



1" CLEAR WATER PUMP

With 1.5 HP 2-Stroke Gas Engine

Model 66585

ASSEMBLY AND OPERATION INSTRUCTIONS



⚠ DANGER

Using an engine indoors CAN KILL YOU IN MINUTES.

Engine exhaust contains carbon monoxide. This is a poison you cannot see or smell.



NEVER use inside a home or garage, **EVEN IF** doors and windows are open.



Only use OUTSIDE and far away from windows, doors, and vents.

Visit our website at: <http://www.harborfreight.com>



Read this material before using this product. Failure to do so can result in serious injury. SAVE THIS MANUAL.

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For technical questions or replacement parts, please call 1-800-444-3353.

Manual Revised 10d

SPECIFICATIONS

Suction Port Diameter	1" TPI
Discharge Port Diameter	1" TPI
Maximum Suction Head	19-1/2 ft.
Total Head	59 ft.
Maximum Discharge Flow	31 GPM
Pump Type	Centrifugal / Self-Priming*
Engine Specifications	1.5 HP / 2-Stroke / Recoil Start / Displacement: 52cc Rotation: Counterclockwise (from shaft side) Unleaded Fuel: Min. 87 Octane Fuel Tank Capacity: .31 Gal. (40 oz.) 1-1/2 operating hours at half loading (full tank)
Included Accessories	Plastic Basket Filter Hose Coupling Hose Adapters / Barbed Fittings / Gasket / Wire Clamps

* The Water Pump is self-priming. However, for the initial use the Pump Housing must be filled with water (see page 9).

NOTE: This two cycle engine is fueled by a 25:1 ratio of 87+ octane unleaded fuel and a two-stroke engine oil (10 oz. of oil).

IMPORTANT! THIS PUMP IS FOR CLEAR WATER USE ONLY. Clear water is water that contains little to no solids.

IMPORTANT! This product requires oil and fuel to be added before starting. Attempting to

Pump Applications	
Clear Water **	•
Slimy Water	•
Muck Water	•
Silt Water	•
High Solid Content	N/A
Slow Seepage	N/A
Fast Seepage	•
Manholes	N/A
Cofferdams	N/A
Quarries	N/A
Septic Tanks	N/A

start the Engine without oil WILL ruin the Engine and void the warranty.

The Emission Control System for this Water Pump's Engine is warranted for standards set by the U.S. Environmental Protection Agency. For warranty information, refer to the last two pages of this manual.

NOTE: At high altitudes, the engine's carburetor, governor (if so equipped), and any other parts that control the fuel-air ratio will need to be adjusted by a qualified mechanic to allow efficient high-altitude use and to prevent damage to the engine and any other devices used with this product.

SAVE THIS MANUAL

You will need this manual for safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures, parts list and assembly diagram. Keep invoice with manual. Write invoice number on inside of front cover. Write product's serial number in back of manual near assembly diagram, or write month and year of purchase if product has no number. Keep manual and invoice in a safe and dry place for future reference.

Deep Piling	N/A
Industrial/ Agricultural Chemicals	N/A

This Water Pump can be used to supply water to:

Mixer or Paver	N/A
Concrete Curing	N/A
Water Wagons **	N/A
Sprinklers or Nozzle	N/A

** Non Potable Only
N/A = Not Applicable

IMPORTANT SAFETY INFORMATION

In this manual, on the labeling, and all other information provided with this product:



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to personal injury.

CAUTION

CAUTION, without the safety alert symbol, is used to address practices not related to personal injury.



WARNING! Read all instructions. Failure to follow all instructions listed below may result in fire, serious injury and/or **DEATH**.

The warnings and precautions discussed in this manual cannot cover

all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

SAVE THESE INSTRUCTIONS

SET UP PRECAUTIONS

1. Fuel and fumes are flammable, and potentially explosive. Use proper fuel storage and handling procedures. Do not store fuel or other flammable materials nearby.
2. Have multiple ABC class fire extinguishers nearby.
3. Operation of this equipment may create sparks that can start fires around dry vegetation. A spark arrestor may be required. The operator should contact local fire agencies for laws or regulations relating to fire prevention requirements.
4. Set up and use only on a flat, level, well-ventilated surface.
5. Wear ANSI-approved safety goggles, heavy-duty work gloves, and dust mask/respirator during set up.
6. Use only oil and fuel recommended in the "Specifications" section of this manual.
7. Do not use fuel/oil mix containing more than 10% ethanol (E10). Do not use E85 ethanol.

OPERATING PRECAUTIONS

1.

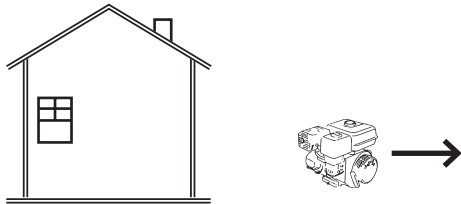


CARBON MONOXIDE HAZARD Using an engine indoors CAN KILL YOU IN MINUTES.

Engine exhaust contains carbon monoxide. This is a poison you cannot see or smell.



NEVER use inside a home or garage, **EVEN IF** doors and windows are open.



Only use **OUTSIDE** and far away from windows, doors, and vents.

2. Keep children away from the equipment, especially while it is operating.
3. Do not leave the equipment unattended when it is running. Turn off the equipment (and remove safety keys, if available) before leaving the work area.
4. Wear ANSI-approved safety goggles and hearing protection during use.
5. People with pacemakers should consult their physician(s) before use. Electromagnetic fields in close proximity to a heart pacemaker could cause pacemaker interference or pacemaker failure. Caution is necessary when near the engine's magneto or recoil starter.
6. Use only accessories that are recommended by Harbor Freight Tools for your model. Accessories that may be suitable for one piece of equipment may become hazardous when used on another piece of equipment.
7. Do not operate in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust. Fuel-powered engines may ignite the dust or fumes.
8. Stay alert, watch what you are doing and use common sense when operating this piece of equipment. Do not use this piece of equipment while tired or under the influence of drugs, alcohol or medication.
9. Do not overreach. Keep proper footing and balance at all times. This enables better control of the equipment in unexpected situations.
10. Dress properly. Do not wear loose clothing or jewelry. Keep hair, clothing and gloves away from moving parts. Loose clothes, jewelry or long hair can be caught in moving parts.
11. Parts, especially exhaust system components, get very hot during use. Stay clear of hot parts.
12. Do not cover the engine or equipment during operation.
13. Keep the equipment, engine, and surrounding area clean at all times.
14. Use the equipment, accessories, etc., in accordance with these instructions and in the manner intended for the particular type of equipment, taking into account the working conditions and the work to be performed. Use of the equipment for operations different from those intended could result in a hazardous situation.
15. Do not operate the equipment with known leaks in the engine's fuel system.

