

Owner's Manual

TRG-5



Electrostatic
Spraying Systems

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Toll-Free: 800-213-0518 • Fax: 706-769-8072
www.maxcharge.com

OWNER'S MANUAL

TRG-5

Electrostatic Spraying Systems, Inc.
62 Morrison St. · Watkinsville, GA 30677-2749

CE certification applied for

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CONGRATULATIONS!

You have just purchased one of the most advanced spraying systems on the market today. Electrostatic Spraying Systems, Inc.¹ (ESS) is committed to providing you with powerful spraying systems that are easy to operate and maintain.

The products of ESS are the result of the efforts and creativity of many people. In addition to input from engineering, marketing and manufacturing personnel, suggestions from our customers have been implemented into the design of our equipment. We would like to hear your ideas also! If you have any suggestions or comments regarding the products or service of ESS write or call us at:

Electrostatic Spraying Systems, Inc.
62 Morrison St.
Watkinsville, Georgia 30677-2749
Phone: 706-769-0025
1-800-213-0518
Fax: (760) 769-8072
support@maxcharge.com

Please take time to read this manual before operating your new ESS TRG-5™ sprayer. The manual contains important instructions for the safe operation of this equipment. It also includes helpful suggestions to maximize productive use of the TRG-5 sprayer. Essential cleaning instructions should be followed to maintain your sprayer at peak efficiency. Please carefully read and follow all instructions for your own safety and the safety of others around you.

Thank you!

We appreciate your business and are proud that you have selected an ESS sprayer for your operation.

Your new sprayer has been thoroughly tested and calibrated at the factory. If you have any problems with it, please get in touch with us immediately. We will be glad to answer any questions you have concerning our equipment or service. ESS intends to support its customers with efficient, helpful and friendly service. We appreciate your business and sincerely hope that Electrostatic Spraying Systems, Inc. can meet your present and future spraying equipment needs.



We encourage you to make copies of the "Spray Gun Yearly Service" form in the back of this manual. Use this form every year you send your gun in for maintenance and when we service the gun, your warranty will renew for another year. The service will replace the nozzle base, replace air and liquid hoses inside gun housing, replace filters, and recalibrate the gun and thoroughly cleaning the entire spray gun.

¹ ESS TRG-5 Sprayer™, TRG™, MaxCharge™, and the ESS logo are copyrights or registered trademarks of Electrostatic Spraying Systems, Inc.

For your personal records

Please record the model and serial numbers of your new sprayer here.

TRG-5

Model #

Serial #

Spray gun serial number

Date of purchase.

Notes

TABLE OF CONTENTS

Overview of the ESS TRG-5 Air-assisted Electrostatic Sprayer	1
Safe operation of the TRG-5 Sprayer	2
Operator's responsibility.....	2
Safety precautions	2
Chemical safety precautions	2
Safety decals	3
About the low-voltage system of the MaxCharge™ spray gun	4
Features of the TRG-5 sprayer	5
Technical specifications	5
Operating Instructions	6
Unpacking the sprayer	6
Before use.....	7
Setting the air pressure for the incoming air flow.....	7
Supply line drier.....	8
Steps for operation	8
After spraying	8
TRG-5 maintenance schedule	9
REFERENCE SECTION	
Quick connects.....	11
Hose reel and liquid inlet filter	12
The ball valve (Airflow On/Off).....	12
Stainless-steel tank.....	13
Incoming air pressure regulator.....	14
Tank pressure regulator	15
Spray gun connections	16
How to store the hose quick-connects when not in use	16
Spray gun	17
Air filter.....	17
Trigger	18
Liquid filter assembly	19
Nozzle assembly	20
Pre-spray check.....	21
Post-spray check.....	21
Batteries.....	22
Yearly spray gun service.....	23
Spraying with your ESS sprayer.....	24
Preparing a tank mix	25
Chemical compatibility	26
A note about operating temperatures	26
Trouble-shooting Guide	27
TRG-5 spray gun service parts (drawing).....	28
TRG-5 spray gun service parts (key)	29
Flow disk chart	29
TRG-5 Main unit assembly drawing.....	30
TRG-5 Service parts.....	31
TRG-5 Tank assembly drawing.....	32
Warranty	33
Warranty card.....	33a
Spray gun repair/Yearly service return form.....	35



Notes

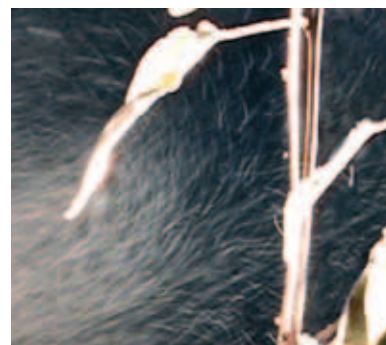
Overview of the ESS TRG-5 Air-assisted Electrostatic Sprayer

Air-assisted electrostatic sprayers produce electrically charged spray drops that are carried to the plant canopy in a low pressure, gentle, air stream. The heart of the TRG-5 is the patented MaxCharge™ nozzle.

Air and liquid enter separately at the rear of the nozzle. Just before leaving the nozzle, the air hits the liquid stream to make many thousands of tiny spray droplets that pass through the charging ring. An electrical charge is applied to the spray droplets by the charging ring. Then the charged spray droplets are blown out of the nozzle and move into the plant canopy where they are attracted to plant material by electrostatic forces. The electrostatic charge induced by the MaxCharge™ nozzle is strong enough to allow the droplets to move in any direction to cover all plant surfaces, even defying gravity to coat the underside of leaves and the back side of fruits and vegetables. The result is uniform spray coverage on hidden areas deep inside of the plant canopy where other sprayers miss.

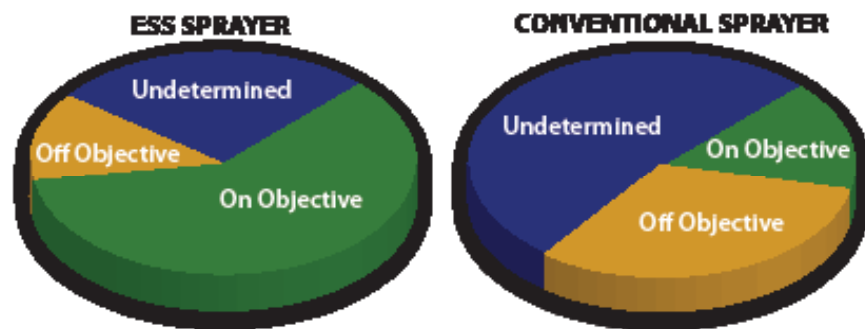
The MaxCharge™ nozzle is easy to clean and corrosion-proof. The interior ceramic outlet resists wear three times better than stainless steel outlets. These features combine to give the best spray coverage on the market. This quality product is virtually maintenance-free, and assures you of savings in the application of chemical.

The comparison of air-assisted electrostatic spraying versus conventional spraying is dramatic.



Electrostatically charged droplets are attracted to plant surfaces.

Where Does the Spray Go?



The University of California completed a series of tests to investigate what happens to spray liquid after it leaves the nozzle.

Conclusion: ESS technology places over 4 times the amount of spray onto the plant surface using ½ the amount of chemicals. Furthermore, they also reported that ESS sprayers send ⅔ less chemicals to the ground and into the air. Less chemical used overall, less waste and less drift than conventional equipment.

Imagine the environmental benefit!



A picture worth a thousand words...

In this test, fluorescent dye has been sprayed on two round knobs. The left knob was sprayed with the electrostatic system ON; the right knob was sprayed with the same sprayer, but with the electrostatic system OFF. Note how even the coverage is on the electrostatic knob.

Safe operation of the TRG-5 Sprayer

OPERATOR'S RESPONSIBILITY

Read the Owner's Manual.

It is the responsibility of the user to read the Owner's Manual, to understand the safe and correct operating procedures which pertain to the operation of the product, and to maintain the product according to the Owner's Manual. It is the owner's responsibility to ensure that all who are using this equipment read this manual.

The user is responsible for inspecting the equipment and for repairing and replacing damaged or worn parts to prevent damage or excessive wear to other parts. It is the user's responsibility to deliver the machine for service or replacement of defective parts which are covered by the standard warranty.

SAFETY PRECAUTIONS

Lack of attention to safety can result in reduced efficiency, accident, personal injury, or death. Watch for safety hazards and correct deficiencies promptly. Use the following safety precautions as a guide when using this machine.

- ♦ Read the Owner's Manual. Failure to read the manual is considered a misuse of the equipment.
- ♦ Use the TRG-5 sprayer ONLY for its intended use as described in this manual.
- ♦ Before operating equipment, become familiar with all caution and warning decals affixed to the sprayer.
- ♦ Do not allow a child to operate the TRG-5 sprayer. Do not allow adults to operate the sprayer without proper instruction.
- ♦ Keep the area of operation clear of all persons and animals.
- ♦ Do not apply chemicals when weather conditions favor drift from treated areas.
- ♦ Turn off the sprayer when leaving it unattended.
- ♦ Store sprayer in a dry place. Do not expose to freezing temperatures.

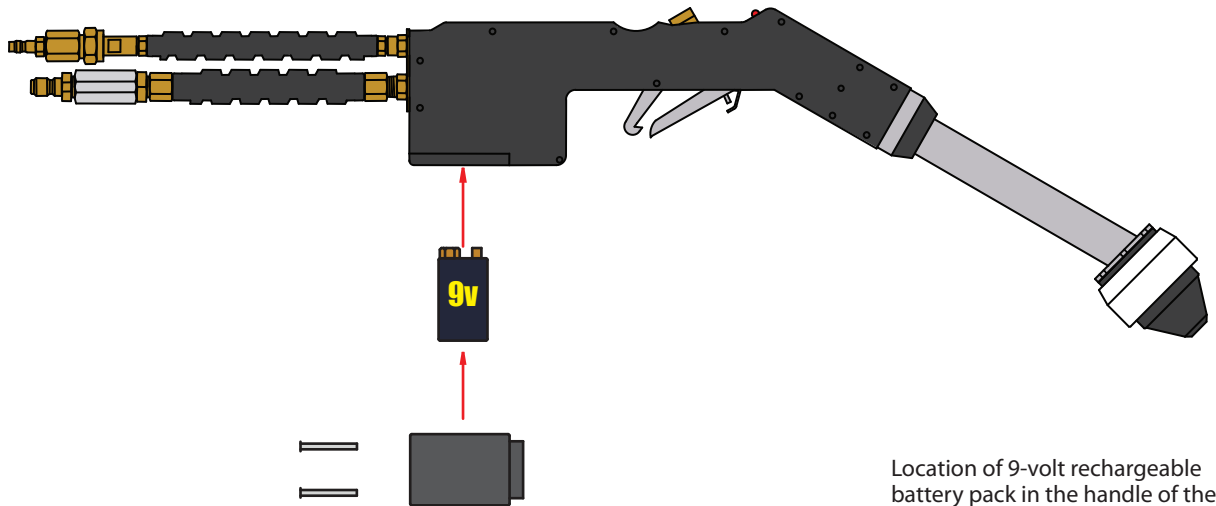
CHEMICAL SAFETY PRECAUTIONS

Read and follow all instructions on the chemical or pesticide manufacturer's label.

- ♦ Use protective clothing, eye protection and gloves when mixing chemicals and while spraying with the TRG sprayer.
- ♦ Always use a cartridge respirator, protective clothing and eye protection when spraying with the TRG.
- ♦ Follow the chemical manufacturer's recommendations in handling, mixing, applying, storing and disposing of chemicals.
- ♦ Be aware of decontamination methods in case a person, clothing, or equipment is accidentally sprayed.
- ♦ Be aware of poisoning symptoms and know the appropriate first aid.
- ♦ Know the length of time needed to pass before allowing people and pets to go back into the sprayed area.

About the low-voltage system of the MaxCharge™ spray gun

For operator safety, the MaxCharge spray gun is powered by a low-voltage power supply. The rechargeable 9-volt batteries are in the handle of the TRG-5 spray gun. The electrostatic charge imparted to the spray is not strong enough to harm people. Some people report feeling a “tingle” or a slight stinging sensation when the spray from the nozzle falls on their bare skin.



Location of 9-volt rechargeable battery pack in the handle of the spray gun.



Safety decals

Appropriate safety decals are placed on ESS equipment in order to alert the operator to possible dangers. If decals are missing, please contact ESS immediately for replacement decals.

 WARNING!	 ¡PRECAUCIÓN!
<p>AGRICULTURAL CHEMICALS CAN BE DANGEROUS. IMPROPER SELECTION OR USE CAN SERIOUSLY INJURE PERSONS, ANIMALS, PLANTS, SOIL OR OTHER PROPERTY.</p> <p>BE SAFE:</p> <ul style="list-style-type: none"> • SELECT THE RIGHT CHEMICAL FOR THE JOB. • HANDLE IT WITH CARE. • FOLLOW THE INSTRUCTIONS ON THE CHEMICAL MANUFACTURER'S LABEL. 	<p>LOS PRODUCTOS QUÍMICOS AGRÍCOLAS PUEDEN SER PELIGROSOS. LA SELECCIÓN O EL USO INAPROPIADOS PUEDEN LESIONAR SERIAMENTE A LAS PERSONAS, LOS ANIMALES, LAS PLANTAS, LA TIERRA U OTRA PROPIEDAD.</p> <p>TENGA CUIDADO:</p> <ul style="list-style-type: none"> • SELECCIONE EL PRODUCTO QUÍMICO CORRECTO PARA EL TRABAJO. • MANÉJELO CON CUIDADO. • SIGA LAS INSTRUCCIONES DE LA ETIQUETA DEL FABRICANTE DEL PRODUCTO QUÍMICO.

READ AND FOLLOW THE CHEMICAL MANUFACTURER'S INSTRUCTIONS CAREFULLY.


It is extremely important for the owner/operator's safety as well as the safety of other people in the vicinity that all chemical safety precautions are followed.

 WARNING!	 ¡PRECAUCIÓN!
<ul style="list-style-type: none"> • DO NOT REMOVE TANK LID OR RELEASE TANK PRESSURE WHILE COMPRESSOR IS RUNNING. • RELEASE TANK PRESSURE BEFORE REMOVING LID OR TANK HOSE CONNECTIONS. • KEEP FACE AWAY WHEN RELEASING PRESSURE AND WHILE REMOVING TANK LID. • DO NOT OVERFILL TANK. • FILL TO 4 INCHES (10 CM) FROM TOP OF TANK WHEN USING TANK AGITATOR SYSTEM. 	<ul style="list-style-type: none"> • NO RETIRE LA TAPA DEL TANQUE NI LIBERE LA PRESIÓN DEL TANQUE MIENTRAS LA COMPRESORA ESTÉ FUNCIONANDO. • LIBERE LA PRESIÓN DEL TANQUE ANTES DE RETIRAR LA TAPA O LAS CONEXIONES DE LA MANGUERA DEL TANQUE. • MANTENGA EL ROSTRO ALEJADO CUANDO LIBERE LA PRESIÓN Y MIENTRAS RETIRA LA TAPA DEL TANQUE. • NO SOBRELLENE EL TANQUE. • LLÉNELO HASTA 10 CENTÍMETROS (4 PULGADAS) DE LA PARTE SUPERIOR DEL TANQUE CUANDO USE EL SISTEMA AGITADOR DEL TANQUE.






CAUTION:

The stainless steel tank operates under pressure.

This decal describes important information on correct use of the tank and its agitator.



Charger for
Electrostatic Spraying Systems

LED	MODE
	Battery initialization & analysis
	Fast charge
	Top-off charge
	Trickle charge
	Error

With the mains connected, the LED will be orange the first 5-7 seconds, and be orange when the initialization and analysis starts. If a battery is connected, the actual charging will start a few seconds later when the LED changes to red/orange.

This label is placed on the charger of all sprayguns.



REMEMBER TO DISASSEMBLE AND CLEAN THE FILTERS REGULARLY.

The performance of your TRG sprayer can suffer if the filters are not kept clean.



If you use a pacemaker, use our electrostatic sprayer at your own risk.

Features of the TRG-5 Sprayer

For connection to an existing air supply

Tank agitator assures mixing of all chemicals

Compatible with all conventional chemicals and fungicides

Spray up to 40,000 sq. ft. per hour



About your TRG-5 sprayer

The TRG-5 is a sprayer that depends on an external source of pressurized air. The air passes from the air inlet hose through a filter and follows two different routes from a brass tee. One route goes to the hose reel and through the red air hose of the twinline hose. The other route goes to the tank pressure regulator and then to the tank. When external air supply is running and tank pressure regulator is set at 12-15 psi, the tank is pressurized and continuously agitated to prevent separation and settling of the chemical(s). From the tank, the pressurized liquid line goes to the hose reel and through the grey hose of the twinline hose. The twinline hose carries both pressurized liquid and air to connect to the spray gun. The liquid combines with the pressurized air and atomizes the chemical mix into 40 micron VMD (Volume Median Diameter) drops. The droplets are then electrostatically charged and sprayed from the nozzle. Due to the electrostatic charge, the droplets are attracted to all plant surfaces in the direction that the handgun points, including the back of leaves and foliage deep within the canopy.

Technical specifications

Nozzles	1	Air volume required	12 CFM (0.34 m ³ /min.)
External air supply required	Yes	Air line pressure	65-90 PSI (4.6 - 6.3 kg./cm ²)
Electricity required	No	Tank Pressure	10 PSI (0.7 kg./cm ²)
Standard hose length	150 ft. (45.7 m.)	Flow rate	4 gal./hr. (15.1 l./hr.)
Weight empty	80 lbs. (36.3 kg.)	Drop size	40 microns
Weight full	120 lbs. (54.4 kg.)	Spray range	10-15 ft. (3 - 4.6 m.)
Shipping weight	275 lbs. (124.7 kg.)	Available options	250 ft. (76.2 m.) hose Aluminum trident spraygun
Main tank capacity	5 gal. (18.9 l.)		
Dimensions	31" H × 21" W × 36" L (0.8m. × 0.5m. × 0.9m.)		

Operating instructions

ALL OPERATORS must read this Owner's Manual completely and thoroughly before operating the TRG-5 sprayer. They must be familiar with all operating instructions and safety precautions.

Unpacking the sprayer

In the shipping box there should be:

- one TRG-5 sprayer
- one spray gun in a box,
- one TRG-5 Parts Kit

Your new TRG-5 Sprayer is fully assembled. The sprayer is fastened to the shipping crate with one 3-inch wood screw located on the tank platform of the TRG-5 sprayer. Remove the screw with a Phillips head screwdriver.

Carefully open the spray gun box, remove the spray gun, and unwrap the bubble wrap from the spray gun. Store the box and bubble wrap for future shipping. You will need this box to return the spray gun for its Yearly Service.

The Parts Kit contains a collection of small parts commonly needed to maintain and repair your TRG-5 sprayer as well as the battery charger for the spray gun, a spray gun shoulder pad, and the TRG-5 Owner's Manual. Please store your Parts Kit in a safe place for future use.

Among the items in the Parts Kit you will find one extra flow disk and one extra strainer. We call your attention to these parts because they are indeed very small and easy to overlook; however they are essential for your sprayer to run correctly. (See the section about the air filter for detailed instructions on cleaning and replacing the air filter. See the section on the liquid filter to clean or replace the flow disk and the strainer.)

