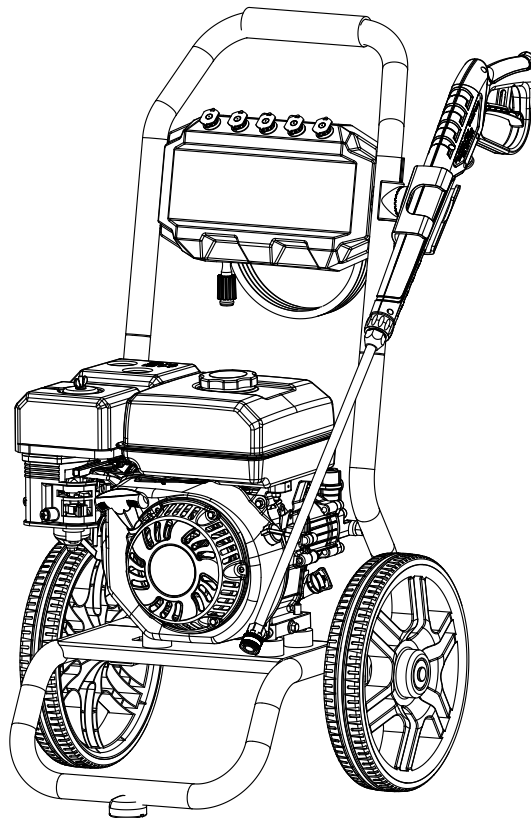


# ironton®

## Gas Pressure Washer

Owner's Manual



**!** **WARNING:** Read carefully and understand all ASSEMBLY AND OPERATION INSTRUCTIONS before operating. Failure to follow the safety rules and other basic safety precautions may result in serious personal injury.

**MODEL#: 6107159**

**READ & SAVE THESE INSTRUCTIONS**

Thank you very much for choosing an Ironton product!

For future reference, please complete the owner's record below:

Serial Number/Lot Date Code (if applicable): \_\_\_\_\_

Purchase Date: \_\_\_\_\_

Save the receipt, warranty, and this manual. It is important that you read the entire manual to become familiar with this product before you begin using it.

This product is designed for certain applications only. Northern Tool and Equipment is not responsible for issues arising from modification or improper use of this product such as an application for which it was not designed. We strongly recommend that this product not be modified and/or used for any application other than that for which it was designed.

For technical questions, please call **1-800-222-5381**.

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## Intended Use

Gas-powered washers can operate at a much higher PSI, which is essential when you need to clean stubborn stains on surfaces like a driveway or sidewalk. PSI can be the difference between "rinsing" and "washing" your surfaces. Gas pressure washers can be used on a variety of surfaces. Whether you need to clean your deck, driveway, or car, a gas pressure washer can handle the job.

Gas pressure washers are also portable, meaning you can take them with you wherever you go. If you need to clean your car at a friend's house or wash the deck before a barbecue, gas pressure washers are easy to transport.

## Packaging Contents

- Engine & Pump (1set)
- Handle (1set)
- Pressure Hose (1pc)
- Spray Gun (1pc)
- QC Wand (1pc)
- Tips (5pcs)
- Hose hook (1pc)
- Gun Holder (1set)
- Manual (1pc)
- Cleaning Needle (1pc)
- Spark Plug Wrench (1set)
- Oil Funnel (1pc)

## Technical Specifications

PERFORMANCE	
PSI	3000
GPM	2.6
Max Water Temp	104°F (40°C)
ENGINE AND PUMP	
Engine Type	DH212 OHV 7HP
Displacement	212cc
Pump Type	Axial pump

DIMENSIONS / COMPONENTS	
Length	22"
Width	20.4"
Height (assembled)	37.8"
Weight	68lbs
SUPPLIES REQUIRED (NOT INCLUDED)	
Engine Oil	Refer to the "engine oil" section

## Important Safety Information

### ⚠️WARNING

- Read and understand all instructions. Failure to follow all instructions may result in serious injury or property damage.
- The warnings, cautions, and instructions in this manual cannot cover all possible conditions or situations that could occur. Exercise common sense and caution when using this tool. Always be aware of the environment and ensure that the tool is used in a safe and responsible manner.
- Do not allow persons to operate or assemble the product until they have read this manual and have developed a thorough understanding of how it works.
- Do not modify this product in any way. Unauthorized modification may impair the function and/or safety and could affect the life of the product. There are specific applications for which the product was designed.
- Use the right tool for the job. DO NOT attempt to force small equipment to do the work of larger industrial equipment. There are certain applications for which this equipment was designed. This product will be safer and do a better job at the capacity for which it was intended. DO NOT use this equipment for a purpose for which it was not intended.
- Industrial or commercial applications must follow OSHA requirements.

## **⚠️WARNING**

### **PROP 65**

- This product can expose you to chemicals including lead, which is known to the State of California to cause cancer. For more information, go to [www.p65warnings.ca.gov](http://www.p65warnings.ca.gov).
- Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to the state of California to cause cancer, birth defects, or other reproductive harm. Some examples of these chemicals are:
  - - lead from lead-based paints,
  - - crystalline silica from bricks and cement and other masonry products, and
  - - arsenic and chromium from chemically-treated lumber.
- Your risk from these exposures varies depending on how often you do this type of work. To reduce your exposure to these chemicals, work in a well-ventilated area, and work with approved safety equipment, such as dust masks that are specially designed to filter out microscopic particles.
- Handling power cords on corded products may expose you to lead, a chemical known to the state of California to cause cancer and birth defects or other reproductive harm. Wash your hands after handling.

## **⚠️WARNING**

### **WORK AREA SAFETY**

- Inspect the work area before each use. Keep work area clean, dry, free of clutter, and well-lit. Cluttered, wet, or dark work areas can result in injury. Using the product in confined work areas may put you dangerously close to cutting tools and rotating parts.
- Do not use the product where there is a risk of causing a fire or an explosion; e.g., in the presence of flammable liquids, gases, or dust. The product can create sparks, which may ignite the flammable liquids, gases, or dust.
- Do not allow the product to come into contact with an electrical source. The tool is not insulated and contact will cause electrical shock.
- Keep children and bystanders away from the work area while operating the tool. Do not allow children to handle the product.
- Be aware of all power lines, electrical circuits, water pipes, and other mechanical hazards in your work area. Some of these hazards may be hidden from your view and may cause personal injury and/or property damage if contacted.

## **⚠️WARNING**

### **PERSONAL SAFETY**

- Stay alert, watch what you are doing, and use common sense when operating the tool. Do not use the tool while you are tired or under the influence of drugs, alcohol, or medication. A moment of inattention while operating the tool may result in serious personal injury.
- Dress properly. Do not wear loose clothing, dangling objects, or jewelry. Keep your hair, clothing

and gloves away from moving parts. Loose clothes, jewelry, or long hair can be caught in moving parts. Air vents on the tool often cover moving parts and should be avoided.