16. **WARNING:** The brass components of this product contain lead, a chemical known to the State of California to cause birth defects (or other reproductive harm). (California Health & Safety code § 25249.5, *et seq.*)
17. This product contains or, when used, produces a chemical known to the State of California to cause cancer and birth defects or other reproductive harm. (California Health & Safety Code § 25249.5, *et seq.*)
18. When spills of fuel or oil occur, they must be cleaned up immediately. Dispose of fluids and cleaning materials as per any local, state, or federal codes and regulations. Store oil rags in a bottom-ventilated, covered, metal container.
19. Keep hands and feet away from moving parts. Do not reach over or across equipment while operating.
20. Before use, check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the equipment's operation. **If damaged, have the equipment serviced before using.** Many accidents are caused by poorly maintained equipment.
21. Use the correct equipment for the application. Do not modify the equipment and do not use the equipment for a purpose for which it is not intended.
22. Industrial applications must follow OSHA guidelines.

SERVICE PRECAUTIONS

1. **Before service, maintenance, or cleaning:**
 - a. **Turn the Power Switch (40) to its "OFF" position.**
 - b. **Allow the engine to completely cool.**
 - c. **Then, remove the spark plug wire(s) from the spark plug(s).**
2. Keep all safety guards in place and in proper working order. Safety guards include muffler, air cleaner, mechanical guards, and heat shields, among other guards.
3. **Do not alter or adjust any part of the equipment or its engine that is sealed by the manufacturer or distributor. Only a qualified service technician may adjust parts that may increase or decrease governed engine speed.**
4. Wear ANSI-approved safety goggles, heavy-duty work gloves, and dust mask/respirator during service.
5. Maintain labels and nameplates on the equipment. These carry important information. If unreadable or missing, contact Harbor Freight Tools for a replacement.
6. Have the equipment serviced by a qualified repair person using only identical replacement parts. This will ensure that the safety of the equipment is maintained. Do not attempt any service or maintenance procedures not explained in this manual or any procedures that you are uncertain about your ability to perform safely or correctly.
7. Store equipment out of the reach of children.
8. Follow scheduled engine and equipment maintenance.

9. Refueling Precautions:
- Do not smoke, or allow sparks, flames, or other sources of ignition around the equipment, especially when refuelling.
 - Do not refill the fuel tank while the engine is running or hot.
 - Do not fill fuel tank to the top. Leave a little room for the fuel to expand as needed.
 - Refuel in a well-ventilated area only.

! SAVE THESE INSTRUCTIONS.

UNPACKING

When unpacking, check to make sure all of the parts shown on the Parts List in this manual are included. If any parts are missing or broken, please call Harbor Freight Tools at the number shown on the cover (and at the bottom of each page) of this manual as soon as possible.

CONTROLS AND FEATURES

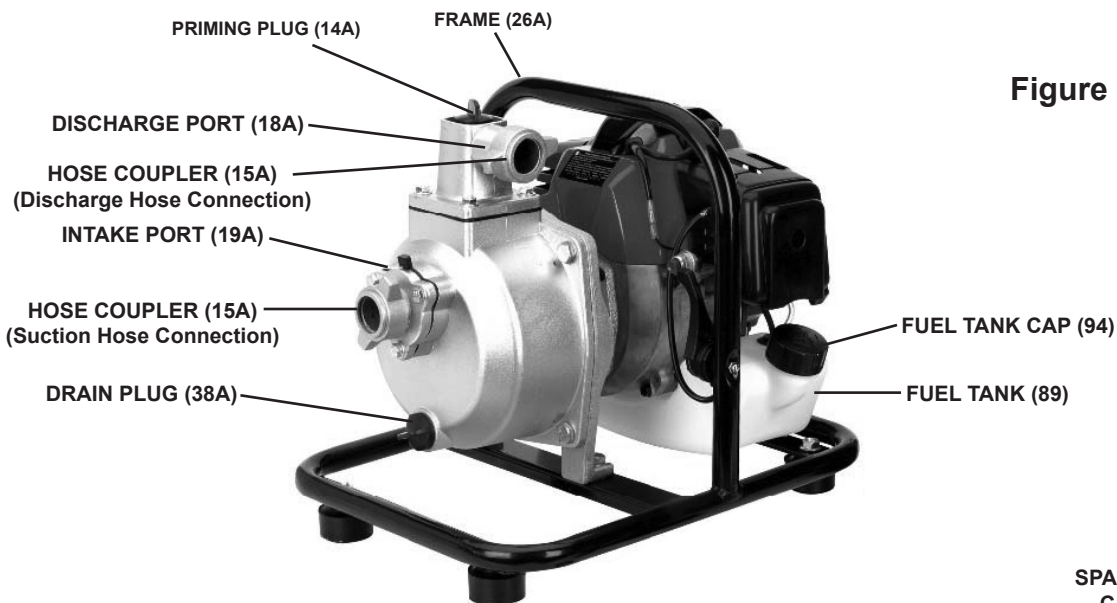
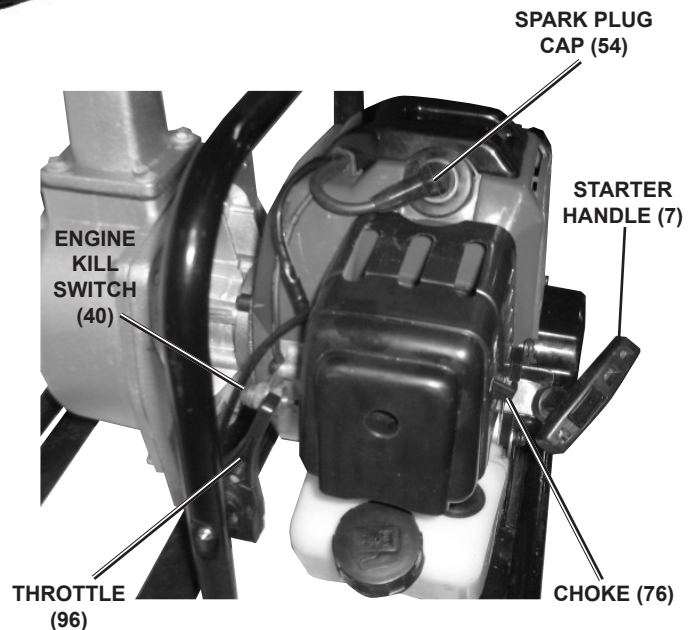
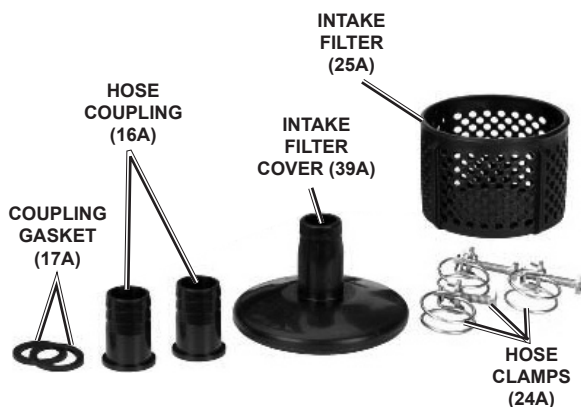