A warranty registration card is bound into the manual after the Warranty page. After unpacking the sprayer, please take time to fill this card out and send it in to ESS. This will insure your warranty protection in the event anything happens to your sprayer or handgun.

Before use

Connect the battery charger to the spray gun. Charge the battery for 6 to 8 hours before using the TRG-5 sprayer. After charging your spray gun, store the battery charger in a secure location.



TRG-5 Parts kit

Setting the air pressure for the incoming air flow

1. Start with an initial pressure setting of 60 PSI.
2. Count the number of nozzles on your spray gun. Add 5 PSI for each nozzle over 1. For example:
 - for a single nozzle add 0 to the initial setting
 - add 5 PSI for a two nozzle spray gun
 - add 10 PSI for a three nozzle spray gun
3. Determine the length of air hose furnished with your sprayer. Add 10 PSI to the initial pressure setting for each 100 feet of air hose length. This is the desired air pressure setting for the external air source.

Example:

Your TRG has the optional two-nozzle gun with 100 feet of air hose on the reel.

$$60 \text{ PSI} + 5 \text{ PSI} + 10 \text{ PSI} = 75 \text{ PSI}$$

Example:

Your TRG has a single-headed nozzle and has 250 feet of hose.

$$60 \text{ PSI} + 0 \text{ PSI} + 25 \text{ PSI} = 85 \text{ PSI}$$

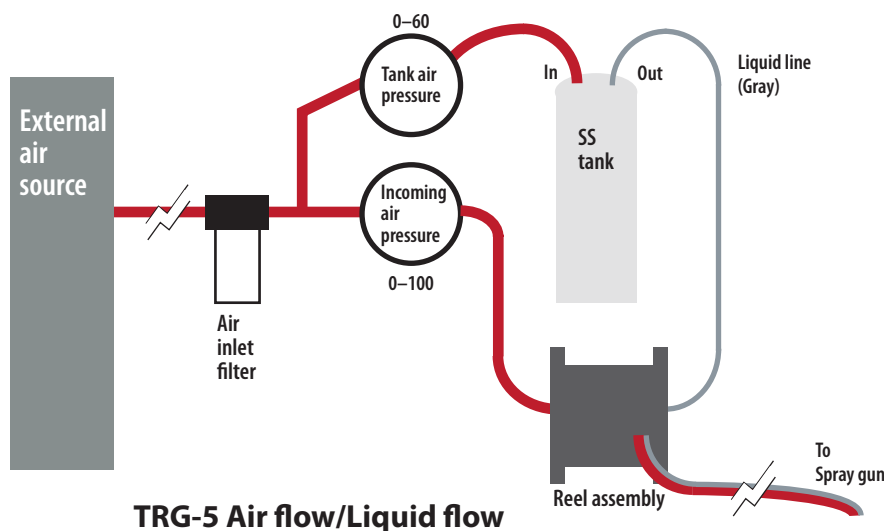
Note: The spray gun air flow requirement is 6 to 10 CFM of air flow per nozzle.

The air pressure required at the nozzle is 55 to 75 PSIG.

(It's greater because the design of the MaxCharge nozzle increases the air pressure and air velocity.)

Air flow at the upper end of the range will require higher air pressure from the source and will yield a longer spray plume and finer liquid droplet size.

The charge level at the nozzle will increase or decrease as the air flow changes due to the liquid/air ratio varying. By regulating the air pressure and checking the charge level the nozzle liquid charge level can be optimized.



To set the incoming air pressure:

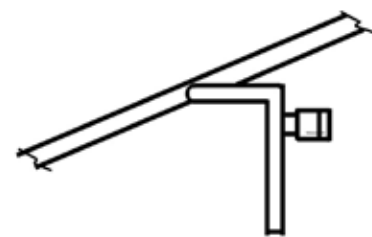
Turn on the air from the external air source. Locate the air inlet regulator (liquid-filled gauge with a range of 0 to 100 PSI). Pull the adjustment knob's black plastic cover to unlock it. Turn left (counter-clockwise) to decrease pressure; turn right (clockwise) to increase pressure. Set the pressure according to the formulas described at left. Push the black plastic cover in to lock the new setting.



For precise measurement of the charge level, contact ESS to purchase the optional multi-meter kit with specialized probe. ESS S/N AS2572

Supply air line drier

ESS recommends that growers install dryers in their air lines to minimize the amount of water condensation that is sprayed through the air line of the TRG-5. Air compressors produce warm, moist air which condensates in air delivery lines during pumping. If allowed to travel into a sprayer, this moisture can corrode or freeze its air lines or regulators. A simple air dryer installed in the hose air lines can prolong the life of spraying equipment. Typically, an air dryer is a separator or drain with a plug or valve that is offset from the line to trap water build-up before it leaves the air line through connectors. Air lines should be drained monthly if they are used frequently.



Air line drier

Steps for operation

1. Connect external air supply to the air inlet hose
2. Disconnect tank quick connects and open tank.
3. Prepare tank mix.
4. Close tank and reconnect all quick connects.
5. Disconnect spray gun quick connect sockets from the frame quick connect plugs; connect spray gun quick connect sockets to handgun plugs.
6. Turn on air at external supply.
7. Set unit air pressure as described on the previous page.
8. Set tank pressure regulator to 12-15 PSI.
9. Aim spray gun at spray target and engage trigger; lock trigger if desired. Note: It takes about 2 minutes for liquid to spray regularly without air bubbles.
10. Apply spray.

After spraying:

1. Disengage trigger when spray application is complete.
2. Turn ball valve off.
3. Disconnect tank quick connects and open tank; clean tank interior and exterior; fill tank with 2 gallons of clean, soapy water; close tank and reconnect tank.
4. Unplug spray gun quick connect sockets from the spray gun quick connect plugs.
5. Disassemble liquid filter assembly.
6. Plug spray gun quick connect plug (which is still threaded in the 1/8" NPT body) into spray gun liquid quick connect socket. 1.
7. Turn ball valve on.
8. Unplug spray gun liquid quick connect plug from spray gun liquid quick connect socket to stop flow of liquid.
9. Clean liquid filter assembly.
10. Reassemble liquid filter assembly.
11. Reconnect spray gun quick connects.



To set the tank pressure:

Turn on the air from the pressurized air source. Set the incoming air pressure according to the instructions on the previous page.

Locate the tank pressure gauge (liquid-filled gauge marked 1 – 30 PSI). Pull the adjustment knob's black plastic cover to unlock it. Turn left (counter-clockwise) to decrease pressure; turn right (clockwise) to increase pressure. Set the pressure between 12 to 15 PSI. Push the black plastic cover in to lock the new setting.

12. Engage the trigger and allow remaining quart of water to run through to clean spray gun; allow air to flow for 30 seconds more to reduce possibility of corrosion.
13. Disconnect the spray gun quick connects and the tank quick connects.
14. Disconnect air inlet hose from external air source.
15. Apply silicone spray or a similar lubricating oil to all quick connect sockets.
16. Connect the spray gun quick connect sockets to frame quick connect plugs; reconnect the tank quick connects.



Sil-Glyde is an excellent silicone-based protective lubricant. You may purchase it directly from ESS. S/N # 3174

TRG-5 maintenance schedule

Please observe the recommended maintenance schedule for your TRG-5 sprayer in order to preserve spray quality and the working life of the unit. If you use heavy wettable powders to spray or if you operate the TRG-5 in a dusty environment, you may need to clean liquid and air filters more often than these recommendations. Visually inspect the nozzle and trigger assembly often and clean as necessary.

Clean the liquid filter assembly	After every spray application
Empty the bowl filter of water	Weekly or when air pressure drops**
Clean the nozzle	When the spray pattern is different than when the TRG-5 was new
Clean the spray gun	When unequal streams of water come out of the nozzle
Clean the liquid filter at hose reel and spray gun	After every spray application
Recharge batteries in spray gun	When charging indicator does not light during operation (about every 8 operational hours)
Replace batteries in spray gun	When batteries no longer hold a sufficient charge to complete a ten-hour work session or show other signs of battery deterioration
Clean air inlet filter	As needed
Check and tighten bolts	Every month

** Whichever comes first

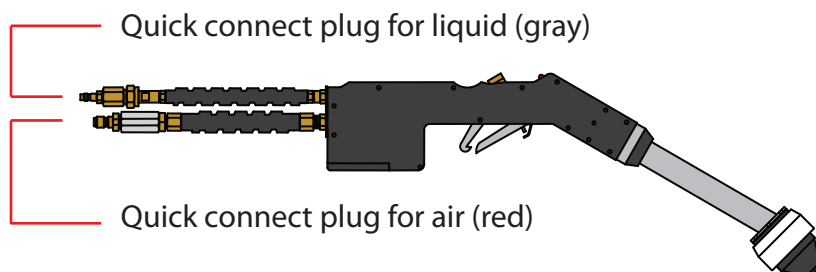
Notes

REFERENCE SECTION

Quick connects

There are four sets of quick connects (plug and socket) on the sprayer:

- tank inlet
- tank (liquid) outlet,
- spray gun air inlet
- spray gun liquid inlet



To disconnect the quick connects:

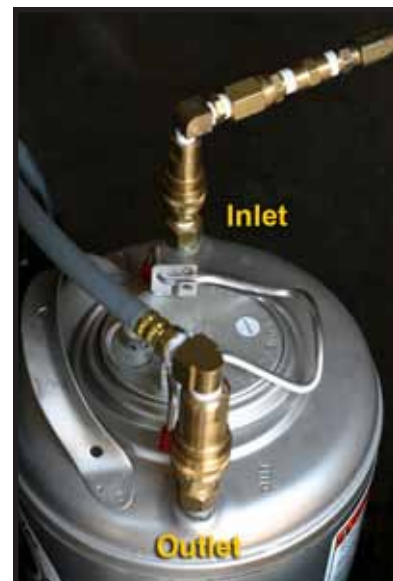
1. Slide the sleeve on the quick connect socket up.
2. While holding the sleeve up, pull the socket off the quick connect plug.

