

OPERATOR'S GUIDE AND OPERATIONS MANUAL

Tidal Wave Tanks & Fabrications Inc.

Authorized Dealer & Manufacturer of
Tidal Wave Tanks

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TABLE OF CONTENTS



• Page #3	Water Truck/Tank Information
• Page #4	Welcome
• Page #5-7	Owner/Operator Responsibilities
• Page #8-9	Air In-Cab Control Box Layout & Parts
• Page #10-13	Water Pump Information – Standard Pump
• Page #14	5 x 4 Water Pump
• Page #15 -16	Hydraulic Motor
• Page #17	Groove Spray Head – Air
• Page #18	In-line Valve-Air
• Page #19-20	Water Monitor/Cannon - Air
• Page #21-22	Hose Reel
• Page #23-24	Hydraulic Distribution Box
• Page #25-26	Hydraulic In-Cab Control Box
• Page #27-28	3” Hydraulic Spray Head & Parts
• Page #29	In Line Valve , Hydraulic & Parts
• Page #30	Water Monitor/Cannon - Electric
• Page #31	Pump Primer
• Page # 32-41	Self Loading Information & Procedure of Operation



YOUR TANK INFORMATION

TRUCK MODEL#: _____ TRUCK SERIAL#: _____ CHASSIS YEAR: _____

TANK SERIAL#: _____ CUSTOMER: _____

SHIPPING DATE: _____ DELIVERED TO: _____

TANK SIZE: _____ AIR OPERATED : _____ HYDRAULIC OPERATED: _____

OTHER OPTIONS: _____

WELCOME

Thank you for becoming a member of the Tidal Wave Tanks, Inc. family with your order and delivery of your water truck. We work hard for you our customers and end-users to supply you with a quality product. It is our hope that you will have hours of quality and safe hours of operation. We design our tanks with you the operator in mind when it comes to safe operation. Our surge design is unmatched and offers good surge protection.

With that said, the best design offered is only as safe as the person who operates the equipment.

ALWAYS REMEMBER YOU ARE HAULING MATERIAL THAT MOVES!

Follow all safe guidelines and procedures of your company during operation of this equipment and always **STOP** operation if you are not sure or if you encounter any unsafe condition.

SAFETY FIRST!

OWNER/OPERATORS RESPONSIBILITIES

The operator must read and understand the operating instructions of your water truck.

In this manual you will find information pertaining to your water truck operation and parts listings. Your water truck may not have all the components listed in this manual installed on your equipment. It is important to you the owner, and you the operator, to become familiar with the components of your equipment. It is important that you maintain the tank serial number as it will assist in any trouble shooting issues you may have. We are here to offer our support if you have any questions.

BEFORE starting up your Tidal Wave Tank, you the operator needs to familiarize yourself with the water truck and its components. The water pump and water monitor/cannon have grease fittings and require lubrication. The water pump lubrication recommendation are on page #7 of this manual. Proper maintenance of the water pump is critical to both the operation and warranty. The water monitor/cannon also has grease fittings and should be lubricated as needed to insure smooth operation. Water and bearings do not get along without lubrication.

Take the time to locate these grease fittings and keep them properly lubricated for good service of the components.

Failure to follow the operating procedures as described will cause damage to the water system and void the warranty.

OWNER/OPERATORS RESPONSIBILITIES

- There are five air or hydraulic operated spray heads.
- Each spray head is independently operated by toggling the appropriately labeled air valve switch, located in the tractor cab. Reference page #8 for labeling.
- Toggling the switch in the up position engages the spray head and toggling the switch in down position disengages the spray head.
- The water pump is hydraulically operated using the original hydraulics that operated the dump system. To engage the water pump, the operator follows the procedure outlined in the truck's operator's manual to activate the dump bed.
- To start spraying water one or more spray heads must be opened with engine at idle.
- Then engage the water pump at idle using the dump body lever.
- This procedure also applies to using the remote spray cannon.
- When the operator is finished applying water, the water pump must be disengaged at idle, and then the spray head and or spray cannon can be turned off.
- The remote cannon uses a joystick controller to move the cannon in a horizontal position and in the vertical position. Reference page #8 for joystick control.
- If the spray cannon moves too slow or too fast the regulator may be adjusted to increase or decrease the activation speed
- **Failure to follow the operating procedures as described will cause damage to the water system and void the warranty.**



WATER PUMP MAINTENANCE GUIDELINE

ROTATION CHECK:

-
- Before your pump is put into operation, the rotational direction must be verified to assure proper performance (refer to illustration).
- Centrifugal pumps will still pump liquid when the rotation is incorrect, however Gallons Per Minute and head will be a fraction of the published performance.

STARTING A NEW PUMP:

-
- **Rope Seal:** Before starting a pump with a Rope Packing Seal for the first time, loosen gland nuts and retighten, finger tight. Once running, allow packing to leak liberally for a few moments, then tighten gland nuts one complete turn each until leakage is reduced to 40 to 60 drops per minute.
- **Mechanical Seal:** Adjustment or maintenance is normally not required. The seal is enclosed within the pump and is self-adjusting.
- Seal is cooled and lubricated by the pumped liquid.

LUBRICATION:

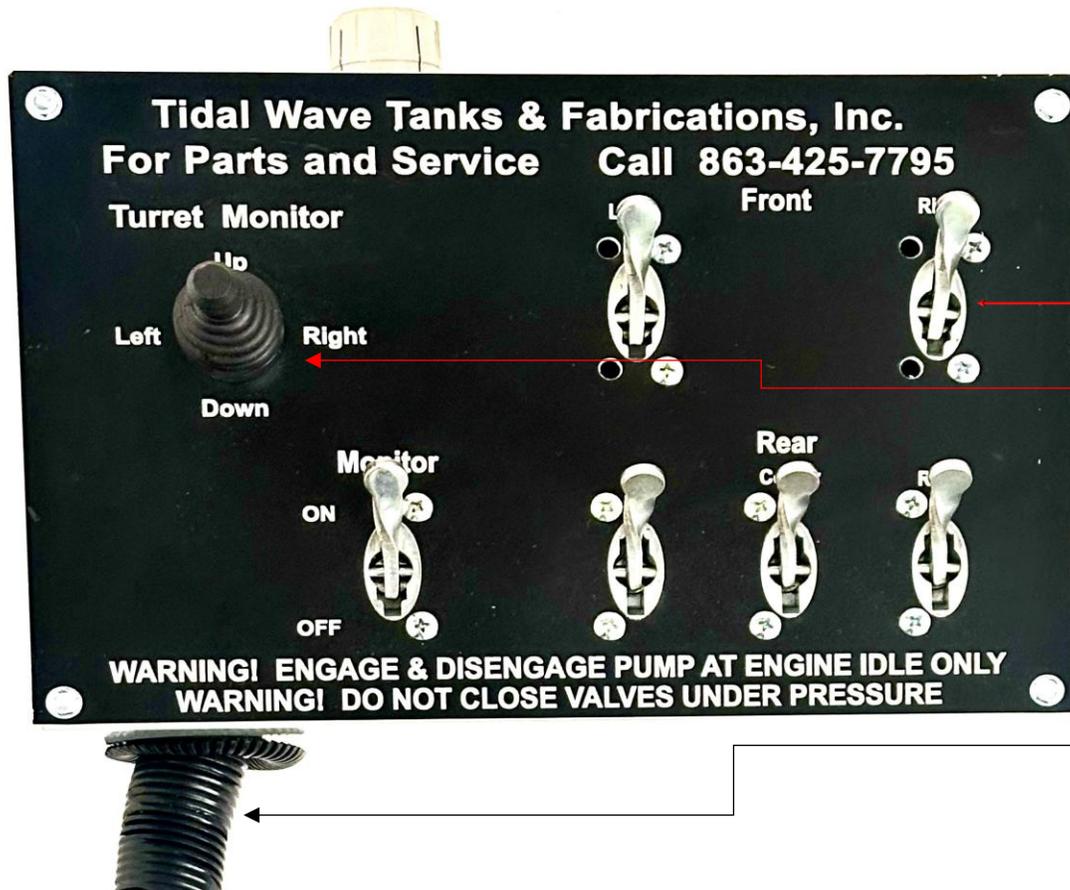
-
- The liquid end of a pump requires no lubrication. Wear rings, packing rings, and models using a mechanical shaft seal are lubricated by the liquid being pumped.
- Never run a pump dry. Running without water will cause your pump to overheat and can damage internal parts.
- Grease should be added as required by your daily and weekly routine inspections. Lubricate each bearing with a lithium-based NGLI No. 2 extra pressure ball bearing grease.

