1In. Clear Water Pump

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.

Items #60729

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: _____

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 clear water pump 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 **1-877-234-6869**.

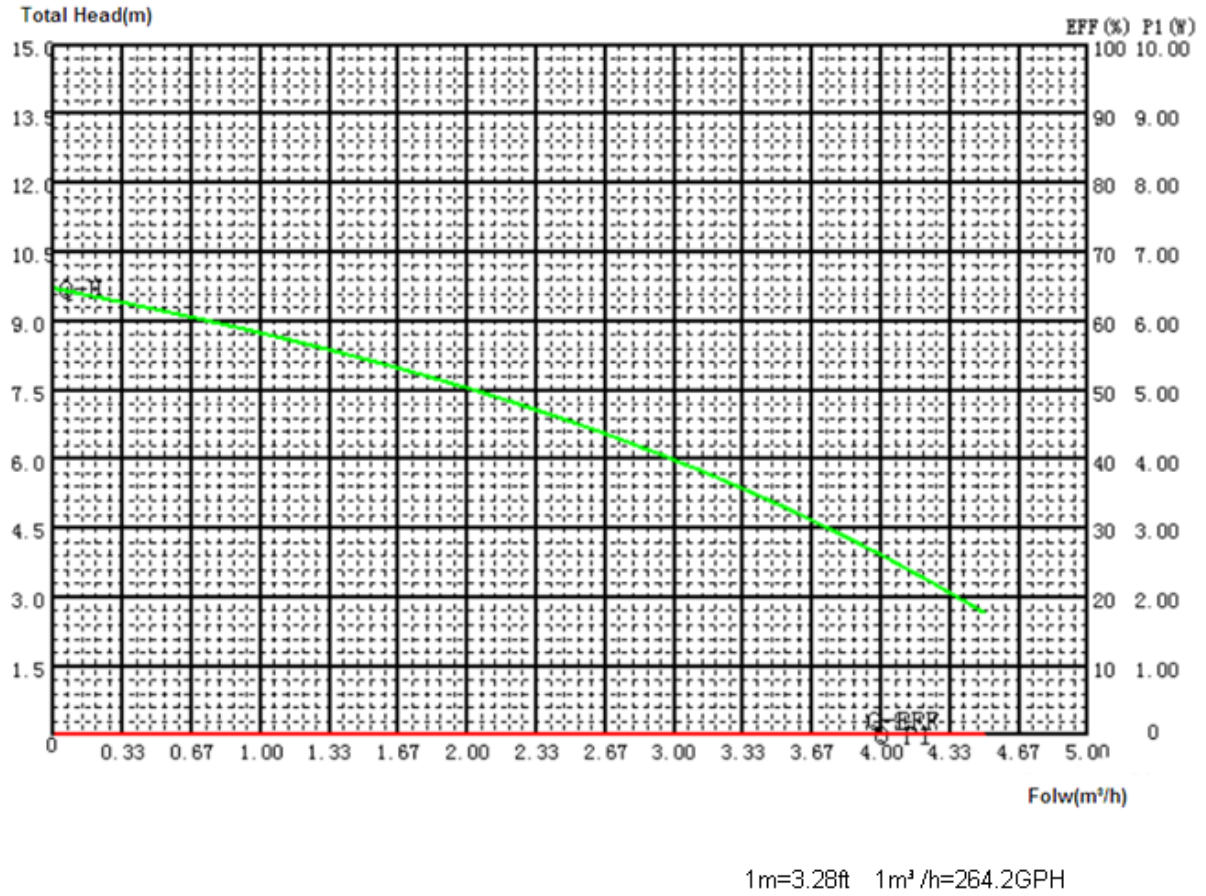
Table of Contents

Intended Use

The Ironton 1 Inch Clear Water Pump is designed with a simple structure allowing for an easy start and reliable operation. This quiet and easy-to-use pump is designed to pump water and non-corrosive liquids. The pump has many applications including farming irrigation, drought-resistant irrigation, pool, flooding, pond draining, and construction sites.

Technical Specifications

Property	Specification
Engine	Ironton 79cc
Suction & Discharge Size	1" NPT
Maximum Flow	1580 GPH
Maximum Suction Head	23 FT
Maximum Total Head	98 FT
Maximum Pressure	17 PSI
Mechanical Seal	Routine
Overall Dimensions (L×W×H)	17.13"×15.75"×16.14"
Dry Weight	40.79 lb.



1m=3.28ft 1m³/h=264.2GPH

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 pump until they have read this manual and have developed a thorough understanding of how it works.
- Do not modify this pump 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

WORK AREA SAFETY

- Do not allow the pump to come into contact with an electrical source. It is not insulated and contact will cause electrical shock.
- Keep children and bystanders away from the work area while operating the pump. 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.
- Outdoor use only. This pump produces Carbon Monoxide, a deadly odorless chemical. Operate 20 feet from any doors, windows, or air intakes.

⚠CAUTION

PUMP USE AND CARE

BEFORE OPERATION

- Read manual. Do not allow anyone to operate the pump that has not read the Owner's Manual or has not been instructed on the safe use of the pump.
- Keep a fire extinguisher rated "ABC" nearby
- Review safety rules. Before starting this pump, review the instructions for safe operation.
- Know how to stop. Be thoroughly familiar with all controls and with the proper use of the equipment. Know how to stop the pump.

DURING ASSEMBLY

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

DURING ASSEMBLY

- Fuel outdoors. Fill fuel tank outdoors – never indoors. Gasoline vapors can ignite if they collect inside an enclosure. Explosion can result.
- Use approved container. Never pump fuel directly into engine at gas station. Static charge can build and ignite fuel. Use an UL approved fuel container to transfer gas to the engine.
- Running / hot engine. A running engine is hot enough to ignite fuel. Never add fuel or remove gas cap if engine is running or still hot. Stop the engine and allow it to cool, at least two minutes before adding fuel.
- Heat / flames / sparks. Stay away from sources of heat, flame, or sparks while adding fuel.
- Don't overfill. DO NOT overfill the gas tank.
- Replace cap. Replace gas cap securely before starting engine.
- Spills. Clean up fuel spills immediately. Move pump away from spilled fuel on the ground. Wipe fuel off engine and wait 5 minutes for excess fuel to evaporate before starting engine. Gas soaked rags should be disposed of properly.
- On skin / clothes. If gasoline is spilled on your skin or clothes, change clothes and wash skin immediately.
- Gasoline storage. Store gasoline in a cool, dry place in an UL approved, tightly sealed container.

DURING OPERATION

- INSPECT and PREPARE pump before each use as directed in this manual.
- DO NOT USE flammable or corrosive chemicals in the pump.
- DO NOT RUN pump while unattended.
- FOLLOW INSTRUCTIONS for SAFELY FUELING/REFUELING THE ENGINE. Gasoline is flammable and can explode. Always use caution when handling gasoline.
- DO NOT START pump until ready to use in order to avoid unintentional release.
- SEE Troubleshooting section of this manual before attempting any repairs. Wear personal protective equipment and follow safety instructions.
- Hot muffler. If you are starting a warm engine, stay clear of muffler. It may still be hot enough to burn you.
- Never leave the machine unattended while the engine is running.
- Never operate, or let anyone else operate, the pump while under the influence of alcohol, drugs, or medication.
- Adjusting/Repairing. Turn off engine and remove spark plug cap before cleaning, inspecting, or servicing the pump. Summary of Important Safety Information 6
- 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. If you start to feel sick, dizzy, or weak while

using the pump, shut off the engine and get to fresh air RIGHT AWAY. See a doctor. You may have carbon monoxide poisoning.

