

# WORKHORSE

## SPRAYERS

a Division of Green Leaf, Inc.®

### Assembly / Operation Instructions / Parts



#### 40 & 60 GALLON

#### UTL - Series SPRAYERS

Polyethylene Tank

12 Volt Diaphragm Pump

2.2 or 5.0 G.P.M.

25 Ft. of 3/8" Hose (handgun)

Pressure Gauge

Adjustable Pressure range (0-60 PSI Max.)

#### — GENERAL INFORMATION

The purpose of this manual is to assist you in assembling, operating and maintaining your lawn and garden sprayer. Please read it carefully as it furnishes information which will help you achieve years of dependable trouble-free operation.

#### — ASSEMBLY

Tools required:

- 1 - 7/16" End Wrench
- 2 - 1/2" End Wrenches
- 1 - Phillips Screwdriver
- 1 - Pliers
- 1 - Thread Sealant

#### — WARRANTY / PARTS / SERVICE

Workhorse products are warranted for one year from the date of purchase against manufacture or workmanship defects for personal or homeowner usage with proof of purchase. Workhorse products are warranted for 90 days for commercial users. Any unauthorized modification of a Workhorse brand sprayer will void warranty.

Your authorized dealer is the best source of replacement parts and service. To obtain prompt, efficient service, always remember to give the following information:

1. Correct part description and part number.
2. Model number of your sprayer.

Part description and part numbers can be obtained from the illustrated parts list section of this manual.

Whenever you need parts or repair service, contact your distributor/dealer first. For warranty work always take your original sales slip, or other evidence of purchase date, to your distributor / dealer.

## — OPERATION

This sprayer is designed to be attached to an ATV rack or other stable surface. The pumping system draws solution from the tank, through the strainer and to the pump. The pump forces the solution under pressure to the spray wand and spray boom. The pump has a pressure switch which will shut the pump off when it reaches 60 PSI. Pressure may be regulated by opening or closing the bypass valve located on the top of the tank. Also, the boom can be cycled on and off with this valve. See the illustration in this manual for more details on using the bypass valve.

**Regularly inspect the suction supply screen on the inside of the tank. Flush with water to clear any accumulated debris.**

## — CALIBRATION

Chemical labels may show application rates in gallons per acre, gallons per 1000 square feet or gallons per 100 square feet. You will note that the tip chart shows all three of these rating systems. Once you know how much you are going to spray then determine (from the tip chart) the spraying pressure (PSI), and the spraying speed (MPH). Conditions of weather and terrain must be considered when setting the sprayer. Do not spray on windy days. Protective clothing must be worn in some cases. **Be sure to read the chemical label carefully.** Determining the proper speed of the tractor can be done by marking off 100, 200 and 300 feet. The speed chart indicates the number of seconds it takes to travel the distances. Set the throttle and with a running start travel the distances. Adjust the throttle until you travel the distances in the number of seconds indicated by the speed chart. Once you have reached the throttle setting needed, mark the throttle location so you can stop and go again (returning to the same speed). Add water and proper amount of chemical to tank and drive to the starting place for spraying. When you are ready to spray, turn the boom valve to the "on" position. This will start solution spraying from the tips once the pump is turned on. The pressure will decrease slightly when the boom is spraying.

## — BOOMLESS NOZZLE RATE CHART —

SPEED IN MPH (Miles Per Hour)	Time Required in Seconds to Travel a distance of:		
	100 ft	200 ft	300 ft
1.0	68.0	136	205
2.0	34.0	68	102
3.0	23.0	45	68
4.0	17.0	34	51
5.0	14.0	27	41
6.0	11.0	23	34
7.0	9.7	19	29

1200PS	(1/4" MNPT)			SPEED (MPH)						
	PSI	GPM	SPRAY DISTANCE	1	2	3	4	5	6	7
				GALLONS PER ACRE						
				35	18	12	9	7	6	5
				42	21	14	10	8	7	6
20	1.0	14 ft.	35	18	12	9	7	6	5	
30	1.2	14 ft.	42	21	14	10	8	7	6	
40	1.4	14 ft.	49.5	25	16.5	12	10	8	7	

## — AFTER SPRAYING

After use, fill the sprayer part way with water. Start the sprayer and allow clear water to be pumped through the plumbing system and out through the spray wand and boom. Refill the tank about half full with plain water and use a chemical neutralizer such as Nutra-Sol® or equivalent and repeat cleaning instructions. Flush the entire sprayer with the neutralizing agent. Follow the chemical manufacturer's disposal instructions of all wash or rinsing water.

## — WINTER STORAGE

Drain all water and chemical out of sprayer, paying special attention to pump and valves. These items are especially prone to damage from chemicals and freezing weather. The sprayer should be winterized before storage by pumping a solution of RV antifreeze through the entire plumbing. Proper care and maintenance will prolong the life of the sprayer.

