



M402303E.5

ITEM NUMBER: 402303, 402304

SERIAL NUMBER: _____

Owner's Manual

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

Sealcoat Sprayer: For outdoor use with Sealcoating liquid materials

⚠ 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 sealcoating material instructions. Sealcoating materials are hazardous chemicals and must be handled and stored carefully.

KNOW emergency procedures BEFORE handling sealcoating materials. Sprayer leaks, bodily contact, and spills are all situations, which require immediate response.

AVOID inhaling, ingesting, or coming into contact with any sealcoating materials.

EXERCISE CAUTION in vehicle handling. Vehicle will be less stable and handle differently with filled sprayer in transit. Review safety instructions in your vehicle manual with regard to carrying heavy cargo loads.

READ 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 by the sealcoating material manufacture.

Risk of fire and explosion. Do not add fuel when engine is running or still hot.

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

STOP!

NOTE: The mechanical seal is a wear item inspect for leaks prior to each use. See the Machine Components section for location

ADD OIL TO ENGINE BEFORE USING: Engine is shipped without oil. DO NOT start log splitter without first adding oil.

INSPECT COMPONENTS: Closely inspect to make sure no components are missing or damaged.

See Initial Unpacking & Set-up for instructions and for whom to contact to report missing or damaged parts.

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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Intended Use

This sealcoat sprayer is designed to spray “coal tar emulsion sealer” onto asphalt driveways and surfaces. Seal coating protects asphalt from: water damage that would penetrate small cracks, UV rays and oxidation which degrade asphalt, and protects asphalt from chemical spills like oil and gasoline. All while improving the appearance of the asphalt driveway or parking lot.

This sprayer has three modes of operation: Agitation, Spraying and Loading

AGITATION MODE:

“Coal tar emulsion sealer” is an emulsion, meaning the coal tar is temporarily mixed with water. The water and coal tar will separate after resting for longer than three hours. We recommend that you agitate the product for 5 to 10 minutes. If the sealer has not been agitated long enough, you will see there will be a chunky/muddy coal tar at the bottom of the tank.

SPRAYING MODE:

This mode is used after the “agitation” mode. Use this mode to spray the sealer onto the asphalt driveway or surface.

Driveway application: Start at the rear end of the driveway and spray your way back to the street. Have someone hold a sheet of plywood or aluminum and first spray all of the borders (3 to 4 feet out) except for the street edge. Once border trimming is done, you can now go back to the rear end of the driveway (usually by the garage) and spray from right to left and from left to right in an overlapping pattern that allows full coverage.

All other Asphalt applications: Start at one corner of the asphalt surface and spray towards your designated stopping point of the asphalt surface. When applying to large surface areas it is recommended to spray from right to left and from left to right in an overlapping pattern within a squared section instead of long rows.

Note: Upon completion add caution ribbon to forbid access to the sprayed surface.

LOADING MODE:

This mode is used to fill the tank with sealer from a 55 gallon barrel or from a 250 gallon tote tank using a loading hose and suction tube.

For barrels: insert the suction tube into the top orifice of the barrel and then connect the loading hose to the quick connector. After turning the valves in the “self-loading” position, start the engine. When the barrel is almost empty, tilt it to completely empty it.

For tote tank: connect the loading hose directly to the male coupling at the bottom outlet of the tote tank.

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 the **sealcoating material instructions** before handling the sealcoating material.

Improper use of the sprayer or handling of sealcoating materials 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 -----

- **CHECK and TEST completed assembly** as directed in this manual. Serious injury could result from sealcoating material leaks if sprayer is improperly assembled.
- **DO NOT MODIFY sprayer design.**

----- DURING OPERATION -----

General Sealcoating Safety

- **READ and FOLLOW the sealcoating material instructions and warnings.**
- **AVOID inhaling, ingesting, or coming into contact with any sealcoating material.**
- **KNOW applicable licensing and regulatory requirements** for the sealcoat material you plan to use.
- **KNOW emergency procedures before handling sealcoat materials.** Carefully review "Sealcoat Accident Procedures" listed below and later in this manual.
- **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 sealcoat material manufacture.
- **EXERCISE EXTRA CAUTION around children and pets.** Keep sprayer and spray materials away from them at all times.
- **DO NOT MIX OR POUR sealcoat materials in an enclosed, unventilated area**
- **MONITOR the health of operators frequently exposed to sealcoat material**, as recommended by the sealcoat material manufacture or local/federal regulations.

Sealcoat Application Safety

Before Spraying

- **INSPECT and PREPARE sprayer before each use** as directed in this manual.
- **FOLLOW INSTRUCTIONS for SAFELY FUELING the engine.** Gasoline is flammable and can explode. Always use caution when handling gasoline.
- **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 by the sealcoat manufacture.
- **KEEP sprayer and sealcoat material away from children/pets.**

Summary of Important Safety Information (continued)

During Spraying

- **DO NOT OVERAPPLY SEALCOAT.** Apply at rate recommended by sealcoat manufacturer. Excess sealcoat can be dangerous to humans/animals, and contaminate soil and water sources.
- **DO NOT EAT, DRINK, SMOKE, RUB YOUR EYES, or TOUCH YOUR BARE SKIN while handling sealcoat and spraying.**
- **NEVER POINT THE SPRAY WAND at people or animals.**
- **ALWAYS HOLD THE SPRAY WAND FIRMLY** in order to prevent wand from whipping. Keep good footing and balance at all times.
- **EXERCISE EXTRA CAUTION around children and pets.** Keep sprayer and spray materials away from them at all times.
- **CLEAN up spills immediately** per instructions on the sealcoat label.
- **TURN OFF vehicle and set brake or block wheels, TURN OFF engine, 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 sealcoat material in secure storage with correctly marked container.**

Towing Safety

- **READ towing safety instructions** in your towing vehicle manual with regard to towing heavy cargo loads.
- **DO NOT ALLOW drivers younger than 16** to operate the towing vehicle with the filled sprayer attached.
- **MAKE SURE SPRAYER IS SECURELY ATTACHED to vehicle.**
- **EXERCISE CAUTION in vehicle handling when towing filled sprayer** to avoid loss of control or sprayer overturning.
 - **Keep speed to a minimum** so you can maintain control. Reduce speed prior to turns.
 - **Allow for wider turns** and for **more distance to stop.**
 - **Avoid any sudden** steering maneuvers, starts, or stops that could create sway.
- **SLOW DOWN and EXERCISE EXTRA CAUTION on sloped or uneven terrain.** Pick the most level route possible. Drive up and down slopes when necessary, rather than across. Use a vehicle equipped with a roll over protection system (ROPS) if you will be working on non-level terrain.
- **BE AWARE of the added length of the sprayer and that visibility may be reduced** when making turns or backing up.
- **DO NOT RIDE or TRANSPORT cargo on the sprayer.**
- **COMPLY WITH all local, state, and federal towing requirements if you will be towing on public roads.**
- **TURN OFF both sprayer and vehicle, and SET BRAKES or BLOCK WHEELS** before leaving unattended.
- **Make sure the vehicle tires or trailer tires are fully inflated and in good repair before transporting.** When adding air to the tires, do not over-inflate – serious injury could occur if tire explodes.
- **NEVER TRANSPORT this sprayer while under the influence of alcohol, drugs, or medication.**
- **NEVER TRANSPORT this sprayer over the posted speed limit.** Faster speeds may result in loss of control.

Summary of Important Safety Information (continued)

Sealcoat Accident Procedures

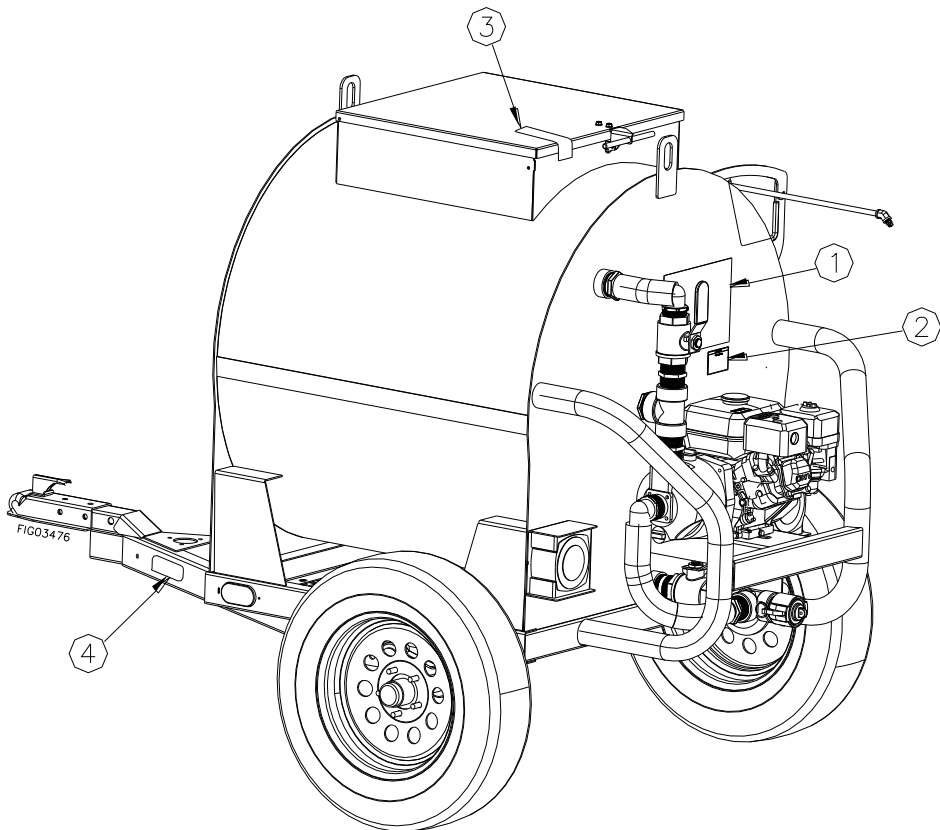
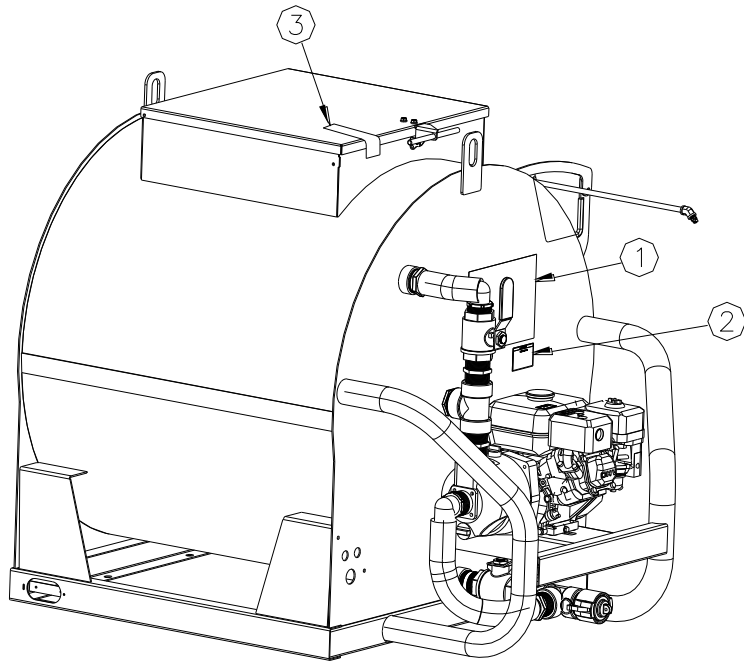
Immediate response is necessary in the event of sprayer leaks, bodily chemical contact, poisoning, or spills. See instructions below:

Sprayer leak	If the sprayer develops a leak, <i>immediately stop spraying</i>. Turn off the sprayer and follow directions below, as applicable.
Bodily chemical contact	<p>Personal contamination can occur when sealcoat material splash, spill, or spray directly onto a person.</p> <ol style="list-style-type: none"> Immediately follow First Aid instructions on <u>sealcoat material manufacture recommendations</u>. <u>General procedures can include:</u> <ol style="list-style-type: none"> Eyes – immediately flush with water. Skin – wash all contaminated skin surfaces with soap and water. Clothing – remove contaminated clothing. Dispose of heavily contaminated clothing per sealcoat material manufactures instructions. Seek medical advice if instructed on the label or the victim experiences symptoms of harmful effects. Bring the sealcoat material information 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"> If you are the victim, immediately seek assistance from nearby personnel because you may become incapacitated. Immediately follow first aid instructions from <u>sealcoat material manufacture</u>. Call a poison control center for further advice. In the U.S., call 1-800-222-1222. Have the sealcoat material label available for reference.
Sealcoat Material spills	<p>Sealcoat material spills must be quickly contained and properly cleaned up.</p> <p>Refer to the sealcoat material label for any specific clean-up instructions.</p> <p><u>General procedures include:</u></p> <ol style="list-style-type: none"> Controlling the spill by stopping the source of the spill. Containing the spill so that it does not spread and get into water sources. Cleaning up the spill immediately. Seeking additional advice from: - <u>Sealcoat material manufacturer</u>. See chemical label for contact information.

----- DURING STORAGE / TROUBLESHOOTING -----

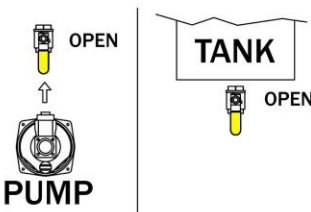
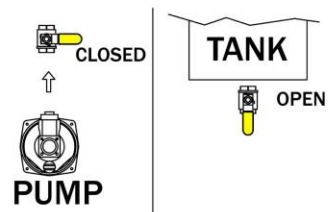
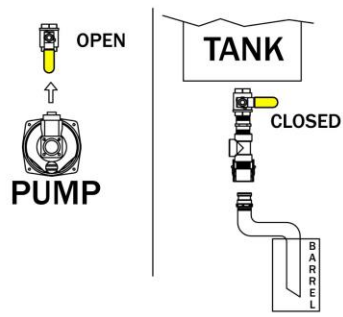
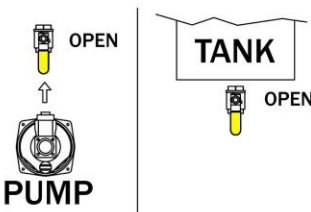
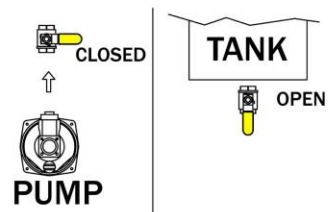
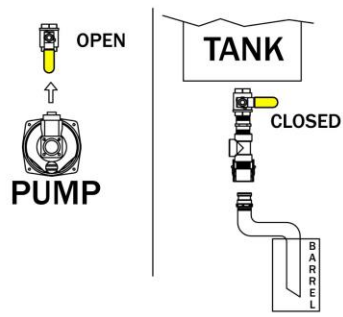
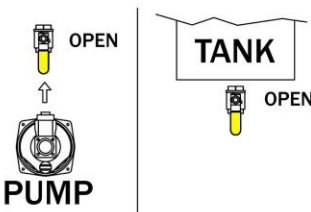
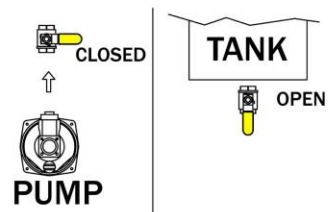
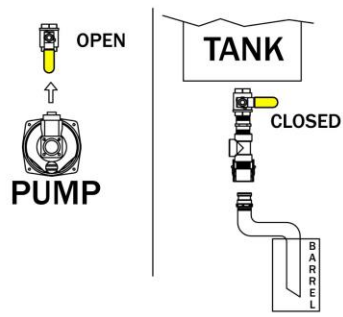
- **PREPARE THE SPRAYER FOR STORAGE** according to the instructions in this manual.
- **SELECT** a well-ventilated **STORAGE AREA** away from sources of heat, flame, or sparks. Gasoline vapors can ignite and cause a fire.
- **READ and FOLLOW** the safety rules for **troubleshooting / servicing** the sprayer to avoid accidental exposure to sealcoat material and risk of electric shock.

Warning Label Locations




Warning Label Locations

1

⚠ WARNING	OPERATING INSTRUCTIONS						
<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 sealcoating material instructions. Sealcoating materials are hazardous and must be handled and stored carefully.</p> <p>KNOW emergency procedures BEFORE handling sealcoating materials. Sprayer leaks, bodily contact, and spills are all situations which require immediate response.</p> <p>AVOID inhaling, ingesting, or coming into contact with sealcoating materials.</p> <p>EXERCISE CAUTION in vehicle handling. Vehicle will be less stable and handle differently with filled sprayer in transit. Review safety instructions in your vehicle manual with regard to carrying heavy cargo loads.</p> <p>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 by the sealcoating material manufacturer.</p> <p>Risk of fire and explosion. Do not add fuel when engine is running or still hot.</p> <p><i>Improper use of the sprayer or handling of sealcoating materials could result in serious injury or illness to the operator or nearby person/animals, or could cause damage to the environment.</i></p>	<p>Start Up:</p> <ol style="list-style-type: none"> 1. If the system has been drained. Pour one gallon of water into the priming port on the top of the pump. 2. Position ball valve handles to Agitation mode. 3. Turn engine on-off switch to ON position. 4. Move fuel valve lever to ON position. 5. For cold engine, move choke lever to half choke or to RUN position. 6. Grasp recoil handle and pull. 7. When engine starts, move choke lever to RUN position. <p>Shut Down:</p> <ol style="list-style-type: none"> 1. Turn engine on-off switch to OFF position. 2. Move fuel valve lever to OFF position. 3. Position all ball valve handles to CLOSED position. 						
<h3>BALL VALVE OPERATING POSITIONS</h3> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;">AGITATION</th> <th style="width: 33%;">SPRAYING</th> <th style="width: 33%;">LOADING</th> </tr> </thead> <tbody> <tr> <td style="text-align: center; padding: 5px;">  </td> <td style="text-align: center; padding: 5px;">  </td> <td style="text-align: center; padding: 5px;">  </td> </tr> </tbody> </table> <p style="font-size: small; margin-top: 5px;"> <small>NORTHERN TOOL + EQUIPMENT Co. 1-800-270-0810</small> <small>www.NorthernTool.com</small> <small>Part 782724</small> </p>		AGITATION	SPRAYING	LOADING			
AGITATION	SPRAYING	LOADING					
							

2

⚠ WARNING	
	<p style="text-align: center;">POISONOUS GAS</p> <p>This product's use gives off carbon monoxide, an odorless gas that can kill you.</p> <ul style="list-style-type: none"> • ONLY use outdoors and away from air intakes. • NEVER use inside homes, garages or sheds. EVEN IF you run a fan or open doors and windows. <p>See product manual for more details.</p> <p style="font-size: x-small; margin-top: 5px;">©2005 Northern Tool + Equipment Co. 1-800-270-0810 PN 39259</p>

4

MOVING/TOWING INSTRUCTIONS	
<p>Moving trailer by hand:</p> <ul style="list-style-type: none"> -Attach caster wheel to jack. -Crank jack down. -Do not attempt to move trailer up or down slope by hand. 	<p>Towing trailer:</p> <ul style="list-style-type: none"> -Latch coupler securely to class 3 or higher hitch with 2" ball. -Crank jack to UP position and remove caster wheel. -Attach safety chains to the tow vehicle. -Check local, state and federal requirements before towing on public roads.

3

⚠ WARNING ⚠	
<p style="font-size: x-small; text-align: center;">THIS SPRAYING SYSTEM CONTAINS SOME RV ANTIFREEZE FOR PROTECTION DURING SHIPPING AND STORAGE. RV ANTIFREEZE IS 100% SAFE, NON-TOXIC, AND BIODEGRADABLE.</p> <ul style="list-style-type: none"> •CHECK TO MAKE SURE ALL FITTING AND HOSE CONNECTIONS ARE TIGHT BEFORE USE. •PERFORM A FULL PRESSURE RUN TEST WITH WATER ONLY, AS INSTRUCTED BY THE MANUAL. •CHECK FOR LEAKS, AND COMPLETELY FLUSH THE SYSTEM BEFORE USING ANY CHEMICALS 	

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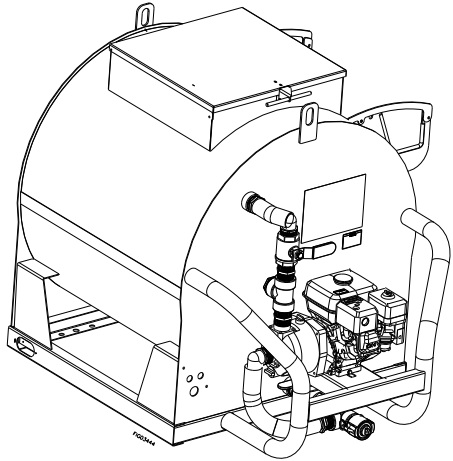
Call North Star Product Support at 1-800-270-0810 to order new decals.

- Order Part No.
1. 782724 Sealcoat warning decal
 2. 39259 CO warning decal
 3. 32362 Warning test label
 4. 777778 Moving/Towing Instructions decal

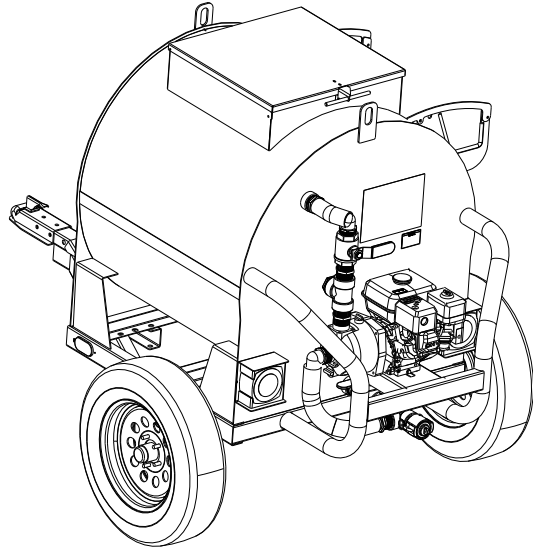
Unpacking

Closely inspect all contents in the shipping carton.

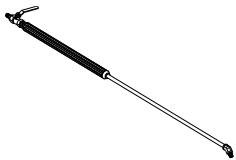
- If you have missing or damaged components: Contact NorthStar Product Support at 1-800-270-0810.



402303 Skid Unit



402304 Trailer Unit



Gun



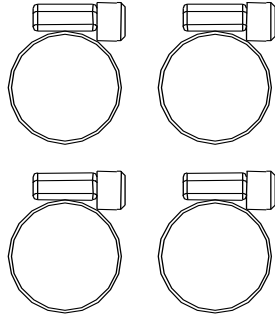
Hose



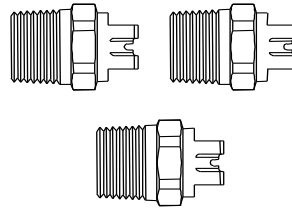
Manual Bag

Unpacking the Manual Bag

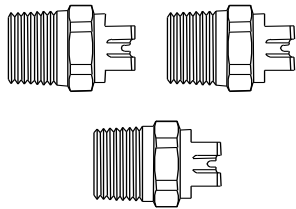
The following items are shipped in the manual bag.



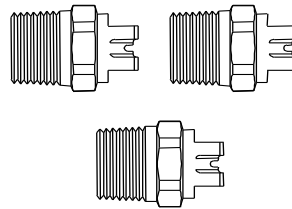
Clamps
Qty - 4



80 Degree Nozzles – 20 size orifice
(nozzle labeled 8020)
Qty - 3



80 Degree Nozzles – 30 size orifice
(nozzle labeled 8030)
Qty - 3



80 Degree Nozzles – 40 size orifice
(nozzle labeled 8040)
Qty - 3

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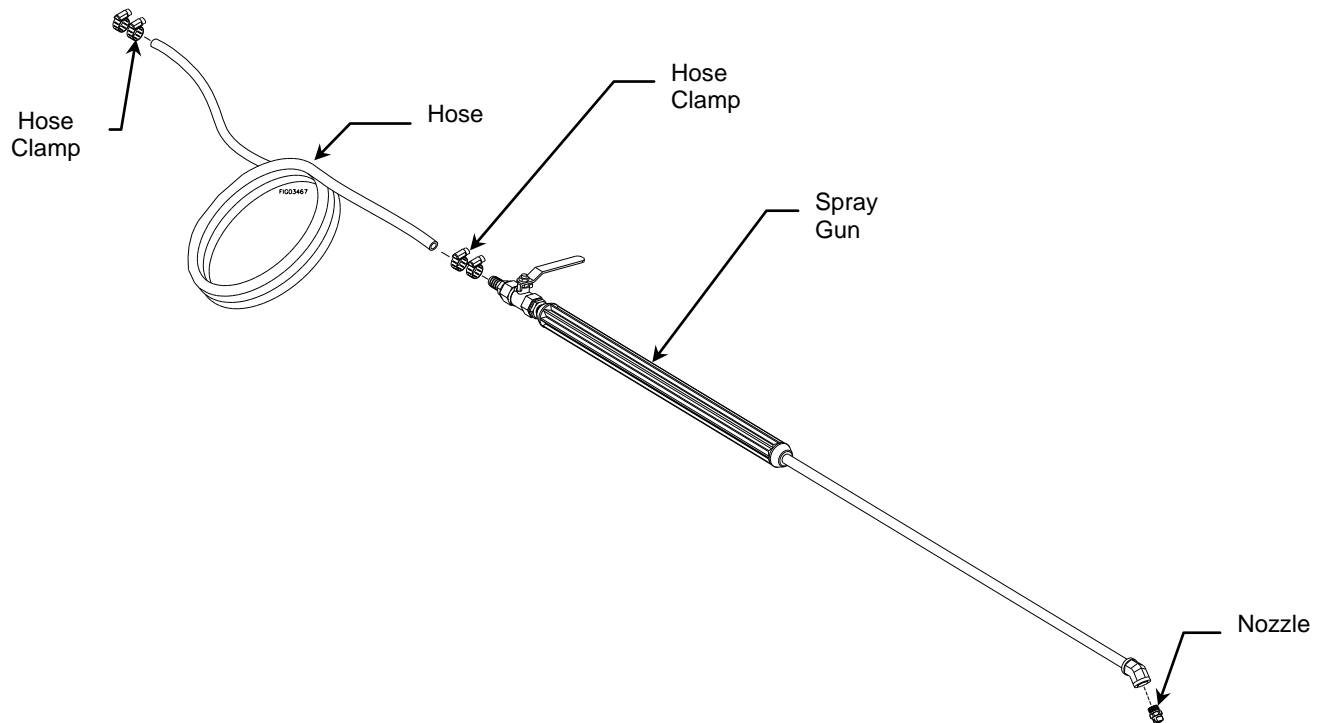
Assembly and Testing

Step One: Attach spray gun to hose.

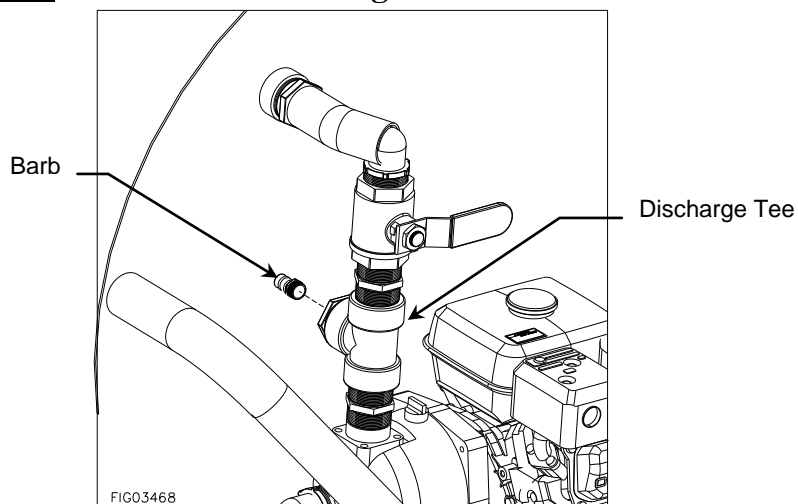
Connect the gun hose to the spray gun by following the hose clamp installation instructions.

1. Install hose clamp on hose.
 - i) Slide each 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. Attach the end of the gun hose to the gun hose barb

Step Two: Attach nozzle to spray gun.



Step Three: Attach the remaining hose end to the barb on the discharge tee.



Assembly and Testing

Step Four: Check and test completed assembly.

