-temperature water services.
V	+30°F (-1°C) to +180°F (+82°C)	Neoprene	Yellow Stripe	Recommended for hot lubricating oils and certain chemicals. Good oxidation resistance. Will not support combustion.
O	-20°F (-7°C) to +300°F (+149°C)	Fluoroelastomer	Blue Stripe	Recommended for many oxidizing acids, petroleum oils halogenated hydrocarbons, lubricants, hydraulic fluids, organic liquids, and air with hydrocarbons to +300°F (+149°C)
L	-40°F (-40°C) to +160°F (+70°C)	Silicone	Red Stripe	Recommended for dry heat, air without hydrocarbons to +350°F and certain chemical services. Silicone gasket for FIT products are recommended for dry fire projection systems, all systems operating below 0°F (-18°C) dry heat air without hydrocarbons, certain chemical services, and water to +160°F (+71°C)

ultraflo

Resilient Seated Butterfly Valves

400 & 480 Series 1 Piece Body Design

This economical, resilient seat valve is available in a wide variety of high quality materials including FDA approved blends and components for High Abrasion applications. Components precision machined to tight tolerances, the 400 Series delivers long service life, ease of operation and maintenance, and reduced cost.

390 & 380 Series Split Body Design

1 Piece disc/stem inherently protects against particle entrapment and contamination, a sanitary application requirement. The 390 Series is also ideal for abrasive applications due to the thin profile disc which increases flow capacity and reduces erosion of valve components.



380/480 SERIES

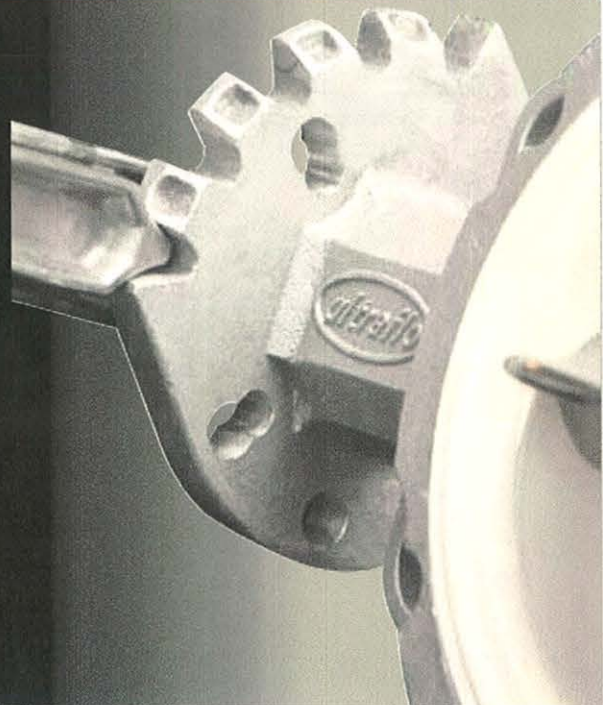
Featuring Our Unique
INTEGRATED NOTCH PLATE Along With
ALL ULTRAFLO'S Standard Features!

Reduces Inventory Requirements

- No separate Notch Plates
- No mounting hardware
- 9 positions of control with either 5 or 10 position handles

Stronger Design

- Allows use of stronger 5 position handles for all throttling requirements
- Integrated travel stops and notches are twice as strong



390 and 380 Series

Split Body Design

- 1 Piece disc/stem meets FDA requirements
- 2"-12"
- Split body construction offers quick and easy cleaning/repairs
- Lightweight, durable construction
- Seat design ensures positive retention and easy replacement
- Hand polished disc/stems
- Direct mount top plate for easy automation
- Low profile neck increases clearance

Features

Primary and Secondary Seals

Prevent line media from contacting stem and body components. The primary seal is the interference fit between the disc hub and the seat flat. The secondary seal is the interference fit between the stem and seat stem hole.

Upper and Lower Stem Bushings

(Lower Bushing only on 4" and larger valves.) Heavy duty non-corrosive thermoplastic polymer helps eliminate galling and reduce torque.