## RATE CHART FOR 80/110-02 SPRAY TIP

Pressure (PSI)	Capacity (GPM)	GALLONS PER ACRE BASED ON WATER - 20" SPACING							
		1 MPH 88 FPM	2 MPH 176 FPM	3 MPH 264 FPM	4 MPH 352 FPM	5 MPH 440 FPM	7.5 MPH 660 FPM	10 MPH 880 FPM	
20.0	0.14	41.8	20.9	14.0	10.5	8.4	5.6	4.2	
30.0	0.17	51.2	25.6	17.2	12.9	10.3	6.9	5.1	
40.0	0.20	59.2	29.6	19.8	14.9	11.9	7.9	5.9	
50.0	0.23	66.4	33.2	22.2	16.6	13.3	8.8	6.6	
Pressure (PSI)	Capacity (GPM)	GALLONS PER 1000 SQ. FT. BASED ON WATER - 20" SPACING							
		.96	.48	.32	.24	.19	.13	.10	
20.0	0.14	.96	.48	.32	.24	.19	.13	.10	
30.0	0.17	1.18	.59	.39	.30	.24	.16	.12	
40.0	0.20	1.36	.68	.45	.34	.27	.18	.14	
50.0	0.23	1.52	.76	.51	.38	.31	.20	.15	
Pressure (PSI)	Capacity (GPM)	GALLONS PER 100 SQ. FT. BASED ON WATER - 20" SPACING							
		.096	.048	.032	.024	.019	.012	.009	
20.0	0.14	.096	.048	.032	.024	.019	.012	.009	
30.0	0.17	.117	.059	.039	.029	.024	.015	.011	
40.0	0.20	.135	.066	.045	.034	.027	.018	.013	
50.0	0.23	.152	.076	.050	.038	.030	.020	.015	

MPH- Miles Per Hour • FPM- Feet Per Minute • PSI- Pounds Per Square Inch • GPM- Gallons Per Minute

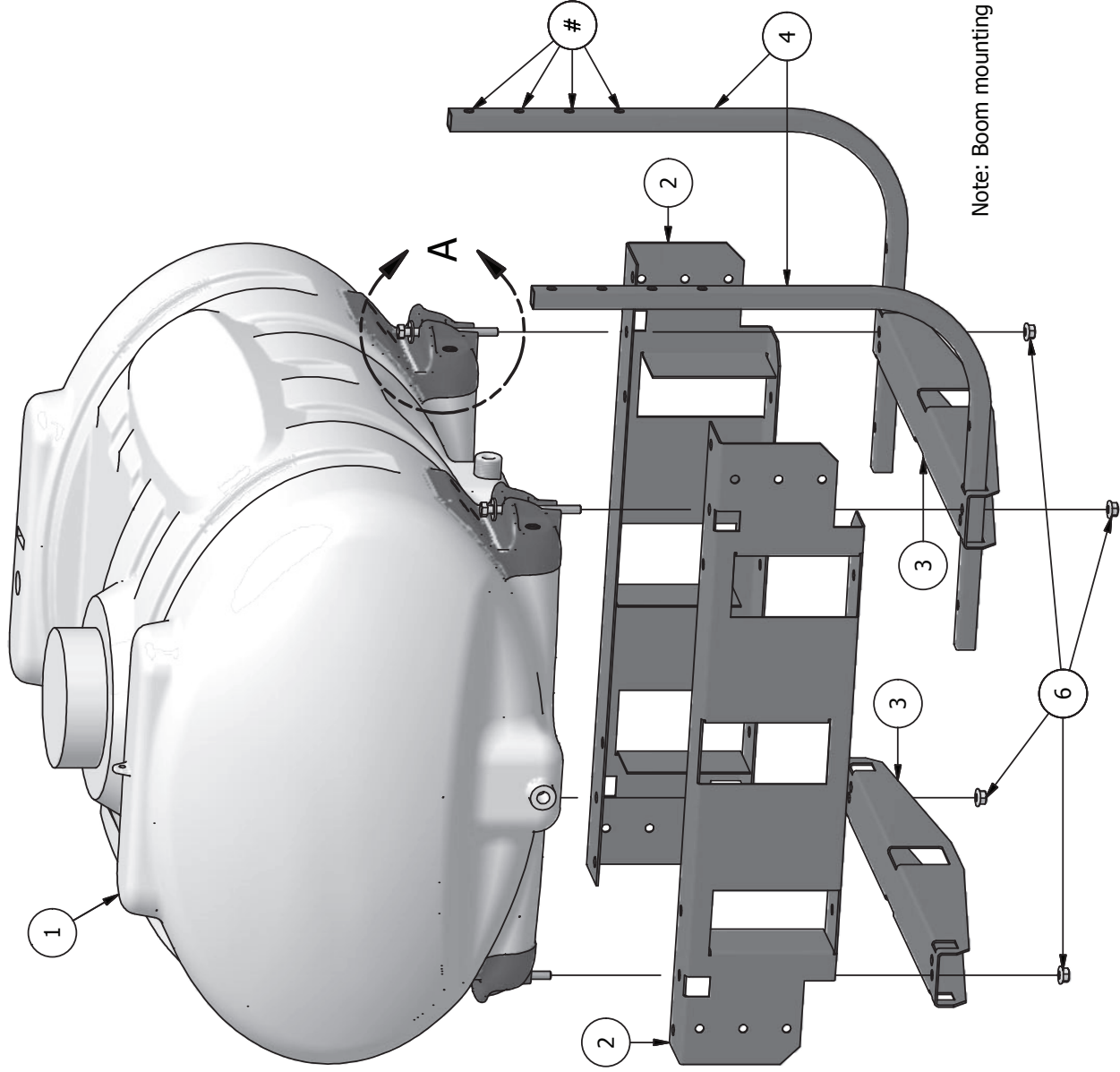
## RATE CHART FOR 80/110-05 SPRAY TIP

Tip No.	Pressure (PSI)	Capacity (GPM)	GALLONS PER ACRE BASE ON WATER-40" SPACING			
			5 MPH 440 FPM	6 MPH 528 FPM	7 MPH 616 FPM	8 MPH 704 FPM
5	10	0.50	14.9	12.4	10.6	9.3
	20	0.71	21.0	17.6	15.1	13.2
	30	0.87	26.0	22.0	18.5	16.1
	40	1.00	30.0	25.0	21.0	18.6
Most chemical labels indicate a chemical application rate in 1,000 sq. ft.; if the rate on the label is indicated as a rate per acre, divide the per acre rate by 43.56 to convert to a rate per 1,000 sq. ft.						
1 Acre = 43,560 sq. ft.						
1 gallon per 1,000 sq. ft. = 43.56 gallons per acre						
1 fl. Oz. = 2 tablespoons						
1 cup = 8 fl. Oz.						
1 pint = 2 cups = 16 fl. Oz.						
1 quart = 2 pints = 32 fl. Oz.						
1 gallon = 4 quarts = 8 pints = 128 fl. oz.						

