OWNER'S MANUAL

FOR THE

MAGNETspray

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Operation Guide

To Operate:	
1	Prepare the tank mix.
2	Connect the twinline hose to the front panel.
3	Connect the twinline hose to the liquid and air leaders on the handgun. If using the plastic bottle, connect the grey hose of the plastic bottle hose assembly instead of the solution hose of the twinline hose to the liquid leader.
4	Plug the power cord into an appropriate receptacle. Turn on the air compressor.
5	Engage the trigger and spray.
To clean the sprayer after operation:	
1	Clean the exterior of the sprayer.
2	Clean the tank and/or the plastic bottles
3	Disconnect the twinline hose from the handgun air line and liquid line leaders.
4	Disassemble and clean the liquid filter. Be careful not to lose the flow disk
5	Unthread the quick connect plug from the handgun liquid line leader. Use a 7/16” wrench on the plug and an 11/16” wrench on the 1/8” NPT body.
6	Connect the quick connect plug to the grey hose of the twinline hose.
7	Fill the tank with 2 gallons of clean water.
8	Turn on the air compressor to flush the line with 1.75 gallons of water. Turn off the air compressor.
9	Disconnect the quick connect plug from the twinline hose. Re-thread it into the handgun liquid line leader.
10	Reassemble the liquid filter.
11	Turn on the air compressor and engage the trigger to flush the handgun lines with the remaining water. Check the nozzles for a good spray pattern while flushing. Allow air to flow for 30 seconds after the water has been sprayed.
12	Apply silicone spray or similar lubricating oil to all quick connect fittings.
13	Record application in the Spray Log.

The Nozzle Assembly

The nozzle assembly is located at the end of the handgun wand. It is composed of a nozzle base, internal o-ring, Teflon ring, cover, external o-ring, and a hood (see Diagram 5). To access nozzle components, just unscrew the nozzle cover by hand.

In order to optimize nozzle life and achieve maximum spray efficiency, the nozzle must be properly maintained. Always rinse the handgun out with clean soapy water after every spray, and establish maintenance intervals to disassemble and clean the nozzle. You may wish to purchase tank cleaner, which cuts hard water scale and chemical deposits from the electrode and internal component of the gun. Your nozzle maintenance schedule will vary depending on the types of chemicals used and adherence to pre and post spray checks, In general it is sufficient to thoroughly clean nozzles every 50 hours. If heavy loads of wettable powers are used, the cleaning schedule should be sooner.

Pre-Spray Check

I. Inspect Nozzles

Check nozzle cover to make sure it is on hand tight (do not over tighten or use a wrench). Make sure the hood is seated firmly to the nozzle base and against the external o-ring.

II. Preparing the Tank Mix

If you will be spraying wettable powders it is a good idea to use a compatibility agent with the water and tank mix. Compatibility agents are chemicals mixed with the water that make mixing easier and keep heavy concentrations uniformly in suspension.

Post-Spray Check

After each spray it is essential that hoses and handgun be flushed with clean soapy water. This will help prevent chemical build-up that can clog lines and nozzles. Also, it is recommended that the nozzle exterior (black portion of nozzle) and nozzle hoods be cleaned with soapy water at this time.

To clean the nozzle assembly:

1. Slide the hood over the nozzle cover.
2. Unscrew the cover from the nozzle base and remove the Teflon ring. Note: There is a small o-ring in the nozzle around the base of the tip, take care that it doesn't fall off. If it does, clean it and press back into place. Also, take care not to damage the nozzle tip when the cover is removed.
3. Soak the ring, cover, and hood in a mild detergent solution. Use a small brush (soft or mild bristle) to clean the inside of the cover and the hole through it. Also, be sure to clean the hood. Rinse.
4. Scrub the nozzle base with the detergent solution using a soft bristle brush. Be sure to thoroughly clean the base cavity and take care not to damage the nozzle tip. Rinse and make sure the small o-ring is in place.
5. Reassemble nozzle by placing the Teflon ring on the base and screwing the cover on ***hand tight***. Next, slide the hood over the nozzle and seat it securely against the external o-ring.

