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MASTER
MANUFACTURING

MASTER GARDNER



Part Number PCD-E3-009B-MM | July 2017

**Note: Do not return product to the distributor/dealer for warranty work.
Call Master Manufacturing at (320) 340-6464 for any warranty work or replacement parts.**

This manual is available in PDF format from Master Manufacturing at www.master-mfg.com/manuals

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.

TOOLS REQUIRED

Phillips Screwdriver

PARTS BAG CONTENTS



<u>ITEM NO</u>	<u>PART NO</u>	<u>DESCRIPTION</u>
1	33-100150-US	BATTERY CHARGER
2	33-100137	DEFLECTOR NOZZLE BRACKET SCREWS
3	33-100157	HANDLE ADJUSTMENT BOLT KIT

ASSEMBLY

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

Handle Assembly



Align the Handle and Wire Clamp with the Lower Frame. Slide the Wire Clamp over the Lower Frame, and the Handle into the Lower Frame.



Adjust the Handle to a comfortable height for the operator, and find the hole nearest this position that aligns with the hole in the Lower Frame. Insert the Handle Adjustment Bolts (from kit 33-100157) through the holes.



Secure the Bolts with the Handle Adjustment Knobs (from kit 33-100157) and tighten securely.



Secure the Wire Clamps on the Handle and Lower Frame using the Phillips Screwdriver.

Wiring Assembly



Locate the Switch on the Upper Handle and make sure it is in the OFF (O) position as shown.



Locate the Wiring Harness Connector at the base of the Handle. Locate the Connector exiting the Back Panel, and connect it to the Wiring Harness Connector, making sure it is fully seated.

Verify Pump and Switch operation by turning the Switch to the ON position. If power is connected properly, the Switch will light up and you will hear the Pump run. Turn the Switch back OFF.

Spray Wand & Hose



Wrap the Spray Wand Hose around the Hose Wind Brackets on the Upper Handle as shown. Snap the Spray Wand into the GC-100 Clips as shown.

Front Deflector Nozzle Assembly



If the nozzle is already assembled, skip to the Front Deflector Nozzle Mounting.

Locate the bag labeled Nozzle Assembly. Insert Nozzle Body Fitting (6) through the Nozzle Bracket (5), and hold in place with the Nozzle Body Nut (4) tightened loosely by hand.

Insert Nozzle Filter (3) into Nozzle Body in orientation shown. Place Deflector Nozzle (2) into Nozzle Nut (1). Thread Nozzle Nut with Deflector onto Nozzle Body Fitting and tighten slightly.

Locate the Clear Hose under the Tank and attach to the Nozzle Body Fitting with a Hose Clamp.

Front Deflector Nozzle Mounting



Attach Nozzle Bracket to Tank with (2) 10-24 x 1/4" screws.

Tighten all nuts and screws securely, ensuring the Deflector Nozzle is aimed 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. Attach the trailer tongue (Item 8, figure A) to the sprayer frame (Item 7, figure A) aligning the holes and using the pin and hair pin (Item 3, figure A).

Setup

Charging the Battery

- 1.) Obtain the battery charger (Item 27, figure B). To charge the sprayer battery locate the charging connector that exits the switch housing located on the upper handle (Next to the on/off switch). Plug this connector into the connector on the chargers and then plug the charger into an AC wall outlet.
- 2.) Allow the charger to charge the battery until the light on the charger turns green. A green light indicates the battery is fully charged. A discharged battery could take as long as 24 hours to recharge.
- 3.) **Never allow the battery to discharge completely. Doing so will damage the battery 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 Front Deflector Nozzle.
 - 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, determine the spraying pressure (PSI) and the spraying speed (MPH) based on the Gallons per Acre chart below. 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 using the following procedure. 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.

Gallons per Acre, 40" spacing

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.

READ and UNDERSTAND the Owner's Manual completely before using this sprayer.

Assemble, test, and use only in accordance with the Owner's Manual instructions.

