



M2681852B.3

ITEM NUMBER: 2681852

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

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

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

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

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

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

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

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

EXERCISE CAUTION in ATV vehicle handling and do not exceed 5 MPH. ATV 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.

ALWAYS keep a fire extinguisher rated "ABC" nearby.

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.

** This sprayer is recommended for use in spraying non-flammable liquids such as pesticides and water for plants/trees. The sprayer will be damaged and warranty voided if used to apply bleach, chlorine, ice control chemicals, or any petroleum based product (gasoline, diesel, kerosene, oil). The sprayer should not be used to transfer any product intended for human consumption. 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. This sprayer should not be used by people with reduced physical, sensory or mental capabilities or lack of experience and knowledge.

Any Questions, Comments, Problems, or Parts Orders

Call NorthStar Product Support 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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Table of Contents

Intended Use	4
Summary of Important Safety Information	5
During Assembly	
During Operation	
• General Chemical Safety	
• Chemical Application Safety	
• ATV Vehicle Handling Safety	
• Chemical Accident Procedures	
Warning Label Locations	7
Component Inventory	
Unpacking.....	8
Unpacking the Manual Bag	9
Assembly	
Step One: Attach gauge.....	10
Step Two: Attach lance clips to tank	10
Step Three: Attach drain cap to tank.....	10
Step Four: Attach gun hose to pump.....	11
Step Five: Attach hose guide to tank	11
Step Six: Attach suction hose and agitation hose	12
Step Seven: Prepare spray gun	12
Step Eight: Attach gun to gun hose	13
Step Nine: Attach sprayer to vehicle	13
Step Ten: Connect power cords to vehicle battery	14
Step Eleven: Check and test completed assembly.....	16
Machine Components	17
Operation	
Important Safety Information - Operation.....	18
• General Chemical Safety	
• Chemical Applicator Safety	
• ATV Vehicle Handling Safety	
• Chemical Accident Procedures	
Preparing the Sprayer for Each Use	22
Using the Sprayer	
Step One: Assess wind conditions and clear work area	23
Step Two: Fill the sprayer	24
Step Three: Operate the sprayer.....	26
Step Four: Clean sprayer and decontaminate after use.....	28
Storage	29
Preparing for storage	
Removing from storage	
Troubleshooting	30
Specifications	31
Parts Breakdown – Exploded View	32
Pump Exploded View	33
Warranty	34

Intended Use

The sprayer is intended for use in spraying agricultural pesticides.

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.)

SPRAYING OTHER LIQUIDS:

In addition to spraying pesticides, this sprayer may be used for watering plants and trees. **WE RECOMMEND 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.

NOTE: The sprayer will be damaged and warranty voided if used to apply bleach, chlorine, ice control chemicals, or any petroleum based product (gasoline, diesel, kerosene, oil).

Contact NorthStar Product Support 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.** 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)

- **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, <i>immediately stop spraying.</i> 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>. <u>General procedures can include:</u> <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, call 911.</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.

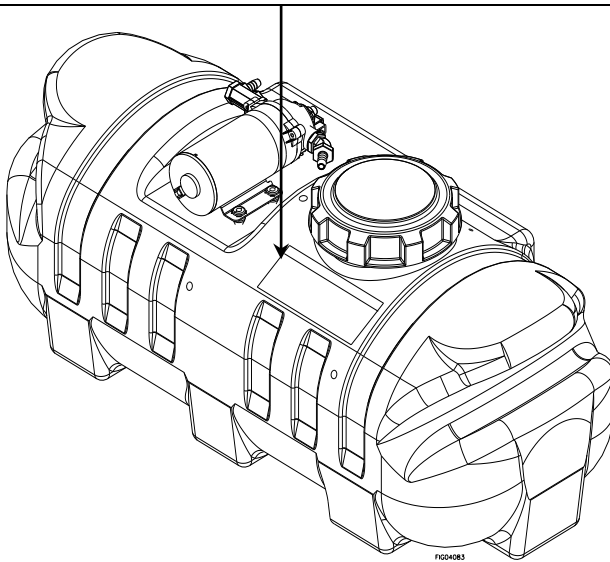
KNOW emergency procedures BEFORE handling chemicals. Sprayer leaks, bodily chemical contact, poisoning, and spills require immediate response.

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.

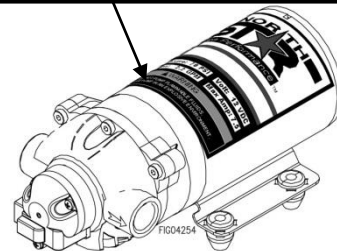
DO NOT TURN ON POWER to sprayer until ready to spray in order to avoid unintentional spray release.

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.



⚠ WARNING

DO NOT PUMP FLAMMABLE FLUIDS. DO NOT USE PUMP IN AN EXPLOSIVE ENVIRONMENT. READ AND UNDERSTAND THE OWNER'S MANUAL COMPLETELY BEFORE USING. RELIEVE SYSTEM PRESSURE BEFORE PERFORMING MAINTENANCE.



Part#	Description
777499	Chemical Label
788012	NSQ Series 5562Q Pump Label

Always make sure safety labels are in place and in good condition. If a safety label is missing or not legible, order new labels or unsafe operation could result.

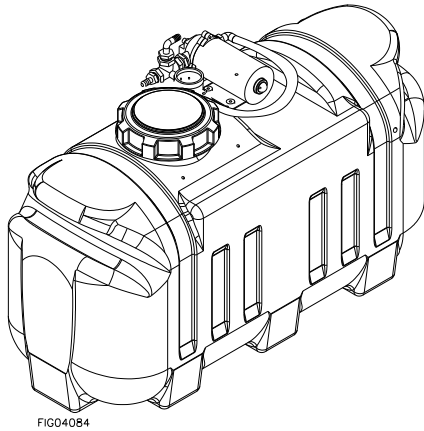
To order replacement safety labels, call NorthStar Product Support at 1-800-270-0810.

Unpacking

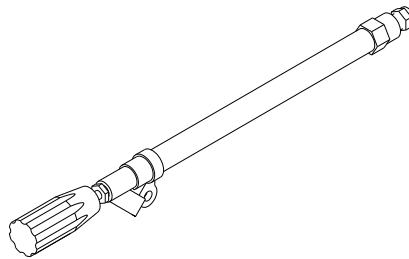
Closely inspect all contents in the shipping carton.

Note that some parts are shipped inside the tank.

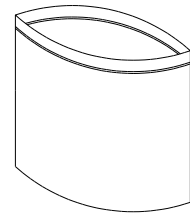
- If you have missing or damaged components, please contact NorthStar Product Support at 1-800-270-0810.



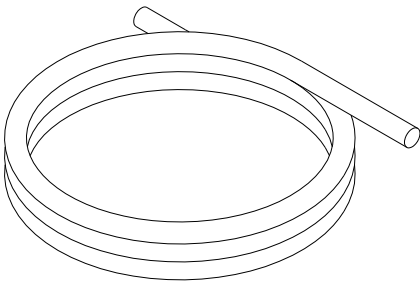
Sprayer



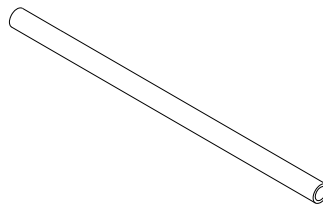
Spray Gun
(Qty 1)
777845



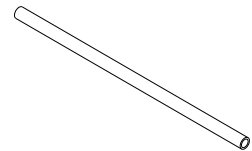
Manual Bag



Gun Hose
(Qty 1)
793659



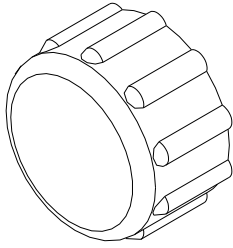
3/4" Suction Hose
(Qty 1)
793661



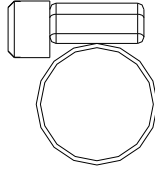
1/2" Agitation Hose
(Qty 1)
793660

Unpacking the Manual Bag

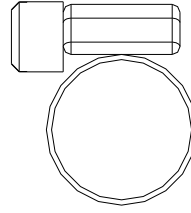
- The following items are found in the manual bag.



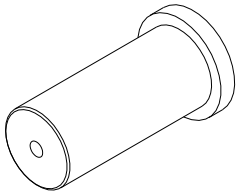
Drain Cap & Washer
(Qty 1)
37680, 5232



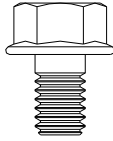
1/2" Hose Clamp
(Qty 2)
777119



3/4" Hose Clamp
(Qty 4)
17141



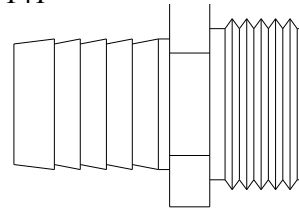
Extended Throw Nozzle
(Qty 1)
782059



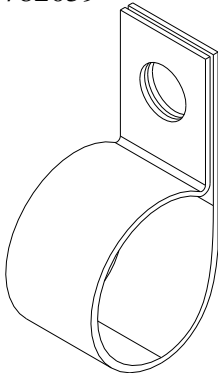
5/16 x 1/2" Bolt
(Qty 1)
82014



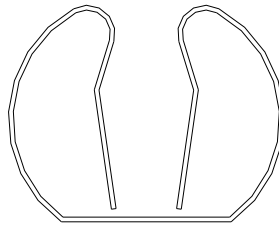
#10 x 3/8" Screw
(Qty 2)
791504



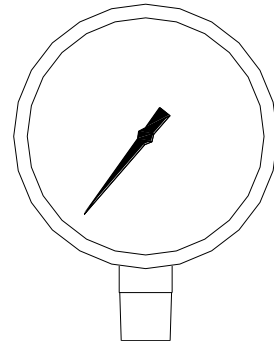
Hose Barb
(Qty 1)
782050



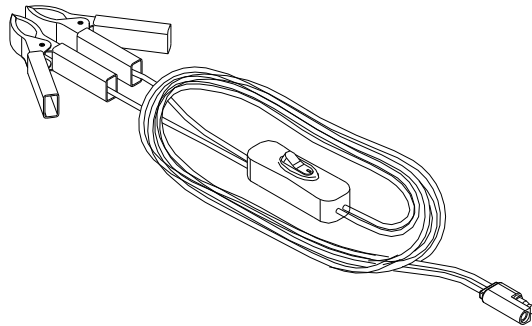
Hose Guide
(Qty 1)
779666



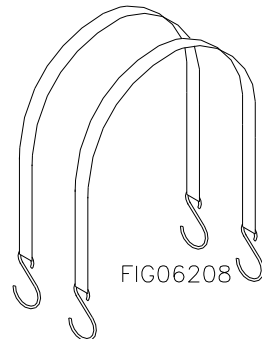
Gun Clip
(Qty 2)
777358



Pressure Gauge
(Qty 1)
777848



Wire Harness
(Qty 1)
797599



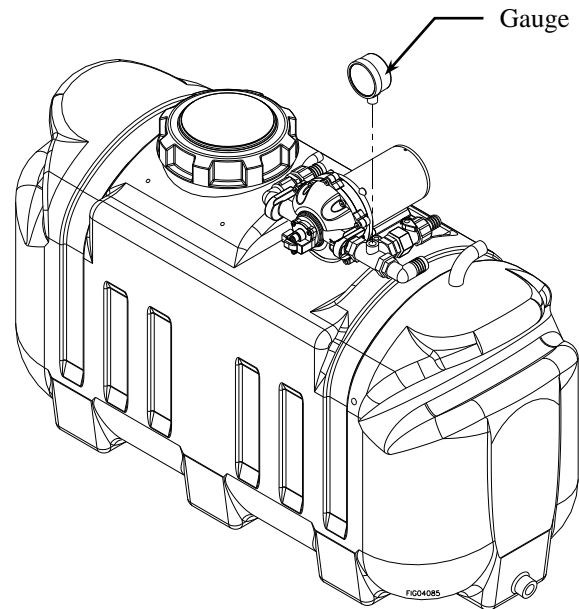
Tank Straps
(Qty 2)
5262

FIG06208

Assembly

Step One: Attach gauge

1. Thread in pressure gauge. Hand tighten.

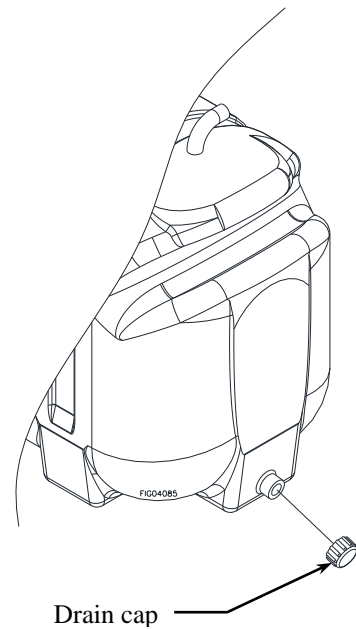
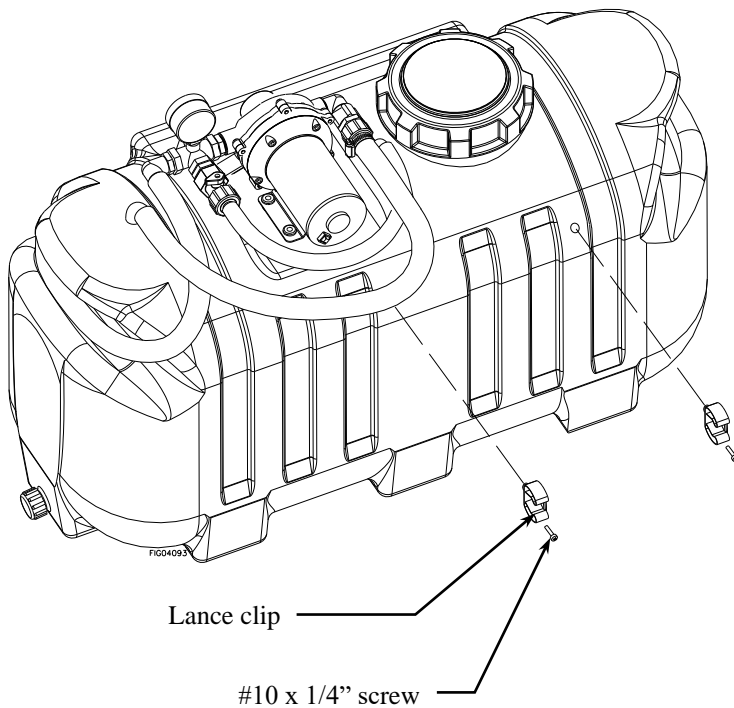


Step Two: Attach lance clips to tank

Fasten both lance clips to the sprayer tank with #10 x 1/4" screws.

Step Three: Attach drain cap to tank

Thread the drain cap onto the tank.



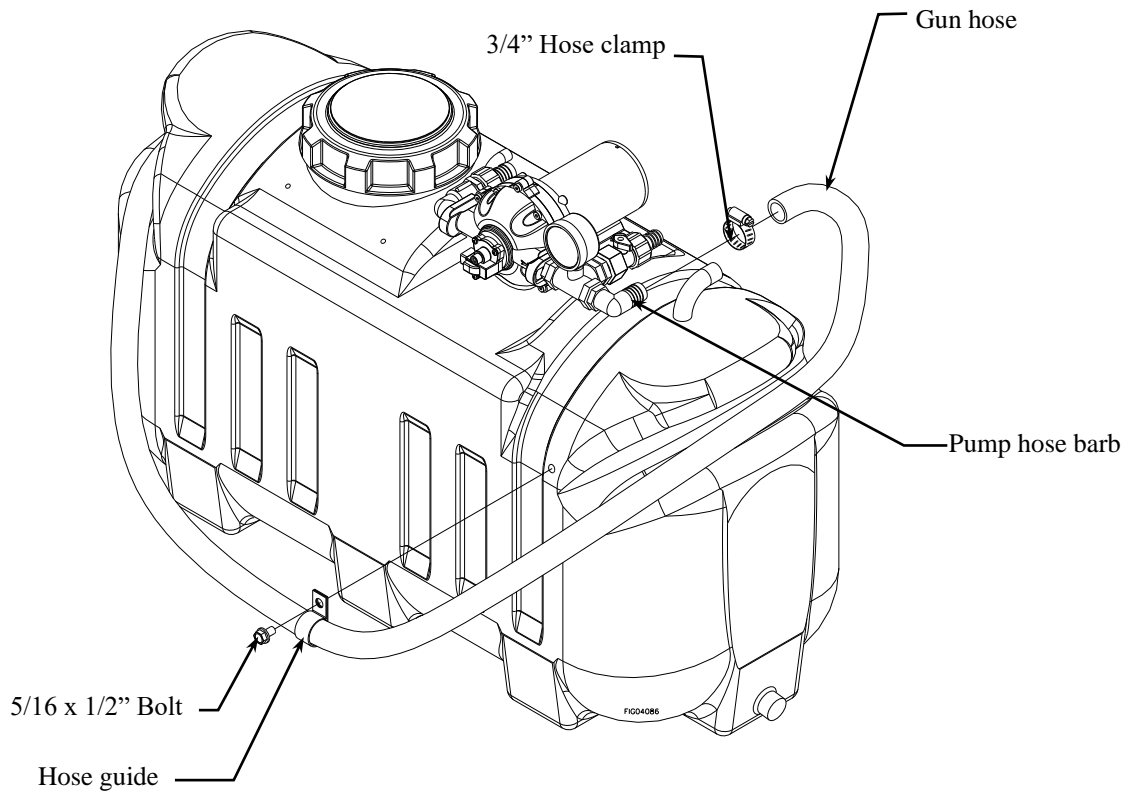
Assembly (continued)

Step Four: Attach gun hose to pump

1. Install hose clamp 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 the hose clamp, attach one end of the gun hose to the pump hose barb.

Step Five: Attach hose guide to tank

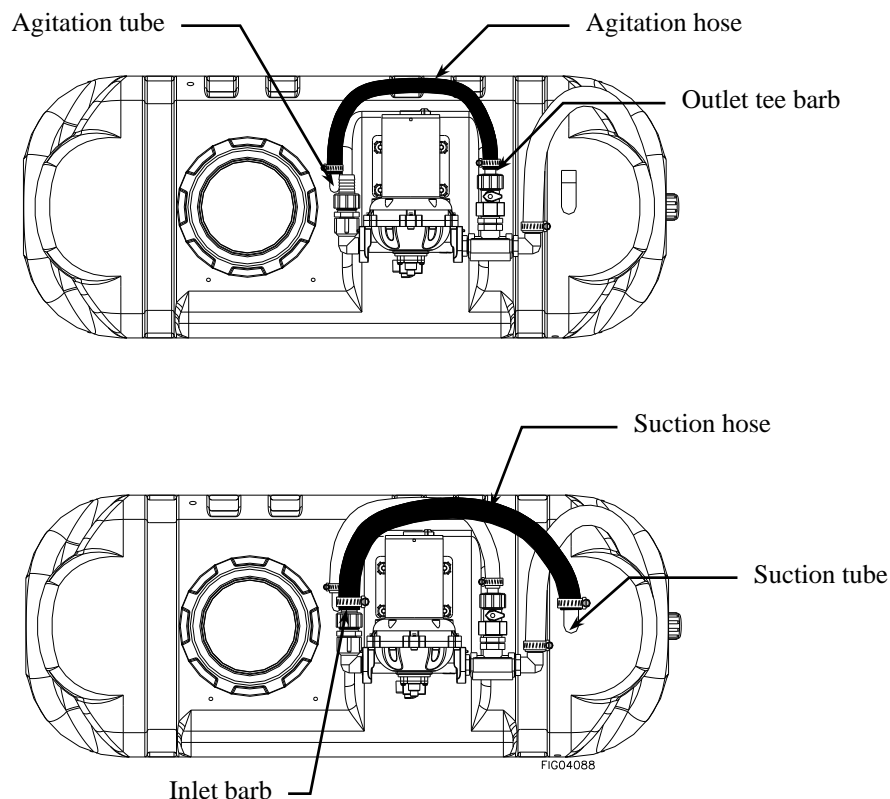
1. Route gun hose around sprayer and through hose guide.
2. Attach hose guide to tank with 5/16 x 1/2" bolt.



Assembly (continued)

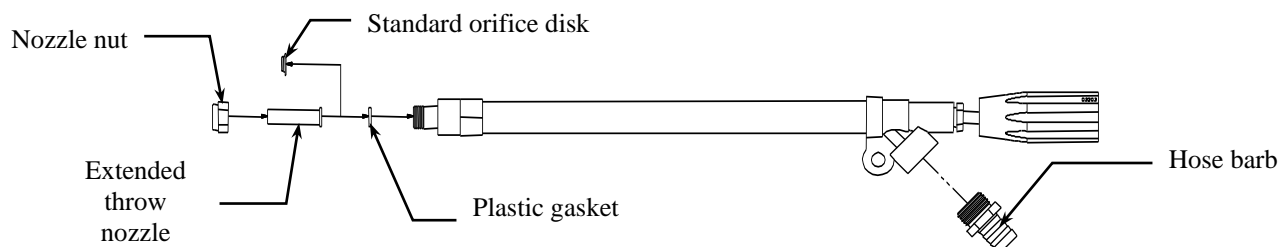
Step Six: Attach suction hose and agitation hose

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 the 1/2" hose clamps, attach one end of the Agitation hose to the agitation tube.
3. Attach the other end of the Agitation hose to the Outlet tee barb.
4. Using the 3/4" hose clamps, attach one end of the suction hose to the suction tube.
5. Attach the other end of the suction hose to the inlet barb.



Step Seven: Prepare spray gun

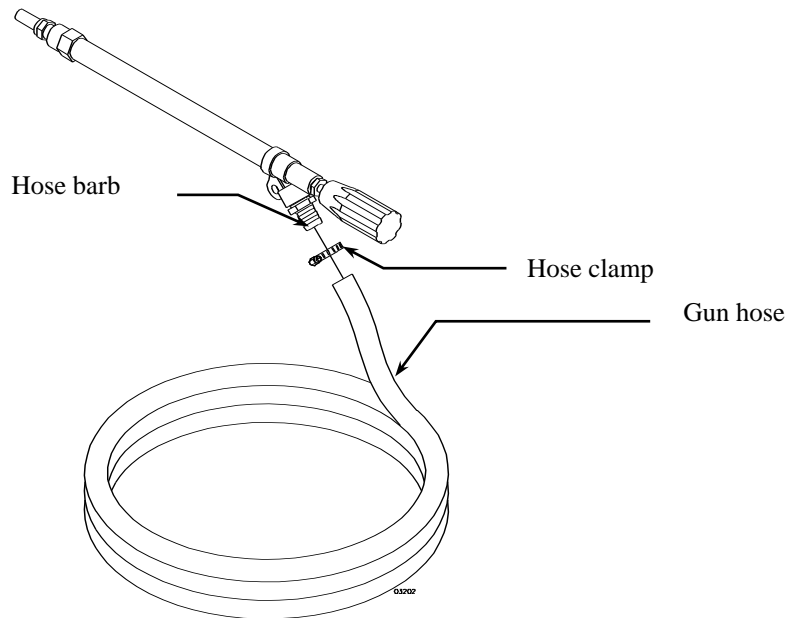
1. Attach the threaded end of hose barb into the gun inlet.
2. Unthread the nozzle nut and discard the standard orifice disk.
3. Position the extended throw nozzle as shown. *Note: keep the plastic gasket in its original position.*
4. To secure the extended throw nozzle, thread the nozzle nut back onto the gun.



Assembly (continued)

Step Eight: Attach gun to gun hose

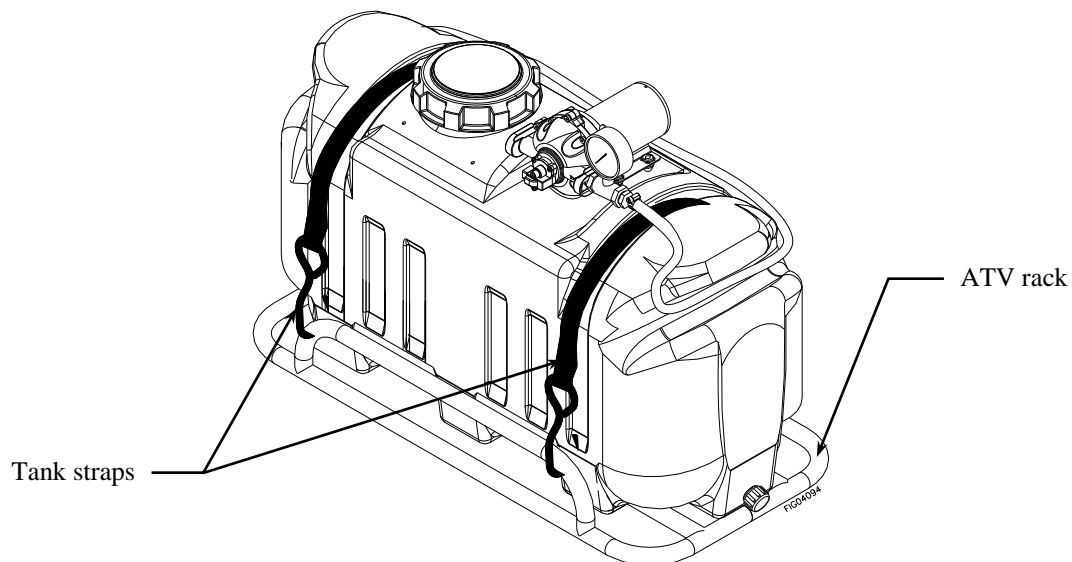
1. Install hose clamps on hose.
 - i) Slide hose clamp over the end of the hose.
 - ii) Push the hose onto the hose barb.
 - iii) Slide the hose clamp over the hose barb.
 - iv) Tighten the hose clamp.
2. Using a 3/4" hose clamp, attach the remaining end of the gun hose to the barb on the gun inlet.



NOTE: *If your vehicle battery will be inaccessible after the sprayer is attached, you will need to proceed to "Step Ten: Connect power cords to vehicle battery" prior to performing Step Nine below.*

Step Nine: Attach sprayer to vehicle

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



Assembly (continued)

Step Ten: 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 wire harness to the battery terminals.

1. Preparatory safety

Preparatory safety steps:

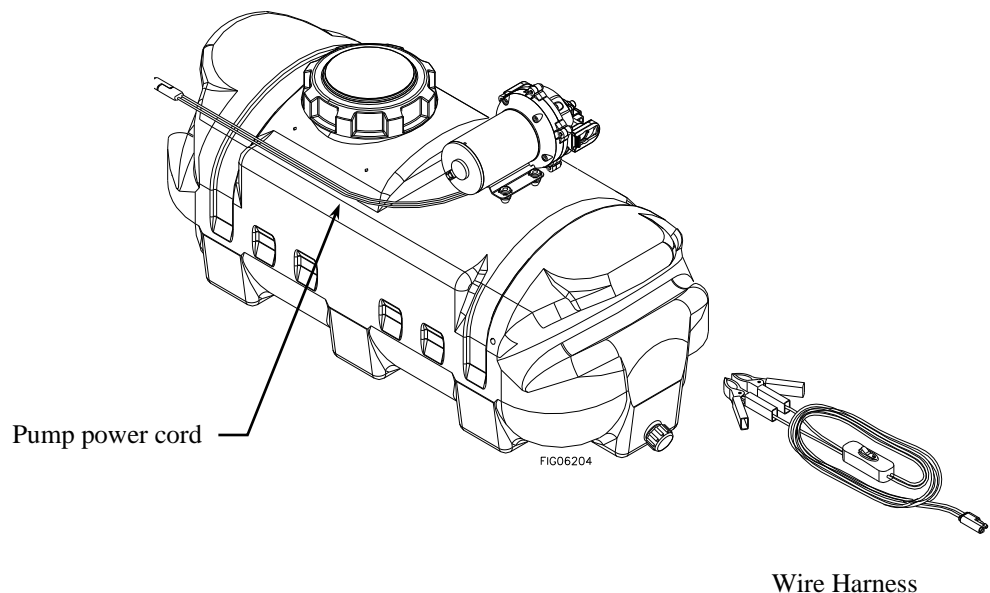
- ALWAYS use eye protection
- NEVER smoke or work near sparks or other sources of ignition.
- NEVER touch both battery terminals at the same time or with any non-insulated tools.
- If battery acid contacts skin or clothing, flush immediately with water and neutralize with baking soda.