Stem Packing

Ensures a positive seal for pressure or vacuum service and prevents external contaminants from entering the stem bore.

Top Plate

Industry standardized drilling for total manual operator and actuator interchangeability.

Split Body

This split body style allows for a one-piece Ultra thin Disc/Stem that does not require disc screws, for improved sanitary performance, discs with satin and high polish finishes are available. 390 series disc/stems are offered in rugged investment cast 17-4PH and 316 Stainless Steel – or 255 Duplex Stainless when both increased strength and sanitary requirements apply.

3" 390 Series Valves

have been designed to fit between TTMA, ASME & lightweight flanges. The body features alignment holes that ensure proper valve positioning and allow quick, problem free installation.

Technical Data:

Materials of Construction

Body:

Cast Aluminum or Cast Iron Epoxy Coated

Resilient Seat:

Food Grade - Nitrile (black or white), Buna-N, or EPDM. Non Food Grade - FKM, EPDM backed PTFE

Disc/Stem:

316SS, 17-4 PH or 255 Duplex Stainless

Stem Bushing:

Upper & Lower - Thermoplastic Polymer

Body Bolt:

Cadmium Plated Steel

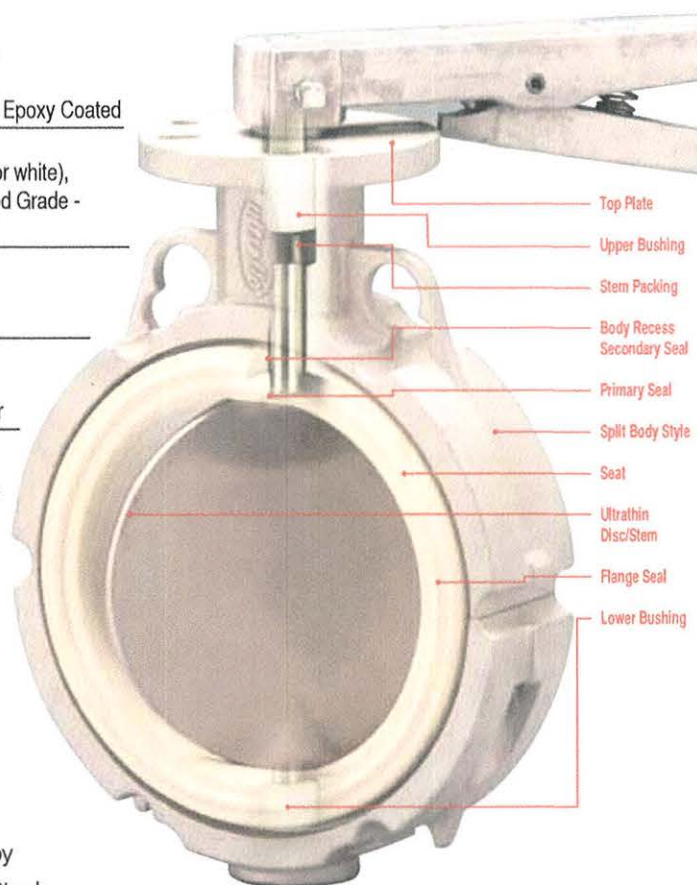
Manual Operator Components

Handle:

High strength aluminum alloy, Nodular Iron or Stainless Steel.

Throttling Plates:

5 Position High strength aluminum alloy
10 Position High strength aluminum alloy
10 Position Stamped Steel



Bidirectional Pressure Ratings

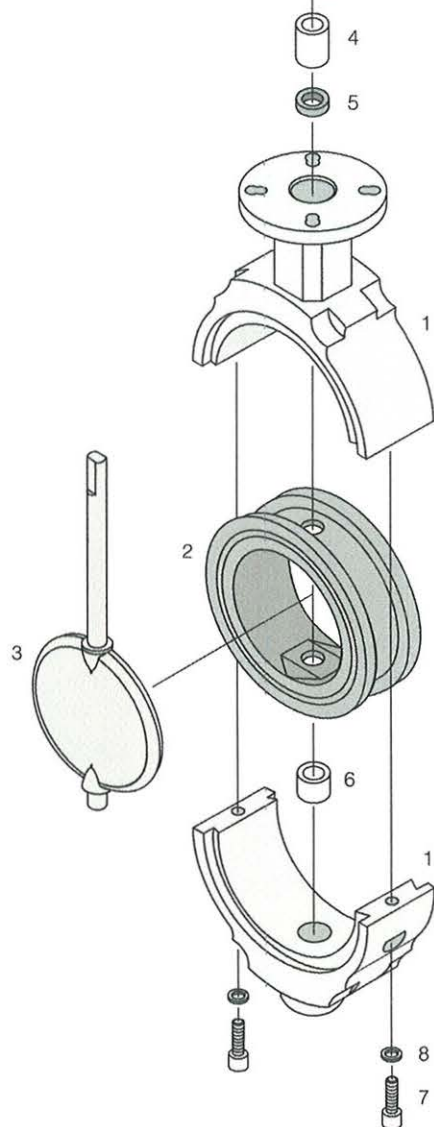
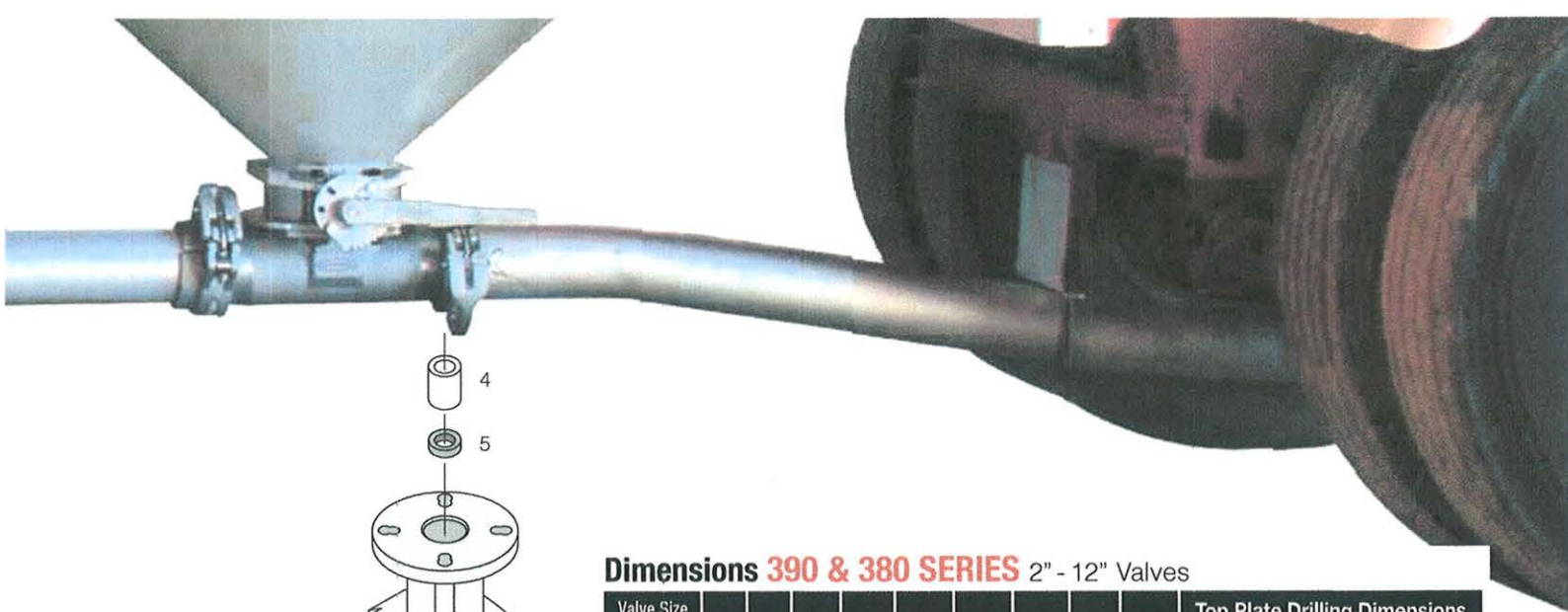
Disc Type	Rating
Standard Under Cut Disc	50 psi
Optional Full Cut Disc	150 psi



