



OWNER'S MANUAL

DIESEL POWERED SEMI TRASH PUMP

DP2C / DP3C



PREFACE

Thank you for purchasing products from EASTERN TOOLS & EQUIPMENT, INC. We appreciate your business. The following manual is only a guide to assist you and is not a complete or comprehensive manual of all aspects of your water pump unit. Some of the illustrations and photos will differ slightly then your model and only serve as an illustration. The equipment you have purchased is a complex piece of machinery. We recommend that that you consult with a dealer if you have doubts or concerns as to your experience or ability to properly maintain or repair your equipment. You will save time and the inconvenience of having to go back to the store if you choose to write or call us concerning missing parts, service questions, operating advice, and/or assembly questions. Our diesel powered water pumps have some of the following features:

- Lightweight construction
- High pressure aluminum alloy construction
- Hard working four-stroke diesel internal combustion engine
- Large fuel tank
- High quality mechanical seals
- Self-priming structure

The ETQ air-cooled diesel semi trash pumps are self-priming single-stage centrifugal water pumps. The bodies of the water pumps are constructed of high quality die-cast aluminum alloy. The internal rotating rings are constructed of ceramics and the stationary rings are constructed of graphite. The water pumps are widely used in fieldwork and on construction sites. Our water pumps provide a portable mobile solution in pumping liquids from one place to another.

This manual will explain how to operate and service your semi-trash pump unit.

If you have any questions or suggestions about this manual, please contact your local dealer or us directly. ***Consumers should notice that this manual might differ slightly from the actual product as more improvements are made to our products. Some of the pictures in this manual may differ slightly from the actual product as well. Eastern Tools and Equipment, Inc. reserves the right to make changes at any time without notice and without incurring any obligation.***

TABLE OF CONTENTS

	Page number
OVERVIEW OF VARIOUS MODELS OF WATER PUMPS	4
TECHNICAL SPECIFICATIONS	5
SEMI-TRASH PUMP SAFETY PRECAUTIONS	7
KNOWING YOUR SEMI-TRASH PUMP	8
PRE-OPERATION PREPARATION	9
STARTING THE ENGINE	13
OPERATION	17
STOPPING THE ENGINE	18
MAINTENANCE	19
TRANSPORTING AND STORAGE	23
TROUBLESHOOTING	24
PUMP DIAGRAMS AND PARTS LISTINGS	26
LIMITED WARRANTY	28
APPENDIX	30
Product registration card	30
List for comments from users	31

OVERVIEW OF VARIOUS MODELS OF WATER PUMPS

Figure 1. Overall view of the DP2C gasoline water pump unit



Figure 2. Overall view of the DP3C gasoline water pump unit



TECHNICAL SPECIFICATIONS

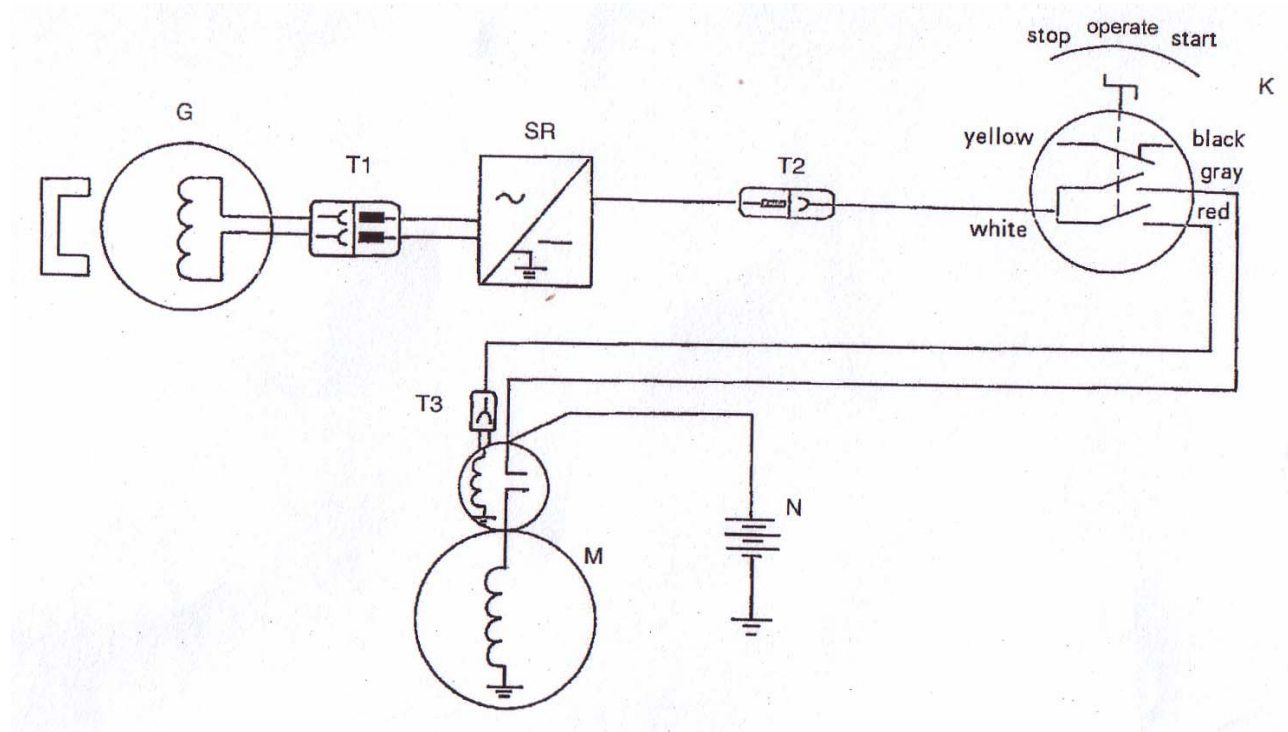
Table 1. Specifications in Metric units

	Model	DP2CL	DP3CL
Pump	Suction port diameter (mm)	50	80
	Discharge port diameter (mm)	50	80
	Max suction head (m)	15	13
	Total head (m)	26	25
	Max flow rate (liters/min)	600	833
Engine	Engine type	ETQ170F	ETQ178F
	Speed (rpm)	3600	3600
	Displacement (cc)	211	296
	Max. Output (kW)	3.36	4.92
	Cooling system	Forced air cooling by flywheel	
	Ignition	Direct fuel injection	
	Shaft rotation	Clockwise from flywheel end	
	Length x Width x Height (mm)	464 x 559 x 622	495 x 610 x 559
	Dry Weight (kgs)	53	64

Table 2. Specifications in English units

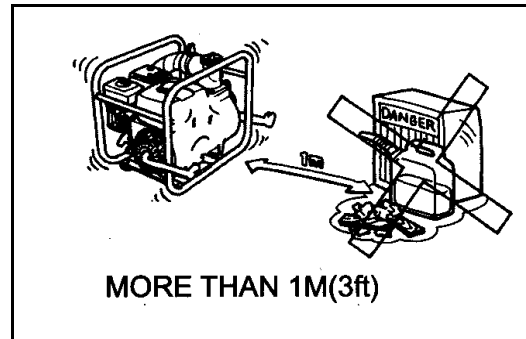
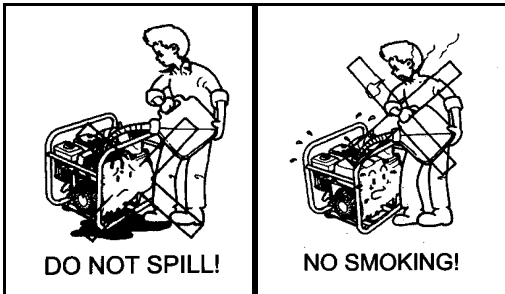
	Model	DP2CL	DP3CL
Pump	Suction port diameter (in)	2	3
	Discharge port diameter (in)	2	3
	Max suction head (ft)	49.2	42.7
	Total head (ft)	85.3	82.02
	Max flow rate (US gal/min)	159	220
Engine	Engine type	ETQ170F	ETQ178F
	Speed (rpm)	3600	3600
	Displacement (cu. in)	13.36	18.67
	Max. output (HP)	4.5	6.6
	Cooling system	Forced air cooling by flywheel	
	Ignition	Direct fuel injection	
	Shaft rotation	Clockwise from flywheel end	
	Length x Width x Height (in)	19.5 x 22 x 24	18.25 x 22 x 24.5
	Dry Weight (lbs)	116	140

Wiring Diagram (optional for electric start models only)

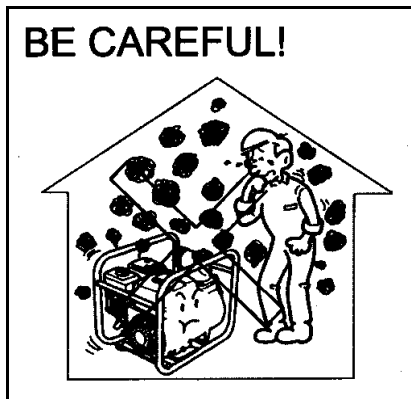


SEMI-TRASH PUMP SAFETY PRECAUTIONS

- Do not smoke or allow flames or sparks to get near fuel. Always refuel your engine in a well-ventilated place. Do not overfill the tank and always close the filler cap securely.