2. Identify sprayer's power cords

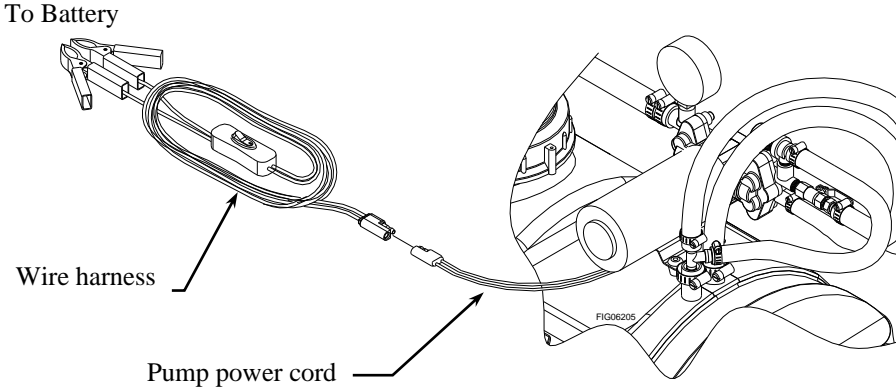
Identify the power cords shipped with the sprayer.

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

- a) The pump power cord is shipped connected together to the sprayer.
- b) The wire harness is packed separately in the Manual Bag.



Assembly (continued)

3. Connect power cord to battery	<p>Connect the sprayer's <u>wire harness</u> to the vehicle battery using the following procedure:</p> <ol style="list-style-type: none"> Disconnect the vehicle battery ground wire. Connect the <u>wire harness</u>' red battery clamp to the positive (+) terminal of the battery. Connect the <u>wire harness</u>' black battery clamp to the negative (-) terminal of the battery. Reconnect the vehicle battery ground wire. <p>WARNING: Always connect in this sequence to avoid possible shock.</p>
4. Verify connection	<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>
5. Attach sprayer to vehicle if haven't yet	<p>If you have not yet mounted the sprayer to your vehicle, do so at this time following the instructions in "<u>Step Nine: Attach Sprayer to Vehicle</u>".</p>
6. Connect cords together	<p>Connect the sprayer power cords together.</p> <ol style="list-style-type: none"> Check to be sure the power switch is in the "OFF" position on the <u>wire harness</u>. Connect the wire harness to the pump power cord. <div style="text-align: center;">  </div>
7. Disconnect after use	<p>AFTER EACH USE, disconnect power to the sprayer by disconnecting the sprayer's <u>wire harness clamps</u> from the battery.</p> <p>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.</p>

Assembly (continued)

Step Eleven: Check and test completed assembly.

WARNING

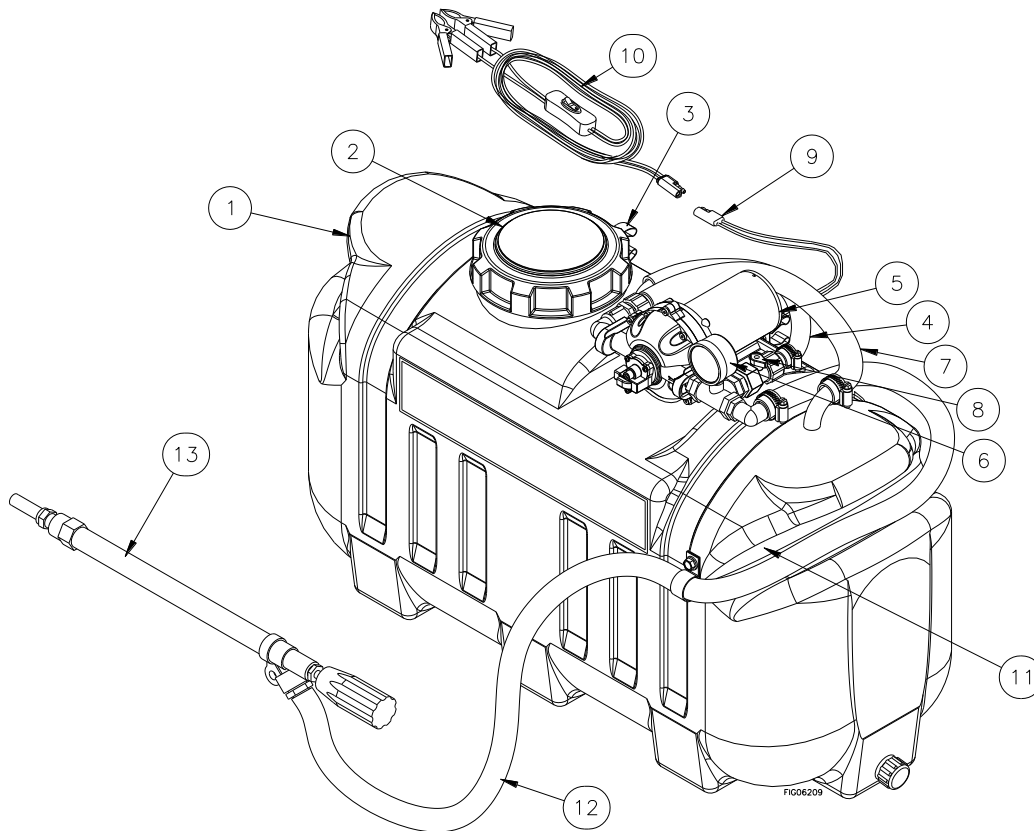
Check and test completed assembly

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	<p>Check assembly to assure the sprayer is properly assembled and in safe working condition:</p> <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	<p>Test the system for leaks with water:</p> <ul style="list-style-type: none"> a) First read the instructions in this Owner's Manual for Operation of the sprayer b) Fill the tank with water per the instructions in this manual. <i><u>Important:</u> 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) d) If a leak is detected, <u>fix the leak and re-test the system with water.</u>

Machine Components



1. **Sprayer Tank.** The sprayer tank holds the chemical
2. **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.
3. **Gun Clips.** Use the gun clips to store the spray gun.
4. **Agitation Hose.** The agitation hose sends liquid back to the tank to keep the chemical mixed.
5. **Sprayer Pump.** The sprayer pump makes the chemical flow to the spray gun and the nozzle.
6. **Pressure Gauge.** The pressure gauge is an indicator of the pressure in the system.
7. **Inlet Hose.** The inlet hose is the inlet line for the pump. Connected to the suction tube which has a suction strainer to prevent debris from entering the pump.
8. **Agitation Valve.** The agitation valve allows the operator to turn ON/OFF the flow of liquid back to the tank to keep the chemical mixed.
9. **Pump Power Cord.** The pump power cord connects the remote switch to the pump.
10. **Wire harness.** The wire harness switch allows the operator to safely turn ON/OFF the sprayer.
11. **Hose Wrap.** The hose wrap is built into the tank, and provides a storage location for the gun hose.
12. **Gun Hose.** The 228" gun hose transfers chemical from the pump to the spray gun.
13. **Spray Gun.** The spray gun has two spraying modes; stream and cone.

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.** Wear additional personal protective equipment if you will be spraying overhead. You will be exposed to much more pesticide fallout in this application. 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

- **Over application.** DO NOT over apply 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 that 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 shoveled into a leak proof 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

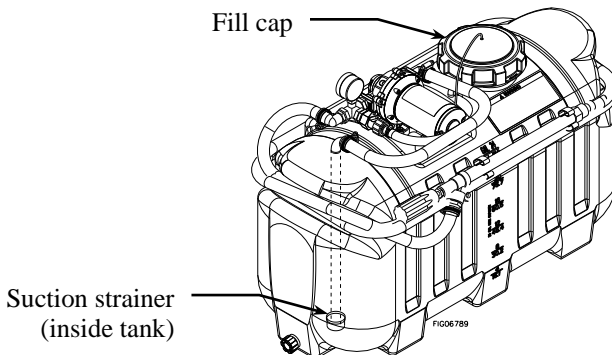
If the sprayer has been used previously, it must be prepared BEFORE EACH SUBSEQUENT USE.

