

# **MOZZIE ELECTRIC FOG**



## **OWNER'S MANUAL MODEL 250**

55-73-0250

090606

© 2004 ARRO-GUN SPRAY SYSTEMS

## TABLE OF CONTENTS

	<b>PAGE</b>
<b>Specifications</b>	<b>3</b>
<b>Setup</b>	<b>4</b>
<b>Electrical Test</b>	<b>6</b>
<b>Calibration</b>	<b>7-8</b>
<b>Operation</b>	<b>9</b>
<b>Droplet Median Diameter Measurement</b>	<b>9-10</b>
<b>Maintenance</b>	<b>10</b>
<b>Parts</b>	<b>11-18</b>
<b>How to Order Parts</b>	<b>19</b>

## Specifications - Model 250

Dimensions	42" W x 21"D x 40" H	107cm W x 53cm D x 102 cm H
Weight	Net: 170   Gross: 220	Net: 77.2 Kg   Gross: 99.9 Kg
Chemical Tank	6 Gallon Max Capacity HDPE, Fully Enclosed.	
Pump	12 VDC FMI Type QB1	
Pump Flow Rate	1-19 OPM *	
Voltage Input	12 Volts DC Nominal, 12.5 - 13.2 w/charge	
Voltage Output (Inverter)	110 V A.C. Modified Sine Wave	
Full Load Amperage DC	90-100 Amperes	
Full Load Amperage AC	9-10 Amperes	
Recommended Battery	Optima Yellow Top Gel Cell SC34DU (Included)	
Recommended Alternator	Minimum 135 Amp, Heavy Duty <u>continuous</u> or High Output 200 A Recommended Note Vehicle Model, Year, Engine Type and Size	

\* Pump manufacturer's specification for rated pump flow @ 9 volts.

## Setup

Packed in the cabinet are the control box, nozzle(s) with quick couplings, a main power cable,

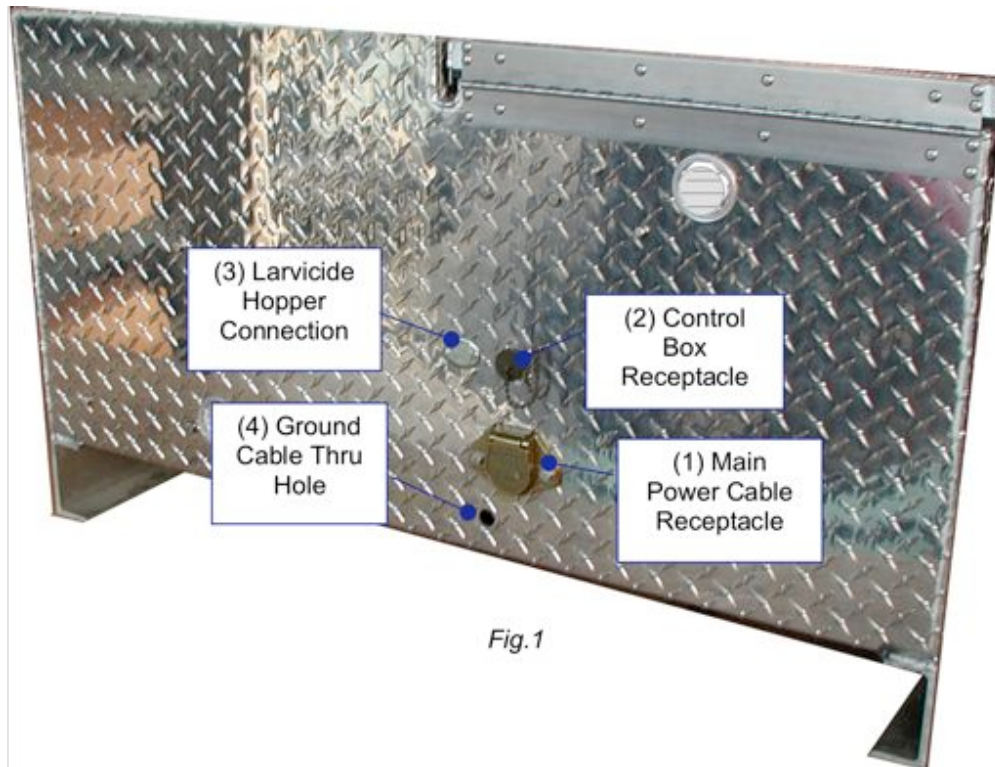
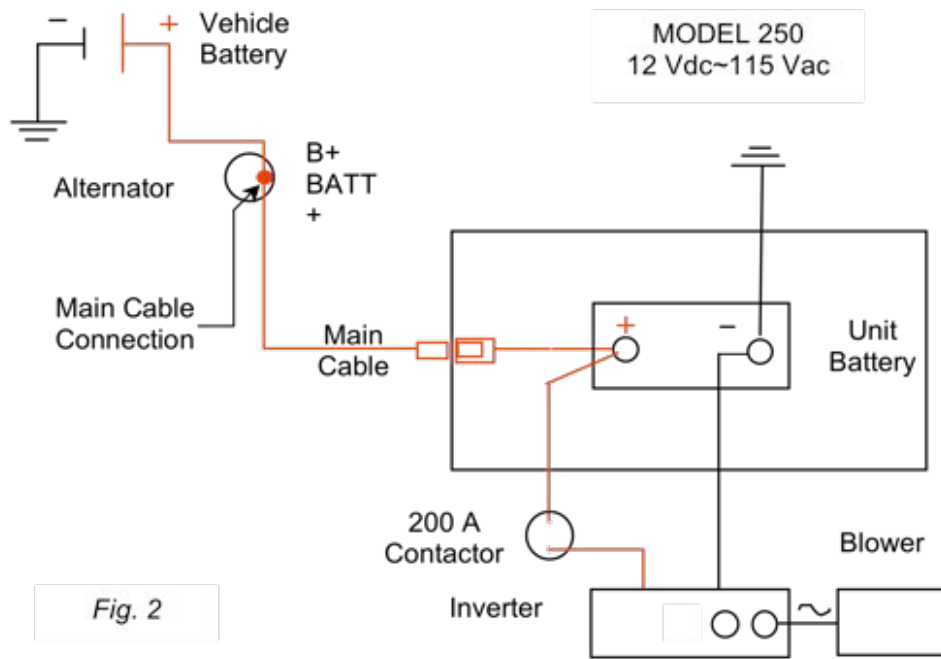