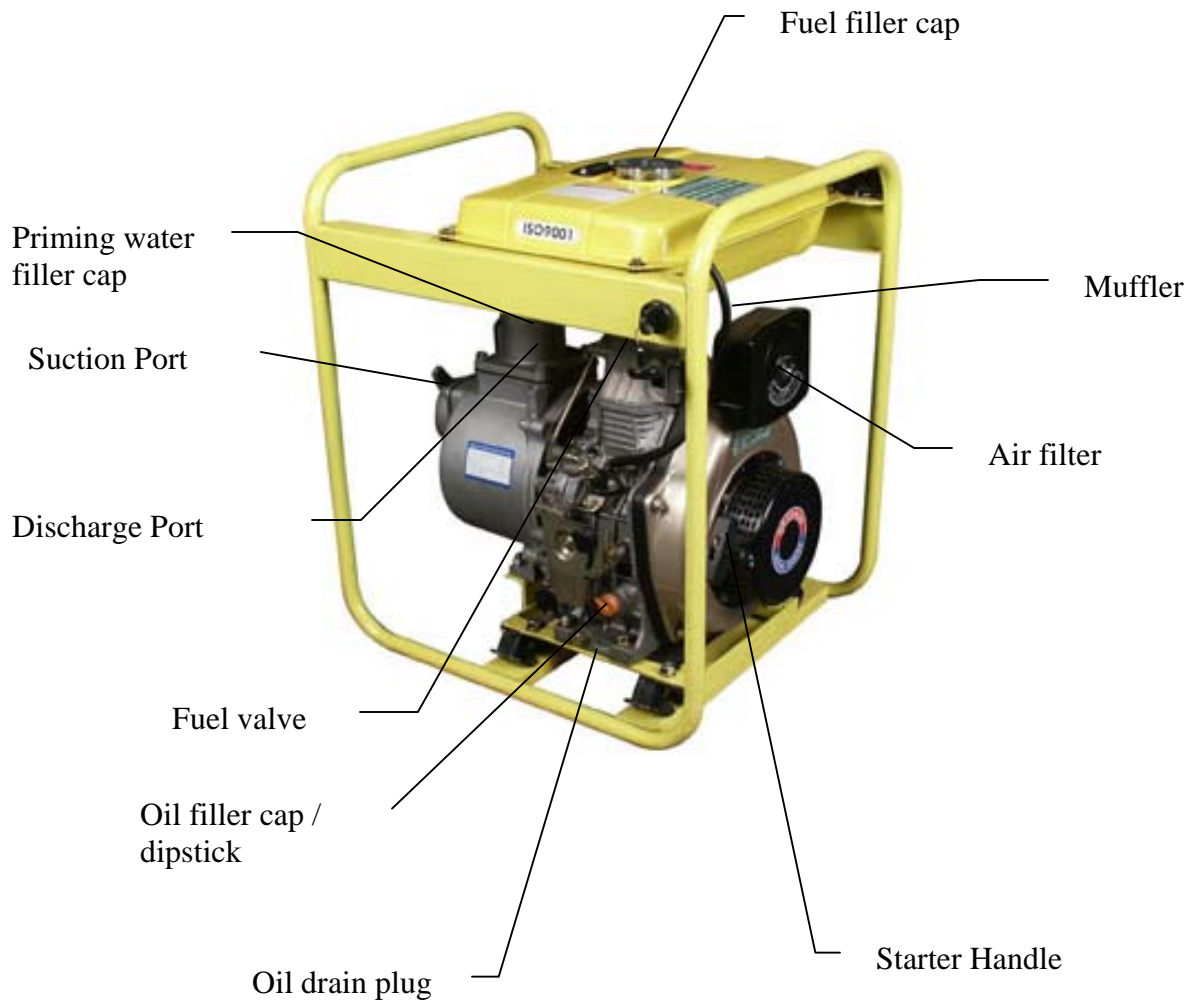
- Never run the pump indoors as the engine emits poisonous carbon monoxide.



- Before operating your semi-trash pump, please check your local laws and regulations before operating your pump. It is illegal in some areas to operate an engine without a spark arrester; therefore, a spark arrester is available as an optional part for this pump.
- Know all the pumps controls and know how to stop the pump quickly in the event of an emergency. Do not let anyone without proper instructions operate the pump.
- Always keep children and pets away from the pump.
- Do not pump flammable or corrosive liquids such as gasoline or acid. In order to prolong the life of your pump, avoid pumping corrosive liquids such as sea-water, chemical solutions, used oil, or acidic liquids.
- Always operate your pump on a level surface. If the pump is tilted, fuel may spill and rapid wear might occur as a result of inadequate lubrication.

- Do not touch the muffler during or just after operation; as the engine and muffler get hot. Always let the engine fully cool before touching and storing the pump indoors.
- Always keep the pump at least 1 meter (3 feet) away from buildings and other equipment during operation. Do not place flammable objects or liquids close to the pump.

KNOWING YOUR SEMI-TRASH PUMP



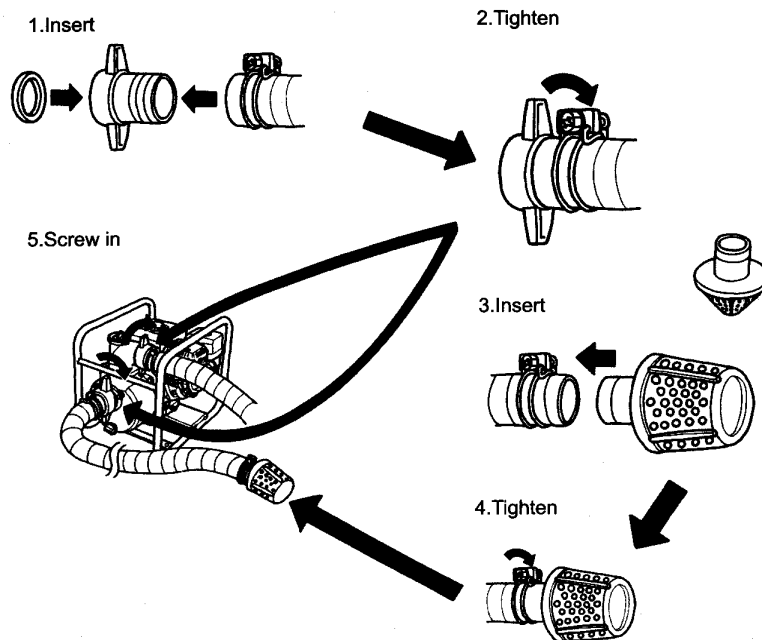
PRE-OPERATION PREPARATION

Suction Hose

The first step in preparing the pump for operation is to install the suction hose. For the suction hose, use a reinforced-wall or wire braided hose to prevent suction collapse. A short hose is recommended over a long hose. The ETQ pumps have standard National Pipe Threads on them; therefore, any standard hose set will fit with the pump. If your hoses are metric threads or any other standard, please give our company a call and we may carry a full line of adapters or provide you with a possible solution.

NOTE: Always install the provided strainer on the end of the suction hose before pumping. If gravel or debris enters the pump, the impeller can be seriously damaged.

Shown below is the pump hose utilizing a barbed connection and hose clamp. If you already have specialized hose, disregard the following diagram. When using the barbed connection setup, make sure to use a hose clamp to properly secure the hose to the barb connector.



Discharge hose

The second step is to install the discharge hose. The discharge hose can be fabric, just make sure to use a hose clamp to secure the hose to the barb. This will prevent the hose from disconnecting under high pressure.

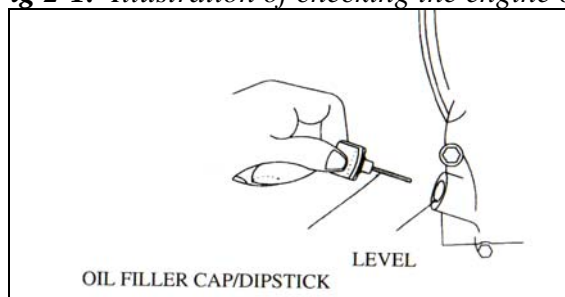
Note: A short and large-diameter hose is preferred over any other. A short and large diameter will provide lower fluid friction and improve efficiency.

Engine oil

Engine oil is an important factor in determining the performance and life of your engine. Always make sure the oil level is within the upper and lower limits specified on the oil dipstick. Make sure to check the engine oil on a level surface or incorrect readings will result.

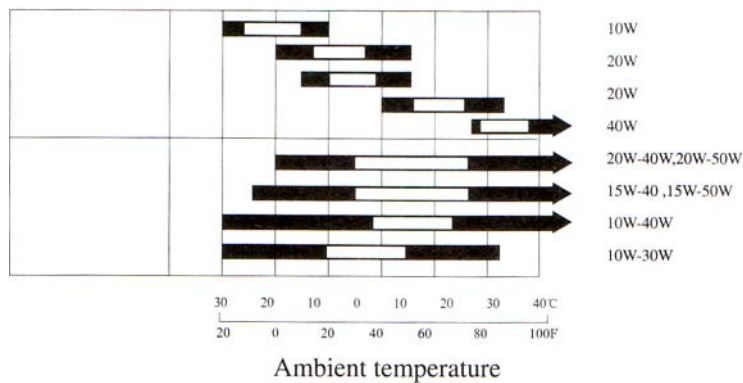
- To check the engine oil, first, remove the oil dipstick by turning counterclockwise.
- Wipe the dipstick clean and insert the dipstick back into the oil filler neck. Do not screw it in. Please refer to Fig 2-1.
- If the level is low, fill engine oil to the top of the oil filler neck with the recommended oil below.

Fig 2-1. Illustration of checking the engine oil



Below is a table of recommended oil grades for the engine in various weather conditions. Please use the proper oil according to the Table 2-1.

Table 2-1. Ambient temperature versus oil grades



Note: For diesel engines, we highly recommend the use of 15W-40 engine oil. Some other grades are comparable, but 15W-40 is the preferred oil grade.

Fuel

Remove the fuel cap and fill the fuel tank with diesel fuel. The preferred fuel for diesel engines is diesel number 2, which can be easily obtained from a gas station. Do not use other fuels until consulting with your local dealer or our company.

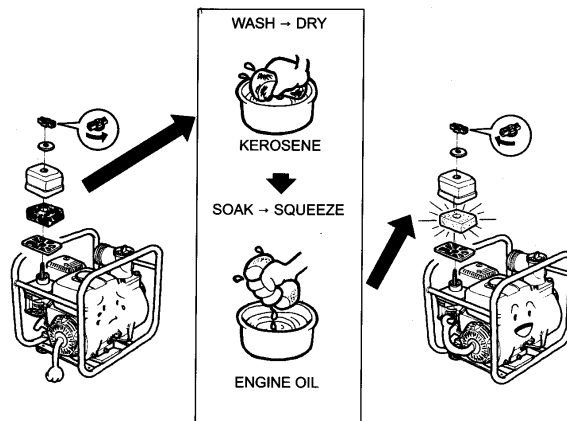
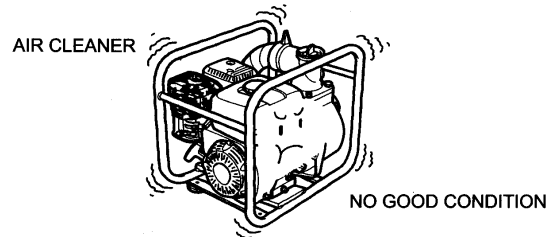
The capacity of your fuel tank is 3.3 US gallons.

Do not smoke or allow flames or sparks to get near fuel. Always refuel your engine in a well-ventilated place. Do not overfill the tank and always close the filler cap securely.



Air Cleaner

Before starting your semi-trash pump, remove your air cleaner cover and verify that the air filter is clean and free of debris. Clean the air filter if necessary.

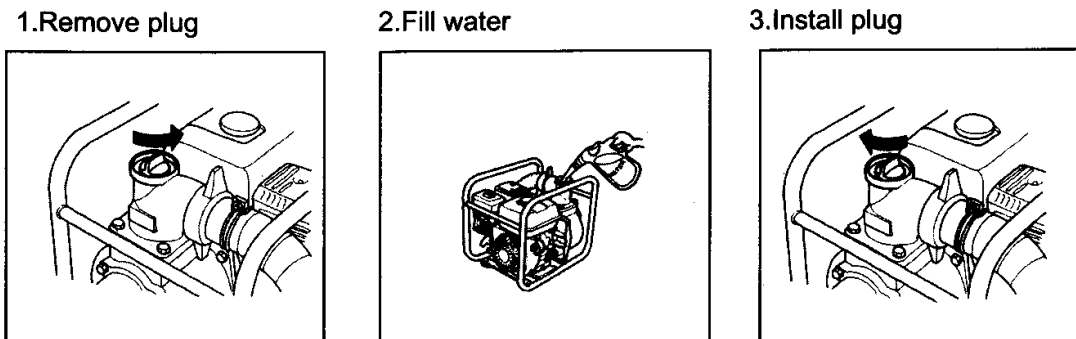


Priming water

The pump chamber should be completely filled before operating.

Note: Never operate the pump without priming water or the pump will overheat. Prolonged operation of the pump under these dry conditions will damage and destroy the seal.

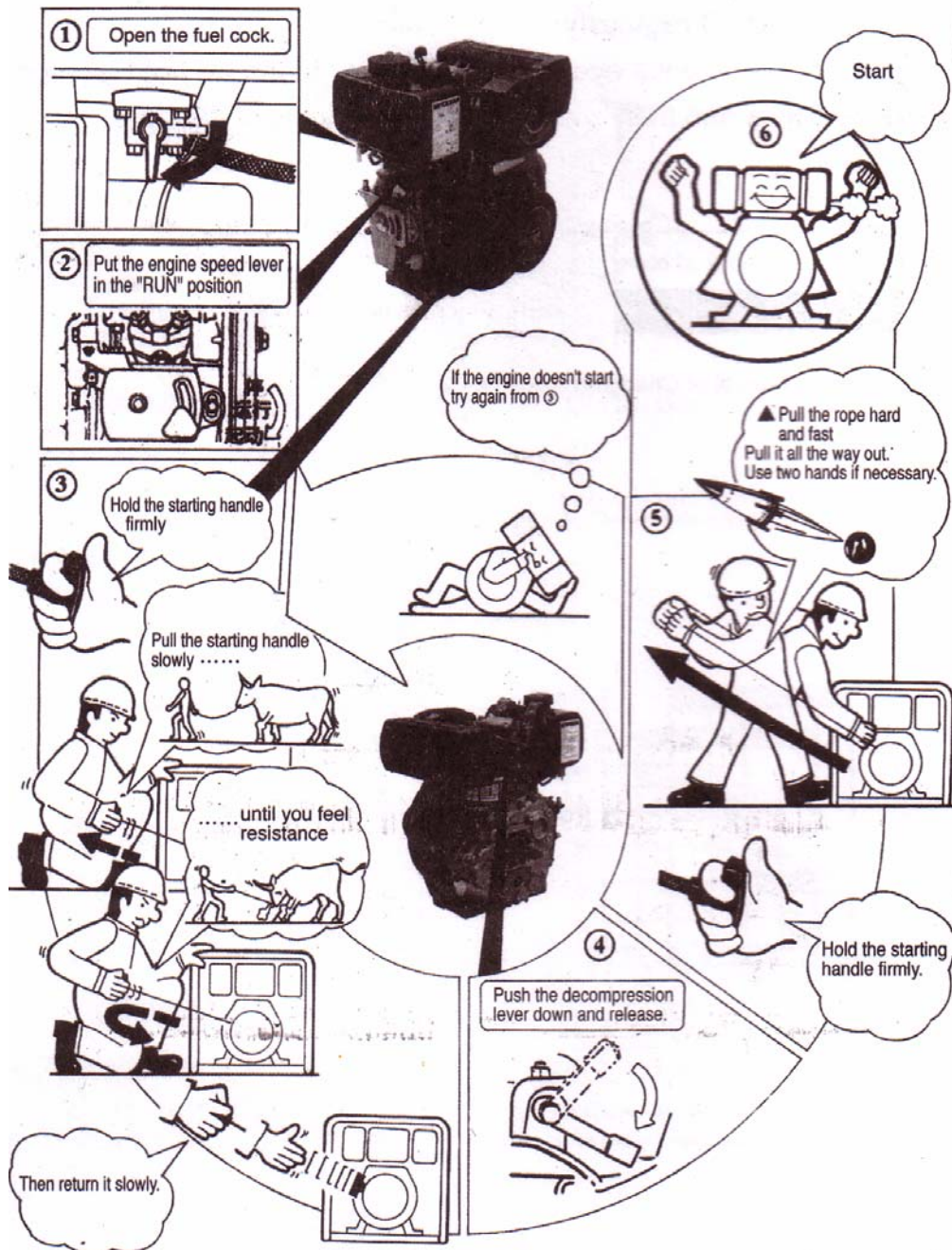
Follow these guidelines to fill the pump with priming water.



STARTING THE ENGINE

Recoil Starting

Note: When the engine is running, do not pull the recoil handle, otherwise the engine may be damaged.



For ②, don't pull the rope too fast or too hard.

Always pull the rope slowly.

1 Open the fuel cock.

2 Put the engine speed lever in the "RUN" position.

3 Hold the starting handle firmly.

4 Push the decompression lever down and release.

5 Pull the rope hard and fast. Pull it all the way out. Use two hands if necessary.

6 Start.

If the engine doesn't start try again from ②.

Then return it slowly.

For ②, if you don't pull the rope all the way out, the engine won't start.

Always pull the rope all the way out.

For ②, if you don't pull hard enough, the engine won't start.

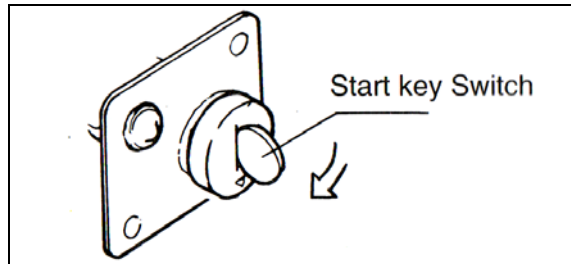
Always pull the rope hard and fast.

Diesel engine with electric starter system

Starting

The preparation of the diesel engine for the electric starting system is the same as the manual recoil type.

- a. Open the fuel cock.
- b. Set the speed governor lever to the start position.
- c. Turn the start switch clockwise to the “Start” position.



- d. If the engine is started, immediately remove your hand away from the key switch.
- e. If the engine does not start after 10 seconds, wait awhile (about 15 seconds) before trying to start the engine again.

If you run the starter motor to long, the voltage of the accumulator will drop and the motor may be damaged. Keep the key switch in the “ON” position

(1) Battery

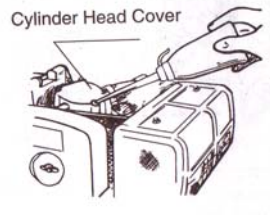
- a. Always check the liquid level of the battery every month, if the level is lower than the low limit mark, refill the battery with distilled water till you reach the upper limit mark.

If the liquid level in the battery is to low, the electric starter will not function to its best potential. Always keep the level of the liquid in the battery between the upper and lower limits. If there is too much liquid, the liquid will splash onto other nearby parts thereby ruining the battery.

Cold starting

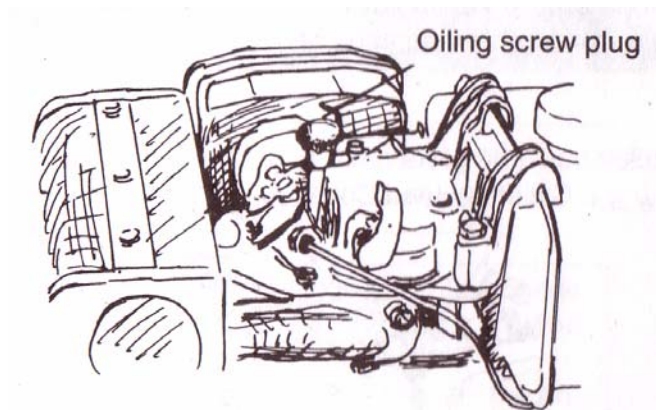
If the engine is difficult to start in winter, take off the rubber seal plug and put 2cc of machine oil into the hole.

Notice: Engines supplied to the Torrid Zone will not contain the rubber plug. A solid plug is provided instead.

**Warning:**

Never use flammable liquids as fuel, such as gasoline etc. Also, never take away the air cleaner for easy starting of the engine, doing so may cause explosions from the intake gases.

Never take the oil plug unless you're planning on filling the oil. If the plug is not in place, rain, dust, and other impurities may be sucked into the engine causing serious damage to the engine parts.



OPERATION

Operating conditions

The water pumps operating range should be based upon the NPSH (net positive suction head). A more precise definition of available NPSH is "the difference between the total suction head and the vapor pressure of the liquid, in feet of liquid, at the suction flange". We can measure the total suction head of the pump and we can find vapor pressure from the liquid temperature. The difference between these two values is the available NPSH. The following equation is the mathematical expression of the definition for available NPSH:

$$h_{sv} = h_{sa} - h_{vpa} \quad \text{where:}$$

h_{sv} = available net positive suction head, in feet of liquid

h_{sa} = total suction head, in feet of liquid, absolute

h_{vpa} = vapor pressure of liquid at suction nozzle, in feet of liquid, absolute

The approximation will be based at an altitude less than 250 meters or 820 feet. Subtracting 10 meters or 32.8 feet from the net positive suction head can approximate the suction head of the pump. When increasing the altitude of operation, the atmosphere should be decreased as well as the suction head of the pump. The amount of decrease can be estimated by subtracting 10 meters from the local atmosphere value. If you are using your pump at high altitudes and having difficulty obtaining NPSH values, please consult your local power equipment dealer.

It is better to use a straight and short pipeline when operating the water pump. A short and straight pipeline will minimize the frictional losses in the pipeline. The pipeline should be fixed to something to avoid vibrations. Before operating the pump, you must check the connections between the pump and pipelines to verify that everything is installed properly and that there are no leaks of any kind.

The filter net should be kept at a certain distance between the river surface, river bottom, and riverbank. The net must also be submerged at least .3 meters or 1 foot below the water surface to avoid sucking air into the pipeline. The net must also be .2 meters or .7 feet above the river bottom or riverbank to avoid sucking stones or weeds into the pipeline.

If the gap between the impeller and flow guidance surface is over 1 mm, an adjustment shim can be added on the shaft shoulder to reduce the gap. This will permit continuous use of the water pump. Please refer to figure 2-2 for a diagram of the water pump and a listing of the components.