⚠ 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;">  <p style="margin-left: 150px;">Fill cap</p> <p style="margin-left: 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.</i> Repair as needed. <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)

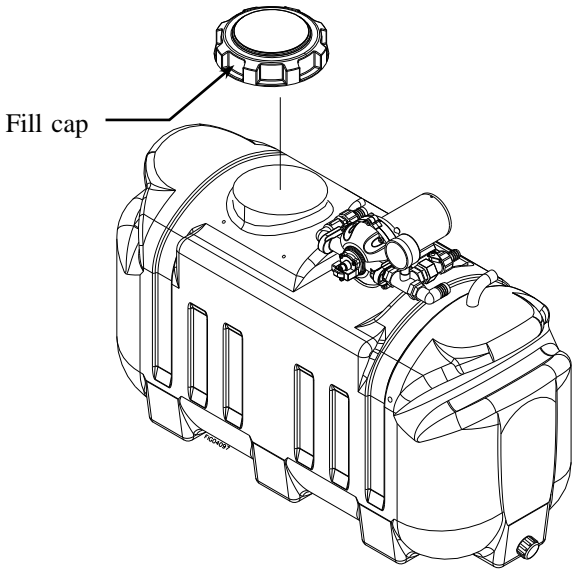
Step Two: Fill the sprayer.

⚠ WARNING

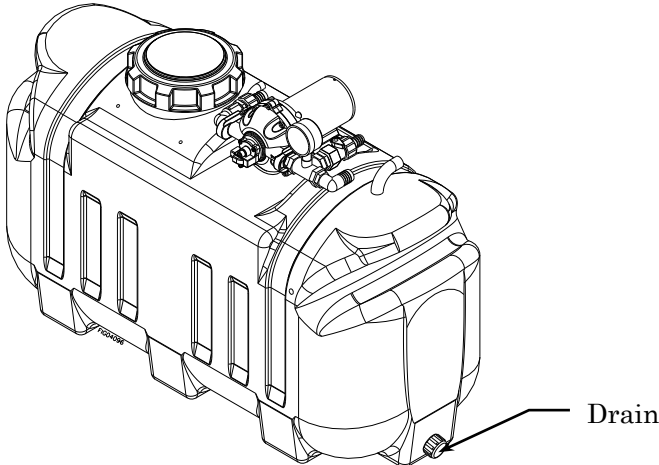
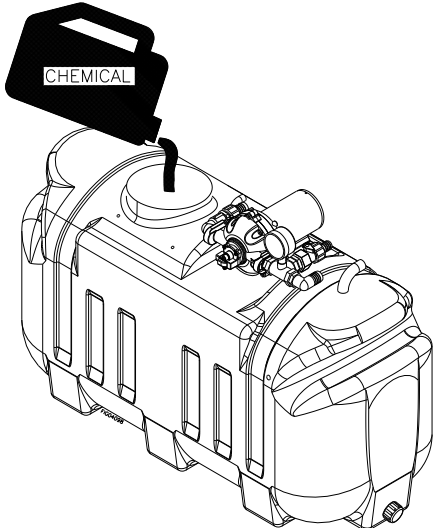
ALWAYS wear personal protective equipment as directed on the chemical label when handling pesticides.

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	Remove the fill cap located on top of the sprayer. <div style="text-align: center; margin-top: 20px;">  <p style="margin-left: 100px;">Fill cap</p> </div>
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)

7. Check drain cap	<p>Before filling tank, ensure drain cap is securely tightened.</p>  <p>The diagram shows a side view of the sprayer tank. A line points from the word 'Drain' to the drain cap located at the bottom right of the tank.</p>
8. Fill tank	<p>Add pesticide to tank through fill cap:</p> <ol style="list-style-type: none"> Confirm the chemical/water dilution ratios specified on the chemical label. Determine chemical and water volumes needed for the planned application, taking into consideration that maximum tank capacity is 26 gallons. <i>Note: Only purchase and mix as much chemical as you need for the planned application in order to minimize chemical over application and the need for storing unused chemicals.</i> 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>  <p>The diagram shows the sprayer tank from a side view. A black container labeled 'CHEMICAL' is tilted, pouring its contents into the fill cap on top of the tank.</p>
9. Ensure chemical mixed	<p>Ensure chemical is thoroughly mixed in tank.</p> <ul style="list-style-type: none"> - Stirring device should be made of metal or plastic, non-chemical absorbing material, and then properly cleaned and stored after use.
10. Replace fill cap	<p>Replace fill cap and tighten securely.</p>

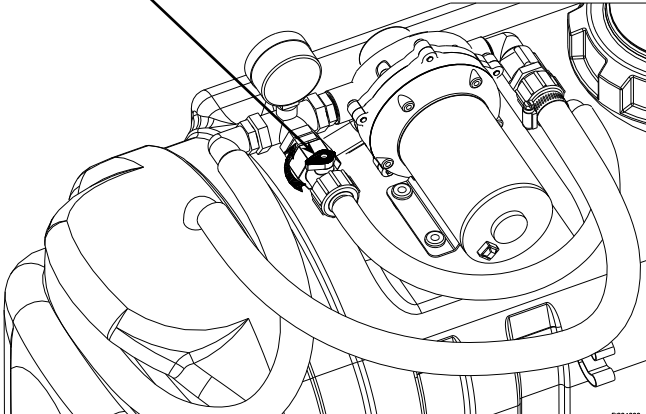
Operation - Using the Sprayer (continued)

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 "Operation – Important Safety Information" related to <u>Chemical Application Safety</u> and <u>ATV Vehicle Handling Safety</u> provided in this manual.
2. Wear personal protective equipment	<p>Wear personal protective equipment as directed on the chemical label.</p> <p>Warning: Wear additional personal protective equipment if you will be spraying overhead. You will be exposed to much more pesticide fallout in this applications. Wear chemical resistant head and neck protection, full facemask or half facemask with sealed goggles, and consider using a dust/mist respirator.</p>
3. Turn on power	<p>Turn on the power to the sprayer.</p> <ol style="list-style-type: none"> 1. Verify the battery is connected to the wire harness and that the wire harness is connected to the pump power cord. 2. Turn the switch to the "ON" position. <p><i>Note: The pump will start automatically when power is turned on. The pump will cycle on and off as needed to retain pressure in the hose.</i></p>
4. Begin agitation if needed	<ol style="list-style-type: none"> 1. Decide if agitation is required 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"), "wetttable powder" ("WP" or "W"), "emulsion" ("EC" or "E"), "microencapsulated" ("M"), or water dispersible granules ("WDG" or "DF"). (See pesticide label to determine its classification.) 2. Operate the agitator Begin agitation by opening the agitation valve. <div data-bbox="527 1438 699 1465"> Agitation valve  </div> <div data-bbox="1299 1528 1573 1684"> <p><i>Note: Opening the agitation valve will reduce the flow and pressure delivered to the spray gun.</i></p> </div>

Operation - Using the Sprayer (continued)