Fig.1

ground cable, and high output alternator (if supplied) as required for the vehicle the unit will be mounted to. Have the alternator installed to the vehicle by a qualified mechanic. Position the unit to the truck bed and if desired, bolt the skids to the truck or secure by other means. Take care to check ground of the unit frame to the vehicle frame and if necessary provide ground by means of a bonding strap or 4 AWG battery cable with terminal lugs. If the unit skids are bolted to the frame of the vehicle, a bonding strap is not required. See Fig.2. Install the main power cable by attaching the terminal end to the plus (+) BAT or B+ terminal of the alternator. Route the cable so that it is clear of any moving parts and secure along the vehicle frame. Connect the cable to the unit by firmly pushing the plug into the receptacle (1) until the weather door latches the rear of the connector. The unit is shipped with the red battery cables disconnected. The red cables connect to the positive (+) terminal of the battery, black cables to the negative (-) terminal of the battery. On Model 250 a separate short black ground cable is provided with a plastic bushing. Install cable by routing through the hole (4) in back of the cabinet, and squeeze bushing to snap in place. Ground the black cable to a good vehicle frame ground. Install the remaining end to the negative terminal of the battery. If the unit is shipped with a Granular Applicator, the two pin connector mates with the receptacle (3). The control box cable installs to the receptacle (2).



See *Fig. 3*. Install the nozzle(s) into the quick coupler(s) and connect the insecticide line(s). Push the plastic tubing firmly into the fittings until it bottoms, then pull back slightly to make sure the tubing is seated properly.