⚠ WARNING

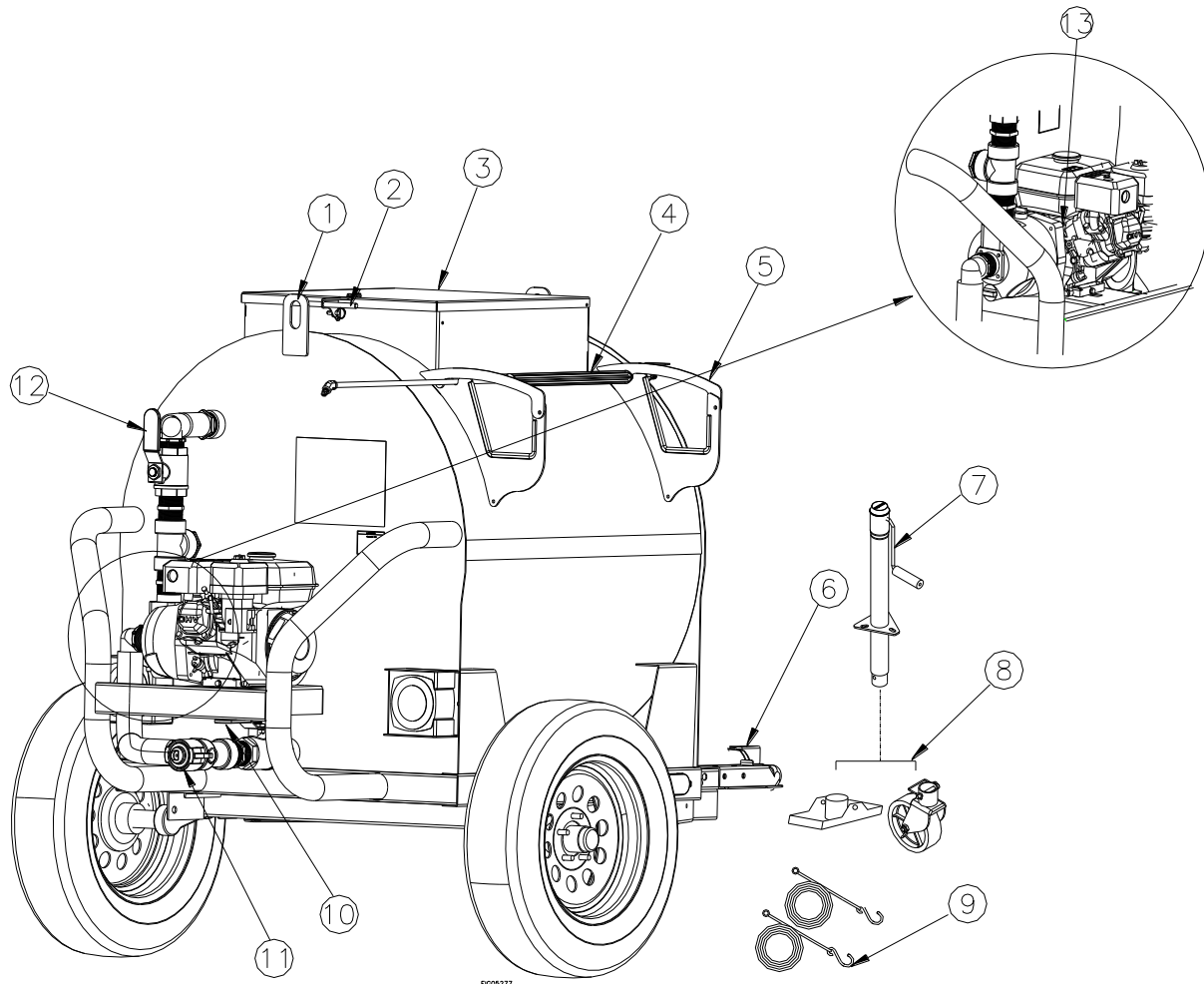
Check and test completed assembly

Serious injury could result from sealcoat material 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 bolts are tight and hose clamps are secure.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 sprayer.b) Fill the tank with water per the instructions in this manual. <u>Important:</u> The sprayer should NOT be running when you fill the tank.c) Check for leaks throughout the system by operating the sprayer per the instructions in this manual:d) If a leak is detected, fix the leak and re-test the system with water.

Machine Components



- 1.) **Lifting Hooks.** *DO NOT ATTEMPT TO LIFT USING THE LIFTING HOOKS WHEN THE SKID OR TRAILER HAS SEAL COAT MATERIAL IN THE TANK.*
- 2.) **Lid Latch.** Used to secure the lid.
- 3.) **Lid.** The lid allows access for filling up the tank.
- 4.) **Spray Gun.** Use the spray gun to apply sealant to specific areas.
- 5.) **Gun/Hose Latch.** Storage area for gun and hose.
- 6.) **Coupler.** Device to attach the trailer (applicable unit) to the towing vehicle.
- 7.) **Jack.** Allows height of trailer to be adjusted for placement.
- 8.) **Jack Wheel and Plate.** Remove wheel during towing. Use plate if desired.
- 9.) **Safety Cables.** Required for towing to ensure the trailer frame does not separate from hitch.
- 10.) **Tank Ball Valve.** Used for changing between agitation, spraying and loading modes.
- 11.) **Drain/Self Loading Port.** Used when loading seal coat material from bulk container.
- 12.) **Agitation Ball Valve.** Used for changing between agitation, spraying and loading modes.
- 13.) **Mechanical Seal.** Seal between engine and pump.

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.

Operation – Important Safety Information

WARNING

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

General Sealcoating Safety:

WARNING

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.

- **Sealcoat Material.** 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 sealcoat material you plan to use.
- **Emergency procedures.** Before handling sealcoat material, carefully review the “Sealcoat Accident Procedures” listed later in this section.
- **Inhalation/contact.** ALWAYS take precautions to avoid inhaling or coming into contact with any sealcoat material.
- **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 sealcoat material manufacture.
- **Children/pets.** ALWAYS exercise extra caution around children. Keep sprayer and all sealcoat 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 sealcoat material manufacturer to ensure material is compatible with all components of the sprayer.
- **Health monitoring.** Monitor the health of operators who are frequently exposed to sealcoat materials, as recommended by the chemical label or local/federal regulations.

Operation – Important Safety Information

Sealcoat 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.
- **Fueling.** Follow instructions in this manual for safely fueling the engine. Gasoline is flammable and can explode. Always use caution when handling gasoline.
- **Keep sprayer off.** Do not turn on power to the sprayer until ready to spray in order to avoid unintentional spray release.
- **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 by the sealcoat manufacture.
- **Operator age.** You must be 16 years of age or older to operate this sprayer.

During Spraying

- **Over application.** DO NOT over apply sealcoat. Apply at a rate recommended by sealcoat manufacturer. Excess sealcoat can be dangerous to humans/animals, and contaminate soil and water sources.
- **Never point wand.** NEVER point the spray wand at people or animals.
- **Use firm grip.** ALWAYS hold the spray wand with a firm grip when using it to spray 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 sealcoat label.
- **Unattended.** ALWAYS turn off vehicle and set brake or block wheels, turn off engine, 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 sealcoat material. 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 sealcoat properly as recommended on the sealcoat material manufacture.

Operation – Important Safety Information

Towing Safety:

WARNING

The filled sprayer is very heavy. It can crush and cause serious injury if it rolls out of control or tips over.

Follow the instructions below for safely towing the sprayer.

- **READ vehicle safety instructions** in your vehicle manual with regard to transporting/towing heavy cargo loads.
- **Driver age.** You must be 16 years of age or older to operate the transport vehicle with the filled sprayer attached.
- **Securely attached.** Be sure sprayer is securely attached to the vehicle before transporting.
- **Tires.** Make sure vehicle tires or trailer tires are fully inflated and in good repair before transporting. Do not over inflate. Serious injury could occur if tire explodes. Keep wheel and lug nuts tightened to specified torque.
- **Vehicle handling.** Be aware that vehicle handling will be affected when transporting the filled sprayer. Exercise caution to avoid loss of control or sprayer overturning:
 - **Keep speed to a minimum** so you can maintain control at all times. Reduce speed prior to turns.
 - **Allow for wider turns** and for **more distance to stop.**
 - **Avoid any sudden** steering maneuvers, starts, or stops that could create sway.
- **Rough or sloped terrain.** Slow down and exercise extra caution on rough or sloped terrain in order to reduce risk of rollover. Pick the most level route possible when transporting across fields. Drive up and down slopes that cannot be avoided, rather than across. Use a vehicle equipped with a Roll Over Protection System (ROPS) if you will be operating on non-level terrain.
- **Added length.** Be aware of the added length of the sprayer.
- **Reduced visibility.** Be aware that visibility may be reduced with sprayer attached. Be extra cautious when backing up or turning.
- **Ride / transport.** Never ride or transport cargo on the sprayer.
- **Under the influence.** Never tow or operate this sprayer while under the influence of alcohol, drugs, or medication
- **On public roads.** If towing on a public road, make sure to comply with all local, state, and federal towing requirements. It is the sole responsibility of the purchaser to obtain licensing, trailer lights, safety chains or signage as needed to comply.
- **Unattended.** Turn off both the sprayer and the towing vehicle, and set the brake or block the wheels, before leaving the sprayer unattended.
- **SPEED LIMIT.** Never transport this sprayer over the posted speed limit. Faster speeds may result in loss of control.

Sealcoat 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.**

Operation – Important Safety Information

Sprayer leak	<p>In the event that the sprayer develops a leak while spraying sealcoat, you must <i>immediately stop spraying</i>.</p> <p>Turn off engine and follow the directions below, as applicable.</p>
Bodily chemical contact	<p>Personal contamination can occur when sealcoat material splash, spill, or spray directly onto a person.</p> <ol style="list-style-type: none"> 1. Follow the emergency first aid instructions of the sealcoat material manufacture recommendations listed in the “First Aid” or “Statements of Practical Treatment” section. <p><u>General procedures include:</u></p> <ol style="list-style-type: none"> a) Eyes – immediately flush with water or follow other directions as specified by the sealcoat manufacture. b) Skin – immediately wash all contaminated skin surfaces with soap and water, or follow directions as specified by the sealcoat manufacture. c) Clothing – remove contaminated clothing immediately. Dispose of heavily contaminated clothing per the instructions of the sealcoat manufacture. <ol style="list-style-type: none"> 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 sealcoat material information for reference.
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>.</p> <p>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 from the manufacture 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 sealcoat material information for reference.
Sealcoat Material spills	<p>Chemical spills must be quickly contained and properly cleaned up.</p> <p>Refer to the sealcoat material manufacture for any specific clean-up instructions with regard to a spill.</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 -- The contaminated material should then be 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: <ul style="list-style-type: none"> - <u>Sealcoat material manufacturer</u>. See chemical label for contact information.

Operation – Preparing the Sprayer for Each Use

Step One. Inspect/Repair

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. Inspect & repair

Inspect and test the sprayer thoroughly:

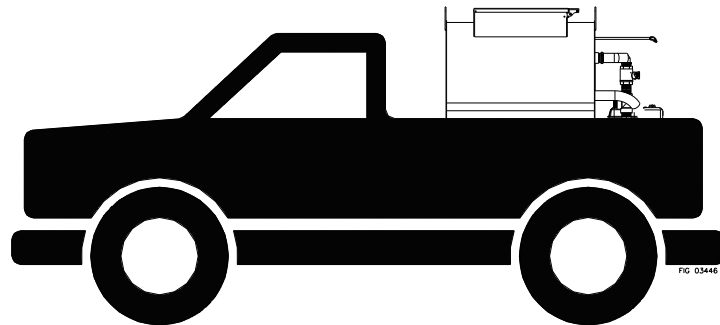
- a) Inspect hoses for exposed mesh and holes. Replace all worn or damaged hoses.
- b) Inspect fittings for cracks and leaks. Replace all damaged fittings with original NorthStar parts.
- c) Inspect tank for leaks.
- d) Check to be sure all nuts, bolts, and screws are tight.
- e) Check wheels and tires. Make sure that wheel lugs are tight and tires are inflated.
- f) Check for fuel leaks. Any fuel leak is a fire hazard. Fix any fuel leaks before starting engine.
- g) *Partially fill tank with plain water and spray to test for leaks.* Repair as needed.