- Other exhaust dangers. Engine exhaust, some of its constituents and certain vehicle components contain or emit chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm. Avoid inhalation of exhaust.

AFTER OPERATION

- Let engine cool before storing. Let engine cool for at least five minutes before storing. A hot engine can be a fire hazard.
- Storage location. Store the pump in a location away from sources of heat, open flames, sparks or pilot lights – such as water heaters, space heaters, furnaces, clothes dryers, or other gas appliances. Even if the pump's gas tank is empty, residual gasoline vapors could ignite.
- Gasoline storage. Store extra gasoline in a cool, dry place in an UL approved, tightly sealed container. Gasoline vapors can ignite if they collect inside an enclosure.
- Periodic maintenance. Perform periodic maintenance as directed in this manual to keep the pump in safe working condition.

DURING STORAGE / TROUBLESHOOTING

- PREPARE THE PUMP 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 pump.

Specific Operation Warnings

⚠WARNING

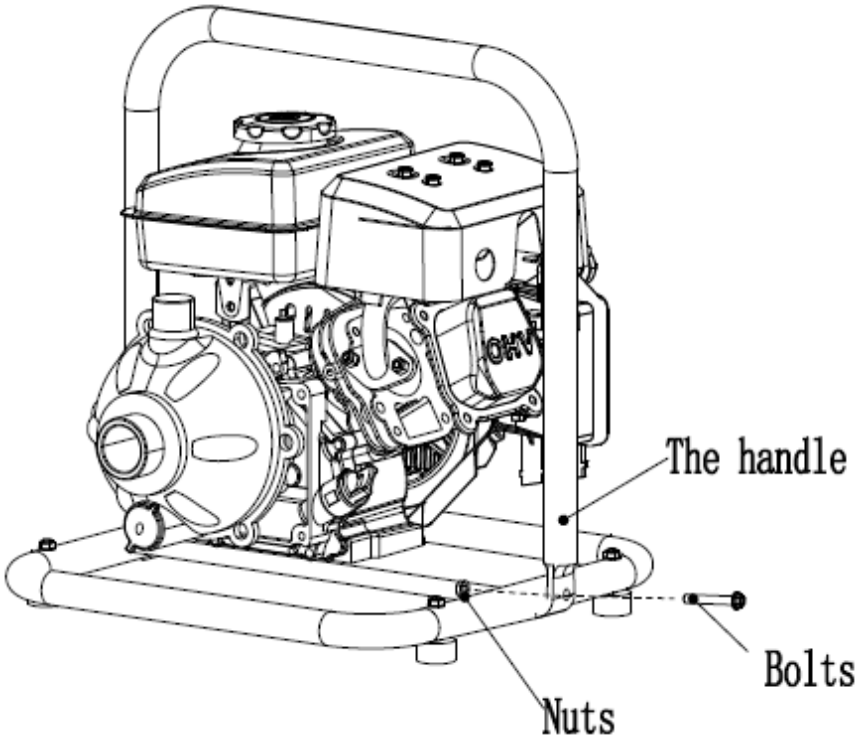
- INSPECT and PREPARE the pump before each use, as directed in this manual.
- Pump clean water only. DO NOT use for salt water, brine, laundry discharge, or any application that may contain foreign materials and/or caustic chemicals.
- Never pump gasoline or flammable liquids with this pump.
- To prevent fire hazards and to provide adequate ventilation, keep the pump at least 20 feet away from buildings and other equipment during operation. Do not place flammable objects near the pump.
- Learn how to stop the pump quickly, and understand the operation of all controls. Never permit anyone to operate the pump without proper instructions.
- FOLLOW INSTRUCTIONS for SAFELY FUELING the engine. Gasoline is flammable and can explode. Always use caution when handing gasoline.
- Keep a fire extinguisher rated "ABC" nearby.
- Refuel in a well-ventilated area with the engine off.
- Keep refueling area clear of smoking, flames, or sparks, as gasoline fumes can be ignited.
- Do not overfill the fuel tank. After refueling, make sure the tank cap is closed properly and securely.
- Be careful not to spill fuel when refueling. Spilled fuel or fuel vapor may ignite. If any fuel is spilled, make sure the area is dry before starting the engine.

- 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. If you start to feel sick, dizzy, or weak while using the pump, shut off the engine and get to fresh air RIGHT AWAY. See a doctor. You may have carbon monoxide poisoning.
- OTHER EXHAUST DANGERS. Engine exhaust, some of its constituents and certain vehicle components contain or emit chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm. Avoid inhalation of exhaust. The muffler becomes very hot during operation and remains hot after stopping the engine. DO NOT touch the muffler while it is hot.
- Let the engine cool before storing the pump indoors.
- See the troubleshooting section of this manual before attempting any repairs. Wear personal protective equipment such as ANSI Z87.1 compliant safety glasses and follow safety instructions.

Assembly Instructions

⚠WARNING

CHECK and TEST the completed assembly as directed in this manual. Serious injury could result from water leaks if the pump is improperly assembled. DO NOT MODIFY the pump's design.



Tools Required for Assembly

- Open-end wrenches: S10 and S8
- Bolts: M6

- Nuts: M6

Installation Steps

1. Ensure the handle mounting hole fits the base of the mounting holes.
2. Insert the bolt and screw into the nut by hand.

Tighten the nut with an S10 open-end wrench and then tighten the bolt with an S8 open-end wrench.

Before Each Use

Step One: Inspect & Repair

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

⚠WARNING

Read instructions below carefully for inspecting and preparing the pump. Damaged or clogged equipment could result in leaks or uncontrolled spray.

⚠WARNING

IMPORTANT SAFETY RULES

- **Check oil.** Before each use, check the oil level and if it's low, add oil to the proper level.
- **Turn off engine.** Turn off the engine and remove the spark plug cap before cleaning, inspecting, or servicing the pump.
- **Guards/shields.** Make sure all guards and shields are replaced after servicing the pump.
- **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 pump.

1. Ensure pump casing is empty.	Ensure the pump has been thoroughly flushed with fresh water and drained from any prior use.
2. Clean suction strainer.	Clean the suction strainer of any material residue. It is important to clean the suction strainer of debris before each use, to ensure it is not clogged.
3. Inspect and repair.	Inspect and test the pump thoroughly. a. Inspect fittings for cracks and leaks. Replace all damaged fittings with original parts. b. Check to be sure all nuts, bolts, and screws are tight. c. Check the engine's oil level (see engine's owner's manual). d. Check for fuel leaks. Any fuel leak is a fire hazard and needs to be repaired before starting engine.

Step Two: Fueling

⚠WARNING
EXPLOSION HAZARD • Gasoline is highly flammable and explosive. Use extreme care when handling gasoline. • A running engine is hot enough to ignite fuel. Never add fuel or remove gas cap if engine is running or still hot. • Gasoline vapors can ignite if they collect inside an enclosure. Explosion can result.