-
- Excess grease will cause bearings to run hot.

ROUTINE MAINTENANCE:

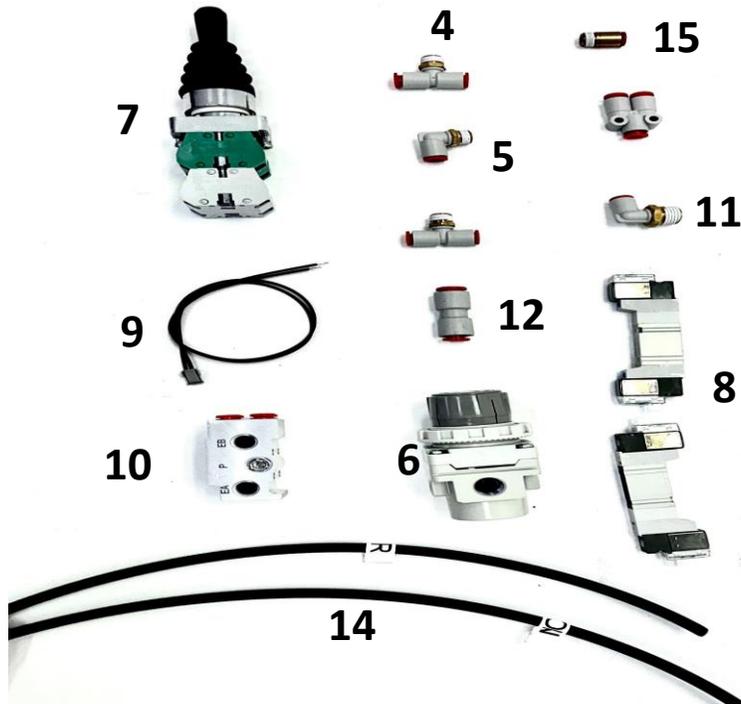
-
- A well-maintained pumping system will extend the life of the unit and will require fewer repairs. This means less down time which can be very critical when a constant delivery of water is required.
- A routine maintenance and inspection schedule should be set up on a weekly, quarterly, and annual basis with records kept of these actions.

IN CAB AIR CONTROL BOX PARTS 5 SPRAY HEADS, 1 CANNON



Item	Description	Qty	Part Number
1	Face Plate	1	TWT 8-12
2	12x8x4 NEMA Box	1	CS1284
3	Air Toggle Switch	6	331-6451000
4	1/4" Tee x 1/8" NPT	6	KQ2T07-34AS
5	1/4" Tube x 1/8" NPT Elbow	6	KQ2L07-34AS
6	Regulator Tee Set	1	AR20-N02H-1NZ-A
7	Joystick-24 Volt	1	ECX1520
8	24 V Solenoid	2	SY3340-5LOZ
9	Electrical Wiring Harness	4	SY100-30-4A
10	Bar Stock Manifold	1	SS5Y3-41-02-N7T
11	Male Elbow 1/4" x 1/4"	3	KQ2L07-35AS
12	1/4" Straight Union-Control Box to Cab	14	KQ2H07-00A
14	1/4" Tubing	100'	TIA-07B-33
15	1/8" NPT x 1/4" Male Connector	4	KQ2S07-34AS

IN CAB AIR CONTROL BOX PARTS



Parts

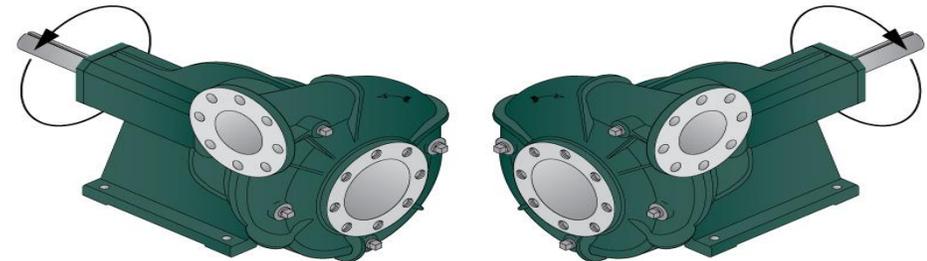
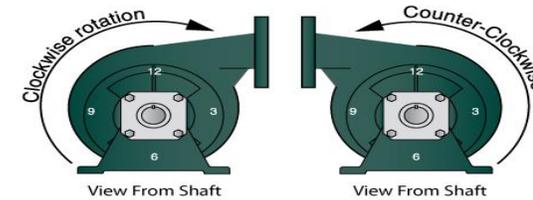
- #4 Tee - 1/4" x 1/8" NPT- # KQ2T07-34AS
- #5 Elbow – 1/4" x 1/8"NPT - # KQ2L07-34AS
- #7 Joystick – # ECX1520
- #6 Regulator Tee Set
- #8 24 V Solenoid
- #9 Electrical Wiring Harness
- #10 Bar Stock Manifold
- #11 Male Elbow 1/4" x 1/4"
- #12 1/4" Straight Union-Control Box to Cab
- #15 1/8" NPT x 1/4" Male Connector

WATER PUMP INFORMATION

CENTRIFUGAL PUMP INFORMATION

B3Z-S Hydraulic Frame Pump (CW Thread) - B69875

The ATP B3Z-S *Clockwise, Mechanical Seal* style pump features a Hydraulic Mount Bearing Frame. This pump is driven directly by a SAE C, 1 $\frac{1}{4}$ " 14 tooth Splined Shaft hydraulic motor coupled directly to the water pump shaft with a coupling (Sold Separately). **NOTE: This pump cannot be driven directly by a PTO.** At 2,500 RPM this pump performs at a rate up to 750 GPM at 65 PSI and is used in off road as well as on road applications.



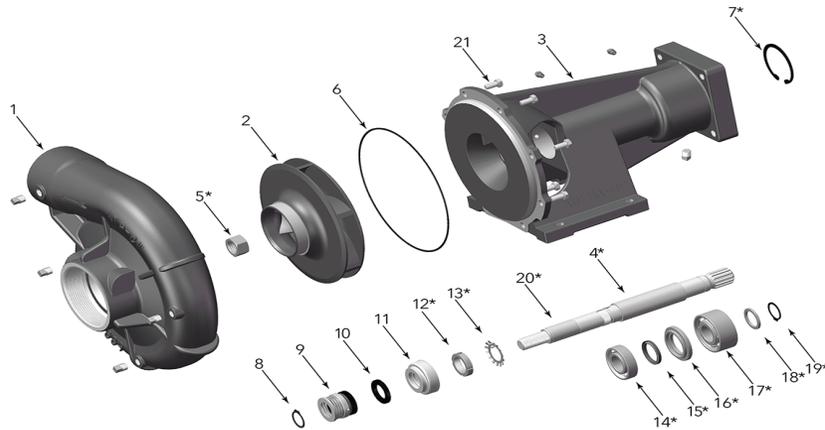


WATER PUMP



- B3Z Hydraulic Frame Pump-Pt#-B69875 Complete Pump-(Not Including Hydraulic Motor)
- Current view may not be normal to your pump's orientation. Pump volute (casing) may have been rotated for your installation.

PARTS - WATER PUMP B3ZRMS - CW – 4X3 – B/M #69875

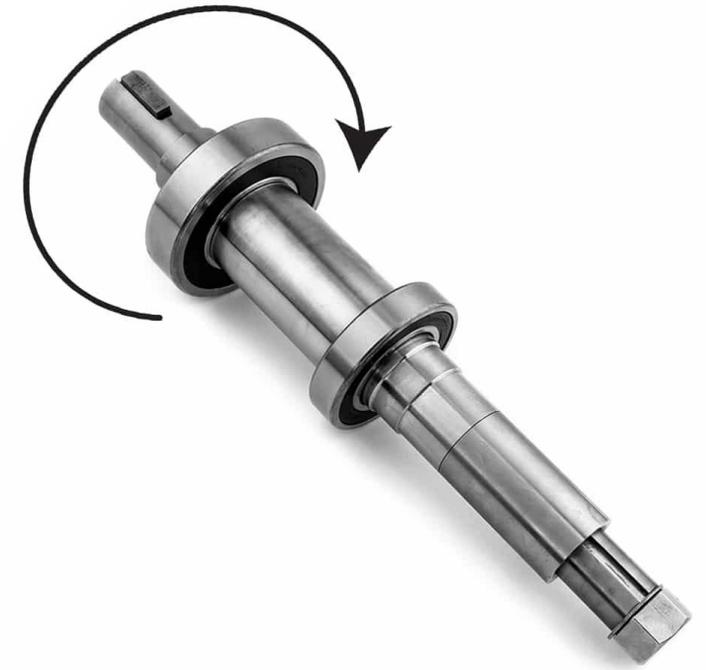
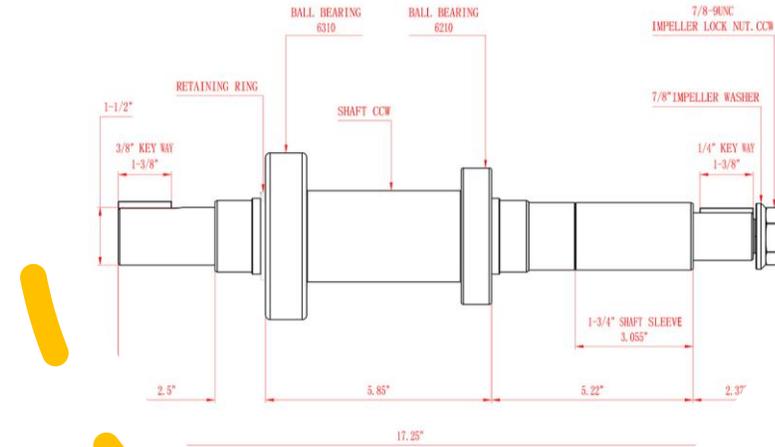


PARTS LISTING

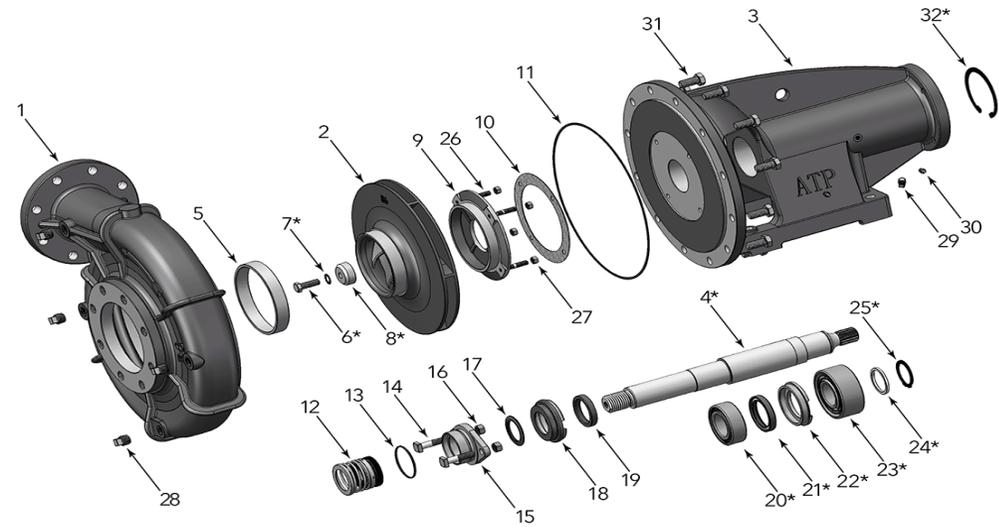
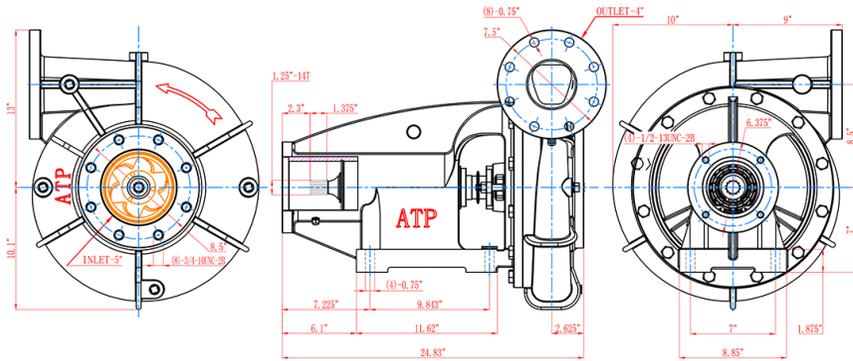
- #1- Volute Case-CW-(Threaded) – PT# H00689
- #2- Impellor-CW – PT# M02153
- #3- Volute Gasket – PT# S05126
- #4- Pump Frame, Hyd. Mount – PT# H05119
- #5- Shaft Kit – Splined-CW – PT# B73052
Shaft Kit Includes Item #'s – 5,6,9, & 11
- #6- Retaining Ring – PT# S23023
- #7- Mechanical Seal – PT# S32690
- #8- Water Slinger – PT# S12260
- #9- Shaft Sleeve – PT# S39242
- #10- Retaining Ring – PT# S23009
- #11- Impellor Lock Nut – PT# M10220
- #12- Inner Bearing Cap – PT# S19033

