



General power products

Water Pump

LC50ZB60-4.9C

LC80ZB30-4.9C

Owner's Manual



Thank you for purchasing a water pump.

Please reliably keep this Manual for your reference at any time.

This owner's manual is considered a permanent part of the engine and should remain with the engine if resold.

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This manual covers the operation and maintenance of water pump.

LC80ZB30-4.9C LC50ZB60-4.9C

The illustration in this manual bases on: LC80ZB30-4.9C, the illustration may vary according to type.

If problem should arise, or if you have any question about the pump, consult you authorized dealer.

Contents

Contents


1.SAFETY INFORMATION.....	1
2.COMPONENT IDENTIFICATION.....	3
3. BEFORE OPERATION CHECK.....	5
4. USE OF DIESEL ENGINE.....	6
5. OPERATION.....	10
6. MAINTENANCE.....	15
7. CHARACTERISTIC CURVE OF DIESEL ENGIN.....	20
8. TROUBLESHOOTING OF DIESEL ENGINE.....	21
9. STORAGE.....	22
10. TROUBLESHOOTING.....	23
11. SPECIFICATIONS.....	25



SAFETY INFORMATION

1. SAFETY INFORMATION

Safety of your and other people's health and property is of great importance to us, so please use water pump safely.

water pump is designed to give safe and dependable service if operated according to instruction.

Read the three types of important safety message in the warning labels, marks and this owner's manual carefully. Each safety message is preceded by a safety alert symbol  and one of three words: WARNING, CAUTION, or NOTICE.

 WARNING	Indicates a strong possibility that very serious injury could result if instructions are not followed.
 CAUTION	Indicates a strong possibility that minor injury could result if instructions are not followed.
NOTICE	Indicates that your generating set or other property may be damaged if instructions are not followed.

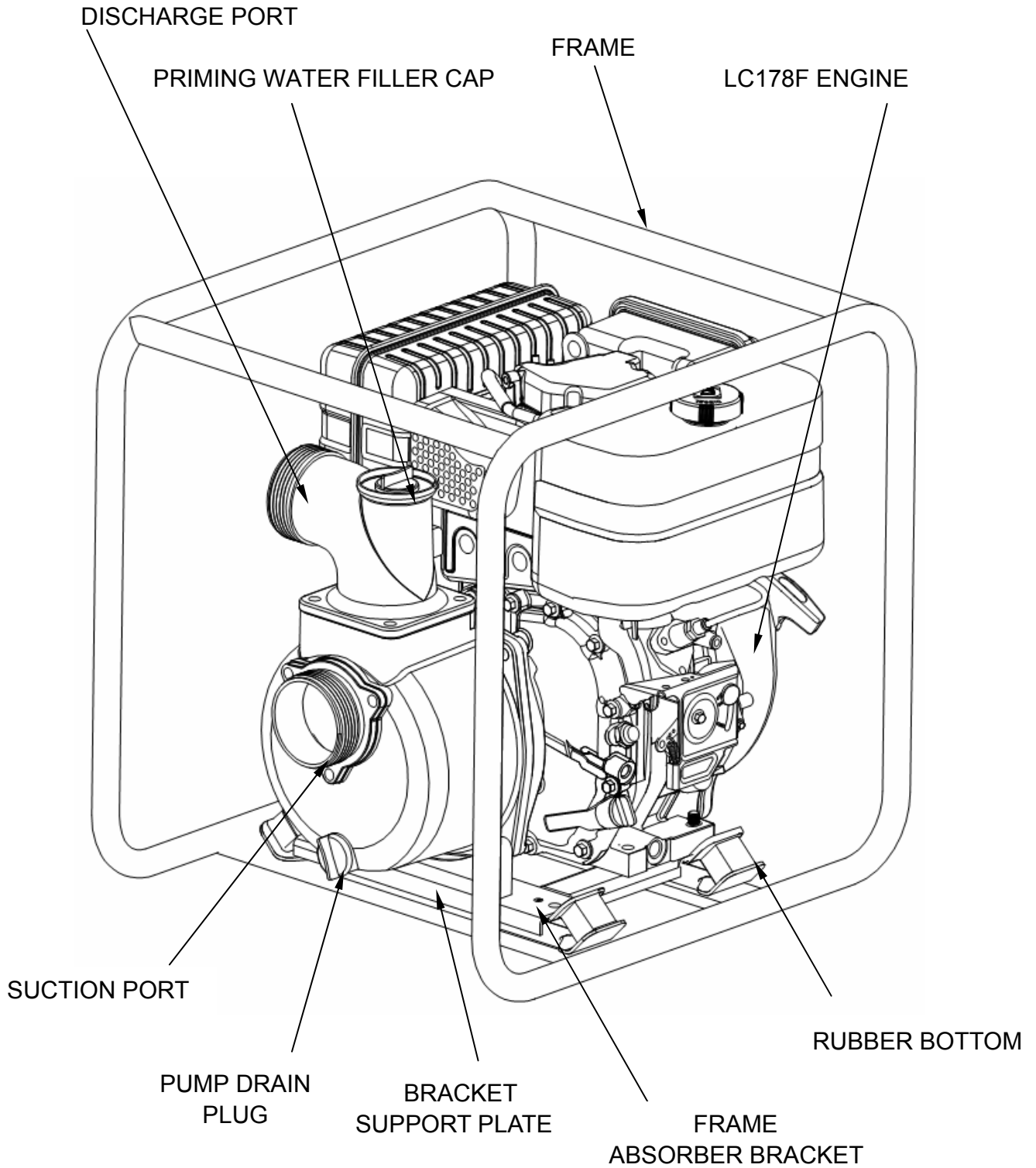
Read and understand the Owner Manual before operating the water pump. Failure to do so will result in personal injury or equipment damage.

SAFETY PRECAUTIONS

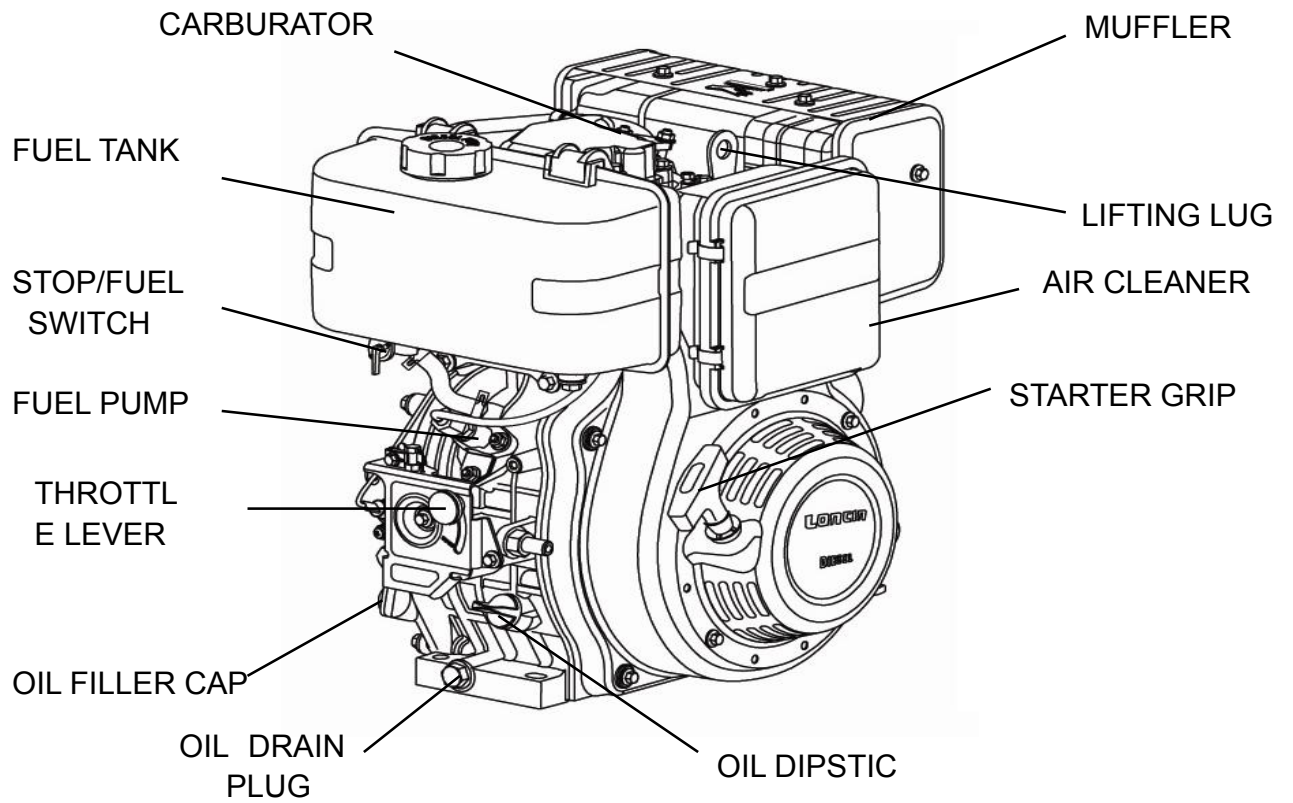
- For safety, never pump flammable and corrosive liquids such as gasoline and acid. Also, to avoid pump corrosion, never pump sea water, chemical solution, or caustic liquid such as used oil.
- To prevent fire hazards and to provide adequate ventilation, keep the pump at least 1 meter away from building wall and other equipment during operation. Do not place flammable objects close to the pump.
- The muffler becomes very hot during operation and remains hot for a while after stopping the engine. Be carefully not touching the muffler while it is hot. Let the engine Cool before storing water pump indoors.
- Gasoline is extremely flammable and is explosive under certain condition. Do not smoke or allow flames or sparks in the refueling area or where gasoline is stored.
- Place the pump on a firm, level surface. If the pump is tilted or overturned, fuel spillage may result.
- Refuel in a well-ventilated area with the engine stopped. Do not overfill the tank, if any fuel is spilled, make sure the tank is dry before starting. After refueling, make sure the tank cap is closed properly and securely.
- Never run the engine in an enclosed or confined area. Exhaust gas contains poisonous carbon monoxide gas; exposure can cause loss of consciousness and may lead to death.
- Children and pets must be kept away from the area of operation due to possibility of burns from the hot engine components.

COMPONENT IDENTIFICATION

2. COMPONENT IDENTIFICATION



COMPONENT IDENTIFICATION



BEFORE OPERATION CHECK

3. BEFORE OPERATION CHECK

LC80ZB30-4.9C /LC50ZB60-4.9C are designed for pumping clean water.

For your safety and maximizing the service life of your equipment, it is very important to take a few moments before your operation engine to check condition. Be sure take any problem you find, or have your servicing dealer correct it before your operation engine.

⚠ WARNING

- **Improperly maintaining this engine, or failure to take this problem before operation, can cause a malfunction which you can be seriously hurt or killed.**
- **Always perform a preparation inspection before each operation, and correct any problems.**

Exhaust gas contains poisonous carbon monoxide gas, never run the engine in an enclosed or confined area.

To prevent fire hazards and to provide adequate ventilation, keep the pump at least 1 meter away from building wall and other equipment during operation. Do not place flammable objects close to the pump.

Before preparing your operation check, be sure the engine is level and the engine switch is in the OFF position.

Check The General Condition Of The Engine

- Look around and underneath the engine for signs of oil or gasoline leaks.
- Remove any excessive dirt or debris, especially around the muffler and recoil starter.
- Look for signs of damage.
- Check that all shield and covers are in place, and all nuts, bolts and screws are tighten.

Check The Suction Hose And The Discharge Hose

The hose must be reinforced, noncollapsible, tighten the hose securely to prevent the hose from disconnecting under high pressure.

- Check the seal tightness.
- Check hose, hose connector and hose bands and be sure their connecting situation.
- Check strainer and be sure to be installed on the hose correctly.

USE OF DIESEL ENGINE

4. USE OF DIESEL ENGINE

(1) Engine Starting preparation

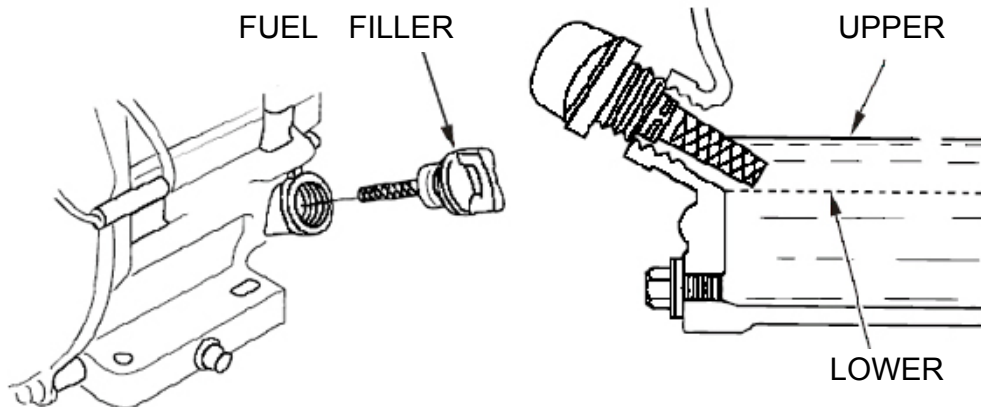
1) Check the General Condition of the Engine

- Look around and underneath the engine for sign of oil or fuel leaks.
- Look signs of damage.
- Check that all shields and covers are in place, and all nuts, bolts, and screws are tightened.

2) Check Oil

NOTICE Check the oil level after placing engine on a level place.

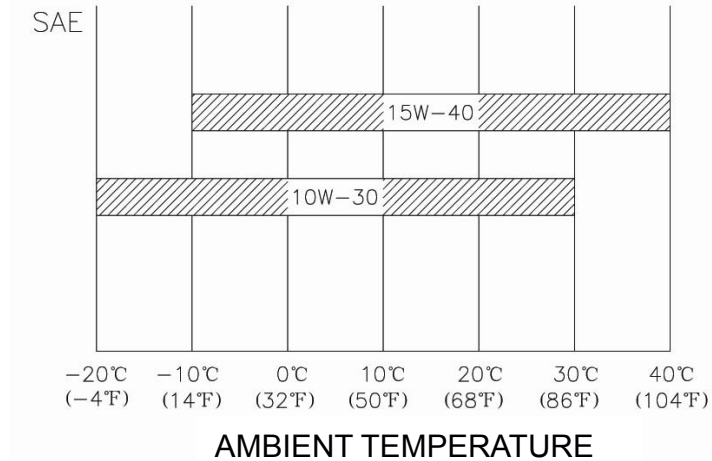
- Remove the oil filler cap and wipe it clean.
- Insert and remove the oil filler cap without screwing it into the oil filler neck. Check the oil level shown on the dipstick.
- If the oil level is too low or below the lower limit mark on the dipstick, fill with the recommended oil to the upper limit.
- Screw the filler cap/dipstick securely.



USE OF DIESEL ENGINE

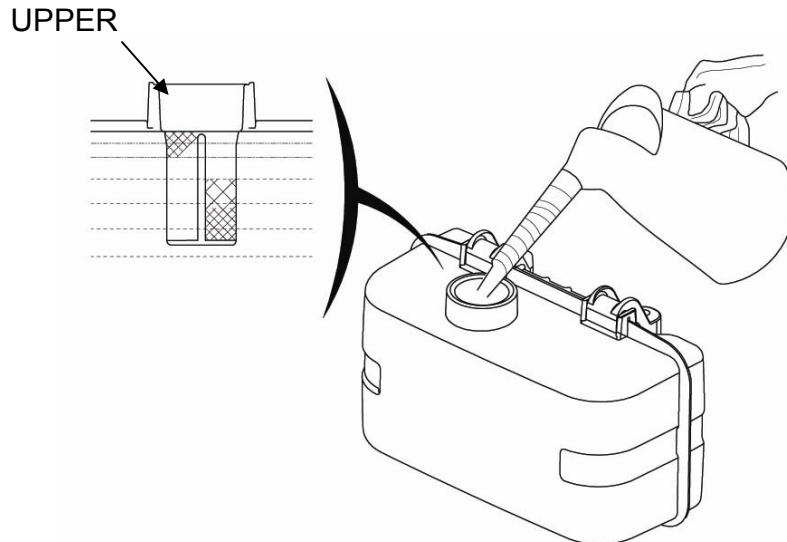
Recommended Engine Oil

Use engine oil that meets or exceeds the requirement of CC.
SAE 10W30、15W40



3) Check The Fuel

Remove the fuel tank cap and check the fuel level. Refill the tank if the fuel level is low. Tighten the fuel tank cap after refilling (Please use fuel according to environment and temperature).



⚠ WARNING

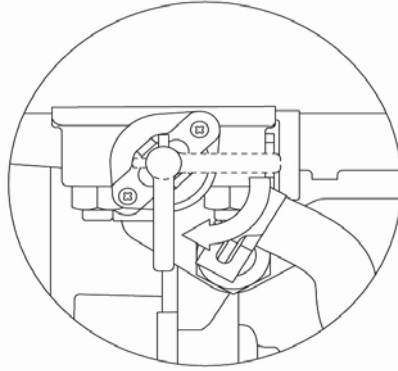
Please not fill gasoline. If you fill gasoline, starting engine may result in fire damage.

USE OF DIESEL ENGINE

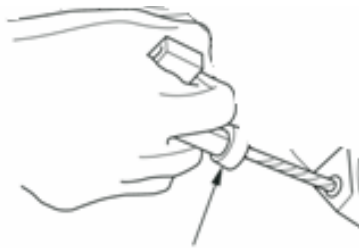
(2) Start Engine

1) Recoil Starter

① Move to the engine switch to the ON position.

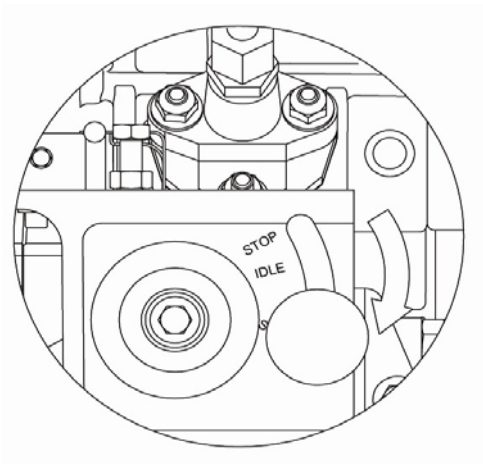


② Pull the starter 2-3 times to make output shaft turning several times.



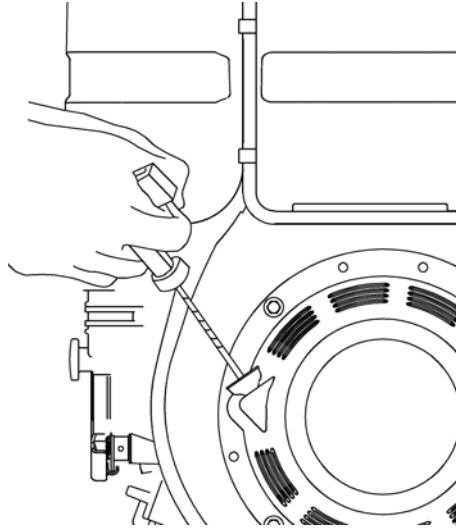
STARTER

③ Move to the control lever to the START position,



USE OF DIESEL ENGINE

④ Pull the starter grip lightly until you feel resistance, then pull briskly in the direction of the arrow as shown below.



NOTICE

**Do not allow the starter grip to snap back against the engine.
Return it gentle to prevent damage the engine.**

⑤ Please restart engine according to ④ if engine could not start.

OPERATIONS.

5. OPERATIONS.

To enhance the consciousness of safety, you need a thorough understanding of the operation of pump and had better master it through some practice.

Please read **SAFETY INFORMATION** (page 3) and **BEFORE OPERATION CHECK** (page 5) carefully if you never use pump before.

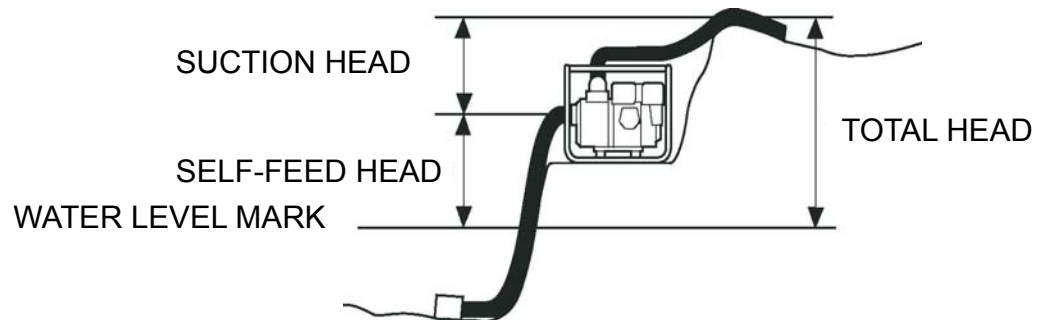
Never run the engine in an enclosed or confined area. Exhaust gas contains poisonous carbon monoxide gas; exposure can cause loss of consciousness and may lead to death.

For safety, never pump flammable and corrosive liquids such as gasoline and acid. Also, to avoid pump corrosion, never pump sea water, chemical solution, or caustic liquid such as used oil.

Place Water Pump

Suction hose should not longer than necessary, as pump performance is best when the pump is not far from above the water level.

Self-pumping quantity is also proportional to self-pumping time and hose length.



Install suction hose

- By using hose connector and hose bands, Install available suction hose on the suction port and screw the hose bands tightly. The suction hose must be of reinforced, noncollapsible construction.

- The diameter of suction hose must be larger than that of the suction port.

There are two types of diameter as below:

LC80ZB30-4.9C: 80mm;

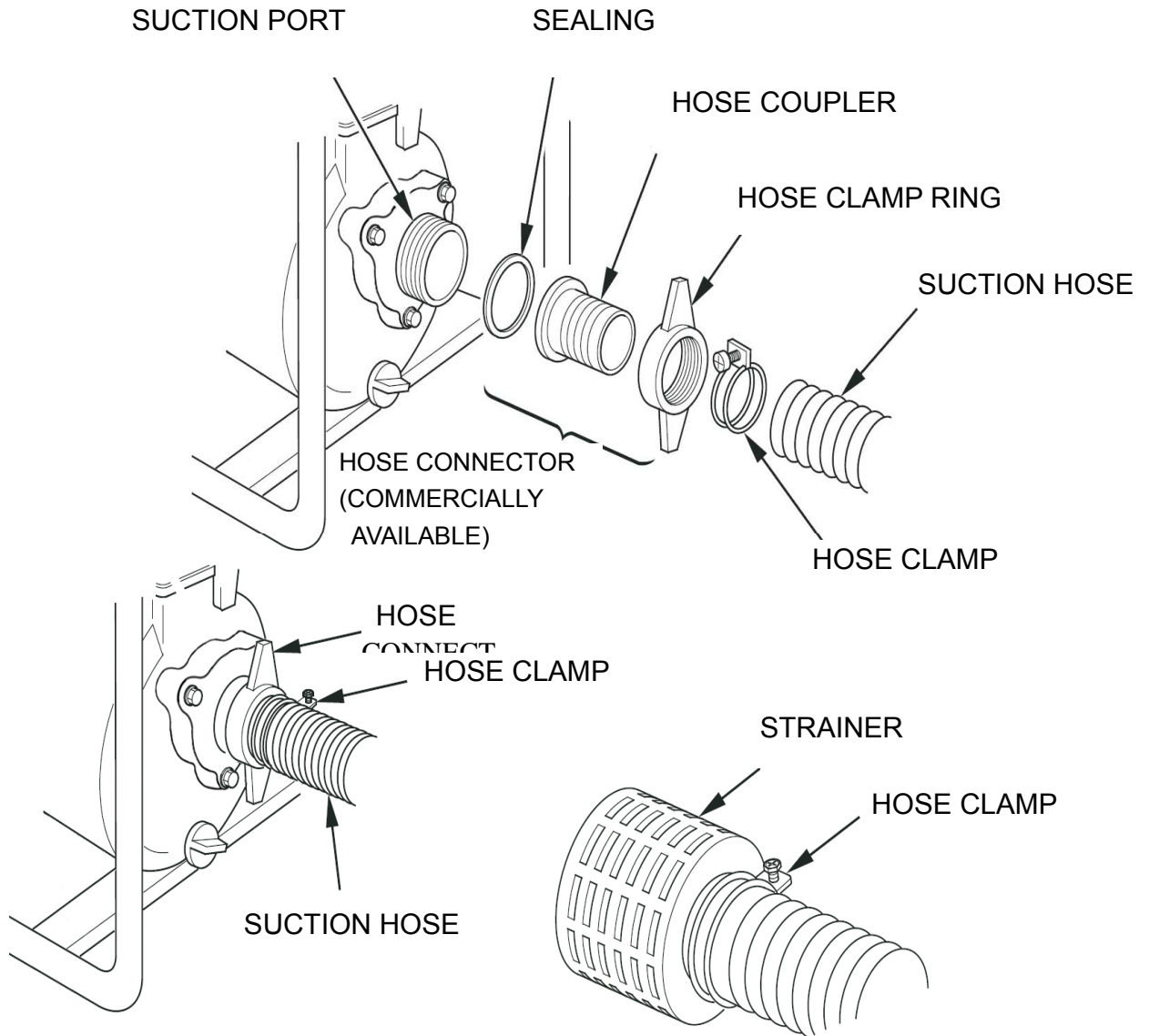
LC50ZB60-4.9C: 50 mm;

- By using hose band, connect hose on the hose coupler. Be sure sealing washer

OPERATIONS.

provided with pump should be in good condition in case of water leak and gas leak.

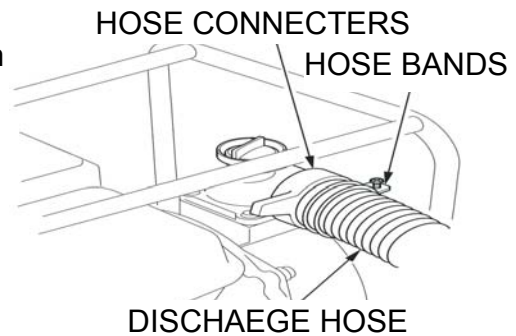
●Always install the strainer provided with pump on the end of the suction hose before pumping. The strainer will exclude debris that can cause clogging and impeller damage



OPERATIONS.

Connect the discharge hose

- By using hose connector and hose bands, Install available discharge hose on the suction port and screw the hose bands tightly. The discharge hose must be of reinforced, noncollapsible construction.



A short, large-diameter hose is most efficient, which can decrease fluid friction and reduce pump output.

- Tighten the hose band securely to prevent the hose from disconnecting under high pressure.

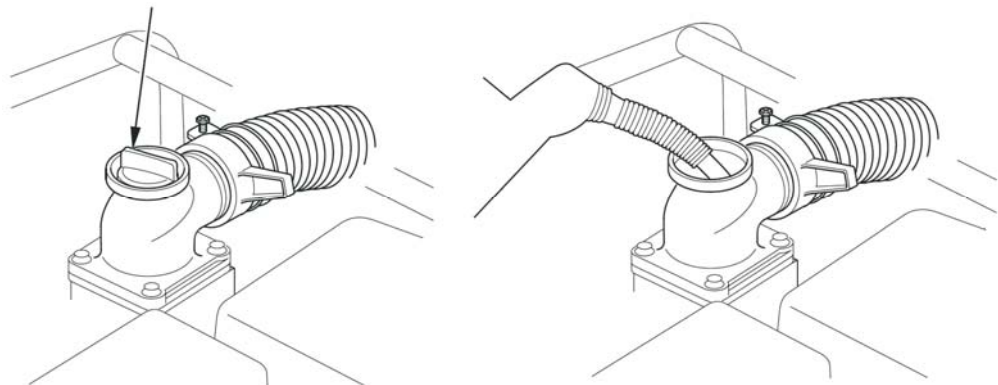
Add Water

Fill water for the pump before start engine, tap the priming water filler cap from output and fill clean water. After filling water, screw cap tightly.

NOTICE

If you start engine without filling water, it will break mechanical tightness (water pump tightness). please stop immediately, add water after waiting engine is cool.

PRIMING WATER FILLER CAP



OPERATIONS.

(3) Engine operate

- 1) Start the engine without load for 3 minutes, warm up the engine.
- 2) Set the throttle lever at the desired speed.

NOTICE

- The initial 20 hours breaking-in period for the engine in full load operation should be avoided. In order to test the engine, a 50% load operation is recommended. Then, please replace the oil inside the engine after a 20-hour operation.
- Please stop running the engine to check fault causes including any of those below conditions: irregular sound or vibration of engine, failing to operate smoothly, abnormal exhaust gases such as constant blue, white or black fumes.

⚠ CAUTION

- Don't operate the engine when ambient temperature is above +40°C or below -10°C.
- Operation of the engine at a high altitude may result in reduced performance, overheating and serious engine damage.

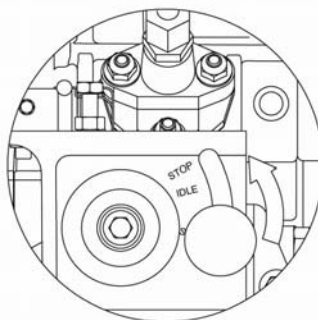
⚠ WARNING

- If the engine is running, don't touch the muffler because it will be very hot.
- Don't add fuel when engine operation.

(4) Stop the engine

- 1) Move the throttle lever to the MIN. Position before stopping the engine.
Operate the engine without load.

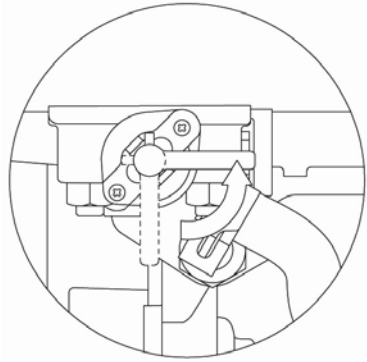
- 2) Turn the throttle lever to the !



OPERATIONS.

3) In electric starter type, turn the engine switch to the OFF position.

4) