

Operator's Manual

**Models: WP10, WP20, HPC20, HP202, TP30, WP20-HGX,
HP202-HGX and TP30-HGX**

PETROL POWERED WATER PUMP

WARNING: Do not assemble, install or operate this equipment without reading ALL of this manual and the safety precautions and warning illustrated in this manual.

NOTE: PUMP DOES NOT INCLUDE OIL OR PETROL.



SAFETY PRECAUTIONS AND WARNINGS

PLEASE READ BEFORE USING EQUIPMENT

DANGER

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

WARNING

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

CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate personal injury, or property damage.



WARNING—Failure to follow the instructions and warnings in this manual may result in death, serious injury or property damage.

The dangers, warnings, cautions and instructions found 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.

1. Know your water pump and how to use it properly. When using the water pump consider the limitations and potential hazards.
2. The water pump must be placed on a firm surface with sufficient support.
3. Do not overload the water pump as this will damage or shorten the life of the unit.

4. Always remove the spark plug or spark plug cable before performing maintenance to avoid accidental starting.

5. Always keep the water pump clean and free of oil, mud and other foreign matter.

6. Never operate a water pump with missing or broken parts, or without protective housing or covers.

7. Suction and discharge hoses used with this water pump must be in good condition. Never operate the water pump with damaged or defective hoses.

8. Do not touch engine muffler or other engine or water pump parts which get hot during operation.

9. Stay alert. Do not use a water pump while tired or under the influence of drugs, alcohol or medication. A moment of inattention while operating the water pump may result in serious personal injury or death.

SAFETY PRECAUTIONS AND WARNINGS

PLEASE READ BEFORE USING EQUIPMENT

10. Always store the water pump in a well-ventilated area. Follow the instructions in this manual for preparing to store the water pump. Never store fuel near the water pump.

11. Never operate a water pump if any of the following conditions are present:

- a. Uncontrolled change in engine speed.
- b. Sparking.
- c. Engine misfire.
- d. Excessive vibration.
- e. Flame or smoke.
- f. An enclosed compartment.

12. Check the unit before each use for signs of deterioration such as worn or porous hoses, loose or missing clamps, a damaged tank or cap. Replace all defective parts before operating the water pump.

13. The water pump should be operated, serviced and/or refueled under the following conditions only.

a. Start and run the water pump outdoors. Never run the water pump in an enclosed area even if the windows and doors are opened. Avoid areas where exhaust vapors can be trapped. DANGER— CARBON MONOXIDE HAZARD: The engine exhaust contains carbon monoxide, a poisonous, odorless, invisible gas which, if breathed, may cause death or personal injury.

b. Good ventilation for cooling. The water pump is air cooled and requires appropriate air flow. Temperatures should not exceed 40° C ambient.

c. Refuel the water pump in a well-ventilated area with sufficient light. Allow the engine to cool for 3-4 minutes before refueling. Avoid spills and NEVER refuel while the water pump is running.

d. Never refuel the water pump near open flames, sparking electrical equipment or pilot lights

e. Never start or run the water pump without the muffler and air filter installed and in good condition as they work as flame arresters in case of backfires.

f. Never smoke near the water pump.

14. Do not wear loose clothing or jewelry that could get caught in the starter or other moving parts.

15. Know how to stop the pump quickly, and understand the operation of all controls. Never permit anyone to operate the pump without proper instruction.

16. Never insert anything through the ventilation slots; this could cause personal injury or damage to the water pump.

17. Water pumps are heavy; use proper lifting techniques.

18. This pump is designed to pump only water that is not intended for human consumption. Other uses can result in personal injury or damage to the pump or other property. Pumping sea water, beverages, acids, chemical solutions, or any other liquid that promotes corrosion can damage the pump.

Pumping flammable liquids, such as gasoline or fuel oils, can result in a fire or explosion, causing serious injury.

19. Do not overload the pump. Use the correct pump for the application. The correct pump will do a better job and do it safer, at the rate for which it is designed.

20. Do not allow children to operate the pump. Keep children and pets away from the area of operation.

Specifications

Table 1

MODEL <i>Engine</i>	WP20,HPC20, HP202, TP30 <i>170F</i>	WP10 <i>152F</i>	WP20-HGX <i>GX160</i>	HP202-HGX, TP30-HGX <i>GX200</i>
Engine Type	Overhead Valve. Single cylinder 4 Stroke engine	Overhead Valve Single cylinder 4 Stroke engine	Overhead Valve. Single Cylinder. 4 Stroke engine.	Overhead Valve. Single Cylinder. 4 Stroke engine.
Engine Size	7.5 HP@ 3600 rpm, 212CC 5.6 K.W	2.5 HP@ 3600 rpm, 97CC 2 K.W	3.8 HP @ 3600 rpm. 163CC 3.6 kW	5.8 HP @ 3600 rpm. 196CC 3.6 kW
Spark Plug	NGK: BPR6ES DENSO: W20EPR-U	NGK: BPR6ES DENSO: W20EPR-U		
Spark Plug Gap	.7mm to .8mm	.7mm to .8mm		
Idle Speed	1400 RPM (+200/- 150)	1400 RPM (+200/- 150)		
Engine Oil	10W-30	10W-30	10W-30	10W-30
Engine Oil Capacity	0.6 litres	0.45 litres	0.6 litres	0.6 litres
Fuel	Petrol -91Unleaded	Petrol -91Unleaded	Petrol -91Unleaded	Petrol -91Unleaded
Fuel Tank Capacity	3.6 Litres	1.4 Litres	3.1 Litres	3.1 Litres
Cooling System	Forced Air	Forced Air	Forced Air	Forced Air
Ignition System	Transistorized Magneto	Transistorized Magneto	Transistorized Magneto	Transistorized Magneto

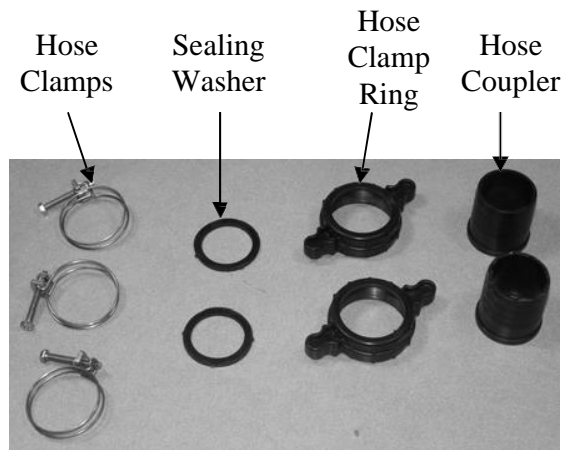
Table 2

<i>Pump</i>	HP202	HPC20	WP20	TP30	WP10	WP20- HGX	HP202- HGX	TP30- HGX
Suction and Discharge Port Size (mm)	50	50	50	80	25	50	50	80
Max Total Head (m)	80	64	30	25	16	30	80	25
Nominal Head (m)	50	40	20	15	10	20	50	15
Max Suction Head (m)	7	7	7	7	5	7	7	7
Discharge Capacity (L/M)	300	450	500	1000	200	500	300	1000
Max. Pressure PSI	116	92	43	36	23	43	116	36
Approximate Continuous Run Time (Hours)	2-3	2-3	2-3	2-3	1-1.5	2-3	2-3	2-3

Features/Package Contents

Package Contents

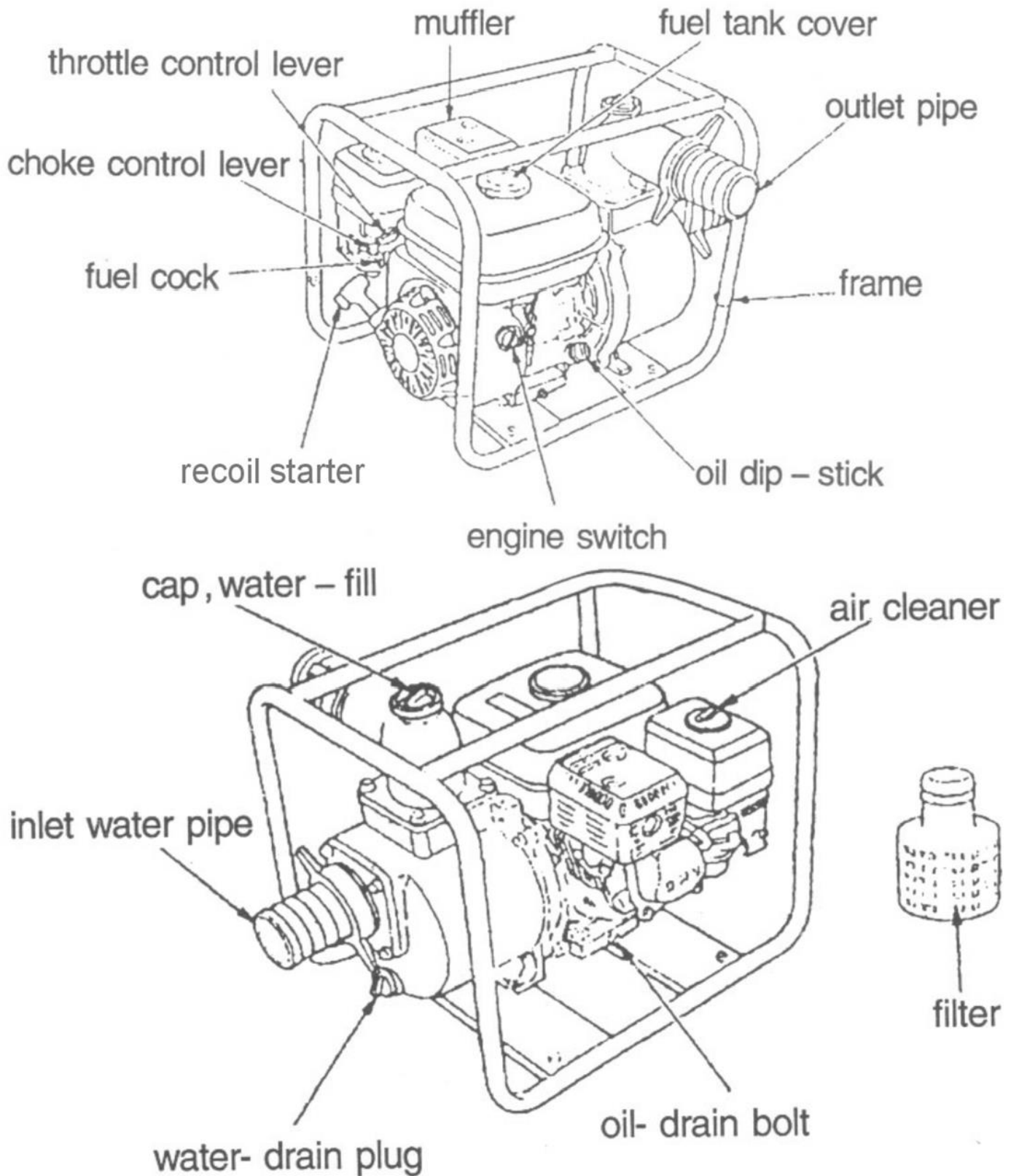
1. Water Pump Unit
2. Operator's Manual
3. Warranty Card
4. Spark Plug Wrench
5. Hose Clamps (3)
6. Hose Coupler (2)
7. Hose Clamp Ring (2)
8. Sealing Washer (2)
9. Strainer