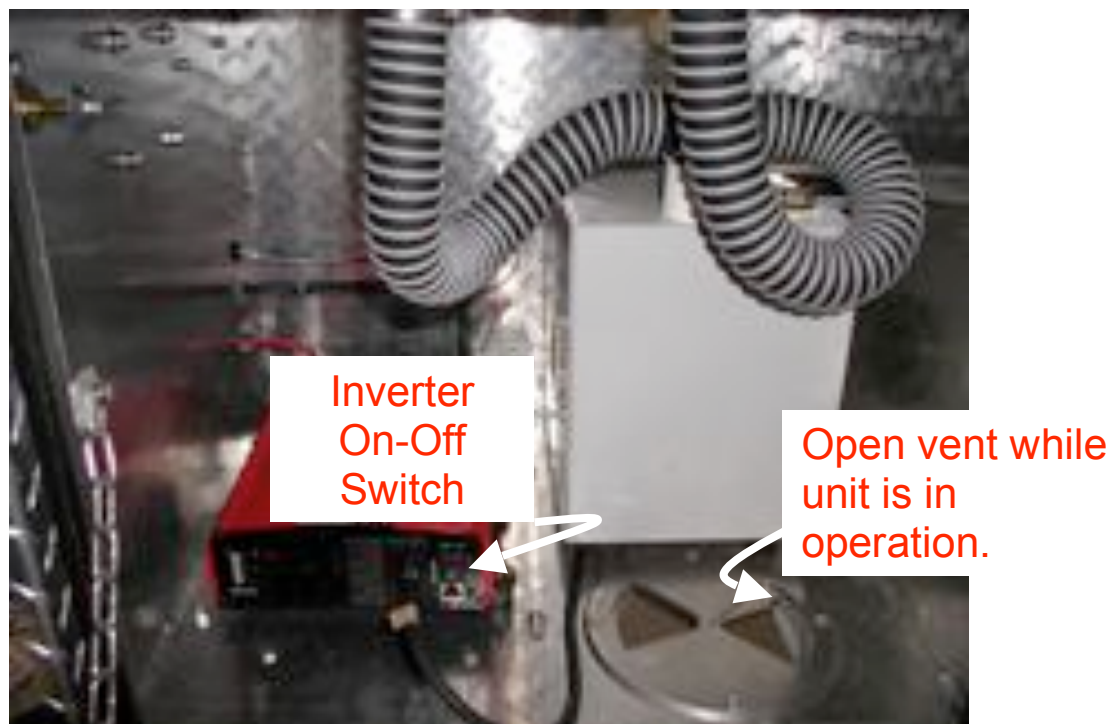


**IMPORTANT: BEFORE THE UNIT IS OPERATED FOR THE FIRST TIME THE BATTERY MUST BE FULLY CHARGED. A MULTIMETER READING OF AT LEAST 12.7 VOLTS WILL INDICATE A FULL CHARGE. PLACE THE BATTERY ON A 6-10 AMP CHARGER CAPABLE OF TRICKLE CHARGE MAINTENANCE AND CHARGE. DO NOT USE THE VEHICLE ALTERNATOR TO CHARGE A LOW BATTERY.**

### Electrical Test

It is important to test the functioning of the unit after all cables have been installed. The alternator must be able to maintain a sufficient charge rate to provide at least 100 amps for the unit and a 25-30 ampere charge for the vehicle. An insufficient charge can cause battery failure of the unit or the vehicle. When the battery voltage drops below 11 volts the inverter will automatically shutdown.

To test the unit, obtain a clamp-on type ammeter to check the current draw on the main cable from the alternator to the unit. See *Fig. 4*.



*Fig. 4*

Open the vent in the bottom corner of the cabinet. This vent should remain open any time the unit is operating and closed when operations are complete. Plug the power cord from the motor blower into the inverter. Turn the inverter switch "ON". **NOTE: The inverter will not provide power to the motor blower until the UNIT switch on the control box is on.**

1. Start the vehicle. Check to confirm that the unit battery is drawing power by placing the red main power cable in the jaw of the clamp-on meter. There should be a positive 1-4 ampere reading on the meter.
2. Turn the unit switch on the control box "ON".
3. Visually check the inverter to see that power is applied to the unit. There may be a hesitation as the internal capacitors of the inverter charge fully. The motor blower should activate.
4. Again check amperage draw on the main power cable as in Step 1. There should be a reading now of approximately 93-100 amperes. Operate the unit for 30-60 minutes and periodically note whether the charge rate maintains within 10% of the original reading; i.e., if the original reading was 100 amperes, the rate should begin to slowly drop to between 90-100 amps. In use, the amperage draw will stabilize, however this may require up to 3 hours.
5. For future reference, the operator may find it useful to record the readings during the initial test.
6. At this time turn the unit off and check the unit battery with a multi-meter to confirm that the battery has maintained charge condition.

## CALIBRATION

Model 250 is equipped with a pressure switch located at the top of the motor blower unit just behind the air outlet. The pressure switch controls the chemical pump by switching the pump on *only* if there is sufficient air pressure on the air manifold. The unit is shipped with the wire tab attached to the Normally OPEN connection at the pressure switch. Temporarily move the wire tab to the Normally CLOSED connection. This will allow you to calibrate the pump independently of other parts of the system. It is not necessary to operate the inverter or blower to calibrate the pump. Disconnect the

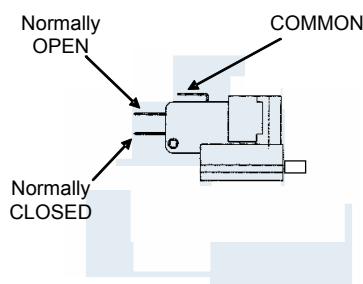


Fig.5



8

chemical tube from the tee where it branches to the nozzles. Note the position of the valve pointer located inside the cabinet. Set the pointer to pump from either the chemical tank or the solvent tank.