Figure 1



CONNECTING HOSES

The Suction Hose (not included) **MUST** be reinforced with braided material or have non-collapsible construction. Do not use Hose with inside diameter smaller than 1" (pump's Intake Port (19A) diameter).

1. Slide Hose Coupler (15A) over Hose Coupling (16A). Insert Coupling Gasket (17A) into end of Hose Coupler. See Figure 2, below.

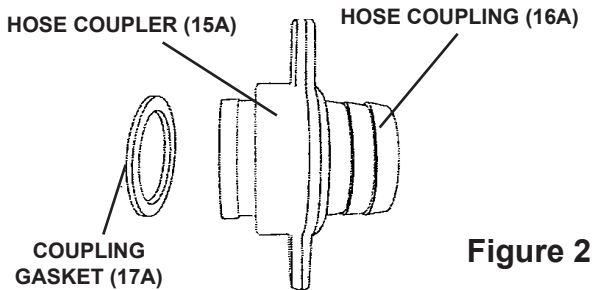


Figure 2

2. Screw Hose Coupler (15A) clockwise onto Intake Port (19A) until fastened securely. See Figure 3, below.

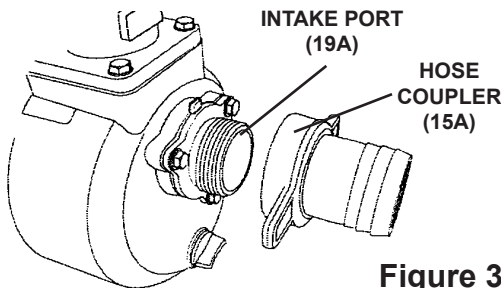


Figure 3

3. Slide Hose Clamp (24A) over end of Suction Hose (not included). Slide Hose onto Hose Coupling. Use a screwdriver (not included) to tighten Hose Clamp until secure. See Figure 4, below.

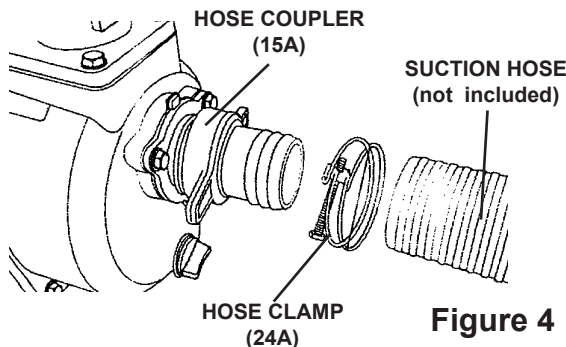


Figure 4

4. Slide second Hose Clamp over other end of Suction Hose. Attach Hose to Intake Filter Cover (39A). Use screwdriver to tighten Clamp until secure. See Figure 5.

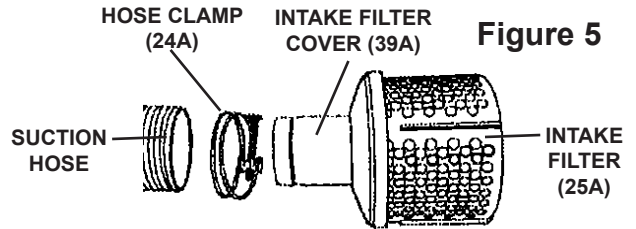


Figure 5

5. For the Discharge Hose (not included), slide the other Hose Coupler (15A) over the other Hose Coupling (16A). Insert the other Coupling Gasket (17A) into the end of Hose Coupler. See Figure 2.
6. Thread the Hose Coupler clockwise onto Discharge Port (18A) until tightened securely.
7. Slide other Hose Clamp over end of Discharge Hose and then slide Discharge Hose onto Hose Coupling. Use a screwdriver to tighten Hose Clamp until secure. See Figure 6.

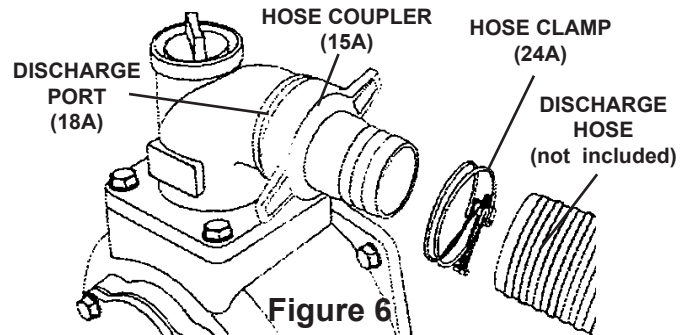
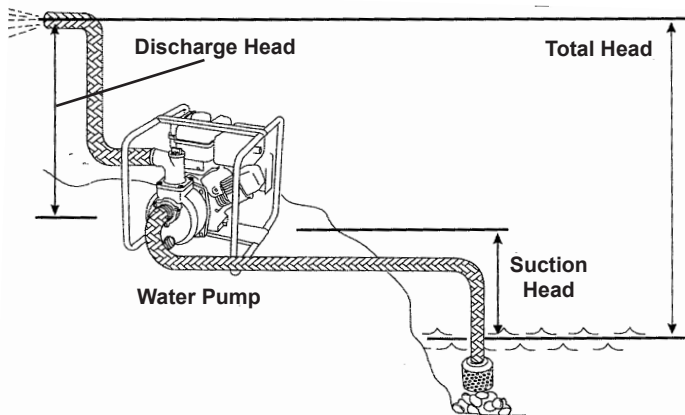


Figure 6

8. **WARNING!** Do not over-tighten Hose Clamps as the clamp may damage the hose.