**WARNING:** Some chemicals will damage the pump valves if allowed to soak untreated for a long period of time. Always flush the pump with water after use. Do not allow chemicals to sit in pump for extended times of idleness. Follow chemical manufacturers instructions on disposal of all waste water from the sprayer.

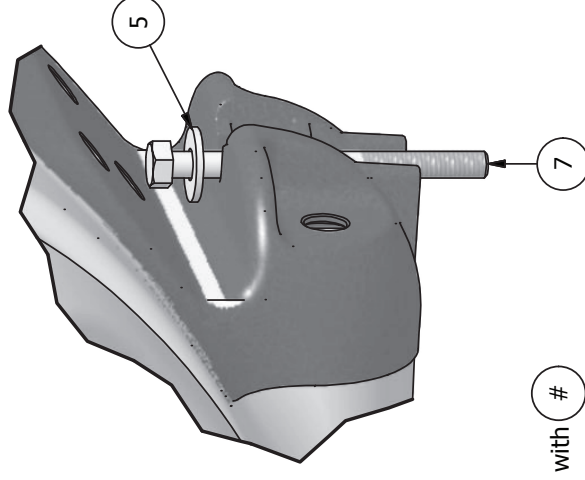
**WARNING:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer. [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	600240 or 640000	40 Gal - 60 Gal Tank
2	2	640402	Side Panel
3	2	640400	Front Support
4	2	640411	Boom Bracket
5	4	640422	5/16" Washer
6	4	600172	5/16" Hex Nut
7	4	640424	5/16" x 3.75" Hex Bolt



### Assembly Instructions

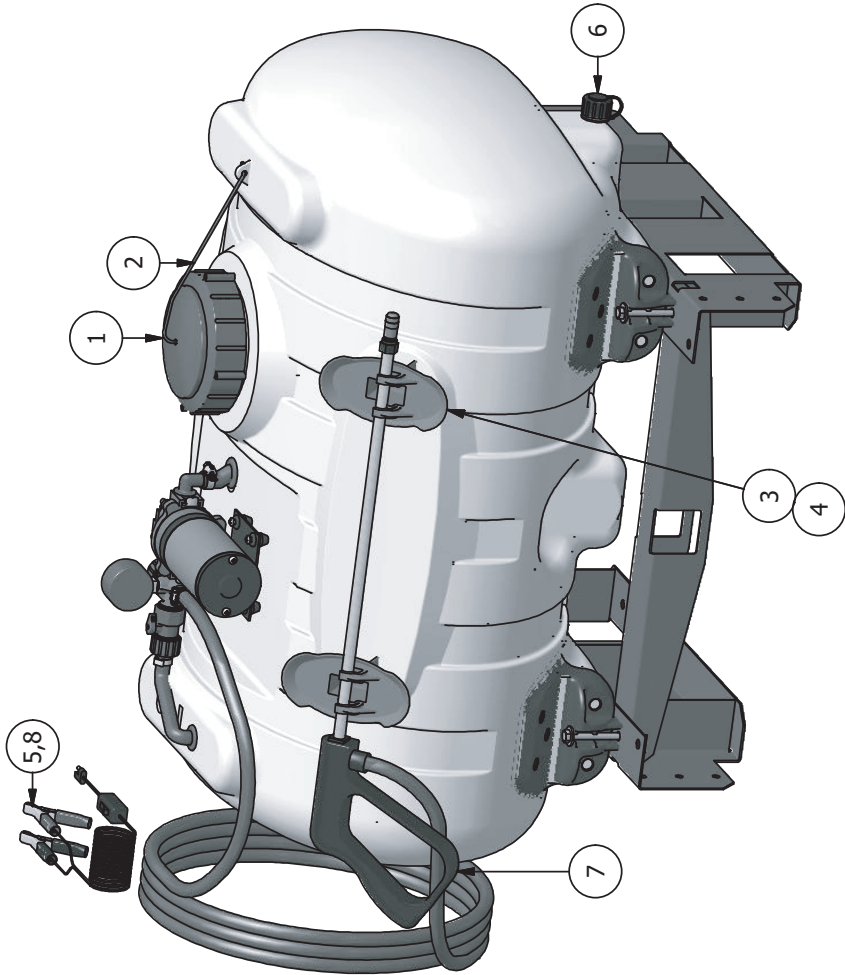
**1.0**--Assemble tank and frame as illustrate on this page using hardware show.  
 Note the orientation of the frame member items as thier orientation is essential for proper assembly.  
**DO NOT OVER TIGHTEN BOLTS.**