1. Engine off / cool	The engine must be off and allowed to cool at least two minutes before adding fuel.
2. Outdoor location	Fill fuel tank outdoors – never indoors.
3. Check engine oil level	Check engine oil level as specified in the engine manual.
4. Remove gas cap	Remove engine gas cap.
5. Add gasoline	Add gasoline through fill opening from a UL-approved container. **Important Safety Instructions:** • 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.
6. Spills / splashes	Clean up fuel spills/splashes immediately. a. Move pump away from spilled fuel. b. Wipe fuel off engine and wait 5 minutes for excess fuel to evaporate before starting engine.

	c. Gas soaked rags are flammable and should be disposed of properly. **d.** If gasoline is spilled on your skin or clothes, change clothes and wash skin immediately.
7. Replace gas cap	Replace gas cap securely before starting engine.
8. Gasoline storage	Store gasoline in a cool, dry place, tightly sealed container.

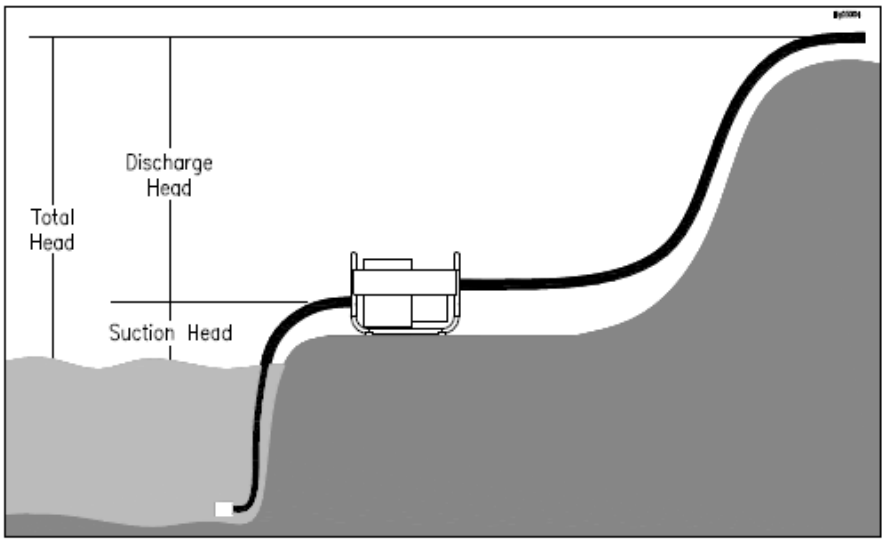
Step Three: Attach a Suction Strainer

⚠WARNING
EXPLOSION HAZARD This pump is designed to pump water only. Never use the pump to pump chemicals or flammable liquids.

1. Attach suction strainer	A suction strainer should be attached to the suction hose. A suction strainer has holes or slots small enough to prevent large debris from working through and damaging the pump.
2. Keep the strainer clean	Keep the strainer clean. If possible, suspend the strainer to keep it from working into sediment -OR- a. Prepare a bed of large stones on which the strainer will rest. b. Tie the strainer inside a basket or pail.

Step Four: Place the Pump

1. Place the pump near the liquid surface.	Place the pump in a location as close to the liquid surface as possible. This will ensure proper pump suction. All hoses must be kept as straight as possible, avoiding sharp bends. NOTE: 23 feet is the maximum height of a suction head.
2. Use a flexible hose.	Use at least 12” of flexible hose to make plumbing connections to the pump body. Rigid piping may put stress on the pump, causing damage.
3. Place the unit on secure footing.	Always be sure the unit is on secure footing. Keep the immediate pump area free of all bystanders. If the pump is sitting beside a pit, be sure it is well-anchored so that it does not fall in.
4. Do not run the pump dry.	Do not run the pump dry. Always fill the pump body with water before starting. It is not necessary to drain the pump body after each use, unless there is danger of freezing, settling of solids, or crystallization.
5. Fill the pump with water.	Fill the pump with water using the priming port on the top of the pump. (The pump self-primes only when it is first filled with priming water.) All hoses and pipe connections must be air-tight.



Operating Instructions

Part 1: Operating the Pump

⚠WARNING

- Review safety information provided in this manual.
- Use the priming port on the top of the pump. Completely fill the pump chamber with water before starting the engine.
- Follow these safety rules and precautions when running the pump's engine:
  - **Hot muffler.** If you are starting a warm engine, stay clear of the muffler. It may still be hot enough to burn you.
  - **Hot exhaust.** Hot exhaust fumes from the engine can cause fire. Position muffler at least 7' from combustible objects during operation.
  - **Fire extinguisher.** Have a Class ABC fire extinguisher available as a precautionary measure when operating the pump 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 pump engine OUTDOORS and away from air intakes. NEVER run the pump 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 pump, shut off the engine and get to fresh air RIGHT AWAY. See a doctor. You may have carbon monoxide poisoning.
- Before starting the engine, consult the engine's Owner's Manual.
- Throttle control. When operating the pump much higher than the water surface, you may need to speed up the engine, using the throttle. When the pump is near the water surface, a slower engine speed can be used. This will save the engine life and fuel. Consult the engine's Owner's Manual for the throttle location.
- Secure the flexible hose. Never allow a vehicle to run over the flexible hose. This sudden shut off

pressure can cause “hydraulic shock”. If your flexible hose must be laid across a high traffic area, it is advised to protect the flexible hose with planking.

- Keep the pump from freezing. Never allow water to freeze the pump. Freezing water can be extremely dangerous to the pump. Always drain the water from the pump if freezing temperatures are a factor.
- Flush the pump with fresh water after each use. Some liquids being pumped may leave a solid or sticky residue. This may shorten the life of the pump.

⚠CAUTION

HIGH ALTITUDE OPERATION

Operating at an altitude of greater than 2000 feet (610 meters) may affect your engines performance, fuel consumption, and emissions. To remain emissions compliant and improve engine performance at higher altitudes, a high-altitude kit is required. A high altitude kit includes a carburetor jet resized to help correct air / fuel mixture at altitude. To order a high altitude kit or if you have additional questions, go to www.northerntool.com or contact us at 1-877-234-6869. Please note, engines with the high-altitude kit installed operated at lower altitudes could cause severe engine damage and affect emissions compliance. When modified, a tag or decal should be added to the product stating that a high-altitude kit was installed and to remind you to re-service the carburetor (re-jet) when operating in lower altitude environments.

Part 2: Operating the Engine

Safety Precautions

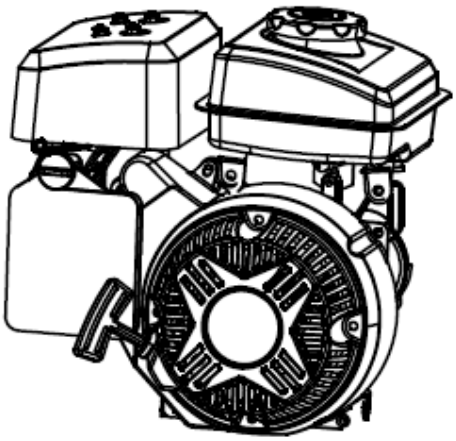
Warning Symbol	Description
	**Rapid retraction of the starter cord (kickback) can jerk your hands toward the engine faster than you can let go. Broken bones, fractures, bruises, or sprains could result.** • When starting the engine, pull the cord slowly until resistance is felt, then pull rapidly. • Components such as blades, impellers, pulleys, sprockets, etc., must be securely attached.
	**Rotating parts can contact or entangle hands, feet, hair, clothing, or accessories. Traumatic amputation or severe laceration can result.** • Operate equipment with guards in place. • Keep hands and feet away from rotating parts. • Tie up long hair and remove jewelry. • Do not wear loose-fitting clothing, dangling drawstrings, or items that could become caught.

