




M268180M

ITEM NUMBER:	268180
SERIAL NUMBER:	_____

Owner's Manual

Instructions for Assembly, Testing, Operation, Servicing, and Storage

Tree Sprayer: For outdoor use with agricultural pesticides and other liquids**

 WARNING
<p>READ and UNDERSTAND the Owner's Manual completely before using this sprayer. Assemble, test, and use only in accordance with the Owner's Manual instructions.</p> <p>READ and FOLLOW chemical label instructions. Pesticides are hazardous chemicals.</p> <p>KNOW emergency procedures BEFORE handling chemicals. Sprayer leaks, bodily chemical contact, poisoning, and spills require immediate response.</p> <p>AVOID inhaling, ingesting, or coming into contact with any chemicals.</p> <p>WEAR personal protective gear when filling, using, cleaning, and servicing the sprayer.</p> <p>KEEP sprayer and spray materials away from children and pets. Pesticides are especially toxic to them.</p> <p>EXERCISE CAUTION in ATV vehicle handling and do not exceed 5 MPH. ATV will be less stable and handle very differently with filled sprayer attached.</p> <p>DO NOT TURN ON POWER to sprayer until ready to spray in order to avoid unintentional spray release.</p> <p>Improper use of the sprayer or handling of chemicals could result in serious injury or illness to the operator or nearby persons/animals, or could cause damage to the environment.</p>

** This sprayer is recommended for use in spraying non-flammable liquids such as pesticides, water for plants/trees or dust control, ice control chemicals, or water-based non-flammable sealants or stains for outdoor wood surfaces. However, WE RECOMMEND THAT THE SPRAYER NOT BE USED FOR OTHER PURPOSES ONCE IT HAS BEEN USED FOR SPRAYING PESTICIDES. Any chemical will leave some residual in the tank liner or sprayer components, even after the sprayer has been properly cleaned. These residual chemicals can have unexpected effects on future uses. For example, spraying water or other liquids that are contaminated with residual pesticide may result in unforeseen hazards to plant or animal life.

Any Questions, Comments, Problems, or Parts Orders
Call NorthStar Customer Service 1-800-270-0810

Hazard Signal Word Definitions






	<p>This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.</p>
	<p>DANGER (red) indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.</p>
	<p>WARNING (orange) indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.</p>
	<p>CAUTION (yellow) indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.</p>
	<p>CAUTION (yellow) used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.</p>

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Intended Use

The sprayer is intended for use in spraying agricultural pesticides and other non-flammable liquids.

SPRAYING PESTICIDES:

Pesticides are hazardous chemicals that must be handled with caution as directed throughout this manual and on the pesticide label. Pesticides are regulated by the United States Environmental Protection Agency (EPA) and defined as:

Any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest. Though often misunderstood to refer only to insecticides, the term pesticide is a comprehensive term that applies to insecticides, herbicides, fungicides, and various other substances used to control pests.

The sprayer is intended for use in spraying pesticides in liquid form only. The sprayer is NOT intended for use in spraying pesticides in dry or aerosolized form, or for use with fumigants.

Some formulations of liquid pesticides do not remain in solution and should be agitated to maintain a uniform mix. This sprayer is equipped with an **agitator** that should be used when spraying pesticides classified as “flowable” (“F” or “L”), “wettable powder” (“WP” or “W”), “emulsion” (“EC” or “E”), “microencapsulated” (“M”), or water dispersible granules (“WDG” or “DF”). (See pesticide label to determine its classification.)

This sprayer comes equipped with a spray gun for applying pesticides on selected plants. If you wish to spray large ground areas, a **broadcast boom** (Item #273011) and a **boom adapter kit** (Item #268181) for mounting the broadcast boom to the vehicle are available as optional accessories.

SPRAYING OTHER LIQUIDS:

In addition to spraying pesticides, this sprayer may be used to spray other non-flammable liquids. Example uses include: watering plants/trees or spraying water for dust control, applying ice control chemicals, or applying water-based, non-flammable sealant or stain to outdoor wood surfaces.

However, **WERECOMMEND THAT THE SPRAYER NOT BE USED FOR OTHER PURPOSES ONCE IT HAS ALREADY BEEN USED FOR SPRAYING PESTICIDES**. Any chemical will leave some residual in the tank liner or sprayer components, even after the sprayer has been properly cleaned. These residual chemicals can have unexpected effects on future uses. For example, spraying water or other liquids that are contaminated with residual pesticide may result in unforeseen hazards to plant or animal life.

Contact Northstar Customer Service at 1-800-270-0810 for any questions about the appropriate use of the sprayer and/or optional accessories.

Summary of Important Safety Information

WARNING

Read and understand **this owner's manual** completely before using the sprayer. Read each **chemical label's instructions** before handling the chemical.

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

LISTED BELOW is a summary of safety information of particular importance. See individual sections of this owner's manual for more details.

----- **DURING ASSEMBLY** -----

- **EXERCISE CAUTION** when attaching remote switch to battery terminals. Follow the steps listed in the Assembly section of this manual *in exact sequence* when connecting the sprayer's remote switch battery clamps to the battery terminals. *Caution must be exercised to avoid contact with battery acid and to prevent sparking.*
- **CHECK and TEST completed assembly** as directed in this manual. Serious injury could result from chemical leaks if sprayer is improperly assembled.
- **DO NOT MODIFY sprayer design.**

----- **DURING OPERATION** -----

General Chemical Safety

- **READ and FOLLOW** each chemical label's instructions and warnings.
- **AVOID inhaling, ingesting, or coming into contact with any chemicals.**
- **KNOW applicable licensing and regulatory requirements** for the chemical you plan to use.
- **KNOW emergency procedures before handling chemicals.** Carefully review "Chemical Accident Procedures" listed below and later in this manual. Also see First Aid instructions on the chemical label.
- **WEAR protective clothing, eye protection, and chemical resistant gloves** when filling, using and cleaning the sprayer. Wear additional protective gear, such as facemask or apron, as recommended on the chemical label.
- **EXERCISE EXTRA CAUTION around children and pets.** Pesticides are especially toxic to them. Keep sprayer and spray materials away from them at all times.
- **DO NOT MIX OR POUR chemicals in an enclosed, unventilated area**
- **DO NOT USE flammable or corrosive chemicals** in the sprayer.
- **FLUSH the sprayer before switching chemicals** in order to prevent dangerous chemical interactions.
- **STORE pesticides in a correctly labeled container and in a secure location.**
- **MONITOR the health of operators frequently exposed to pesticides**, as recommended by the chemical label or local/federal regulations.

Chemical Application Safety

Before Spraying

- **INSPECT and PREPARE sprayer before each use** as directed in this manual.
- **DO NOT TURN ON POWER to sprayer until ready to spray** in order to avoid unintentional spray release.
- **WEAR ADDITIONAL PERSONAL PROTECTIVE EQUIPMENT if you will be spraying overhead or fogging.** You will be exposed to much more chemical fallout in these applications. Wear chemical resistant head and neck protection, full face mask or half face mask with sealed goggles, and consider using a respirator.
- **DO NOT SPRAY when wind speed exceeds 4 MPH** in order to minimize spray drift.
- **CLEAR work area of people/ pets and POST warning notices** to restrict access for the period recommended on chemical label.
- **KEEP sprayer and spray materials away from children/pets.** Pesticides can be especially toxic to children and animals.
- **DO NOT ALLOW anyone younger than 16 to operate sprayer** since pesticides are especially toxic to children.

During Spraying

- **DO NOT OVERAPPLY pesticide.** Apply at rate recommended by chemical manufacturer. Excess pesticide can be dangerous to humans/animals, damage desirable plants, and contaminate soil and water sources.
- **DO NOT EAT, DRINK, SMOKE, RUB YOUR EYES, or TOUCH YOUR BARE SKIN while handling chemicals and spraying.**
- **NEVER POINT THE SPRAY GUN at people or animals.**

Summary of Important Safety Information (continued)

- **ALWAYS HOLD THE SPRAY GUN FIRMLY** when spraying at higher pressures to prevent gun from whipping. Keep good footing and balance at all times.
- **EXERCISE EXTRA CAUTION** when spraying near areas accessible to children and pets.
- **CLEAN up spills immediately** per instructions on the chemical label.
- **TURN OFF vehicle and set brake or block wheels, TURN OFF power to sprayer, and RELIEVE system pressure** before leaving sprayer unattended.
- **SEE Troubleshooting section of this manual before attempting any repairs.** Wear personal protective equipment and follow safety instructions.

After Spraying

- **CLEAN sprayer immediately after use** according to the directions provided in this manual.
- **DECONTAMINATE yourself after you are done spraying** and have cleaned the sprayer. Wash all exposed areas of the body with soap and water, and remove and launder clothing.
- **DISPOSE OF or STORE remaining chemicals in secure storage with correctly marked container.**

ATV Vehicle Handling Safety

- **DO NOT ALLOW drivers younger than 16** to operate ATV with sprayer attached.
- **EXERCISE SPECIAL CAUTION in ATV vehicle handling and DO NOT exceed 5 MPH.** ATV will be less stable and perform very differently with filled sprayer attached. Exercise particular caution on sloped or rough surfaces to avoid rollover. Use a vehicle equipped with rollover protection for use on non-level terrain.
- **DO NOT RIDE or TRANSPORT cargo on the sprayer.**

Chemical Accident Procedures

Immediate response is necessary in the event of sprayer leaks, bodily chemical contact, poisoning, or spills. See instructions below:

Sprayer leak	If the sprayer develops a leak, immediately stop spraying. Turn off power to the sprayer and follow directions below, as applicable.
Bodily chemical contact	<p>Personal contamination can occur when chemicals splash, spill, or spray directly onto a person.</p> <ol style="list-style-type: none"> 1. Immediately follow First Aid instructions on <u>chemical label</u>. <p style="margin-left: 20px;"><u>General procedures can include:</u></p> <ol style="list-style-type: none"> a) Eyes – immediately flush with water. b) Skin – wash all contaminated skin surfaces with soap and water. c) Clothing – remove contaminated clothing. Dispose of heavily contaminated clothing per chemical label instructions. 2. Seek medical advice if instructed on the label or the victim experiences symptoms of harmful effects. Bring the chemical label for reference.
Poisoning by ingestion or inhalation	<p>In case of poisoning from ingestion or inhalation:</p> <p><i>If the victim has collapsed or is not breathing, <u>call 911</u>.</i> Otherwise:</p> <ol style="list-style-type: none"> 1. If you are the victim, immediately seek assistance from nearby personnel because you may become incapacitated. 2. Immediately follow first aid instructions on <u>chemical label</u>. 3. Call a poison control center for further advice. In the U.S., call 1-800-222-1222. Have the chemical label available for reference.
Chemical spills	<p>Chemical spills must be quickly contained and properly cleaned up.</p> <p>Refer to the chemical label for any specific clean-up instructions.</p> <p><u>General procedures include:</u></p> <ol style="list-style-type: none"> 1. Controlling the spill by stopping the source of the spill. 2. Containing the spill so that it does not spread and get into water sources. 3. Cleaning up the spill immediately. 4. Seeking additional advice from: <ul style="list-style-type: none"> - <u>Chemical manufacturer</u>. See chemical label for contact information. - <u>State pesticide regulatory agency</u>. In the U.S., call the National Pesticide Info. Ctr. at 800-858-7378 for assistance in contacting your state's agency.

Warning Label Location

WARNING

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

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

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

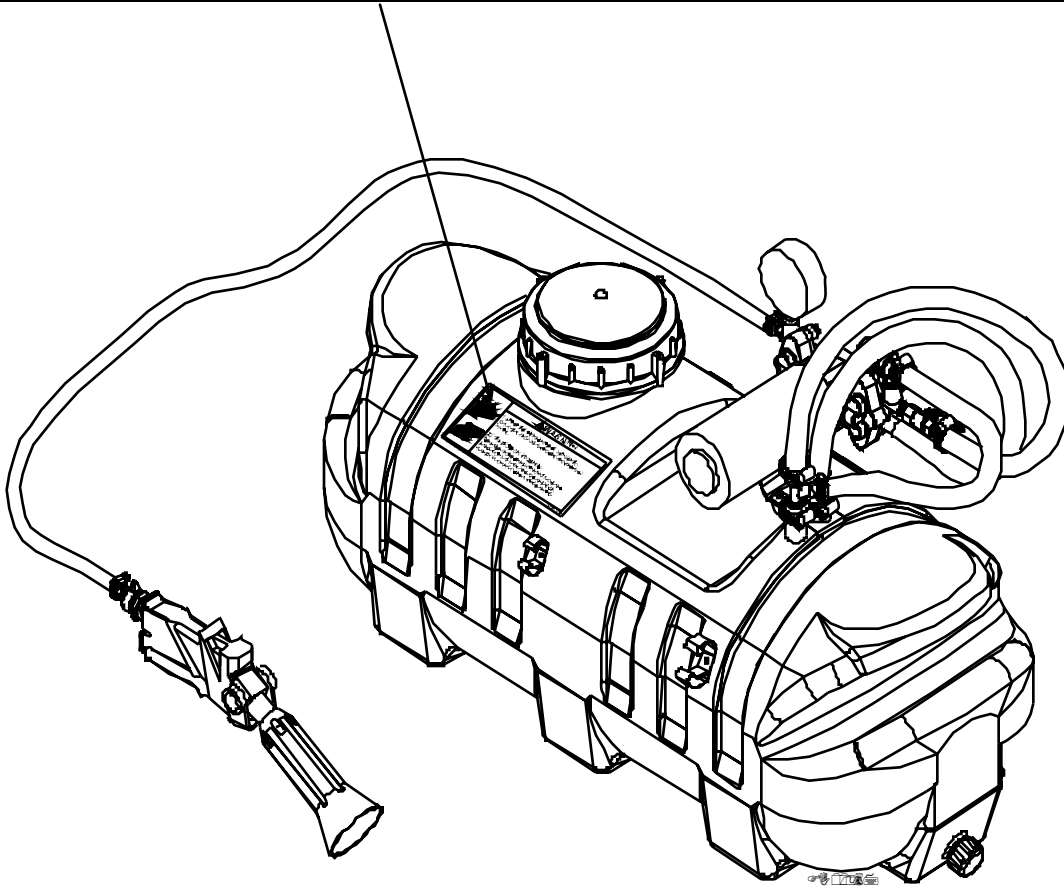
KNOW emergency procedures BEFORE handling chemicals. Sprayer leaks, bodily chemical contact, poisoning, and spills require immediate response.

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

EXERCISE CAUTION in vehicle handling. Vehicle will be less stable and handle very differently with filled sprayer attached.

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

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

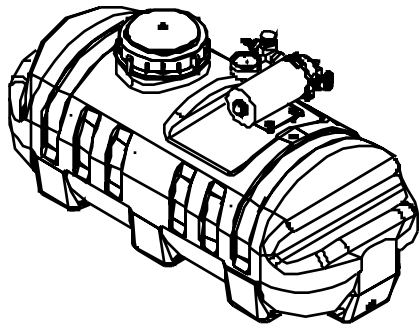


Unpacking

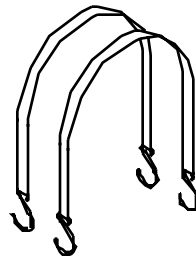
Closely inspect all contents in the shipping carton.

Note that some parts are shipped inside the tank.

- **If you have damaged components:** Contact the freight company that delivered the unit and file a claim.
- **If you have missing components:** Contact NorthStar Customer Service at 1-800-270-0810.



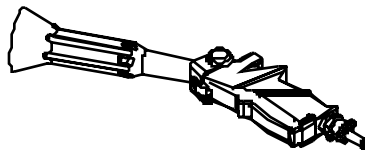
Sprayer



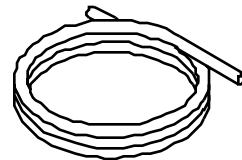
Tank Straps



Manual Bag

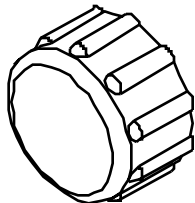


Spray Gun

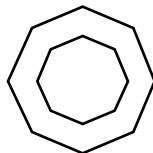


420" Gun Hose

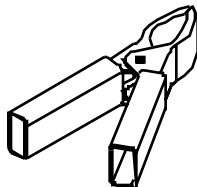
The following items are found in the manual bag.



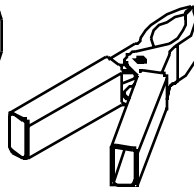
Drain Cap



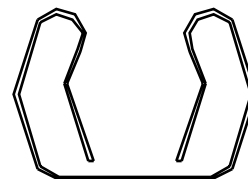
Rubber Washer



Positive Battery Clamp - Red



Negative Battery Clamp - Black



Large Gun Clip



Gun Clip



Hose Guide



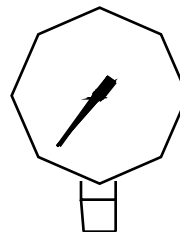
5/16 x 1/2" Bolt



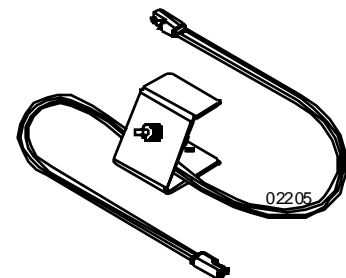
Hose Clamp (4)



#10 x 1/4" Screw (2)



Pressure Gauge



Remote Switch

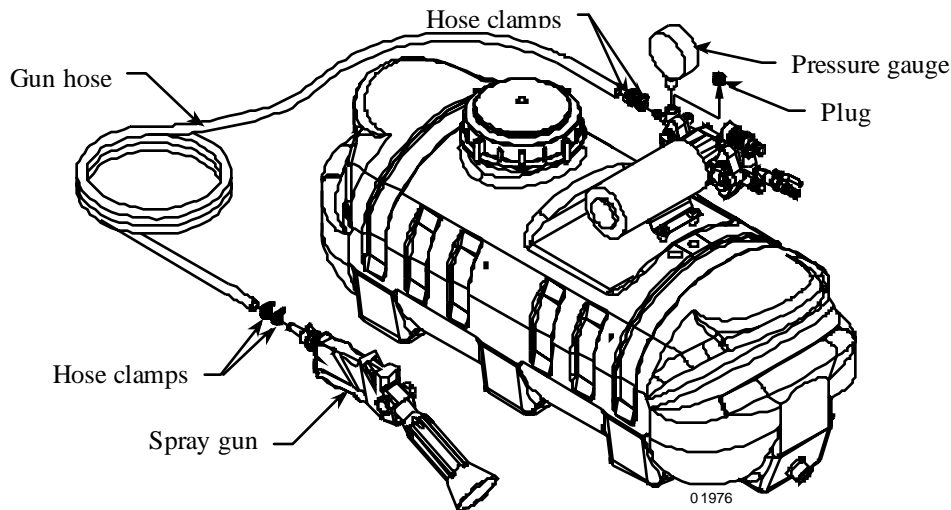
Assembly

Step One: Attach gauge

1. Remove and discard the plug in the gauge port.
2. Thread in pressure gauge. Hand tighten, then turn 2 full turns with a wrench.

Step Two: Attach gun hose to spray gun and pump

1. Install hose clamps on hose.
 - i) Slide hose clamp over the end of the hose.
 - ii) Push the hose onto the hose barb.
 - iii) Slide the hose clamp over the hose barb.
 - iv) Tighten the hose clamp
2. Using 2 hose clamps, attach one end of the gun hose to the pump hose barb.
3. Using 2 hose clamps, attach the other end of the gun hose to the spray gun.

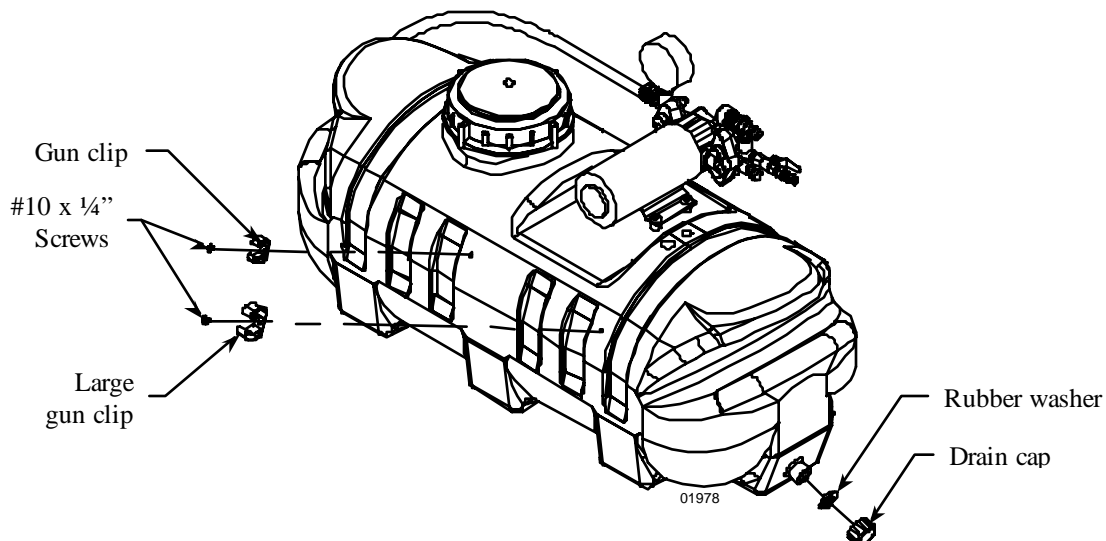


Step Three: Attach gun clips to tank

Fasten one gun clip and one large gun clip to the sprayer tank with #10 x 1/4" screws.

Step Four: Attach drain cap to tank

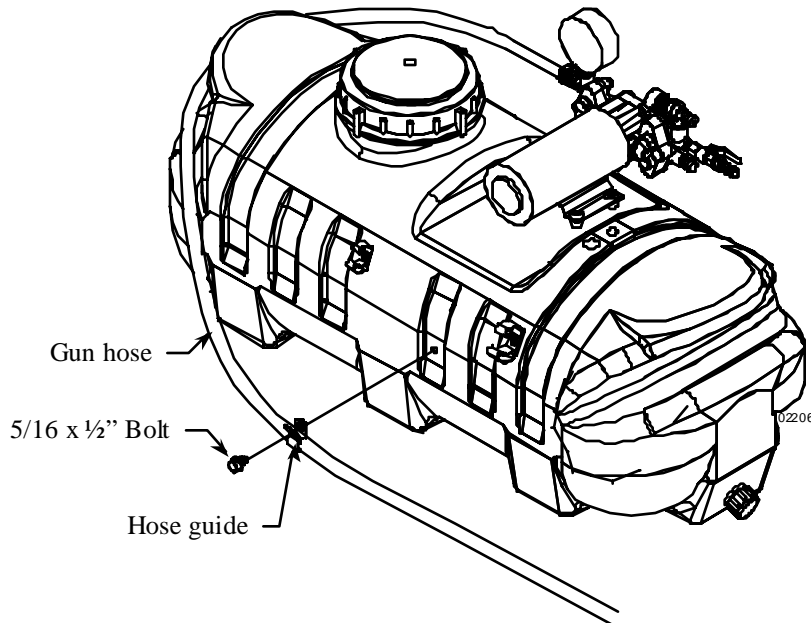
Press the rubber washer into the drain cap with your finger and thread the drain cap onto the tank.



Assembly (continued)

Step Five: Attach hose guide to tank

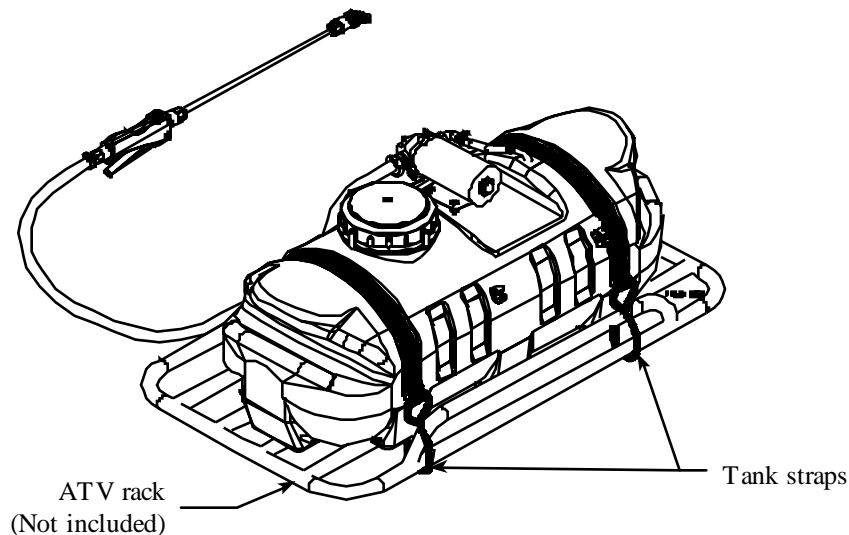
1. Route gun hose around sprayer and through hose guide.
2. Attach hose guide to tank with 5/16 x 1/2" bolt.



NOTE: If your vehicle battery will be inaccessible after the sprayer is attached, you will need to proceed to "Step Seven: Connect remote switch to ATV battery" prior to performing Step Six below.

Step Six: Attach sprayer to vehicle

Secure the sprayer tank to your ATV rack with the two tank straps.



Assembly (continued)

Step Seven: Connect power cords to vehicle battery

⚠ WARNING

Batteries are hazardous because they contain caustic acid, can emit explosive gases, and can cause electric shock.

Caution must be exercised when making connections to a battery to avoid shock and contact with the acid, and to prevent any sparking that could lead to an explosion.

ALWAYS follow the safety instructions and steps listed below in *exact sequence* when connecting the sprayer's remote switch to the battery terminals.

1. Preparatory safety

Preparatory safety steps:

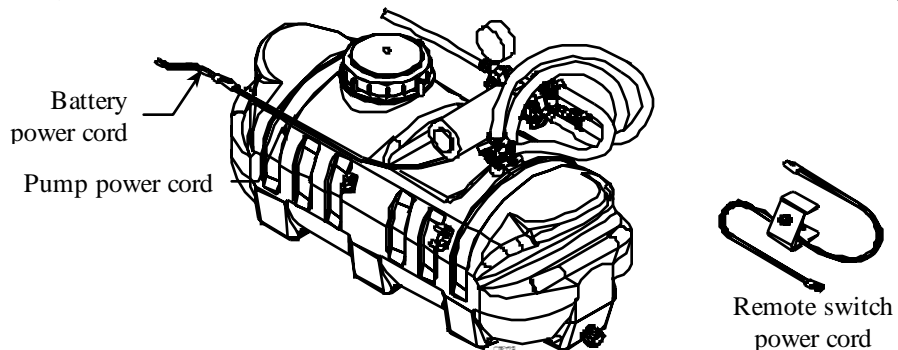
- ALWAYS use eye protection
- NEVER smoke or work near sparks or other sources of ignition.
- NEVER touch both battery terminals at the same time or with any non-insulated tools.
- If battery acid contacts skin or clothing, flush immediately with water and neutralize with baking soda.

2. Identify sprayer's power cords

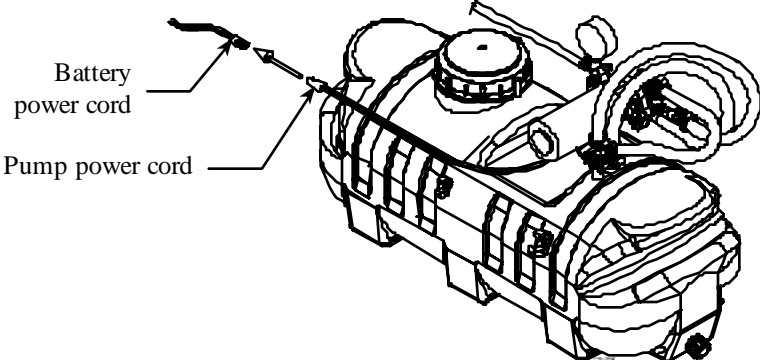
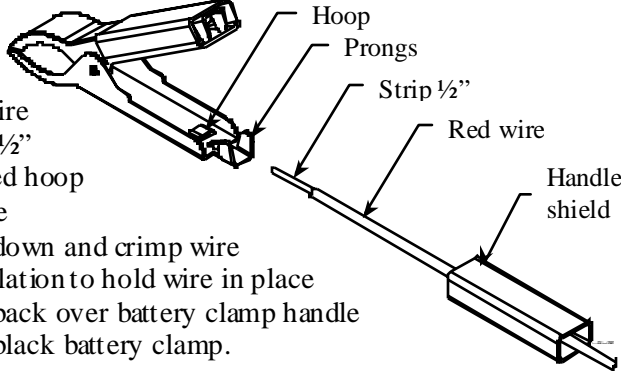
Identify the power cords shipped with the sprayer.

There are three power cords for the sprayer that you will eventually connect end to end to power the sprayer. Locate and identify these three cords:

- a) The battery power cord and the pump power cord are shipped connected together to the sprayer.
- b) The remote switch power cord is packed separately in the Manual Bag.