Features

Low Oil Shut Off
Spark Arrestor Muffler
Recoil Start
Fuel Tank w/Input
Fuel Filter
Fuel Shutoff w/Internal Fuel Filter
Cast iron cylinder lining
Ball bearing supported crankshaft
Dual element air cleaner
Mechanical decompressor
Industrial governor system
Electronic coil

Component & Control Locations

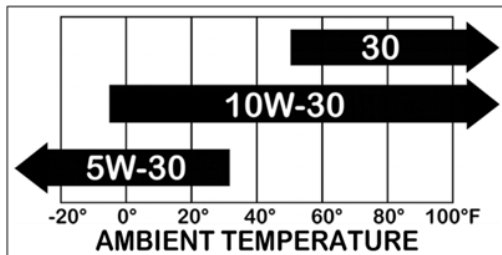


Set Up

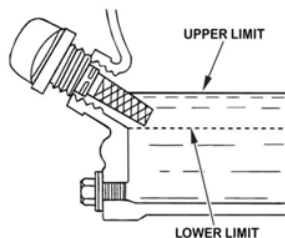
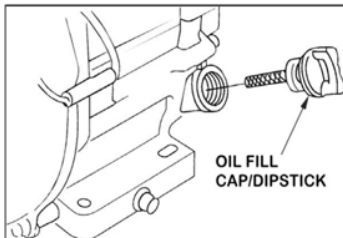
Engine Preparation

Engine Oil

NOTE: Engine oil is a major factor affecting the performance and service life of this water pump. Non-detergent and 2-stroke engine oils **WILL** damage the engine and are not recommended.



1. Use 4 stroke oil.
2. SAE 10W-30 is recommended for general, all-temperature use. See chart for appropriate weights for your area.
3. Locate the oil filler cap and remove.



4. Fill oil reservoir according to the engine oil capacity found in table 1.
5. Confirm proper fill by replacing the dip stick and checking the oil level.

Fueling the Engine

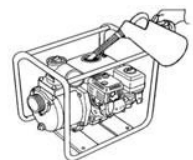
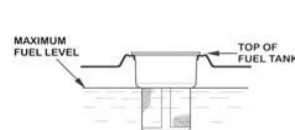
⚠ WARNING



- Petrol is extremely flammable and is explosive under certain conditions.

- Fuel and refuel in a well-ventilated area with the engine stopped.
- Do not smoke or allow flames or sparks in the area where the engine is being refueled or where gasoline is stored.
- Do not over fill the tank (there should be no fuel in the filler neck).
- After refueling, make sure the tank cap is closed properly and securely.
- Be careful not to spill fuel when fueling or refueling. Spilled fuel or fuel vapor may ignite.
- If fuel is spilled make sure the area is dry and free of fumes before starting the engine.
- Avoid fuel contact with the skin or breathing vapors for a prolonged period.
- **KEEP FUEL OUT OF THE REACH OF CHILDREN.**

1. Unleaded gasoline with an octane rating of 86 or higher is recommended because it produces fewer engine and spark plug deposits and extends the exhaust system life.
2. Remove tank cap and fill tank.
3. Do not fill tank above the shoulder of the fuel strainer.



4. Never use stale or contaminated gasoline or oil/gasoline mixture.
5. Avoid getting dirt or water in the fuel tank.

Operation

Pre-Start Preparation

⚠ WARNING

Improperly maintaining this pump, or failing to correct a problem before operation could cause a malfunction that may result in serious injury.

Always perform a pre-operation inspection before each operation and correct any problem.

NOTE: The following procedures are to be completed each time the water pump is started.

General Condition

1. Look around and underneath the pump for signs of oil or gasoline leaks.
2. Check that all nuts, bolts, screws, hose connectors and clamps are tightened.
3. Remove any excessive dirt or debris, especially around the muffler and recoil starter.
4. Look for signs of damage.

Suction & Discharge Hoses

1. Check the general condition of any hose that is to be connected to the water pump and be sure they are in serviceable condition.

Note: The suction hose must be reinforced construction to prevent collapse.

2. Ensure the sealing washer in the suction hose connector is in good condition.
3. Check that hose connectors and clamps are properly and securely installed.
4. Make sure the strainer is in good condition and connected to the suction hose.

Engine

1. Check engine oil level and add if the level is low.
2. Check the air filter to insure it is clean and free of obstructions.
3. Check the fuel level to ensure tank is full.

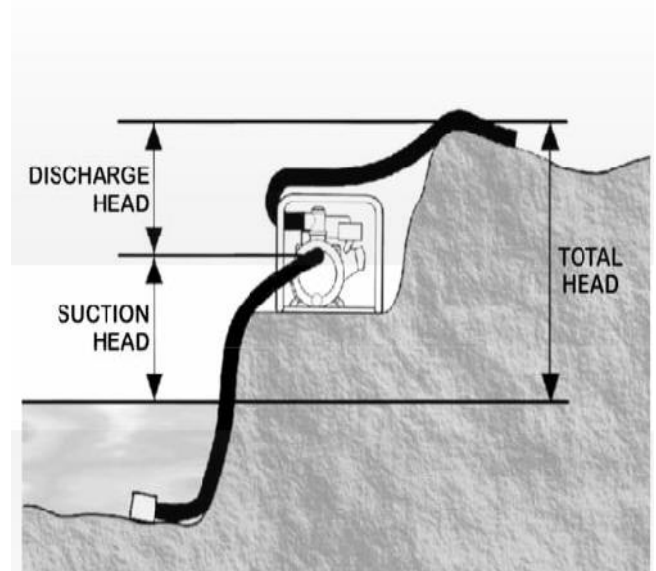
Pump Placement

For best pump performance, place the pump near the water level and use hoses that are no longer than necessary. This will enable the pump to produce the greatest output.

As head (pumping height) increases, pump output decreases. Maximum head specifications are shown in Table 2 on page 3. The length, type and size of the suction and discharge hoses can also significantly affect the pump output.

Discharge head capacity is always greater than suction head capacity, so it is important for the suction head to be the shorter part of the total head.

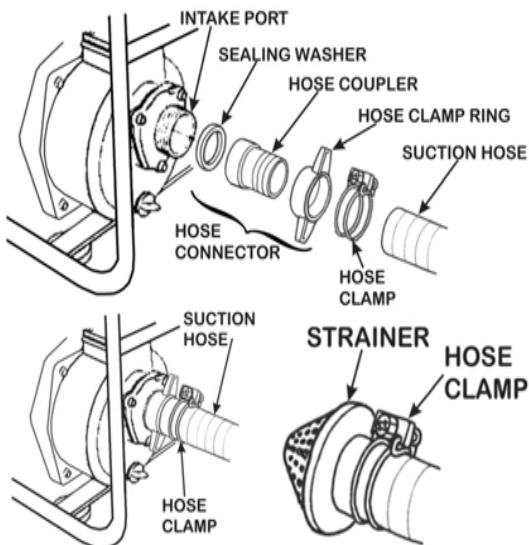
Minimizing suction head (placing the pump near the water level) is also very important for reducing self-priming time. Self-priming time is the time it takes the pump to bring water the distance of the suction head during initial operation.



Operation

Suction Hose Installation

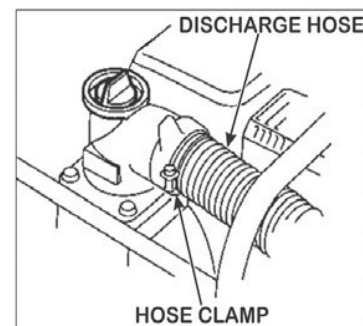
1. Slide a hose coupler into the hose clamp ring.
2. Insert sealing washer into the hose clamp ring.
3. Securely thread the hose clamp ring onto intake port. (see diagram below)



4. Slide hose clamp over the hose.
5. Slide hose over the hose coupler.
6. Move hose clamp up over the hose coupler and tighten securely.
7. Slide a hose clamp over the other end of the suction hose.
8. Slide suction hose over the strainer.
9. Move hose clamp up over the strainer connector and tighten the hose clamp.

Discharge Hose Installation

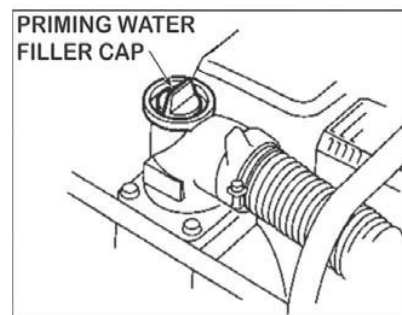
1. Slide a hose coupler into the hose clamp ring.
2. Insert sealing washer into the hose clamp ring.
3. Securely thread the hose clamp ring onto discharge port. (see diagram below)
4. Slide a hose clamp over the hose.
5. Slide hose over the hose coupler.
6. Slide hose clamp over the hose coupler and tighten securely.



Priming the Pump

Note: Operating the pump dry will destroy the pump seal. If the pump has been run dry, stop the engine immediately, allow to cool and prime the pump.

1. Remove the filler cap.
2. Completely fill the pump chamber with water.
3. Reinstall the filler cap and tighten securely.



Operation

Starting the Engine

1. Move the fuel valve lever to the “ON” position.



2. If the engine is cold at start, move the choke lever to the “CLOSED” position. Leave “OPEN” for warm start.



WP20 - Slide left to close

3. Move the throttle lever away from the “SLOW” position to about 1/3 toward the “FAST” position.



FAST ← → SLOW

4. Turn the engine switch to the “ON” position.



5. Pull the starter grip lightly until you feel resistance, then pull briskly. Return the grip gently.



Starter Grip

6. If the choke lever has been moved to the “CLOSED” position, gradually move it to the “OPEN” position as the engine warms up.



WP20 -Slide Right to Open

Setting Engine Speed

1. After starting the engine, check the pump output.
2. Adjust the pump output by moving the throttle lever. For greater output move the throttle lever to the “FAST” position. For lower output, move the throttle lever to the “SLOW” position.



FAST

SLOW

Operation

Shutting Down the Pump

Note: For emergency engine stop, simply turn the engine switch to “OFF”.

1. Move the throttle lever to the “SLOW” position.



—————→ SLOW

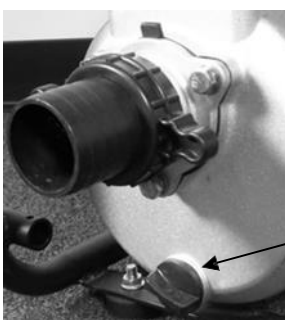
2. Turn the engine switch to the “OFF” position.



3. Turn fuel valve to the “OFF” position.
Note: When the pump is not in use the fuel valve should be in the “OFF” position.

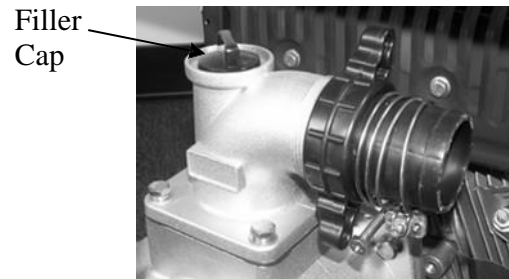


4. Remove the pump drain plug and drain the pump chamber.
6. Allow water to drain from the pump chamber and replace filler cap and drain plug.



