

OWNER'S MANUAL

Model: G23-LG15ETS (15 Gallon Trailer Sprayer)



General Information

Thank you for purchasing this product. The purpose of this manual is to assist you in operating and maintaining your lawn & garden trailer sprayer.

**BEFORE RETURNING THIS PRODUCT
FOR ANY REASON, PLEASE CALL**

1-888-433-6631

MONDAY-FRIDAY, 8:00 AM TO 5:00 PM CST

If you should have a question or experience a problem with your Workhorse Sprayers Product: Visit our website @ www.workhorsesprayers.com or call the Toll free number above. Our technical support representatives will be happy to help you.

In most cases a customer service rep. can resolve the problem over the phone.

To obtain prompt, efficient service, always remember to give the following information....

- Correct Part Description and/or part number
- Model number and Serial Number

Part descriptions and numbers can be obtained from the illustrated parts list section(s) of this manual.

Retain a copy of your receipt for your unit, as it will be required to validate any warranty service.

Warranted against manufacturer or workmanship defects from date of purchase with copy of receipt:

Homeowner Usage: One Year.

Commercial Usage: 90 Days.



WARNING: To reduce the risk of injury, the user must read and understand the operator's manual before using this product.



WARNING: Cancer and Reproductive Harm.
www.P65Warnings.ca.gov



WORKHORSE
S P R A Y E R S

www.workhorsesprayers.com

Toll Free Phone: 888-433-6631

[G23-700103

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Model: G23-LG15ETS

(15 Gallon Trailer Sprayer)

Technical Specifications

- 15 Gal. Corrosion-Resistant Polyethylene Tank
- 12 Volt 1.0 GPM Diaphragm Pump
- Lever Handle Spray Wand
- 3/8" x 15 Ft. Handgun Hose
- 2-Nozzle Boom, 100" Spray Coverage



Caution: Always check the vehicle load rating before using the sprayer.

The loaded weight of this sprayer and boom assembly is approx.: 170 lbs. when the tank is full.

~~~~~IMPORTANT~~~~~

Remove tank lid and be sure the tank is clean and free of any foreign material. Rinse tank out of any tank residue before filling with water to test.