Assembly (continued)

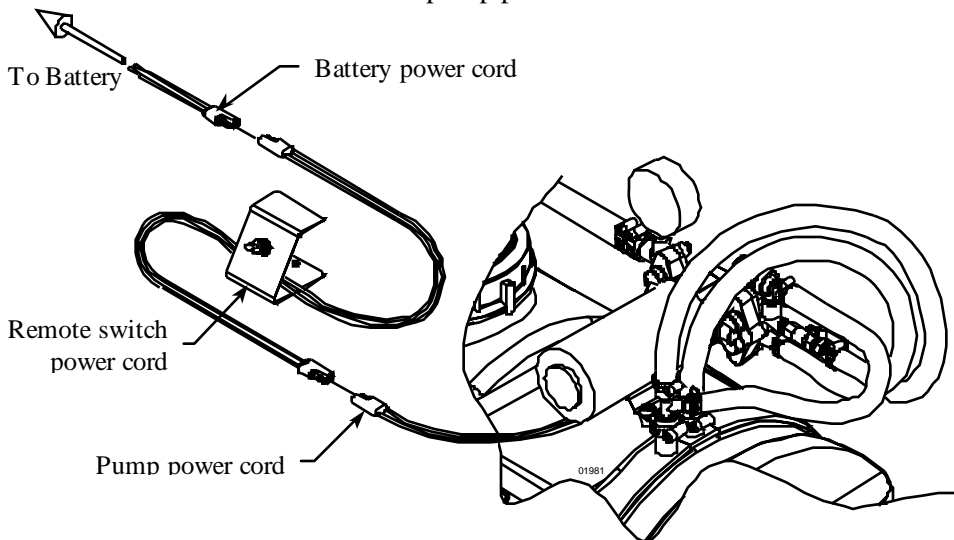
<p>3. Separate power cords</p>	<p>Disconnect the <u>battery power cord</u> from the <u>pump power cord</u>.</p> 
<p>4. Prepare wire ends</p>	<p>Prepare the wire ends of the sprayer's battery power cord for connection to the vehicle battery:</p> <ol style="list-style-type: none"> a) Determine the type of end connectors you need to connect to your vehicle's battery terminals. b) Install battery clamps (supplied) or end connectors of your choosing on the bare ends of the sprayer's <u>battery power cord</u> wires. <p>To install battery clamps:</p> <ol style="list-style-type: none"> 1. Remove red plastic handle shield from red battery clamp and slide onto red wire 2. Strip red battery cord wire ½" 3. Insert bare wire under raised hoop on red battery clamp handle 4. Use a pliers to press hoop down and crimp wire 5. Fold prongs over wire insulation to hold wire in place 6. Push plastic handle shield back over battery clamp handle 7. Repeat for black wire and black battery clamp. 
<p>5. Connect power cord to battery</p>	<p>Connect the sprayer's <u>battery power cord</u> to the vehicle battery using the following procedure:</p> <ol style="list-style-type: none"> a) Disconnect the vehicle battery ground wire. b) Connect the <u>remote switch's red</u> battery clamp or red wire connector to the positive(+) terminal of the battery. c) Connect the <u>remote switch's black</u> battery clamp or black wire connector to the negative(-) terminal of the battery. d) Reconnect the vehicle battery ground wire. <p>⚠ WARNING: Always connect in this sequence to avoid possible shock.</p>
<p>6. Verify connection</p>	<p>Verify a complete connection has been made by checking with a DC voltmeter, or by <i>briefly</i> connecting to the <u>pump power cord</u> and listening for pump activation.</p>
<p>7. Attach sprayer to vehicle if haven't yet</p>	<p>If you have not yet mounted the sprayer to your vehicle, do so at this time following the instructions in "Step Six: Attach Sprayer to Vehicle".</p>

Assembly (continued)

8. Connect all three power cords together

Connect the three sprayer power cords together.

- a) Check to be sure the power switch is in the "OFF" position on the remote switch power cord.
- b) Connect the one end of the remote switch power cord to the battery power cord and the other end to the pump power cord.



9. Attach remote switch to vehicle

Using supplied velcro pads, affix remote switch to vehicle in a position that is easily reached from the driver's seat.

10. Disconnect after use

AFTER EACH USE, disconnect power to the sprayer by disconnecting the sprayer's remote switch power cord from the battery power cord – *the battery power cord may remain connected to the battery.*

NOTE: It is important to disconnect power to the sprayer when not in use, both for safety reasons and to prevent the pump from draining the battery. ALWAYS verify that the power has been disconnected before servicing the sprayer.

11. To disconnect permanently

When it is necessary to disconnect the sprayer's battery power cord from the battery, use the following procedure:

1. Disconnect sprayer's remote switch power cord from the battery power cord.
2. Disconnect the battery power cord from the vehicle battery as follows:
 - a) Disconnect vehicle battery ground wire.
 - b) Disconnect the battery cord's black battery clamp or black wire connector from the *negative(-)* terminal of the vehicle battery.
 - c) Disconnect the battery cord's red battery clamp or red wire connector from the *positive(+)* terminal of the vehicle battery.
 - d) Reconnect the vehicle battery ground wire.



WARNING: Always connect in this sequence to avoid possible shock.
(Remember that on some vehicle models, you may need to remove the sprayer to access the battery)

Assembly (continued)

Step Eight: Check and test completed assembly.

WARNING

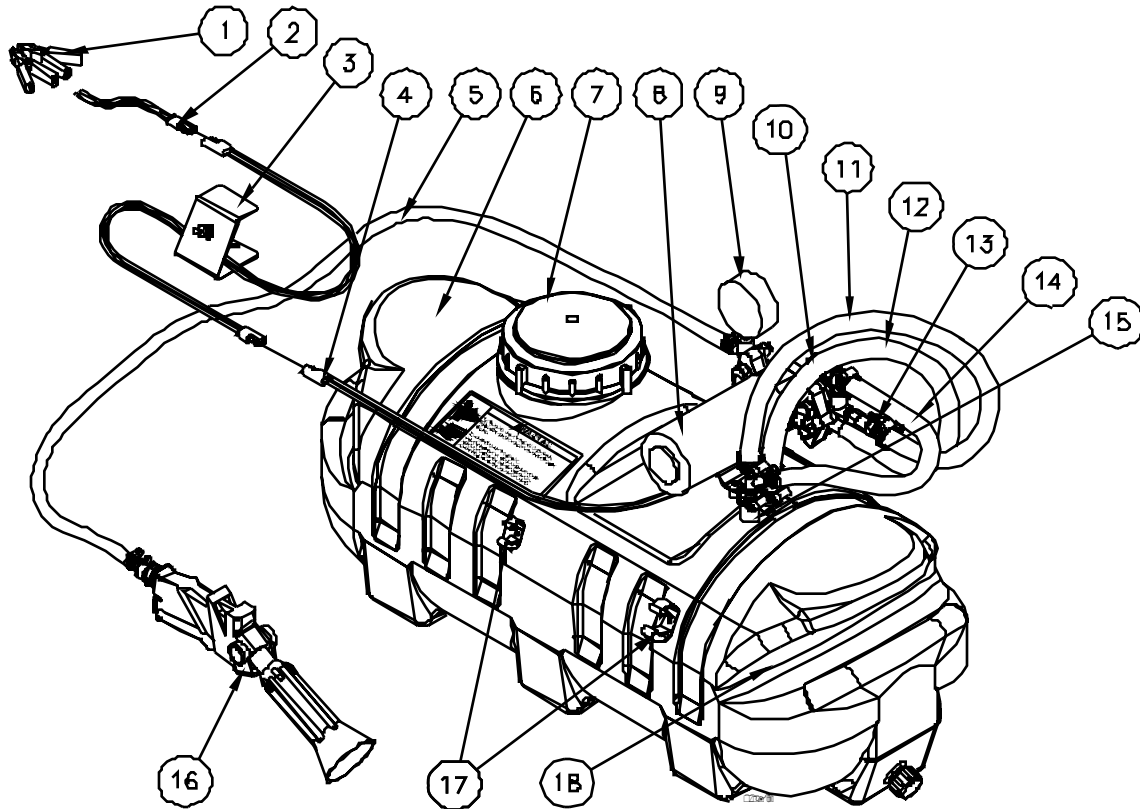
Check and test completed assembly

Serious injury could result from chemical leaks if sprayer is improperly assembled or the design of the sprayer is modified.

Follow the steps below to ensure the sprayer is properly assembled. Never modify the sprayer design.

1. Check assembly	Check assembly to assure the sprayer is properly assembled and in safe working condition: <ul style="list-style-type: none">a) Check that the gun clip screws are tight, hose clamps are secure, and tank straps are properly fastened.b) While it is unlikely that factory assembled components become loose, they should also be checked to make sure they are tight.
2. Test with water	Test the system for leaks with water: <ul style="list-style-type: none">a) First read the instructions in this Owner's Manual for Operation of the sprayerb) Fill the tank with water per the instructions in this manual. <u>Important:</u> <i>The sprayer should be OFF when you fill the tank.</i>c) Check for leaks throughout the system by operating the sprayer per the instructions in this manual:<ul style="list-style-type: none">i) Turn the sprayer ON. (See Operation Instructions)ii) Operate the spray gun. (See Operation Instructions)iii) Adjust the pressure through its full range – to maximum and back. (See Operation Instructions)d) If a leak is detected, <u>fix the leak and re-test the system with water.</u>

Machine Components



- 1.) **Battery Clamps.** Use the battery clamps to connect the battery power cord to the battery.
- 2.) **Battery Power Cord.** The battery power cord connects the vehicle battery to the remote switch. This cord remains connected to the battery when the sprayer is not in use.
- 3.) **Remote Switch.** The remote switch allows the operator to safely turn ON/OFF the sprayer.
- 4.) **Pump Power Cord.** The pump power cord connects the remote switch to the pump.
- 5.) **Gun Hose.** The 420" gun hose transfers chemical from the pump to the spray gun.
- 6.) **Sprayer Tank.** The sprayer tank holds the chemical.
- 7.) **Fill Cap.** The fill cap has a ball check to allow air to enter the tank as the chemical is dispensed, but does not allow chemical to escape the tank.
- 8.) **Sprayer Pump.** The sprayer pump makes the chemical flow to the spray gun and the nozzle.
- 9.) **Pressure Gauge.** The pressure gauge is an indicator of the pressure in the system.
- 10.) **Pressure Adjustment Knob.** Turn the pressure adjustment knob until the sprayer is running at the desired pressure.
- 11.) **Priming Hose.** The priming hose transfers chemicals from the pump back to the tank while priming.
- 12.) **Suction Tube.** The suction tube is the inlet line for the pump. The suction tube has a suction strainer to prevent debris from entering the pump.
- 13.) **Priming Valve.** The priming valve performs three functions. First, it allows the pump to prime itself when open. Second, it helps keep the chemical well circulated when the valve is left open. Third, it will relieve the system pressure by opening the valve.
- 14.) **Bypass Hose.** The bypass hose transfers liquid from the pump to the tank when the system is up to pressure.
- 15.) **Agitation Hose.** The agitation hose combines the bypass and priming hose to send the liquid back to the tank to keep the chemical mixed.
- 16.) **Spray Gun.** The spray gun has three spraying modes; stream, cone, fog (see operation instructions).
- 17.) **Gun Clips.** Use the gun clips to store the spray gun.
- 18.) **Hose Wrap.** The hose wrap is built into the tank, and provides a storage location for the gun hose.