Drain Plug

5. Remove filler cap from the pump and flush the pump chamber with clean water.



⚠ WARNING

Make sure the engine is off and cool before you begin any maintenance or repairs. This will eliminate several potential hazards:

- Carbon monoxide poisoning from engine exhaust.
- Burns from hot parts
- Injury from moving parts

Before you begin make sure you have the tools and skills required to complete the task.

Maintenance

Maintenance Schedule

REGULAR SERVICE PERIOD (3) ITEM Perform at every indicated month or operating Hour interval, whichever comes first.			Each use	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 level	✓				
		Change		✓		✓	
	Reduction gear oil (applicable types)	Check level	✓				
		Change		✓		✓	
	Air filter	Check	✓				
		Clean			✓ (1)	✓ (1)	
		Replace					✓
	Sediment cup	Clean				✓	
	Sparkplug	Check-adjust				✓	
		Replace					✓
	Spark arrester	Clean				✓	
	Idle speed	Check-adjust					✓ (2)
	Valve clearance	Check-adjust					✓ (2)
	Combustion chamber	Clean	After every 500 Hours (2)				
	Fuel tank & filter	Clean				✓ (2)	
	Fuel tube	Check	Every 2 years (Replace if necessary) (2)				
	Impeller	Check					✓ (2)
	Impeller clearance	Check					✓ (2)
	Pump inlet valve	Check					✓ (2)

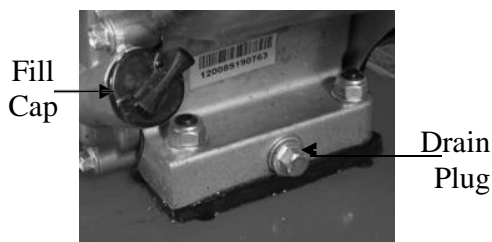
(1) - Service more frequently when used in dusty areas

(2) - For commercial use, log hours of operation to determine proper maintenance intervals.

Maintenance

Engine Oil Change

1. Change oil while engine is warm to assure complete and rapid draining.
2. The Water Pump should be on a level surface.
3. Remove oil filler cap.
4. Place pan under water pump to catch oil.
5. Remove oil drain plug.
6. Allow oil to drain completely.
7. Replace drain plug.
8. Refill with recommended oil (page 6).
9. Check oil level.



Air Cleaner Service

1. Unsnap the air cleaner cover clips.
2. Remove the air filter element.
3. Wash the element in a solution of household detergent and warm water and rinse thoroughly (a nonflammable or high flash point solvent can also be used).
4. Allow to dry completely.
5. Pour a small amount of clean engine oil on the air filter element and squeeze out the excess.
6. Reinstall air filter element and replace cover.

Spark Arrestor Cleaning

1. Engine must be cool and muffler safe to touch to remove the Spark Arrestor from the muffler.
2. To remove the Spark Arrestor, loosen the screw on clamp and remove the Arrestor. (Make sure to handle carefully and gently)
3. Brush the element lightly in a solution of household detergent and warm water and rinse thoroughly. (A nonflammable or high flash point solvent can also be used)
4. Re-install Arrestor and tighten clamp.

Fuel Filter Cleaning

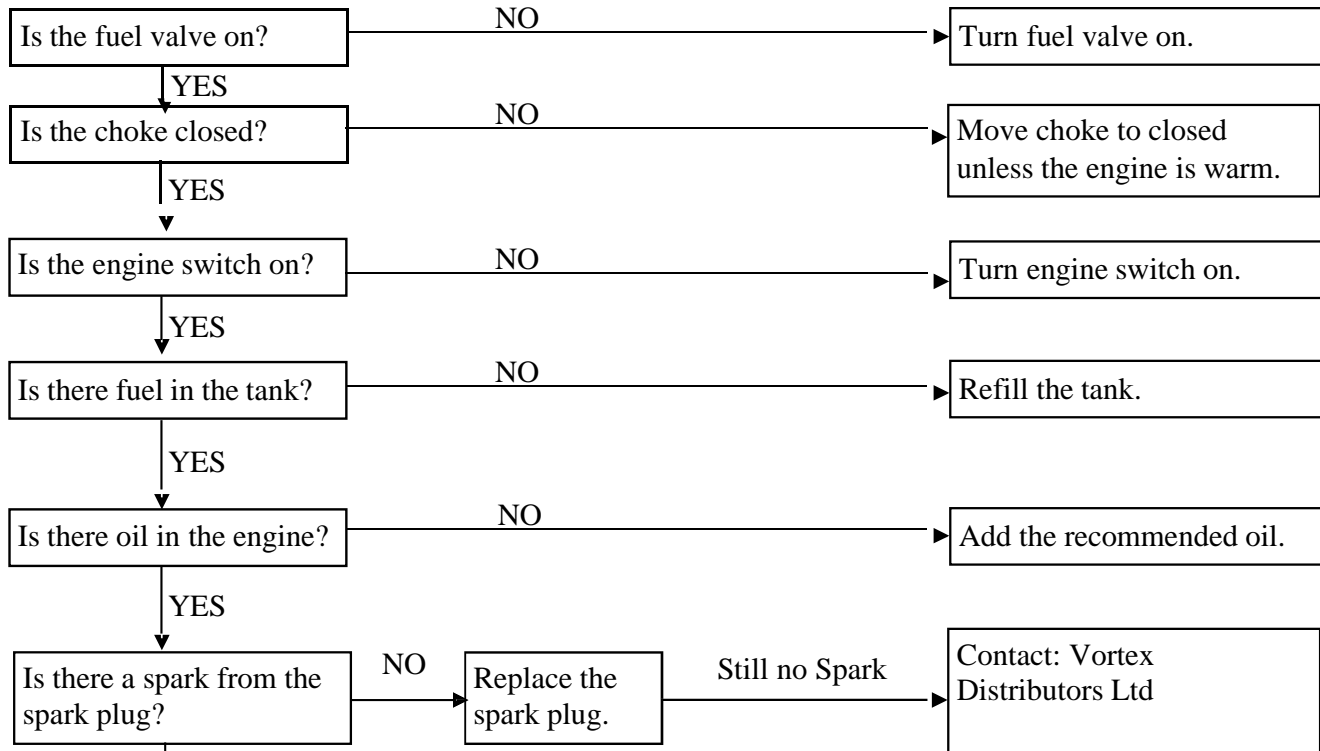
1. Drain fuel from tank.
2. Disconnect fuel line from fuel valve.
3. Remove fuel valve from tank.
4. Remove fuel filter from the top of the fuel valve by unthreading (should be able to be removed with fingers).
5. Clean fuel filter with a nonflammable or high flashpoint solvent.
6. Reattach fuel filter to fuel valve and reattach fuel valve to tank and fuel line.