	**Engines give off carbon monoxide, an odorless, colorless, poisonous gas.** • Start and run the engine outdoors. • Do not start or run the engine in enclosed areas, even if doors or windows are open.
	**Running engines produce heat. Engine parts, especially mufflers, become extremely hot. Severe thermal burns can occur on contact. Combustible debris, like leaves, grass, and brush, can catch fire.** • Allow the muffler, the engine cylinder, and the fins to cool before touching. • Remove accumulated debris from the muffler and cylinder areas. • Install and maintain in working order a spark arrester before using equipment on forest-covered, grass-covered, brush-covered unimproved land. The state of California requires this. Other states may have similar laws. Federal laws apply on federal land.
	**Starting an engine creates sparks. Sparking can ignite nearby flammable gases. Explosion and fire could result.** • If there is natural or an LP gas leakage in the area, do not start the engine. • Do not use pressurized starting fluids because vapors are flammable. **Gasoline and its vapors are extremely flammable and explosive. Fire or explosion can cause severe burns or death. When adding fuel:** • Turn the engine OFF and let the engine cool for at least 2 minutes before removing the gas cap. • Fill the fuel tank outdoors or in a well-ventilated area. • Do not overfill the fuel tank. • Keep gasoline away from sparks, open flames, pilot lights, heat, and other ignition sources. • Check fuel lines, the tank, the cap, and fittings frequently for cracks or leaks. Replace if necessary. **When Starting Engine:** • Make sure the spark plug, muffler, fuel cap, and air cleaner are in place. • Do not crank the engine with the spark plug removed. • If fuel spills, wait until it evaporates before starting the engine. • If the engine floods, set the choke to the OPEN/RUN position, place the throttle in FAST, and crank until the engine starts. **When Operating Equipment:** • Do not choke the carburetor to stop the engine. **When Transporting Equipment:** • Transport with the fuel tank EMPTY. **When Storing Gasoline or Equipment with Fuel in Tank:** • Store away from furnaces, stoves, water heaters, or other appliances that have a pilot light or other ignition source because they can ignite gasoline vapors.

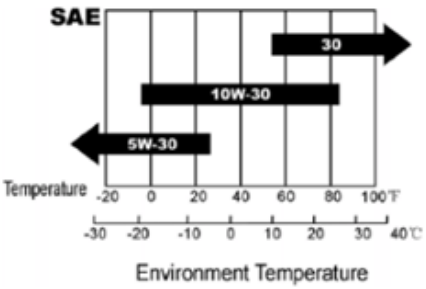
⚠WARNING

To prevent death or personal injury, read and understand this manual before operating pump. Pay special attention to the following:

1. Make sure to run the engine in a well-ventilated area, keep at least 20 feet away from building walls or other equipment, and keep away from inflammables such as gasoline and matches, to avoid possible fire.
2. Keep the engine out of reach of children and pets to avoid accidents.
3. Be sure the engine's operator has thoroughly read through this manual.
4. Refuel in a well-ventilated area without the engine running, in a location safe for refueling or storing gasoline (free from smoking, flames, and sparks).
5. Refill the fuel tank, avoiding overfilling. If there is a fuel spill, be sure to clean thoroughly before operating.
6. Locate the engine on a level, working platform to avoid fuel spills.
7. Make sure the fuel filler cap is tightened securely.
8. The exhaust muffler will be very hot even after the engine stops running. Never touch it, or you may be burned. Transport or store the engine only after it has completely cooled.



Diagrams within this manual may not be drawn proportionally. Due to continuing improvements, the actual product may differ slightly from the product described.

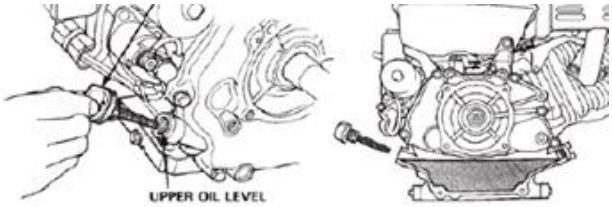


Pre-Operation: Engine Oil Inspection

CAUTION
Engine oil is a key factor in the engine's performance. Do not apply engine oil with additives or 2-stroke gasoline oil.

Check the engine while it’s stopped on level ground. The recommended engine oil is: SAE 10W-30. Viscosity varies by region and temperature, so the lubricant has to be selected in accordance with our recommendation.

Check Engine



1. Ensure that the engine is stopped on level ground.
2. Remove the dipstick and clean it.
3. Reinsert the dipstick into the oil filler without screwing it, and check the oil level.
4. If the level is too low, add the recommended engine oil to the oil filler neck.
5. Reinstall the dipstick.

CAUTION
Operating with insufficient engine oil may severely damage the engine.

Fuel & Fuel Tank

To ensure that the engine runs smoothly, use only FRESH, UNLEADED GAS WITH AN OCTANE RATING OF 87 OR HIGHER. Using unleaded gasoline will decrease the possibility of producing car boll deposit and will prolong the engine’s service life. Never apply used or polluted gasoline or a mixture of gasoline with the engine oil. Make sure the fuel is free of dirt and water.

Gasoline Containing Alcohol

If you decide to use gasoline containing alcohol (fuel blend), be sure its octane rating is at least as high as that recommended by the company. There are two types of “gasohol”. One contains ethanol, and the other contains methanol. Neither gasoline containing more than 10% ethanol nor 5% methanol should be used. If the methanol content in the fuel blend exceeds 5%, it may result in poor engine performance, as well as damaging metal, rubber, and plastic parts.

CAUTION
Fuel can damage paint and some types of plastic. Be careful not to spill fuel when filling your fuel tank

It is normal to hear an occasional “spark knock” or “pinking” with the engine running under a heavy load.

If a "spark knock" or "pinking" occurs at a steady speed under the normal load, change the brand of gasoline; if such occurrences still happen, consult your dealer for help, otherwise the engine may be damaged.

