



123 Industrial Loop Road
Paynesville, MN 56362
Phone: 1-800-864-1649
www.master-mfg.com



MASTER
MANUFACTURING

MASTER GARDNER



Part Number PCD-E3-009B-MM | Rev 2 Dec. 2012

Note: Do not return product to the distributor/dealer for warranty work. Call Master Manufacturing at (800) 864-1649 for any warranty work or replacement parts.

INTRODUCTION

The purpose of this manual is to assist you in the assembly, operation and maintenance of your Master Gardner sprayer. Please read through this manual completely to fully understand how to operate and maintain your equipment. This product has been manufactured to provide years of dependable service; proper operation and maintenance will ensure its dependability. Keep your manual in a safe, convenient place for future reference. Always mention the model and part number in any correspondence.

ASSEMBLY

The Master Gardner is assembled at the factory with the exception of a few components to protect them from shipping damage. Follow the steps below to complete assembly:

Hooking up pump to battery source

- 1.) Remove the sprayer from the carton and gently tip the sprayer upside down onto the tank lid.
- 2.) Looking underneath the back panel, locate the (2) **black** two pin connectors. One from the pump and the other from the wiring harness leading to the battery (neither of these wires should have any labels on them) Plug these two connectors together securely.

Caution: Do not hook up the red connector labeled “Remote Switch” to anything but the remote switch. This will cause the fuse to blow.

Handle Assembly

- 1.) Remove sprayer and components from Carton.
- 2.) Locate and remove the two bags of components from within the tank. Open the parts bag labeled; “Acc. Bag” and remove these instructions. Read instructions in their entirety before proceeding.
- 3.) Slide handle (Item 1, figure A) into lower frame (Item 7, figure A). Adjust handle height to a comfortable setting for the operator. Adjust handle to align the holes in handle and lower frame closest to desired setting.
- 4.) Using the two handle adjustment knobs and bolts (Item 2, figure A), insert bolts through holes in handle and tighten with knobs.

Front Deflector Nozzle Attachment

Note: If nozzle assembly is complete proceed to step 4.

- 1.) Locate the bag labeled Nozzle Assembly.
- 2.) Insert Nozzle body fitting (Item 7, figure B), through the nozzle bracket (Item 8, figure B), and hold in place with nozzle body nut (Item 9, figure B) tightened loosely by hand.
- 3.) Insert nozzle filter (Item 9, figure B) into nozzle body. Place deflector nozzle (Item 11, figure B) into nozzle nut (Item 12, figure B). Thread nozzle nut with nozzle onto nozzle body fitting and tighten slightly.
- 4.) Attach Nozzle bracket to tank (Item 16, figure B) with two screws and washers. Tighten securely.
- 5.) Locate clear vinyl hose from bottom front of tank. Attach hose to nozzle body fitting attached to front of tank with hose clamp (Item 17, figure B).
- 6.) Tighten all nuts and screws securely ensuring the nozzle is pointing directly down towards the ground.

Using the Master Gardner as a Trailer

If the Master Gardner will be used with a garden tractor a trailer tongue can be attached to the sprayer for towing. A “Remote Switch” is also supplied so the sprayer pump can be remotely operated from the tractor. If the Master Gardner will be used as a trailer, follow the instructions below:

- 1.) Locate the remote switch wiring harness from the accessory bag.
- 2.) Locate the sprayer wiring harness connector near the opening on the bottom of the black pump shield on the back of the sprayer. The two pin **red** connector will be labeled “Remote Switch”. Attach the **red** two pin connector from the Remote Switch to the **red** connector on the sprayer.

- 3.) Attach the trailer tongue (Item 8, figure B) to the sprayer frame (Item 7, figure B) aligning the holes and using the pin and hair pin (Item 3, figure B).

Setup

Charging the Battery

- 1.) Obtain the battery charger (Item 27, figure B) and plug the charger into an AC wall outlet and the other end into the charging port located on the sprayer.
- 2.) Allow the charger to charge the battery until the light on the charger turns from red to green. A green light indicated the battery is fully charged. A red light indicates the batter needs charging. A discharged battery could take as long as 24 hours to recharge.
- 3.) Never allow the battery to discharge completely. Doing so may damage or shorten battery life and void warranty.