~~~~~IMPORTANT~~~~~

It is VERY important to test this sprayer with plain water before actual spraying is attempted. This will enable you to familiarize yourself with the sprayer and check for leaks without the possibility of losing any expensive chemicals.

~~~~~WARNING~~~~~



Read and Understand the Owner's Manual before using this sprayer. Test and use in accordance to instructions.

Read and Follow chemical label instructions and wear protective gear when filling, using, cleaning and servicing the sprayer.

Exercise Caution in vehicle handling when towing/hauling a filled sprayer to avoid loss of control or overturning.

Keep Sprayer and Spray materials away from other people, children and pets.

Do Not Turn on Power to the sprayer, until ready to spray in order to avoid unintentional spray release.

Do Not Use on steep slopes. A full sprayer could cause loss of control or overturn sprayer and vehicle.

Always operate up and down a slope, never across the face of a slope.

Keep all movement on slopes slow and gradual. Do not make sudden changes in speed, directions or turning. Do not start or stop suddenly when going uphill or downhill.

Stop on level ground, set the parking brake and shut off engine before leaving the operator's position for any reason.

Keep all parts in good condition and properly installed. Fix damaged or worn parts immediately.

Caution should be taken when towing and/or using any sprayer. This sprayer combined with the weight distribution, turning radius and speed of vehicle can result in damage to vehicle and/or sprayer or severe injury or death, if not used properly.

Improper use of this sprayer or handling of chemicals could result in serious injury or illness, or could cause damage to the environment.

IMPORTANT: Remove tank lid and be sure the tank is clean and free of any foreign material. Rinse tank out of any tank residue before filling with water to test.

- **Make sure all hose clamps are tight** before testing or spraying for the first time.
- One requirement will be for you to hook up your battery leads to a fully charged 12 Volt battery.

****The Sprayer should be TESTED w/plain water before actual use****

Testing the Sprayer

NOTE:

It is VERY important to test this sprayer with plain water before actual spraying is attempted. This will enable you to check the sprayer for leaks without the possibility of losing any expensive chemicals.

Important: After any repair work has been done, ALWAYS test for leaks with water before using.

Fill the tank about 1/2 full with plain water and drive to the starting place for spraying.

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(s) before application!

Operation

This sprayer is designed to be towed behind a garden tractor.