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.



Pull back on the socket sleeve to open the socket for connection or disconnection. To latch, push the sleeve toward the plug..



The Tank's inlet and outlet plugs are clearly marked..

Hose reel and liquid inlet filter

The hose reel contains the twin line hose running from the main unit to the handgun. Air (red hose) and liquid (gray hose) are plumbed into the hose reel from the compressor and liquid tank. There is a filter attached to the liquid inlet on the hose reel. The filter consists of a strainer (pictured below), O-ring (installed on cap), and bowl-shaped cap. Periodically check and clean this filter to clear any debris that accumulates there. Replace the O-ring when it becomes worn.

The cap turns counter-clockwise (to the left) to open and clockwise (to the right) to close.



How to tell the cap end of the strainer

It's important to replace the strainer in the correct direction. Carefully examine the ends of the strainer. If you can see the terminus of the interior plastic ribs, that's the "open" end. If there is a smooth plastic ring, that is the "closed" end. Place the closed end into the filter cap (Remember: CLOSED to CAP).



Liquid inlet filter



The ball valve (airflow On/Off)

The ball valve is a manually operated valve located at the end of the red hose on the twin line hose. The ball valve allows or restricts airflow to the spray gun. Airflow is stopped when the lever is perpendicular to the hose. Airflow is open when lever is parallel to the hose.

Stainless-steel tank

The TRG-5 has a 5-gallon (18.9 liter) stainless steel tank. When the compressor is operating and the tank pressure gauge is set between 12-15 PSI, the liquid in the tank is continuously agitated. This helps prevent separation and settling of the chemical mixture.

There is a pressure release valve lever on the tank lid that allows the operator to release pressure in the tank before opening. When the lever is horizontal, the tank is pressurized; when the lever is vertical, the tank is not pressurized and can be safely opened. When the TRG-5 is running, you will hear a small amount of air escaping from the tank lid even when the lid is fastened and latched. This is due to agitation and is normal.



Latched and pressurized

Open (after being depressurized)

To open the tank:

1. Slowly open the Pressure release valve by turning it counter-clockwise (left). This depressurizes the tank.
2. Pull the tank lid's latch up.
3. Holding on to the latch, 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 latch until it is parallel with the tank lid and seals tightly.
4. Close the Pressure release valve by turning it clockwise.

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 sealed.

The tank should be thoroughly cleaned immediately after each use by triple-rinsing the tank; a commercially available tank cleaner like Nutra-Sol may be used and is recommended when the TRG-5 is used to spray wettable powders on a regular basis.



CAUTION:
TANK CONTENTS UNDER PRESSURE
Stand back when opening the
Pressure release valve.

Note: Do not operate the sprayer when the tank lid is not securely closed. Chemicals may splash out onto the operator if the tank is open during operation



ESS recommends the use of NUTRA-SOL cleaner which can be purchased from ESS. Order S/N#1566.

Air pressure regulators



How do I tell the tank air pressure regulator from the incoming air pressure regulator?

The tank pressure gauge/regulator is mounted higher on the frame. ranges from 0 to 30 PSI output goes to tank

The incoming air pressure gauge/regulator ranges from 0 to 100 PSI output goes to the hose reel hub

Tank pressure regulator

Incoming air pressure regulator

Incoming air pressure regulator

The air pressure regulator controls the amount of pressure sent to the spray gun. Refer to page 6 instructions to determine the correct air pressure settings.

Turn the external air source. on Locate the air inlet regulator (liquid-filled gauge with a range of 0 to 100 PSI). Pull the adjustment knob's black plastic cover to unlock it.

Turn left (counter-clockwise) to decrease pressure.

Turn right (clockwise) to increase pressure.

Push the black plastic cover in to lock the new setting.

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.

To verify that the air pressure regulator functions properly:

1. Connect the air inlet hose to the air source.
2. Make sure that the air pressure regulator is set above 0 PSI

If the air pressure regulator is functioning, the gauge will register above 0 PSI. If the gauge does not register above 0 PSI, contact ESS for service.



Tank pressure regulator

The tank pressure regulator controls the amount of pressure in the tank pressure line. Optimum tank pressure is 12-15 PSI.

To set the tank pressure:

Turn the external air source on. Locate the tank pressure regulator. Pull the adjustment knob's black plastic cover to unlock it.

Turn left (counter-clockwise) to decrease pressure.

Turn right (clockwise) to increase pressure.

Set the pressure between 12 to 15 PSI. Push the black plastic cover in to lock the new setting.

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.

To verify that the tank pressure regulator functions properly:

1. Disconnect the tank, fill with 1 quart of clean water, and reconnect.
2. Connect the air inlet hose to the external air source.
3. Make sure that the tank pressure regulator is set above 0 PSI.
4. Listen to the tank for agitation.

If there is agitation, the tank pressure regulator is functioning properly. If there are no agitation sounds, the regulator may be defective. Contact ESS for service.



Spray gun connections

The air connection

The quick connect for the air connection is at the end of the red line of the twinline hose. The other end of the air line hose connects to the air leader of the spray gun. The air leader of the spray gun is below the liquid leader and is easily recognizable because its connector is larger than the liquid connector – it is not possible to connect the air hose to the liquid leader. The air line hose is red.



Don't worry about connecting the air or liquid to the wrong hose – the liquid plug/socket is smaller than the air plug/socket. It's not possible to cross-connect them.

The liquid connection

The quick connect for the liquid connection is at the end of the gray line of the twinline hose and connects to the liquid leader of the spray gun. The liquid line has a smaller diameter than the air line. Its fittings are a different size than the air lines' and it's not possible to cross-connect them.

How to store the hose quick-connects when not in use

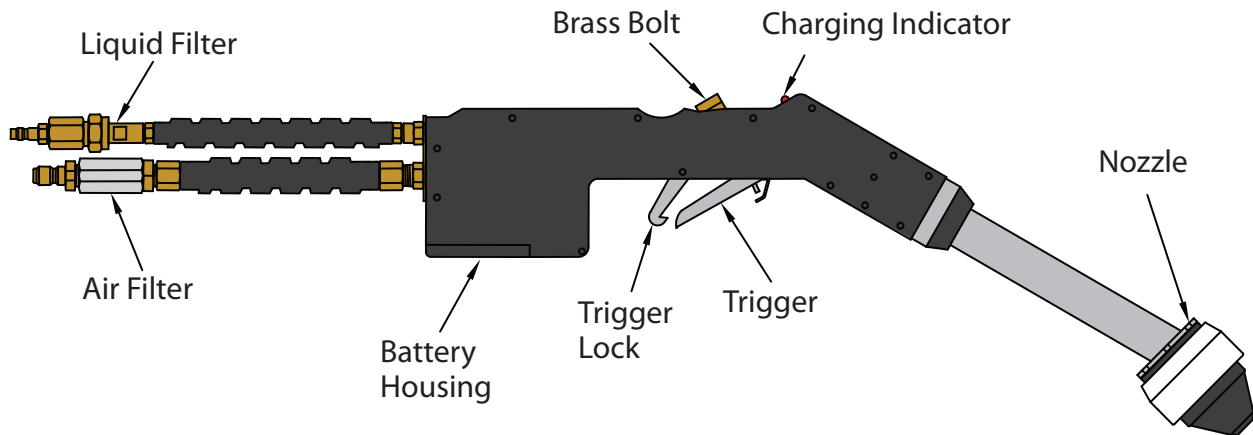


The quick-connect sockets and plugs used on your TRG-5 sprayer are precision components and should be kept clean. When not attached to the spray gun leaders, the socket ends of the twin-line hose should be attached to the plugs provided on the TRG-5 frame. This will ensure that the quick-connect plugs are not damaged while the TRG-5 is being moved.

Spray gun

The spray gun is held by the operator during spraying. Activation of the trigger causes liquid to spray. The Spray gun 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 Spray gun shell is user-serviceable. **Do not open the spray gun shell;** doing so will void the warranty on the spray gun.

NOTE

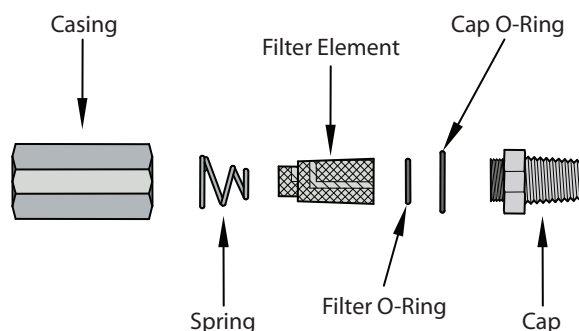


The Spray Gun

Air filter

Note: TRG-5 units manufactured after March 2009 do not require an air filter on the spray gun air leader.

For TRG-5 units manufactured before March 2009, there is an in-line air filter located outside the base of the spray gun in the air hose. It filters dirt out of the air lines. It's easy to tell the Air Filter from the Liquid Filter Assembly because the Air Filter is in a silver-colored casing. Replacement parts for the air filter assembly are available as a kit. The kit includes a filter, and large and small o-rings. Order using ESS part number 231.



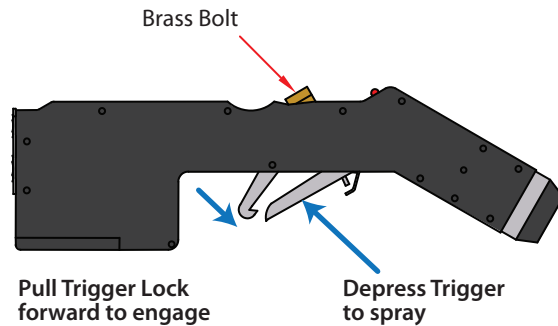
The Air Filter Assembly

To clean the air filter:

1. Unthread the casing from the cap using a $\frac{3}{4}$ " 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 shown above.