LOCATING THE WATER PUMP

1. Make sure the Water Pump is located on a flat, level, sturdy surface capable of supporting the weight of the Pump and any additional tools and equipment.
2. For best Pump performance, place the Pump near the water level and use hoses that are no longer than necessary. That will allow the Pump to produce the greatest output with the least self-priming time. See diagram below.

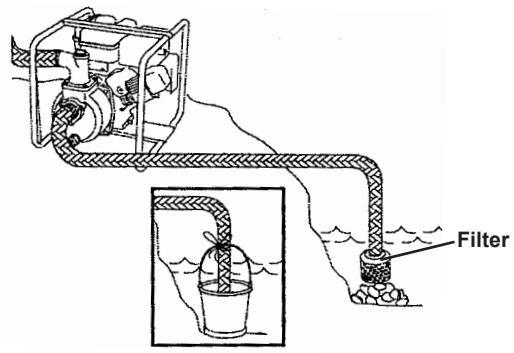


As the head (pumping height) increases, pump output decreases. The length, type, and size of the suction and discharge hoses can also significantly affect Pump output.

Discharge head capability is always greater than suction head capability. Which means pumping height for the Intake Hose (suction head) should be shorter than the pumping height for the Discharge Hose.

Minimizing suction head (placing the Pump closer to the water level) will also help reduce self-priming time. This is the time it takes the Pump to bring the water from the water level to the Pump during the initial operation.

3. Route the Intake Hose with the Intake Filter fully immersed in the water supply source.
4. Place Filter into water to be pumped. **WARNING! Filter must be fully immersed in water.** Do not operate Pump without Filter connected to end of suction hose. Keep Filter out of sand or silt by placing Filter in bucket or on stones. See diagram below.



5. Secure the Intake Hose in place to keep it from moving once the Pump is turned on. The Intake Hose should be as short as possible for more efficient operation.
6. Route the discharge hose to the desired discharge location. If necessary, connect additional discharge hoses to direct the discharge to the desired location. Then make sure to secure the discharge hose in place to keep it from moving once the Water Pump is turned on. The discharge hose should be kept as short as possible for more efficient operation.
7. **CAUTION!** Be aware of the following problems during operation, and how to fix them:

1. Cavitation: This is the sudden formation and collapse of low-pressure vapor (bubbles) across the vanes of the impeller.

Cause: When the surface pressure on a liquid becomes low enough, the

liquid will begin to boil (even at room temperature). With centrifugal pumps, cavitation can occur when the suction vacuum becomes too great, allowing water vapor or bubbles to form at the impeller. The rapid pressure increase can cause impeller damage.

Solution: Minimizing suction head and using the largest practical suction hose diameter will reduce the likelihood of cavitation. **Do not use a suction hose with a diameter smaller than the Pump's Intake Port (2" diameter).**

2. Water Hammer Pressure: This is energy sent back to the Pump due to sudden stoppage of water flowing from the Pump.

Cause: Water hammer pressure is more likely to occur when using a very long discharge hose. If the flow of water at the end of the discharge hose is shut off suddenly, energy is sent back to the pump. This causes a large pressure spike in the Pump housing, leading to potential damage to the Pump casing.

Solution: Use as short a discharge hose as possible or shut off water flow slowly.

ENGINE PRE-START INSTRUCTIONS

1. Disconnect the Spark Plug Cap (54) from the Engine.
2. **IMPORTANT! Your Warranty is voided if you do not properly mix the fuel and oil before fueling engine. Never run the Engine with improper Engine oil to fuel mixture. Running the Engine with low or no oil will permanently damage the Engine.**
3. To fill the Fuel Tank (89), unscrew and remove the Fuel Tank Cap (94). Fill the

Fuel Tank with a 25:1 ratio of **mid-to-high (minimum 87 octane) unleaded fuel and 2 stroke engine oil (10 oz of oil)**. Then replace the Fuel Tank Cap. Thereafter, check the Fuel Tank Gauge for the amount of unleaded fuel-oil mixture. When necessary, refill the Fuel Tank.

4. Before every use, the pump housing must be filled with water. Unscrew Priming Plug and add water to the Pump Housing.

IMPORTANT! Check for water in the Pump Housing before each use. Never attempt to run the Water Pump without water inside the Pump Housing. **Running the Water Pump without water will damage the Water Pump Gaskets and void the Warranty.**

TO START AND STOP THE ENGINE

1. Re-connect the Spark Plug Cap to the Spark Plug (51) of the Engine.
2. Turn Engine's Choke (76) to its **"CHOKE"** position, to far right.
3. **NOTE:** No choke is required if the Engine is warm. Make sure the Choke is in the **"RUN"** position when starting a warm Engine.
4. Turn the Engine's Throttle (96) to its **"FAST"** position (to the left.)
5. Grasp the Starter Handle (7), and pull slowly until resistance is felt. Allow the Starter rope to rewind slowly. Then pull the Starter Handle with a rapid, full arm stroke. Allow the Starter rope to rewind slowly. If necessary, repeat this procedure until the Engine starts.

6. Once the Engine starts, slowly move the Engine Choke to its “**RUN**” position. Then adjust the Engine Throttle to the speed (RPM) you desire.
7. Once the Engine starts, the Water Pump will run continuously until the Engine is turned off. To turn off the Engine, press the Engine Kill Switch (40).
8. Allow the Water Pump and its Engine to completely cool before moving or storing the Pump.

temperature, air quality, fuel quality, and other factors.

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

After Initial 20 Operation Hour Period:

- a. Change engine oil.

Every 25 Operation Hours Thereafter:

- a. Clean/replace air filter element.
- b. Replace spark plug.

Every 50 Operation Hours:

- a. Change engine oil.
- b. Replace fuel filter (if equipped).

Every 100 Operation Hours:

- a. Replace air filter element.

Note: All maintenance procedures scheduled for 25, 50, and 100 operation hours should be performed at least yearly.

Every 300 Operation Hours:

- a. Clean fuel tank and carburetor.
- b. Clean carbon build-up from combustion chamber.

INSPECTION, MAINTENANCE, AND CLEANING

⚠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 wire(s) before assembling or making any adjustments to the equipment.