The pumping system draws solution from the tank, through the strainer and to the pump. The pump forces the solution under pressure to the handgun or boom nozzles.

Fill the tank part way with water and then add the desired amount of chemical to be sprayed. Finish filling tank to proper level.

Only fill the tank with what you're going to spray in a day, never leave chemicals sit in tank.

Connect the lead wire to a fully charged 12 volt battery. You may use either a stand-alone battery or the battery on your towing vehicle. Connect to the positive (red) terminal first, then connect to the negative (black) terminal. Then connect the end of the lead wire to the end of the pump. When disconnecting, disconnect the end of the pump wire from the lead wire, then disconnect the negative (black) connection and finally the positive (red) connection. The lead wire has an On/Off switch to activate the pump. "-" is on and "O" is off.

Turn the pump on by depressing the "-" side of the rocker switch. The pump is equipped with a pressure switch that is pre-set at the factory to shut the pump off when all discharges are closed.

- ◆ The pump will turn back on when the handgun lever is squeezed to spray the handgun.

For the safest and most efficient chemical application, you will need to calibrate your sprayer using the tip and speed charts. Once you have determined the proper speed and pressure settings (this sprayer will spray at the 30 PSI range from the chart shown), you will need to consult your chemical label for the amount of chemical to be added to the tank. Read the entire label. Use only according to label directions.



NOTE: Maximum Speed - 5 MPH
Refer to vehicle's manual for towing instructions.

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 the spraying pressure (this sprayer will spray at the 30 PSI range), and the spraying speed (MPH).

Determining the proper speed of the pulling vehicle can be done by marking off 100, 200 & 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 the tank and drive to the starting place for spraying.

- Speed Chart -				
Speed in MPH	Time Required in Seconds to Travel a distance of:			
	100 ft.	200 ft.	300 ft.	
1.0	68.0	136.0	205.0	
2.0	34.0	68.0	102.0	
3.0	23.0	45.0	68.0	
4.0	17.0	34.0	51.0	
5.0	14.0	27.0	41.0	
6.0	11.0	23.0	34.0	
7.0	9.7	19.0	29.0	

Tip Chart								
Tip No.	Spray Height	Pressure (PSI)	Capacity (GPM)	Gallons Per Acre Based on Water				
				1 MPH	2 MPH	3 MPH	4 MPH	5 MPH
3	18	30	0.52	76.0	38.0	26.0	19.3	15.4
Tip No.	Spray Height	Pressure (PSI)	Capacity (GPM)	Gallons Per 1000 Sq. Ft. Based on Water				
				1 MPH	2 MPH	3 MPH	4 MPH	5 MPH
3	18	30	0.52	1.74	0.87	.596	.440	.350
Tip No.	Spray Height	Pressure (PSI)	Capacity (GPM)	Gallons Per 100 Sq. Ft. Based on Water				