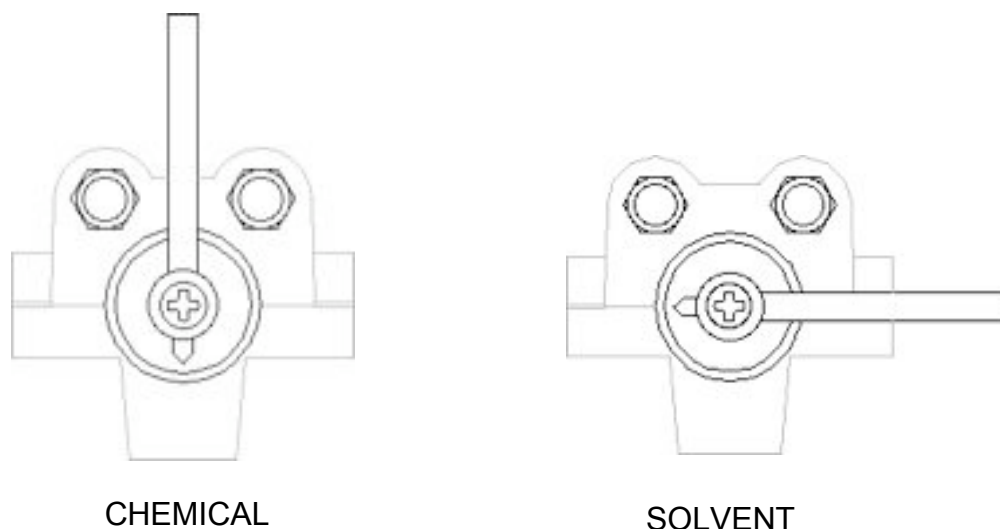


FIG. 6

Service the tank with the solution for calibration. See Fig. 7. Loosen the knurled knobs slightly on each side of the pointer of the pump so that the pointer can be adjusted. Set the pump pointer to an approximate position (each numeral represents an approximate percentage of total flow capacity). Turn the pump switch on and pump liquid until all the lines are purged of air, then measure the fluid into a graduated cylinder for two minutes. Readjust the pointer if necessary. When the desired flow rate is achieved, tighten knurled nuts and reconnect chemical lines to the nozzles.

**IMPORTANT:** Reset pressure switch wire to the NORMALLY OPEN connection tab.





## OPERATION

Once the unit is calibrated, it is ready for operation. Service the chemical and solvent tanks. See *Fig.6* and note the valve positions for chemical and solvent. Set the valve to the proper position. Be sure that the "butterfly vent" on the motor side of the cabinet is open.

Start the vehicle, and turn on the Unit switch at the control box. Momentarily turn on the Pump switch and check the red indicator light at the control box. It should come on. If it does not, turn all switches off and visually check that the pressure switch wire is installed to the Normally "OPEN" position (see Fig. 5).

## DROPLET MEDIAN DIAMETER MEASUREMENT

The chemical being used affects the ability of the Mozzie Fog to generate acceptable median droplet size. Flow rate, the method of collection and the conditions under which the test is performed are other factors. These instructions are provided as a general guide to aid the user in obtaining the best performance and most accurate results.

Due to the wide range of chemicals used for adulticiding, different characteristics should be considered. For instance, oil based liquids having a low viscosity work well in the Mozzie Electric, and a higher flow rate can be used to obtain a higher vehicle speed. The higher the viscosity however, the lower the flow rate must be adjusted to achieve the same performance and the vehicle speed may need to be decreased. In addition, insecticides with higher active concentration can be used at lower flow rates. In any case, label directions for the insecticide must be followed closely. Assuming the use of a KLD Labs DCIII:

1. Begin by positioning the equipment where any existing wind is downstream from the nozzles. If at all possible, locate the unit in a closed structure with one side open where the insecticide cloud will exhaust outdoors. Start the vehicle and turn the unit on.
2. With an anemometer, find the point at which the nozzle velocity reads 6.5 – 7 meters per second. Mark the position so that it will indicate where the probe from the DCIII is inserted into the fog.
3. Allow the unit to reach a normal operating temperature (usually within five to ten minutes). This time can be used to enter the environmental conditions into the DCIII software and any other special notes for conditions, such as flow rate, etc.
4. Once all preparation has been made, run a 30 second or 60 second test with the DCIII set to analyze oil. (Use the same setting for water based liquids).
5. Observe and save the results of the test.

6. If desired, repeat the test and compare the two results. Inconsistent readings can indicate poor probe condition, improper positioning of the probe, or other factors. Re-verify flow rate and equipment operation if this occurs.