Operation – Important Safety Information

Now that you have completed and tested your assembly, there is some important safety and health information you need to know with regard to handling and spraying chemicals, as well as vehicle handling with the sprayer attached.

WARNING

Carefully read and make sure you understand the following safety information before using the sprayer.

General Chemical Safety:

WARNING

Pesticides are hazardous chemicals.
Heed the warnings below and follow all instructions carefully.
Improper handling of chemicals can result in serious injury or illness, or cause damage to the environment.

- **Chemical label.** ALWAYS READ and FOLLOW all chemical label instructions.
- **Licensing/regulation.** Refer to any applicable licensing restrictions or state/federal regulations with regard to the application of the particular chemical you plan to use.
- **Emergency procedures.** Before handling chemicals, carefully review the “Chemical Accident Procedures” listed later in this section, as well as the “Statement of Practical Treatment” on the chemical label.
- **Inhalation/contact.** ALWAYS take precautions to avoid inhaling or coming into contact with the chemical.
- **Personal protective equipment.** ALWAYS wear protective clothing, eye protection, and chemical-resistant gloves when filling, using and cleaning the sprayer. Wear additional protective gear (such as facemask or apron) as recommended on the chemical label.
- **Children/pets.** Pesticides can be especially toxic to children and animals. ALWAYS exercise extra caution around children. Keep sprayer and all spray materials away from children and animals.
- **Ventilation.** ALWAYS ensure there is adequate ventilation when mixing, pouring, or spraying.
- **Flammables.** NEVER use any flammable chemicals in the sprayer.
- **Corrosives.** DO NOT use corrosive chemicals in the sprayer. They can weaken the sprayer and its parts, resulting in leaks. Check with the chemical manufacturer to ensure chemical is compatible with all components of the sprayer.
- **Chemical interaction.** ALWAYS flush the sprayer before switching chemicals. Different chemicals may interact dangerously with each other.
- **Chemical storage.** ALWAYS store pesticides in a properly labeled container and in a secure location per the manufacturer’s recommendations.
- **Health monitoring.** Monitor the health of operators who are frequently exposed to pesticides, as recommended by the chemical label or local/federal regulations.

Operation – Important Safety Information (continued)

Chemical Application Safety:

WARNING

Caution must be used when spraying chemicals to avoid unsafe exposure to humans and the environment.

Heed the warnings below and follow all instructions carefully.

Before Spraying

- **Sprayer prep.** ALWAYS inspect and prepare the sprayer before use according to the directions provided in this manual.
- **Keep sprayer off.** Do not turn on power to the sprayer until ready to spray in order to avoid unintentional spray release.
- **Overhead spraying or fogging.** Wear additional personal protective equipment if you will be spraying overhead or fogging. You will be exposed to much more pesticide fallout in these applications. Wear chemical resistant head and neck protection, full face mask or half face mask with sealed goggles, and consider using a dust/mist respirator.
- **Wind speed.** NEVER spray when wind speed exceeds 4 MPH in order to minimize spray drift.
- **Clear area/post.** ALWAYS keep the work area clear of people and pets. POST warning notices to restrict access by the public for the period recommended on chemical label.
- **Operator age.** You must be 16 years of age or older to operate this sprayer. Pesticides are especially toxic to children.

During Spraying


- **Overapplication.** DO NOT overapply pesticide. Apply at a rate recommended by chemical manufacturer. Excess pesticide can be dangerous to humans, damage desirable plants, and contaminate soil and water sources.
- **Never point gun.** NEVER point the spray gun at people or animals.
- **Use firm grip.** ALWAYS hold the spray gun with a firm grip when using it to spray at higher pressures in order to prevent gun from whipping. Keep good footing and balance at all times.
- **Children/pets.** ALWAYS exercise extra caution when spraying near areas accessible to children and pets.
- **Eating/smoking.** DO NOT eat, drink, smoke, rub your eyes, or touch any part of your bare skin while handling chemicals and spraying.
- **Heat/flames.** DO NOT spray near open flames or sources of heat.
- **Spills.** ALWAYS clean up spills immediately per instructions on the chemical label.
- **Unattended.** ALWAYS turn off vehicle and set brake or block wheels, turn off power to sprayer, and relieve system pressure before leaving sprayer unattended.
- **Troubleshooting.** ALWAYS refer to the safety instructions in the Troubleshooting Section before attempting any repairs.

After Spraying

- **Clean sprayer.** ALWAYS clean the sprayer immediately after use according to the directions provided in this manual.
- **Decontaminate.** ALWAYS decontaminate yourself immediately after you are finished spraying and handling chemicals. Wash all exposed areas of the body with soap and water and remove and launder clothing.
- **Chemical disposal/storage.** ALWAYS dispose of or store remaining chemicals properly as recommended on the chemical label.

Operation – Important Safety Information (continued)

ATV Vehicle Handling Safety:

 **WARNING**


Serious injury can occur if the ATV on which the sprayer is mounted is driven unsafely.

- **Driver age.** You must be 16 years of age or older to operate the ATV with the sprayer attached.
- **Less stable.** Be aware that all vehicle handling will be affected with the filled sprayer attached. See your ATV's warning label for the hazards associated with driving:
 - Too fast
 - On paved surfaces
 - On inclines or rough terrain.

These hazards will be increased drastically as a result of the additional weight and location of the filled sprayer. The center of gravity will be higher and weight distribution different, causing the ATV to be less stable when braking, turning, and driving. Exercise extra caution in vehicle handling. Use particular caution on sloped or rough surfaces in order to prevent rollover. A vehicle equipped with Roll Over Protection System (ROPS) is recommended if you will be operating on non-level terrain.

- **Speed limit.** DO NOT exceed 5 mph with sprayer mounted on ATV.
- **Ride/transport.** NEVER ride or transport cargo on the sprayer.

Chemical accident procedures:

 **WARNING**

Before you fill the sprayer, review the following information with regard to handling accidents.

Chemical spills, sprayer leaks, personal contamination, and poisoning are accident situations which you may encounter. **All require an immediate response – See instructions below.**

Sprayer leak	<p>In the event that the sprayer develops a leak while spraying chemicals, you must <i>immediately stop spraying.</i></p> <p>Turn off power to the sprayer and follow the directions below, as applicable.</p>
Bodily chemical contact	<p>Personal contamination can occur when chemicals splash, spill, or spray directly onto a person.</p> <p>1. Follow the emergency first aid instructions on the chemical label listed in the “First Aid” or “Statements of Practical Treatment” section.</p> <p><u>General procedures include:</u></p> <p>a) Eyes – immediately flush with water or follow other directions as specified on the chemical label.</p> <p>b) Skin – immediately wash all contaminated skin surfaces with soap and water, or follow directions as specified on the chemical label.</p>

Operation – Important Safety Information (continued)

	<p>c) Clothing – remove contaminated clothing immediately. Dispose of heavily contaminated clothing per the instructions on the chemical label for safe chemical/container disposal.</p> <p>2. Seek medical advice if instructed on the label, or if the victim experiences symptoms of harmful effects such as burning, swelling, nausea, chest pain, difficulty breathing, dizziness or confusion. When seeking medical advice, be sure to bring the chemical product label.</p>
Poisoning by ingestion or inhalation	<p>In case of poisoning from ingestion or inhalation:</p> <p>IF THE VICTIM HAS COLLAPSED OR IS NOT BREATHING, <u>CALL 911</u>. Otherwise:</p> <ol style="list-style-type: none"> 1. If you are the victim, immediately seek assistance from nearby personnel because you may become incapacitated. 2. Follow the emergency first aid instructions on the chemical label in the “First Aid” or “Statement of Practical Treatment” section. 3. Call a poison control center for further advice. In the U.S., call 1-800-222-1222 to be automatically linked to the nearest certified poison control center. Have the chemical label available for reference.
Chemical spills	<p>Chemical spills must be quickly contained and properly cleaned up.</p> <p>Refer to the chemical label for any specific clean-up instructions with regard to the chemical spilled.</p> <p><u>General procedures include:</u></p> <ol style="list-style-type: none"> 1. Control the spill by stopping the source of the spill. If the source of the spill is a container leak, place the leaking container in a larger, watertight container. Keep unprotected people away from the spill site. 2. Contain the spill so that it does not spread and get into water sources. Use a shovel or other tool to make a dike around the spill with soil, sod, or absorbent material. 3. Clean up the spill immediately -- Absorbent materials like ground corncobs or pet litter should be spread on the spill area to soak up the pesticide. The contaminated material should then be shoveled into a leakproof container. Do not flush the spill area with water until you receive advice as directed below. 4. Seek additional advice from the chemical manufacturer and your state’s pesticide regulatory agency regarding decontamination of the spill site: <ul style="list-style-type: none"> - <i>Chemical manufacturer.</i> The chemical label provides contact information for the chemical manufacturer. - <i>State pesticide regulatory agency.</i> In the U.S., call the National Pesticide Information Center at 1-800-858-7378 for assistance in determining how to contact your state’s pesticide regulatory agency.

Operation – Preparing the Sprayer for Each Use

If the sprayer has been used previously, it must be prepared BEFORE EACH SUBSEQUENT USE.

⚠ WARNING

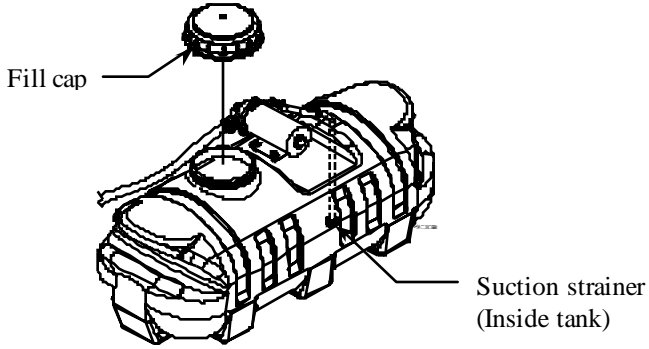
Read instructions below carefully for inspecting and preparing the sprayer.

Damaged or clogged equipment could result in leaks or uncontrolled spray.