PARTS - WATER PUMP B3ZRMS -CW – 4X3 – B/M #69875

- #1- Volute Case-CW-(Threaded) – PT# 113-H00689
- #2- Impellor-CW – PT# 112-M02153
- #3- Volute Gasket – PT# 116-S05126
- #4- Pump Frame, Hyd. Mount – PT# 114-H05119
- #5- Shaft Kit – Splined-CW – PT# 111B73052-3
 - **Shaft Kit Includes Item #'s – 5,6,9, & 11**
- #6- Retaining Ring – PT#116-S23023
- #7- Mechanical Seal – PT# 116-S32690
- #8- Water Slinger – PT# 116-S12260
- #9- Shaft Sleeve – PT# 116-S39242
- #10- Retaining Ring – PT# 116-S23009
- #11- Impellor Lock Nut – PT# 116-M10220
- #12- Inner Bearing Cap – PT# 116-S19033



WATER PUMP – 5X4 – B4JRGBHS – B/M #B69743



HYDRAULIC MOTOR PERMCO 5100 SERIES

- Motor-Hydraulic-Permco-SAE C 4-Bolt Flange-- M5100A867ADXK25-6
- Bolt-M12-1.75 x 35MM Hex Cap Zinc Plated – 4 required
- Lockwasher-M12 Zinc Plated
- SAE C, 1 $\frac{1}{4}$ " 14 tooth Splined Coupling-PT#



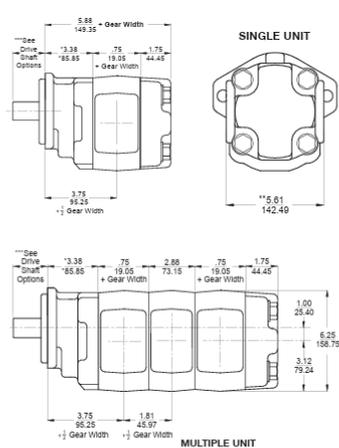
HYDRAULIC MOTOR

PERMCO 5100 SERIES TROUBLE SHOOTING

PARTS LIST



Dimensional Data



Product Information

Pump / Motor				
Beer Size	Shpl In/In	Thos. RPM/ 1500 RPM	Max RPM	Max PSI
0.50	1.00	0.58	2400	3000
0.75	1.03	0.55	2400	3000
1.00	2.07	11.13	2400	3000
1.25	3.22	13.94	2400	3000
1.50	3.89	15.71	2400	3000
1.75	4.50	19.48	2400	2900
2.00	5.12	22.26	2400	2900
2.25	5.78	25.06	2400	2900
2.50	6.43	27.84	2400	2900

Permco USA | 1500 Frost Road | P. O. Box 2068 | Streetsboro, Ohio 44241

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Item No. On Drawing	Description	Part Number	Item No. On Drawing	Description	Part Number
3000 SERIES PUMPS/MOTORS					
1	Snap Ring	W023-206	16	Thrust Plate (TP)	X-0947
2	Outboard Bearing	W58-39		Teflon Coated Thrust Plate	X-0947-TC
3	Double Lip Seal	W62-26-16		Diverter Plate	X-0947-DS
4	Bearing Carrier	UA-0558-2	17	Bi-Rotational Diverter Plate	X-0947-BRD
5	Seal Retainer	ZD-0558		Gasket Seal	TA-2995-244
6	High Pressure Seal	W62-49-9	18	Housing	LZ-0577- ** - **
7	Shaft End Cover (SEC)	** -0574- *	19	Drive Shaft & Gear Set	** -0024L- * - **
8	Check Valve Assembly	L-0280-K	20	Port End Cover (PEC)	YZ-0592- *
9	Continental Shaft	** -0024	21	5/8" Grade 8 Washers	W033-2
10	Spacer	SA-0558	22	5/8-11 Grade 8 Threaded Rod	ZD-0391- ***
11	Snap Ring	W86-100	23	5/8-11 Grade 8 Hex Nut	W3-65
12	Pump Shaft Seal	W62-26-18	24	Bearing Carrier	** -0576- ** - ***
13	Motor Shaft Seal	W62-49-11	25	Connecting Shaft	XZ-0022
14	Ring Seal	KA-0558-1XS	26	Gear Set	LZ-0995L- **
15	Crowned Roller Bearing	X-0921	28	Grade 8 Hex Head Cap Screw	W1- **
16	Thrust Plate (TP)	ZZ-0947	7500 SERIES PUMPS/MOTORS		
	Teflon Coated Thrust Plate	ZZ-0947-TC	1	Snap Ring	W85-315
	Diverter Plate	ZZ-0947-DS	2	Outboard Bearing	W58-48
17	Gasket Seal	TA-2995-242	3	Double Lip Seal	W62-26-10
18	Housing	QZ-0577- ** - **	4	Bearing Spacer	UA-0558
19	Drive Shaft & Gear Set	** -0024L- * - **	5	Seal Retainer	QZ-0961
20	Port End Cover	WZ-0592- *	6	High Pressure Seal	W62-49-1
21	5/8" Grade 8 Washers	W033-2	7	Shaft End Cover (SEC)	** -0574- *
22	5/8-11 Grade 8 Threaded Rod	ZD-0391- ***	8	Check Valve Assembly	L-0280-K
23	5/8-11 Grade 8 Hex Nut	W3-65	9	Continental Shaft	** -0024
24	Bearing Carrier	** -0576- ** - ***	10	Spacer	ZE-0558
25	Connecting Shaft	YZ-0022	11	Snap Ring	W86-137
26	Gear Set	U-0996L- **	14	Ring Seal	VA-0558-1XS
28	Grade 8 Hex Head Cap Screw	W1- **	15	Crowned Roller Bearing	Q-0921
5000 SERIES PUMPS/MOTORS					
1	Snap Ring	W023-283	16	Teflon Coated Thrust Plate	AZ-0947
2	Outboard Bearing	W58-47		Diverter Plate	AZ-0947-DS
3	Double Lip Shaft Seal	W62-26-17		Bi-Rotational Diverter Plate	AZ-0947-BRD
4	Bearing Spacer	UA-0558-1		Gasket Seal	TA-2995-252
5	Seal Retainer	ZB-0558	17	Housing	RZ-0577- ** - **
6	High Pressure Seal	W62-49-8	18	Drive Shaft & Gear Set	** -0024L- * - **
7	Shaft End Cover (SEC)	** -0574- *	20	Port End Cover (PEC)	XZ-0592- *
8	Check Valve Assembly	L-0280-K	21	5/8" Grade 8 Washers	W033-2
9	Continental Shaft	** -0024	22	5/8-11 Grade 8 Threaded Rod	ZD-0391- ***
12	Pump Shaft Seal	W62-26-17	23	5/8-11 Grade 8 Hex Nut	W3-65
13	Motor Shaft Seal	W62-49-8	24	Bearing Carrier	** -0576- ** - ***
14	Ring Seal	MA-0558-1XS	25	Connecting Shaft	ZA-0022
15	Crowned Roller Bearing	R-0921	26	Gear Set	OZ-0995L- **
			27	O-Ring	K-2995-164
			28	Grade 8 Hex Head Cap Screw	W1- **