Testing

- 1.) **Always test the sprayer with clean water prior to spraying with a chemical mixture. This will allow the sprayer to be inspected for leaks and repaired before expensive chemicals are used.**

Using the front Deflector Nozzle

- 1.) Four things must be considered before spraying with the boom.
 - 1.) How much chemical must be mixed in the tank?
 - Refer to the chemical label to determine the chemical mixture
 - 2.) Rate of spray (gallons per acre to be sprayed).
 - See the Tip Chart below to determine the gallons per acre. The chart will also show the speed used when spraying.
 - 3.) Speed traveled (M.P.H.) while spraying.
 - Refer to the Tip Chart and Speed Chart below for MPH.

Determine Gallons per Minute

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). The pressure is preset by the pump, typically between 30 to 35 psi, but it will vary depending on the percentage of charge left in the battery. If precise chemical metering is desired, then the battery should be fully charged and a flow rate should be measured at the nozzle. After the battery is fully charged, obtain a bucket and place under the nozzle. Turn the valve on to begin spraying water into the bucket while timing. Allow the sprayer to run for 1 minute and then turn off sprayer. Measure the amount of water within the bucket to obtain the exact GPM of the pump and nozzle.

<u>Gallons per Acre, 40" spacing</u>						
Nozzle part #	PSI	Flow GPM	1 mph	2 mph	3 mph	4 mph
DF3.0	30	0.52	77.2	38.6	25.7	19.3
Gray Nozzle	40	0.6	89.1	44.6	29.7	22.3

Determine MPH

Determining the proper walking speed can be done by marking off a length of 100 feet. The speed chart indicates the number of seconds it takes to travel 100 feet.

Speed MPH	Time required to travel 100 ft
1	68 Sec.
2	34 Sec.
3	23 Sec.
4	17 Sec.

Caution

Do not spray on windy days. Protective clothing must be worn in some cases. Be sure to read the chemical label carefully. After all calibrations have been completed, add water and chemical to the tank. Always follow chemical manufacturer's instructions for mixing.

Operation

Ensure battery is fully charged to provide optimum efficiency from the 12volt pump. Turn the valve located in the back panel to the off position. This will ensure the nozzle does not begin to spray when the pump is activated. The pump can be operated with the switch located on the back panel or from the remote harness if connected. Remove the tank lid and then fill the spray tank with clean water through the basket strainer. (Inspect tank for leaks at this time) Slowly pour in the desired amount of chemical.

Activate the pump by turning on either switch. (The pump will run with either switch in the on position. If both switches are in the on position then both will need to be turned off to disconnect power.) The pump, when activated, will begin to run until 40 psi is reached. The built in pressure switch will then shut off the pump. Your sprayer is now ready.

To spray with the wand, ensure the wand nozzle is pointed in the direction meant to be sprayed and pull the lever handle. The pump will automatically activate and the wand will disperse the chemical mixture from the tank. To stop spraying with the wand release the lever handle on the spray wand and the pump will deactivate after reaching pressure.

To spray with the nozzle located on the front of the tank, ensure the wand is firmly attached to the tank or frame handle. Turn the valve located on the back panel to the ON position. The nozzle on the front of the tank will begin to spray. Immediately begin to push or pull the sprayer at the desired speed for proper chemical delivery. To stop spraying with front nozzle, turn off the valve and the pump will deactivate after reaching pressure.

When spraying is complete, turn off the main power switch and or remote switch for storage. This will stop the pump from running periodically and increase battery life.

CLEANING & STORAGE

Most spray materials are highly corrosive. The most important aspect of long dependable service from the sprayer is a thorough cleaning immediately following each use. In addition, the residue of one type of chemical could cause an undesirable effect when a different chemical is used for a different purpose.

The most effective cleaning method is to pump several rinses of clean water through the tank, pump, hoses, boom, spray gun, etc. A neutralizing agent such as a solution of Nutra-Sol, a detergent or household ammonia as recommended by the chemical manufacturer can assist in removal of a persistent chemical.

When the system is thoroughly cleaned drain the tank, suction line, pump, hoses, etc.

The following steps should be followed for the maintenance and storage of your sprayer.

1. Wash and flush out sprayer after completion of each phase of your program. Flush out sprayer when changing chemicals if there is a possibility of the chemicals being incompatible. Use of a detergent is advisable if the chemical manufacturer does not make specific cleaning recommendations. Flush system completely, including nozzles. Never use metal objects to open clogged nozzles.
2. Clean sprayer thoroughly before storing at the end of the spraying season. Permanent type anti-freeze added to the final rinse will leave a rust inhibiting film in parts of the sprayer.
3. Periodically charge the battery (every 3 months) even if sprayer is not being used.