**Models: UTL425, UTL657, UTL65BL**

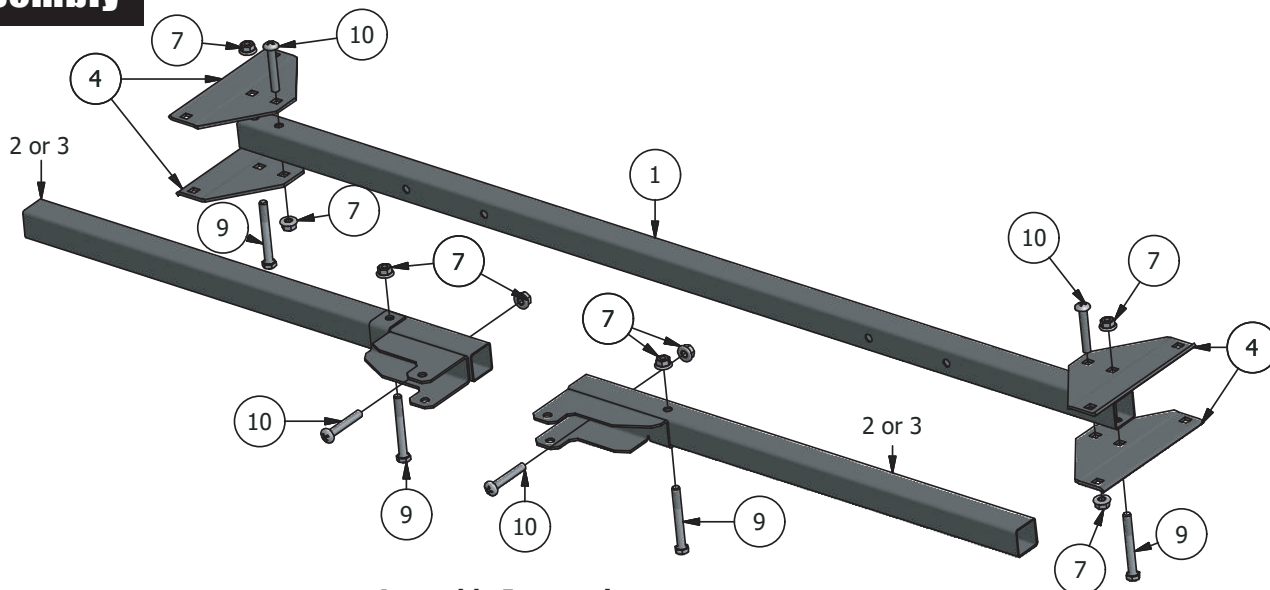
**Assembly Instructions**

- 2.0**--Insert Lead Wire Assembly into plug at rear or pump
- 2.1**-- Join red wire of the two wire cable to a +12V source such as a switch, ammeter, or positive battery post. The black wire should be grounded or connected to the negative battery post.



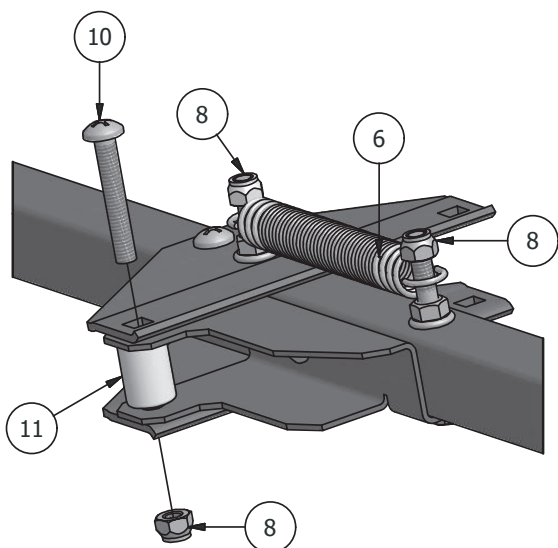
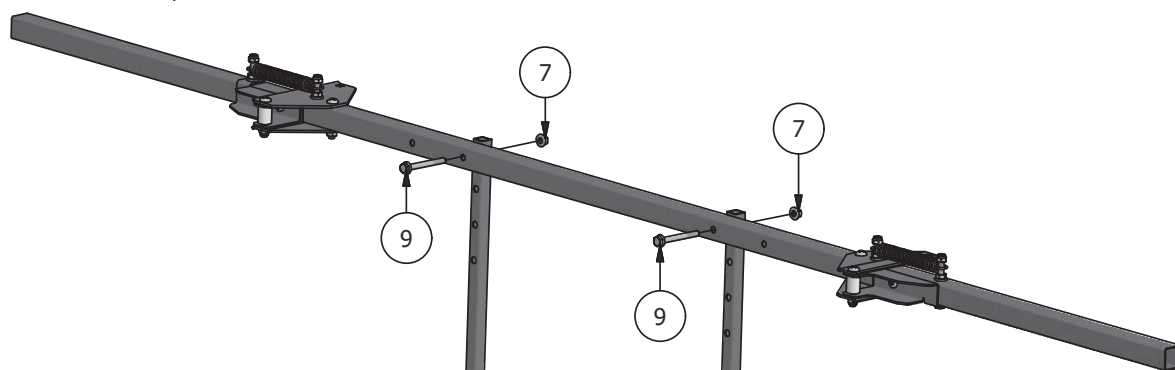
PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	600133	Tank Lid
2	1	600134	Tank Lid Tether
3	2	640105	Plastic Hose Wrap
4	2	600152	Wand Clip Screws
5	1	600153	2.2 GPM Lead Wire Assy.
6	2	600298	Drain Cap Assembly
7	1	600259	Deluxe Wand with 25ft Hose
8	1	600270	4.0 & 5.0 GPM Lead Wire Assy.