Fuel Valve Cleaning

1. Remove the sediment cup and O-ring at the bottom of the fuel valve with a small wrench.
2. Clean and wash out the sediment cup with a nonflammable or high flashpoint solvent.
3. Replace the sediment cup and O-ring.

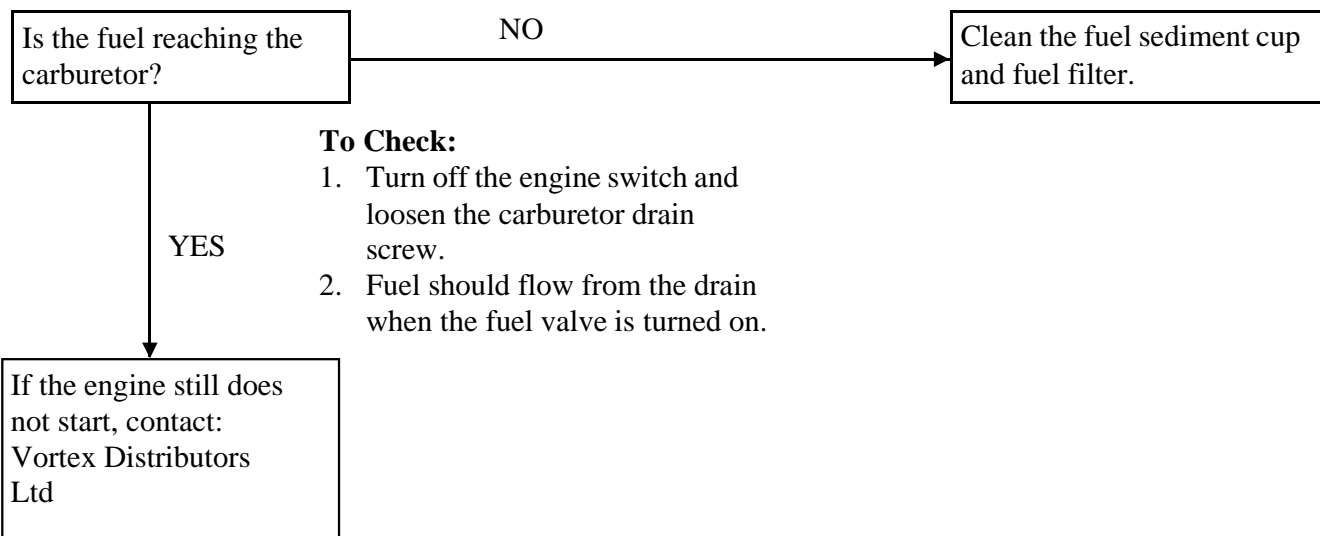
TroubleShooting

Engine Will Not Start



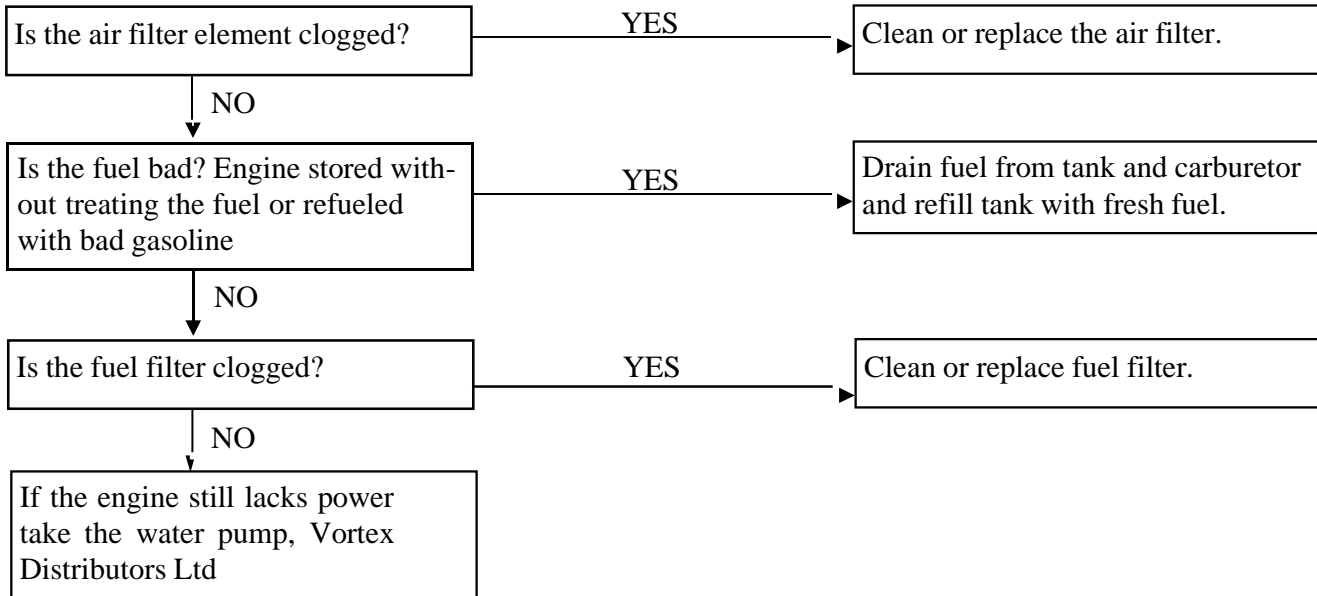
WARNING

- Be sure there is no spilled fuel in the area.
- Gasoline is extremely flammable And is explosive under certain conditions.