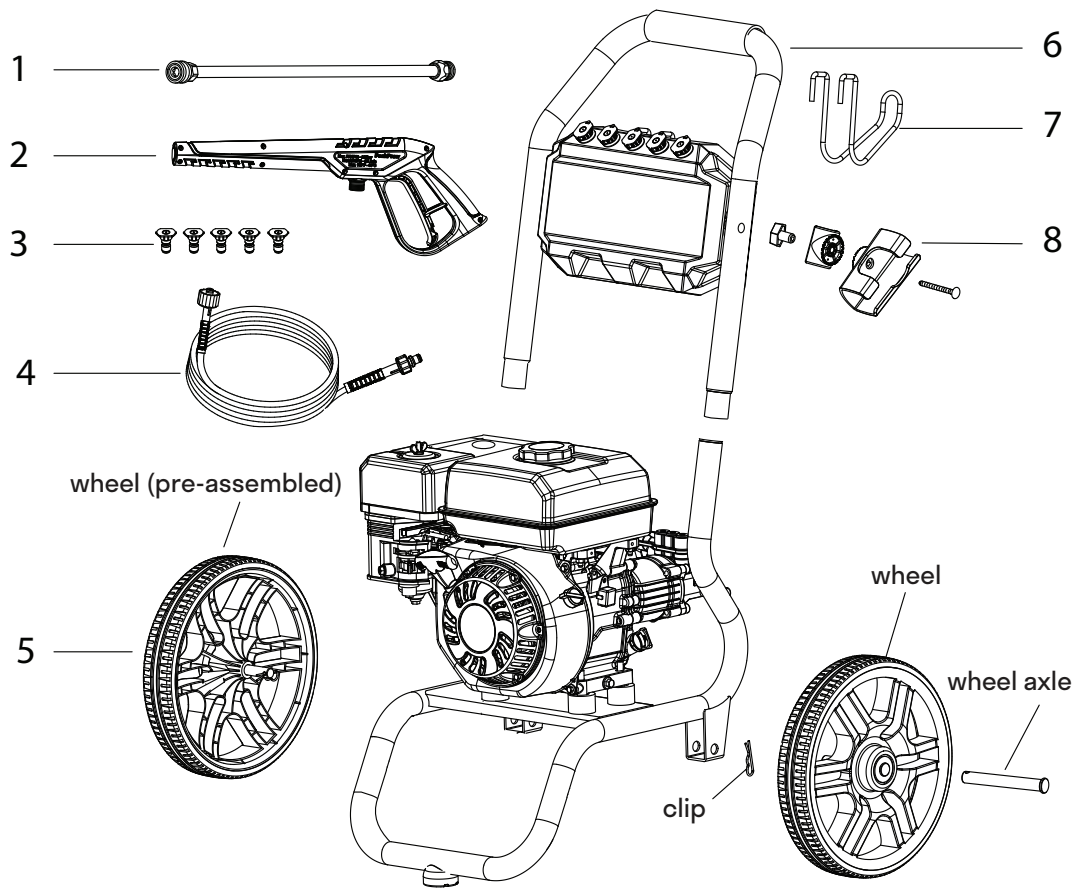
- Wear the proper personal protective equipment when necessary. Use ANSI Z87.1 compliant safety goggles (not safety glasses) with side shields, or when needed, a face shield. Use a dust mask in dusty work conditions. Also use non-skid safety shoes, hardhat, gloves, dust collection systems, and hearing protection when appropriate. This applies to all persons in the work area.
- Do not overreach. Keep proper footing and balance at all times.
- Remove keys or wrenches before connecting the tool to an air supply, power supply, or turning on the tool. A wrench or key that is left attached to a rotating part of the tool may cause personal injury.
- Secure the work with clamps or a vise instead of your hand when practical. This safety precaution allows for proper tool operation using both hands.

### **⚠ CAUTION**

#### **PRODUCT USE AND CARE**

- Do not force the product. Products are safer and do a better job when used in the manner for which they are designed. Plan your work and use the correct product for the job.
- Check for damaged parts before each use. Carefully check that the product will operate properly and perform its intended function. Replace damaged or worn parts immediately. Never operate the product with a damaged part.
- Do not use a product with a malfunctioning switch. Any power tool that cannot be controlled with the power switch is dangerous and must be repaired by an authorized service representative before using.
- Disconnect the power/air supply from the product and place the switch in the locked or off position before making any adjustments, changing accessories, or storing the tool. Such preventive safety measures reduce the risk of starting the tool accidentally.
- Store the product when it is not in use. Store it in a dry, secure place out of the reach of children. Inspect the tool for good working condition prior to storage and before re-use.
- Use only accessories that are recommended by the manufacturer for use with your product. Accessories that may be suitable for one product may create a risk of injury when used with another tool. Never use an accessory that has a lower operating speed or operating pressure than the tool itself.
- Keep guards in place and in working order. Never operate the product without the guards in place.
- Do not leave the tool running unattended.

## Parts Diagram

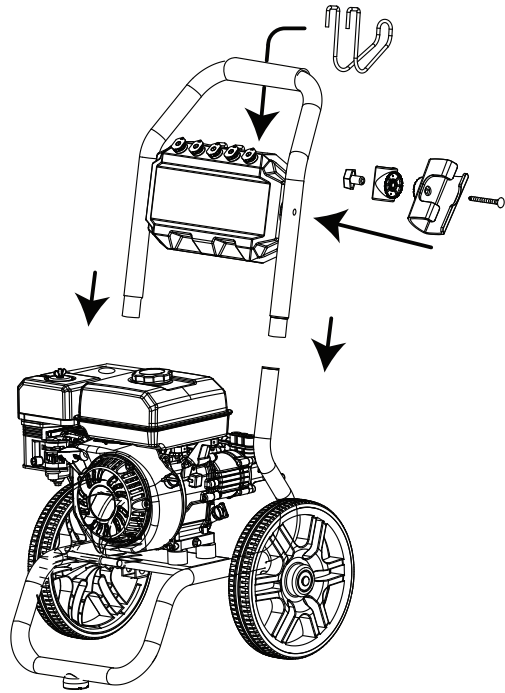


## Parts List

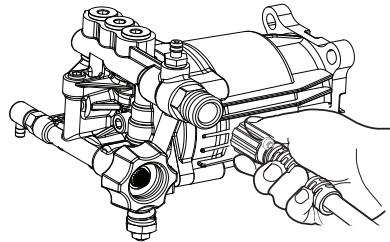
Ref #.	Part Number	QTY	Description	Remark
1	0000038	1	Quick-connect wand	see assembly procedure
2	0000037	1	Spray gun	see assembly procedure
3	0000060	1	Tips (5pcs)	see assembly procedure
4	0000063	1	Pressure hose	see assembly procedure
5	0000072	1	Wheel set	pre-installed on the machine
6	0000073	2	Handle set	customer installation required
7	0200102	1	Hose hook	customer installation required
8	0000074	1	Gun holder set	customer installation required
n/a	0400033	1	Water filter	pre-installed on the machine
n/a	0200078	1	Cleaning needle	Pre-attached on the manual

## Assembly Instructions

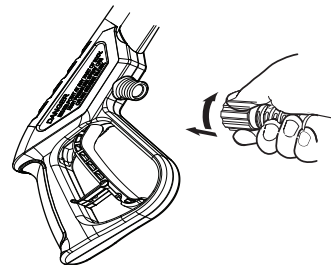
1. Press the pin on on handle assembly to attach handle assembly onto cart assembly.
2. Attach hose hook on tip panel.
3. Install gun holder set on handle assembly.



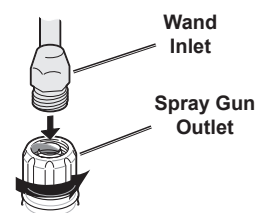
4. Connect Pressure Hose to Pump's Outlet and firmly hand-tighten.



5. Connect Pressure Hose to Spray Gun Handle and firmly hand-tighten.

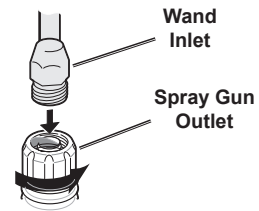


6. Remove protective cap on Wand Inlet. Insert Wand into Spray Gun Outlet and firmly hand-tighten.



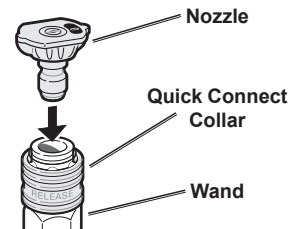
## Assembly (continued)

7. Remove protective cap on Wand Inlet. Insert Wand into Spray Gun Outlet and firmly hand-tighten.

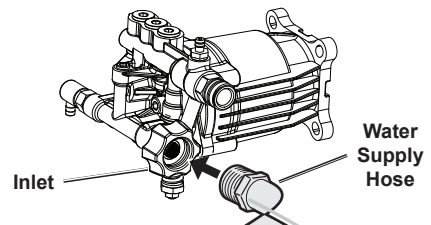


8. Attach Nozzle to Wand by pulling back quick-connect collar and pushing Nozzle onto Wand. Make sure quick-connect collar locks Nozzle in place.

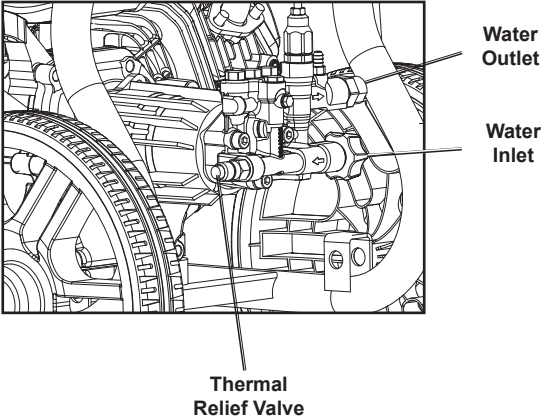
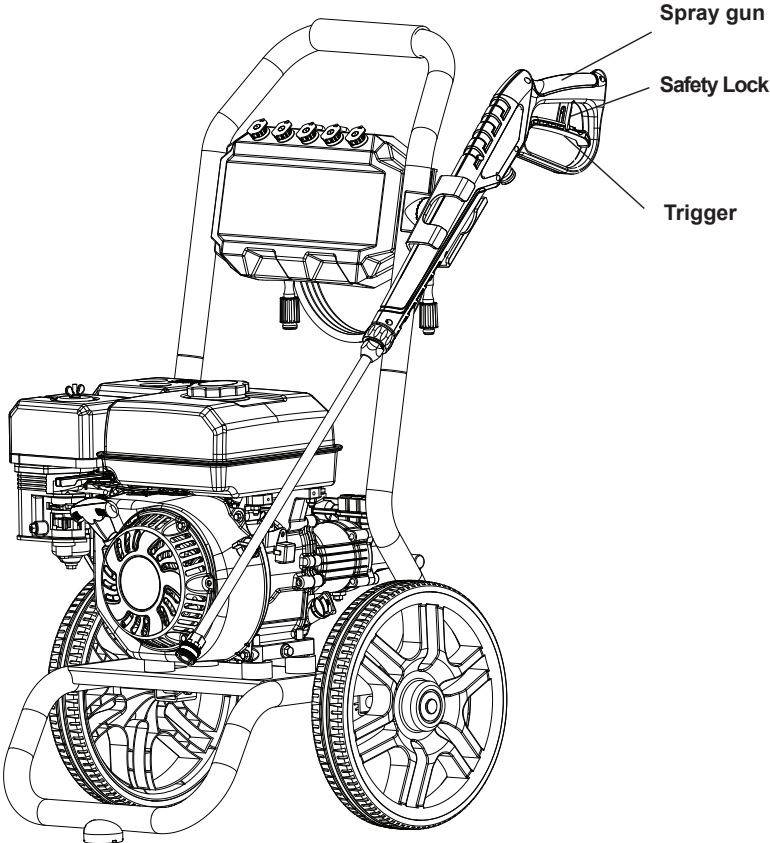
**Note:** DO NOT assemble gun or nozzle while unit is under pressure.



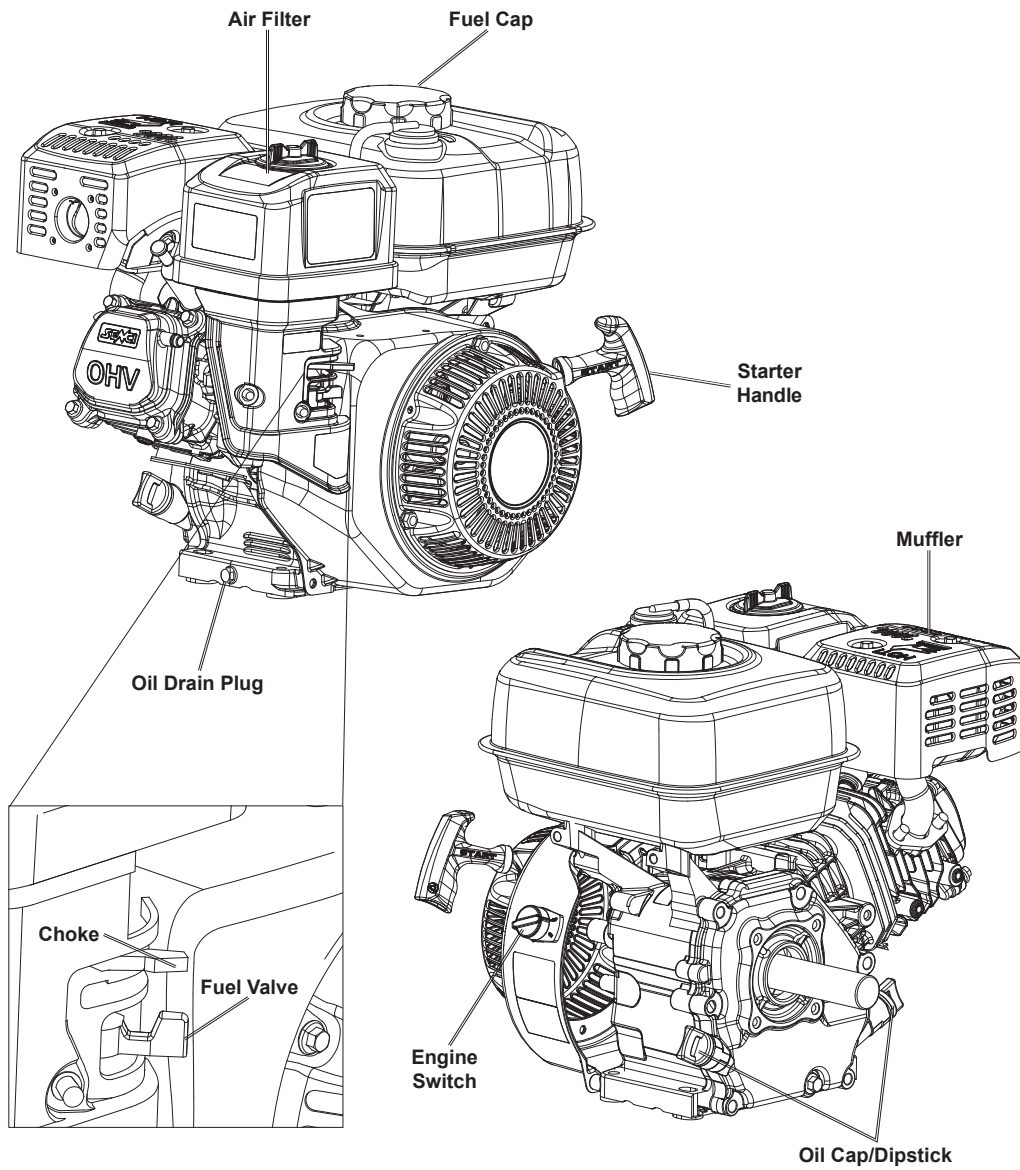
9. Connect water supply hose to Pump's Inlet and firmly hand-tighten.  
**Note:** The water source must be able to provide a minimum of five gallons of clean, cold water per minute at 20 PSI. Only use a 5/8" inner diameter (or larger) hose that is rated to meet this capacity.



# Components and Controls



## Components and Controls



## Before Each Use



Read the **ENTIRE IMPORTANT SAFETY INFORMATION** section at the beginning of this manual, including all text under subheadings therein before use of this product.

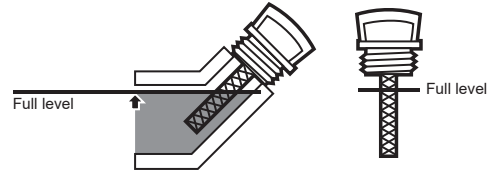
### Pre-Start Checks

Inspect engine and equipment looking for damaged, loose, and missing parts before set up and starting. If any problems are found, do not use equipment until fixed properly.

#### Checking and Filling Engine Oil

**NOTICE:** Your Warranty is VOID if the engine's crankcase is not properly filled with oil before each use. Before each use, check the oil level. Engine will not start with low or no engine oil.

1. Make sure the engine is stopped and is level.
2. Close the Fuel Valve.
3. Clean the top of the Dipstick and the area around it. Remove the Dipstick by turning it counterclockwise, and wipe it off with a clean, lint free rag.



4. Reinsert the Dipstick without threading it in and remove it to check the oil level. The oil level should be up to the full level as shown above.
5. If the oil level is at or below the low mark add the appropriate type of oil until the oil level is at the proper level. SAE 10W-30 oil is recommended for general use. (The SAE Viscosity Grade chart on page 18 in the Maintenance section shows other viscosities to use in different average temperatures.)
6. Thread the dipstick back in clockwise.

**NOTICE:** Do not run the engine with too little oil. Engine will shut off if engine oil level is too low.

#### Checking and Filling Fuel



**WARNING! TO PREVENT SERIOUS INJURY FROM FIRE:**

Fill the fuel tank in a well-ventilated area away from ignition sources. If the engine is hot from use, shut the engine off and wait for it to cool before adding fuel. Do not smoke.

1. Clean the Fuel Cap and the area around it.
2. Unscrew and remove the Fuel Cap.
3. Remove the Strainer and remove any dirt and debris. Then replace the Strainer.

**Note:** Do not use gasoline containing more than 10% ethanol (E10). Do not use E85 ethanol.

**Note:** Do not use gasoline that has been stored in a metal fuel container or a dirty fuel container. It can cause particles to enter the carburetor, affecting engine performance and/or causing damage.

4. If needed, fill the Fuel Tank to about 1 inch under the fill neck of the Fuel Tank with 87 octane or higher unleaded gasoline that has been treated with a fuel stabilizer additive. Follow fuel stabilizer manufacturer's recommendations for use.
5. Then replace the Fuel Cap.
6. Wipe up any spilled fuel and allow excess to evaporate before starting engine. To prevent FIRE, do not start the engine while the smell of fuel hangs in the air.

# Operating Instruction

## Starting the Engine

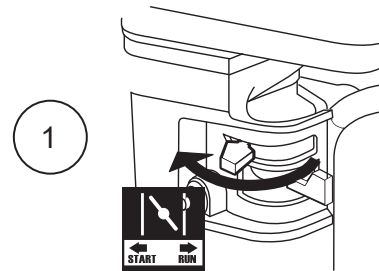
### Before Starting the Engine



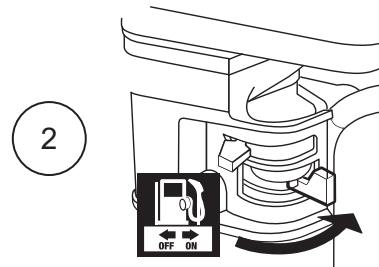
- Inspect the equipment and engine.
- Fill the engine with the proper amount and type of both stabilizer-treated unleaded gasoline and oil.
- TURN ON WATER SUPPLY, REMOVE NOZZLE, POINT WAND IN SAFE DIRECTION, AND HOLD DOWN TRIGGER UNTIL ALL AIR IS RELEASED FROM THE SYSTEM, AT LEAST 30 SECONDS. Then release the Trigger, lock it in the safety position and replace Nozzle before starting engine.

### Manual Start

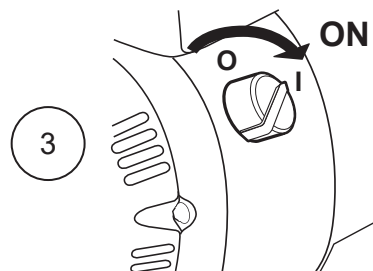
- To start a cold engine, move the Choke to the START position.  
To restart a warm engine, leave the Choke in the RUN position.



- Open the Fuel Valve.

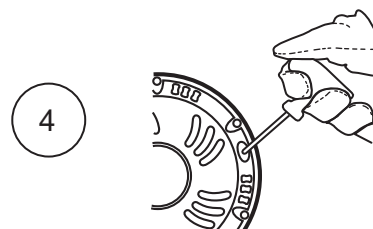


- Turn the Engine Switch on.



**Note:** If engine does not start, check engine oil level. Engine will not start with low or no engine oil.

- Grip the Starter Handle of the Engine loosely and pull it slowly two times to allow the gasoline to flow into the Engine's carburetor. Then pull the Starter Handle gently until resistance is felt. Allow Cable to retract fully and then pull it quickly. Repeat until the engine starts.



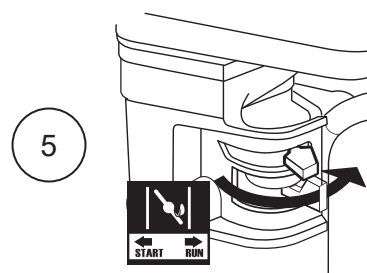
**Note:** Do not let the Starter Handle snap back against the engine. Hold it as it recoils so it doesn't hit the engine.

# Operating Instruction

## Starting the Engine (continued)

5. Allow the Engine to run for several seconds. Then, if the Choke lever is in the START position, move the Choke Lever very slowly to its RUN position.

**Note:** Moving the Choke Lever too fast could stall the engine.



### Break-in Period:

- a. Breaking-in the engine will help to ensure proper equipment and engine operation.
- b. The maintenance break-in period will last about 20 hours of use. Change the engine oil after this period.

Under normal operating conditions subsequent maintenance follows the schedule explained in the MAINTENANCE section.

## Pressure Washer Operation

### **⚠ WARNING**

**Do not direct spray from the Pressure Washer at a person or an animal. The water stream could cause serious injury.**

### **CAUTION**

**Use the Pressure Washer only on surfaces able to withstand the force of the spray.**

1. Choose the Nozzle that best meets the needs of the job. See Chart below. Only use the Nozzles on surfaces capable of withstanding the force of the spray. Only use the Black Nozzle when using pressure washer detergent. The power of the other Nozzles will propel mist back at the operator and can embed detergent into the surface.

NOZZLE SELECTION CHART	
NOZZLE	USE FOR
Red – 0° Pencil	Intense cleaning for stubborn stains and dirt. Use only on hard surfaces – can damage concrete, wood, paint, etc.
Yellow – 15° Narrow	Heavy cleaning for decks and siding.
Green – 25° Medium	Standard cleaning for driveways and paint removal.
White – 40° Wide	Moderate cleaning for autos and boats.
Black – Low Pressure	Use with pressure washer detergent.

2. Pull back the quick connect collar and push the Nozzle onto the end of the Wand. Make sure the quick connect collar locks the Nozzle in place.

### **If using detergent:**

Read detergent directions. Only use detergents specified for use with pressure washers. Open the Detergent Tank Lid, fill Detergent Tank with prepared detergent solution and close the Lid. The Pressure Washer will draw one gallon of detergent for every seven gallons of water. Only use the Black (low pressure) Nozzle when spraying detergents.

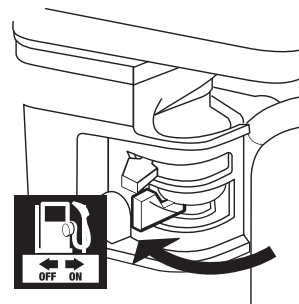
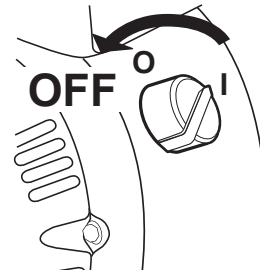
3. With water supply on and Engine running following directions in *Starting the Engine* on page 13, unlock and hold down the Trigger to start the stream. Be aware that when it is first started, the gun will kick.
4. Start with a low pressure Nozzle, and gradually use higher pressures as needed. Test spray the edge of the surface to be cleaned first to make sure that the stream is not too strong for the surface. If the stream damages the surface, move further away from the surface being cleaned to reduce the pressure being applied to the surface. If the stream is still too strong, lock the Trigger in the safety position and change to a lower pressure Nozzle.
5. Hold the Wand at about a 45° angle when cleaning; spraying the surface directly could embed dirt into the surface (especially with the high pressure Nozzles). Spray at a distance of about three to five feet.
6. Clean vertical and sloped surfaces from the top down.
7. When cleaning horizontal surfaces, occasionally use the stream to clear the area of excess water.
 

**⚠ CAUTION!** Do not allow the Pressure Washer to idle without the Trigger held down for more than two minutes. The water will heat up and damage the Pressure Washer. **RISK OF BURNS!** The Pump will expel very hot water if allowed to idle too long.
- Note:** During normal operation the Thermal Relief Valve may release small amounts of water intermittently.
8. Hold the Trigger down and move the Wand back and forth slowly and steadily to pressure wash the surface. Take special care when spraying surfaces made of two different materials (brick and mortar, for example), so as to not damage the softer of the two materials during pressure washing.
9. If the surface is streaked or uneven at the end of a job, switch to a Nozzle that has a wider spray pattern to blend the affected area.

## After Each Use

### Stopping the Engine and Pressure Washer

1. To stop the engine in an emergency, turn the Engine Switch off.
2. Under normal conditions, use the following procedure:
  - a. Release the Trigger on the Spray Gun handle.
  - b. Turn the Engine Switch off.
  - c. Close the Fuel Valve.
  - d. Turn the water supply off.
3. Squeeze the Trigger to release excess pressure.
4. If pressure washer detergent has been used, run clean water through the system to eliminate detergent residue using the following procedure:
  - a. Turn off the Engine as detailed in step 2.
  - b. Fill the Detergent Tank with clean water.
  - c. Remove the Nozzle and restart the Engine following directions in *Starting the Engine* on page 12~13.
  - d. Point Wand in safe direction and hold down Trigger to flush water through system until clean.
  - e. Turn off the Engine as detailed in step 2.



### NOTICE

**Drain fuel at end of season or warranty is void.**  
See Long-Term Storage on page 20 for complete storage instructions.

## Maintenance

### **⚠ WARNING**

**TO PREVENT SERIOUS INJURY FROM ACCIDENTAL STARTING:**

Turn the Power Switch of the equipment to its “OFF” position, wait for the engine to cool, and disconnect the spark plug cap before performing any inspection, maintenance, or cleaning procedures.

**TO PREVENT SERIOUS INJURY FROM EQUIPMENT FAILURE:**

Do not use damaged equipment. If abnormal noise, vibration, or excess smoking occurs, have the problem corrected before further use.

Follow all service instructions in this manual. The engine may fail critically if not serviced properly.



Many maintenance procedures, including any not detailed in this manual, will need to be performed by a qualified technician for safety. If you have any doubts about your ability to safely service the equipment or engine, have a qualified technician service the equipment instead.