IMPORTANT: *After any repair work has been done, ALWAYS test for leaks with water one final time before using.*

Step Two. Securing to Vehicle (Item #402303 only)

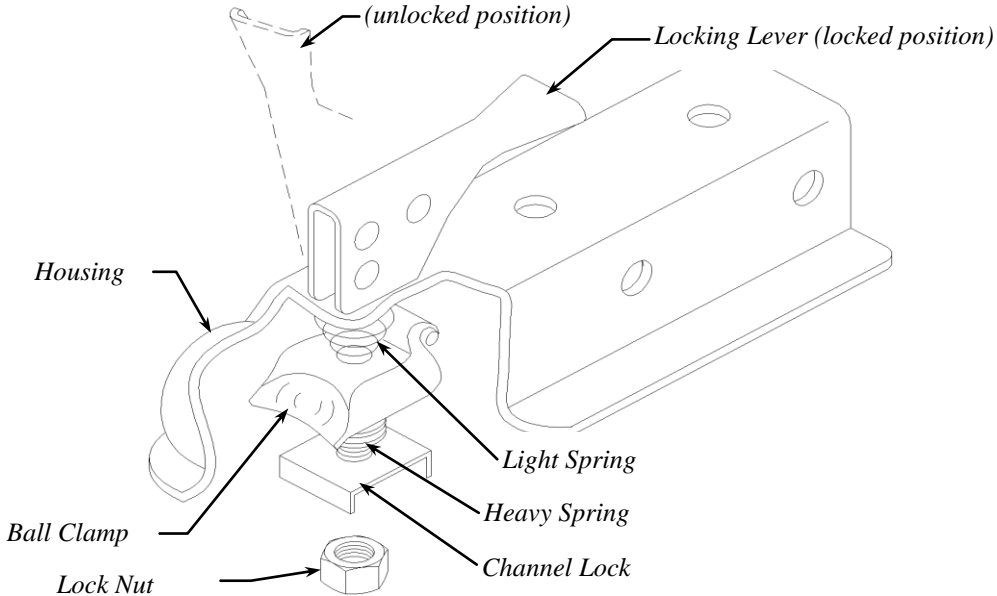
1. Ensure sprayer secured

Ensure the sprayer is securely attached to the vehicle.



Operation – Preparing the Sprayer for Each Use

Step Three. Towing (Item #402304 only)

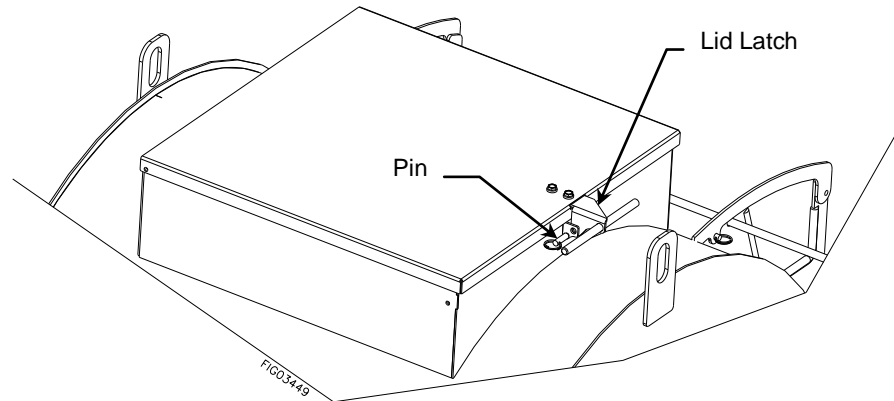
1. Review safety information	Review the “Operation – Important Safety Information” related to <u>Transportation Safety</u> provided in this manual.
2. Attach to hitch.	<p>Attach sprayer to vehicle hitch</p> <ol style="list-style-type: none"> 1. Attach sprayer’s coupler to a class 3 or higher hitch with 2” ball (only). 2. Adjust coupler to ball by raising locking lever and turning lock nut with fingers. 3. Proper adjustment is obtained when coupler is as tight as possible on ball and locking lever can still be opened and closed. 4. Lock lever closed to secure the attachment. An optional locking pin or padlock may be inserted in the locking lever hole for extra security. <div style="text-align: center; margin: 10px 0;">  </div> <p>Important: When filled, the trailer sprayer has a tongue weight of approximately 480 lbs. Ensure that the tow vehicle is properly equipped to handle this load.</p>
3. Attach safety chains	<p>Attach safety chains.</p> <ol style="list-style-type: none"> 1. Two safety chains must be used while towing. 2. Cross safety chains under the coupler allowing only enough slack for vehicle turns.
4. Put jack up	<p>Secure the jack in the up position before towing.</p> <p>Important: Remove jack wheel before transporting.</p>

Operation – Preparing the Sprayer for Each Use

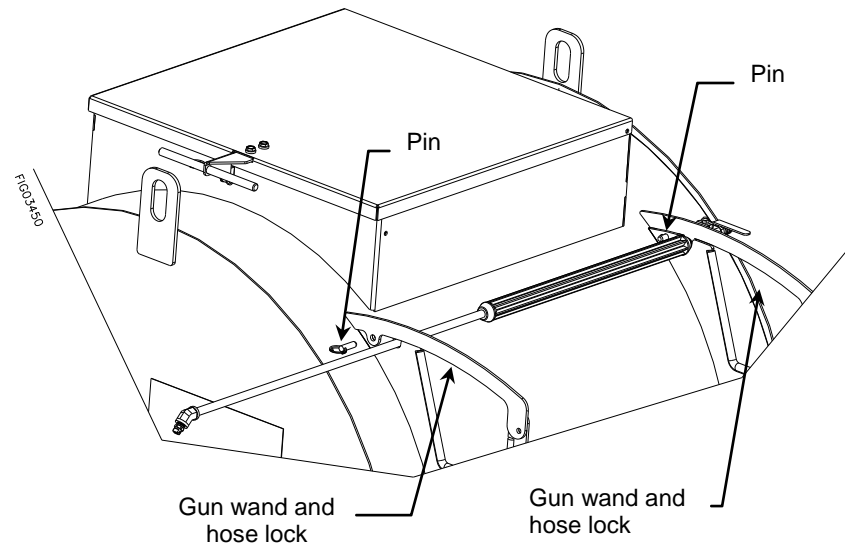
5. Secure Lids and Gun and Hose

It is recommended that the trailer be towed at speeds less than 45mph.

Close the inner and outer lids. Secure the latch on the outer lid using (1) 3/8" x 1" cotterless pin.



Secure each gun wand and hose lock as shown below using (2) 3/8" x 1" cotterless pins.



Important safety instructions:


- **Added length.** Be aware of the added length of the trailer.
- **Rough terrain.** Drive slowly and take extra caution when traveling over rough terrain.
- **On public roads.** If towing on a public road, make sure to comply with all local, state, and federal towing requirements. It is the sole responsibility of the purchaser to obtain licensing and signage, as needed to comply.
- **Unattended.** Turn off the towing vehicle before leaving the trailer unattended. Set brake or block wheels.
- **Under the influence.** Never tow or operate this sprayer while under the influence of alcohol, drugs, or medication.

Operation – Preparing the Sprayer for Each Use

Step Four. Fueling

⚠ WARNING


Gasoline is highly flammable and explosive. You can be burned or seriously injured when handling fuel. Use extreme care when handling gasoline.

1. Engine off / cool	<p>The engine must be off and allowed to cool at least two minutes before adding fuel.</p> <p>WARNING: A running engine is hot enough to ignite fuel. Never add fuel or remove gas cap if engine is running or still hot.</p>
2. Outdoor location	<p>Fill fuel tank outdoors – never indoors.</p> <p>WARNING: Gasoline vapors can ignite if they collect inside an enclosure. Explosion can result.</p>
3. Remove gas cap	<p>Remove engine gas cap.</p>
4. Add gasoline	<p>Add gasoline through fill opening from a UL-approved container.</p> <p>Important Safety Instructions:</p> <ul style="list-style-type: none"> Use approved container. NEVER pump fuel directly into engine at gas station. Static charge can build and ignite fuel. Use a UL approved fuel container to transfer gas to the engine. Don't overfill. DO NOT overfill the gas tank. Allow at least 1/2" of empty space below the fill neck to allow for fuel expansion Heat / flames / sparks. Stay away from sources of heat, flame, or sparks while adding fuel. <div style="text-align: center; margin: 10px 0;">  </div>
5. Spills / splashes	<p>Clean up fuel spills /splashes immediately.</p> <ol style="list-style-type: none"> 1. Move sprayer away from spilled fuel on the ground. 2. Wipe fuel off engine and wait 5 minutes for excess fuel to evaporate before starting engine. 3. Gas soaked rags are flammable and should be disposed of properly. 4. If gasoline is spilled on your skin or clothes, change clothes and wash skin immediately.
6. Replace gas cap	<p>Replace gas cap securely before starting engine.</p>
7. Gasoline storage	<p>Store gasoline in a cool, dry place in a UL approved, tightly sealed container.</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	<p>Assess weather conditions to ensure that it is not too windy to spray.</p> <p>DO NOT SPRAY if wind speeds are greater than 4 MPH.</p> <p><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.</p>
2. Clear work area	<p>Clear the work area of all bystanders and pets.</p> <p>Restrict access by the public for the period recommended on sealcoat material manufacture.</p>

Step Two: Fill the sprayer.

 WARNING

ALWAYS wear personal protective equipment as directed by the sealcoat material manufacture.

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

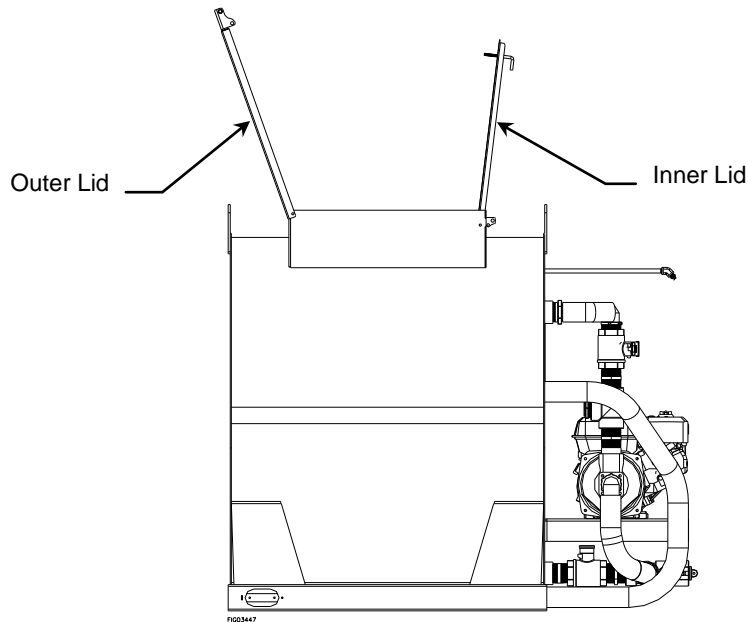
Fill the sprayer using the following steps:

1. Review safety information	<p>Review the “Operation – Important Safety Information” related to <u>General Sealcoating Safety</u> and <u>Sealcoat Accident Procedures</u> provided in this manual.</p>
2. Choose safe mixing/loading area	<p>Choose a safe mixing and loading area.</p> <ul style="list-style-type: none"> - Choose an outdoor, well-ventilated area away from unprotected people, animals, food, and other items that might become contaminated.
3. Wear personal protective equipment	<p>Wear personal protective equipment as directed by the sealcoat material manufacture.</p> <ul style="list-style-type: none"> - Note that additional equipment may be specified for mixing and loading activities.
4. Turn off engine and vehicle	<p>Turn OFF the engine before filling.</p> <ul style="list-style-type: none"> - The vehicle should also be off, with brake set or wheels blocked to prevent unintended movement.
5. Open the tank lids	<p>Open the fill lids located on top of the sprayer.</p>

Operation - Using the Sprayer (continued)

6a. Load sealcoat by filling

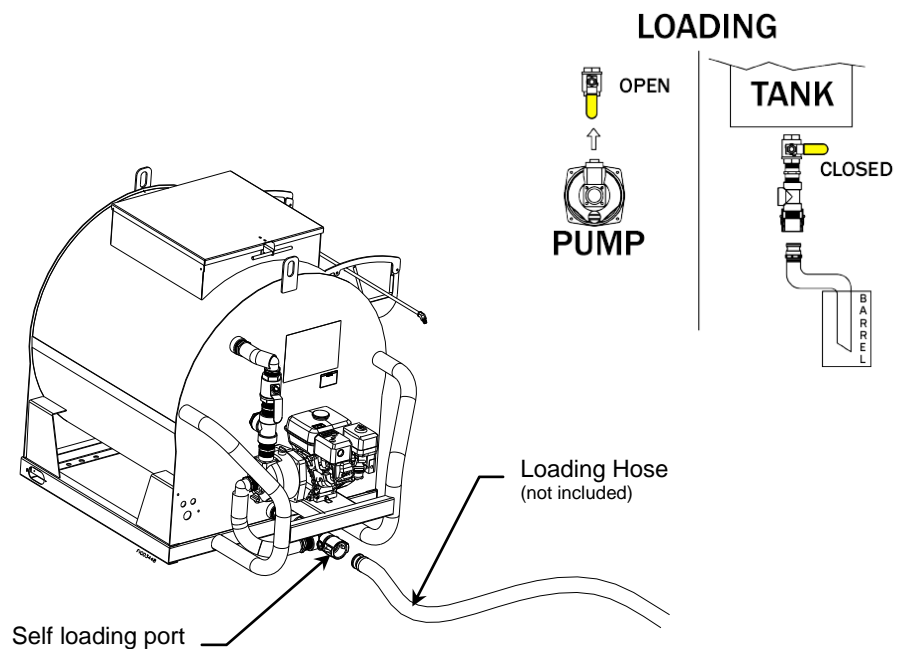
Open the outer lid and the inner lid for access to the top of the tank.
If the sealant is not pre-mixed, add correct amount of water and sealant in the order prescribed on the label.



6b. Load sealcoat by pumping

Verify the ball valves are in the correct orientation as shown below.

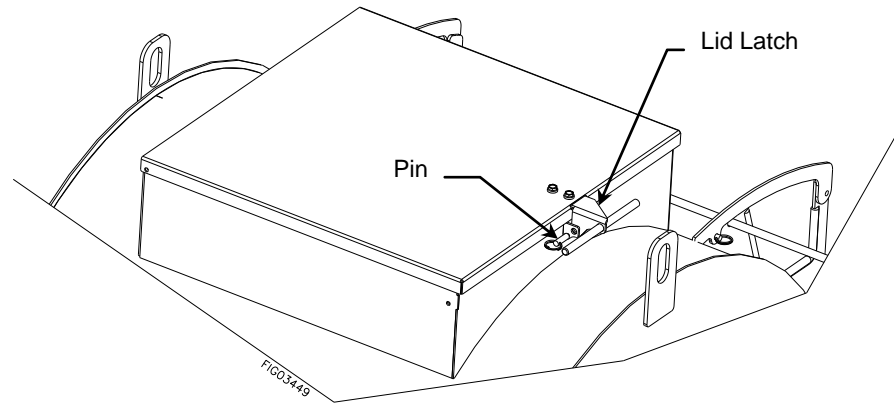
- 1) Remove the plug from the self loading/drain port.
- 2) Connect the loading hose to the quick coupler on the self loading/drain port.
- 3) Connect other end of the loading hose to the barrel or tote.
- 4) Start the engine to fill the unit.



Operation - Using the Sprayer (continued)

7. Close and lock the tank lid

Close the inner and outer lids. Secure the latch on the outer lid using (1) 3/8" x 1" cotterless pin.



Operation - Using the Sprayer (continued)

Step Three: Operate the sprayer.

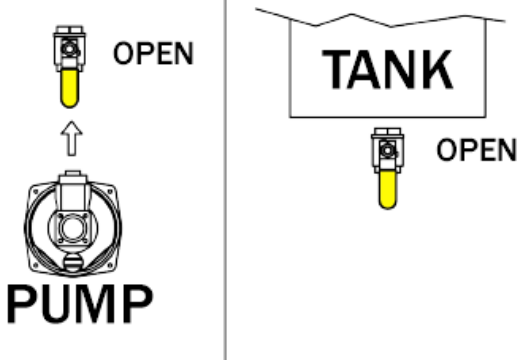
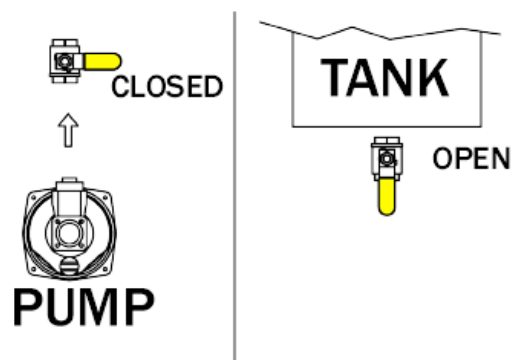
⚠ WARNING

ALWAYS wear personal protective equipment as directed by the sealcoat material manufacture.

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

1. Review safety information	Review the “Operation – Important Safety Information” related to <u>Sealcoat Application Safety</u> and <u>Towing/Driving Safety</u> provided in this manual.
2. Wear personal protective equipment	Wear personal protective equipment as directed by the sealcoat material manufacture.
3. Engine operation precautions	<p>Heed the following safety rules with regard to running the sprayer engine:</p> <ul style="list-style-type: none"> • Hot muffler. If you are starting a warm engine, stay clear of muffler. It may still be hot enough to burn you. • Hot exhaust. Hot exhaust fumes from engine can cause fire. Position muffler at least 7’ from combustible objects during operation. • Fire extinguisher. Have a Class B fire extinguisher available as a precautionary measure when operating the sprayer engine in dry areas. • Carbon monoxide. The running engine gives off carbon monoxide, a poisonous gas that can kill you. You CANNOT smell it, see it, or taste it. ONLY run the sprayer engine OUTDOORS and at least 20 feet from the home, away from windows, vents and air intakes, to allow proper ventilation. NEVER run sprayer engine inside homes, garages, sheds, or other semi-enclosed spaces. These spaces can trap poisonous gases, EVEN if you run a fan or open windows. If you start to feel sick, dizzy, or weak while using the sprayer, shut off the engine and get to fresh air RIGHT AWAY. See a doctor. You may have carbon monoxide poisoning.