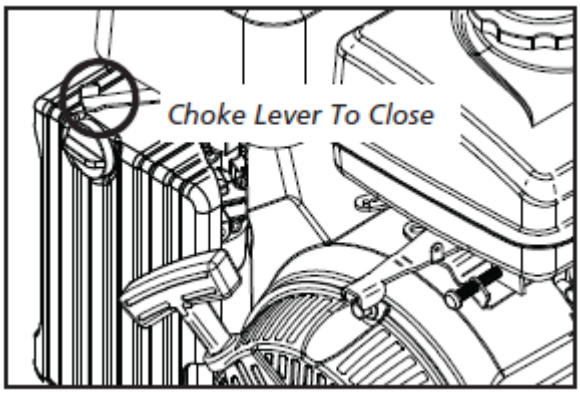
Starting the Engine

⚠WARNING

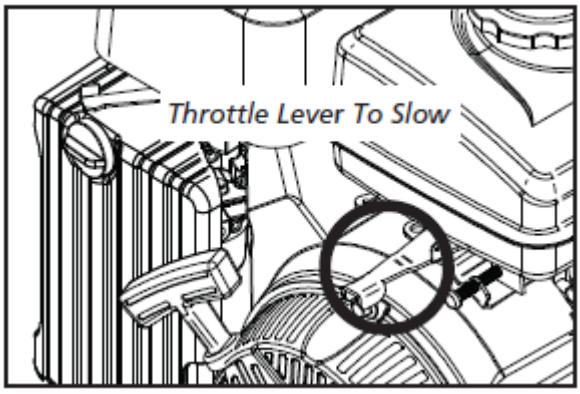
EXPLOSION/BURN HAZARD

- Gasoline is extremely flammable and is explosive under certain conditions. Only refuel in a well-ventilated area with the engine off.
- Do not smoke or allow flames or sparks in the area where gasoline is stored or where the fuel tank is refueled.
- Do not overfill the tank (there should be no fuel in the filler neck). After refueling, make sure the fuel filler cap is set back securely.
- Be careful not to spill fuel when refueling. Spilled fuel or fuel vapor may ignite. If any fuel is spilled, make sure the area is dry before starting the engine.
- Avoid repeated or prolonged contact with skin or breathing of fuel vapor. Keep out of reach of children.

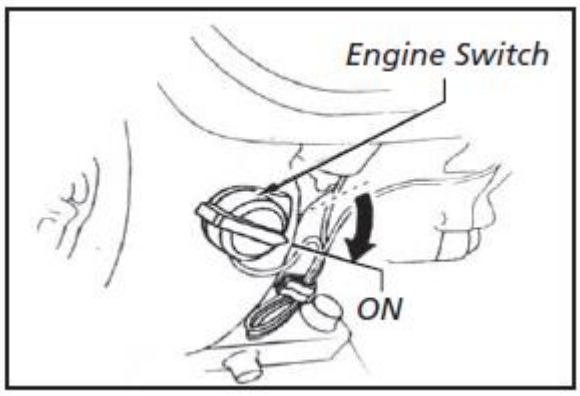
1. To start a cold engine, move the choke lever to the close position. To restart a warm engine, leave the choke lever in the open position. The choke lever opens and closes the choke valve in the carburetor. The closed position enriches the fuel mixture for starting a cold engine. The open position provides the correct fuel mixture for operation after starting, and for restarting a warm engine.



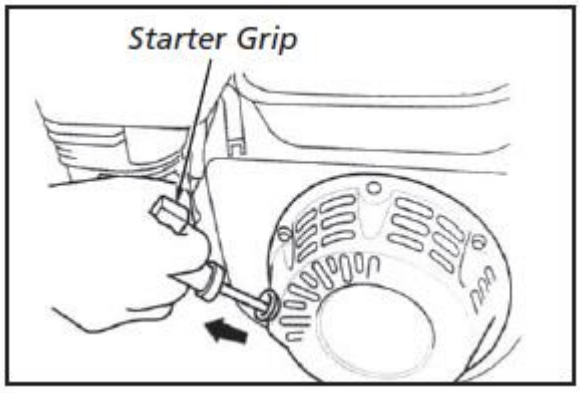
2. Move the throttle lever away from the slow position, about 1/3 of the way toward the fast position. The throttle controls engine speed. Moving the throttle lever in one direction or the other makes the engine run faster or slower.



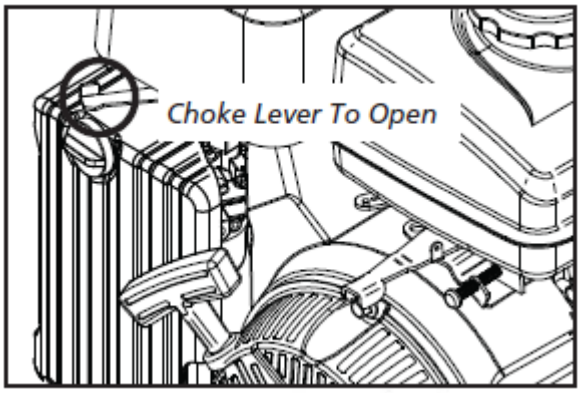
3. Turn the engine switch to the ON position. The engine switch enables and disables the ignition system. The engine switch must be on the ON position for the engine to run. Turning the engine switch to the OFF position stops the engine.



4. Operate the Recoil Starter: Pull the starter grip lightly until you feel resistance, then pull briskly. Return the starter grip gently. Pulling the starter grip operates the recoil starter to crank the engine.



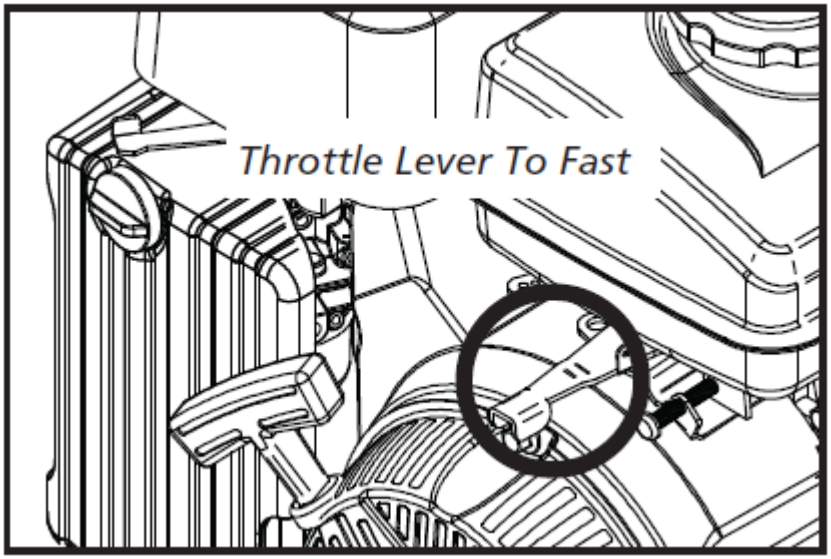
5. If the Choke lever has been moved to the Closed position to start the engine, gradually move it to the Open position as the engine warms up.



Setting Engine Speed

Position the throttle lever for the desired engine speed.

Moving the throttle lever in the directions shown makes the engine run faster or slower.



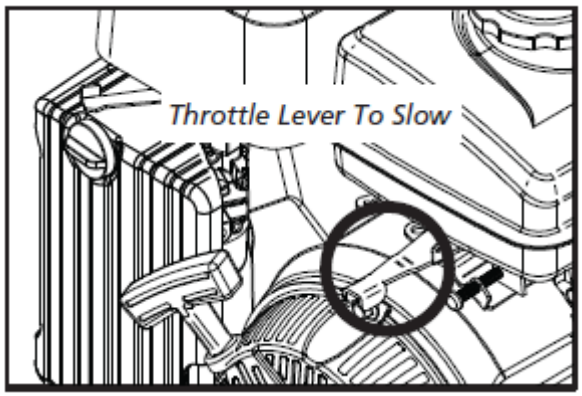
After starting the engine, move the throttle lever to the Fast position and check the pump output.