Before each use, inspect the general condition of the Water Pump and its Engine. Check for loose parts, misalignment or binding of moving parts, damaged parts, loose hose connections, and any other condition that may affect the safe operation of the Water Pump. If abnormal noise or vibration occurs, have the problem corrected before further use. **Do not use damaged equipment.**

ENGINE MAINTENANCE

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,

1. Before each use, check the Intake Filter for accumulated debris, rocks, and other objects that may clog the Filter.
2. Before each use, check to make sure there is water in the Water Pump Housing. If there is not enough water, unscrew the Priming Cap and add water to the Pump Housing.
3. If the Water Pump is not in use due to dry conditions, etc., prime the Water

WATER PUMP MAINTENANCE

- Pump Housing and activate the unit once every three months.
4. In cold weather, when the Water Pump is not in use, protect the interior of the Pump from freezing by draining any remaining water from the Pump Housing and pumping a permanent type automotive anti-freeze containing a rust inhibitor through the system. Flush the system with a neutralizing liquid prior to re-use of the unit.
 5. To clean the Water Pump, use a garden hose and a mild detergent. Avoid introducing water into the interior parts of the Engine.
 6. When storing the Water Pump, make sure to store the unit in a clean, dry, safe location out of reach of children and other unauthorized people.
4. Apply a thin coat of rust preventive oil to all uncoated metal parts.
 5. Cover and store in a dry, well-ventilated area out of reach of children.
 6. Before starting the engine after storage, keep in mind that untreated fuel will deteriorate quickly. Drain the fuel tank and filter, and change to fresh fuel if untreated fuel has been sitting for a month, if treated fuel has been sitting beyond the fuel stabilizer's recommended time period, or if the engine does not start properly.

CAUTION! All maintenance, service, or repairs not mentioned in this manual must only be performed by a qualified service technician.

Storage

1. Wait for engine to cool, then clean engine with clean cloth.
2. When the equipment is to remain idle for longer than 20 days, prepare the engine for storage as follows:
 - a. Either leave fuel tank empty or refill fuel tank with fresh unleaded fuel/oil mix and fuel stabilizer intended for long term engine storage (not included). After filling, run engine for about 5 minutes to circulate the treated fuel/oil mix through the carburetor. Wait for engine to cool before proceeding.
 - b. Disconnect battery cables (if equipped).
3. Empty the primer tank of all water.

Troubleshooting

Problem	Possible Causes	Probable Solutions
Engine will not start	FUEL RELATED: <ol style="list-style-type: none"> No fuel in tank. Choke not in start position, especially with cold engine. Low quality or deteriorated, old fuel/oil mix. Carburetor not primed. Dirty fuel passageways blocking fuel flow. Carburetor needle stuck. Fuel can be smelled in the air. Too much fuel in chamber. This can be caused by the carburetor needle sticking. 	FUEL RELATED: <ol style="list-style-type: none"> Fill fuel tank. Move choke to start position if engine is cold. Use only fresh 87+ octane unleaded fuel/oil mix. Prime carburetor by pressing priming bulb specified number of times (if equipped). Clean out passageways using fuel additive. Heavy deposits may require further cleaning. Gently tap side of carburetor float chamber with screwdriver handle. 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.
	IGNITION (SPARK) RELATED: <ol style="list-style-type: none"> Spark plug wire not connected securely. Spark plug electrode wet or dirty. Incorrect spark plug gap. Spark plug wire or spark plug broken. Incorrect spark timing or faulty ignition system. 	IGNITION (SPARK) RELATED: <ol style="list-style-type: none"> Connect spark plug wire properly. Clean spark plug. Correct spark plug gap. Replace spark plug wire and/or spark plug. Have qualified technician diagnose/repair ignition system.
	COMPRESSION RELATED: <ol style="list-style-type: none"> Cylinder not lubricated. Results in problem after long storage periods. Loose or broken spark plug. (Hissing noise will occur when trying to start.) Loose cylinder head or damaged head gasket. (Hissing noise will occur when trying to start.) Engine valves or tappets mis-adjusted or stuck. 	COMPRESSION RELATED: <ol style="list-style-type: none"> Pour tablespoon of oil into spark plug hole. Crank engine a few times and try to start again. Tighten spark plug. If that does not work, replace spark plug. If problem persists, may have head gasket problem, see #3. Tighten head. If that does not remedy problem, replace head gasket. Adjust valve clearance. If that does not work, clean or replace valves/tappets.
Engine misfires	<ol style="list-style-type: none"> Spark plug wire loose. Incorrect spark plug gap or damaged spark plug. Defective spark plug wire. Old or low quality fuel/oil mix. Incorrect compression. 	<ol style="list-style-type: none"> Check wire connections. Re-gap or replace spark plug. Replace spark plug wire. Fill fuel tank with fresh 87+ octane unleaded fuel/oil mix. Diagnose and repair compression. (Use Engine will not start: COMPRESSION RELATED section.)