### Cleaning, Maintenance, and Lubrication Schedule

**Note:** This maintenance schedule is intended solely as a general guide. If performance decreases or if equipment operates unusually, check systems immediately. The maintenance needs of each piece of equipment will differ depending on factors such as duty cycle, temperature, air quality, fuel quality, and other factors.

**Note:** The following procedures are in addition to the regular checks and maintenance explained as part of the regular operation of the engine and equipment.

Procedure	Before Each Use	Monthly or every 20 hr. of use	Every 3 mo. or 50 hr. of use	Every 6 mo. or 100 hr. of use	Yearly or every 300 hr. of use	Every 2 Years
Brush off outside of engine	✓	✓	✓	✓	✓	✓
Check engine oil level	✓	✓	✓	✓	✓	✓
Check air cleaner			✓	✓	✓	✓
Check sediment cup				✓	✓	✓
Change engine oil		✓		✓	✓	✓
Clean/replace air filter			✓*	✓	✓	✓
Check and clean spark plug				✓	✓	✓
1. Check/adjust idle speed						
2. Check/adjust valve clearance						
3. Clean fuel tank, strainer and carburetor					✓**	✓**
4. Clean carbon build-up from combustion chamber						
Replace fuel line if necessary						✓**

\*Service more frequently when used in dusty areas. \*\*These items should be serviced by a qualified technician.

# Maintenance

## Checking and Filling Fuel



### **⚠️ WARNING! TO PREVENT SERIOUS INJURY FROM FIRE:**

Fill the fuel tank in a well-ventilated area away from ignition sources. If the engine is hot from use, shut the engine off and wait for it to cool before adding fuel. Do not smoke.

1. Clean the Fuel Cap and the area around it.
2. Unscrew and remove the Fuel Cap.
3. Remove the Strainer and remove any dirt and debris. Then replace the Strainer.

**Note:** Do not use gasoline containing more than 10% ethanol (E10). Do not use E85 ethanol.

**Note:** Do not use gasoline that has been stored in a metal fuel container or a dirty fuel container. It can cause particles to enter the carburetor, affecting engine performance and/or causing damage.

4. If needed, fill the Fuel Tank to about 1 inch under the fill neck of the Fuel Tank with 87 octane or higher unleaded gasoline that has been treated with a fuel stabilizer additive. Follow fuel stabilizer manufacturer's recommendations for use.
5. Then replace the Fuel Cap.
6. Wipe up any spilled fuel and allow excess to evaporate before starting engine. To prevent FIRE, do not start the engine while the smell of fuel hangs in the air.

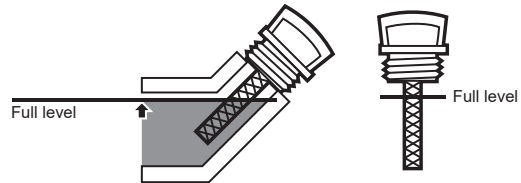
## Pump Maintenance

The Pressure Washer Pump is maintenance free. If any sign of oil leakage is present on or around the Pump, DO NOT operate the Pressure Washer. Have the unit serviced by a qualified technician.

## Engine Oil Change

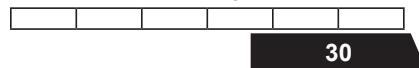
**⚠️ CAUTION!** Oil is very hot during operation and can cause burns. Wait for engine to cool before changing oil.

1. Make sure the engine is stopped and is level.
2. Close the Fuel Valve.
3. Place a drain pan (not included) underneath the crankcase's drain plug.
4. Remove the drain plug and, if possible, tilt the crankcase slightly to help drain the oil out. Recycle used oil.
5. Replace the drain plug and tighten it.
6. Clean the top of the Dipstick and the area around it. Remove the Dipstick by turning it counterclockwise, and wipe it off with a clean, lint free rag.



7. Add the appropriate type of oil until the oil level is at the full level. SAE 10W-30 oil is recommended for general use. The SAE Viscosity Grade chart shows other viscosities to use in different average temperatures.

### SAE Viscosity Grades



10W-30

5W-30

-20 0 20 40 60 80 100°F

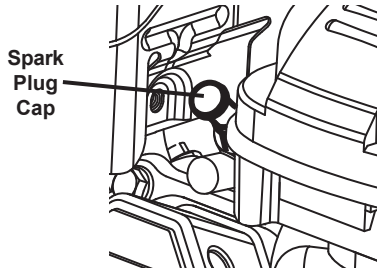
Average outdoor temperature

8. Thread the dipstick back in clockwise.

**NOTICE:** Do not run the engine with too little oil. Engine will not start with low or no engine oil.

# Maintenance

## Spark Plug Maintenance



1. Disconnect spark plug cap from end of plug. Clean out debris from around spark plug.
2. Using a spark plug wrench, remove the spark plug.
3. Inspect the spark plug:  
If the electrode is oily, clean it using a clean, dry rag.  
If the electrode has deposits on it, polish it using emery paper. If the white insulator is cracked or chipped, the spark plug needs to be replaced. Use spark plug specified in Specifications chart.

**NOTICE:** Using an incorrect spark plug may damage the engine.

4. When installing a new spark plug, adjust the plug's gap to the specification on the Specifications chart. Do not pry against the electrode, the spark plug can be damaged.
5. Install the new spark plug or the cleaned spark plug into the engine.
  - **Gasket-style:**  
Finger-tighten until the gasket contacts the cylinder head, then tighten about 1/2-2/3 turn more.
  - **Non-gasket-style:**  
Finger-tighten until the plug contacts the cylinder head, then tighten about 1/16 turn more.

**NOTICE:** Tighten the spark plug properly.

**If loose,** the spark plug will cause the engine to overheat.

**If overtightened,** the threads in the engine block will be damaged.

6. Apply dielectric spark plug boot protector (not included) to the end of the spark plug and reattach the wire securely.

## Air Filter Maintenance

1. Remove the Air Cleaner Cover and the air filter(s) and check for dirt. Clean as described below.
2. **Cleaning:**
  - For paper filters:  
To prevent injury from dust and debris, wear ANSI-approved safety goggles, NIOSH-approved dust mask/respirator, and heavy-duty work gloves. In a well-ventilated area away from bystanders, use pressurized air to blow dust out of the filter. If this does not get the filter clean, replace it.
  - For foam filters:  
Wash the filter in warm water and mild detergent several times. Rinse. Squeeze out excess water and allow it to dry completely. Soak the filter in lightweight oil briefly, then squeeze out the excess oil.
3. Install the cleaned filter(s). Secure the Air Cleaner Cover before use.

# Maintenance

## Long-Term Storage

When the equipment is to remain idle for longer than 20 days, prepare the Engine for storage as follows:

1. **CLEANING:**

Wait for Engine to cool, then clean Engine with dry cloth. **NOTICE: Do not clean using water.** The water will gradually enter the Engine and cause rust damage. Apply a thin coat of rust preventive oil to all metal parts.

2. **FUEL:**

To protect the fuel tank during storage, fill the tank with gasoline that has been treated with a fuel stabilizer additive. Follow fuel stabilizer manufacturer's recommendations for use. Refer to *Checking and Filling Fuel* on page 18.