				1 MPH	2 MPH	3 MPH	4 MPH	5 MPH
3	18	30	0.52	.174	.087	.059	.044	.035

Using the Boom Nozzles

Four things must be considered before spraying with the boom.

1. How much chemical must be mixed in the tank.
 2. Rate of spray (gallons per acre to be sprayed).
 3. What pressure (psi) will be used.
 4. Speed traveled (mph) while spraying.
- * Refer to the chemical label to determine chemical mixture
 - * Tip chart will show the speed used when spraying.
 - * Start the pump and open the valve to the boom nozzles.
 - * Check the spray pattern. Usually you can see the coverage better on a solid concrete surface, such as a driveway.

Once the pump is turned on, the unit will begin spraying. The system pressure will decrease slightly when the solution is spraying from the nozzles. This is normal, the pressure will return as before when the control valve is turned to the "OFF" position. Optimum spraying range is 20 to 30 PSI.

Maintenance During/After Spraying

Periodically check the strainer and clean the screen on your intake line.

If sprayer becomes clogged during use, discontinue use immediately. DO NOT attempt to service while chemicals are in the sprayer and power is connected.

Proper care and maintenance will prolong the life of your sprayer.

After use, drain the tank and store or dispose of chemical properly. Fill the sprayer half way with clean water. Start the pump and allow the water to pump through the entire plumbing system and nozzle. Drain and then refill half full, add the recommended amount of a good quality tank cleaner, such as FIMCO Tank Neutralizer and Cleaner. (If no tank cleaner is available, you may substitute dish soap for this step, about 1-2 oz. per gallon). But a neutralizer/cleaner should be used to thoroughly clean the system. Turn pump on and circulate through system for 15 minutes and then spray out through the spray wand nozzle. Refill sprayer half way with clean water and repeat. Follow the chemical manufacturer's disposal instructions of all wash or rinsing water.

If boom or handgun nozzles need cleaning, remove them from the sprayer and soak in warm soapy water. Clean with a soft bristled brush or toothpick if necessary. Never use a metal object. Even the slightest damage can change the flow rate and spray distribution. Water rinse and dry the tips before storing.

WARNING: Some chemicals will damage the pump valves if allowed to soak untreated for a length of time! ALWAYS flush the pump as instructed after each use. DO NOT allow chemicals to sit in the pump for extended times of idleness. Follow the chemical manufacturer's instructions on disposal of all waste water from the sprayer.

Tank Care & Maintenance