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

Troubleshooting

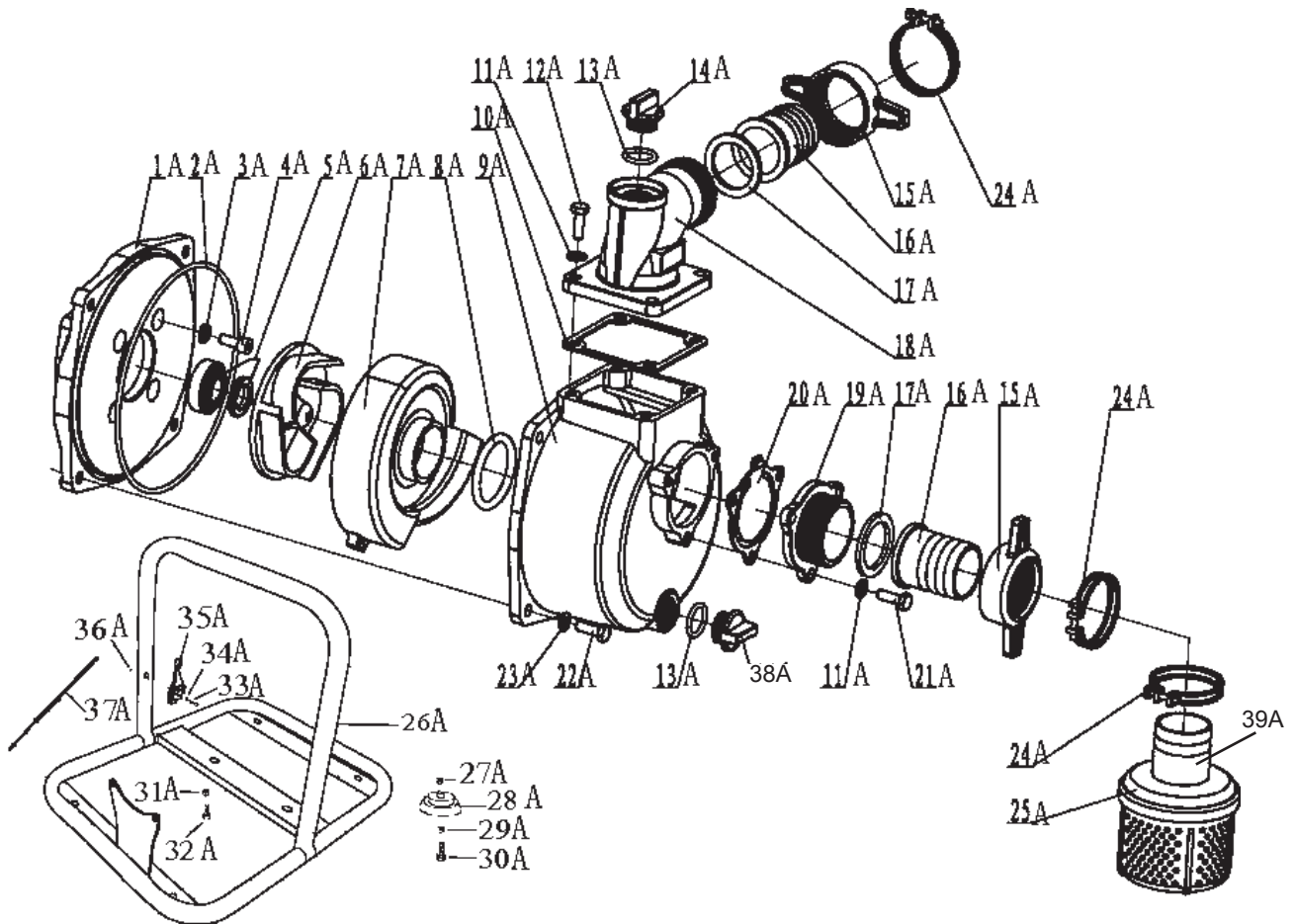
Problem	Possible Causes	Probable Solutions
Engine stops suddenly	<ol style="list-style-type: none"> 1. Low oil shutdown. 2. Fuel tank empty or full of impure or low quality fuel/oil mix. 3. Defective fuel tank cap creating vacuum, preventing proper fuel flow. 4. Improper idle speed. 5. Faulty magneto, incorrect timing, or clogged carburetor. 	<ol style="list-style-type: none"> 1. Fill engine oil to proper level. Check engine oil before EVERY use. 2. Fill fuel tank with fresh 87+ octane unleaded fuel/oil mix. 3. Test/replace fuel tank cap. 4. Properly adjust idle speed. 5. Have qualified technician diagnose and service engine.
Engine knocks	<ol style="list-style-type: none"> 1. Old or low quality fuel/oil mix. 2. Engine overloaded. 3. Incorrect spark timing, deposit buildup, worn engine, or other mechanical problems. 	<ol style="list-style-type: none"> 1. Fill fuel tank with fresh 87+ octane unleaded fuel/oil mix. 2. Do not exceed equipment's load rating. 3. Have qualified technician diagnose and service engine.
Engine backfires	<ol style="list-style-type: none"> 1. Impure or low quality fuel/oil mix. 2. Engine too cold. 3. Choke not open after engine warm. 4. Engine not properly adjusted for high altitude operation. 5. Intake valve stuck, choke stuck, incorrect timing, clogged carburetor, or overheated engine. 	<ol style="list-style-type: none"> 1. Fill fuel tank with fresh 87+ octane unleaded fuel/oil mix. 2. Use cold weather fuel and oil additives to prevent backfiring. 3. Move choke to run position after engine warms up. 4. Qualified technician must adjust engine at altitudes greater than 5,000 feet above sea level. 5. Have qualified technician diagnose and service engine.
Pump does not pump water	<ol style="list-style-type: none"> 1. Pump is not primed. 2. Filter clogged. 3. Air leak at connector. 4. Hose leaks. 5. Suction hose has collapsing wall. 6. Hose has too small diameter 7. Suction lift is too high. 	<ol style="list-style-type: none"> 1. Prime Pump. 2. Clean Filter or replace if damaged. 3. Replace Coupling Gasket or tighten clamp. 4. Replace hose. 5. Use hose with non-collapsible wall. 6. Use hose with diameter 1" or greater. 7. Adjust suction lift.
Low Pump Output	<ol style="list-style-type: none"> 1. Suction hose collapsed, damaged, too long or diameter is too small. 2. Air leak at connector. 3. Filter clogged. 4. Discharge hose damaged, too long or diameter too small. 	<ol style="list-style-type: none"> 1. Replace or adjust suction hose. 2. Replace Coupling Gasket or tighten Clamp. 3. Clean Filter. 4. Replace or adjust Discharge Hose.



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

PARTS LIST & ASSEMBLY DIAGRAM - WATER PUMP

Part	Description	Qty.	Part	Description	Qty.
1A	Casing Cover	1	21A	Bolt (8x20)	4
2A	O-Ring	1	22A	Bolt (8x20)	4
3A	Spring Washer (M6)	4	23A	Flat Washer (M8)	4
4A	Bolt (6x40)	4	24A	Hose Clamp	3
5A	Mechanical Seal	1	25A	Intake Filter	1
6A	Impeller	1	26A	Frame	1
7A	Inner Casing	1	27A	Nut (M8)	4
8A	O-Ring	1	28A	Shock Absorber	4
9A	Casing	1	29A	Pad	4
10A	Seal Gasket	1	30A	Bolt (8x20)	4
11A	Flat Washer (M8)	7	31A	Nut (M8)	2
12A	Bolt (8x20)	4	32A	Bolt (8x25)	2
13A	O-Ring	2	33A	Bolt (5x40)	1
14A	Priming Plug	2	34A	Flat Washer	1
15A	Hose Coupler	2	35A	Lever	1
16A	Hose Coupling	2	36A	Nut (M5)	1
17A	Coupling Gasket	2	37A	Pull Wire	1
18A	Discharge Port	1	38A	Drain Plug	1
19A	Intake Port	1	39A	Intake Filter Cover	1
20A	Check Valve	1			