**⚠ WARNING! TO PREVENT SERIOUS INJURY FROM FIRE:**

Fill tank in a well-ventilated area away from ignition sources. If the engine is hot from use, shut the engine off and wait for it to cool before adding fuel. Do not smoke.

3. **LUBRICATION:**

- a. Change engine oil.
- b. Clean out area around spark plug.  
Remove spark plug and pour one tablespoon of engine oil into cylinder through spark plug hole.
- c. Replace spark plug, but leave spark plug cap disconnected.
- d. Pull Starter Handle to distribute oil in cylinder. Stop after one or two revolutions when you feel the piston start the compression stroke (when you start to feel resistance).

4. **PUMP PREPARATION:**

- a. Disconnect the Pressure Hose and water supply hose from the Pump.
- b. Connect a short length of garden hose with a male hose connector on one end to the Pump's water inlet connection.
- c. Use a funnel to add approximately six ounces of RV antifreeze to the Pump.  
**NOTICE: Use only RV antifreeze.** Other types of antifreeze are corrosive and can damage Pump.
- d. With spark plug cap disconnected and Engine switch in OFF position, pull Starter Handle several times until antifreeze begins to come out of Pump outlet fitting.

- e. Remove garden hose from Pump.

5. **STORAGE AREA:**

Cover and store in a dry, level, well-ventilated area out of reach of children. Storage area should also be away from ignition sources, such as water heaters, clothes dryers, and furnaces.

6. **EVERY 3 MONTHS, TO PROTECT ENGINE AND WARRANTY COVERAGE:**

- a. Safely drain antifreeze, and dispose of properly.
- b. Connect Pressure Hose and water supply hose.
- c. Turn on water supply, remove nozzle, point wand in safe direction, and hold down trigger until all air is released from the system, at least 30 seconds. Then release the Trigger, lock it in the safety position and replace Nozzle before starting engine.
- d. Discharge nozzle in safe direction run engine for 15-20 minutes or the Warranty is VOID. Turn off engine.
- e. Discharge nozzle in safe direction, and then disconnect hoses and drain water.
- f. Connect a short length of garden hose with a male hose connector on one end to the Pump's water inlet connection.
- g. Use a funnel to add approximately six ounces of RV antifreeze to the Pump.  
**NOTICE: Use only RV antifreeze.** Other types of antifreeze are corrosive and can damage Pump.

7. **AFTER STORAGE:**

- a. Before starting the Engine during or after storage, keep in mind that untreated gasoline will deteriorate quickly. Drain the fuel tank and change to fresh fuel if untreated gasoline has been sitting for a month, if treated gasoline has been sitting beyond the fuel stabilizer's recommended time period, or if the Engine does not start.
- b. With spark plug cap disconnected and Engine switch in OFF position, pull Starter Handle several times to discharge antifreeze out of the Pump outlet fitting before using Pressure Washer.

# Troubleshooting

## Troubleshooting

Problem	Possible Causes	Probable Solutions
Engine will not start	<b>FUEL RELATED:</b> <ol style="list-style-type: none"> <li>1. No fuel in tank or fuel valve closed.</li> <li>2. Choke not in START position, cold engine.</li> <li>3. Gasoline with more than 10% ethanol used. (E15, E20, E85, etc.)</li> <li>4. Low quality or deteriorated, old gasoline.</li> <li>5. Carburetor not primed.</li> <li>6. Dirty fuel passageways.</li> <li>7. Carburetor needle stuck. Fuel can be smelled in the air.</li> <li>8. Too much fuel in chamber. This can be caused by the carburetor needle sticking.</li> <li>9. Clogged Fuel Filter.</li> </ol>	<b>FUEL RELATED:</b> <ol style="list-style-type: none"> <li>1. Fill fuel tank with fresh 87+ octane unleaded stabilizer-treated gasoline and open fuel valve. <b>Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).</b></li> <li>2. Move Choke to START position.</li> <li>3. Clean out ethanol rich gasoline from fuel system. Replace components damaged by ethanol. Use fresh 87+ octane stabilizer-treated unleaded gasoline only. <b>Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).</b></li> <li>4. Use fresh 87+ octane stabilizer-treated unleaded gasoline. <b>Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).</b></li> <li>5. Pull on Starter Handle to prime.</li> <li>6. Clean out passageways using fuel additive. Heavy deposits may require further cleaning.</li> <li>7. <b>Gently</b> tap side of carburetor float chamber with screwdriver handle.</li> <li>8. Turn Choke to RUN position. Remove spark plug and pull the start handle several times to air out the chamber. Reinstall spark plug and set Choke to START position.</li> <li>9. Replace Fuel Filter.</li> </ol>
	<b>IGNITION (SPARK) RELATED:</b> <ol style="list-style-type: none"> <li>1. Spark plug cap not connected securely.</li> <li>2. Spark plug electrode wet or dirty.</li> <li>3. Incorrect spark plug gap.</li> <li>4. Spark plug cap broken.</li> <li>5. Incorrect spark timing or faulty ignition system.</li> </ol>	<b>IGNITION (SPARK) RELATED:</b> <ol style="list-style-type: none"> <li>1. Connect spark plug cap properly.</li> <li>2. Clean spark plug.</li> <li>3. Correct spark plug gap.</li> <li>4. Replace spark plug cap.</li> <li>5. Have qualified technician diagnose/repair ignition system.</li> </ol>
	<b>COMPRESSION RELATED:</b> <ol style="list-style-type: none"> <li>1. Cylinder not lubricated. Problem after long storage periods.</li> <li>2. Loose or broken spark plug. (Hissing noise will occur when trying to start.)</li> <li>3. Loose cylinder head or damaged head gasket. (Hissing noise will occur when trying to start.)</li> <li>4. Engine valves or tappets mis-adjusted or stuck.</li> </ol>	<b>COMPRESSION RELATED:</b> <ol style="list-style-type: none"> <li>1. Pour tablespoon of oil into spark plug hole. Crank engine a few times and try to start again.</li> <li>2. Tighten spark plug. If that does not work, replace spark plug. If problem persists, may have head gasket problem, see #3.</li> <li>3. Tighten head. If that does not remedy problem, replace head gasket.</li> <li>4. Have qualified technician adjust/repair valves and tappets.</li> </ol>
	<b>ENGINE OIL RELATED:</b> <ol style="list-style-type: none"> <li>1. Low engine oil.</li> <li>2. Engine mounted on slope, triggering low oil shutdown.</li> </ol>	<b>ENGINE OIL RELATED:</b> <ol style="list-style-type: none"> <li>1. Fill engine oil to proper level. Check engine oil before EVERY use.</li> <li>2. Operate engine on level surface. Check engine oil level.</li> </ol>



**Follow all safety precautions whenever diagnosing or servicing the equipment or engine.**

## Troubleshooting

Problem	Possible Causes	Probable Solutions
Engine misfires	<ol style="list-style-type: none"> <li>1. Spark plug cap loose.</li> <li>2. Incorrect spark plug gap or damaged spark plug.</li> <li>3. Defective spark plug cap.</li> <li>4. Old or low quality gasoline.</li>   <li>5. Incorrect compression.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check wire connections.</li> <li>2. Re-gap or replace spark plug.</li>   <li>3. Replace spark plug cap.</li> <li>4. Use only fresh 87+ octane stabilizer-treated unleaded gasoline. <b>Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).</b></li> <li>5. Diagnose and repair compression. (Use <b>Engine will not start: COMPRESSION RELATED</b> section.)</li> </ol>
Engine stops suddenly	<ol style="list-style-type: none"> <li>1. Fuel tank empty or full of impure or low quality gasoline.</li>   <li>2. Low oil shutdown.</li>   <li>3. Defective fuel tank cap creating vacuum, preventing proper fuel flow.</li> <li>4. Faulty magneto.</li> <li>5. Disconnected or improperly connected spark plug cap.</li> </ol>	<ol style="list-style-type: none"> <li>1. Fill fuel tank with fresh 87+ octane stabilizer-treated unleaded gasoline. <b>Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).</b></li> <li>2. Fill engine oil to proper level. Check engine oil before EVERY use.</li> <li>3. Test/replace fuel tank cap.</li>   <li>4. Have qualified technician service.</li> <li>5. Secure spark plug cap.</li> </ol>
Engine stops when under heavy load	<ol style="list-style-type: none"> <li>1. Dirty air filter</li> <li>2. Engine running cold.</li> </ol>	<ol style="list-style-type: none"> <li>1. Clean or replace element.</li> <li>2. Allow engine to warm up prior to operating equipment.</li> </ol>
Engine knocks	<ol style="list-style-type: none"> <li>1. Old or low quality gasoline.</li>   <li>2. Engine overloaded.</li> <li>3. Incorrect spark timing, deposit buildup, worn engine, or other mechanical problems.</li> </ol>	<ol style="list-style-type: none"> <li>1. Fill fuel tank with fresh 87+ octane stabilizer-treated unleaded gasoline. <b>Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).</b></li> <li>2. Do not exceed equipment's load rating.</li> <li>3. Have qualified technician diagnose and service engine.</li> </ol>
Engine backfires	<ol style="list-style-type: none"> <li>1. Impure or low quality gasoline.</li>   <li>2. Engine too cold.</li> <li>3. Intake valve stuck or overheated engine.</li>   <li>4. Incorrect timing.</li> </ol>	<ol style="list-style-type: none"> <li>1. Fill fuel tank with fresh 87+ octane stabilizer-treated unleaded gasoline. <b>Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).</b></li> <li>2. Use cold weather fuel and oil additives to prevent backfiring.</li> <li>3. Have qualified technician diagnose and service engine.</li> <li>4. Check engine timing.</li> </ol>
Does not produce high pressure	<ol style="list-style-type: none"> <li>1. Diameter of water supply hose too small</li> <li>2. Water supply is restricted.</li> <li>3. Not enough water supply.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace hose with a 3/4-inch hose.</li> <li>2. Check water supply hose for kinks, leaks, or blockage.</li> <li>3. Open water faucet all the way.</li> </ol>
Output pressure varies	<ol style="list-style-type: none"> <li>1. Not enough water supply.</li> <li>2. Water inlet screen is clogged.</li> <li>3. Nozzle is clogged.</li> <li>4. Nozzle has mineral build up.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check water supply hose for kinks, leaks, or blockage. Open faucet all the way.</li> <li>2. Remove inlet screen and rinse out.</li> <li>3. Remove Nozzle and clean.</li> <li>4. Remove Nozzle and clean with vinegar.</li> </ol>
No intake of detergent	<ol style="list-style-type: none"> <li>1. Detergent hose not properly inserted into unit.</li> <li>2. Tube cracked or split.</li> <li>3. Wrong Nozzle.</li> <li>4. Injector turned off.</li> <li>5. Injection tube strainer clogged.</li> <li>6. Nozzle blocked.</li> <li>7. Dried detergent in injector.</li> </ol>	<ol style="list-style-type: none"> <li>1. Push firmly into injector.</li> <li>2. Replace tube.</li> <li>3. Switch to Black Nozzle.</li> <li>4. Turn collar counterclockwise.</li> <li>5. Clean strainer.</li> <li>6. Clean Nozzle.</li> <li>7. Dissolve by running warm water through the injection tube. Run clean water through injector until clear.</li> </ol>

## Limited Warranty

Northern Tool and Equipment Company, Inc. ("We" or "Us") warrants to the original purchaser only ("You" or "Your") that the Ironton product purchased will be free from material defects in both materials and workmanship, normal wear and tear excepted, for a period of **one year** from date of purchase. The foregoing warranty is valid only if the installation and use of the product is strictly in accordance with product instructions. There are no other warranties, express or implied, including the warranty of merchantability or fitness for a particular purpose. If the product does not comply with this limited warranty, Your sole and exclusive remedy is that We will, at our sole option and within a commercially reasonable time, either replace the product or product component without charge to You or refund the purchase price (less shipping). This limited warranty is not transferable.

### Limitations on the Warranty

This limited warranty does not cover: (a) normal wear and tear; (b) damage through abuse, neglect, misuse, or as a result of any accident or in any other manner; (c) damage from misapplication, overloading, or improper installation; (d) improper maintenance and repair; and (e) product alteration in any manner by anyone other than Us, with the sole exception of alterations made pursuant to product instructions and in a workmanlike manner.

### Obligations of Purchaser

You must retain Your product purchase receipt to verify date of purchase and that You are the original purchaser. To make a warranty claim, contact Us at 1-800-222-5381, identify the product by make and model number, and follow the claim instructions that will be provided. The product and the purchase receipt must be provided to Us in order to process Your warranty claim. Any returned product that is replaced or refunded by Us becomes our property. You will be responsible for return shipping costs or costs related to Your return visit to a retail store.

### Remedy Limits

Product replacement or a refund of the purchase price is Your sole remedy under this limited warranty or any other warranty related to the product. We shall not be liable for: service or labor charges or damage to Your property incurred in removing or replacing the product; any damages, including, without limitation, damages to tangible personal property or personal injury, related to Your improper use, installation, or maintenance of the product or product component; or any indirect, incidental or consequential damages of any kind for any reason.

### Assumption of Risk

You acknowledge and agree that any use of the product for any purpose other than the specified use(s) stated in the product instructions is at Your own risk.

### Governing Law

This limited warranty gives You specific legal rights, and You also may have other rights which vary from state to state. Some states do not allow limitations or exclusions on implied warranties or incidental or consequential damages, so the above limitations may not apply to You. This limited warranty is governed by the laws of the State of Minnesota, without regard to rules pertaining to conflicts of law. The state courts located in Dakota County, Minnesota shall have exclusive jurisdiction for any disputes relating to this warranty.



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Northern Tool & Equipment Company, Inc.

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