READ and FOLLOW chemical label instructions. Pesticides are hazardous chemicals.

KNOW emergency procedures BEFORE handling chemicals. Sprayer leaks, bodily chemical contact, poisoning, and spills require immediate response.

AVOID inhaling, ingesting, or coming into contact with any chemicals.

WEAR personal protective gear when filling, using, cleaning, and servicing the sprayer.

KEEP sprayer and spray materials away from children and pets. Pesticides are especially toxic to them.

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

DO NOT TURN ON POWER to sprayer until ready to spray in order to avoid unintentional spray release.

Improper use of the sprayer or handling of chemicals could result in serious injury or illness to the operator or nearby persons/animals, or could cause damage to the environment.

Operation

Ensure battery is fully charged to provide optimum efficiency from the 12volt pump.

Never allow the battery to discharge completely. Doing so will damage the battery and void the warranty. Always turn off the power switch after use to ensure the battery will not be drained during storage. This can be easily confirmed by the indicator light in the power switch. If the switch is on it will illuminate.

- Sprayer Inspection

- 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 power switch located on the upper handle. Remove the tank lid and then fill the spray tank with clean water through the basket strainer and replace the tank lid. At this point it's a good time to inspect the sprayer for any leaks. Any harsh chemical that was left in the sprayer may have had an adverse effect on the sprayer.

- Activate the pump by turning on the power switch. The pump, when activated, will begin to run until 40 psi is reached. The built-in pressure switch will then shut off the pump. Inspect for any leaks.
- To spray with the wand, ensure the wand nozzle is pointed in the direction meant to be sprayed and pull the lever handle. 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 power switch is in the off position and the spray wand is firmly attached to the tank or frame handle. Turn the valve located on the back panel to the ON position. Turn the power switch to the on position, the pump will activate and water from the sprayer will begin to spray from the front nozzle.

- **Normal Operation**

- Once the sprayer inspection has been completed and proper sprayer operation has been confirmed the sprayer can be filled with the required fresh water and chemical.
- Remove the tank lid from the tank and fill the tank with clean water to the desired height. Add the correct amount of chemical as specified by the chemical manufacturer. Replace the tank lid.
- **Warning: Failure to follow the chemical label instructions could result in serious injury or illness for the operator or nearby persons/animals, or cause damage to the environment.**
- To use the spray wand, ensure the valve located in the back panel is in the off position. Remove the wand from its holder and make sure the spray nozzle is pointing in the direction to be sprayed. Turn on the main power switch, the pump will automatically activate and pressurize the wand. Squeeze the wand trigger and the wand will disperse the chemical mixture from the tank.
- To use the front spray nozzle, ensure the power switch is in the off position. Place the sprayer wand in its holder and ensure the hose is wrapped up securely. Turn the valve located in the back panel to the on position. Push the sprayer to the location that you wish to spray and turn on the power switch. 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 power switch or turn off the valve and the pump will deactivate after reaching pressure.
- Once spraying is completed, follow the directions for cleaning and storage and make sure the power switch is in the off position.

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 battery is at full charge. Follow the directions for charging the battery in the Setup directions of this manual.
2. Ensure the power switch is in the on position (the **I** position is **ON** and the **O** position is **OFF**). Switch will be lighted in the on position only.
3. Check and Ensure all electrical connections are tight.
 - Inspect the 3 pin connector at the lower base of the handle and ensure the two halves are pushed together completely.
 - Check the connection on the battery to make sure there is a tight fit.
 - Inspect connections on the back of the switch and be sure they are attached.
4. Inspect the fuse located on the lower part of the handle in a black case.
 - Take 10 amp fuse out of its holder. Hold the fuse up to the light and make sure there are no breaks in the fuse wire. If you can see any gaps, the fuse will need to be replaced. (If fuse is blown 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:

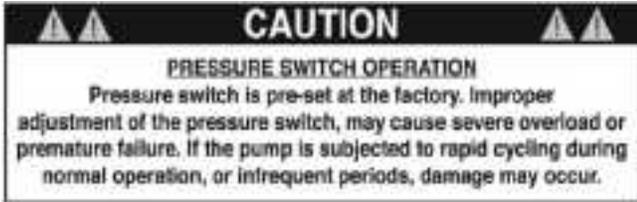
1. Inspect to make sure there is enough water in the tank to cover the pump inlet hole.
2. Ensure there is no debris inside tank that are covering or clogging pump inlet hole.
3. Inspect hoses to be sure of no kinks or blockage.
4. Put warm water through the inlet line to see if it can break up any blockage 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. You don't want your pump to cycle excessively, as it may lead to pressure switch failure over time.

WARRANTY PARTS SERVICE

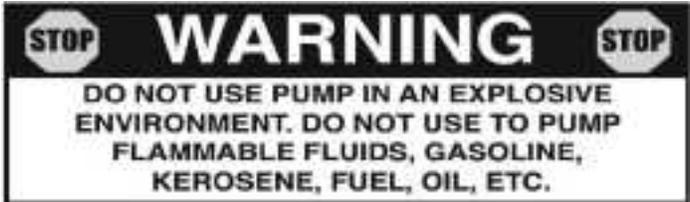
. Products sold shall be warranted from defects in workmanship and material when used within the service and scope for which they were designed for a period of one year from date of purchase. Warranty covers replacement parts ONLY. Contact Master Manufacturing for warranty parts at (320) 340-6464. Do not return product to your distributor/dealer. Please have your original sales receipt or other proof of purchase date when requesting any warranty parts. 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.



CAUTION

PRESSURE SWITCH OPERATION

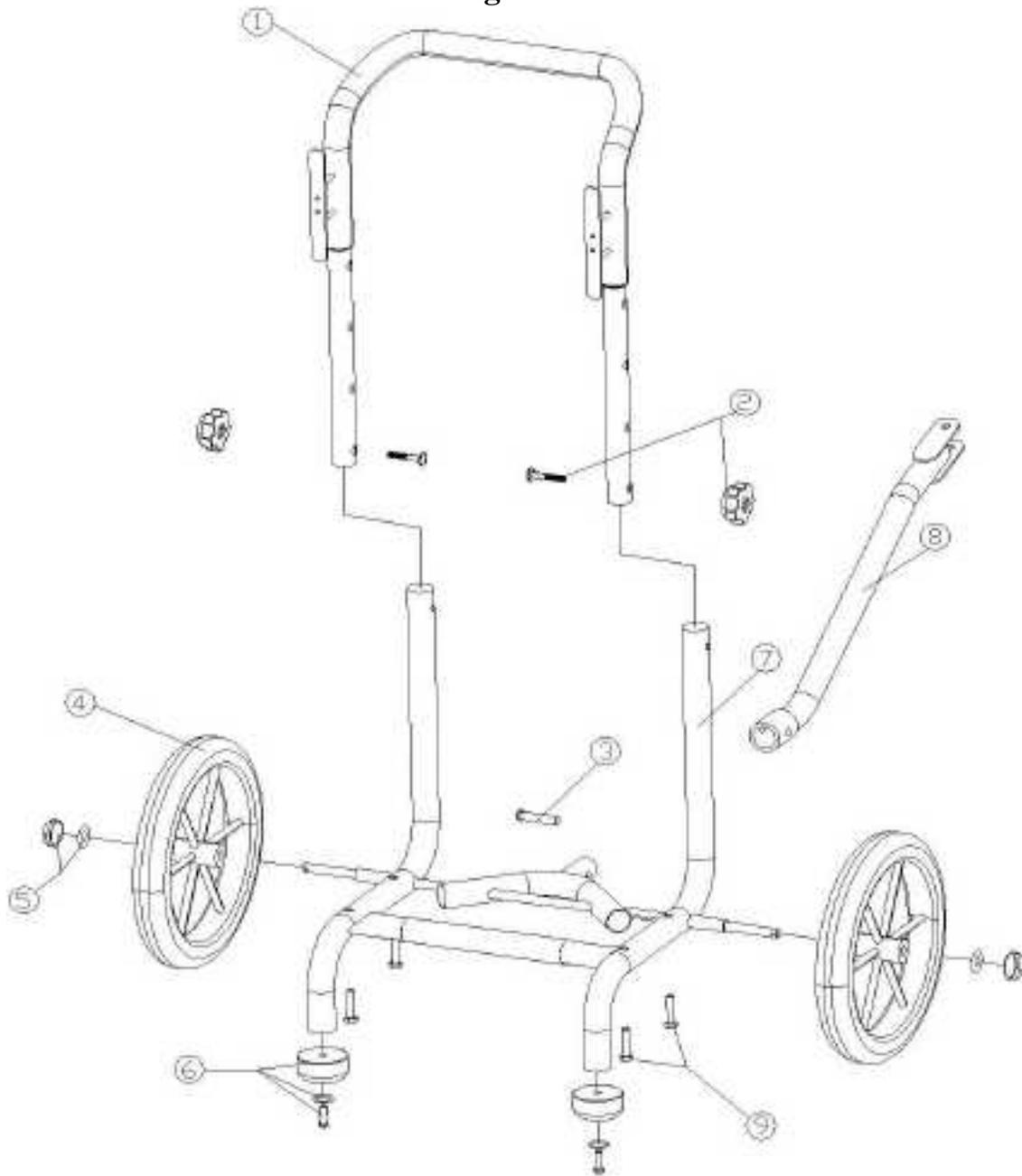
Pressure switch is pre-set at the factory. Improper adjustment of the pressure switch, may cause severe overload or premature failure. If the pump is subjected to rapid cycling during normal operation, or infrequent periods, damage may occur.