Leaks could result in injury to the operator or bystanders from chemical exposure, or cause damage to the environment.

Important safety rules:

- **Power off.** Make sure all power is OFF before cleaning, inspecting, or servicing the sprayer.
- **Guards / shields.** Make sure all guards and shields are replaced after servicing the sprayer.
- **Replacement parts.** If a part needs replacement, only use parts that meet the manufacturer’s specifications. Replacement parts that do not meet specifications may result in a safety hazard or poor operation of the sprayer.

1. Ensure sprayer attached	Ensure the sprayer is securely attached to the vehicle.
2. Ensure tank empty	Ensure the sprayer has been thoroughly flushed and drained of all residual chemical from prior uses.
3. Clean suction strainer	<p>Clean the suction strainer of any chemical residue.</p> <p>It is important to clean the suction strainer before each use to ensure it is not clogged and to prevent residual chemical from contaminating sprayer contents.</p> <p>IMPORTANT: The strainer must be accessed by reaching into the tank, so the <i>tank must be empty</i> to avoid immersing your hand in chemicals.</p> <ol style="list-style-type: none"> a) Open fill cap on top of tank. b) USING RUBBER GLOVES, reach into the tank and pull the suction strainer off the end of the suction tube. (See figure below.) c) Run the suction strainer under fresh water to remove debris. d) Replace the suction strainer onto the end of the suction tube. <div style="text-align: center; margin-top: 10px;">  <p style="margin-left: 100px;">Fill cap</p> <p style="margin-right: 100px;">Suction strainer (Inside tank)</p> </div>
4. Inspect & repair	<p>Inspect and test the sprayer thoroughly:</p> <ol style="list-style-type: none"> a) Inspect hoses for exposed mesh and holes. Replace all worn or damaged hoses. b) Inspect fittings for cracks and leaks. Replace all damaged fittings with original NorthStar parts. c) Inspect tank for cracks. d) Check to be sure all nuts, bolts, and screws are tight. e) <i>Partially fill tank with plain water and spray to test for leaks. Repair as needed.</i> <p>IMPORTANT: <i>After any repair work has been done, ALWAYS test for leaks with water one final time before using.</i></p>

Operation – Using the Sprayer

Step One: Assess wind conditions and clear work area.

Before you decide to spray, you must determine whether wind conditions are suitable. You must also restrict access to the work area to ensure the safety of bystanders.

⚠ WARNING

Do not spray if wind speeds are greater than 4 MPH or if there are bystanders in the intended spray area.

1. Assess wind speed	Assess weather conditions to ensure that it is not too windy to spray. DO NOT SPRAY if wind speeds are greater than 4 MPH. <i>Visible indication of wind speed:</i> If leaves are in constant motion or there is any branch movement, DO NOT spray because the wind is too strong.
2. Clear work area	Clear the work area of all bystanders and pets. Restrict access by the public for the period recommended on chemical label.

Operation - Using the Sprayer (continued)

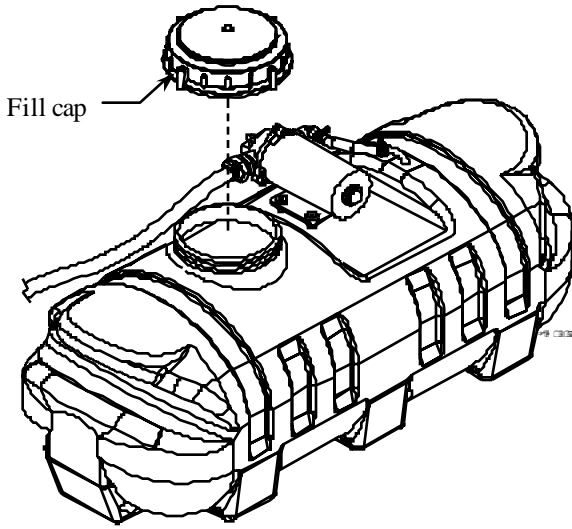
Step Two: Fill the sprayer.

⚠ WARNING

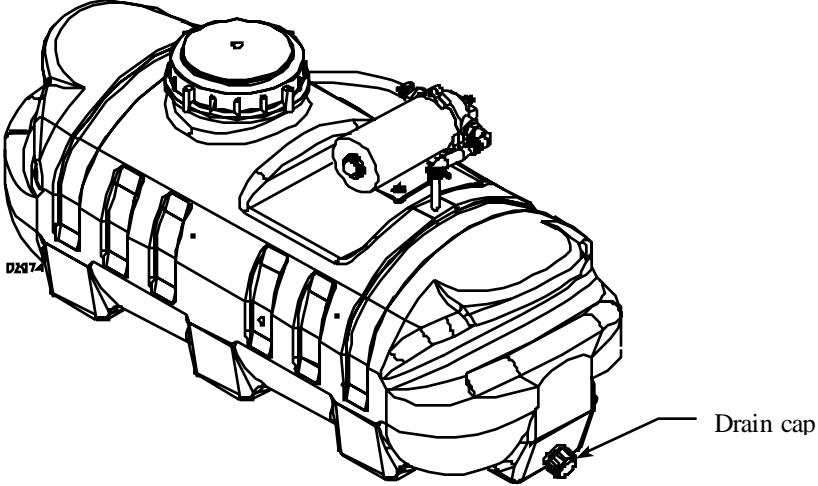
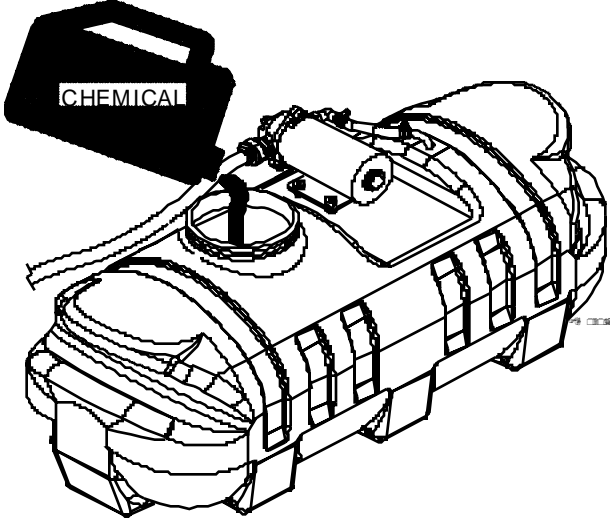
ALWAYS wear personal protective equipment as directed on the chemical label when handling pesticides.

Long pants and sleeves, chemical resistant gloves, and eye protection are strongly recommended. Additional protective gear may be required depending on the particular pesticide.

Fill the sprayer using the following steps:

1. Review safety information	Review the “Operation – Important Safety Information” related to <u>General Chemical Safety</u> and <u>Chemical Accident Procedures</u> provided in this manual.
2. Choose safe mixing/loading area	Choose a safe pesticide mixing and loading area. - Choose an outdoor, well-ventilated area away from unprotected people, animals, food, and other items that might become contaminated.
3. Wear personal protective equipment	Wear personal protective equipment as directed on the chemical label. - Note that additional equipment may be specified for mixing and loading activities.
4. Turn off sprayer and vehicle	Turn OFF power to the sprayer before filling. - The vehicle should also be off, with brake set or wheels blocked to prevent unintended movement.
5. Remove fill cap	<p>Remove the fill cap located on top of the sprayer.</p> 
6. Ensure tank flushed	Ensure tank is flushed of all chemicals from prior uses. - Chemicals can interact dangerously when mixed, and residue chemicals are also a health hazard.

Operation - Using the Sprayer (continued)

<p>7. Check drain cap</p>	<p>Before filling tank, ensure drain cap is securely tightened.</p> <div style="text-align: center; margin-top: 20px;">  <p style="text-align: right; margin-right: 50px;">Drain cap</p> </div>
<p>8. Fill tank</p>	<p>Add pesticide to tank through fill cap:</p> <ol style="list-style-type: none"> a) Confirm the chemical/water dilution ratios specified on the chemical label. b) Determine chemical and water volumes needed for the planned application, taking into consideration that maximum tank capacity is 16 gallons. <i>Note: Only purchase and mix as much chemical as you need for the planned application in order to minimize chemical overapplication and the need for storing unused chemicals.</i> c) Add chemical to the tank through the fill cap. <i>If the chemical is not pre-mixed, add water and pesticide concentrate in the order prescribed on the label.</i> <div style="text-align: center; margin-top: 20px;">  </div>
<p>9. Ensure chemical mixed</p>	<p>Ensure chemical is thoroughly mixed in tank. - Stirring device should be made of metal or plastic, non-chemical absorbing material, and then properly cleaned and stored after use.</p>
<p>10. Replace fill cap</p>	<p>Replace fill cap and tighten securely.</p>

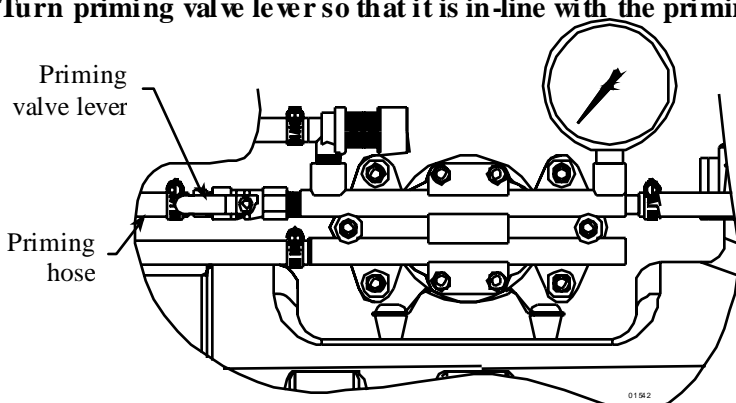
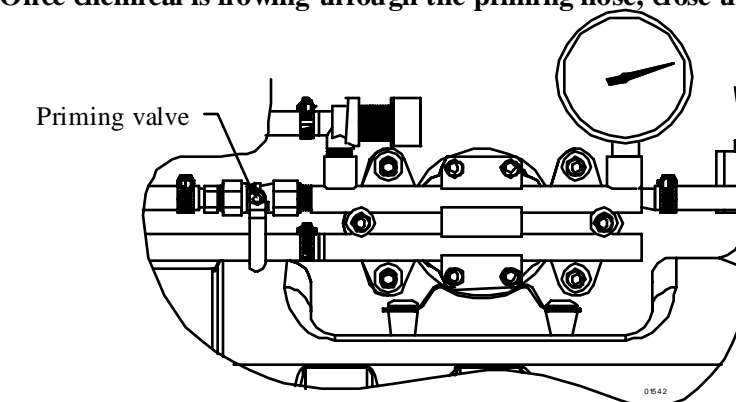
Operation - Using the Sprayer (continued)

Step Three: Operate the sprayer.