PARTS LIST - ENGINE

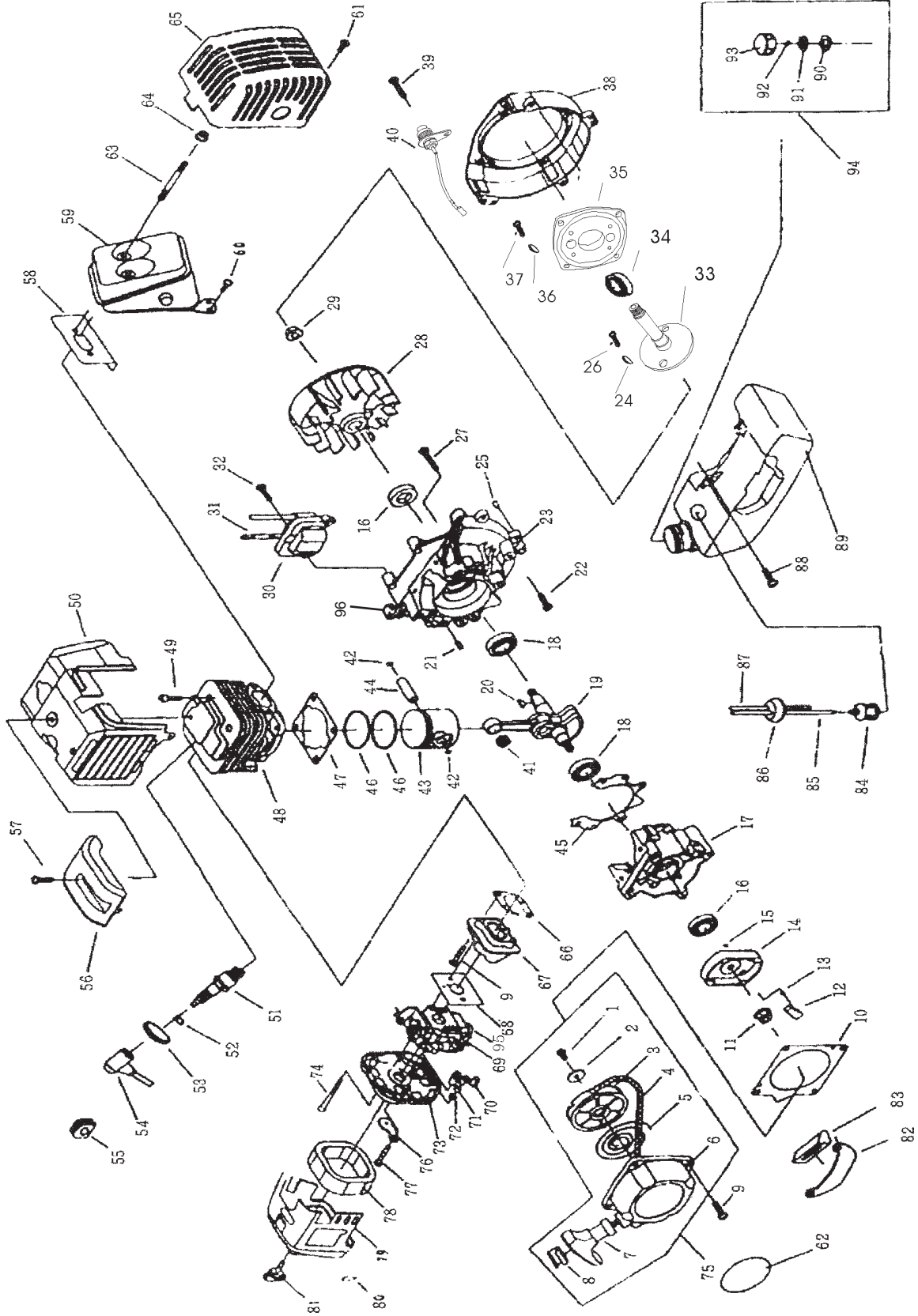
Part	Description	Qty.	Part	Description	Qty.
1	Set Screw (M5 x 12)	1	49	Bolt (M5 x 18)	4
2	Gasket	1	50	Cylinder Cover	1
3	Reel	1	51	Spark Plug	1
4	Starter Rope	1	52	Spark Plug Clip Reed	1
5	Spiral Spring	1	53	Spark Plug Cover	1
6	Rewind Starter Assy	1	54	Spark Plug Cap	1
7	Starter Handle	1	55	Cap Cover	1
8	Handle Clip	1	56	Top Cover	1
9	Screw (M5 x 20)	6	57	Screw (M5 x 20)	1
10	Crankcase Gasket	1	58	Muffler insulator	1
11	Nut (M8)	1	59	Muffler	1
12	Starter Claw	1	60	Socket Head Bolt (M5 x 12)	1
13	Starter Reed	1	61	Socket Head Bolt (M5 x 12)	1
14	Pulley	1	62	Label	1
15	Outer Snap Ring (4)	1	63	Stud	2
16	Small Oil Seal	2	64	Nut (M6)	2
17	Crankcase Cover	1	65	Muffler Protection Cover	1
18	Ball Bearing (6201/P5)	2	66	Intake Port Gasket	2
19	Crankshaft (Complete)	1	67	Intake Port	1
20	Woodruff Key (3 x 5 x13)	1	68	Carburetor Gasket	1
21	Set Pin (B4 x10)	2	69	Carburetor Assy	1
22	Screw (M5 x 12)	2	70	Choke Switch	1
23	Crankcase	1	71	Washer	1
24	Washer (M8)	2	72	Nut (M4)	1
25	Set Pin (B4 x10)	2	73	Air Cleaner Case	1
26	Screw (8 X 16)	2	74	Bolt (M5 x 50)	2
27	Screw (M5 x 30)	4	75	Recoil Starter	1
28	Rotor	1	76	Choke	1
29	Nut (M8)	1	77	Self Tapping Bolt (ST42 x 12)	1
30	Stator	1	78	Air Filter	1
31	Flameout Line	1	79	Air Filter Cover	1
32	Screw (M5 x 21)	3	80	Label	1
33	Transmission Shaft	1	81	Head Cover Bolt	1
34	Ball Bearing (6020)	1	82	Fuel Tank Strut	1
35	Ferrule	1	83	Latex Cover	1
36	Washer (M6)	4	84	Fuel Filter	1
37	Screw (6 x18)	4	85	Fuel Line	1
38	Fan	1	86	Fuel Line Plug	1
39	Screw (M5 x 20)	4	87	Fuel Line	1
40	Power Switch	1	88	Bolt (M5 x 20)	2
41	Piston Pin	1	89	Fuel Tank	1
42	Piston Pin circlip	2	90	Packing Ring	1
43	Piston	1	91	Intake Strut	1
44	Piston Pin	1	92	Intake	1
45	Crankcase Gasket	1	93	Fuel Cap	1
46	Piston Ring	2	94	Fuel Tank Cap w/filter	1
47	Cylinder Gasket	1	95	Primer	1
48	Cylinder Cover	1	96	Throttle	1

Record Product's Serial Number Here: _____

Note: If product has no serial number, record month and year of purchase instead.