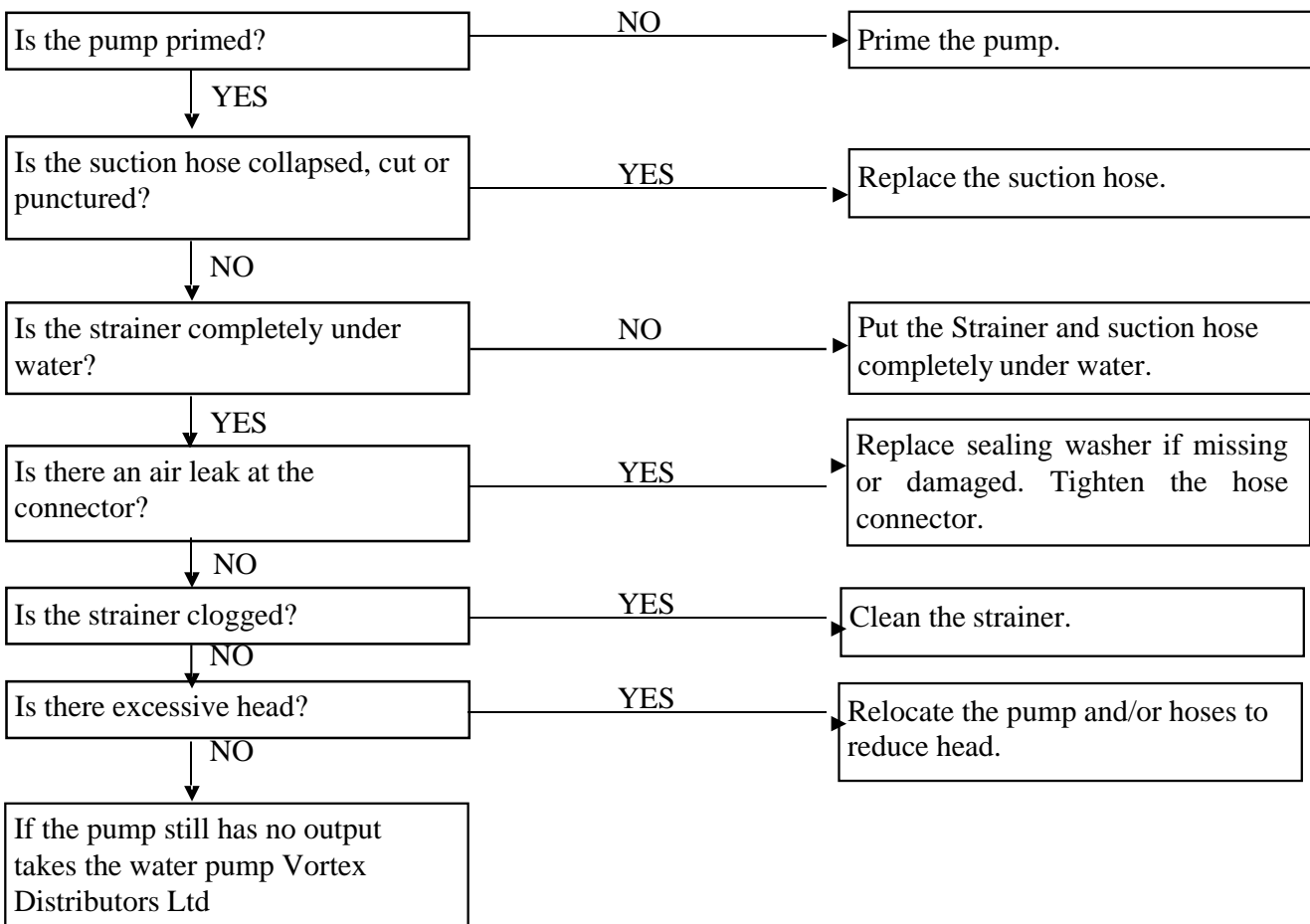


TroubleShooting

Engine Lacks Power

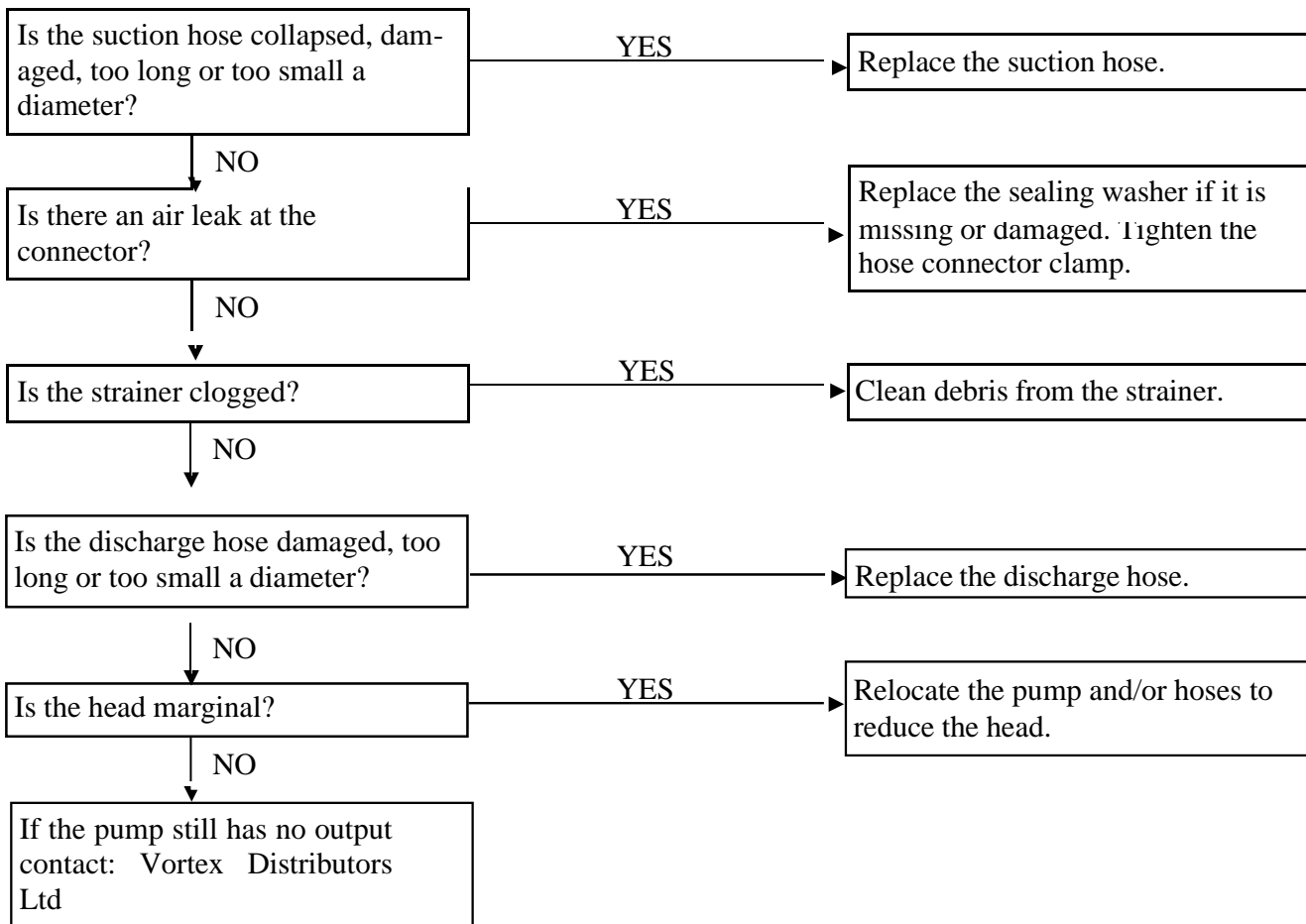


No Pump Output



TroubleShooting

Low Pump Output



High Altitude Operation

At high altitude, the standard carburetor air-fuel mixture will be too rich. Performance will decrease, and fuel consumption will increase. A very rich mixture will also foul the spark plug and cause hard starting. Operation at an altitude that differs from that at which this engine was certified, for extended periods of time, may increase emissions.

High altitude performance can be improved by specific modifications to the carburetor. If you always operate your engine at altitudes above 5,000 feet (1,500 meters), have a qualified mechanic perform this carburetor modification. This engine, when operated at high altitude with the carburetor modifications for high altitude use, will meet each emission standard throughout its useful life.

Even with carburetor modification, engine horsepower will decrease about 3.5% for each 1,000- foot (300-meter) increase in altitude. The effect of altitude on horsepower will be greater than this if no carburetor modification is made.

NOTICE: When the carburetor has been modified for high altitude operation, the air-fuel mixture will be too lean for low altitude use. Operation at altitudes below 5,000 feet (1,500 meters) with a modified carburetor may cause the engine to over- heat and result in serious engine damage. For use at low altitudes, have a qualified mechanic return the carburetor to original factory specifications.

Warranty



WARRANTY TERMS & CONDITIONS

(Subject to the provisions of the Consumers Guarantee Act)