⚠ WARNING

ALWAYS wear personal protective equipment as directed on the chemical label when spraying.

Long pants and sleeves, chemical-resistant gloves, and eye protection are strongly recommended. Additional protective gear may be required depending on the particular pesticide.

1. Review safety information	Review the “ O peration – I mportant S afety I nformation” related to <u>Chemical Application Safety</u> and <u>ATV Vehicle Handling Safety</u> provided in this manual.
2. Wear personal protective equipment	Wear personal protective equipment as directed on the chemical label. Warning: Wear additional personal protective equipment if you will be spraying overhead or fogging. You will be exposed to much more pesticide fallout in these applications. Wear chemical resistant head and neck protection, full face mask or half face mask with sealed goggles, and consider using a dust/mist respirator.
3. Open priming valve	<p>Turn priming valve lever so that it is in-line with the priming hose.</p> 
4. Turn on power	<p>Turn on the power to the sprayer.</p> <ol style="list-style-type: none"> 1. Verify the battery power cord is connected to the remote switch power cord and that the remote switch power cord is connected to the pump power cord. 2. Turn the remote switch to the “ON” position. <p><i>Note: The pump will start automatically when power is turned on. Running the pump dry will void all warranties.</i></p>
5. Ensure flow through priming hose	<p>Once chemical is flowing through the priming hose, close the priming valve.</p> 

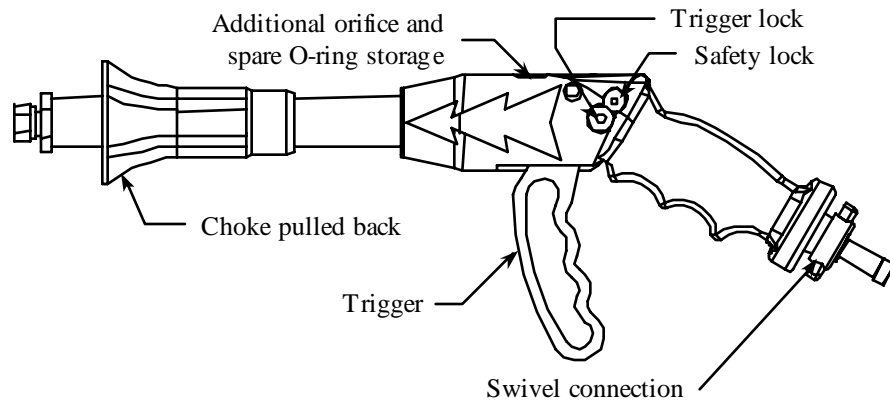
Operation - Using the Sprayer (continued)

6. Operate spray gun (as needed for application)

Proper Operation of the Spray Gun

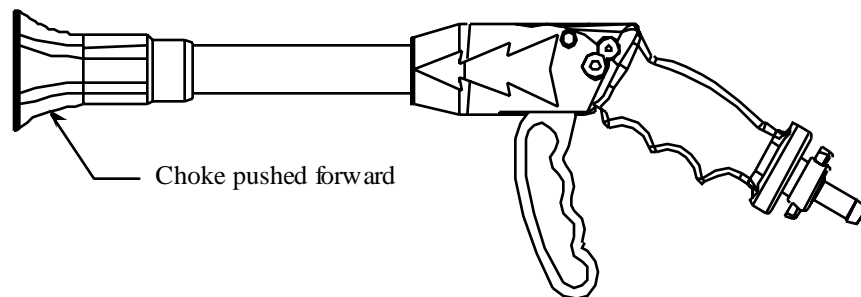
Cone and Stream spray pattern instructions

1. Pull the choke back. Squeeze the trigger to begin spraying.
2. The spray pattern is determined by how far the trigger is pulled back. The spray begins at a wide cone and progressively becomes a straight stream when the trigger is pulled all the way back.
3. Once the desired spray pattern is achieved, press the trigger lock to hold the position of the trigger. To release the trigger lock, pull the trigger back until the lock disengages.
4. When the gun is not in use, activate the safety lock by releasing the trigger and pressing the safety lock pin. This will lock the trigger in the off position to prevent accidental spraying.



Fog and Stream spray pattern instructions

1. Push the choke all the way forward.
2. Squeeze the trigger to begin spraying. Set the trigger to a wide cone spray pattern. This will achieve the best atomized mist.
3. Pull the trigger all the way back to change to a straight stream.

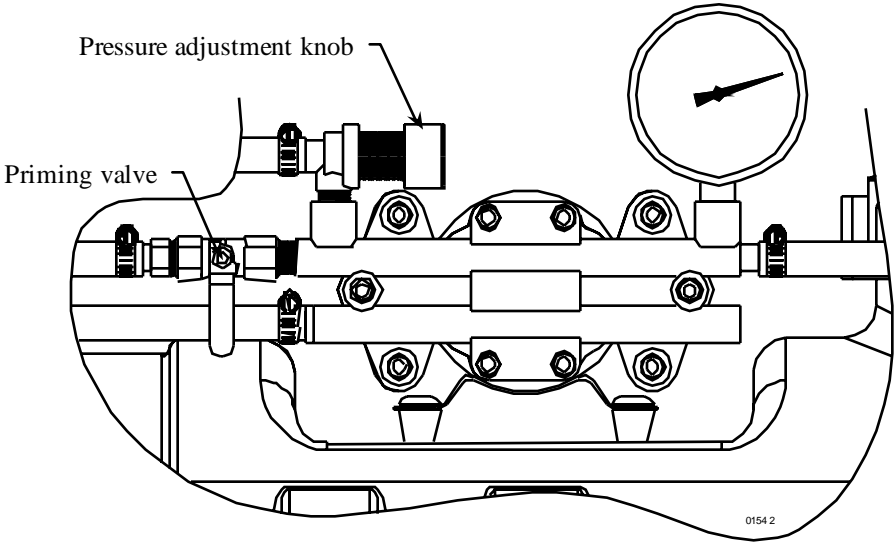


Note: Operating pressure of the pump will vary depending on the orifice size used. 110 psi is achieved with the small orifice. The medium and large orifices achieve 50 and 2 psi, respectively. (Additional orifices are located under the yellow plug on the top of the gun.)

IMPORTANT: ALWAYS hold the spray gun with a firm grip when spraying at higher pressures in order to prevent gun from whipping. Keep good footing and balance at all times.

Note: It is not unusual for the operator to be exposed to chemical drips while adjusting the spray pattern – gloves should be chemical resistant.

Operation - Using the Sprayer (continued)


<p>7. Adjust pressure and agitation as needed</p>	<ul style="list-style-type: none"> -Rotate the pressure adjustment knob until the sprayer is running at the desired pressure. -Open priming valve to circulate flow back to the tank and create agitation. Open until desired amount of agitation is achieved. <div style="text-align: center; margin-top: 20px;">  </div>
<p>8. Leaving unattended</p>	<p>If the sprayer must be left unattended at any time:</p> <ol style="list-style-type: none"> a) Disconnect power to the sprayer. b) Relieve system pressure by depressing the gun trigger. c) Turn off the vehicle. Set brake or block the wheels.
<p>9. Discontinue use if clogged or inoperative</p>	<p>If the sprayer becomes clogged or inoperative during use, discontinue use immediately.</p> <ul style="list-style-type: none"> - DO NOT attempt to service while chemicals are in the sprayer and power is connected. - Return to service area to review instructions for troubleshooting before attempting to service.

***Note:** A reserve, clean container capable of holding at least 16 gallons should be kept for use when the sprayer tank needs to be emptied temporarily for repairs. It is advisable to purchase a reserve tank suitable for pesticide storage from Northern Tool and Equipment for use in these circumstances. The container should be properly labeled as to its contents if it is used.*

Operation - Using the Sprayer (continued)

Step Four: Clean sprayer and decontaminate after use.

When done using the sprayer, it is important to clean the sprayer and decontaminate yourself. Do not store the sprayer with chemicals in the tank, as it is unsafe and could also result in damage to the equipment.

 **WARNING**

Clean-up and decontamination procedures must be followed after each use.

Improper equipment clean-up and disposal of chemicals can result in dangerous chemical exposure to humans and the environment, as well as equipment damage.

Personal decontamination is required after spraying to minimize unsafe exposure to chemicals and potential illness.

1. Drain tank	<p>If there is excess pesticide left in the tank, drain the tank:</p> <ul style="list-style-type: none"> a) Disconnect power to the sprayer and relieve system pressure by depressing the gun trigger. b) Find a suitable container in which to drain the unused pesticide. Place it under the tank drain hole. c) While wearing rubber gloves, eye protection, and all other required personal protective equipment, remove the drain cap and allow pesticide to drain into container. d) When tank stops draining, replace drain cap. Tighten securely.
2. Unused chemical	<p>Properly store or dispose of unused chemical:</p> <ul style="list-style-type: none"> a) <u>If the unused pesticide is to be stored for future use:</u> Store all unused pesticide in its original, or a suitably marked, container in a secure location out of the reach of children & animals. b) <u>If remaining pesticide is to be disposed:</u> Properly dispose of the remaining chemical and its container per the chemical manufacturer's recommendation and according to local hazardous waste disposal regulations.
3. Flush sprayer	<p>Flush the sprayer per the chemical manufacturer's recommendations. A general procedure is as follows:</p> <ul style="list-style-type: none"> a) Add fresh water to the tank. b) Reconnect power to the sprayer. c) Operate the spray gun and discharge all rinse water onto an area that can accept dilute pesticide application. d) Add 5 gallons of the chemical manufacturer's recommended cleaning solution. Operate the spray gun, collecting the discharged solution if recommended by the manufacturer. e) After flushing, disconnect power to the sprayer and be sure all system pressure is relieved by squeezing the gun trigger. f) Dispose of cleaning solution discharge as recommended by the manufacturer of the solution.
4. Decontaminate & launder	<p>Decontaminate yourself after you are finished handling chemicals:</p> <ul style="list-style-type: none"> a) Remove all clothing worn during spraying and chemical handling. b) Wash all exposed parts of the body with soap and water. c) Launder clothing separately from other wash.