The pump output is controlled by adjusting the engine speed. Moving the throttle lever in the Fast direction will increase pump output, and moving the throttle lever in the Slow direction will decrease pump output.

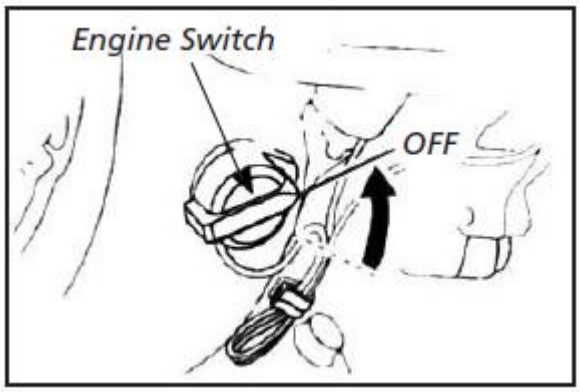
Stopping The Engine

To stop the engine in an emergency, simply turn the engine switch to the OFF position. Under normal conditions, use the following procedure.

1. Move the throttle lever to the Slow position.



2. Turn the engine switch to the OFF position.



After Each Use

After use, remove the pump drain plug, and drain the pump chamber. Remove the filler cap, and flush the pump chamber with clean, fresh water. Allow the water to drain from the pump chamber, then reinstall the filler cap and drain plug.

Maintenance

⚠WARNING

- Improperly maintaining this pump, or failure to correct a problem before operating, can cause a malfunction in which you can be seriously hurt or killed.
- Always follow the inspection and maintenance recommendations and schedules in this Owner's Manual.

To keep the pump at the optimal performance, checking and making adjustments periodically is necessary. Regular maintenance and service may extend its service life. The following Maintenance Schedule specifies how often you should have your pump serviced and other areas that need attention.

Maintenance Schedule

		Each	Whichever comes first			
		Items	First month or 20 hours	Every 3 months or 50 hours	Every 6 months or 100 hours	Every year or 300 hours
Engine oil check	Oil level	●				
	Oil change		●		●	
Air cleaner	Check	●				
	Check					
Spark plug				●1		●2
Valve clearance adjustment						
Clean combustion chamber						
Spark eliminator		Every 100 hours running lean				
Fuel supply pipe		Replace every 2 years				
Impeller check						●2
pump tank cover						●2
Water inlet valve check						●2

Key

1. If used in extremely dusty areas, this maintenance should be done more often.

2. Should only be done by an authorized service technician, unless you are equipped with proper repair tools.

Engine Oil Replacement

A warm engine can ensure quick oil draining.

- Remove the oil filler cap and oil drain plug and drain the oil.
- Reinstall the oil drain plug and tighten it. Put the oil filler cap in place.
- Fill specified fresh engine oil to the level index mark.

Note: Oil capacity is 0.4L

Air Cleaner Maintenance

A dirty air cleaner will decrease the airflow quantity through the carburetor. To avoid troubles with the carburetor, clean the air cleaner regularly. In extremely dusty areas, this should be done more often.

⚠WARNING

BURN HAZARD

Never clean the air cleaner in gasoline or low-flash point solvent. Gasoline and low-flash point solvent may produce flames and even an explosion in certain conditions.

CAUTION
Never operate the pump without the air cleaner installed. If dirt and dust are sucked into the engine, the engine will wear out more quickly.

1. Drive off the thumbnut and remove the air cleaner cover and filter element.
2. Replace the filter element with a factory approved filter.
3. Reinstall the removed parts.

Spark Plug Maintenance

To keep the engine in good, working condition, check the spark plugs regularly and keep them clean and free of accumulated carbon.

1. Remove the spark plug cap.

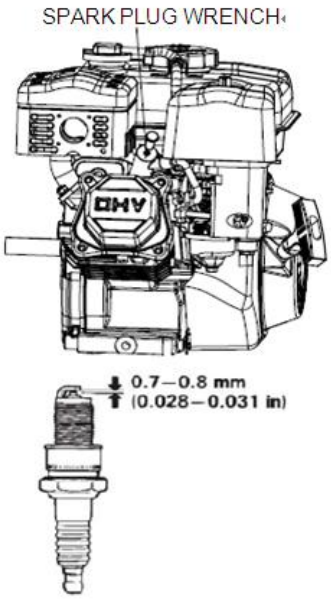
⚠WARNING
BURN HAZARD
When the engine has been running, the exhaust muffler is very hot and dangerously hot to the touch.

2. Check the spark plug visually. If there are signs of wear around it or the gasket is cracked, replace it with a new one. Before reinstalling a spark plug, clean it with a wire brush.

3. Measure the spark plug gap with a feeler gauge and adjust it by bending the side electrode. The spark plug clearance should be 0.70-0.80mm.

4. Check that the spark plug gasket is in good condition or replace it with a new one. Drive it into the engine with a spark plug wrench to protect the thread from being damaged.

Note: When installing a new spark plug, after it touches and presses the gasket, twist a half turn; for a used spark plug, twist 1/8-1/4 turn.



CAUTION

Be sure to tighten the spark plug securely, otherwise it may become very hot and possibly damage the engine. Never use a spark plug with the improper heat range.

Storage

Prepare the pump for end-of-season storage by running pure water through the system. This will flush out any contaminants and clean the pump internals. After the pump has been flushed with pure water, completely drain the pump of all water to protect it from freezing.

⚠WARNING

- PREPARE THE PUMP 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.
- Never store the pump 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 pump's gas tank is empty.
- The pump will be damaged if it freezes.
- Protect the pump from freezing during storage by following the instructions below.

⚠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.

Short-Term Storage

- Consider adding a fuel stabilizer to extend fuel storage life.

Long Term Storage (between infrequent uses and at end of season)

- Drain the fuel tank and carburetor as instructed in the engine's Owner's Manual.

Important Safety Instructions

- 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.

Preparing for Storage

1. Pump pure water	Briefly run the pump while pumping pure water.
2. Drain the pump	Using the pump drain plug, drain the pump completely of water to prevent freezing.
3. Engine storage	Refer to the engine manual for proper engine storage instructions. Always disable the engine for storage by unplugging the spark plug wire.
4. pump storage location	Store the pump in a location away from corrosive material, sources of heat, open flames, sparks or pilot lights.
5. Gasoline storage	Store gasoline in a cool, dry place. Place in a tightly sealed container.

Troubleshooting

⚠WARNING

READ and FOLLOW the safety rules for troubleshooting / servicing the pump to avoid accidental exposure to chemical and risk of electric shock.