TROUBLE SHOOTING

Pump will not turn on:

1. Ensure the power switch or remote switch is in the on position (the **I** position is **on** and the **O** position is **off**).
2. Ensure the battery is fully charged. Refer to SETUP: charging the battery.
3. Ensure all battery connections are tight.
 - Confirm the pump is hooked up to the battery source.
 - Confirm battery connections are made and tight.
 - Inspect connections on the back of the switch and be sure they are attached.
4. Inspect the fuse located under the back panel.
 - Drain any chemical or water that may still exist in the sprayer. Rinse the tank with clean water. Turn the sprayer upside down and locate an inline fuse holder on the wiring harness under the battery cover on the back of the sprayer. Take the 10 amp fuse out of its holder and while holding the fuse up to the light ensure there are no breaks in the fuse wire. If you can see any gaps, the fuse will need to be replaced. (If fuse is discharged make sure all of the connections from the battery and remote switch are hooked up correctly before replacing the fuse)
5. Check to make sure the pump has power.
 - If possible take a volt meter and make sure power is getting to the pump. If the pump is not getting power, inspect all connections to find out where power is lost.
 - Check the pressure switch. You can check if your pressure switch is working by taking the 2 leads going into your pressure switch and jumping them together. You can do this with a spare wire or piece of metal. If the pump turns on you have a bad pressure switch and will need a new pump.
 - If at this point the pump doesn't turn on try hooking the pump up to a secondary 12v battery source (such as a car or ATV battery) to see if the pump turns on. If the pump turns on, there is either a bad battery or a bad connection preventing the full 12 volts to get to your pump.

Pump will not prime:

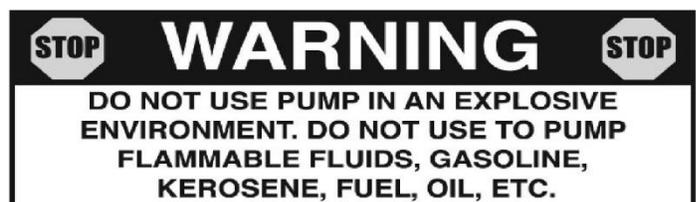
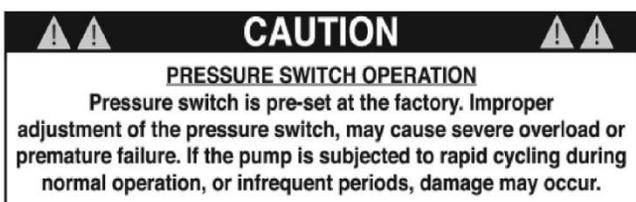
1. Inspect to make sure water is above inlet hole
2. Inspect hoses to be sure of no kinks or blockage.
3. Put warm water through the inlet line to see if it can break up any blockage in the check-valves. (repeat this process for a couple minutes to make sure it gets all of the substance out)

Pump cycles on and off:

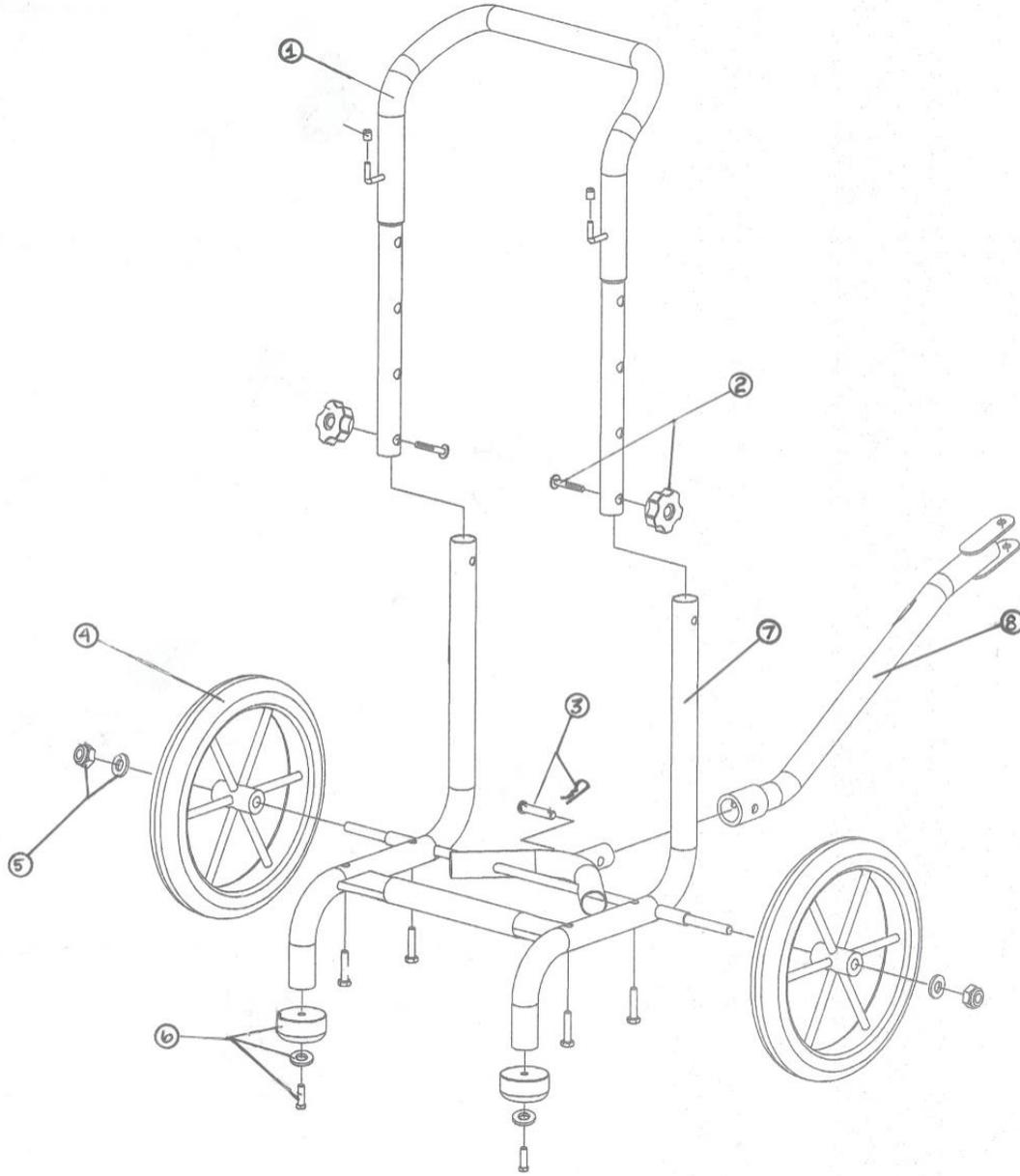
1. Adjust the spray tip of your wand to relieve some pressure on the pump. Reducing the cycling you're your pump makes will extend the life of the pump and pressure switch.

WARRANTY PARTS SERVICE

Products sold shall be warranted from defects in workmanship and material when used within the service and scope for which they were designed for a period of one year from date of purchase. Contact Master Manufacturing for replacements parts or warranty work at (800) 864-1649. **Do not return product to your distributor/dealer.** Please have your original sales receipt or other proof of purchase date when requesting any warranty work. To ensure the correct parts are acquired always provide the model number of your sprayer/attachment and the part number and description obtained from the illustrated parts breakdown in this manual.