# Boom Assembly



## Assembly Instructions

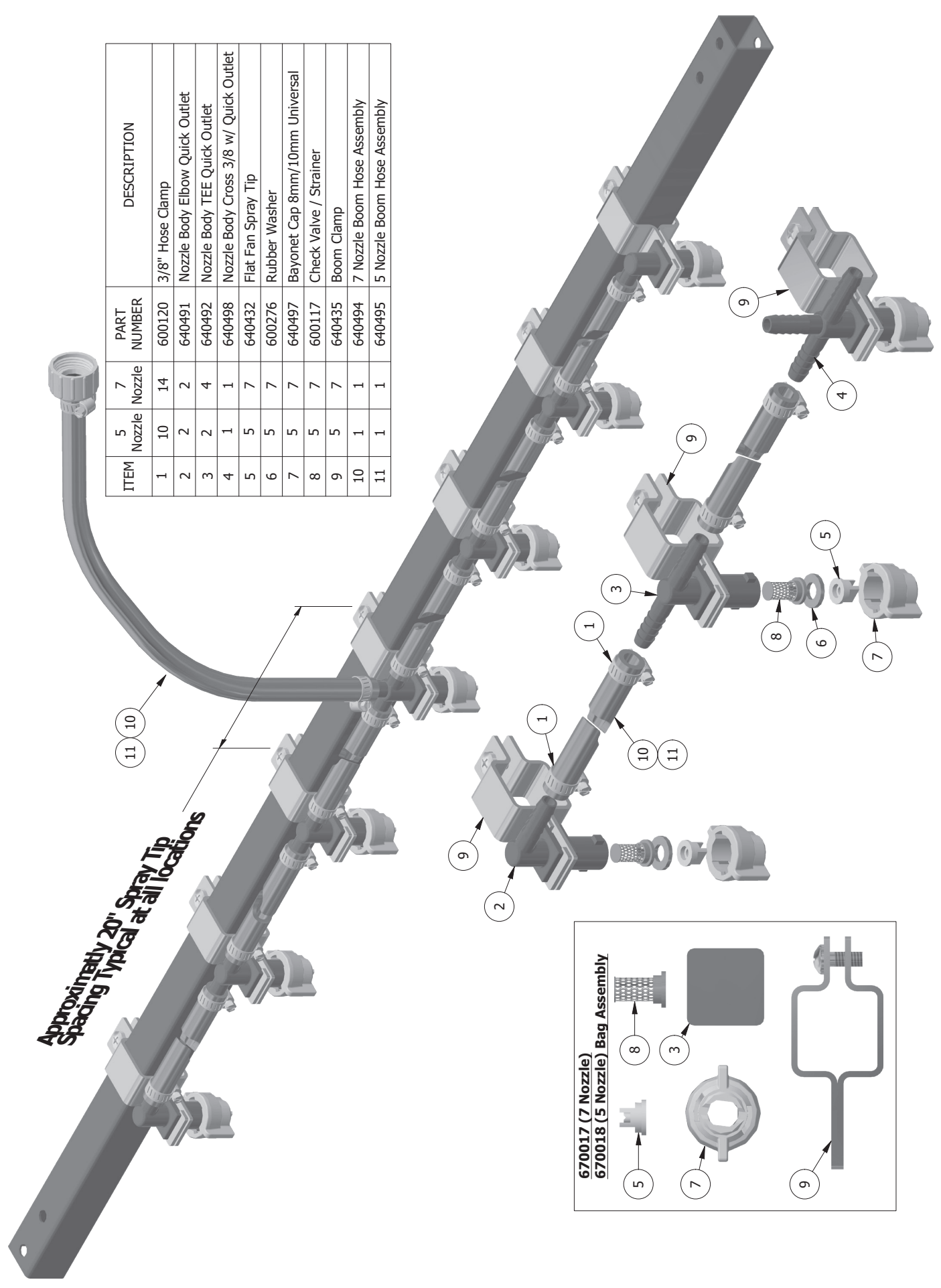
- 1.0--Install Boom Arm Brackets to Boom End Sections (23" End Sections for 5 Nozzle and 38" End Sections for 7 Nozzle) using 5/16 x 2.75" Hex Bolts, 5/16 x 2" Pan Head Screws, and 5/16 Hex Nuts. Note the orientation and position of these parts as it is essential for proper assembly.
- 1.1--Install (2) Boom Center Brackets to each end of the 45" Center Boom Section using 5/16 x 2" Pan Head Screws as shown.
- 1.2--Install the Boom Hinge Bolts ( 5/16 x 2" Pan Head Screws) Throught the Boom Center Brackets and the Boom End Brackets as shown in the close up detailed view. Secure in place with the 5/16 Lock Nuts. Making sure not to overtighten bolts so boom can rotate freely.
- 1.3--Install the Boom Springs to Boom Center Brackets and 5/16 x 2.75 Hex bolts as shown in the close up detailed view.
- 1.4--Install the 5/16 Lock Nuts onto 2.75" Hex Bolts to secure the Boom Springs in place. As shown in close up detailed view.
- 1.5--Install the now completed Boom Assembly to the Square Boom Brackets of the Frame Assembly at the desired height, using 5/16 x 2.75" Hex Bolts and 5/16 nuts.



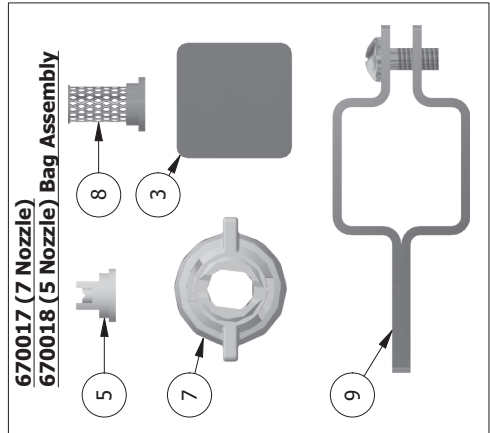
## PARTS LIST

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	640414	45" Boom Center Section
2	2	640412	23" Boom End Section (5 Nozzle Only)
3	2	640413	38" Boom End Section (7 Nozzle Only)
4	4	640416	Boom Center Bracket
5	2	640417	Boom Arm Bracket
6	4	640428	Boom Spring
7	8	600172	5/16-18 UNC Nut
8	6	600106	5/16-18 UNC Lock Nut
9	6	640423	5/16-18 UNC x 2.75" Hex Bolt
10	6	640426	5/16-18 UNC x 2" Pan Head Screw
11	2	640459	Boom Spacer