Operation - Using the Sprayer (continued)

<p>4. Open ball valve to AGITATION Position</p>	<p>Open the Tank ball valve and Open the Agitation ball valve.</p> <div style="text-align: center; margin: 20px 0;"> <h3>AGITATION</h3>  </div> <p><i>Note: If not agitated long enough, you will see that there will be chunky/muddy coal tar at the bottom of the tank.</i></p>
<p>5. Start engine</p>	<p>Consult the engine Owner's Manual for starting the engine.</p>
<p>6. Agitation</p>	<p>Mix sealcoat material until material consistency is uniform.</p> <p><i>Note: The water contained in the sealer will evaporate eventually. The sealant will become thicker and the spray pattern will become uneven. In this case, add water into the unit tank to reduce the thickness of the sealant. The sealant should have a consistency similar to tomato soup.</i></p>
<p>7. To Begin Spraying – Close agitation ball valve</p>	<p>Close the Agitation ball valve and keep Tank ball valve open.</p> <div style="text-align: center; margin: 20px 0;"> <h3>SPRAYING</h3>  </div>

Operation - Using the Sprayer (continued)

8. Spray Nozzles

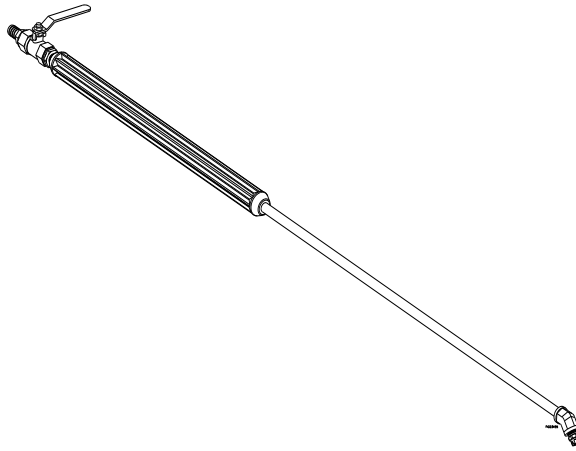
See the table below for nozzle application recommendations

On Nozzle	Spray Angle	Orifice Size	GPM	Application/Use
8020	80°	20	2.0	Borders or when windy
8030	80°	30	3.0	Driveways
8040	80°	40	4.0	Large clear areas or parking lots

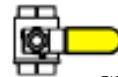
Note: Clean nozzles with water and wire brush

9. Operate spray wand

To spray, Open the spray wand valve
To stop spraying, Close the spray wand valve



Opened Spray Wand Valve



Closed Spray Wand Valve

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.

10. Leaving unattended

If the sprayer must be left unattended at any time:

- a) Turn off engine.
- b) Relieve system pressure by opening the spray wand valve.
- c) Turn off the vehicle. Set brake or block the wheels.

Operation - Using the Sprayer (continued)

11. Discontinue use if clogged or inoperative

If the sprayer becomes clogged or inoperative during use, *discontinue use immediately.*

- DO NOT attempt to remove clog if the engine is running.
- Return to service area to review instructions for troubleshooting before attempting to service.

Short and Long Term Storage

⚠ WARNING

Gasoline vapors can ignite and cause a fire. Select a well-ventilated storage area away from sources of heat, flame, or sparks.

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. Sealant Storage	Close the tank ball valve; remove the plug from the loading port. Connect the loading hose to the loading port and open the tank ball valve. Drain sealant into bulk storage container. Re-install loading plug upon completion.
2. Add water	Pour water into the tank.
3. Open Agitation Valve	Open the agitation valve.
4. Start engine	Start the engine.
5. Close Agitation Valve / Open Gun Valve	Close the agitation valve and open the gun valve. Spray briefly back to the tank to purge seal coat material from gun hose.
6. Stop Engine	Turn the engine off.
7. Drain the tank	Close the tank ball valve; remove the plug from the loading port and drain the fluid from the tank. Be sure to dispose of flushed water properly. <i>Note: It is normal to always have about 3" of liquid remaining in the tank after draining.</i>
8. Drain the pump	Remove pump drain plug to completely drain the pump of water. Be sure to dispose of flushed water properly.
9. Additional Freeze Protection	Running RV antifreeze through the system can keep internal parts lubricated, protect against corrosion, and keep the unit from freezing. Repeat steps 2-4 using RV anti-freeze in place of water and skip steps 5-6 since the RV anti-freeze will remain in the unit until removal from storage.
10. Engine manual	<p>Refer to the engine manual for proper engine storage instructions.</p> <ul style="list-style-type: none"> - Always disable the engine for storage by unplugging the spark plug wire. <p>CAUTION: Gasoline will oxidize and deteriorate in storage. Old gasoline in the engine will cause hard starting and leave gum deposits that can clog the fuel system. Deterioration problems may occur within a few months, or even less if gasoline was not fresh when you filled the fuel tank.</p> <p>Short-Term Storage: Consider adding a fuel stabilizer to extend fuel storage life.</p> <p>Long Term Storage: (between infrequent uses and at end of season) Drain the fuel tank and carburetor as instructed in the engine owner's manual.</p> <p><u>Important Safety Instructions:</u></p> <ul style="list-style-type: none"> • Always drain fuel from tank in outdoor, well-ventilated area. • Stay away from sources of heat, flame, or sparks while handling fuel. • Clean up fuel spills/splashes immediately.

Short and Long Term Storage

11. Sprayer storage location	<p>Store the sprayer in a location away from corrosive material, sources of heat, open flames, sparks or pilot lights.</p> <p>WARNING: Never store sprayer inside where there is a source of heat or an open flame, spark, or pilot light as on water heaters, space heaters, furnaces, clothes dryers, or other gas appliances EVEN IF the sprayer's gas tank is empty.</p>
12. Gasoline storage	<p>Store gasoline in a cool, dry place in a UL approved, tightly sealed container.</p> <p>WARNING: Gasoline vapors can ignite if they collect inside an enclosure and explosion can result.</p>

Removing from storage:

1. Drain	Ensure the tank ball valve is closed and remove the loading plug to drain the antifreeze left in the tank (if applicable). Dispose of the antifreeze and flushed water properly.
2. Flush with water	Fill the tank with fresh water and run through the system. Operate the unit in both spraying mode and agitation mode until the system is completely flushed
3. Filling tank	Close the tank ball valve; remove the plug from the loading port. Connect the loading hose to the loading port and open the tank ball valve. Start the engine to load the sealant into the system. Upon filling the tank, close the tank ball valve, turn off the engine and re-install the loading plug.

Troubleshooting

⚠ WARNING

Before troubleshooting or attempting to service, read the following safety rules to avoid accidental exposure to sealcoat material.

Before attempting to service the sprayer:

1. Personal protective equipment	Wear personal protective equipment as directed by the sealcoat material manufacture 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 due to a clog or restriction within the system: empty the tank and flush with water as directed in the “Short and Long Term Storage” section.
4. Disconnect power/relieve pressure	Stop the engine and be sure all system pressure is relieved by operating the spray wand ball valve.
5. Perform repairs	Follow the directions provided in the troubleshooting table to repair the sprayer. <i>NOTE: Never try to unclog the sprayer nozzle by blowing through it.</i>
6. Test after servicing	After servicing, ALWAYS test the sprayer for leaks with plain water before using.

PROBLEM	CAUSE	SOLUTION
Engine will not start	See engine owner’s manual	See engine owner’s manual
Pump fails to prime	Valve in wrong position	Turn valve to correct position
	Priming chamber not full enough	Add more water to priming chamber
	Air leaks on suction line joints	Check for loose screws or broken hoses
	Quick coupling gaskets worn	Replace gaskets
	Loose or broken hose clamps	Tighten or replace hose clamps
	Priming chamber is over heated	Pour cold water in chamber or let cool
	Engine speed is too slow	Increase engine speed
	Worn or broken volute or impeller	Replace worn or broken component
	Worn or broken mechanical seal	Replace mechanical seal
	Product too thick	Agitate and/or add water
Low capacity	Clogged suction hose	Clear obstruction
	Engine speed too low	Increase engine speed
	Worn or broken mechanical seal	Replace mechanical seal
	Reduced engine performance	See engine owner’s manual
	Clogged impeller	Remove clog
Poor spray distribution	Worn spray wand nozzle	Replace spray wand nozzle
	Clogged spray wand nozzle	Clean spray wand nozzle

Specifications

402303 Specifications

Engine.....	160cc Honda GX160
Pump.....	Banjo 225POI
Tank Maximum Capacity.....	225 Gallons
Product Dimensions.....	56”L x 48”W x 49”H
Dry Weight.....	480 lbs.
Weight full of fluid.....	Approx. 2910 lbs.

402304 Specifications

Engine.....	160cc Honda GX160
Pump.....	Banjo 225POI
Tank Maximum Capacity.....	225 Gallons
Product Dimensions.....	95”L x 65”W x 66”H
Dry Weight.....	730 lbs.
Weight full of fluid.....	Approx. 3160 lbs.
Trailer Capacity.....	3500 lbs.

Component Materials*

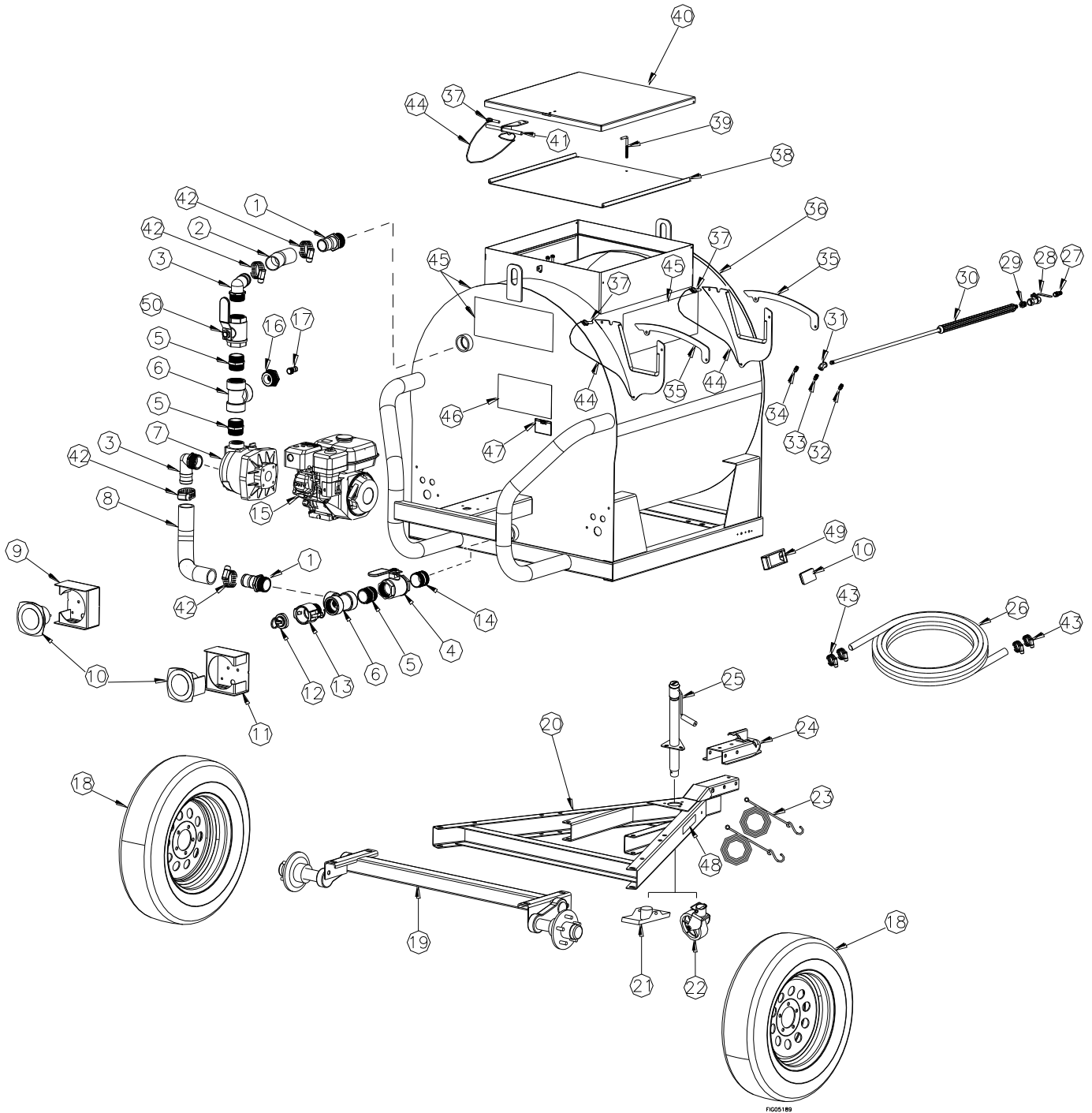
Tank.....	Welded Steel
Pump.....	Cast Iron, Viton
Gun and Nozzle.....	Steel, Brass
Fittings.....	Polypropylene