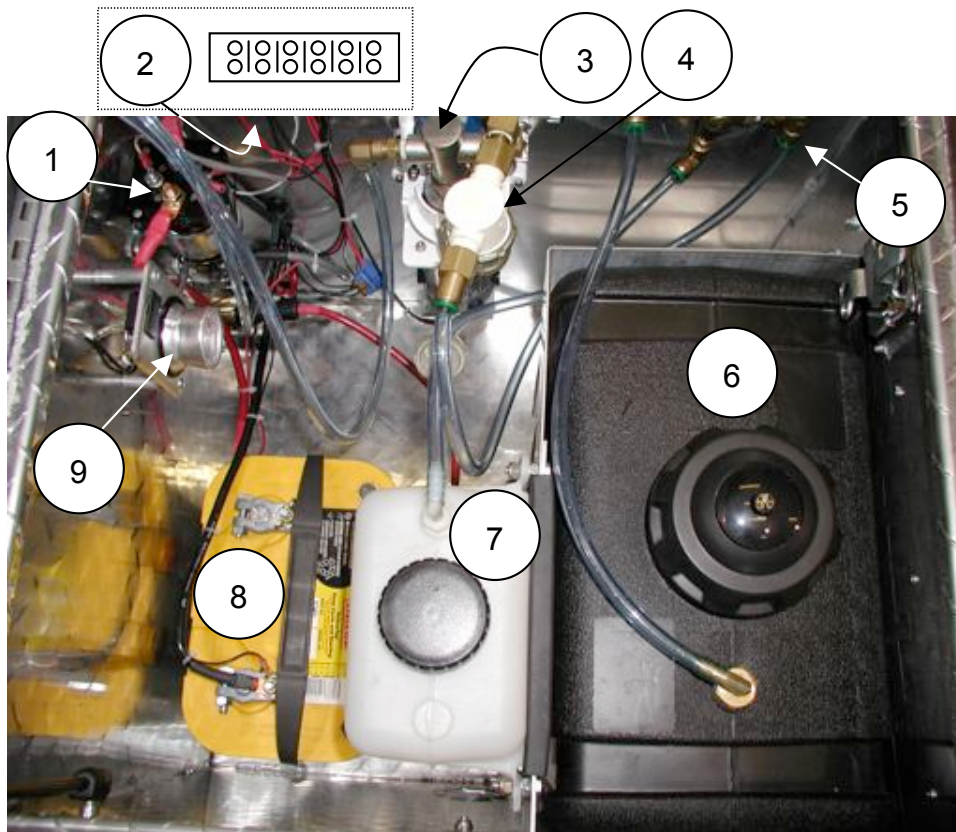
## MAINTENANCE

Maintenance on the Mozzie Electric is routinely simple. Monthly, check the cable terminations at the battery and clean if needed. Check all chemical tubing for wear and tear and replace if needed. Check the chemical filter for cleanliness, taking care that the gasket on the bowl is seated properly after re-assembly. Clean the screen in a suitable solvent.

The nozzles should be disassembled at least every six months, and the internal body cleaned with Chemtool B-12 solvent or other like material. Remove the small brass barb and plastic insecticide tube before cleaning. Use eye protection and spray the cleaner directly into the threaded port until it runs clear. This is to remove any residual gum from the ejector body.

The interior cabinet can be cleaned with a damp cloth and mild soap to wipe surfaces. Disconnect power before cleaning. Do not use flammable solvents. Do not pressure wash the Mozzie Fog Electric.

If the unit is to be stored for long periods, remove the battery and charge every thirty days or maintain battery level with a trickle charger. Remove the nozzles and install the outlet plugs. All loose items may be stored in the cabinet where it can be kept under lock and key.