TROUBLE SHOOTING

PROBLEM	REMEDY	PROBLEM	REMEDY
EXCESSIVE NOISE IN PUMP:			
Insufficient Fluid	Replenish fluid to proper level, with proper grade	Pump rotating in wrong direction	IMMEDIATELY STOP PUMP DRIVER to prevent damaging pump. Then reverse direction of pump rotation
Fluid is too heavy	Drain system and refill with specified grade of fluid		
Oil filter is dirty	Clean or replace filter element		
Suction line too small	Install larger suction line	Pump fails to prime itself	Tighten up joints. Drain system and replace fluid with proper grade of anti-foaming fluid
Clogged suction line	Clean line thoroughly	a. Air leak into suction line	
Pump over-speeding	Check pump maximum speed. Slow down pump driver. Or install larger pump	b. Oil is too heavy	
Air vent on fluid reservoir clogged	Clean or replace breather on reservoir	c. System not in Neutral	Open valve on pressure side of pump, or install air bleed valve
Air bubbles in fluid	Drain system and refill with non-foaming hydraulic fluid	SYSTEM LACKS ANY PRESSURE WITH PUMP RUNNING:	
Filter too small	Replace with larger filter	Relief valve not set correctly	Use pressure gauge and reset valve to specified pressure
Coupling misalignment	Realign flexible coupling between pump and driver	Relief valve leaking	Check relief valve seat for score marks. Reseat by grinding. Or replace.
Air leaks at pump intake on pump shaft packing or inlet pipe	Drip oil over suspected joint; listen for change in sound of pump; tighten joints	Broken relief valve spring	Replace spring; reset relief valve
Worn or broken pump parts	Replace parts as necessary	Flow of fluid to tank is unrestricted	Check for control valve in "Neutral" or for open return line
FOAMING FLUID:			
Improper fluid	Drain system and refill to correct level with proper grade of anti-foaming fluid	Internal leakage in control valve or power cylinder	Repair or replace leaking valve or cylinder
Low fluid level	Top off with proper grade of anti-foaming fluid	EXCESSIVE WEAR IN PUMP:	
Inadequate baffling in tank	Install correct baffling	Abrasive contaminants in fluid	Drain and flush entire system. Install new filter. Fill system with fresh oil of proper grade or filter con-taminated oil through a 10-micron filter before refilling. Operate pump an hour. Drain system again. Install new filter element and fluid.
Air leaking into suction line between reservoir and pump	Tighten all connections	Fluid too light for pump service	Drain and replace with anti-foaming fluid of proper grade.
OIL LEVEL IN TANK CONTINUES TO DROP			
Oil level in tank continues to drop	Indicates a broken pipe line or a pipe left out between a bulkhead coupling and the bottom of the tank after cleaning tank. Replace pipe.	Sustained pressure above pump maximum rating	Check and reset relief valve pressure, using pressure gauge.

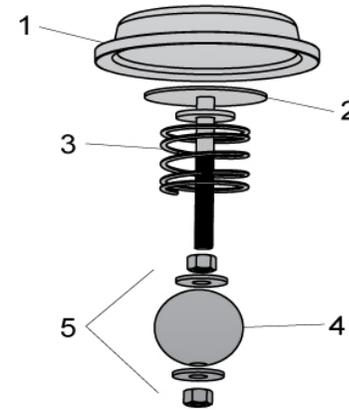


Grooved Spray Head Valve 191-71300



Parts Breakdown:

REBUILD KIT



To order individual parts, please choose from the list below:

- | | | | | | |
|----|---|--|----|---|--|
| 1. |  | T16 Valve Diaphragm
1911-T16 | 3. |  | Valve Spring, Bertolini
1911-QE715 |
| 2. |  | Valve Stem, Bertolini
1911-QE716 | 4. |  | Valve Replacement Ball, Bertolini
1911-QE714 |

3" INLINE GROOVED DIAPHRAM VALVE VALVE 1721-300

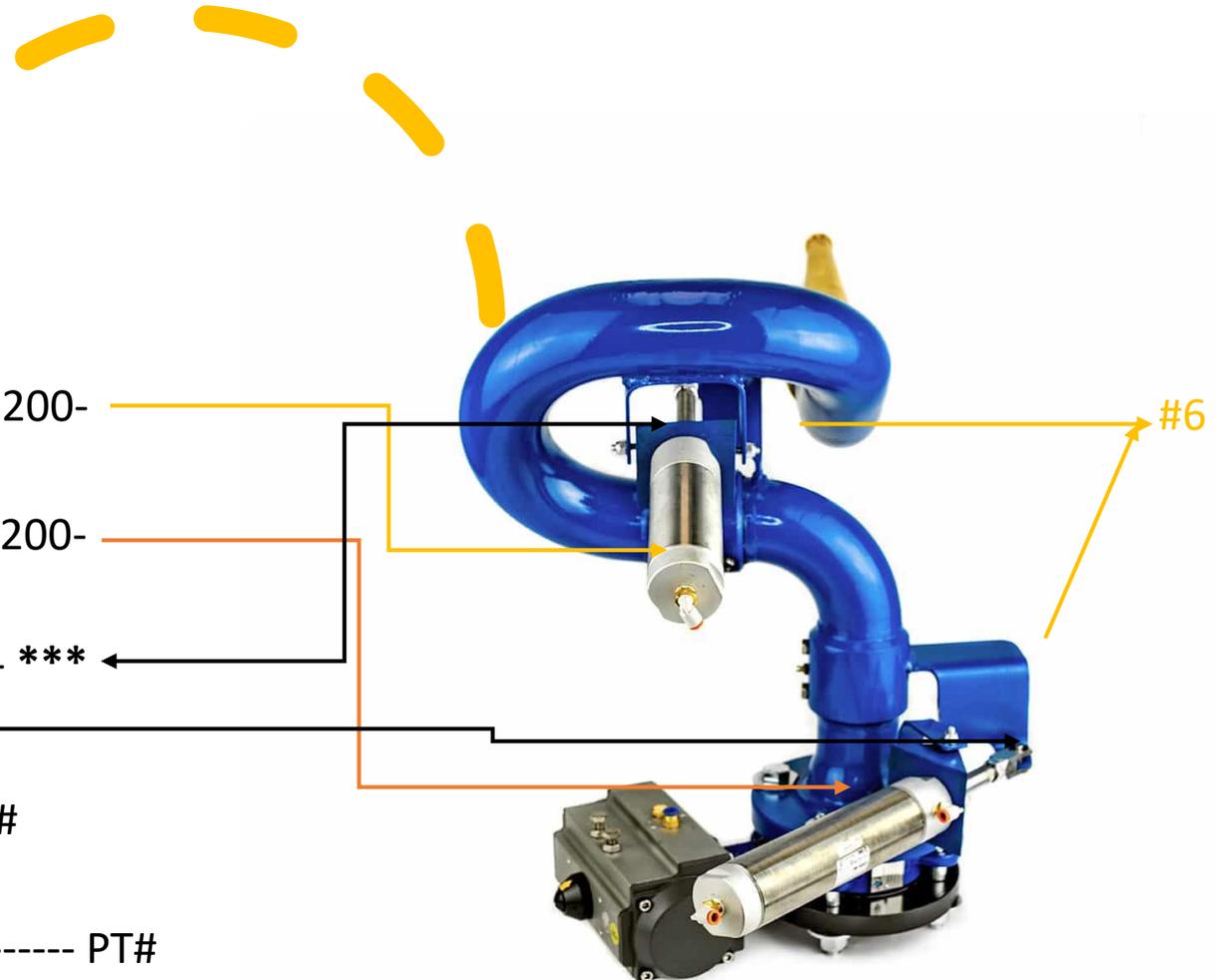
3" Inline Valve Diaphragm Replacement
SKU: 1723-300