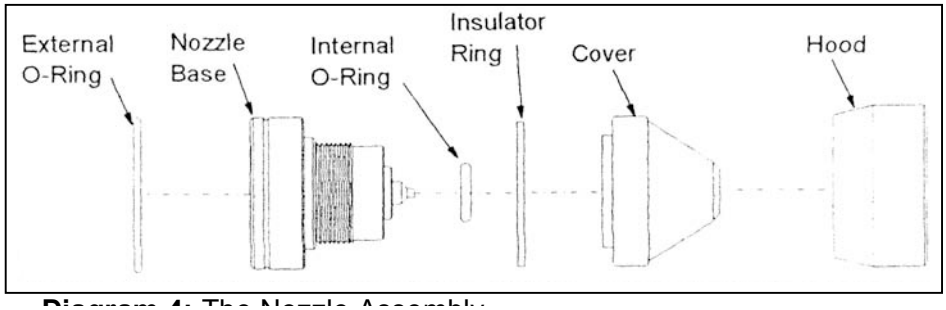


Diagram 4: The Nozzle Assembly

The Air & Liquid Delivery System

The Air Compressor
The air compressor produces compressed air which atomizes and propels the liquid. It plugs into a 110 volt electrical source. Use the unit with an extension cord of no more than 50 feet and rated for no less than 15 amp service. The On/Off switch is on the side of the air compressor. The compressor has an adjustable relief valve on the back. It should be set between 70 and 100 psi.

The Front Panel Air Connection
The second tee routes the air to the top ¼" female ball swivel (FBS) fitting on the front panel of the sprayer. The ¼" end of the air hose of the twinline hose connects to this fitting. Use an 11/16" wrench on the FBS and 9/16" wrench on the twinline hose fitting. The other end of the twinline hose connects to the air leader of the handgun.

The Tank Pressure Regulator
The second tee also routes air to the tank pressure regulator. It corresponds with the pressure gauge on the left side of the front panel. The regulator is operated by pulling out the dial and turning it clockwise to increase pressure or counter-clockwise to decrease pressure. It should be set between 12 and 15 psi. Once the desired pressure is achieved, push in the dial to lock it in place.

Note: For best results, set the pressure from a lower pressure to a higher pressure. If the pressure is set too high, adjust the regulator below the desired pressure then adjust it up to the desired pressure.

Two lines run from the tank pressure regulator. One line runs to the tank pressure gauge on the front panel. The other runs to the inlet quick connect on the tank.