Warning: Do not use the tank as a container for fuel oils, kerosene, gasoline or any other petroleum distillate product. All poly olefins are softened and permeated by such products. In an enclosed area the vaporization of these materials from the outside surface of the tank could create a dangerous condition.

The tank should not be used as a pressure vessel nor used with chemicals or solutions having a weight of more than 12 pounds per gallon.

Store the tank in a dry dark place when not in use. Storage out of sunlight will prolong the life of the tank.

Do not drop, strike or kick the tank, especially at low temperatures. Tanks become brittle and are subject to cracking at temperatures below 20° Fahrenheit.

Always flush the tank with water and a neutralizing agent at the end of each use, to prevent contamination of solutions.

Winter Storage

Prepare the sprayer for end-of-season storage by running RV antifreeze through the system. This will keep internal parts lubricated, protect against corrosion and keep the unit from freezing. *Note: RV antifreeze is non-toxic and biodegradable and generally safer for the environment than automotive antifreeze.*

Before storing your sprayer for winter or long term storage, thoroughly clean and drain it as much as possible. Then pour enough pink RV antifreeze into the tank so that when the pump is turned on you can pump the antifreeze throughout the entire plumbing system. Make sure to operate the spray wand until you see pink fluid spraying from the nozzle. Leave any remaining antifreeze in the tank. Before your next usage, rinse the antifreeze from the sprayer with clean water.

It is nearly impossible to drain all of the water from the sprayer and any trapped water can freeze in cold weather and damage parts of the sprayer. Pumping the antifreeze through the system will displace the water and help prevent this damage.

Removing from storage: drain the antifreeze. Fill the tank with fresh water and run through the system. Dispose of antifreeze and flush water properly.

Sprayer and Pump FAQs:

♦ Why does the pump not run all the time?

This is an on-demand pump and only runs when a discharge is open (spray gun, bypass, boom (if applicable) or a leak in the system).

♦ Why does the pump surge while using the spray gun?

Low flow/high pressure may cause the pump to surge (or cycle). Typically the spray wand is adjusted at too fine of a mist, to overcome, adjust the nozzle for a higher flow.

♦ How do I adjust the pressure?

Pressure can only be adjusted by opening the pressure adjust (bypass) valve to allow some of your water or solution to return to the tank (if equipped).

♦ Pump quit and will not run, what do I need to do?

Squeeze trigger on spray gun to ensure that the system isn't just pressurized up with discharges closed.