Vortex Distributors Ltd warrants that the pumps that we distribute are free from defects in workmanship and materials for a period of 1 (one) year from the date of purchase. Subject to the conditions of the warranty, Vortex Distributors Ltd will repair any defective products that are installed / used in New Zealand free of charge at the premises of Vortex Distributors Ltd, or our authorised service agents throughout New Zealand.

1) This warranty excludes transportation costs to and from Vortex Distributors Ltd or its appointed service agents.

2) The warranty does not cover normal wear and tear, replacement of product consumables (mechanical seals, bearing and capacitors) and excludes defects due to non-compliance with installation instructions, neglect or misuse, inadequate protection against freezing, low voltage or use or operation for purposes other than those for which they were designed. Failure to carry out maintenance, using corrosive or abrasive water or other liquids, voltage spikes (including lightning) or having unauthorised persons attempting repairs will render the warrantee null and void. For further information regarding the suitability of your intended application please contact us.

3) The warranty only applies to the original owner, purchaser or end user, and is subject to the Consumers Guarantee Act.

4) Our warranty commences from the date of purchase of the above-mentioned pumps. Proof of purchase is required before consideration under warranty is given.

Record your date of purchase in the space below and retain this copy for records.

Date of Purchase:

Model Purchased:

Invoice #:



Vortex Distributors

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