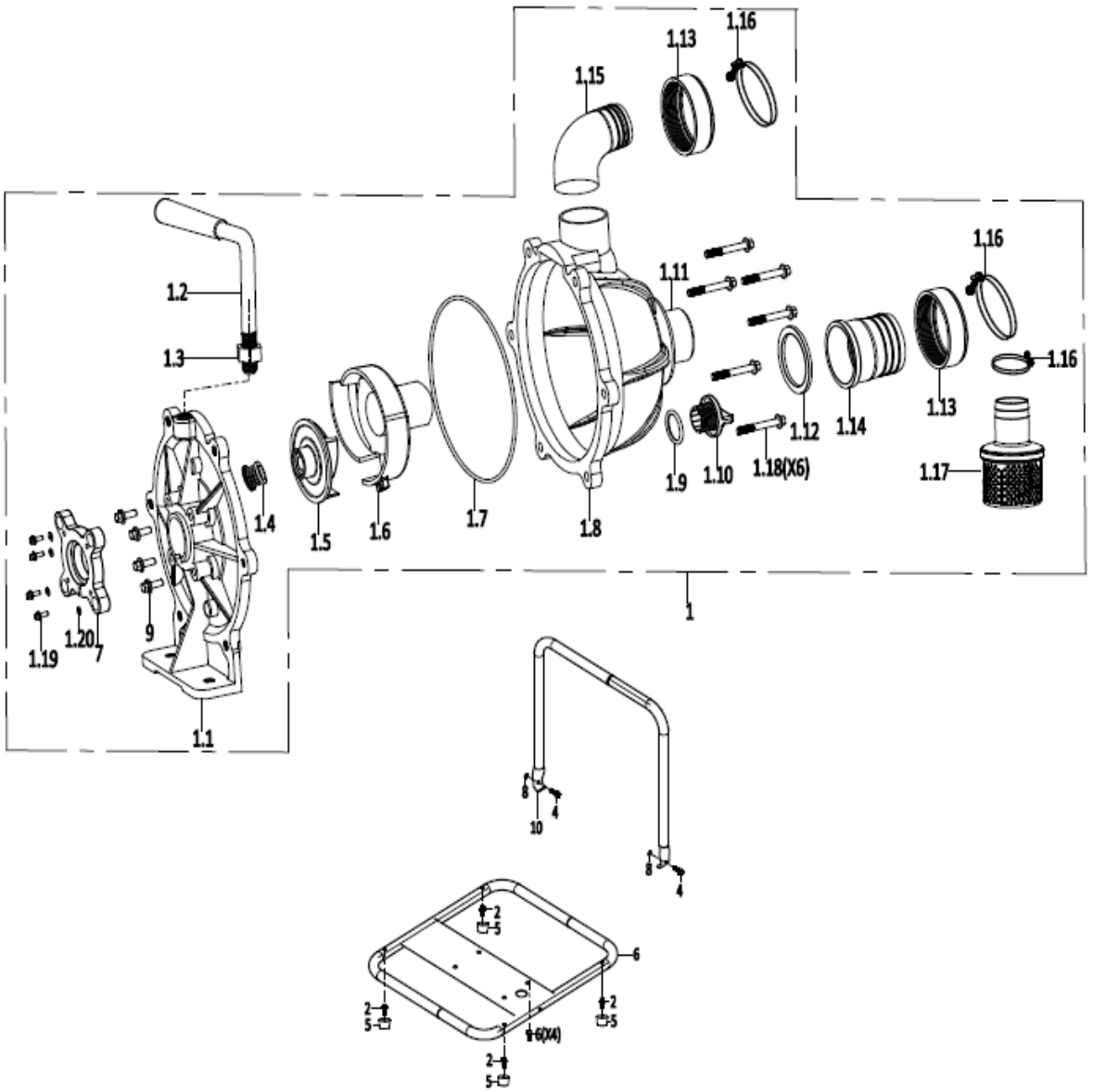
Before attempting to service the pump:

1. 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.
2. Flush the pump	Pump pure water briefly to clean out the pump.
3. Drain the pump	Drain the pump completely of water using the pump drain plug, to prevent freezing.
4. Disconnect power	Switch off the engine and unplug the spark plug wire.
5. Perform repairs	Follow the directions provided in the troubleshooting table to repair the pump.

Use the table below to troubleshoot problems before contacting customer service or your local dealer. If the problem continues after troubleshooting, call your local dealer for assistance.

Failure	Possible Cause	Corrective Action
Pump doesn't revolve	Engine will not turn over	See engine's Owner's Manual
	Rusting/sticking of impeller	Disassemble and clean
Pump fails to prime	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
Low capacity	Clogged suction hose	Clear obstruction
	Dirty suction strainer	Clear suction strainer
	Flow restriction due to hose kinks	Straighten suction and discharge hoses
	Suction lift too high	Move pump closer to water surface
	Engine speed too low	Increase engine speed
	Worn or broken mechanical seal	Replace mechanical seal
	Reduced engine performance	See engine's owner's manual
	Clogged impeller	Remove clog
	Worn impeller	Replace impeller