Series 390
Standard Aluminum
Split Body Design



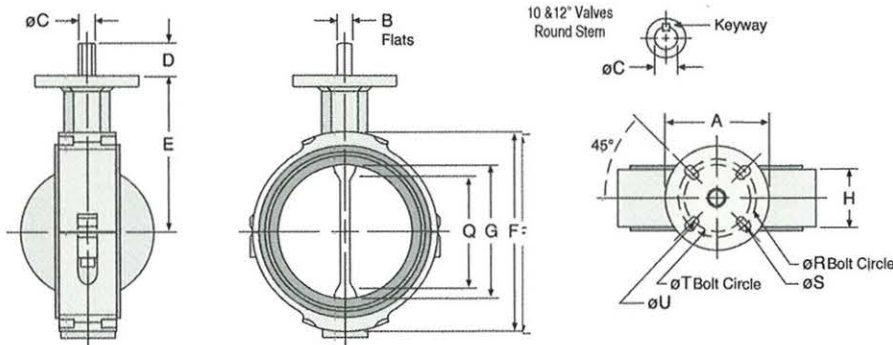
Series 380
Aluminum Split Body Design
with Integrated Notch Plate



Dimensions 390 & 380 SERIES 2" - 12" Valves

Valve Size	In.	mm	A	B	C	D	E	F	G	H	Q	Top Plate Drilling Dimensions				
												R	S	T	U	Holes
2	50	4.00	.375	.563	1.250	3.938	4.025	2.125	1.625	1.531	3.250	.438	2.760	.375		4
2 1/2*	65	4.00	.375	.563	1.250	4.50	4.775	2.50	1.750	1.969	3.250	.438	2.760	.375		4
3	75	4.00	.375	.563	1.250	4.875	5.275	3.125	1.750	2.689	3.250	.438	2.760	.375		4
4	100	4.00	.437	.625	1.250	6.00	6.775	4.125	2.00	3.719	3.250	.438	2.760	.375		4
5	125	4.00	.437	.625	1.250	6.00	7.650	5.188	2.125	4.813	3.250	.438	2.760	.375		4
6	150	4.00	.500	.750	1.250	6.50	8.650	6.125	2.125	5.813	3.250	.438	2.760	.375		4
8	200	6.00	.625	.875	1.250	8.313	10.900	8.125	2.50	7.813	5.00	.563	—	—		4
10	250	6.00	—	1.125	2.00	9.125	13.275	10.125	2.50	9.906	5.00	.563	—	—		4
12	300	6.00	—	1.125	2.00	10.645	16.025	12.093	3.00	11.938	5.00	.563	—	—		4

* 2 1/2" size valves are offered only in cast iron bodies and are not available in aluminum.



390 Series & 380 Series Components

Item	Description	Qty.
1	Split Body	1
2	Seat	1
3	Disc / Stem	1
4	Upper Bushing	1
5	Stem Packing	1
6	Lower Bushing (4" and larger only)	1
7	Body Bolt	2
8	Lock Washer	2

Dimension & Flanging Notes

H dimension is the installed width.
Q dimension is the minimum allowable inside diameter of the pipe or mating flange.

2" - 6" Valves are offered with 2 independent Top Plate Drilling patterns: R/S and T/U.

Flange Requirements: The valve O.D. and flange bolt circle must share a common center line.

All aluminum valves are designed to fit lightweight and ASME 125/150 flanges. 4", 5", 6" and 8" valves require additional machining to fit TTMA flanges and require an "A" following the size indication in the part number. 2" 400 Series and all Series 3" aluminum bodied Ultraflo valves fit TTMA flanges as standard.

390/380 Series 3" and 5" valves feature flange alignment holes to ensure proper positioning and ease of installation.