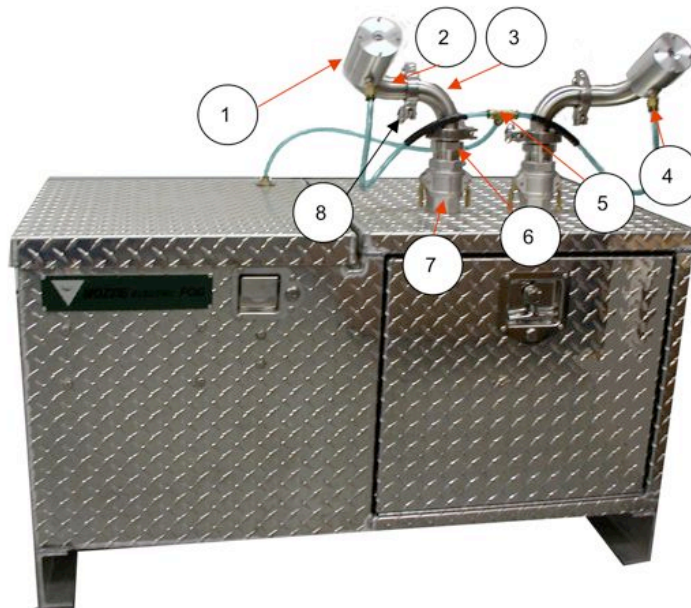
Parts

Key	Part No.	Description	Qty
1	55-70-0255	Contactora, 200 Amp	1
	1/4-20 X 3/4	H.H. Capscrew 18-8 SS	2
	1/4-20	Nylock Nut 18-8 SS	2
	1/4	SAE Washer 18-8 SS	4
2	55-70-0205	Terminal Block	1
	10-32 X 1	Socket Hd Capscrew 18-8 SS	2
	#10	SAE Washer 18-8 SS	2
	#10	Split Lockwasher 18-8 SS	2
3	55-70-0619	Chemical Pump, HO	1
	55-70-0132	1/4 NPT 90° Swivel	1
	55-70-0240	90° Elbow	2
	55-70-0239	3/8 FPT X 1/4 MPT Adapter	1
	1/4-20 X 3/4	H.H. Capscrew 18-8 SS	4
	1/4-20	Nylock Nut 18-8 SS	4
	1/4	SAE Washer 18-8 SS	8
4	55-70-0217	Filter, 80 Mesh	1
	55-70-0238	Filter Connector (3/8 Tube Prestolok)	1

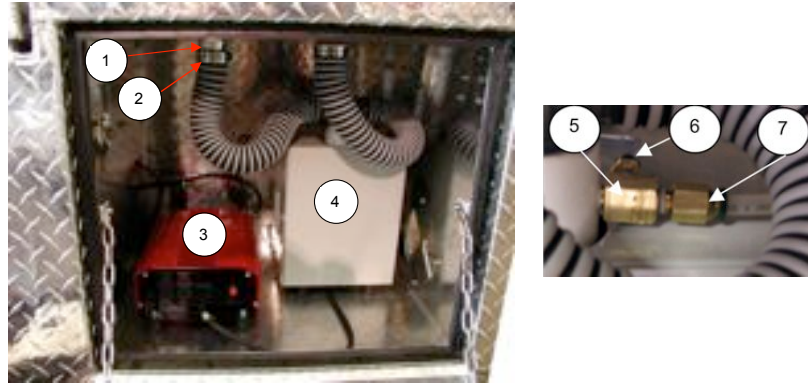
5	55-70-0211	3-way Valve	1
	55-70-0132	1/4 NPT 90° Swivel	3
	1/4-20 X 7/8	H.H. Capscrew 18-8 SS	2
	1/4-20	Nylock Nut 18-8 SS	2
	1/4	SAE Washer 18-8 SS	2
6	55-70-0266	Chemical Tank, 6 Gal.	1
	55-70-0266-1	Cap, Chemical Tank	1
	55-70-0279	90 Deg. El w/diptube	1
	55-70-0280	1/8 Short Bulkhead	1
7	55-70-0234	Solvent Tank	1
	55-70-0234-1	Solvent Tank Cap	1
	55-70-0233	Solvent Tank Bracket	1
	55-70-0270	Tank Strap	1
	55-70-0631	Edge Trim, 6"	2
	1/4-20 X 7/8	H.H. Capscrew 18-8 SS	4
	1/4-20	Nylock Nut 18-8 SS	2
1/4	SAE Washer 18-8 SS	8	
8	55-70-0261	Battery, Optima	1
	1/4-20 X 7/8	H.H. Capscrew 18-8 SS	2
	1/4-20	Nylock Nut 18-8 SS	2
	1/4-20	Hex Nut 18-8 SS	2
	1/4	Split Lockwasher	2
	1/4	SAE Washer 18-8 SS	2
	55-70-0237	Marine Battery Terminal	2
9	55-70-0204	Interior Light	1
	8-32 X 1-1/2	Flat Hd MS 18-8 SS	1
	8-32 X 2	Flat Hd MS 18-8 SS	1
	8-32	Nylock Nut 18-8 SS	2
	#8	Neoprene Bonded SS Washer	2



Key	Part No.	Description	Qty
1	55-70-0310	2-Pin Connector Set, Fanged	1
2	55-70-0613	Receptacle	1
	55-70-0613-1	Dust Cap w/Chain	1
	4-40 X 1/2	Pan Hd MS 18-8 SS	4
	4-40	Hex Nut 18-8 SS	4
	#4	Split Lockwasher 18-8 SS	4
	#6	Sae Washer 18-8 SS	1
3	55-70-0206	Single Pole Socket	1
	1/4-20 X 7/8	H.H. Capscrew 18-8 SS	2
	1/4-20	Nylock Nut 18-8 SS	2
	1/4	SAE Washer 18-8 SS	4
	55-70-0134	Red Battery Cable	16"
	55-70-0133	Battery Terminal	1
4	55-70-0268	Cord Bushing	1

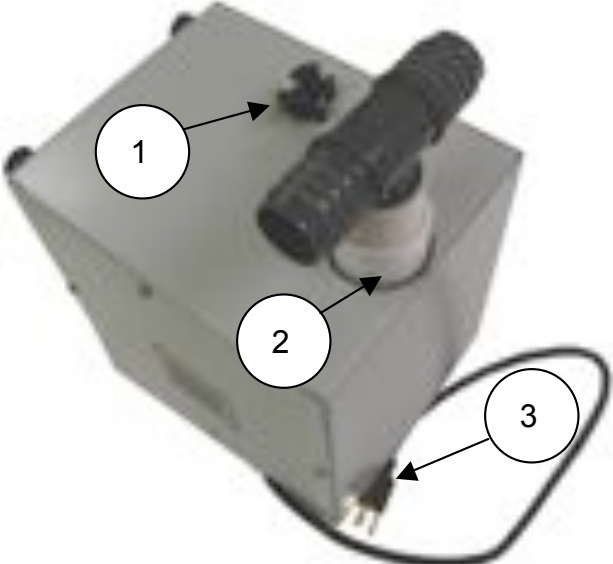


Key	Part No.	Description	Qty
1	55-70-0170	Vortex Plate	2
	55-70-0171	Ejector Body	2
	55-70-0172	Ejector Insert	2
	55-70-0173	Liquid Port	2
	55-70-0174	Housing	2
	55-70-0176	1/8 Barb X 10-32 Fitting	2
	6-32 X 1/2	Socket Hd Capscrew	16
	#6	Split Lockwasher	16
	4-40 X 3/4	Socket Hd Capscrew	4
#4	Split Lockwasher	4	
2	55-70-0175	Manifold Adapter (Includes 55-70-0177 90° El)	2
3	55-70-0179	90° El Clamp X Clamp	2
4	55-70-0281	1/8 NPT X 1/4 Tube Prestolok	3
5	55-70-0282	Prestolok 1/4 Union Tee	1
6	55-70-0178	Adapter 1-1/2 MPT X Sanitary	2
7	55-70-0124	PT-150 Aluminum Plug	2
	55-70-0125	PT-150A Aluminum Adapter	2
	55-70-0126	Coupler	2
8	55-70-0180	Clamp, Single Pin	4
	55-70-0181	Viton Gasket	4

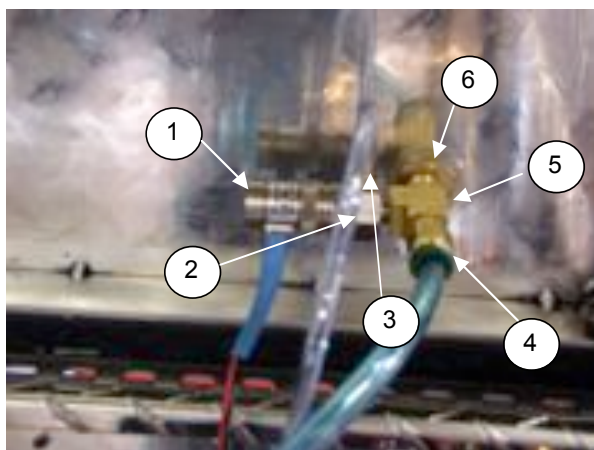


Key	Part No.	Description	Qty
1	55-70-0421	1-1/2" Hose Barb	2
2	55-70-0422	Clamp, Breeze #24	2
	55-70-0405	Hose 1-1/2" Reinforced	32"
3	55-70-0260	Inverter 1500 Watt	1
	55-70-0256	Shock Mounts	4
	10-32 X 5/8	Socket Hd Capscrew 18-8 SS	4
	#10	SAE Washer	8
	10-32	Nylock Nut	4
4	55-70-0251	Blower Housing	1
	55-70-0256	Shock Mount	6
	1/4-20 X 5/8	Hex Hd Capscrew 18-8 SS	6
	1/4	SAE Washer	12
	1/4	Split Lockwasher	6
	1/4-20	Nylock Nut	4
5	55-70-0275	1/8 FFXM Street Tee	1
6	55-70-0281	1/8 NPT X 1/4 Tube Prestolok	1
7	55-70-0257	5/16 Tube X 1/8 NPT Prestolok	1



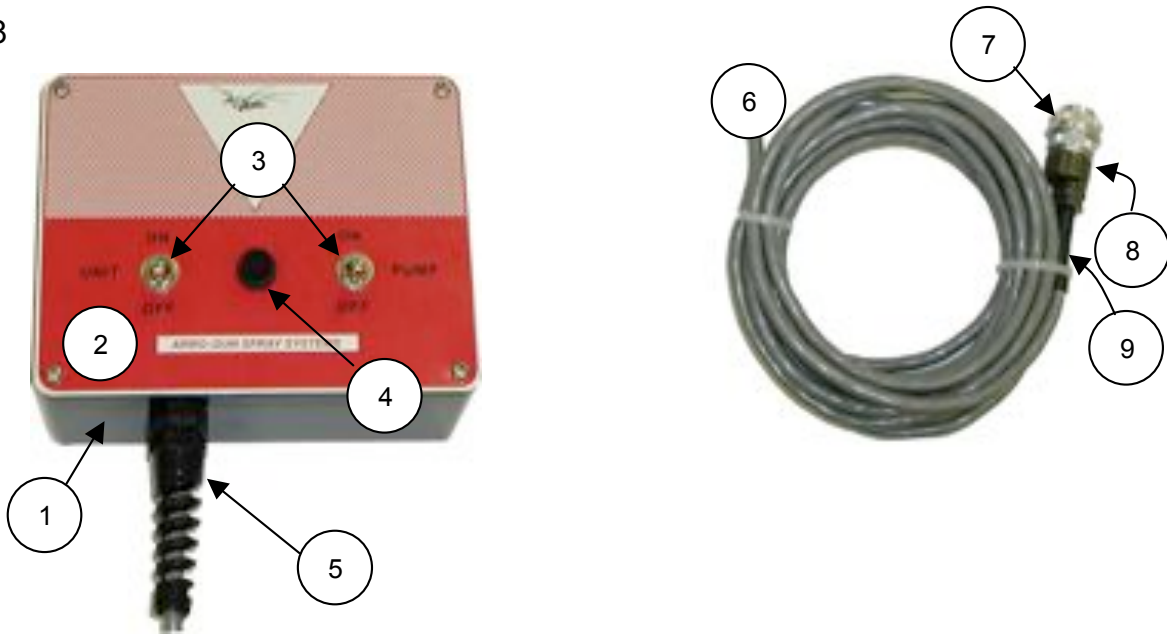


Key	Part No.	Description	Qty
1	55-70-0629	Pressure Switch	1
	4-40 X 3/4	Socket Hd Capscrew 18-8 SS	2
	#4	Split Lockwasher 18-8 SS	2
2	55-70-0252	Blower Air Coupling (includes 55-70-0263 PVC Tee)	1
3	55-70-0254	Power Cord	1



Key	Part No.	Description	Qty
1	55-70-0273	Purge Valve	1
2	55-70-0274	Valve Manifold	1
3	55-70-0176	1/8 Barb X 10-32 Fitting	1
4	55-70-0264	Prestolok 3/8 Tube X 1/8 NPT	1
5	55-70-0275	1/8 FFXM Street Tee	1
6	55-70-0280	1/8 Short Bulkhead	1
	55-70-0277	Sealing Washer 5/8" (Lid Top)	1
7	55-70-0275	1/8 FFXM Street Tee	1
8	55-70-0281	1/8 NPT X 1/4 Tube Prestolok	1
9	55-70-0257	5/16 Tube X 1/8 NPT Prestolok	1

18



Key	Part No.	Description	Qty
1	55-70-0140	Control Chassis	1
2	55-70-0150	Control Overlay	1
	6-32 X 1/2	Stainless Steel Machine Screw	4
	#6	Stainless Steel Lockwasher	4
3	55-70-0143	Engine/Pump Switch	2
4	55-70-0142	Red Indicator Lamp, Pump	1
5	55-70-0153	Strain Relief	1
6	55-70-0144	Cable, 18 Ga. 7-Wire	18 ft.
7	55-70-0614	Male Plug	1
	55-70-0617	Male Pin	4
8	55-70-0615	Cable Clamp	2
9	55-70-0618	Boot	2

### How to Order Parts

Parts are available from Arro-Gun Spray Systems by contacting the toll free factory number:

**Arro-Gun Spray Systems, LLC**  
7575 Tamra Drive  
Reno, Nevada 89506  
Phone: 775-972-4782 (Cell 775-843-2647)  
***(Factory Toll Free) 1-888-277-6486***

Please have available the serial number of the unit requiring replacement parts.

For product updates and other information visit [www.arro-gun.com](http://www.arro-gun.com)