STOP WARNING STOP

DO NOT USE PUMP IN AN EXPLOSIVE ENVIRONMENT. DO NOT USE TO PUMP FLAMMABLE FLUIDS, GASOLINE, KEROSENE, FUEL, OIL, ETC.

Master Gardner Frame Figure A

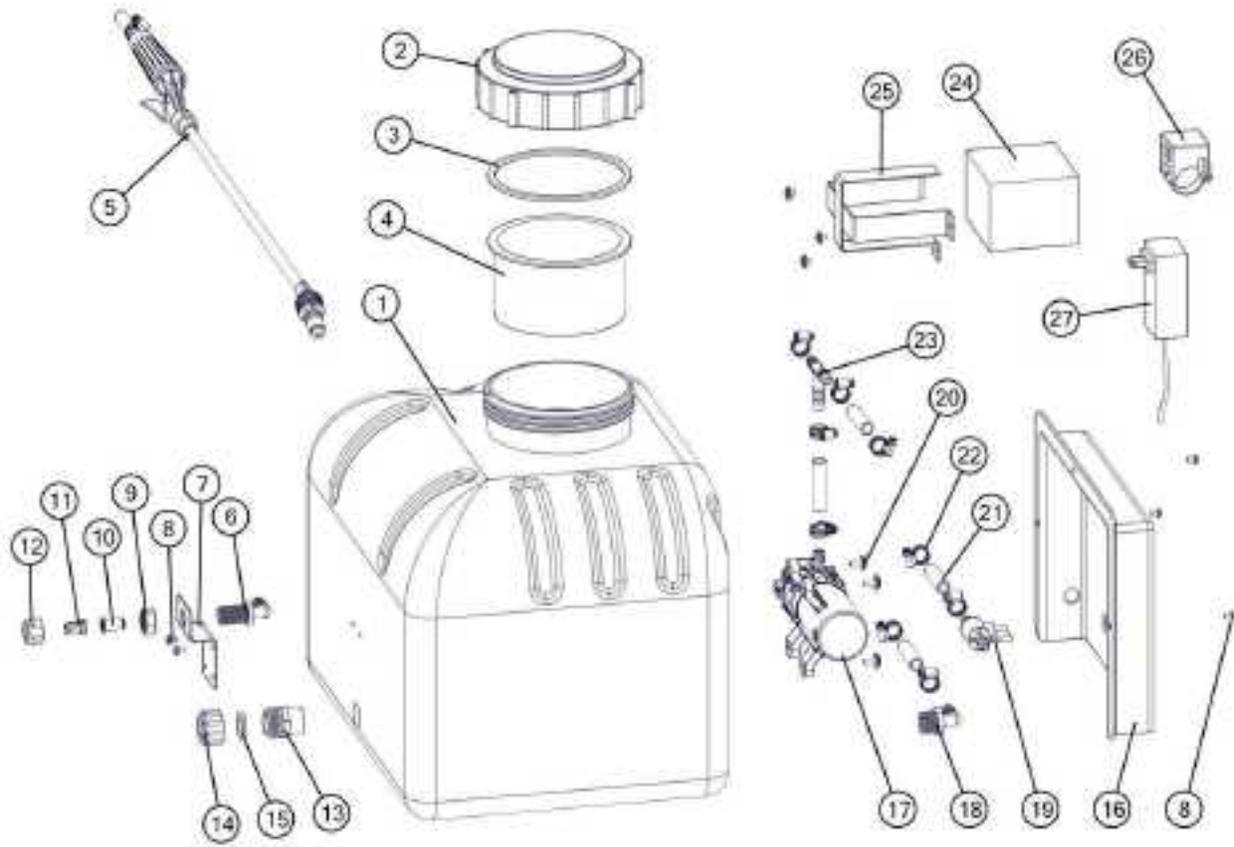


Parts List Master Gardner Frame Figure A

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 x1.75 -1/2	2	Wheel, Composite, 12' Dia x 1.75"
5	33-100155	2	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)
9	33-100160	4	Bolt, 5/16-18 x 1.5"

Master Gardner Tank Assembly

Figure B



BOM ID	Name	Qty	Description
1	33-103197	1	TANK, 9 GALLON
2	TL-6B-W/GAS	1	TANK LID
3	TL6B-GAS	1	GASKET
4	TLS-5D	1	BASKET STRAINER
5	SG-4200-MG	1	GUN, SPRAY, 2017 MASTER GARDNER W/ HOSE
6	NTL38-C	1	ELBOW: 11/16" MPS x 3/8" HB
7	31-100249	1	NOZZLE BRACKET