Pneumatic Water Cannon Kit

SKU: 282-FP3750-KIT

- #1 - Monitor/Cannon – Bare – PT# FP3-750
- #2 – Upper Cylinder 3" Stroke – PT# NCBMB200-0300 - ***
- #3 – Lower Cylinder 6" Stroke – PT# NCBMB200-0600 - ***
- #4 – Jam Nut – 1- 1/4" SAE – PT# TWN-114 - ***
- #5 – Cylinder Clevis – PT# NY-G050 - ***
- #6 – Upper- & Lower-Cylinder Brackets – PT# TWF126
- #7 – Elbow-1/4" NPT x 1/4" OD Tubing ----- PT# KQ2L07-35AS – (2 Ea. Per Cylinder)
- *** - Denotes Kit – Including Cylinder (Upper or Lower Cylinder), Jam Nut, and Cylinder Clevis



WATER MONITOR/CANNON

SKU# 311-250



#8- 2-1/2" Fire Nozzle

Complete Monitor/Cannon available upon request to include gasket and fasteners.

Maintenance of your Water Monitor/Cannon: It is important to keep the swivel joints well greased. Grease fittings are in the center of each swivel.

Recommended lube is a good lithium-based grease daily before use.

Coxreels® 1.5" Hose Reel Kit

SKU: 291-1185-1124-KIT

- Heavy duty - hand cranked
- Reelcraft's Series 30000 hose reels are designed for rugged, heavy-duty applications requiring long lengths of hose and large storage capacity.
- All bolted unitized construction with no welds to fatigue, full flow swivel and heavy gauge steel frame.
- Hose replacement made easy as the gooseneck can easily be removed to simplify adding long lengths of hose to the reel.
- Full flow, stress-free swivel design – the full flow swivel combines the highest-grade seal design and materials with bearing areas to insure maximum service life.
- Quality finish and corrosion resistant with individually powder coated components which offer the maximum protection from premature corrosion.

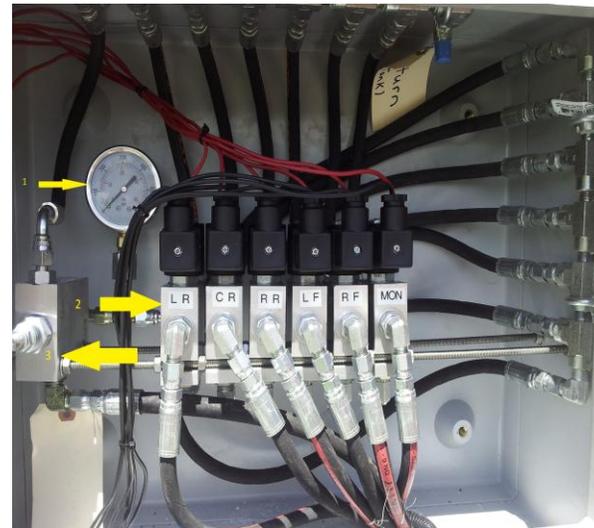




A	1x	Plastic Fog Nozzle	312-150
B	2x	Thread x Hose Barb Nipple	238-150
C	1x	Thread x Weld Nipple	239-150
D	1x	Ball Valve	183-150
E	1x	90° Threaded Street Elbow	233-90150
F	4x	T-Bolt Clamp	305-200
G	3'	Jumper Hose	301-HOSE150
	50'	1½" Water Hose	301-150x50A
	1x	1½" x 50' Manual Rewind Hose Reel	291-1185-1124

Hydraulic Distribution Box 5-Spray Heads & 1-Water Monitor

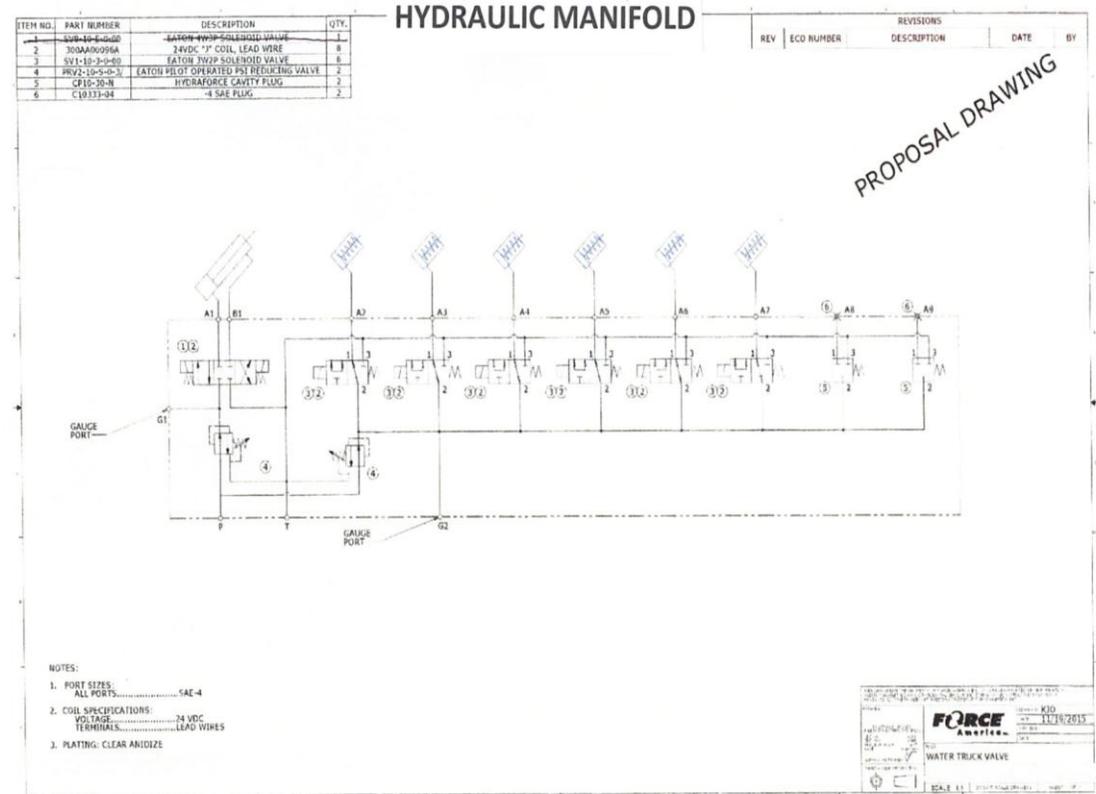
INSIDE DISTRIBUTION BOX VIEW



PARTS

- #1 – 600 PSI Gauge
- #2 – SV08-30-6T-N-24DG Solenoid Valve, 3 position, 2 Way
- #3 – RPGC-LAN-CEM Pressure Reducing Valve