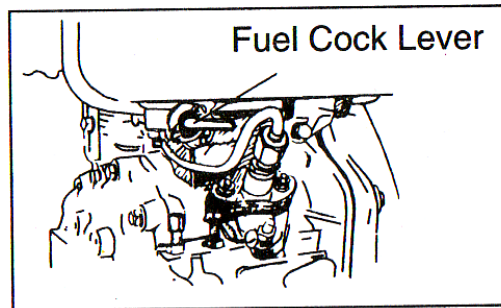
STOPPING THE ENGINE

First, bring down the speed of the engine by using the speed governor. Let it run for 3 minutes at no load before stopping it.

Then stop the engine.

Sudden stops to the engine will cause abnormal temperature increases in the block of the engine. Decrease the load gradually when stopping the engine. Also, never stop the engine with the decompression lever.

Set the fuel cock at “S” (stop position)



If the engine comes with an electric starter, turn the starting switch to the “Off” position.

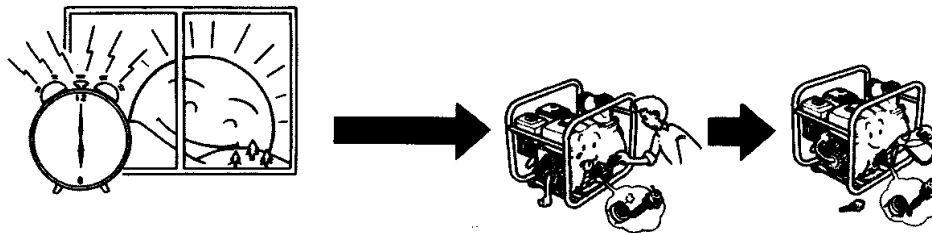
Pull the recoil handle slowly until pressure is felt by your hand, this means the piston is on the compression stroke; where the intake and exhaust valves are closed and then let the handle recoil back into the engine. This natural position will prevent rust from occurring when the engine is being stored for long periods of time. Perform these steps only when the engine is off; doing so otherwise will damage the engine.

MAINTENANCE

Oil check

During operation, it is a good idea to check the oil every morning to ensure the engine has sufficient oil.

CHECK OIL EVERY MORNING



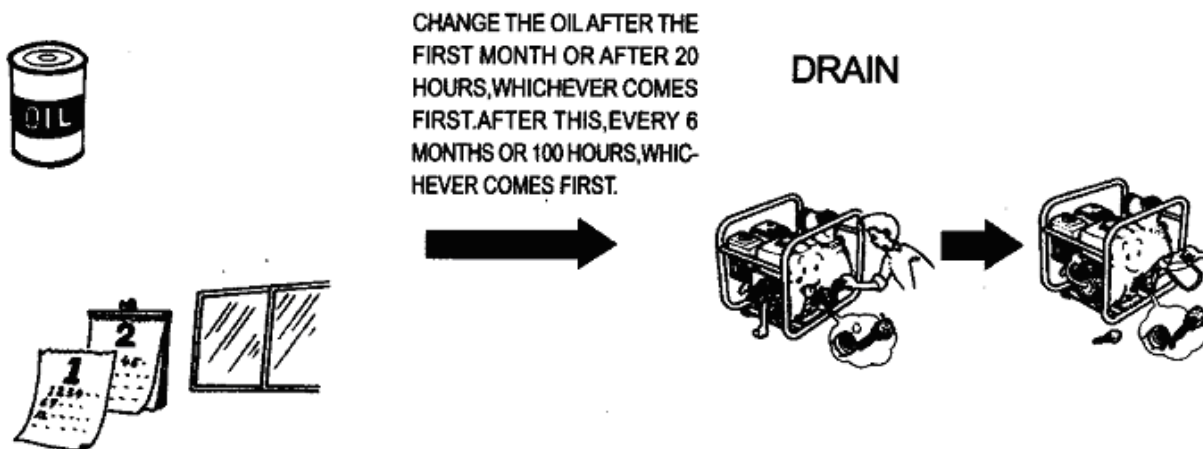
Oil change

Engine oil is a critical factor in determining the life of your engine. Change the engine oil on time. Change the engine oil more frequently if the engine is used in dusty areas.

Changing the oil while the engine is still warm will yield best results for the engine. When the oil is still warm, you get rapid and complete draining of the oil.

Oil change procedures

- Remove the oil filler cap and drain plug to drain the oil
- Install the drain plug, and tighten it securely.
- Refill with the recommended oil and check the oil level.
- Install the oil filler cap.



Note: Do not touch motor oil for long periods of time. Used motor oil can cause skin cancer if it comes in contact with the skin for prolonged periods of time. Getting cancer from used motor oil is unlikely unless you handle used motor oil on a daily basis. To be safe always wash your hands thoroughly with soap and water as soon as possible after handling used oil.

Below a maintenance schedule table is provided.

Item \ Time	Daily	After 20 hours or 1 month	100 Hours or Every 3 month	500 Hours or Every 6 month	1000 Hours or Every year
Check and tighten the nut and screw	○				
Check and fill machine oil	○				
Change machine oil		○ (First time)	○ (Second time and later)		
Clean and change oil filter				○	● (Change)
Check oil-leakage	○				
Change the core of air filter		Cycle of check and main-tenance will be shortened at dusty place.		○	
Clean fuel tank	Every month				
Clean or change fuel filter				○ (Clean)	○ (Change)
Check nozzle				●	
Check injection pump				●	
Check pipeline of fuel				○ (Change if necessary)	
Adjust valve clearance of inlet and exhaust		● (First time)		●	
Grind valve holder of inlet and exhaust					●
Change piston ring					●
Check accumulator liquid	each month				
Clean the core of air filter		○ (Clean) every month or 50 hours			

Air filter service

A dirty or clogged air filter will prevent air from flowing freely into the carburetor assembly. Always keep the air filter clean or replace if necessary. Also, if the air filter is dirty or clogged, the performance of the engine goes down. If operating the engine in a dusty area, service the air filter more frequently as dust particles will clog the filter at a faster rate. Never run the engine without an air filter, dust particles may get into the intake system and damage the engine. Rapid engine wear will occur if the engine is run without the air filter.

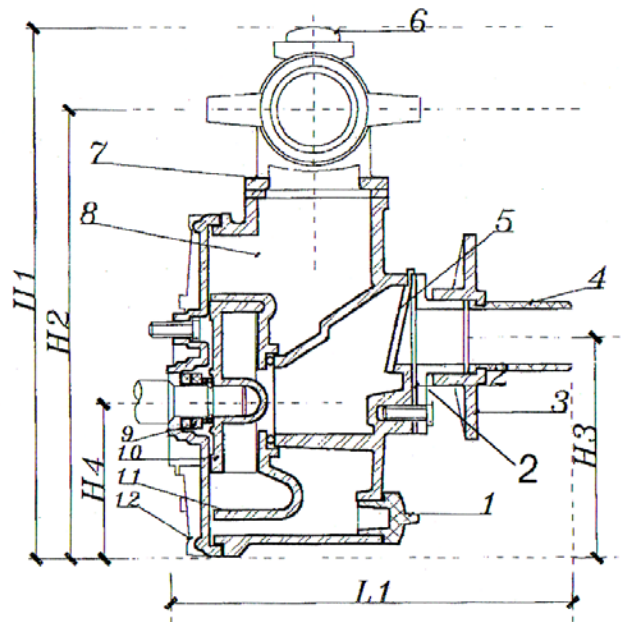
Do not wash the air filter if it is the paper type. Also, never use gasoline to wash air filter elements because gasoline is highly flammable and dangerous. A fire or explosion could occur.

Instructions on changing the air filter.

- Take the wing nut off and remove the air filter cover. Remove the elements and separate them. Check the elements for tears and holes. If holes or tears are present, replace the air filter elements.
- The foam element can be washed. Warm water and household detergent will work fine for washing the foam filter element. After washing, rinse it thoroughly with water and allow the element to dry. Soak the element in clean engine oil and squeeze the oil out. If there is too much oil left in foam element, the engine will smoke during startup.
- Tap lightly several times on a hard surface to remove excess dirt from the paper filter. Never brush on the paper element as this just forces more dirt into the paper element. Use compressed air to blow from the inside out to remove the excess dirt.