8	33-100137	5	SCREW, 10-24 X 1/2"
9	B12	1	NOZZLE BODY NUT, 11/16" FPS
10	NS-50	1	NOZZLE STRAINER, 50M RED
11	DF3.0	1	NOZZLE, DEFLECT TIP, 3.0
12	8027	1	NOZZLE NUT, 11/16" FPS
13	E3412	1	ADAPTER: 3/4" MGHT X 1/2" NPT
14	3N34	1	CAP, GARDEN HOSE, 3/4" FGHT
15	33-103220	1	GASKET: 3/4" SUPER SEAL
16	33-100149	1	PANEL, BACK, 2017 MASTER GARDNER
17	EF1000	1	Pump, 1.0GPM Everflo
18	EL1238	1	ELBOW: 1/2" MPT X 3/8" HB
19	PBV-38HB	1	VALVE: 3/8" HOSE BARB
20	33-103126	4	SCREW, 10-24 X 5/8"
21	33-103938	5	HOSE, BRAIDED, 3/8" (ASK FOR LENGTH)
22	350-004	9	HOSE CLAMP
23	T1438	1	TEE: 1/4" HB X 3/8" HB X 3/8" HB
24	33-103194	1	BATTERY
25	33-100148	1	BATTERY BRACKET
26	33-100200	1	HOUSING, SWITCH W/ BRKT, 2017 MASTER GARDNER
27	33-100150-US	1	CHARGER, BATTERY, US 2017 MASTER GARDNER