Note: Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts.

ASSEMBLY DIAGRAM - ENGINE



LIMITED 1 YEAR / 90 DAY WARRANTY

Harbor Freight Tools Co. makes every effort to assure that its products meet high quality and durability standards, and warrants to the original purchaser that for a period of ninety days from date of purchase that the engine/motor, the belts (if so equipped), and the blades (if so equipped) are free of defects in materials and workmanship. Harbor Freight Tools also warrants to the original purchaser, for a period of one year from date of purchase, that all other parts and components of the product are free from defects in materials and workmanship (90 days if used by a professional contractor or if used as rental equipment). This warranty does not apply to damage due directly or indirectly, to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities, normal wear and tear, or to lack of maintenance. We shall in no event be liable for death, injuries to persons or property, or for incidental, contingent, special or consequential damages arising from the use of our product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

To take advantage of this warranty, the product or part must be returned to us with transportation charges prepaid. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection verifies the defect, we will either repair or replace the product at our election or we may elect to refund the purchase price if we cannot readily and quickly provide you with a replacement. We

will return repaired products at our expense, but if we determine there is no defect, or that the defect resulted from causes not within the scope of our warranty, then you must bear the cost of returning the product.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

**3491 Mission Oaks Blvd. • PO Box 6009 •
Camarillo, CA 93011 • (800) 444-3353**

EMISSION CONTROL SYSTEM WARRANTY

United States Emission Control Defects Warranty Statement

The United States Environmental Protection Agency (herein EPA) and Harbor Freight Tools (herein HFT) are pleased to explain the emission control system warranty on your 1997 and later Small Off-Road Engine (herein engine). Within the United States, new off-road, spark-ignition engines certified for model year 1997 and later, must be designed, built and equipped to meet the stringent anti-smog standards set forth by the EPA. HFT must warrant the emission control system on your engine for the periods of time described below, provided there has been no abuse, neglect or improper maintenance of your engine.

Your emission control system may include parts such as the carburetor or fuel-injection system, and the ignition system. Also included may be hoses, belts, connectors and other emission-related assemblies.

Where a warrantable condition exists, HFT will repair your engine at no cost to you including diagnosis, parts and labor.

Manufacturer's Warranty Coverage

The 1997 and later engines are warranted for two (2) years. If any emission-related part on your engine is defective, the part will be repaired or replaced by HFT.

Harbor Freight Tools Emission Control Defects Warranty Coverage

Engines are warranted for a period of two (2) years relative to emission control parts defects, subject to the provisions set forth below. If any emission related part on your engine is defective, the part will be repaired or replaced by HFT.

Owner's Warranty Responsibilities

- As the engine owner, you are responsible for the performance of the required maintenance listed in your Owner's Manual. HFT recommends that you retain all receipts covering maintenance on your engine, but HFT cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.
- As the engine owner, you should, however, be aware that HFT may deny you warranty coverage if your engine or a part has failed due to abuse, neglect, improper maintenance, or unapproved modifications.
- You are responsible for shipping your engine to a HFT warranty station as soon as a problem exists. Contact the HFT Customer

Service department at the number below to make shipping arrangements. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

If you have any questions regarding your warranty rights and responsibilities, you should contact the Harbor Freight Tools Customer Service Department at 1-800-444-3353.

Harbor Freight Tools Emission Control Defects Warranty Provisions

1. Length of Coverage

HFT warrants to a first retail purchaser and each subsequent purchaser that the engine is free from defects in materials and workmanship that cause the failure of warranted parts for a period of two (2) years after the date of delivery to the first retail purchaser.

2. No Charge Repair or Replacement

Repair or replacement of any warranted part will be performed at no charge to the owner if the work is performed through a warranty station authorized by HFT. For emissions warranty service, contact the HFT Customer Service Department at 1-800-444-3353.

3. Consequential Damages Coverage

Coverage under this warranty shall also extend to the failure of any engine components caused by the failure of any warranted part while it is still covered under this warranty.

4. Coverage Exclusions

Warranty claims shall be filed in accordance with the provisions of the HFT warranty policy explained in the box at the top of the previous page. HFT shall not be liable for any loss of use of the engine, for any alternative usage, for any damage to goods, loss of time, or inconvenience. Warranty coverage shall also be excluded for any part which fails, malfunctions, or is damaged due to failure to follow the maintenance and operating instructions set forth in the Owner's Manual including, but not limited to:

- a) Use of parts which are not authorized by HFT
- b) Improper installation, adjustment or repair of the engine or of any warranted part unless performed by an authorized warranty center
- c) Failure to follow recommendations on fuel use contained in the Owner's Manual
- d) Improper or inadequate maintenance of any warranted parts
- e) Repairs performed outside of the authorized warranty service dealers
- f) Alterations by changing, adding to or removing parts from the engine.

5. Service and Maintenance

Component parts which are not scheduled for replacement as required maintenance or are scheduled only for regular inspection to the effect of "repair or replace as necessary" are warranted for the warranty period. Any warranted part which is scheduled for replacement as required maintenance is warranted for the period of time up to the first scheduled replacement point for that part. Any replacement part, provided it is equivalent in durability and performance, may be used in performance of maintenance or repairs. The owner is responsible for commissioning a qualified technician/mechanic to perform all required maintenance, as outlined in the Inspection, Cleaning, and Maintenance section in this manual.

6. Warranted Parts

1) Fuel Metering System

- i) Carburetor and its internal parts.
- ii) Fuel pump (if so equipped).

iii) Cold start enrichment system.

2) Air Induction System

- i) Intake pipe/manifold.
- ii) Air cleaner.

3) Ignition System

- i) Spark plug.
- ii) Magneto ignition system.

4) Catalyst System (if so equipped)

- i) Exhaust pipe stud.
- ii) Muffler.
- iii) Catalytic converter (if so equipped).

5) Miscellaneous Items Used in Above Systems

- i) Vacuum, temperature and time sensitive valves and switches.
- i) Hoses, belts, connectors, and assemblies.