Pump maintenance

Figure 2-1. Water pump diagram



- | | |
|-------------------------|-------------------|
| 1. Drain screw | 7. Outlet elbow |
| 2. Inlet pipe connector | 8. Pump case |
| 3. Tightening flange | 9. Shaft seal |
| 4. Inlet pipe | 10. Impeller |
| 5. Door valve | 11. Flow guidance |
| 6. Water addition port | 12. Pump cover |

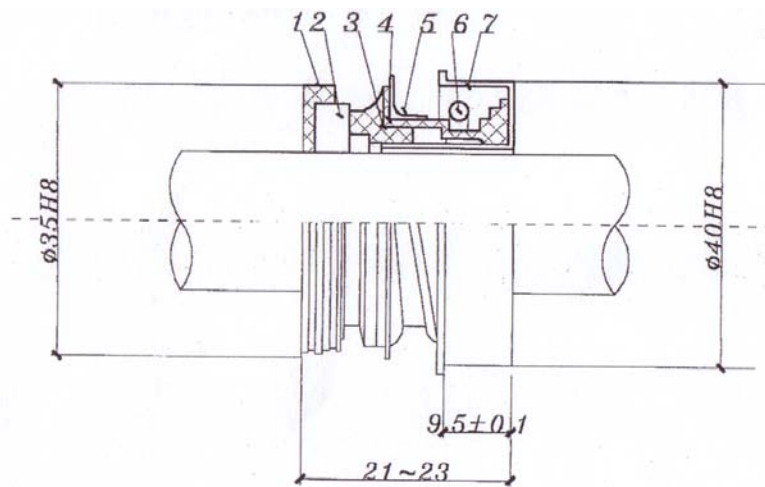
SELF-PRIMING PUMP DIMENSIONS

Units: mm					
Type	H1	H2	H3	H4	L1
DP2C	348	297	151	106	248
DP3C	410	348	171	106	325

Units: Inches					
Type	H1	H2	H3	H4	L1
DP2C	13.47	11.7	5.9	4.2	9.8
DP3C	16.1	13.7	6.7	4.2	12.8

Note: When changing the seal on the water pump, be sure to apply adhesive to the seal and the pump housing. This will prevent future leaks. Also, while installing the seal, do not hit or apply force, as this will damage the seal. Slowly ease the seal into place. Please refer to Figure 2-3 for a cross sectional view of the housing and shaft.

Figure 2-2. Cross sectional view of water pump and components



- 1. Sealing ring
- 2. Ceramic ring
- 3. Fixed graphite ring
- 4. Corrugated pipe
- 5. Washer

Note: After operation of the pump during winter, be sure to drain all the liquid out of the pump to prevent damage to the pump. The pump may be damaged if left over liquid in the pump freezes.

TRANSPORTING AND STORAGE

A few guidelines need to be followed before transporting the semi-trash pump. Below is a list of instructions to be followed during transportation.

- When transporting the pump, turn the fuel valve off and keep the pump on a level surface to prevent fuel spillage.
- Secure the pump unit to a fixed object when transporting to prevent the pump from bouncing around. Continuous bouncing around can damage the pumps internals.

Before storing the pump for long periods of time, please follow the guidelines below.

- Clean the pump interior before stopping the pump. Remove the pump drain plug and empty all fluids from the pump. Leaving fluid in the pump will cause rapid corrosion to the impeller.
- Turn the fuel valve to the “Off” position and empty all of the fuel out of the gas tank.

Note: While dealing with diesel fuels, do not smoke or allow flames to come near the fuel as accidents may occur. Failing to do so will lead to serious injuries and death.

- Change the engine oil
- Remove the cold start oil fill plug and pour about a tablespoon of oil into the cylinder. Crank the engine several times.
- Pull the starter rope until resistance is felt. Doing this will put the cylinder on the compression stroke; where both intake and exhaust valves are closed. Having these two valves closed will prevent moisture from getting into the combustion chamber and causing corrosion.
- Cover the engine and pump and store in a dry place.

TROUBLESHOOTING

Problem	Cause	Remedy
Pump not pumping liquid	Not enough fill water.	Refill the pump with water.
	Leaking inlet pipe.	Check the inlet pipe and connector of pipe, change pipe or tighten the clipper joint screw.
	Low pump speed.	Adjust the engine speed accordingly or find cause within the engine.
	The filter net is clogged.	Check and clean the filter net.
	Capacity of the pump has been exceeded.	Check the position of the pump and fix the operating conditions as specified.
	Seal wear and leakage.	Change the seal.
Not enough water flow	The filter net, pipeline, or impeller is clogged.	Clean out the clogging matter.
	Speed is low.	Increase speed.
	Impeller or seal is seriously worn and gap is too large.	Adjust the gap or change the impeller and seal.
	Leaking inlet pipe.	Check the inlet pipe and connector of pipe, change pipe or tighten the clipper joint screw.
	Impeller damage and or serious leakage.	Change the impeller to a new one.
Flow of water is not steady or constant.	The total lift is too high.	Check for the cause of the problem and adjust if necessary.
	There is air in the pump or the inlet pipe and seal are leaking.	Take the air drain cap off and release the air. Check the pipeline and or change the pump seals.
	Engine speed is not stable or constant	Adjust he speed of the engine

Problem	Cause	Remedy
Power consumption of pump is too large	The impeller and flow guidance are rubbing each other.	Listen to the sound of the pump carefully. If there are rubbing noises, adjust the impeller until the noise is gone.
	The impeller is clogged with weeds or foreign matter.	Check and clean the pump.
No flow suddenly	The connector of the inlet pipe is loose or is leaking.	Check the inlet pipeline and fix accordingly.
	Suction head has been exceeded.	Check the suction head and lower the position of the pump.
Vibrational noises	Suction head is too high and causing cavitation.	Check the suction head and lower the position of the pump.
	Large water output.	Decrease the output of the water.
	Inlet pipe is clogged with foreign matter, so the resistance is too large.	Check the inlet pipe and filter net and clean if necessary.
	Rotary part is loose.	Listen carefully and inspect the part that causes the noise then stop the machine and adjust as necessary.
	Pump unit is loose or not installed properly.	Stop the machine and adjust the pump and engine.
	Air inside the pump unit or air inside the pipeline.	Remove the air drain screw and eliminate the air.
	Impeller damaged	Stop the machine and replace the impeller.