Trigger

The trigger turns the spray on and off. It can be continuously held for operation or it can be locked in place.



To engage/disengage the trigger:

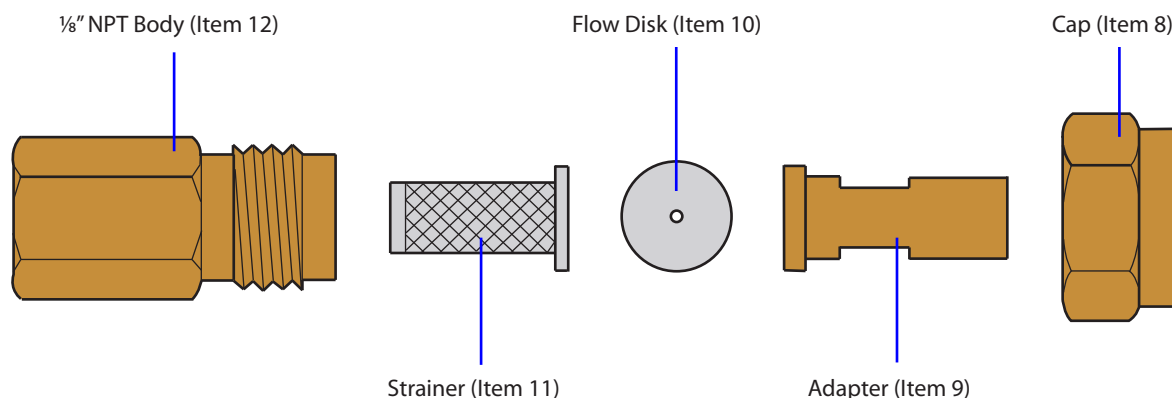
1. Depress the trigger up towards the body of the spray gun to start spraying.
2. To keep spraying, either keep holding the trigger or lock it in place by pulling up the lock and hooking the trigger.
3. To stop spraying when the trigger is not locked, let go of the trigger.

To clean the trigger:

1. Unthread the brass bolt on the top of the spray gun with a $\frac{5}{8}$ " 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 spray gun until tight.

Liquid filter assembly

The liquid filter assembly is located outside the base of the spray gun. It is composed of these parts: a $\frac{1}{8}$ " NPT body (Item 12), a strainer (Item 11), a flow disk (Item 10), an adapter (Item 9) and a cap (Item 8). 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 TRG-5 Parts Kit in case the originals are lost or damaged.



Liquid Filter Assembly

To disassemble, clean and reassemble the liquid filter (see labeled drawing above):

1. Using a $\frac{13}{16}$ " wrench on the cap (Item 8) and an $\frac{1}{16}$ " wrench on the $\frac{1}{8}$ " NPT body (Item 12), 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 (Item 10) which is inside the cap. The sprayer will not function correctly without the flow disk.

2. Remove the strainer (Item 11) from the $\frac{1}{8}$ " NPT body.
3. If the $\frac{1}{8}$ " 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 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 water. Replace the flow disk so that the numbers on the disk face the strainer.
6. Replace the strainer in the $\frac{1}{8}$ " NPT body.
7. Rethread the $\frac{1}{8}$ " NPT body and the cap.

Nozzle assembly

It is very important to follow all the maintenance and cleaning procedures to ensure that the electrostatic sprayer will function properly. Although the MaxCharge™ nozzle will outperform all electrostatic spray technology on the market, regular cleaning will ensure peak operating performance.

The nozzle assembly is located at the end of the spray gun wand. It is composed of a nozzle body, internal o-ring, Teflon ring, cover, external o-ring, and a hood (see labeled drawing at right). To access the nozzle components, just unscrew the nozzle cover by hand.

Cleaning the spray gun

Always rinse the spray gun out with clean soapy water after every day's spraying. That is the most important thing you can do to ensure trouble free operation of your TRG-5 sprayer. By cleaning after each and every working day you will avoid the long-term chemical buildup that eventually causes clogs, poor spray patterns and shortens nozzle life.

Establish maintenance intervals to disassemble and clean the nozzle. 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.



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. Clean any debris from around the nozzle tip.

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. It is important to clean inside the hood and the two cavities. Rinse thoroughly.
4. Scrub the nozzle base with the detergent solution using a soft bristle brush. Clean the ceramic outlet. 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. Wipe clean the exterior of all hoses and fittings connected to the nozzle.

The electrode cover should be hand tight. Never use pliers or other tools to tighten it. The insulating ring should be loose.

You may wish to purchase Nutra-Sol Tank Cleaner from ESS (S/N# 1566), which cuts hard water scale and chemical deposits from the electrode and internal component of the spray gun. The regular use of Nutra-Sol will keep your equipment operating at peak performance. The recommended mixing ratio is 4 ounces in 12.5 gallons of water (113 grams in 47 liters of water).

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. Some brand name additives are COMPLIMENT™, UNITE®, and BALANCE™. Check with your local chemical supplier for others that are available.

Post-spray check

After each spray it is essential that hoses and spray gun 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.

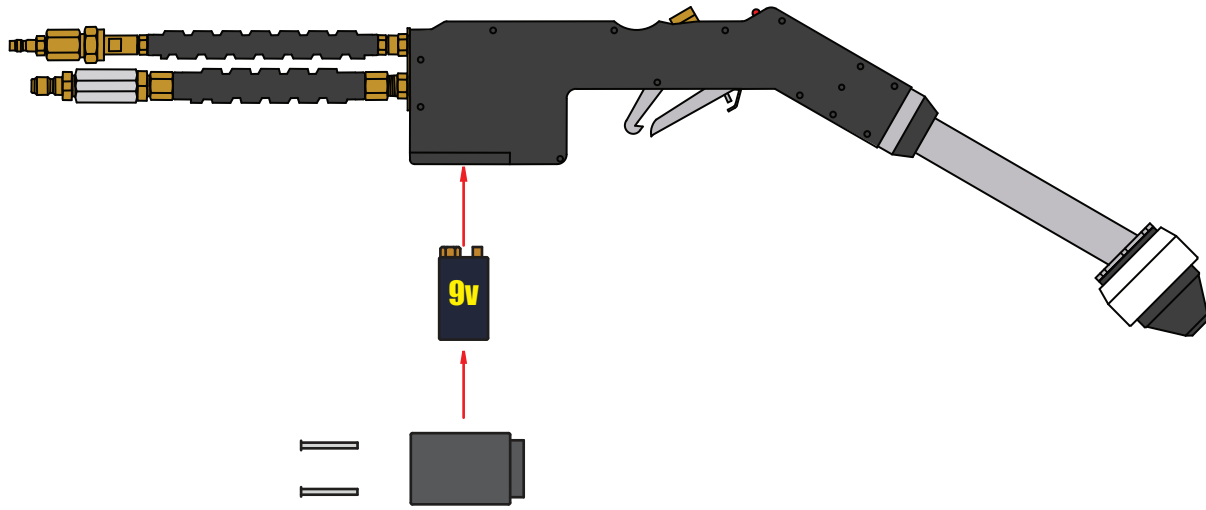


ESS recommends the use of NUTRA-SOL cleaner which can be purchased from ESS.
Order S/N#1566.

Batteries

The nozzle charging operates on two 9-volt rechargeable batteries which are located in the base of the spray gun. In average conditions, the batteries will last 10 to 15 hours of operation on a charge. They should be recharged when the charging indicator on top of the spray gun shell doesn't glow when air is going through the spray gun. After approximately 800 to 1000 hours of service the battery pack will no longer be able to hold an adequate charge and will need to be replaced. Replace with nickel-hydrate rechargeable batteries. Order the TRG's replacement battery pack from ESS.

Remember to charge the spray gun batteries after every work session!



To change the batteries:

1. Unscrew the two 6-32 x 1/2" 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 to tear the lead wires out of the power supply.
3. Connect the fresh battery pack to the leads.
4. Replace the battery cover. Screw the two 6-32 x 1/2" Phillips head machine screws back in to secure the battery cover.
5. Charge the spray gun before attempting to use it.

Yearly spray gun service

Electrostatic Spraying Systems, Inc. offers and recommends yearly services on ESS spray guns. For a nominal fee plus the cost of replacement parts, ESS will thoroughly clean the spray gun, replace any worn parts and recalibrate the electronics and nozzle. The Yearly Service also extends the spray gun warranty for another year. Consistent yearly service by ESS will increase spraying performance and prolong the life of the gun.

Contact ESS at (706) 769-0025 to schedule spray gun services. Then package the spray gun securely since it can be damaged in shipment. Ship the spray gun in its original packing material if possible. If the original packing is not available, wrap the spray gun in bubble wrap, place it in a strong cardboard box and surround the gun handle with foam packing. Include a return shipping address and a telephone number.

A form is provided for you at the back of this manual

Ship the spray gun via UPS or Parcel Post to:

Electrostatic Spraying Systems, Inc.
62 Morrison Street
Watkinsville, GA 30677

Yearly service will be conducted within one day of receipt by ESS. If any parts need to be replaced, the owner will be contacted for authorization before replacement. The spray gun will be returned via UPS, COD, or return shipping costs may be invoiced, contingent upon credit approval. ESS also accepts Visa, and MasterCard.

As an additional benefit, Yearly Spray Gun Service "turns back the clock" – the original 1-Year Warranty on the spray gun is renewed for another year!

Yet another good reason to send your spray gun in to ESS for factory-authorized service!