ITEM	5	7	PART NUMBER	DESCRIPTION
1	10	14	600120	3/8" Hose Clamp
2	2	2	640491	Nozzle Body Elbow Quick Outlet
3	2	4	640492	Nozzle Body TEE Quick Outlet
4	1	1	640498	Nozzle Body Cross 3/8 w/ Quick Outlet
5	5	7	640432	Flat Fan Spray Tip
6	5	7	600276	Rubber Washer
7	5	7	640497	Bayonet Cap 8mm/10mm Universal
8	5	7	600117	Check Valve / Strainer
9	5	7	640435	Boom Clamp
10	1	1	640494	7 Nozzle Boom Hose Assembly
11	1	1	640495	5 Nozzle Boom Hose Assembly

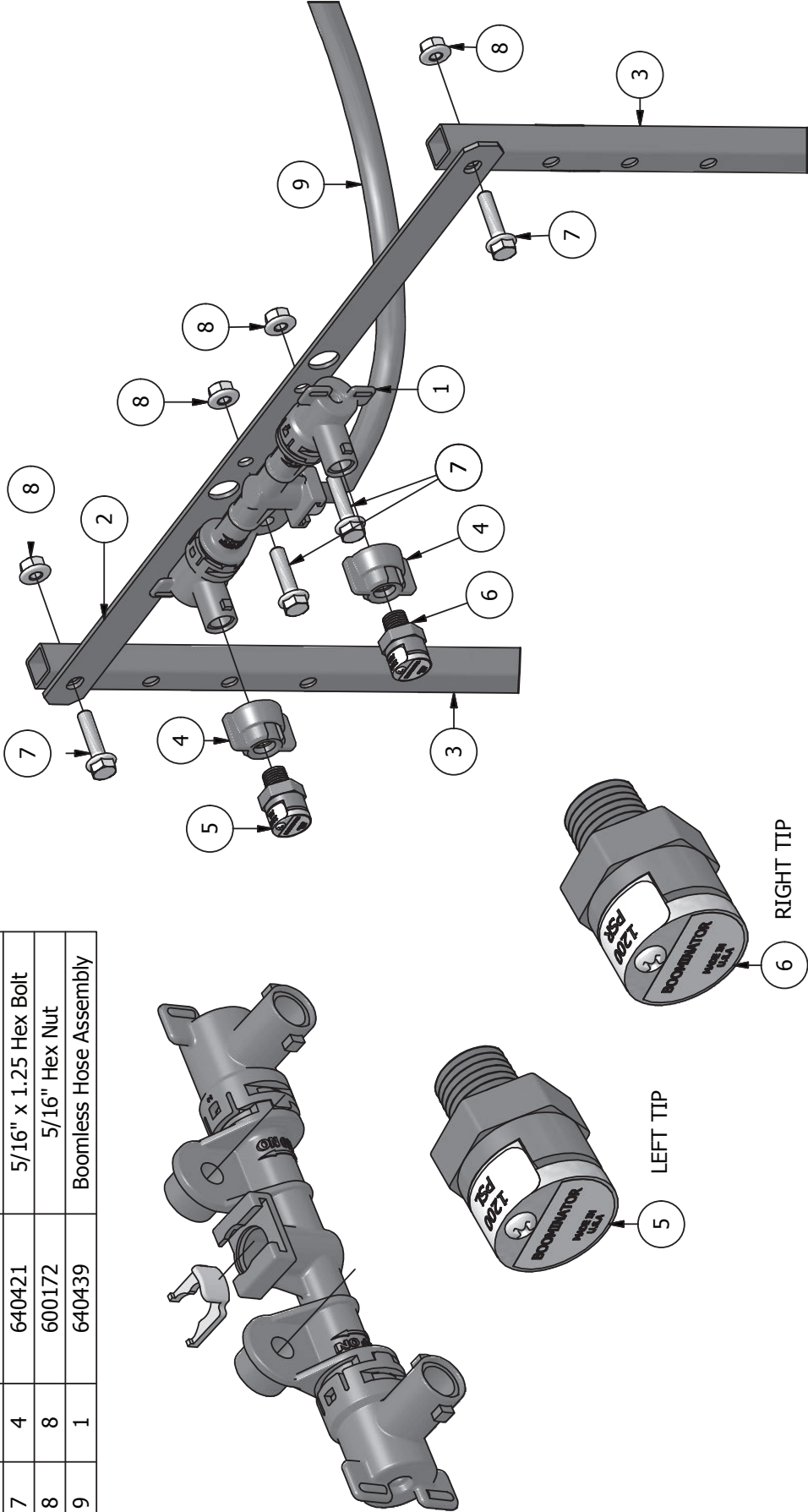


# Boomless Assembly

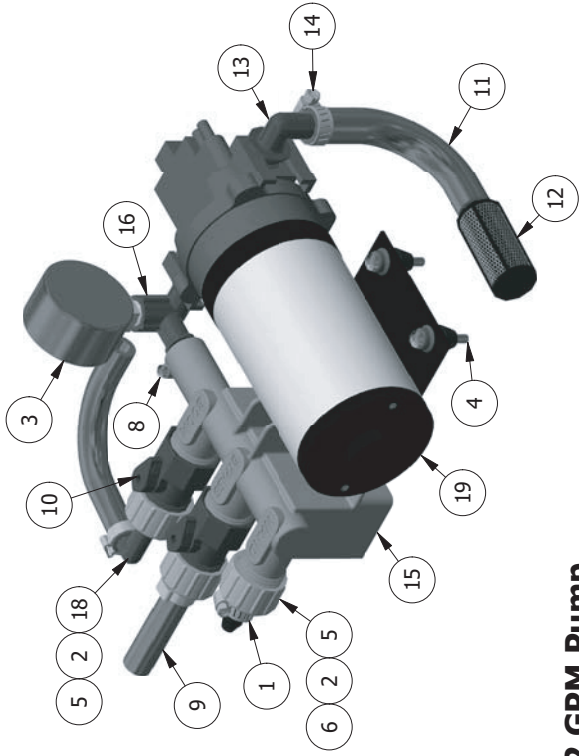
PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	600283	Boomless Manifold Assembly
2	1	640408	Boomless Bracket
3	2	640411	Boom Bracket
4	2	600282	Bonnet Cap
5	1	600248	1200 PSL Tip (Left)
6	1	600249	1200 PSL Tip (Right)
7	4	640421	5/16" x 1.25 Hex Bolt
8	8	600172	5/16" Hex Nut
9	1	640439	Boomless Hose Assembly

## Boomless Assembly Instructions

- 1.0--Install Boomless Bracket onto Square Boom Brackets using 5/16" bolts and 5/16" nut
  - 1.1--Slide Quick Clip into the back of the Boomless Manifold Assembly. (Quick Clip can only be installed while the Boomless Manifold is not installed on the Boomless Bracket and is used to secure the hose to the Manifold)
  - 1.2--Install Boomless Manifold Assembly onto the Boomless Bracket using 5/16" bolts and 5/16" nuts