Hydraulic Manifold



HYDRAULIC IN-CAB CONTROL BOX 5-Spary Heads & 1- Water Monitor

FACEPLATE VIEW



PARTS

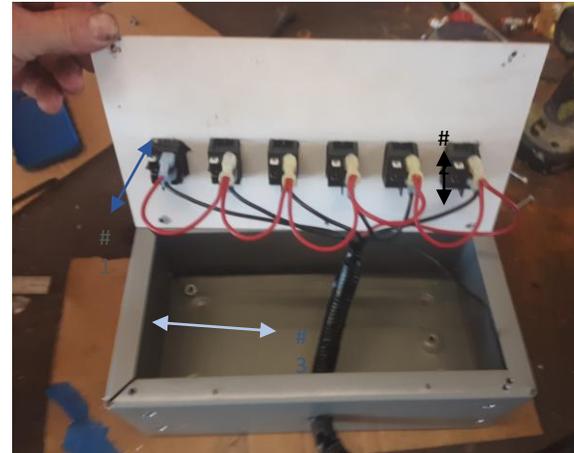
**#1 - ATK – 6 x 12
Faceplate**

**#2 - 24 Volt Rocker
Switches**

HYDRAULIC IN-CAB CONTROL BOX

5-Spary Heads
& 1-Water Monitor

INSIDE BOX VIEW



PARTS

- #1 - ATK – 6 x 12 Faceplate
- #2 - 24 Volt Rocker Switches
- #3 – 6 x 12 Control Box

Hydraulic Spray Head

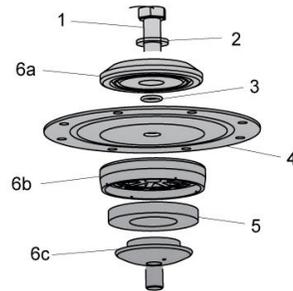
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Hydraulic Spray Head Parts

HYDRAULIC SPRAY HEAD PARTS BREAKDOWN

Parts Breakdown:



To order individual parts, please choose from the list below:

- | | |
|---|---|
| 1.  Valve Diaphragm Kit Bolt, 3"
1711-300-1 | 4.  Valve Diaphragm, 3" Mega
1931-300208 |
| 2.  Pump Washer (B6/B3ZQ)
116-523036 | 5.  Inline Valve Seat
1711-SEAT |
| 3.  O-Ring 113
1711-113N6001 | 6.  3" Valve Retainer Disc
1711-300-345 |

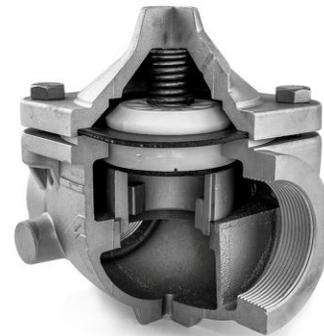
Heavy Duty Spray Head Valve Kit 1931-300kit





Hydraulic In-Line Valve & Rebuild Kit

Hydraulic In-Line Valve Rebuild Kit SKU: 171-300HYD

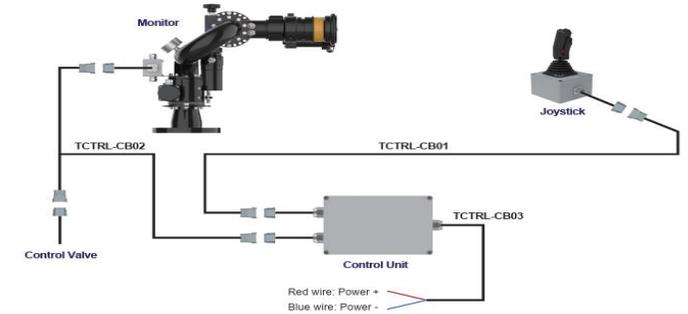


Tempest Electric Water Cannon Kit

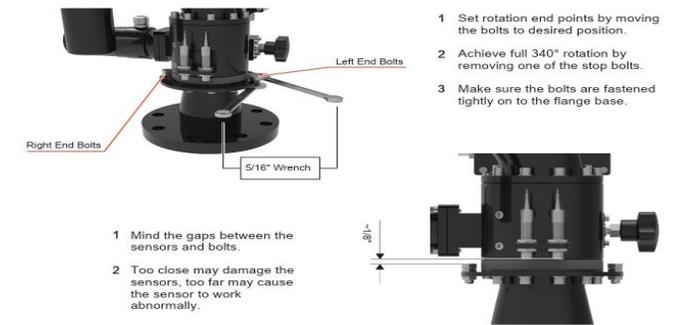


SYSTEM COMPONENT DESCRIPTIONS

NAME	CANNON BODY	DC ELECTRIC JET SPRAY NOZZLE	JOYSTICK
			
PART#	TSZC-65A	TZC-DP-20-40A	TCTRL - J01
	12 & 24V DC Electric Remote Controlled	Fixed & Selectable Flow Rates	Up-Down-Left-Right
	2 1/2" NST Outlet	320GPM/480GPM/630GPM @ 120PSI	Straight Stream/Fog Function
	Stainless 304 2 1/2" Waterway	IP67 Standard Seal Actuator	Power Indicator
	Bronze Steel Gear, Stainless Worm	Fixed Fog Teeth	Aluminum Base
	3" Inlet Flange & 2 1/2" Waterway		
NAME	CONTROL UNIT	VOLTAGE TRANSFORMER (OPTIONAL)	CABLES
			
PART#	TCU-02	TDCP24/12-01	TCTRL-CB01 / CB02 / CB03
	Aluminum Cover	Transform the Voltage from 24V to 12V	Joystick to Control Unit cable- 40' length
	IP67 Standard Sealed	Rated Current 10A	Monitor to Control Unit cable- 40' length
			Control Unit cable to Power- 16' length



INSTALLATION INSTRUCTIONS



TEMPEST CANNON DESCRIPTION



- 1 End Position Bolts (Vertical)
- 2 End Position Sensor (Vertical)
- 3 Gear Motor (Horizontal)
- 4 End Position Bolts (Horizontal)
- 5 Adjustable Nozzle
- 6 Adjustable Flow Nozzle Stem
- 7 Gear Motor (Vertical)
- 8 End Position Sensor (Horizontal)
- 9 IP67 Sealed Nozzle Actuator
- 10 Junction Box
- 11 Manual Override (Horizontal)
- 12 3" Inlet Flange
- 13 Manual Override (Vertical)
- 14 Grease Nipple
- 15 Pressure Gauge

ATP7 Handi Primer SKU: 327-ATP7

ATP7 Handi Primer



ATP 7 Handi Primer - Parts

- Lower Housing – D0087
- Upper Housing – D0088
- Diaphragm – D0061
- Mounting Bracket – D0107
- Connecting Rod Assy – D0127-A
- Fulcrum Eyebolt – D0050
- Check Valve – D0004
- Drain Cock Valve – D0340
- Fast Pin Assy – 2 Req. – D0347A
- Thumb Screw – X0D01
- Handle Assembly – D0047

Self Loading Information & Procedure of Operation

So, you might ask, why aren't these pumps designed to pump air as well as water? The answer is that air and water have different properties.