5. Operate spray gun (as needed for application)	<p>To spray, rotate the handle of the spray gun.</p> <p>-Rotating the handle will change the spray pattern from OFF, to cone, to stream.</p> <div data-bbox="662 344 1263 735" data-label="Image"> </div> <p><i>Note: It is not unusual for the operator to be exposed to chemical while operating the spray gun— gloves should be chemical resistant.</i></p>
6. Leaving unattended	<p>If the sprayer must be left unattended at any time:</p> <ol style="list-style-type: none"> Disconnect power to the sprayer. Relieve system pressure by depressing the gun trigger. Turn off the vehicle. Set brake or block the wheels.
7. Discontinue use if clogged or inoperative	<p>If the sprayer becomes clogged or inoperative during use, <i>discontinue use immediately.</i></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 26 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 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 26 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	If the cause listed for your problem is Clogged suction 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". <i>- In order to avoid accidental exposure to chemicals, never attempt to unclog the suction tube or suction strainer, or service the spray gun nozzle, until the tank has been emptied and the sprayer flushed with water.</i>
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	Follow the directions provided in the troubleshooting table to repair the sprayer. NOTE: Never try to unclog the sprayer nozzle by blowing through it.
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
	Fuse blown	Replace fuse
	Short in wires	Check condition of wires
	Low voltage	Check voltage
Low pressure	Worn spray gun nozzle	Replace spray gun
	Agitation valve open	Close agitation valve
Low flow	Clogged intake tube	Remove obstruction
	Clogged suction strainer	Clean suction strainer
	Low voltage	Check voltage
	Agitation valve open	Close agitation valve
Poor spray distribution	Clogged intake tube	Remove obstruction
	Suction strainer clogged	Clean suction strainer
	Worn spray gun nozzle	Replace spray gun
Pump cycles while not spraying	Leak in the system	Tighten leaking hose clamps or fittings, replace spray gun
	Agitation valve open	Close agitation valve

Specifications

Electrical System Requirements

Electrical connection.....	12 VDC
Amp draw from pump.....	17.0 Amps Max.

Sprayer Specifications

Maximum GPM.....	5.5 GPM (20.8 lpm)
Maximum Pressure.....	60 PSI (4.1 bar)
Tank Maximum Capacity.....	26 Gallons
Overall Dimensions	34.0"L x 14.5"W x 20.5"H
Dry Weight / Weight full of water	35 lbs. / 243 lbs.

Component Materials*

Tank.....	Polyethylene, EPDM
Suction Tube.....	Polypropylene, PVC, Stainless Steel
Hose.....	PVC
Pump.....	Polypropylene, Viton [®] , Santoprene [®]
Valves.....	PVC, Buna-N
Gun and Nozzle.....	Brass, Aluminum, EPDM, Polyethylene

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

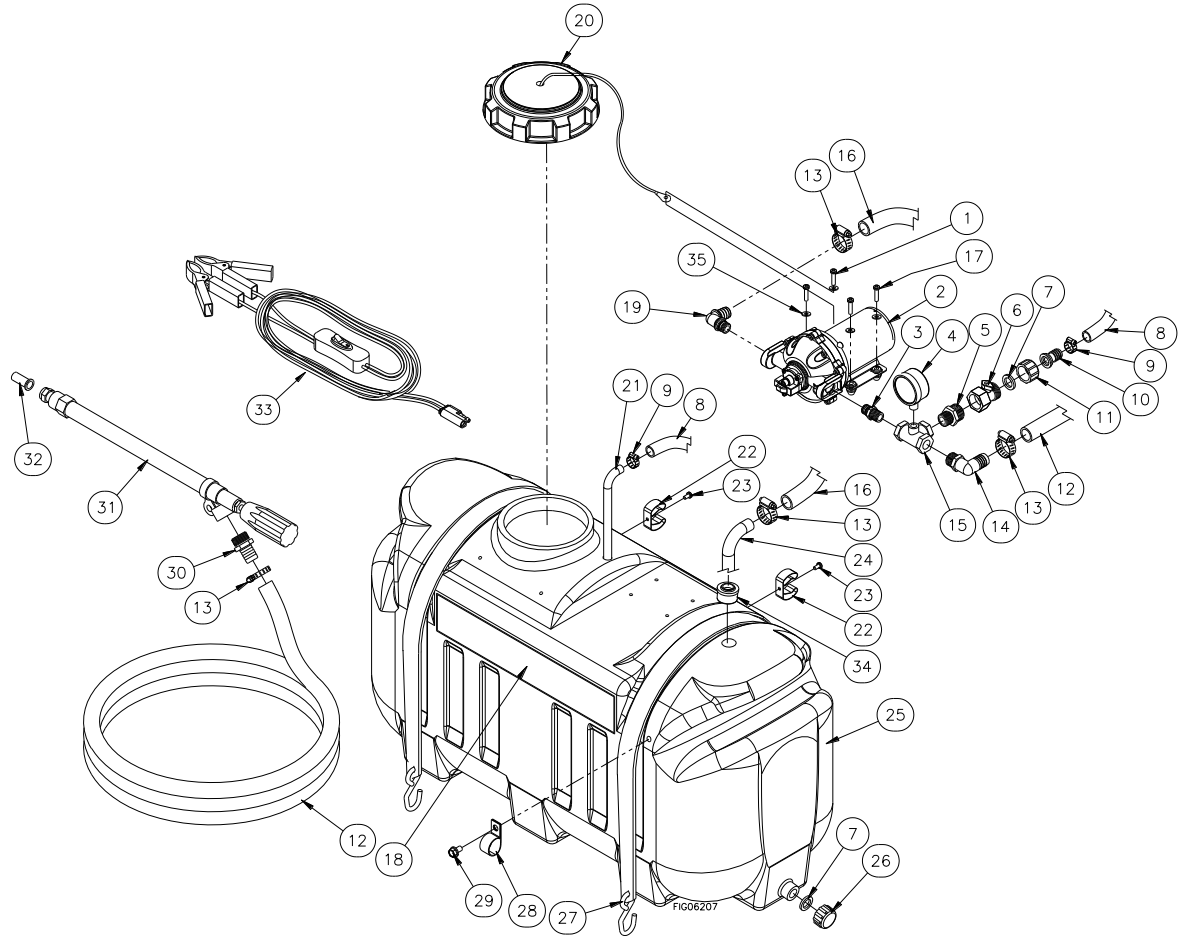
Note:

The sprayer is not compatible with bleach, chlorine and ice control chemicals. Also, pumping any petroleum based fluid (gasoline, diesel, kerosene, oil) will severely damage the pump.