  - 1.3--Install Bonnet Caps onto both ends of the Boomless Manifold Assembly.
  - 1.4--Using a quality thread tape install the Left Boomless Tip onto the Left Bonnet Cap and the Right Boomless Tip onto the Right Bonnet Cap. Making sure both are oriented correctly to achieve the correct spray pattern. DO NOT OVERTIGHTEN.
  - 1.5--Install Boomless Hose Assembly to Boomless Manifold and secure with Quick Clip.
- Then install the other end to Pump Manifold.



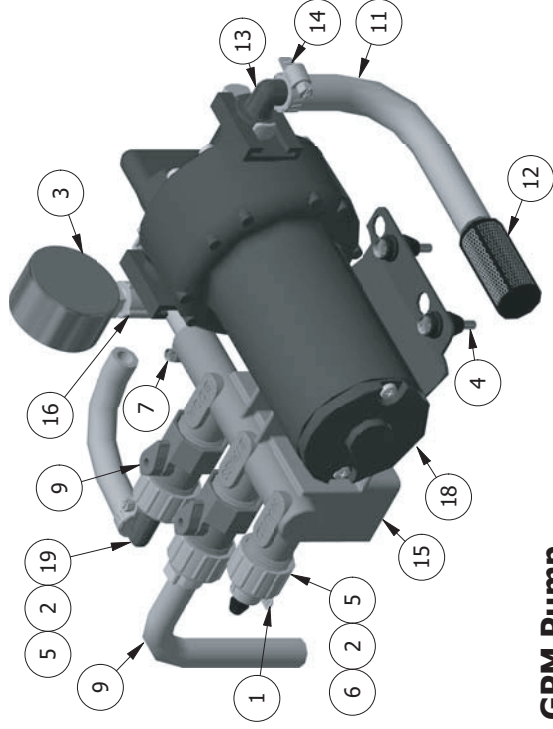
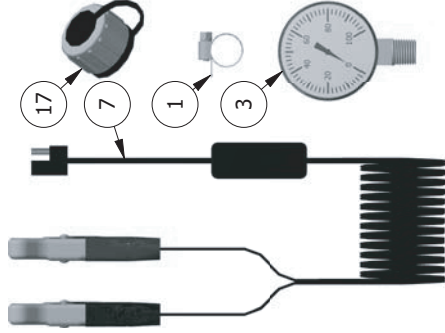
— Pump & Valve Assembly



2.2 GPM Pump

PARTS LIST		
ITEM	QTY	PART# DESCRIPTION
1	1	600120 3/8" Hose Clamp (670001)
2	3	600124 W 406
3	1	600129 Gauge 0-100 PSI (670001)
4	4	600130 10-24 x 1 1/4" Pan Head Screw
5	3	600139 B 3400 P
6	2	600140 C3800 P Fitting
7	1	600153 2.2 GPM Wire Assembly (670001)
8	1	600199 #8-3/4" Self Tapping Screw
9	1	600213 Relief Hose Assembly
10	2	600216 Inline Garden Hose Shutoff Valve
11	1	600285 1/2" Hose 24" Long
12	1	600286 Strainer
13	1	600287 QD EL 12
14	1	600288 1/2" Hose Clamp
15	1	600289 3 Outlet Manifold Body
16	1	600291 Manifold Supply Fitting for Flex Pump
17	1	600298 Drain Cap Assembly (670001)
18	1	640448 Flat Seat Swivel x 3/8" Elbow
19	1	640451 2.2 GPM Flex Pump