Spraying with your ESS sprayer

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

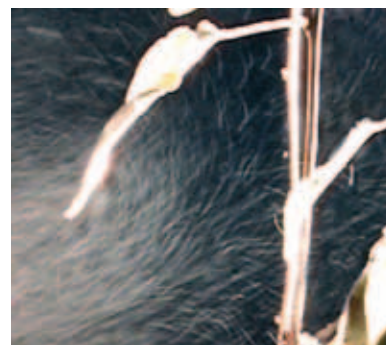
Spray Technique

As in spray painting, the goal is to achieve even coverage over the surface. The ESS MaxCharge spray gun is designed to help you do just that – by propelling the chemical spray with a gentle air flow, you can stay well away from the target surface and let the electrostatic attraction do the rest of the work.

Please note: the spray droplets are very, very fine --- about 40 microns each. If you are used to working with a conventional sprayer, you may make the mistake of thinking the target is not wet enough because you do not see large beads of liquid. In fact, after a pass with the TRG's MaxCharge spray gun, the surface of the target should just barely glisten with moisture. The fine droplets will evaporate quickly.

Here are some tips to achieve the best possible coverage with the ESS TRG-5 sprayer.

1. Before each job, ensure that your sprayer is in good working order (see the pre-spray checklist on page 8 of this manual).
2. The optimal spraying distance is at least 18 inches away from the target surface, however 36 to 48 inches may provide a more even coating. This gives the fine mist produced by the MaxCharge nozzle room to develop into a chaotic cloud that will be attracted to the target surface.
3. Hold the spray gun at right angles to the target surface. Starting at the highest point and using zig-zag horizontal strokes about 1 meter (3 ft.) wide, spray down to the lowest point. Try to have each stroke overlap the previous stroke by about 50%.
4. You can use vertical strokes if it suits the area better. Just make sure to work in a methodical pattern and let your strokes overlap.
5. When moving to the next section, allow it to overlap the previous section by a few inches. Do not leave a gap.
6. The target surface should just barely glisten with the spray. Do not over-saturate the surface; if you see runs or puddles it means you are wasting chemicals. Do check to make sure the newly-sprayed surface is very slightly damp.
7. Be careful to keep the spray gun barrel as level as possible. If you allow the nozzle to point down too much, it may drip occasionally.
8. Unlike spray painting, you don't have to stop the spray on every return stroke. Just engage the trigger lock and concentrate on the regular pattern of spraying.
9. Periodically check to make sure the red light is illuminated on the spray gun.



Let the MaxCharge™ Spray gun do the work!

There's no need to stick the tip of the spray gun into the plant canopy. The electrostatically charged spray will blow into the plant canopy and the droplets will even change direction to find a dry surface to cling to.

Preparing a tank mix

The tank mix depends on two factors: water requirement and dosage. Water requirement is the amount of water needed to cover the given treatment area. Dosage is the amount of chemical which should be applied in a given treatment area.

First determine the water requirement for your sprayer over a known area. An easy way to determine water requirement is to spray a trial application with water. Put a gallon of clean water in the ESS SC-1 tank and thoroughly spray a known area. After spraying the known area, determine how much water was used from the amount left in the tank. This is the water requirement for the given area. Next measure the known area to determine how many square feet were sprayed. Write down both values for future reference.

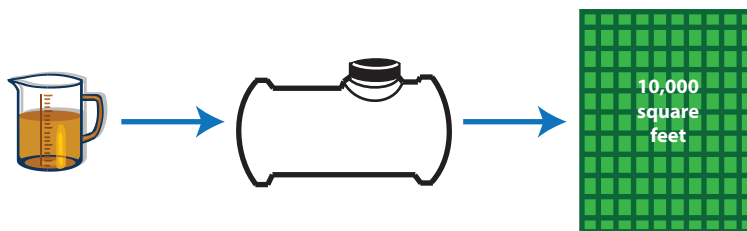
_____ (gallons) Water Requirement
for _____ (size of known area in ft²)

Next determine the dosage. This is the amount of chemical you wish to dispense in a given area. Appropriate dosage depends upon chemical label recommendations, disinfection or sanitization goals, level of pest or disease infestation, past experience with particular chemicals, and other variables.

Because electrostatic spraying is a much more effective spraying method, ESS recommends that you experiment to find the optimum chemical concentration. Start spraying using the same chemical rate used in the past with either hydraulic or air assisted sprayers. For example, if in the past you have used 2 ounces of chemical in a hydraulic sprayer to spray a known area; then mix 2 ounces of chemical to the water required by the TRG-5 to spray the same known area. In other words, the same amount of chemical is sprayed out in the area but with much less water.

Example:

You have two greenhouses covering 10,000 square feet that are sprayed using a conventional hydraulic sprayer. In the past you mixed 6 ounces of chemical to 25-50 gallons of water in order to spray both house at full rate.



With your new ESS sprayer you need to find out how much water is needed to spray the known area. The amount of water required to spray both houses is the amount of water in which you mix the 6 ounces of chemical in. Depending on the crop sprayed, you will use approximately 1 to 2 gallons of water with the ESS sprayer to cover 10,000 square feet. This applies to all chemicals, even wettable powders.



**DO NOT
OVERFILL
THE TANK**

ESS recommends that the tank not be filled past the full level mark, since the force of agitation may cause liquid to escape through the air bleed hole in the tank lid.

After becoming familiar with the sprayer spraying 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 to 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.

Chemical compatibility

It's sometimes desirable to spray a mixture of two different chemicals at the same time. It is good practice to conduct a jar test to determine if the chemicals to be mixed are compatible. If they are not, then investigate alternative chemicals or use a compatibility agent to maintain the chemicals in suspension. It is also a good idea to treat the water with a pH agent.

ESS does not recommend the use of wetting agents or spreader-stickers.

How to conduct a jar test

Needed:

Solutions of chemicals in approximate dilutions

Jar with lid

Gloves and Safety Glasses

After mixing solutions of the desired chemicals, place them in a large jar, cap it securely, and shake vigorously. Carefully observe the interaction between the chemical compounds. If the water becomes milky or cloudy, the combined solution may plug the nozzles. Let the jar sit for one to two hours. If there is precipitate on the bottom of the jar, then seek another combination of chemicals.

A note about operating temperatures

The MaxCharge nozzle should always be operated at temperatures above 10° Celsius (50° Fahrenheit). When the ambient temperature is colder than this, the evaporative cooling caused as the spray is atomized will freeze the nozzle opening.

Nozzle freeze-up can also occur when the liquid to be sprayed is colder than 10° C (50° F).

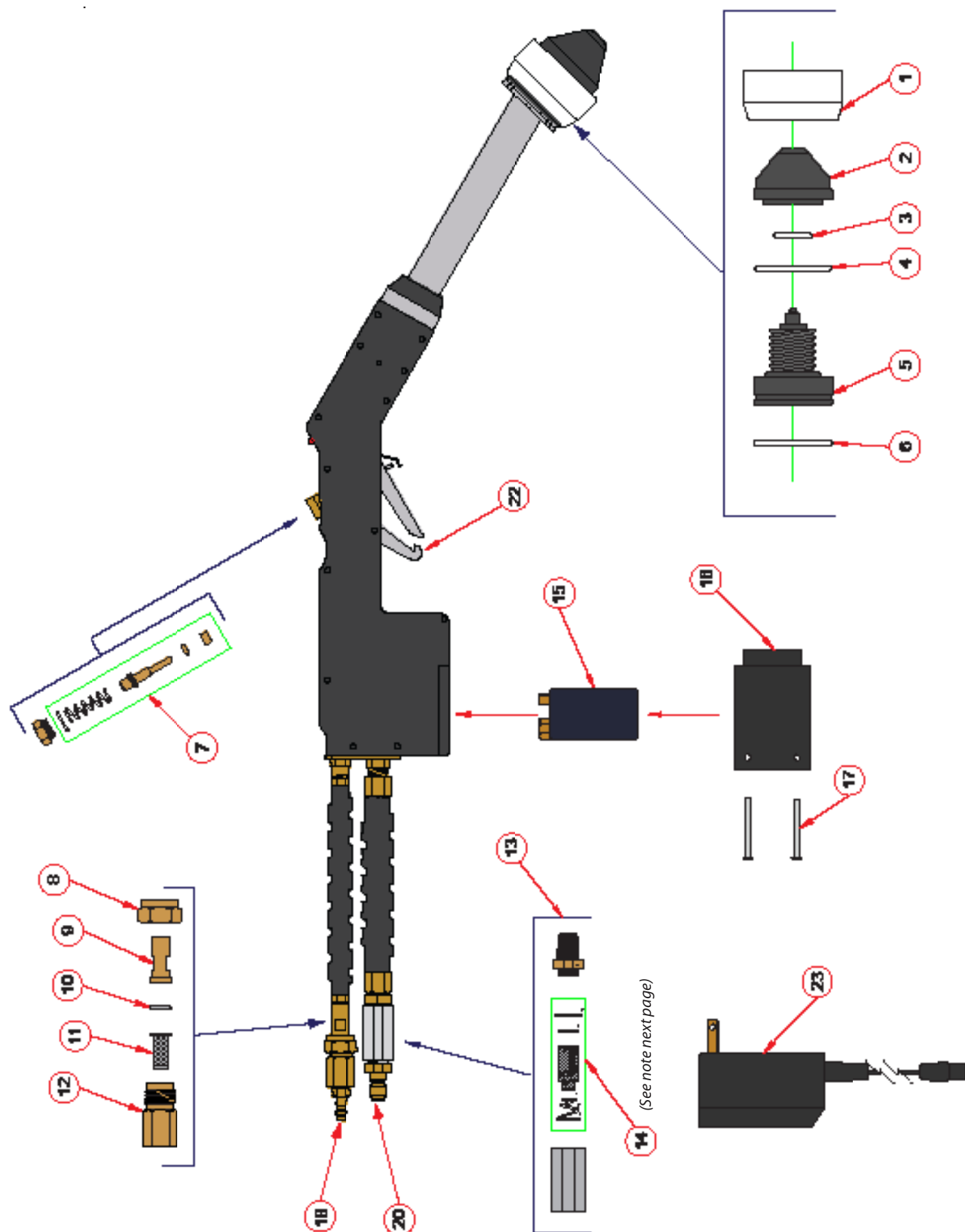
IMPORTANT

Water temperature must be at least 10° C (50° F). When the liquid and air meet in the nozzle, the temperature of the liquid decreases. As a result, water at temperatures below 10° C (50° F) may freeze and clog the nozzle.

Troubleshooting guide

When you encounter the problems listed below, use the suggested trouble-shooting methods. If you cannot solve the problem or have a problem with the Spray Gun that is not addressed in this manual, contact ESS at (706) 769-0025.

Symptom	Possible Problem(s)	Corrective Action
Air pressure of spray appears low	• Inadequate compressor	• Make sure that the air compressor is rated for the required air flow. See page 6 for air flow requirements.
		• Make sure that the air compressor is supplying the correct air pressure. See page 6 for air pressure requirements.
	• Spray gun On/Off valve is closed	• Make sure that the ball valve is completely open.
		• Adjust the inlet air pressure regulator to the correct pressure setting.
	• Fittings are loose	• Make sure that all quick connect sockets are properly seated.
	• Bowl filter is clogged or dirty	• Empty the liquid inlet bowl filter of water.
	• Liquid fittings are loose	• Make sure the Liquid Filter Assembly is installed correctly;
	• Air fittings are loose or damaged	• Make sure that the Air Filter is installed correctly. Inspect for loose hoses or failed air lines – Spray fittings with soapy water – tighten ones that bubble replace if necessary
	Clogged Liquid Filter	• Clean the Liquid Filter Assembly on spray gun (See the <i>Liquid Filter Assembly</i> section of this manual)
	• Clogged Air Filter	• Clean the Air Filter (See The <i>Air Filter Assembly</i> section of this manual)
	• Dirty Trigger	• Clean the Trigger (See the <i>To Clean the Trigger</i> section of this manual)
No spray from nozzle or the spray from nozzle is erratic or spits	• Debris in the nozzle	• Clean nozzle according to instructions
	• Spray is freezing due to evaporative cooling	• Make sure that water temperature is at least 50° (10°C)
	• Incorrect tank pressure	Make sure that the tank pressure regulator is set at 12-15 PSI. Make sure the tank lid is sealed.
	• Liquid filters are clogged	• Clean the Liquid Filter Assembly (See the <i>Liquid Filter Assembly</i> section of this manual)
	• Low liquid level in the tank	• Refill tank
	• Loose liquid or air fitting	• Inspect hose quick connects at case and at spray gun leader. Make sure that all liquid fittings and air fittings are properly seated.
	• Dirty Trigger	• Clean the Trigger (See the <i>To Clean the Trigger</i> section of this manual)
	• Overtightened nozzle cover	• Loosen cover. It should only be finger-tight
	• Suspect tank pressure regulator	• Verify that the tank pressure regulator functions properly. Follow the procedure on page 15:
	• Suspect air pressure regulator	• Verify that the air pressure regulator functions properly. Follow the procedure on page 14:
Charging indicator (LED) blinks or goes is out during operation	• Batteries are exhausted	Recharge batteries If problem persists, replace battery pack
	• Dirty nozzle	• Clean nozzle according to instructions



TRG-5 service parts

Spray gun

ITEM NUMBER	ESS PART NUMBER	DESCRIPTION	QUANTITY ORDERED
1	AP-5795	Hood	1
2	NC 5764	Nozzle Cover	1
3	5771	O-Ring, Internal	1
4	AP-5694	Teflon Ring	1
5	NB-5983	Nozzle Body, Greenhouse	1
		<i>Note: Must Send Spray Gun In For Repair</i>	
6	5770	O-Ring, External	1
7	3731	Repair Kit, Trigger	1
8	767	Cap, Flow Regulator	1
9	768	Adapter, 1/8"-27 FPT	1
10	1755	Orifice Disk (Flow Disk)	1
11	437	Strainer, #50 Mesh	1
12	770	Body, 1/8"-27 FPT, Greenhouse	1
13	227	Filter, Air, In-Line	1
14	231	Repair Kit, Air Filter (NOTE: for models manufactured pre_March 2009)	1
15	4512	Battery, Alkaline, 9V	2
16	118	Battery Cover, Spray Gun Shell	1
17	316	Screw, #6-32 x 3/8" Long, Phillips, SS	2
18	239	QC Plug, 1/8", 1/8" MPT, Brass (Spray Gun Liquid)	1
19	AS-1748	Spray Gun Leader Assembly, Liquid	1
20	240	QC Plug, 1/4", 1/4" MPT, Brass (Spray Gun)	1
21	AS-1749	Spray Gun Leader Assembly, Air	1
22	6518	Trigger Pawl	1
23	4430	Battery Charger	1

Flow disk chart

UNIT STYLE	TANK SIZE	ORIFICE NUMBER	ESS PART PART NUMBER
XT	3 GALLON TANK	#20	765
XT	1 QUART BOTTLE	#40	766
GPS	4 GALLON TANK	#30	1755
EPS	4 GALLON TANK	#30	1755
TRG	4 GALLON TANK	#30	1755
J SERIES	15 GALLON TANK	#30	1755
BP-2.5	2.5 GALLON TANK	#59	4350
BP-4	4 GALLON TANK	#59	4350

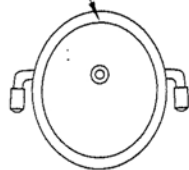
Note: Use of a flow disk is crucial to the operation of the spray gun. If the wrong size flow disk, or no flow disk is used, then the spray gun will not spray or charge efficiently

TRG-5 Service parts

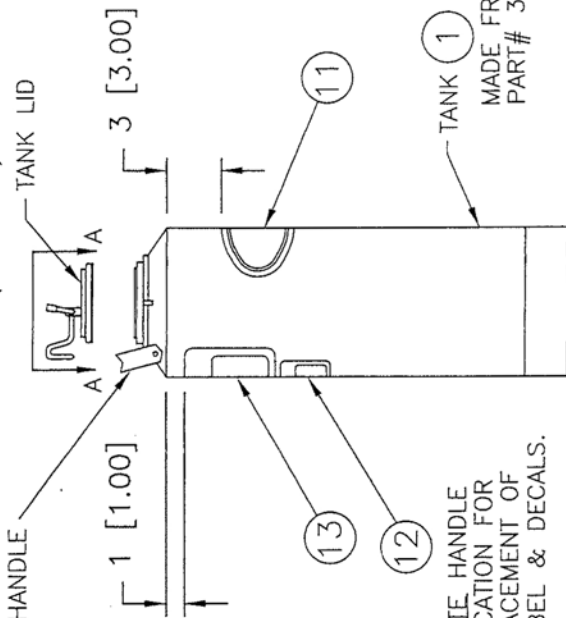
ITEM NUMBER	ESS PART NUMBER	DESCRIPTION	QUANTITY ORDERED
1	AW1021	MAIN FRAME WELDMENT - TRG	1
2	AS1806	TANK ASSEMBLY - 5 GALLON - SS - SMALL SPRAYERS	1
3	AP1021-7	HOLSTER - TRIDENT GUN - FOR TRG-5 UNIT	1
4	1234	TEE - 1/4" NPT STREET - BR	1
5	156	ELBOW - 1/4" NPT - ST - 90 DEG - BR	4
6	10078	SCREW - ROUND HEAD - 10-32 x 3" SS	1
7	8663	HEX NUT - #10-32 NYLOC - SS	1
8	9191	SCREW - ROUND HEAD - 10-32 x 1-1/2" - PHILLIPS - SS	1
9	9891	SCREW - 1/4-20 x 1-1/2" LONG TRUSS - SS	2
10	3738	LOCKNUT - 1/4" - 20 - NYLOC - TOP - SS	2
11	1652	FLAT WASHER 1/4" - SS	2
12	AS2701	HOSE REEL ASSEMBLY - LARGE	1
13	24	SEMI - PNEUMATIC WHEEL - 20	2
14	4	SHAFT COLLAR - 5/8" ID x 1/2" WIDE	2
15	1610	HHCS - 5/16" - 18 x 2" - SS	4
16	1605	FLAT WASHER - 5/16" - SS	8
17	1625	LOCKWASHER - 5/16" - SS	4
18	1607	HEX NUT - 5/16" - 18 - SS	4
19	1182	REGULATOR - AIR - 1/4" NPT - 55 CFM - 250 PSI MAX	2
20	725	NIPPLE - 1/4" NPT - HEX - CLOSE W/BALL SWIVEL CHAMBER	1
21	2945	FILTER - AIR LINE - 1/4" NPT - POLY CARBONATE FILTER - 150	1
22	67	ELL - 1/8" NPT - ST - 90 DEG BR	1
23	AS2938	HOSE ASSEMBLY - REGULATOR TO REEL - FOR TRG	1
24	AS2937	HOSE ASSEMBLY - TEE TO REGULATOR - FOR TRG	1
25	AS2936	HOSE ASSEMBLY - AIR SUPPLY - FOR TRG	1
26	AS2939	HOSE ASSEMBLY - REGULATOR TO TANK - FOR TRG	1
27	AS16344	HOSE ASSEMBLY - TANK TO REEL - SS VERSION - FOR TRG	1
28	AS16342	HOSE ASSEMBLY - LIQUID REEL TO GUN - FOR TRG-5 SS VERSION	1
29	AS3264	HOSE ASSEMBLY - AIR - REEL TO GUN	1
30	AS16193	HOSE ASSEMBLY - FOR TRG	1
31	AS417	HOSE ASSEMBLY AIR LEADER - FOR EPS/GPS/TRG	1
32	AS16343	HOSE ASSEMBLY - LIQUID LEADER - TRG SS VERSION	1
33	440	PRESSURE GAUGE 1/8" NPT - 1-30 PSI LIQUID-FILLED - CENTER BACK MOUNT	1
34	446	PRESSURE GAUGE 1/8" NPT - 1-100 PSI LIQUID-FILLED - CENTER BACK MOUNT	1
35	1221	PLUG - SQUARE TUBING - 1" x 16 GA WALL POLYETHYLENE	1
36	AP8283	FILTER SUPPORT BRACKET - TRG	1
37	1692	SCREW - HHCS - 3/8" - 16 x 3/4" - SS	1
38	1615	FLAT WASHER - 3/8" - SS	1
39	1614	LOCKWASHER - 3/8" - SS	1
40	1613	HEX NUT - 3/18" - 16 - SS	1
41	80	SERIAL NUMBER PLATE	1
42	AK16994	TRG-5 PARTS KIT	1
43	386	RIVET - 1/8" - BUTTON HEAD - 5/16" - 3/8" - GRIP RAN	2