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 Product Support 1-800-270-0810

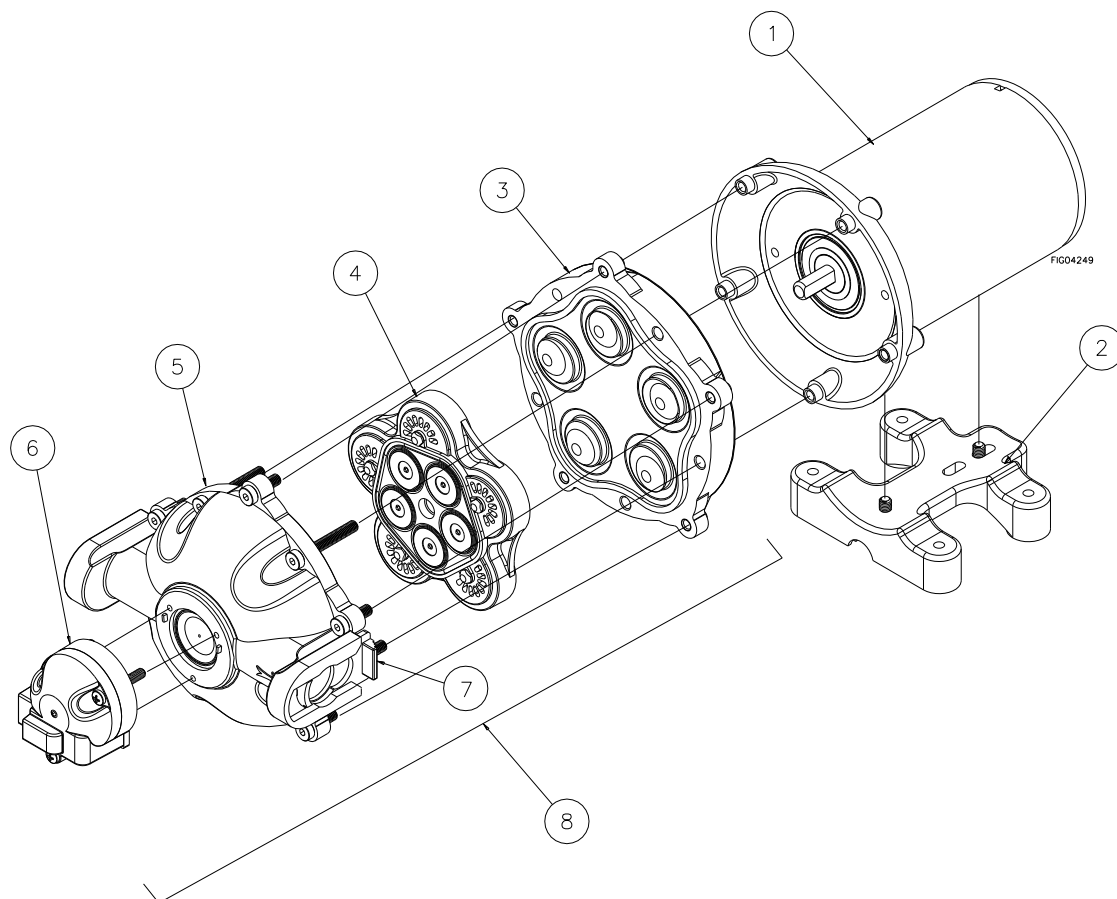
Exploded View – 2681852 – Rev B.3



Ref#	Part#	Description	Qty
1	82617	Screw, #10-24 x 1 1/4"	1
2	795066	North Star 5.5gpm Pump	1
3	787195	QC x 1/2" MNPT	1
4	777848	2" Gauge, Dry 100 PSI	1
5	782048	1/2" NPT x 3/4" MGHT	1
6	782025	Shut Off Valve	1
7	5232	Rubber Washer	2
8	793660	1/2" Agitation Hose, 380mm	1
9	777119	1/2" Hose Clamp	2
10	5212	1/2" Flat Seat Hose Barb	1
11	777850	Male Garden Hose Swivel Nut	1
12	793659	3/4" Braided PVC Gun Hose, 5.8m	1
13	17141	3/4" Hose Clamp	4
14	782060	1/2" NPT x 3/4" HB Elbow	1
15	5377	1/2" FNPT Tee w/gauge port	1
16	793661	3/4" Braided PVC Suction Hose, 457mm	1
17	82061	Screw, #10-24 x 1 1/8"	3
18	779319	Billboard decal	1

Ref#	Part#	Description	Qty
19	787198	Fitting, QC x 3/4" HB w/ O-ring	1
20	792701	Tank Lid With Tether	1
21	779390	1/2" Suction Tube	1
22	777358	Large Gun Clip	2
23	791504	10-24 x 3/8" Phillips Head Screw	2
24	782057	3/4" Suction Tube	1
25	793775	26 Gallon Tank	1
26	37680	Drain Cap	1
27	5262	Auto locking Tie-down Straps	2
28	779666	Hose Guide	1
29	82014	5/16-18 x 1/2" Bolt	1
30	782050	3/4" Hose Barb x 3/4" GHT	1
31	777845	Spray Gun	1
32	782059	Extended Throw Nozzle	1
33	797599	Wire Harness	1
	793243	Fuse, 20A ATOF	1
34	797601	3/4" Suction strainer	1
35	82068	#10 Flat washer	4

Pump Exploded View



Ref#	Part#	Description	Qty
1	800138	Motor assembly	1
2	800428	Base plate assembly	1
3	788019	Diaphragm assembly	1
4	788015	Valve plate assembly	1
5	787012	Upper housing assembly	1
6	788689	Pressure switch assembly	1
7	787015	Quick connect clip	2
8	A2685562	Pump head assembly	1
N/A	791416	Replacement fuse	1

Limited Warranty

Dear Valued Customer:

The NorthStar Product you just purchased is built with the finest material and craftsmanship. Use this product properly and enjoy the benefits from its high performance. By purchasing a NorthStar product, you show a desire for quality and durability. Like all mechanical equipment this unit requires a due amount of care. Treat this unit like the high quality piece of machinery it is. Neglect and improper handling may impair its performance. Please thoroughly read the instructions and understand the operation before using your product.

Limited Warranty

NorthStar shall warranty any piece of equipment manufactured, or parts of equipment manufactured, to be free from defects in material or workmanship for a period of 2 years for noncommercial/nonrental use and a period of 90 days for commercial/rental use from the date of purchase by user.

NorthStar shall warranty any wear item, including, but not limited to, valves, seals, pump diaphragms, hoses, and filter elements to be free from defects in material or workmanship for a period of 90 days from the date of purchase by user. This warranty applies to the original purchaser of the equipment and is non-transferable. Verification of purchase is the responsibility of the buyer. Parts will be replaced or repaired at no charge, except when the equipment has failed due to lack of proper maintenance. Any misuse, abuse, alteration or improper installation or operations will void warranty. Determining whether a part is to be replaced or repaired is the sole decision of NorthStar.

NOTE: Some services performed by parties other than NorthStar may void warranty.

This warranty covers parts only. It will not provide for replacement of complete products due to defective parts.

Components not manufactured by NorthStar are guaranteed by their manufacturer and can be serviced at factory-authorized locations near you. Any costs incurred due to replacement or repair of items outside of a NorthStar approved facility is the responsibility of the buyer and not covered under warranty. NorthStar can supply you with the service center location in your area.

This warranty specifically excludes the following; failure of parts due to damage caused by accident, fire, flood, windstorm, acts of God, applications not approved by NorthStar in writing, corrosion caused by chemicals, use of replacement parts which do not conform to manufacturer's specifications, and damage caused by vandalism. Additional exclusions: loss of running time, inconvenience, loss of income, or loss of use, including any implied warranty of merchantability of fitness for a specific use.

Warranty does not cover items subject to normal wear such as tires, receptacles or any part subject to direct physical contact by the public. This warranty does not cover any personal injury or damage to surrounding property caused by failure of any part.

This warranty is in lieu of any other warranty expressed or implied and NorthStar assumes no other responsibility or liability outside that expressed within this warranty.

Please fill in the following information and have it on hand when you call in on a warranty claim.

Customer Number: _____

Date of Purchase: _____

NorthStar Serial Number: _____

Item Number: _____

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Manufactured by
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NorthernTool.com