Check electrical connections, ensure switch is on. Check fuses. Check for proper voltage. Check pressure switch.

♦ Low flow or no flow at all, what do I need to check for?

Check for a clogged intake hose and/or intake strainer. Check for proper voltage.

You will need to occasionally check your intake strainer to ensure that it is clean of any debris.

♦ What is causing the fuse to blow each time I turn the pump on?

Check for excessive voltage. Improper adjustment of the pressure switch. Damaged or defective wire harness or defective pressure switch. Motor is seized up.

Warning:

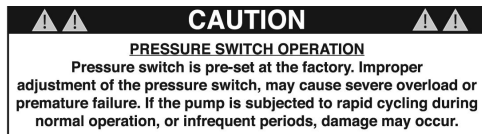
Ensure the wiring harness does not become pinched or damaged in any way. This may damage the pump or cause the wiring harness to overheat, resulting in a melt down or fire.



- Clean and rinse your pump after each use with a Tank Neutralizer/Cleaner.
- Winterize your pump or sprayer by rinsing, draining and running RV Antifreeze through it before storing for the winter.
- Use clean water for your spray mixture.
- Store inside a building when not in use.



- Use to pump bleach.
- Use to pump petroleum products such as diesel fuel, gasoline or kerosene.
- Use to pump chemicals w/petroleum distillates or surfactants.
- Use to store flammable or combustible liquids.
- Leave your pump sit with spray mixture in it for extended periods.
- Use dirty or unfiltered water for spraying.



Before Troubleshooting or Attempting to Service the Pump:

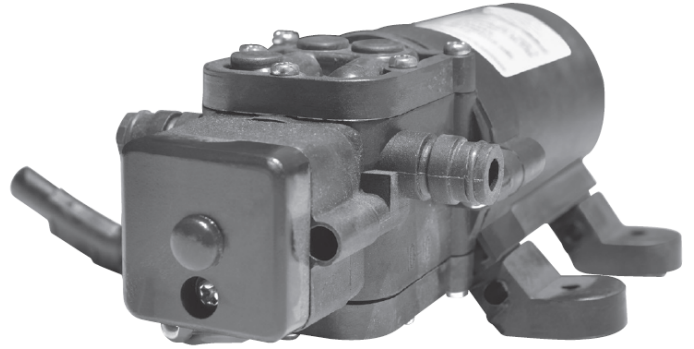
- ♦ **Review Troubleshooting Chart:** Do Not attempt to repair until steps below are followed.
- ♦ **Personal Protective Gear:** Wear protective gear when servicing pump.
- ♦ **Disconnect Power:** Disconnect the power to the pump and relieve the pressure from the system.
- ♦ **Empty and Flush** pump system with water, never attempt to service the pump until it has been emptied and flushed.
- ♦ **Perform Repairs:** Follow directions provided in the troubleshooting section to repair the pump.
- ♦ **Test:** Always test the pump for leaks with plain water after any repairs before using.

PowerFlo™ 2200 Series

Performance

Pressure/Flow/Amp Draw

PSI	Bar	GPM	LPM	Amps
0-3	0.2	1.00	3.7	1.5
10	0.7	0.85	3.1	1.9
20	1.4	0.71	2.6	2.1
30	2.1	0.61	2.3	2.4
40	2.8	0.42	1.6	2.6



Materials of Construction:

Motor Housing:	Nylon 6/6
Pump Housing:	Polypropylene
Valves:	Viton
Diaphragm:	Santoprene
Fasteners:	Stainless steel & zinc plated

Specifications:

Motor

Type: 12 VDC, permanent magnet, thermally protected, splashproof

Leads: 2200-2 Model: 18 AWG, 4.5" Long

Duty Cycle: Intermittent

Pump

Type 2-chamber positive displacement, self-priming, capable of being run dry

Liquid Temperature:

Priming Capabilities: 4 feet (1.2 m) suction lift