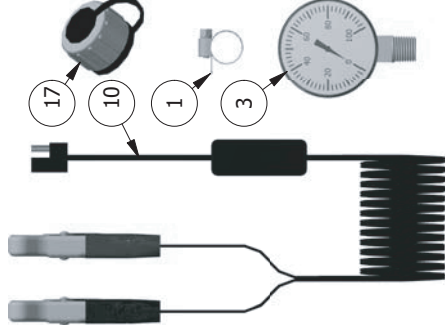
670001 Bag Assy



5.0 GPM Pump

PARTS LIST		
ITEM	QTY	PART# DESCRIPTION
1	1	600120 3/8" Hose Clamp (670002)
2	3	600124 W 406
3	1	600129 Gauge 0-100 PSI (670002)
4	4	600130 10-24 x 1 1/4" Pan Head Screw
5	3	600139 B 3400 P
6	2	600140 C3800 P Fitting
7	1	600199 #8-3/4" Self Tapping Screw
8	1	600213 Relief Hose Assembly
9	2	600216 Inline Garden Hose Shutoff Valve
10	1	600270 5.0 GPM Wire Assembly (670002)
11	1	600285 1/2" Hose (32" for 60 gal 24" for 25 & 40 gal)
12	1	600286 Strainer
13	1	600287 QD EL 12
14	1	600288 1/2" Hose Clamp
15	1	600289 3 Outlet Manifold Body
16	1	600292 Manifold Supply Fitting for 4.0 Pump
17	1	600298 Drain Cap Assembly (670002)
18	1	630031 12V 5.0 GPM Pump
19	1	640448 Flat Seat Swivel x 3/8" Elbow

670002 Bag Assy







3300 Series: 2.2 GPM

## PUMP INFORMATION:

**Type** - 3 chamber diaphragm pump, self priming, capable of being run dry

**Pressure Control** - Demand

**Liquid Temperature** - 140°F (60°C) Max.

**Priming Capabilities** - 8 feet (2.4 m)

**Max Pressure** - 200 PSI (14 bar)

**Inlet/Outlet Ports** - 3/4" Quick Attach

**Weight** - 6 lbs (2.7 kg)

## MOTOR INFORMATION

**Leads** - 14 AWG, 7" long with 2-Pin

**Temperature Limits** - Motor is not equipped with thermal protection. For user safety, optimal performance, and maximum motor life, the motor surface temperature should not exceed 180°F (82°C)



3200 Series: 3.2-4.0 GPM

## PUMP INFORMATION:

**Type** - 3 chamber diaphragm pump, self priming, capable of being run dry

**Pressure Control** - Demand

**Liquid Temperature** - 140°F (60°C) Max.

**Priming Capabilities** - 10 feet (3 m)

**Max Pressure** - 100 PSI (6.9 bar)

**Inlet/Outlet Ports** - 3/4" Quick Attach

**Weight** - 5 lbs (2.3 kg)

## MOTOR INFORMATION

**Leads** - 14 AWG, 7" long with 2-Pin

**Temperature Limits** - Motor is not equipped with thermal protection. For user safety, optimal performance, and maximum motor life, the motor surface temperature should not exceed 180°F (82°C)



5500 Series: 4.0-5.3GPM

## PUMP INFORMATION:

**Type** - 5 chamber diaphragm pump, self priming, capable of being run dry

**Pressure Control** - Demand

**Liquid Temperature** - 140°F (60°C) Max.

**Priming Capabilities** - 14 feet (4 m)

**Max Pressure Capabilities** - 150 PSI (10 bar)

**Inlet/Outlet Ports** - 3/4" Quick Attach

**Weight** - 8 lbs (3.62 kg)

## MOTOR INFORMATION

**Leads** - 14 AWG, 7" long with 2-Pin

**Temperature Limits** - Motor is not equipped with thermal protection. For user safety, optimal performance, and maximum motor life, the motor surface temperature should not exceed 180°F (82°C)

## Installation and Operation Precautions

- The pump is equipped with a pressure sensing demand switch that controls the maximum operating pressure.
- In addition, never subject the pump to pressures above factory set/max pressure rating.
- As long as there is inlet water pressure, the pump will not stop forward flow of water even if the motor is turned off. Be sure the system has positive means of shutting off water supply.
- Do not operate pump in an explosive environment. Arcing from the motor brushes, switch or excessive heat from an improperly cycled motor may cause an explosion.
- Do not locate the pump motor near low temperature plastics or combustible material. The surface temperature of the motor may exceed 180°F (82°C).
- Do not pump gasoline or other flammable liquids. Pump head materials are designed for use with water only. Do not use with petroleum products.
- Do not assume fluid compatibility. If the fluid is improperly matched to the pumps' elastomers, a leak may occur.
- To prevent electrical shock, disconnect power before initiating any work. In the case of pump failure, the motor housing and/or pump fluid may carry high voltage to components normally considered safe. Therefore, always consider electrical shock hazard when working with and handling electrical equipment. If uncertain, consult an electrician. Electrical wiring should only be done by a qualified electrician per local and state electrical codes.

## Servicing —

- Every Year: Check system against operating standards. Flush with clean water and store in warm dry place.
- Every 2-3 Years: We recommend replacing the valves and checking against operating standards.

## Recommendations —

### Electrical:

- The ProFlo™ series pumps are designed for intermittent duty. Make sure that "OFF" periods are sufficient. Consult the factory for particular data and design criteria.
- Be sure power supply used is adequate for the application.
- Pump and motor specifications are based on an alternator charged battery (13.6 VDC)
- Use sufficient battery supply power. UTV and lawn tractor batteries may affect pump performance due to low voltage and amp ratings
- Rapid On/Off Cycling must be limited to no more than 6 times per minute, even if the pump is operating in the Continuous Duty zone. Cycling could cause the motor to heat beyond the recommended maximum temperature, and reduce the operational life of the pump and pressure-sensing switch.

## Important return safety instructions -

When returning your pump for warranty or repair, you must always do the following:

- Contact factory for RMA number.
- Flush chemical residue from the pump (best done in the field).
- Tag pump with type of chemicals having been sprayed.
- Include complete description of operation problem, such as how pump was used, symptoms of malfunction, etc. Since pumps can contain residues of toxic chemicals these steps are necessary to protect all the people who handle return shipments, and to help pinpoint the reason for the breakdown.