Storage

Prepare the sprayer for end-of-season storage by running RV antifreeze through the system. This will keep internal parts lubricated, protect against corrosion, and keep the unit from freezing.

CAUTION

The sprayer will be damaged if it freezes.
Protect the sprayer from freezing during storage by following the instructions below.

Preparing for storage:

1. Add antifreeze	Pour 1 gallon of RV antifreeze into the tank. <i>Note: RV antifreeze is non-toxic and biodegradable and generally safer for the environment than automotive antifreeze.</i>
2. Spray briefly	Turn on the pump motor and squeeze the gun trigger briefly until fluid sprays.

Removing from storage:

1. Drain	Drain the antifreeze left in the tank through the tank drain hole into a suitable container.
2. Flush with water	Fill the tank with fresh water and run through the system. Operate the spray gun until the system is completely flushed. Be sure to set up containers to capture the antifreeze flush water.
3. Disposal	Dispose of the antifreeze and flush water properly.

Troubleshooting

WARNING

Before troubleshooting or attempting to service, read the following safety rules to avoid accidental exposure to chemical and also risk of electric shock.

Note: A reserve, clean container capable of holding at least 16 gallons should be kept for use when the sprayer tank needs to be emptied temporarily for repairs. It is advisable to purchase a reserve tank suitable for pesticide storage from Northern Tool and Equipment for use in these circumstances. The container should be properly labeled as to its contents if it is used. In addition, it may be advisable to empty the tank contents using a transfer pump if the tank drain hole is inaccessible while the sprayer is mounted on the ATV.

Before attempting to service the sprayer:

1. Personal protective equipment	Wear personal protective equipment as directed on the chemical label while servicing your sprayer.
2. Review troubleshooting table	Review the Troubleshooting Table below for the type of problem you are experiencing. However, DO NOT attempt to repair until the steps listed below are followed.
3. Empty and flush	<p>If the cause listed for your problem is Clogged intake tube, Clogged suction strainer, or Worn spray gun nozzle: empty the tank and flush the sprayer with water as directed in the section, “Operation – Step Four”.</p> <p><i>- In order to avoid accidental exposure to chemicals, never attempt to unclog the intake tube or suction strainer, or service the spray gun nozzle, until the tank has been emptied and the sprayer flushed with water.</i></p>
4. Disconnect power/relieve pressure	Disconnect power to the sprayer and be sure all system pressure is relieved by squeezing the gun trigger.
5. Perform repairs	<p>Follow the directions provided in the troubleshooting table to repair the sprayer.</p> <p><i>NOTE: Never try to unclog the sprayer nozzle by blowing through it.</i></p>
6. Test after servicing	After servicing, ALWAYS test the sprayer for leaks with plain water before using.

PROBLEM	CAUSE	SOLUTION
Pump will not turn on	Bad electrical connection	Check battery connections
	Short in wires	Check condition of wires
	Motor hooked to battery incorrectly	Ensure red wire is connected to positive battery terminal. If not, correct wiring, then remove pump head and tighten offset bearing.
Low pressure	Worn spray gun nozzle	Replace spray gun
	Improper pressure adjustment	Tighten pressure adjustment knob.
Low flow	Clogged intake tube	Remove obstruction
	Clogged suction strainer	Clean suction strainer
	Obstruction in inlet/outlet valves	Clean inlet/outlet valves
	Leak in the system	Tighten leaking hose clamps/fittings

Specifications

Electrical System Requirements

Electrical connection.....	12 VDC
Amp draw from pump.....	15.0 Amps

Sprayer Specifications

Maximum GPM.....	2.0 GPM
Maximum Pressure.....	200 PSI
Pressure Adjustment	0-200 PSI
Tank Maximum Capacity.....	16 Gallons
Overall Dimensions	34.0”L x 14.5”W x 20.5”H
Dry Weight / Weight full of water	35 lbs. / 163 lbs.

Component Materials*

Tank.....	Polyethylene, EPDM
Suction Tube.....	Polypropylene, PVC, Stainless Steel
Hose.....	PVC
Pump.....	Polypropylene, Viton, Sanoprene
Valves.....	PVC, Buna-N
Gun and Nozzle.....	Brass, Nylon, Polyacetal

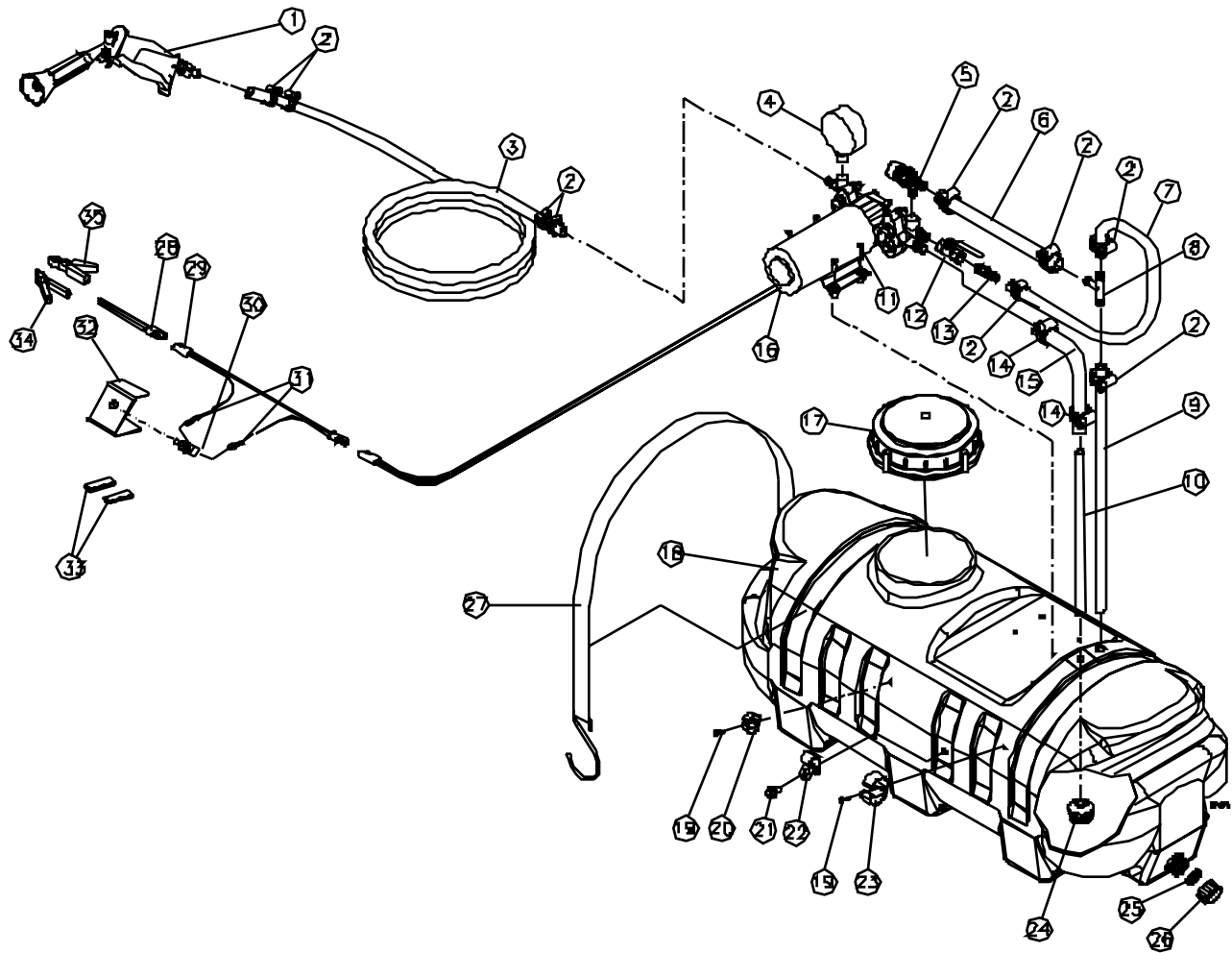
*Before using any chemical, check to ensure the chemical is compatible with all materials in the system.

The manufacturer reserves the right to make improvements in design and/or changes in specifications at any time without incurring any obligation to install them on units previously sold.

Any Questions, Comments, Problems or Parts Orders

Call NorthStar Customer Service 1-800-270-0810

Exploded View – 268180 – Rev. M



Item	Part#	Description	Qty
1	35119	3/8" Galaxy Spray Gun	1
2	30746	Small Hose Clamp	9
3	30290	3/8" Braided PVC Gun Hose	420"
4	35118	Liquid Filled Gauge	1
5	37652	200 PSI Pressure Regulator	1
6	30290	3/8" Braided PVC Hose	12"
7	30290	3/8" Braided PVC Hose	12"
8	5329	Hose Barb Tee	1
9	30290	3/8" Braided PVC Hose	12"
10	36565	Intake Tube	1
11	82061	10-24 x 1" Phillips Head Screw	4
12	37678	Ball Valve	1
13	37679	3/8" Hose Barb	1
14	777119	Large Hose Clamp	2
15	30160	1/2" Braided PVC Hose	15"
16	37659	Pumptec Pump Series 114	1
17	778143	Tank Lid	1
18	777468	16 Gallon Tank	1

Item	Part#	Description	Qty
19	82057	10-24 x 1/4" Phillips Head Screw	2
20	52035	Gun Clip	1
21	82014	5/16-18 x 1/2" Bolt	1
22	777110	Hose Guide	1
23	777358	Large Gun Clip	1
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28	37693	2-Way Connector 14Ga.	1
29	37694	Remote Switch 2-Way Connector	1
30	5250	Switch	1
31	5253	Insulated female spade	2
32	34026	Switch Bracket	1
33	35363	5/8" x 2" Velcro	2
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35	777462	Negative Battery Clamp, Black	1

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