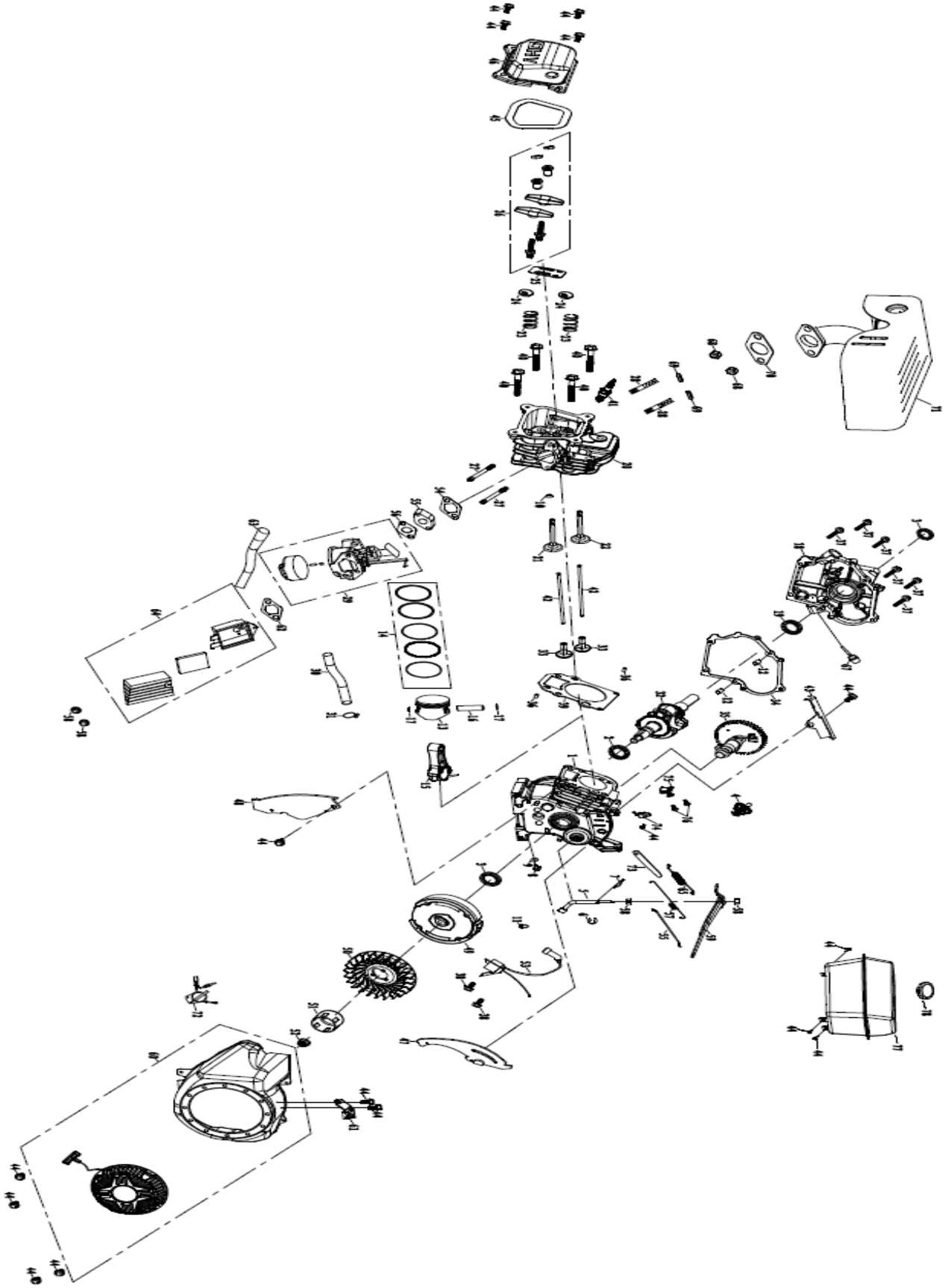
Parts Diagram for Pump



Parts List for Pump

Reference	Code	Description	Quantity
1	801088	PUMP ASSEMBLY	1
1.1	7102	FUEL TANK ASSEMBLY	1
1.2	7008	HANDLE COMBINATION	1
1.3	7011	NUT M12	1
1.4	7103	PACKING RING	1
1.5	7104	TURBINE	1
1.6	7105	FUEL TANK ASSEMBLY	4
1.7	7106	PACKING RING	4
1.8	7108	CONTROL PANEL ASSY	1
1.9	7110	PACKING RING	1
1.1	7109	DRAIN SCREW	1
1.11	7107	PACKING RING, INLET	1
1.12	7111	PACKING RING	2
1.13	7115	WING NUT, HOSE FITTING	2
1.14	7112	SAM INTERFACE PUMP	1
1.15	7113	SAM INTERFACE PUMP	1
1.16	7114	CLIP	3
1.17	7116	OIL FILTER SHIELD	1
1.18	7120	PANEL COMP	6
1.19	7119	CONTROL PANEL ASSEMBLY	4
1.2	7117	INSIDE HEXAGONAL BOLT Φ5XΦ10X1 (CU)	4
2	91335	BOLT M6×35	4
3	91343	BOLT M8X16	4
4	91334	BOLT M6×30	2
5	531112	RUBBER DAMPING BRACKET	4
6	809005	SEAT, FRAME	1
7	802019	CONNECTING PLATE	1
8	90025	NUT M8	2
9	92087	HEX BOLT	4
10	804011	HANDLE, FRAME	1

Parts Diagram for Engine



Parts List for Engine

Ref.	Code	Description	Qty.	Ref.	Code	Description	Qty.
1	210203	CRANK CASE	1	40	91352	BOLT M8X50	4
2	93005	BALL BEARING	1	41	97101	SPARK PLUG	1
3	93502	OIL SEAL	2	42	221901	ROD, PUSH	2
4	224301	GOVERNOR ASSEMBLY	1	43	220501	SHROUD	1
5	223901	SHAFT, GOVERNOR ARM	1	44	91325	BOLT M6X12	16
6	96803	WASHER, GOVERNOR ARM SHAFT	1	45	96045	PACKING, HEADCOVER	1
7	243902	PIN, LOCK	1	46	241101	COVER COMP, CYLINDER HEAD	1
8	91816	BOLT, DRAIN PLUG	1	47	220502	WIND SHIELD, LH	1
9	94007	WASHER, DRAIN PLUG	1	48	220503	WIND SHIELD, RH	1
10	241805	RETURNER, INTAKE VALVE	1	49	220401	FLYWHEEL ASSEMBLY	1
11	210801	CLIP	1	50	224601	FAN, RECOIL STARTER	1
12	240901	DOWEL PIN, CASECOVER	2	51	224501	PULLEY, STARTER	1
13	211202	PISTON	1	52	90014	NUT M12	1
14	211602	SCRAPER RING SET, PISTON	1	53	97507	IGNITION COIL ASSY	1
15	221501	ROD ASSEMBLY CONNECTION	1	54	96032	PACKING, INTAKE	2
16	225501	PIN, PISTON	1	55	222301	INSULATOR, CARBURETOR	1
17	221301	CLIP, PISTON	2	56	222701	ROD, GOVERNOR	1
18	220102	COVER ASSEMBLY, CRANK CASE	1	57	224202	SPRING, THROTTLE RETURN	1
19	93019	BALL BEARING	1	58	90016	NUT M6	4
20	221004	CYLINDER HEAD	1	59	224001	GOVERNOR ARM	1
21	221701	VALVE, IN	1	60	224710-010	RECOIL STARTER ASSEMBLY	1
22	225902	VALVE EXHAUST	1	61	224403	SHROUD ASSY, UPPER	1
23	226001	SPRING, VALVE	2	62	96035	GASKET, AIR CLEANER	1
24	241801	SEAT, VALVE SPRING, IN	2	63	95601	TUBE, BREATHER	1
25	222201	PLATE, PUSH ROD GUIDE	1	64	222901	AIR CLEANER ASSEMBLY	1
26	222101	ROCKER ASSEMBLY	2	65	214102	SPRING, GOVERNOR	1
27	91023	BOLT, STUD	2	66	245104	AMPLIFIER	1
28	91007	BOLT, STUD	2	67	225601	DIPSTICK	1
29	212803	CARBURETOR ASSEMBLY	1	68	90011	NUT M8	2
30	95451	FUEL LINE	1	69	94206	SPRING WASHER Φ8	2
31	94404	CLIP, FUEL LINE	1	70	96033	PACKING, EXHAUST	1
32	210317	CRANKSHAFT ASSEMBLY	1	71	223701	MUFFLER COMP	1
33	226101	LIFTER, VALVE	2	72	245205	SWITCH ASSEMBLY	1
34	96027	PACKING, CASECOVER	1	73	599601	CLIP, WIRE HARNESS	1
35	222003	CAMSHAFT ASSEMBLY	1	74	245104	AMPLIFIER	1
36	220901	PIN, DOWEL	2	75	225102	SWITCH ASSEMBLY, OIL LEVEL	1
37	91333	BOLT M6X28	6	76	91303	BOLT M6X16	2
38	91331	BOLT M6X25	2	77	213102-116	FUEL TANK ASSEMBLY	1
39	96025	GASKET, CYLINDER HEAD	1	78	213601	FUEL TANK CAP COMP	1

Replacement Parts

- For replacement parts and technical questions, please call Customer Service at **1-877-234-6869**.
- Not all product components are available for replacement. The illustrations provided are a convenient reference to the location and position of parts in the assembly sequence.
- When ordering parts, the following information will be required: item description, item model number, item serial number/item lot date code, and the replacement part reference number.
- The distributor reserves the rights to make design changes and improvements to product lines and manuals without notice.

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 **90 days** 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 1-877-234-6869, 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.

Burnsville, Minnesota 55306

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