AS 1806

DRILL #60 IN THIS
APPROXIMATE LOCATION



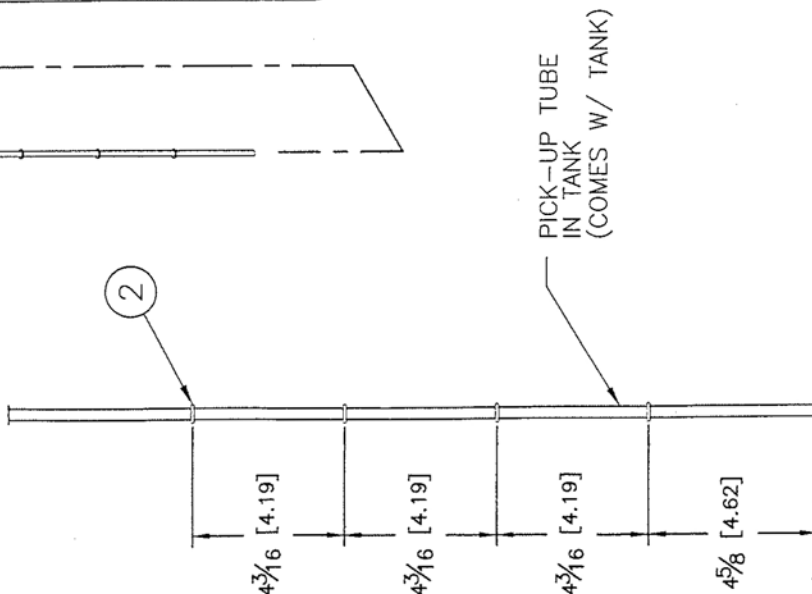
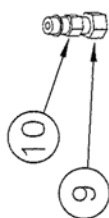
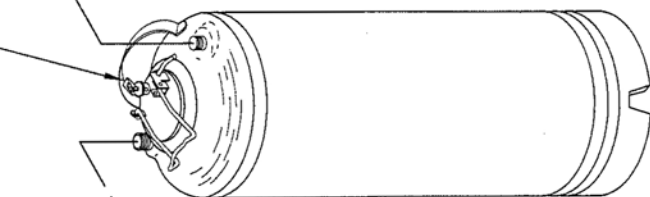
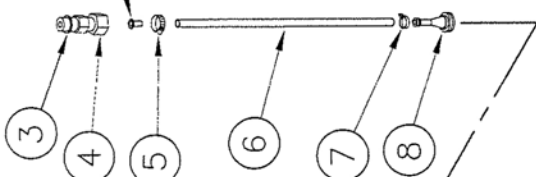
VIEW A-A (SCALE 2X)



SIDE VIEW OF TANK

NOTE HANDLE
LOCATION FOR
PLACEMENT OF
LABEL & DECALS.

PRESSURE RELIEF VALVE



O-RING LOCATIONS FOR
GALLON MARKING

DO NOT SCALE (DRAWING NOT PRINTED TO SCALE)

ITEM NO.	PART NO.	QTY.	PART NAME/DESCRIPTION
11	265	1	DECAL, TANK CAUTION
10	77	1	DECAL, CAUTION PESTICIDE
9	79	1	DECAL, ESS
8	10018	1	QC PLUG, 1/4", 1/4" FPT, SS, (TANK OUTLET)
7	16317	1	TANK ADAPTOR, SS
6	1931	1	TANK AGITATOR - TUBE ASSEMBLY - 5 GAL.
5	1662	1	HOSE CLAMP, WORM, SIZE #4, SS
4	8493	1	REDUCING FITTING, SPECIAL, TANK INLET, BRASS
3	234	1	QC PLUG, 1/8", 1/8" FPT, BRASS, (TANK INLET)
2	266	4	O-RING, #202 VITON
1	196	1	TANK, 5 GALLON, W/DRILLED HOLE

DESCRIPTION:			
TANK ASSEMBLY, 5 GALLON			
MATERIAL	TANK, 5 GAL., SS (INCL LID, O-RING, & PICK-UP TUBE)	RAW MT'L P/N	DWN BY
395			
DATE	SCALE	LN, BW	10/29/06
3/32"=1"			

STANDARD TOLERANCES UNLESS OTHERWISE NOTED	FRACTIONS ANGULAR .XX DEC .XXX DEC	DATE	DATE

WATKINSVILLE, GA. 30677
706-769-0025



ELECTROSTATIC
SPRAYING SYSTEMS

REV	ECN NO.	REVISION DESCRIPTION	APP'D	DATE
B		P/N: 449, 181, & 1933 DEMOTED TO 1931	BW	9/12/07
A		ITEM 9 P/N WAS 10020 (BRASS)	GP/BW	11/14/06

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Its release must be authorized by an officer of ESS. Photocopying is prohibited.

SHEET: 1 OF 1 PART NO. 1806



62 Morrison St. · Watkinsville, Georgia 30677-2749
706-769-0025 · 1-800-213-0518 · Fax: 706-760-8072
Email: support@maxcharge.com · www.maxcharge.com

ESS Warranty

Electrostatic Spraying Systems, Inc. warrants to the original purchaser of any Electrostatic Spraying Systems equipment that the equipment shall be free from defects in material and workmanship for a period of one year after date of delivery. The electrostatic power supply warranty form must be returned for verification of date of purchase.

Disclaimer of Implied Warranties and Consequential Damages

Electrostatic Spraying Systems' obligation under this warranty, to the extent allowed by law, is in lieu of all warranties, implied or expressed, including implied warranties of merchantability and fitness for a particular purpose and any liability for incidental and consequential damages with respect to the sale or use of the items warranted. Such incidental and consequential damages shall include, but not be limited to: transportation, charges other than normal freight charges, cost of installation other than cost approved by Electrostatic Spraying Systems, Inc., duty, taxes, charges for normal service or adjustments, loss of crops or any other loss of income, expenses due to loss, damage, detention or delay in the delivery of equipment or parts resulting from acts beyond the control of Electrostatic Spraying Systems, Inc.

THIS WARRANTY SHALL NOT APPLY:

1. To vendor items which carry their own warranties such as, but not limited to, engines, air compressors, and liquid pumps. Electrostatic Spraying Systems, Inc. shall supply replacement parts at list price pending the warranty investigation of the vendor item. Vendor item parts such as air compressors, liquid pumps, solenoids, and other such items must be returned before warranty credit.
2. If the unit has been subject to misapplication, abuse, misuse, negligence, fire or other accident.
3. If parts not made or supplied by Electrostatic Spraying Systems, Inc. have been used in connection of the unit, if, in the sole judgment of Electrostatic Spraying Systems, Inc. such parts affect its performance, stability or reliability.
4. If the unit has been altered or repaired in a manner which, in the sole judgment of Electrostatic Spraying Systems, Inc. such alteration or repair affects its performance, stability or reliability. This shall include but not be limited to opening of the spray gun shell by anyone not authorized by Electrostatic Spraying Systems, Inc. to do so.
5. **To normal maintenance, service and replacement items such as, but not limited to, engine lubricant, filters, or to normal deterioration of such things as, but not limited to, belts and exterior finish, due to use and exposure.**

NO EMPLOYEE OR REPRESENTATIVE OF
ELECTROSTATIC SPRAYING SYSTEMS, INC.
IS AUTHORIZED TO CHANGE THIS WARRANTY IN ANY WAY
OR GRANT ANY OTHER WARRANTY
UNLESS SUCH CHANGE IS MADE IN WRITING
AND IS SIGNED BY A CORPORATE OFFICER OF
ELECTROSTATIC SPRAYING SYSTEMS, INC.

Notes

Spray gun repair/Yearly service return form

When returning a spray gun for warranty or repair services to ESS, please pack it securely and include the following form with your spray gun.

Spray Gun Serial Number: _____

Returned from:

Company: _____

Contact person: _____

Phone number: _____

Shipping address: _____

Mailing address: _____

(if different) _____

Date last serviced: _____

Problems with the Spray gun (if any):

Method of Payment:

☐ Account (must be an approved account)

☐ COD

☐ Credit Card:

VISA MASTERCARD

Card Number: _____

Expiration Date: _____

Card Holder's Name: _____

PRINT

SIGN

Send to:
Electrostatic Spraying
Systems, Inc.
62 Morrison St.
Watkinsville, GA 30677-2749

**ESS recommends sending
your spray gun via a carrier
with tracking.**