PUMP DIAGRAMS AND PARTS LISTINGS

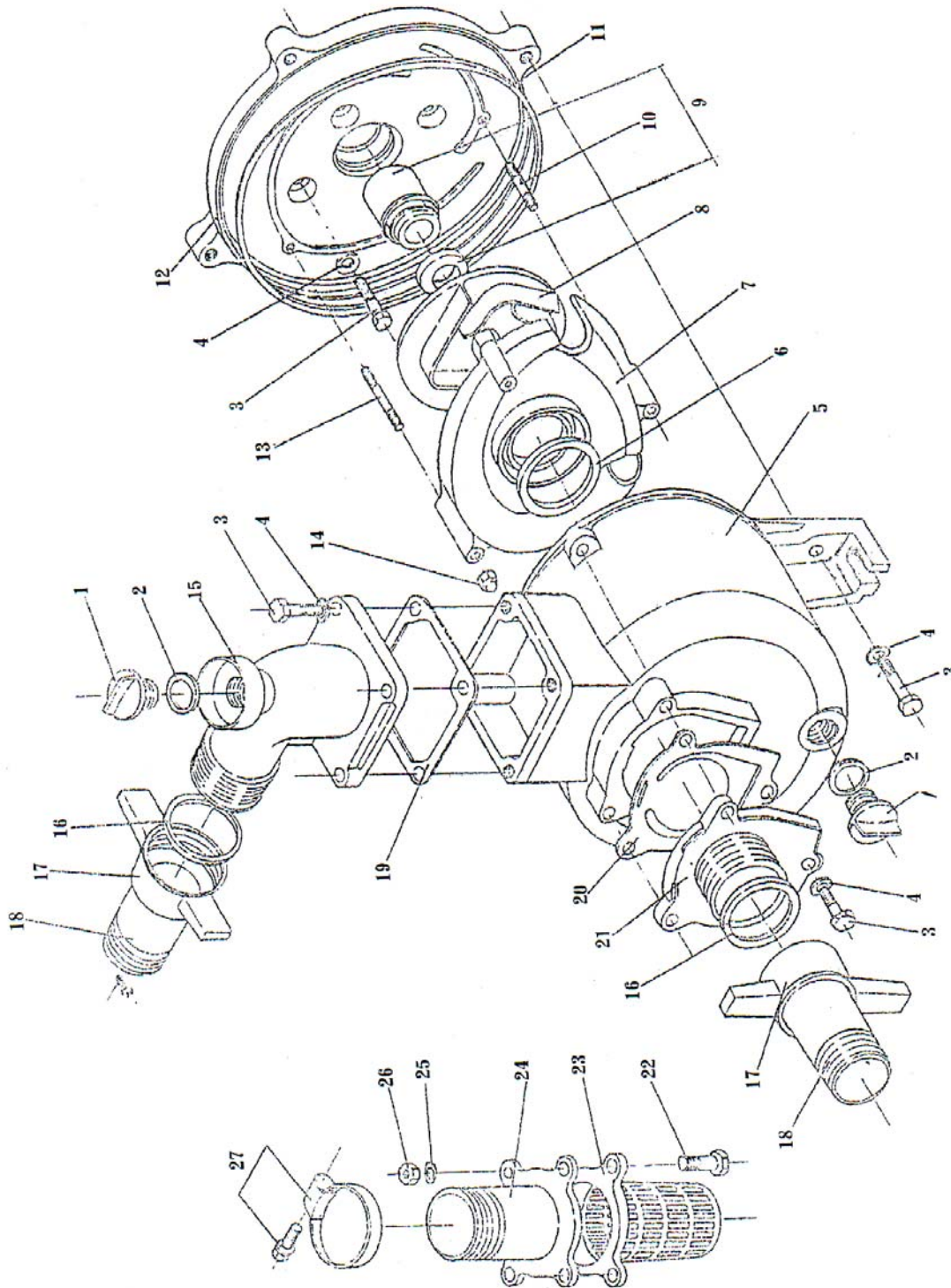


Figure 4-1. Exploded view of the water pump

Table 4-1. Please refer to figure 4-1 for a complete illustration of the parts

No.	Description	Qty.	Part Number (2 inch / 3 inch)
1	Drain Plug	2	ETQ2DP1 / ETQ3DP1
2	Rubber seal	2	ETQ2DP2 / ETQ3DP2
3	M8 x 25 bolt	15	ETQ2DP3 / ETQ3DP3
4	Washer 8	16	ETQ2DP4 / ETQ3DP4
5	Water pump case	1	ETQ2DP5 / ETQ3DP5
6	Seal	1	ETQ2DP6 / ETQ3DP6
7	Flow guidance plate	1	ETQ2DP7 / ETQ3DP7
8	Impeller	1	ETQ2DP8 / ETQ3DP8
9	Shaft seal	1	ETQ2DP9 / ETQ3DP9
10	M6 x 50 bolt	2	ETQ2DP10 / ETQ3DP10
11	Water pump seal ring	1	ETQ2DP11 / ETQ3DP11
12	Water pump cover	1	ETQ2DP12 / ETQ3DP12
13	M6 x 55 bolt	1	ETQ2DP13 / ETQ3DP13
14	M6 bolt	3	ETQ2DP14 / ETQ3DP14
15	Discharge elbow	1	ETQ2DP15 / ETQ3DP15
16	O-ring Gasket (optional)	2	ETQ2DP16 / ETQ3DP16
17	Flange (optional)	2	ETQ2DP17 / ETQ3DP17
18	Barb connector (optional)	2	ETQ2DP18 / ETQ3DP18
19	Rubber Gasket	1	ETQ2DP19 / ETQ3DP19
20	One way valve	1	ETQ2DP20 / ETQ3DP20
21	Suction flange	1	ETQ2DP21 / ETQ3DP21
22	M6 x 25 bolt	4	ETQ2DP22 / ETQ3DP22
23	Strainer	1	ETQ2DP23 / ETQ3DP23
24	Connecting flange	1	ETQ2DP24 / ETQ3DP24
25	Washer 6	4	ETQ2DP25 / ETQ3DP25
26	M6 nut	4	ETQ2DP26 / ETQ3DP26
27	Throat clip	3	ETQ2DP27 / ETQ3DP27

Engine parts

Please refer to the ETQ170F or ETQ178F engine owners manual for a complete breakdown of parts and parts listings.

LIMITED WARRRANTY

Eastern Tools & Equipment, Inc. will repair or replace, free of charge, any part or parts of the generator that are defective in material or workmanship or both. Transportation charges on parts submitted for repair or replacement under this Warranty must be borne by purchaser. This warranty is effective for the time period and subject to the conditions provided for in this policy. For warranty service, find the nearest Authorized Service Dealer by contacting the place of purchase or Eastern Tools & Equipment, Inc. **THERE IS NO OTHER EXPRESSED WARRANTY. IMPLIED WARRANTIES, INCLUDING THOSE OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED TO ONE YEAR FROM PURCHASE, OR TO THE EXTENT PERMITTED BY LAW ANY AND ALL IMPLIED WARRANTIES ARE EXCLUDED. LIABILITY FOR CONSEQUENTIAL DAMAGES UNDER ANY AND ALL WARRANTIES ARE EXCLUDED TO THE EXTENT EXCLUSION IS PERMITTED BY LAW.** Some states do not allow limitations on how long an implied warranty lasts, and some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation and exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights, which vary from state to state.

Eastern Tools & Equipment, Inc.

WARRANTY PERIOD***

ENGINES	WITHIN U.S.A AND CANADA		OUTSIDE U.S.A. AND CANADA	
	CONSUMER USE	COMMERCIAL USA	CONSUMER USE	COMMERCIAL USE
DIESEL SEMI-TRASH PUMP	1 year or 1000 hours	1 year or 1000 hours	1 year or 1000 hours	1 year or 1000 hours

* The warranty period begins on the date of purchase by the first retail consumer or commercial end user, and continues for the period of time stated in the table above. "Consumer use" means personal residential household use by a retail consumer. "Commercial use" means all other uses, including use for commercial, income producing or rental purposes. Once the engine has experienced commercial use, it shall thereafter be considered as a commercial use engine for purposes of this warranty. **Engines used in competitive racing or on commercial or rental tracks are not warranted.**

*** A two-year or 1,500 hour warranty applies to the emission control system on engines certified by EPA and CARB

IMPORTANT
"WARRANTY REGISTRATION IS NECESSARY TO OBTAIN LIMITED WARRANTY ON EASTERN TOOLS & EQUIPMENT, INC., ENGINES. THE WARRANTY REGISTRATION CARD MUST BE RETURNED WITHIN 15 DAYS OF ORIGINAL PURCHASE FOR LIMITED WARRANTY TO BE VALID."

About Your Product Warranty

Eastern Tools & Equipment, Inc. welcomes warranty repair and apologizes to you for being inconvenienced. Any Authorized Service Dealer may perform warranty repairs. Most warranty repairs are handled routinely, but sometimes warranty service may be inappropriate. For example, warranty would not apply if an engine is damaged because of misuse, lack of routine maintenance, shipping, handling, warehousing and improper installation. Similarly, warranty is void if the serial number on the engine has been removed or if the engine has been altered or modified. If a customer differs with the decision of the Service Dealer, an investigation will be made to determine whether the warranty applies. Ask the Service Dealer to submit all supporting facts to his Distributor or the factory for review. If the distributor or the factory decides that the claim is justified, the customer will be fully reimbursed for those items that are defective. To avoid misunderstanding, which might occur between the customer and the dealer, listed below are some of the causes of engine failure that the warranty does not cover.

Normal wear:

Engines and generators, like all mechanical devices, need periodic parts service and replacement to perform well. Warranty will not cover repair when normal use has exhausted the life of a part of an engine.

Improper maintenance:

The life of an engine or your equipment depends upon the conditions under which it operates, and the care it receives. Some applications, such as tillers, pumps, and rotary movers, are very often used in dusty or dirty conditions, which can cause what appears to be premature wear. Such wear, when caused by dirt, dust, spark pug cleaning grit, or other abrasive material that has entered the engine because of improper maintenance is not covered by warranty.