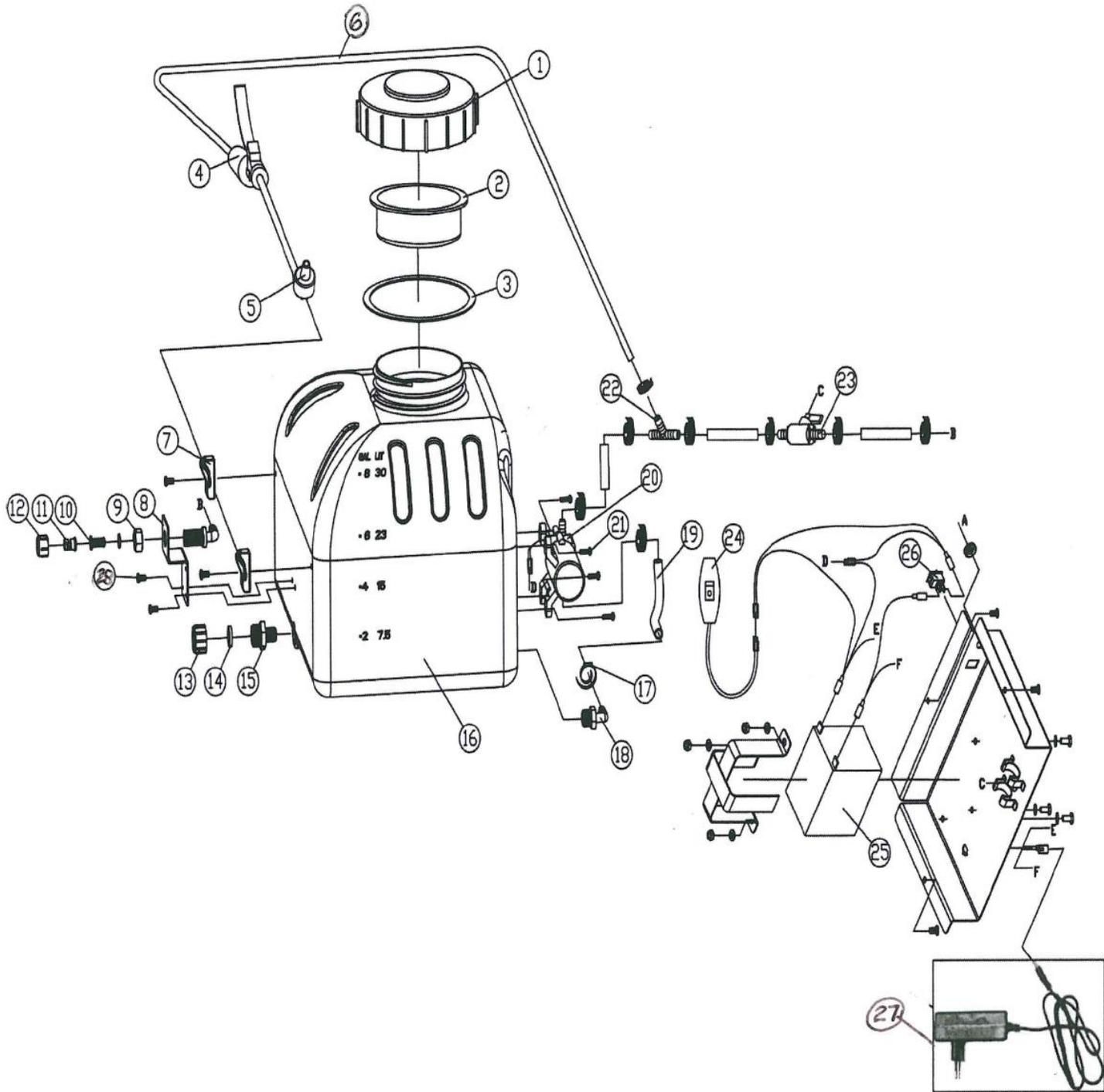
Master Gardner Frame Figure A



Parts List Master Gardner Frame Figure A

Item #	Part Number	Qty	Description
1	33-100158	1	Frame, Handle (Only available as entire frame)
2	33-100157	1	Handle adjustment knobs (pair with bolts)
3	33-100156	1	Hitch Pin
4	TWA12.5x2-5/8	2	Wheel and Tire
4	TWA12x1.75x1/2	2	Wheel, composite (plastic)
5	33-100155	1	Axel Nut and Washer (pair)
6	33-100154	1	Rubber pad (pair with bolts)
7	33-100158	1	Frame, Lower (Only available as entire frame)
8	33-100158	1	Hitch, Tongue (Only available as entire frame)

Master Gardner Tank Assembly Figure B



**Parts List Master Gardner
Tank Assembly
Figure B**

Item #	Part Number	Qty	Description
1	TL-6B	1	Tank Lid
2	TLS-5D	1	Basket Strainer
3	TL-6B-GAS	1	Gasket
4	SG-4200-18	1	Spray Gun assembly
5	SG-42ASSY-18	1	Nozzle Ass., SG-4200 gun
6	RCH-14-15	1	Recoil Hose
7	GC-100-KIT	1	Gun Clips (pair)
8	31-100249	1	Nozzle Bracket
9	NTL38	1	Nozzle body and nut
10	NS-50	1	Nozzle Strainer
11	DF3.0	1	Nozzle
12	8027	1	Nozzle Nut
13	3N34	1	Cap
14	W406V	1	Garden hose washer
15	E3412	1	Adaptor, 3/4" GHT x 1/2" NPT
16	33-103197	1	Tank, 9 gallon
17	350-004	9	Hose clamp
18	EL1238	1	Elbow, 1/2NPT x 3/8 hose barb
19	33-103938	IN	Hose, braided, clear vinyl (ask for length)
20	EF1000	1	Pump, 1 GPM
21	33-103126	4	Screw, pan head, 10-24x .625
22	T38	1	Fitting "T", 3/8" hose barb
23	PBV-38HB	1	Valve, 3/8" hose barb
24	33-103193	1	Harness, Remote Switch
25	33-103194	1	Battery, 12V
26	33-103196	1	Switch, Rocker
27	33-103195	1	Charger, 12V
28	33-103137	4	Screw, pan head, 10-24 x .5