*Before using any sealcoat material, check to ensure the sealcoat material 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.

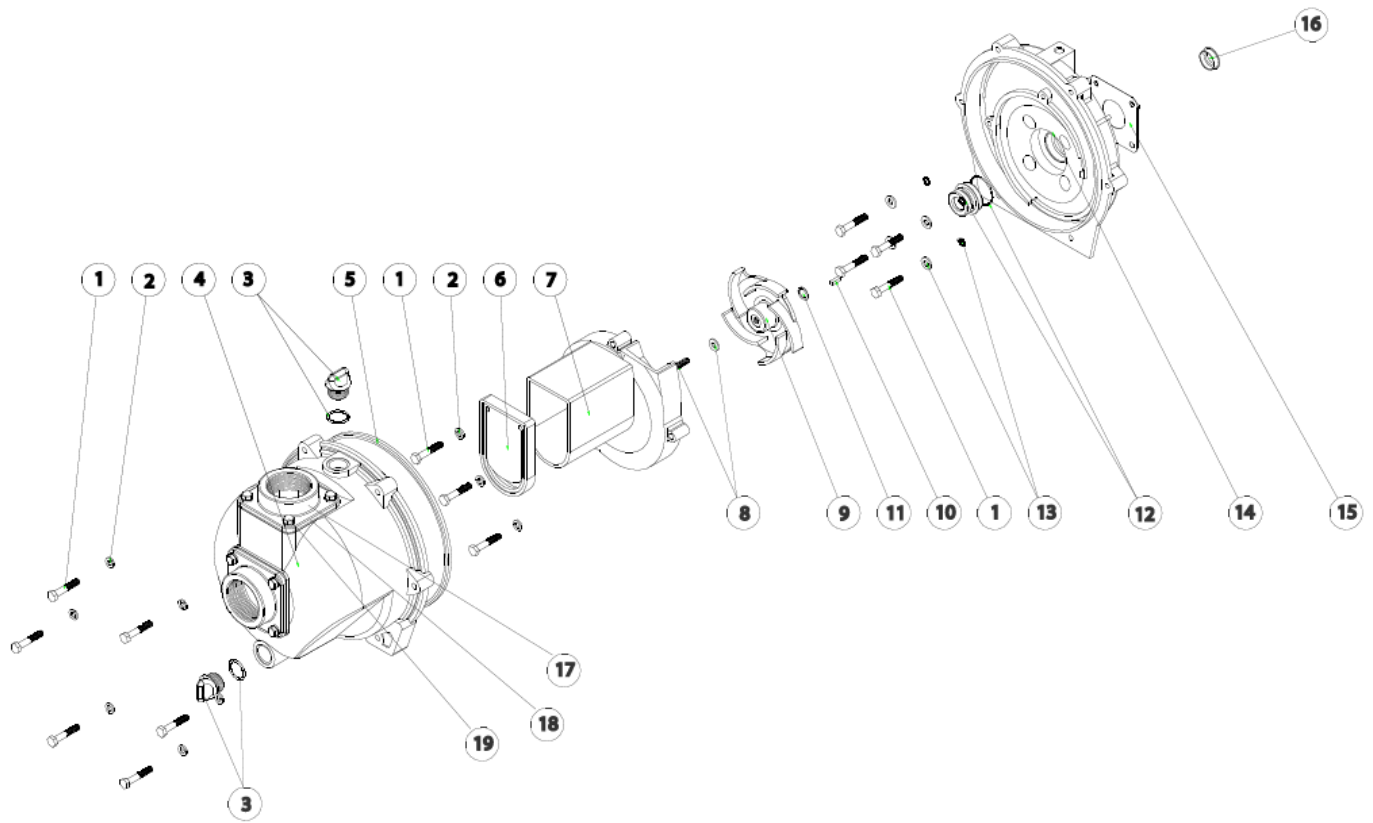
Any Questions, Comments, Problems or Parts Orders
Call NorthStar Product Support 1-800-270-0810

Exploded View – 402303/402304 – Rev. E.5



Exploded View – 402303/402304 – Rev. E.5

Item	Part#	Description	Model	Qty
1	782715	2"X 2" HOSE BARB	ALL	2
2	782723	2"X 6" BYPASS HOSE	ALL	1
3	782718	2"X 2" HOSE BARB ELBOW	ALL	2
4	782711	2" NPT BALL VALVE	ALL	1
5	782712	2" NPT NIPPLE	ALL	3
6	782713	2" TEE	ALL	2
7	782915	BANJO 225POI 2" PUMP	ALL	1
8	782717	2" X 20" SUCTION HOSE	ALL	1
9	789550	LEFT TAIL LIGHT WELDMENT	402304	1
10	789590	TRAILER LIGHT KIT W/MARKERS	402304	1
11	789551	RIGHT TAIL LIGHT WELDMENT	402304	1
12	782720	2" QUICK CONNECT PLUG	ALL	1
13	782719	2" QUICK CONNECT	ALL	1
14	782710	2" NPT NIPPLE	ALL	1
15	60590	160CC HONDA GX160	ALL	1
16	782721	2" X 3/4" REDUCER	ALL	1
17	782722	3/4" HOSE BARB	ALL	1
18	780200	15" WHEEL	402304	2
19	782489	TRAILER AXLE	402304	1
20	782939	TRAILER TONGUE	402304	1
21	783099	2000LB JACK PLATE	402304	1
22	783098	2000LB JACK WHEEL	402304	1
23	779542	SAFETY CABLE – SET OF 2	402304	1
24	777775	2"BALL COUPLER	402304	1
25	783097	2000LB A FRAME JACK	402304	1
26	782707	3/4" X 75' GUN HOSE	ALL	1
27	782706	1/2" NPT X 3/4" HOSE BARB	ALL	1
28	34733	BALL VALVE,1/2NPT	ALL	1
29	782705	1/2" X 1/4" REDUCER	ALL	1
30	777421	5000 PSI LANCE MOLDED GRIP	ALL	1
31	782704	1/4" NPT 45 DEGREE ELBOW	ALL	1
32	782701	SEALCOAT 8040 NOZZLE	ALL	3
33	782702	SEALCOAT 8030 NOZZLE-	ALL	3
34	782703	SEALCOAT 8020 NOZZLE	ALL	3
35	782498	GUN/LATCH	ALL	2
36	789580	SKID WELDMENT	ALL	1
37	38071	3/8"X 1"COTTERLESS PIN	ALL	3
38	782497	INNER LID	ALL	1
39	38509	LID HANDLE	ALL	1
40	782522	TOP COVER	ALL	1
41	782884	UPPER LATCH CATCH WELDMENT	ALL	1
42	782716	2" T-BOLT HOSE CLAMP	ALL	4
43	17141	HOSE CLAMP	ALL	4
44	782689	18" LANYARD	ALL	3
45	777725	NORTHSTAR DECAL	ALL	3
46	782724	SEALCOAT WARNING DECAL	ALL	1
47	39259	CO WARNING DECAL	ALL	1
48	777778	MOVING/TOWING INSTRUCTIONS DECAL	402304	1
49	789659	SIDE MARK COVER	402304	2
50	791649	BALL VALVE, 2" DRILLED	ALL	1



Item	Part#	Description	Qty
1	783178	5/16-24 x 1 3/4 HHCS	13
2	783179	5/16" Lock washer Kit (9 each)	1
3	783180	Priming/Drain Plug & O-ring Kit (1 each)	2
4	783181	Pump Housing Assembly, Cast Iron	1
5	783182	Pump Body O-ring	1
6	783183	Banjo Check Valve	1
7	783184	Volute, Cast Iron	1
8	783185	5/16-24 x 1 1/8 HFS Bolt & Gasket Kit (1 of each)	1
9	783186	Trimmed Impeller, Cast Iron	1
10	783187	3/16 x 3/16 x 5/8 Key	1
11	783188	Impeller Shim	1
12	783189	Pump Seal Assembly & O-ring (1 of each)	1
13	783190	5/16" Flat Washer & O-ring (4 of each)	1
14	783191	Rear Bracket, Cast Iron	1
15	783192	Rear Bracket Shim	1
16	783193	Slinger for Engine	1
17	783587	Pump Flange	2
18	783588	Flange Gasket	2
19	783589	Flange Bolt/Washer Kit	2

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 1 year 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 such as engines 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 a warranty claim.

Customer Number: _____

Date of Purchase: _____

NorthStar Serial Number: _____

Item Number: _____



Manufactured by
Northern Tool + Equipment Co.,
2800 SouthCross Drive West
P.O. Box 1499 Burnsville, MN 55337-0499