You wouldn't use a ceiling fan in place of an onboard motor in a fishing boat, just like you wouldn't use a sump pump to run your air conditioner.

Water is much denser than air, so the blades used to move air can be much flimsier but must move much faster. To move water, the blades must be much sturdier, but they can move much more slowly. The propeller blades on a cruise ship turn at around 100 RPM, while a jet turbo engine turns at 10,000 RPM or more.

So the question is. Can I Just Start a Self-Priming Pump Any Time, Even If It's Dry Inside? **No.**

A self-priming centrifugal pump **must have water in the casing** in order to operate. You cannot pull any self-priming pump right out of the box, turn it on, and expect it to pump. If it's full of air, it won't prime. "Self-priming" refers to the pump's ability to repeatedly turn an air/water mixture into a pumpable fluid -- NOT the ability to create a vacuum (literally) out of thin air. In fact, you should **never try to run a self-priming pump without water in the casing.** It's dangerous and will often lead to seal failure.

INSTRUCTIONS ON PAGES 32 – 41 MUST BE FOLLOWED

Self Loading – Operational Procedures

Tank Sight Glass – Front of Tank



Self Loading Tank Level Requirement

- #1 – This is the water level required for ease of self-loading operation.
- Water level should not be below the **RED** identification marker.
- The remaining water in the tank will be used to prime the suction line and pump for self loading.

Self Loading – Operational Procedures

Rear View For Normal Spray Operation



Normal Position For Spray Use

- Valve #1 – Open Position
- Valve #2 – Closed Position
- Valve #3 – Open Position
- Valve #4 – Closed Position
- Valve #5 – Closed Position
- #6 DP7 Handi Primer
- All Valves must be fully open or fully closed.

Self Loading--Operational Procedures

1st Step To Start Self Loading Procedure



Valve Position for Self Loading

- Valve #1 – Close Position
- Valve #2 – Open Position
- Valve #3 – Open Position
- Valve #4 – Closed Position
- All valves must be fully open or fully closed.

Self Loading--Operational Procedures

2nd Step for Self Loading Procedure



Suction Hose Connection

- Valve #4 – Closed Position
- Connect suction hose to Valve #4 and check for fitting gaskets on hose.
- Verify ears for fittings are locked
- 2ea-15' section of suction hose is supplied.
- Connect hoses together in order to reach water source if necessary.
- End of one of the hoses will have a foot valve attached for use in water source

Self Loading--Operational Procedures

3rd Step for Self Loading Procedure



Valve Position & Information

- Valve #3 – Open Position
- Valve #4 – Open Position
- Opening Valve #4 will allow water into the suction hose.
- This water will also flood the pump suction.

Self Loading--Operational Procedures

4th Step - Foot Valve

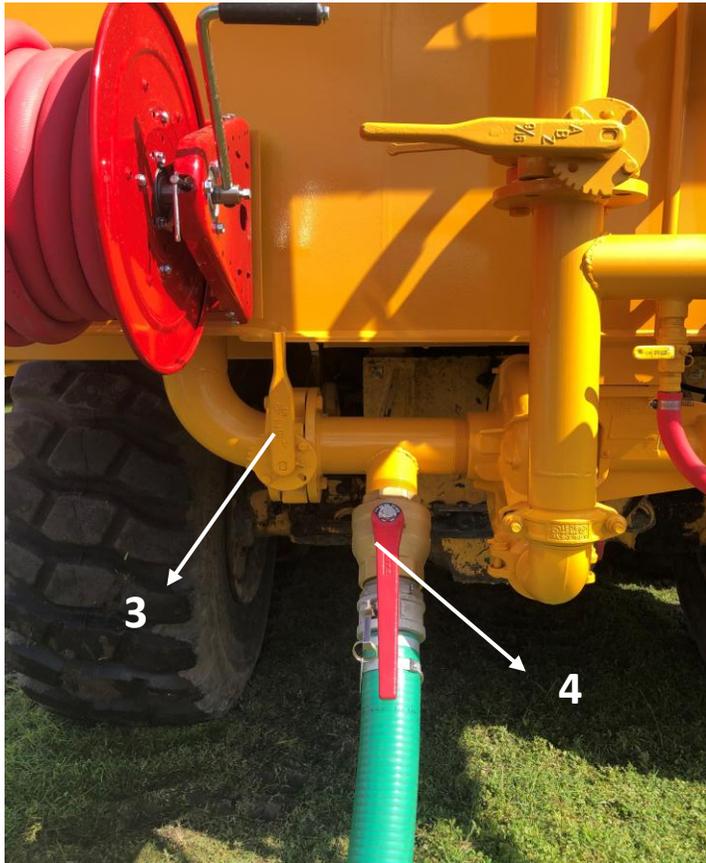


Foot Valve Burping

- **KEY PART PROCEDURE**
- Burp the suction hose before placing it in the water supply.
- Burping is completed by putting pressure on the foot valve seal to open it.
- This will remove the trapped air in the suction hose.
- Place suction hose with foot valve into water source.

Self Loading -- Operational Procedure

5th Step – Closing off Tank Discharge Valve



Valve Position After Burping Suction Hose

- Valve #3 can now be closed
- Valve #4 will remain open
- You are now ready to transfer water from source to water truck.
- Start Truck Engine
- Engage Pump at **Idle**
- Bring pump RPM up once water flow to tank has been verified.
- Verify by looking at tank sight glass or from top of tank manway.
- After tank is full of water return valve to normal spray position – Page #34

Manual Pump Priming Operation

- Reference Page #34 for Valve numbers and equipment identification
- Valve #1, #2, & #3 – Fully Closed – Valve #4 & #5 Fully Open
- Petcock Valve on bottom of #6 Handi Primer Fully Closed.
- Connect Suction Hose to Valve #4
- Place suction hose foot valve in the water source.
- Using the #6 Handi Primer you will now pump water from the source to the tank to prime the pump suction.
- You will get water coming out of the Handi Primer, at this point you need to burp the suction line repeating this process until all air is removed. If air is in the line the pump will be air bound and will not pump.

Manual Pump Priming Operation

- Once priming is completed you are now ready to transfer water to the tank.
- Open Valve #2 & Close #5
- Start truck engine and engage pump at idle speed.
- Verify movement of water to tank and increase engine RPM.
- After the tank is full of water return valves to normal spray position (Reference Page #34).