This warranty covers engine related defective material and/or workmanship only, and not replacement or refund of the equipment to which the engine may be mounted. Nor does the warranty extend to repairs required because of:

1. PROBLEMS CAUSED BY PARTS THAT ARE NOT ORIGINAL EASTERN TOOLS & EQUIPMENT, INC., PARTS.
2. Equipment controls or installations that prevent starting, cause unsatisfactory engine performance, or shorten engine life. (Contact equipment manufacturer.)
3. Leaking carburetors, clogged fuel pipes, sticking valves, or other damage, caused by using contaminated or stale fuel. (Use clean, fresh, lead-free gasoline.)
4. Parts which are scored or broken because an engine was operated with insufficient or contaminated lubricating oil, or an incorrect grade of lubricating oil (check oil level daily or after every 8 hours of operation. Refill when necessary and change at recommended intervals.) Engine damage may occur if oil level is not properly maintained. Read Operating & Maintenance Instructions.
5. Repair or adjustment of associated parts or assemblies such as clutches, transmissions, remote controls, etc., which are not manufactured by Eastern Tools & Equipment, Inc.
6. Damage or wear to parts caused by dirt, which entered the engine because of improper air cleaner maintenance, re-assembly, or use of a non-original air cleaner element or cartridge. Read Operating & Maintenance Instructions.
7. Parts damaged by over-speeding, or overheating caused by grass, debris, or dirt, which plugs or clogs the cooling fins, or flywheel area, or damage caused by operating the engine in a confined area without sufficient ventilation.
8. Engine or equipment parts broken by excessive vibration caused by a loose cutter blades unbalanced blades or loose or unbalanced impellers, improper attachment of equipment to engine crankshaft, over-speeding or other abuse in operation.
9. A bent or broken crankshaft, caused by striking a solid object with the cutter blade of a rotary lawn mower, or excessive v-belt tightness.
10. Routine tune-up or adjustment of the engine.
11. Engine or engine component failure, i.e., combustion chamber, valves, valve seats, valve guides, or burned starter motor winding, caused by the use of alternate fuels such as, liquefied petroleum, natural gas, altered gasoline's, etc.

Warranty is available only through service dealers, which have been authorized by Eastern Tools & Equipment, Inc. Contact place of purchase or Eastern Tools & Equipment, Inc. for Service Dealer near you.

CALIFORNIA & USEPA EMISSION CONTROL WARRANTY STATEMENT

The U.S. Environmental Protection Agency (EPA), the California Air Resources Board (CARB) and Eastern Tools & Equipment, Inc. are pleased to explain the Federal and California Emission Control System Warranty on your 2003 small off-road engine. In California, new small off-road engines must be designed, built and equipped to meet the State's stringent anti-smog standards. Eastern Tools & Equipment, Inc. must warrant the emission control system on your small off-road engine for the periods of time listed above provided there has been no abuse, neglect or improper maintenance of your small off-road engine.

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

Where a warrantable condition exists, Eastern Tools & Equipment, Inc. will repair your small off-road engine at no cost to you including diagnosis, parts and labor.

OWNER'S WARRANTY RESPONSIBILITIES

As the small off-road engine owner, you are responsible for the performance of the required maintenance listed in your Owner's Manual. Eastern Tools & Equipment, Inc. recommends that you retain all receipts covering maintenance on your small off-road engine, but Eastern Tools & Equipment, Inc. cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.

As the small off-road engine owner, you should, however, be aware that Eastern Tools & Equipment, Inc. may deny you warranty coverage if your small off-road engine or a part thereof has failed due to abuse, neglect, improper maintenance or unapproved modifications.

You are responsible for presenting your small off-road engine to Eastern Tools & Equipment, Inc. distribution center as soon as a problem exists. 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 or to request warranty service you should contact either the place of purchase or Eastern Tools & Equipment, Inc., c/o Service Manager, Engine and Equipment Service Division, 12220 Rivera Road, Suite-B; Whittier, California 90606. Telephone 1-562-698-7500, or contact Eastern Tools & Equipment, Inc. through the Internet at <http://www.easterntools.com>

IMPORTANT NOTE:

This warranty statement explains your rights and obligations under the Emission Control System Warranty (ECS Warranty), which is provided to you by Eastern Tools & Equipment, Inc. pursuant to California law. Eastern Tools & Equipment, Inc. also provides to original purchasers of new Eastern Tools & Equipment, Inc engines. Eastern Tools & Equipment, Inc. Limited Warranties for New engines & other Equipment associated with the engine (Eastern Tools & Equipment, Inc. Products Warranty), which is enclosed with all New Eastern Tools & Equipment, Inc. engines and products on a separate sheet. The ECS Warranty applies only to the emission control system of your new engine. To the extent that there is any conflict in terms between the ECS Warranty and the Eastern Tools & Equipment, Inc., Warranty, the ECS Warranty shall apply except in any circumstances in which the Eastern Tools & Equipment, Inc. Product Warranty may provide a longer warranty period. Both the ECS Warranty and the Eastern Tools & Equipment, Inc. product Warranty describe important rights and obligations with respect to your new engine.

Eastern Tools & Equipment, Inc. at its location in Whittier, California can perform warranty service or any authorized service dealer near you. At the time of requesting warranty service, evidence must be presented of the date of sale to the original purchaser. The purchaser shall pay any charges for transporting the products to and from the place where the inspection and/or warranty work is performed. The purchaser shall be responsible for any damage or loss incurred in connection with the transportation of any engine or any part(s) thereof submitted for inspection and/or warranty work.

If you have any questions regarding your warranty rights and responsibilities, you should contact eastern Tools & Equipment, Inc. at 1-562-320-0231.

APPENDIX

PRODUCT REGISTRATION CARD			
<i>For more efficient customer service, please fill out the information below and mail to Eastern Tools & Equipment, Inc. Product Warranty and Registration Division, 12220 Rivera Rd, suite B; Whittier, CA 90606</i>			
Model No. _____	Engine Serial No. _____	Purchase Date ____/____/____	
Purchased from: <input type="checkbox"/> Retail location <input type="checkbox"/> Private Consumer <input type="checkbox"/> Other _____			
Name _____			
Location Address _____			
Telephone w/ area code _____		Purchase Price _____	
Purchased: <input type="checkbox"/> NEW or <input type="checkbox"/> USED			
Consumer Information:			
Name _____		Telephone w/ area code _____	
Street Address _____			
City _____	State _____	Zip Code _____	Suite or Apt No. _____
Province or Country _____			
Are you a: <input type="checkbox"/> Business or <input type="checkbox"/> Residence			
Product Usage Information:			
How often will you use this product?		<input type="checkbox"/> Everyday	<input type="checkbox"/> Periodically
		<input type="checkbox"/> Other _____	<input type="checkbox"/> Emergency use only
What type of application will you use this product in?			
<input type="checkbox"/> Heavy Commercial	<input type="checkbox"/> Moderate Commercial	<input type="checkbox"/> Light Commercial	<input type="checkbox"/> Tradeshow
<input type="checkbox"/> Heavy Residential	<input type="checkbox"/> Moderate Residential	<input type="checkbox"/> Light Residential	<input type="checkbox"/> Camping, backpacking
<input type="checkbox"/> Other _____			
IMPORTANT INFORMATION:			
It is critical to your warranty that the original point of sales receipt be retained by current consumer, and in order to comply with Eastern Tools & Equipment Product Warranty Statement you must return this registration card within 15 days of original purchase. Product warranty is valid from original date of purchase.			

List for comments from users

		Date of Manufacture	
Name of user		Model Number	
Address of user		Occupation	
Place of purchase			
Packaging conditions			
Operating conditions			
Parts Conditions			
Malfunction problem			
Opinions or suggestions			

Note: Please mail the above card to: ***Eastern Tools & Equipment, Inc.
12220 Rivera Rd, Suite B
Whittier, CA 90606***

EASTERN TOOLS & EQUIPMENT, INC.

TEL: 1-626-960-6299

FAX: 1-626-960-6244

WEB SITE:<http://easterntools.com>