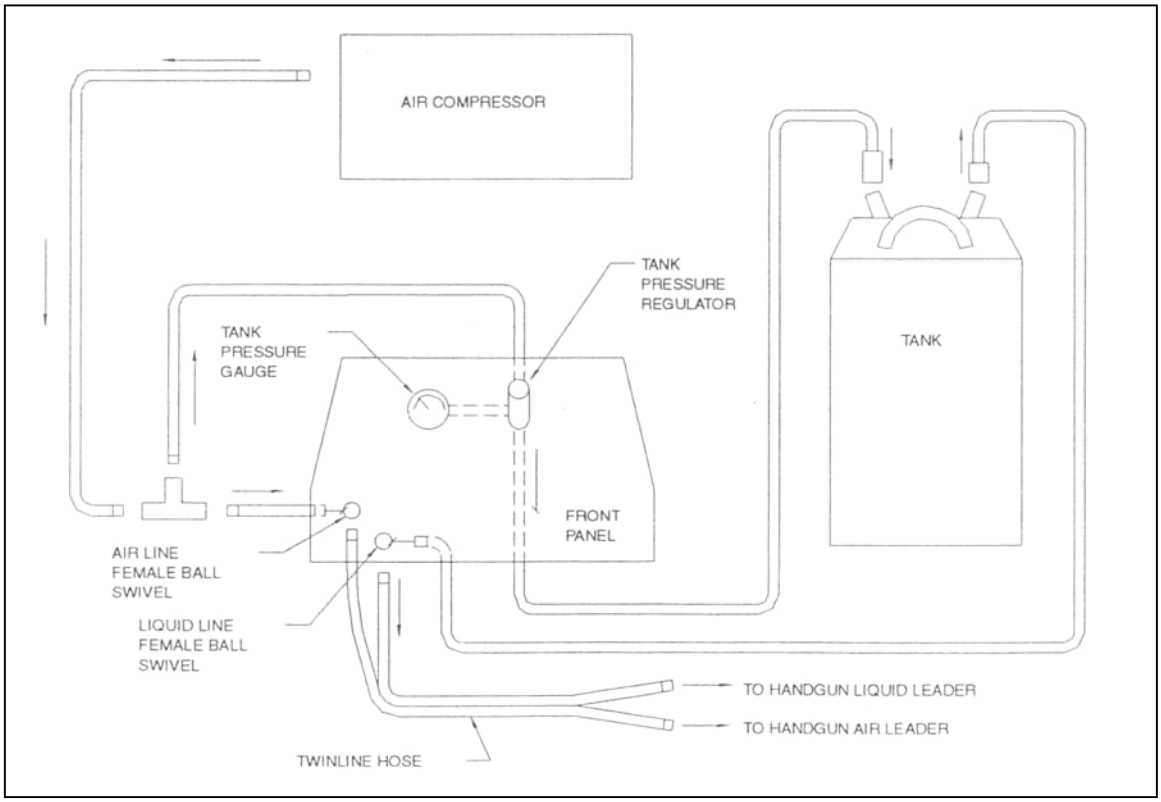


Figure 2. The Air and Liquid Delivery Systems

The Quick Connects
There are four sets of quick connects (plug and socket) on the sprayer: tank inlet, tank outlet, handgun liquid inlet, and handgun air inlet.

To disconnect the quick connects:
1. Slide the sleeve on the quick connect socket up.
2. While holding the sleeve up, pull the socket off the quick connect plug.

To connect the quick connects:
1. Slide the sleeve of the quick connect socket up.
2. While holding the sleeve up, push the socket onto the quick connect plug.
3. Release the sleeve.
4. Pull on the socket body to ensure that it is properly seated and cannot be pulled off the plug when the sleeve is down.

The Tank

The tank should be thoroughly cleaned immediately after each use by triple-rinsing the tank; a commercially available tank cleaner may be used and is recommended when the unit is used to spray wettable powders on a regular basis.

Note: *Do not operate the sprayer when the tank lid is not securely closed. Tank agitation is powerful and liquid may splash out if the lid is not closed.*

To open the tank:

1. Push up the lever on the tank lid so it is vertical. This depressurizes the tank.
2. Pull the handle of the tank lid up.
3. Holding on to the handle, rotate the tank lid 90° clockwise.
4. Pull out the tank lid. Notice the direction of the tank lid in relationship to the tank opening.

To close the tank:

1. Slide the lid into the tank opening, using the same direction as when it was removed.
2. Rotate the lid 90° counterclockwise.
3. While pulling the lid up to seal it against the tank opening, push down on the lid handle until it is parallel with the tank lid.
4. Push the pressure valve lever down so it is horizontal.

The Handgun

The handgun is held by the operator during spraying. Activation of the trigger causes liquid to spray. The handgun has the following user-serviceable parts: the air filter, the liquid filter assembly, the nozzle assembly, and the batteries. Except for the batteries, which are accessed by removing the battery cover, nothing inside the handgun shell is user-serviceable. Do not open the handgun shell; ***doing so will void the warranty on the handgun***.

The Air Filter

The air filter is located outside the base of the handgun in the air hose. It filters dirt out of the air lines. There is an extra air filter in the bag which is stapled to this manual in case the original is lost or damaged.

To clean the air filter:

1. Unthread the casing from the cap using a ¾" wrench on both parts. Be careful not to lose the spring or the air filter inside of the casing.
2. Check inside each part for debris. Clean any dirt out with compressed air or warm, soapy water.
3. Reassemble the air filter, making sure to put it together as in Diagram 2.

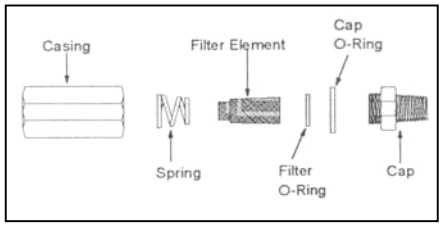


Diagram 2. The Air Filter

The Trigger

The trigger turns the spray on and off. It can be continuously held for operation or it can be locked in place. When it is on, the charging indicator on the top of the handgun shell glows red to indicate that the nozzles are charging.

To engage/disengage the trigger:

1. Pull the trigger up towards the body of the handgun to start spraying.
2. To keep spraying, either keep holding the trigger or lock it in place by pulling up the lock and hooking the trigger.
3. To stop spraying when the trigger is not locked, let go of the trigger.

To clean the trigger:

1. Unthread the brass bolt on the top of the handgun with a 5/8" socket wrench. Be careful not to lose the spring, plunger, copper washer, and small brass bushing inside the trigger. Note how they fit inside so they may be replaced properly.
2. Check inside the trigger for blockage. Clean out any debris with compressed air or warm, soapy water.
3. Replace the spring and plunger; rethread the brass bolt into the top of the handgun until tight.

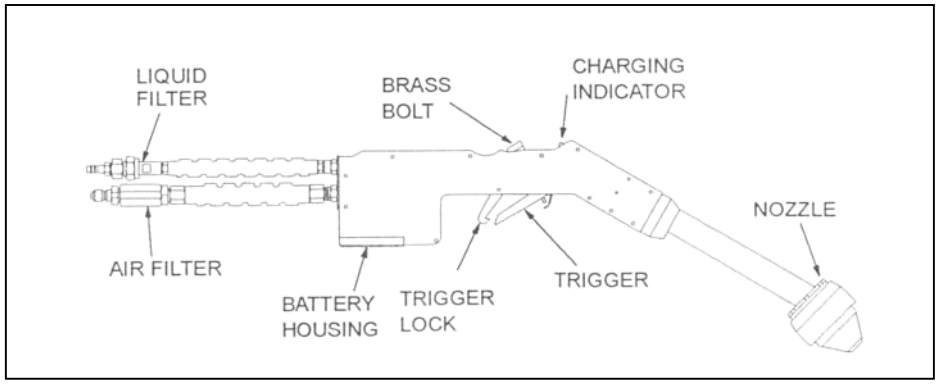


Diagram 1. The Handgun

The Batteries

The nozzle charging operates on two 9 volt rechargeable batteries which are located in the base of the handgun. In average conditions, the batteries will last 5-10 hours of operation on a charge. They should be recharged when the charging indicator on top of the handgun shell doesn't glow when the trigger is engaged during operation. After a while the batteries will wear out and need to be changed. Replace with Nickel-Hydride rechargeable batteries.

To change the batteries:

1. Unscrew the 2 6-32 x ½" phillips head machine screws which hold the battery cover in place.
2. While holding the leads in one hand, gently disconnect the batteries from the leads. Be careful not to tear the leads off the wires or the tear the lead wires out of the power supply.
3. Connect 2 fresh 9 volt batteries to the leads.
4. Replace the battery cover. Screw the 2 6-32 x ½" Phillips head machine screws back in to secure the battery cover.

The Liquid Filter Assembly

The liquid filter assemby is located outside the base of the handgun. It is composed of these parts: a 1/8" NPT body (item 10), a strainer (item 11), and a cap (item 12). The strainer is the active filtering element in the volume of liquid that flows through the line. There is an extra flow disk and an extra strainer in the bag which is stapled to this manual in case the originals are lost or damaged.

To disassemble, clean and reassemble the liquid filter assembly:

1. Using a 13/16" wrench on the cap and and 11/16" wrench on the 1/8" NPT body, unthread them.
   Note: When you disassemble the liquid filter assembly, notice how the parts fit together in order to reassemble them properly. Be careful not to lose any parts, particularly the flow disk which is inside the cap. The sprayer will not function correctly without the flow disk.

2. Remove the strainer from the 1/8" NPT body.
3. If the 1/8" NPT body contains residue, clean it with compressed air or clean water.
4. Clean the strainer with compressed air or clean water. If residue still remains in the 50 mesh screen, disassemble the Strainer. Unscrew the top brass part from the bottom brass part. The 50 mesh screen slides off the brass body and can be cleaned with compressed air or clean water. If residue still remains, soak the 50 mesh strainer in water. If necessary, scrub it with a soft toothbrush to remove stubborn residue. Replace the 50 mesh screen and screw the top brass part back on the lower brass part.
5. If the flow disk is still in the cap, remove it. Check the aperture of the flow disk for blockage. If there is any, clean it with compressed air or clean water. Replace the flow disk so that the numbers on the disk face the strainer.
6. Replace the strainer in the 1/8" NPT body.
7. Rethread the 1/8" NPT body and the cap.

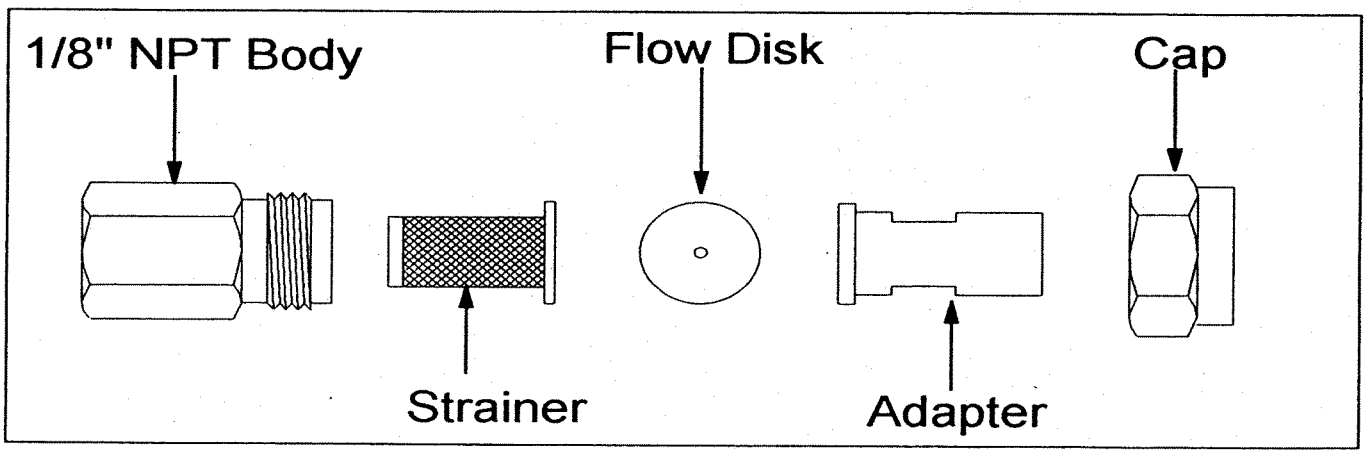


Diagram 3: The Liquid Filter Assembly

TROUBLE-SHOOTING GUIDE

Problem: Air pressure of spray appears low:

1. Clean the liquid filter assembly. See “The Liquid Filter Assembly”.
2. Make sure that the liquid filter assembly is installed correctly. See Diagram 3 on p. 12.
3. Make sure that the air filter is installed correctly. See Diagram 2 on p. 11.
4. Clean the air filter. See “The Air Filter”.
5. Clean the trigger. See “To Clean the Trigger”.

Problem: No spray comes out of the nozzle or spray is erratic:

1. Make sure that the air pressure regulator is set between 12-15 psi.
2. Make sure that water temperature is at least 50° (10°C).
3. Make sure that all liquid fittings and air fittings are tight.
4. Clean the liquid filter assembly. See “The Liquid Filter Assembly”
5. Clean the nozzle assembly. See “The Nozzle Assembly”.
6. Clean the trigger. See “To Clean the Trigger:.

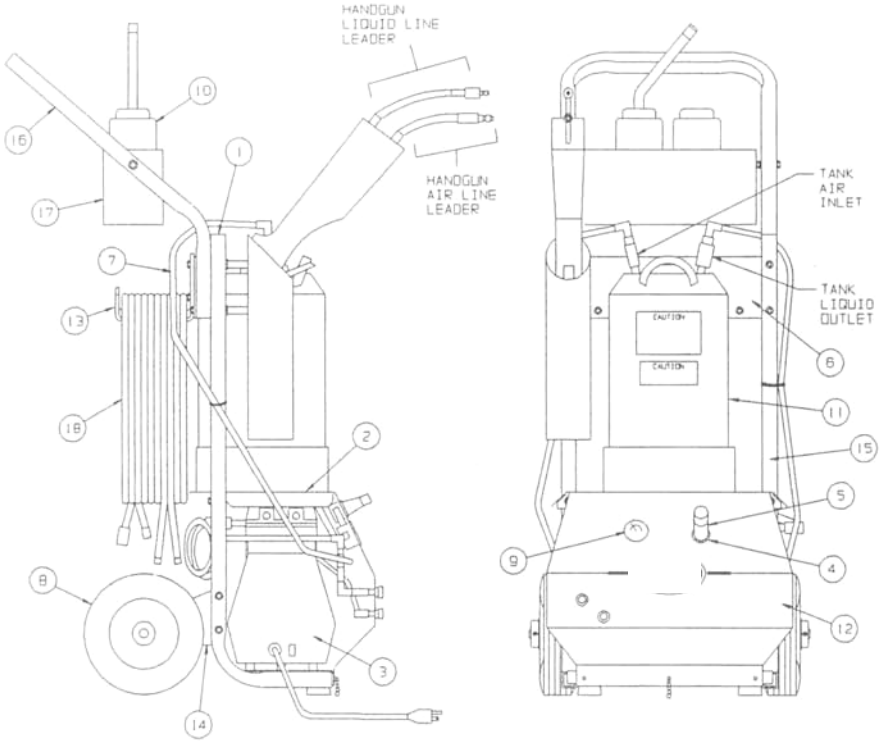
Problem: Charging indicator blinks or goes out during operation:

1. Change the batteries. See “The Batteries”.
2. Clean the Nozzle. See “The Nozzle Assembly”.

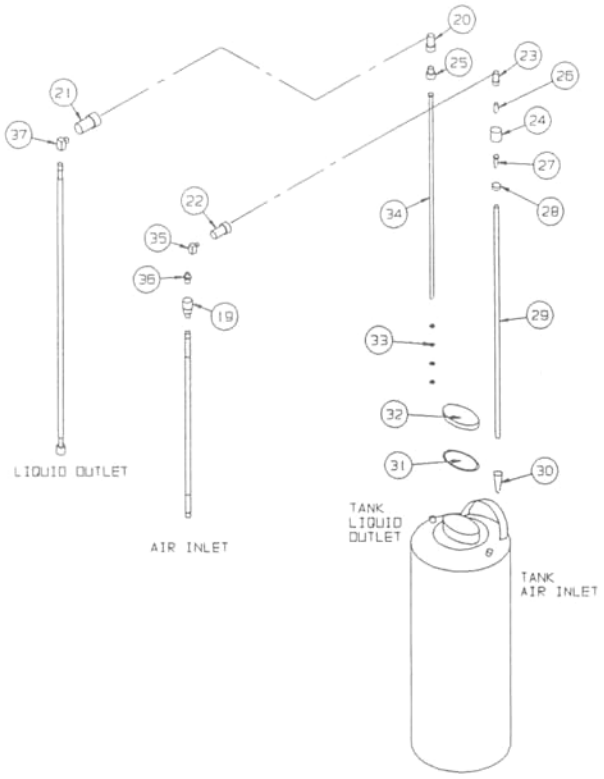
Problem: Air compressor will not start:

1. Make sure that the electrical cord is plugged in an appropriate receptacle.
2. Make sure that the switch on the side of the air compressor is on.

SERVICE PARTS



MAIN ASSEMBLY



TANK PLUMBING ASSEMBLY

Unlike conventional sprayers, your sprayer uses a different method for chemical application. Therefore, new techniques must be used to spray and new formulas developed to properly prepare tank mix. This section will discuss proper spray techniques and how to prepare a tank mix.

Note: *When using unfamiliar equipment or chemicals, always test on a small area before treating the entire crop. Do not use a chemical with the sprayer if the label prohibits use in low-volume sprayers.*

at full rate, you can start reducing the amount of chemical used for each spray. Keeping the amount of water in the tank constant, cut the amount of chemical mixed in by 15-25% for each spray until a desirable kill is no longer achieved. If you are planning to cut rates then it is very important to scout your crop to determine spray efficiency.

HANDGUN SERVICE PARTS