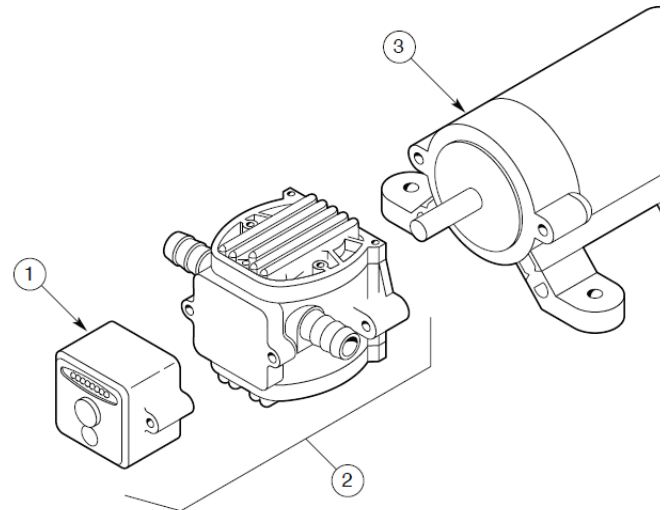
Max Pressure: 40 PSI (2.8 bar)

Pressure Demand Switch:

Shut-Off: 40 ±5PSI (2.8 ±0.3 bar) factory setting

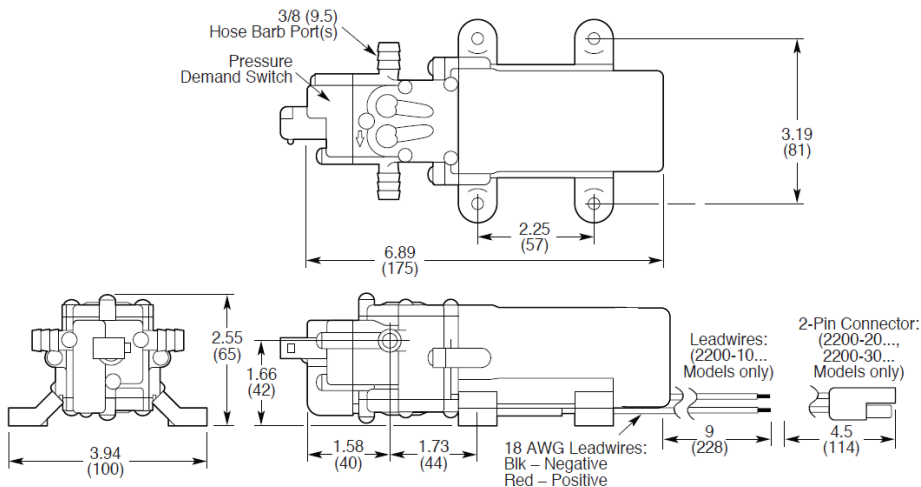
Turn-On: 25 ±5PSI (1.7 ±0.3 bar) factory setting

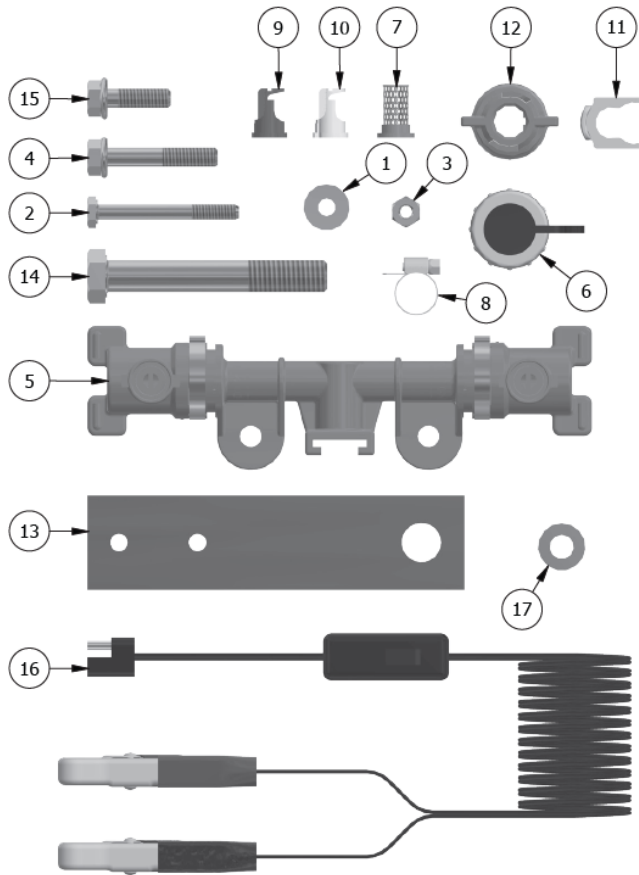
Inlet/Outlet Ports: 3/8" hose barb



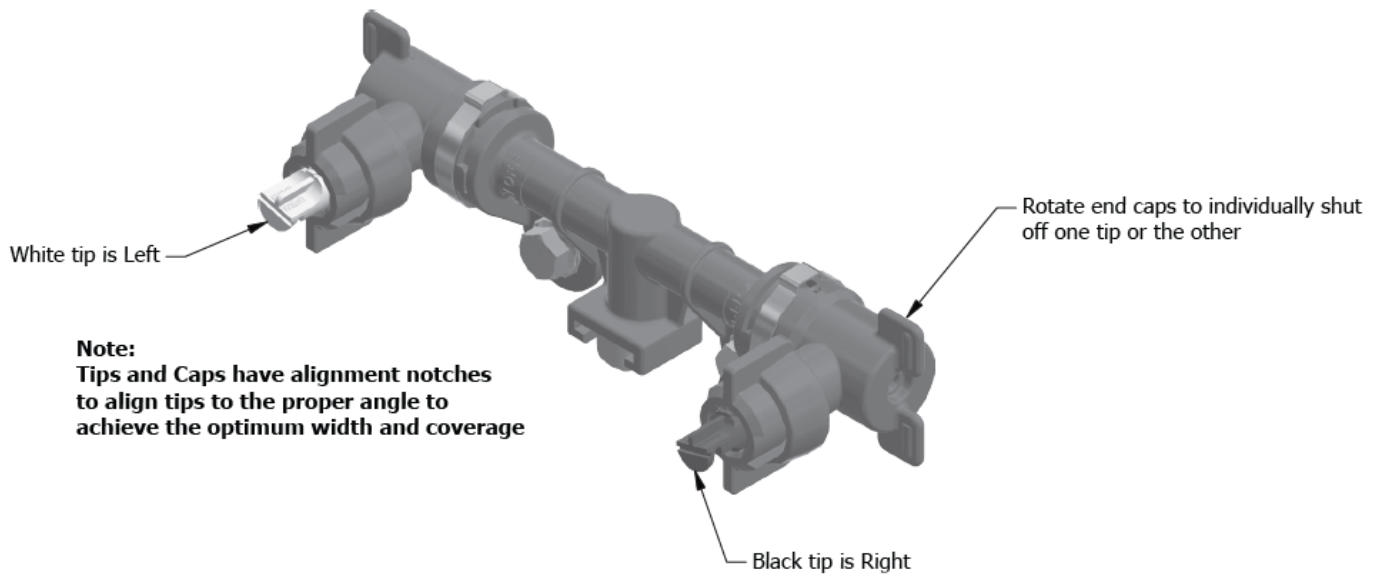
Parts List

Ref. #	Description	Part #
1	Switch Assembly	5164271
2	Pump Head w/Switch Assembly	5275064
3	Motor w/connector, no switch	P39-045B

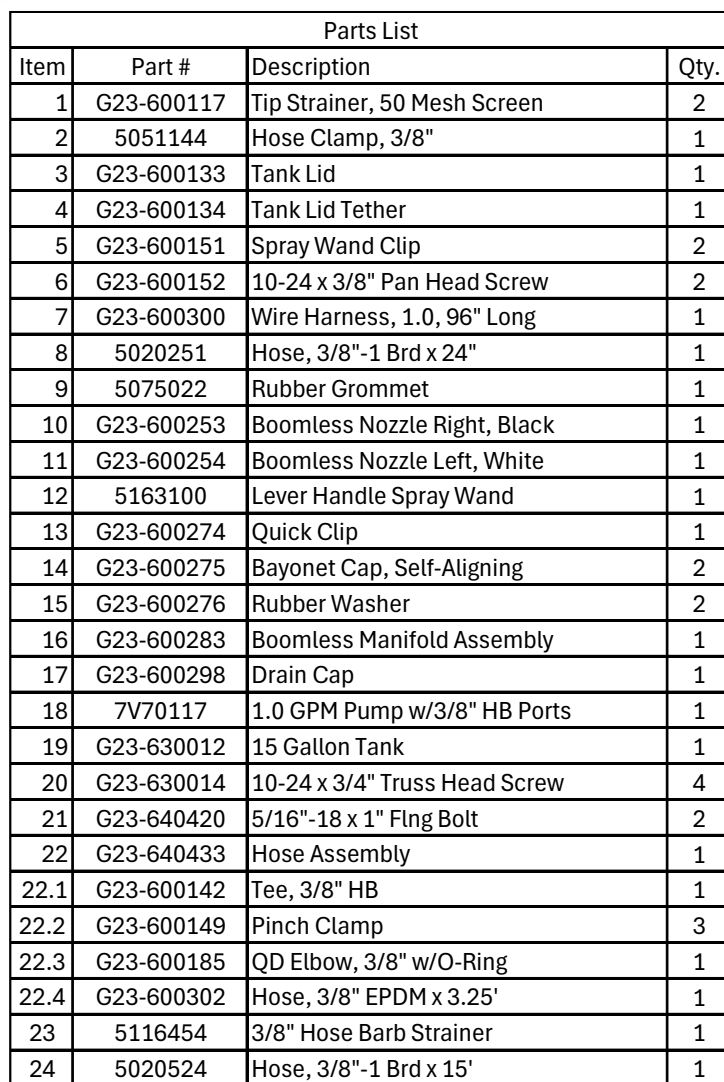
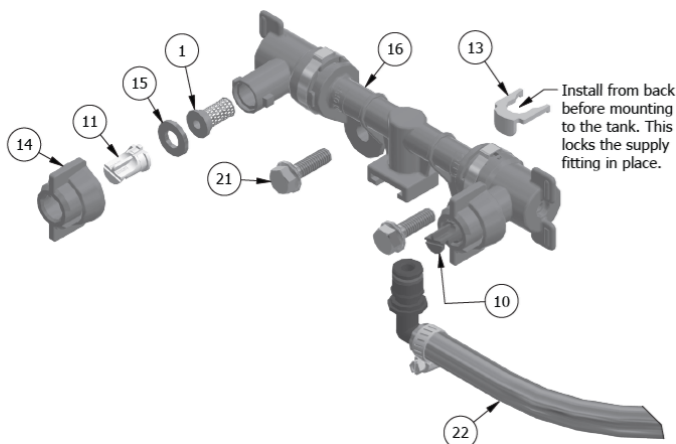




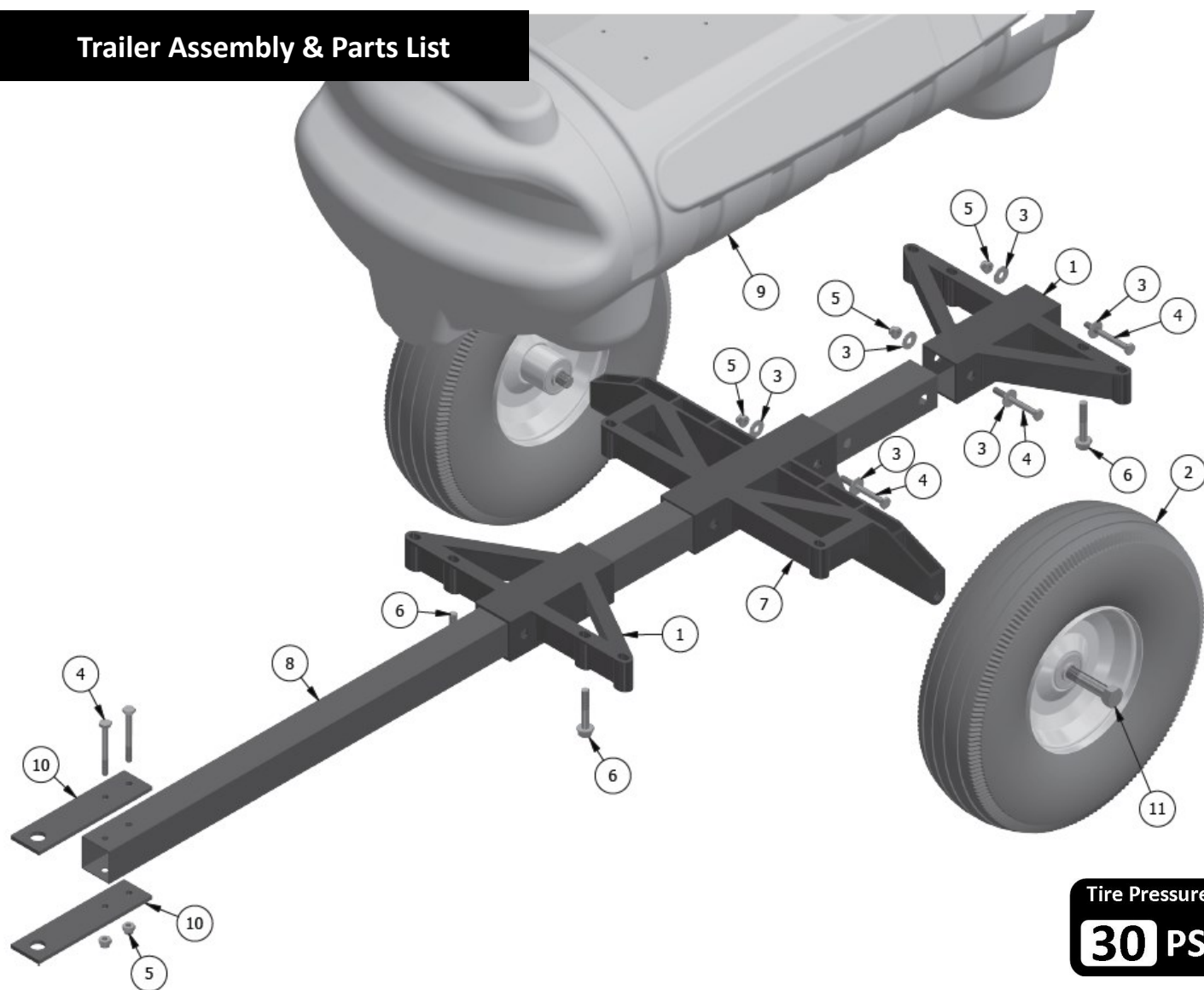
Parts List			
Item	Part #	Description	Qty.
1	G23-600105	Flat Washer, 1/4"	6
2	G23-600106	1/4-20 x 2-1/4" Hex Head Screw	5
3	G23-600107	1/4-20 Hex Lock Nut	5
4	G23-600109	5/16-18 x 1-3/4" Flng Bolt	4
5	G23-600283	Boomless Manifold Assembly	1
6	G23-600298	Drain Cap	1
7	G23-600117	Tip Strainer, 50 Mesh Screen	2
8	G23-600120	Hose Clamp, 3/8"	2
9	G23-600253	Boomless Nozzle Right, Black	1
10	G23-600254	Boomless Nozzle Left, White	1
11	G23-600274	Quick Clip	1
12	G23-600275	Bayonet Cap, Self-Aligning	2
13	G23-630103	Hitch Bracket	2
14	G23-600245	1/2-13 x 3-1/2" Hex Bolt	2
15	G23-640420	5/16"- 18 x 1" Flng Bolt	2
16	G23-600300	Wire Harness, 1.0, 96" Long	1
17	G23-600276	Rubber Washer	2



General Assembly & Parts List



Trailer Assembly & Parts List



Tire Pressure
30 PSI

Parts List			
Item	Part #	Description	Qty.
1	G23-600101	Frame Member Front/Back	2
2	G23-600104	Tire/Wheel 410/3.50-6, 1/2" BB	2
3	G23-600105	Flat Washer, 1/4"	6
4	G23-600106	1/4-20 x 2-1/4" Hex Head Screw	5
5	G23-600107	1/4-20 Hex Lock Nut	5
6	G23-600109	5/16-18 x 1-3/4" Flng Bolt	4
7	G23-600244	Frame Member Axle Thread	1
8	G23-630009	Trailer Tube, 1-1/2" Sq.	1
9	G23-630012	15 Gallon Tank	1
10	G23-630103	Hitch Bracket	2
11	G23-600245	1/2-13 x 3-1/2" Hex Bolt	2

Warranty

LIMITED WARRANTY FOR NEW WORKHORSE SPRAYERS EQUIPMENT

WHO MAY USE THIS LIMITED WARRANTY. This limited warranty (the "Limited Warranty") is provided by Workhorse Sprayers to the original purchaser ("you") of the Equipment (as defined below) from Workhorse Sprayers or one of Workhorse Sprayers' authorized dealers. This Limited Warranty does not apply to any subsequent owner or other transferee of the Equipment. THIS LIMITED WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

WHAT THIS LIMITED WARRANTY COVERS AND FOR HOW LONG. Workhorse Sprayers warrants that any new Equipment will be free from defects in material and workmanship for a period of **one (1) year** for homeowner and **90 days** commercial user, after delivery of the Equipment to you (the "Warranty Period"). The Warranty Period is not extended if Workhorse Sprayers repairs or replaces the Equipment.

WHAT IS NOT COVERED BY THIS LIMITED WARRANTY. This Limited Warranty does not apply to: (1) used Equipment; (2) any Equipment that has been altered, changed, repaired or treated since its delivery to you, other than by Workhorse Sprayers or its authorized dealers; (3) damage or depreciation due to normal wear and tear; (4) defects or damage due to failure to follow Workhorse Sprayers' operator's manual, specifications or other written instructions, or improper storage, operation, maintenance, application or installation of parts; (5) defects or damage due to misuse, accident or neglect, "acts of God" or other events beyond Workhorse Sprayers' reasonable control; (6) accessories, attachments, tools or parts that were not manufactured by Workhorse Sprayers, whether or not sold or operated with the Equipment; or (7) rubber parts, such as tires, hoses and grommets.

HOW TO OBTAIN WARRANTY SERVICE. To obtain warranty service under this Limited Warranty, you must (1) provide written notice to Workhorse Sprayers of the defect during the Warranty Period and within **thirty (30) days** after the defect becomes apparent or the repair becomes necessary, at the following address: Workhorse Sprayers, PO Box 1700, North Sioux City, SD 57049; and (2) make the Equipment available to Workhorse Sprayers or an authorized dealer within a reasonable period of time.

For more information about this Limited Warranty, please call: **888-433-6631**.

WHAT REMEDIES ARE AVAILABLE UNDER THIS LIMITED WARRANTY. If the conditions set forth above are fulfilled and the Equipment or any part thereof is found to be defective, Workhorse Sprayers shall, at its own cost, and at its option, either repair or replace the defective Equipment or part. Workhorse Sprayers will pay for shipping and handling fees to return the repaired or replacement Equipment or part to you.

LIMITATION OF IMPLIED WARRANTIES AND OTHER REMEDIES. THE REMEDIES DESCRIBED ABOVE ARE YOUR SOLE AND EXCLUSIVE REMEDIES, AND WORKHORSE SPRAYERS' SOLE LIABILITY, FOR ANY BREACH OF THIS LIMITED WARRANTY. TO THE EXTENT APPLICABLE, ANY IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, SHALL BE LIMITED IN DURATION TO THE WARRANTY PERIOD, AND THE REMEDIES AVAILABLE FOR BREACH THEREOF SHALL BE LIMITED TO THE REMEDIES AVAILABLE UNDER THIS EXPRESS LIMITED WARRANTY. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU. IN NO EVENT SHALL WORKHORSE SPRAYERS' LIABILITY UNDER THIS LIMITED WARRANTY EXCEED THE ACTUAL AMOUNT PAID BY YOU FOR THE DEFECTIVE EQUIPMENT, NOR SHALL WORKHORSE SPRAYERS BE LIABLE, UNDER ANY CIRCUMSTANCES, FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL OR PUNITIVE DAMAGES OR LOSSES, WHETHER DIRECT OR INDIRECT. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.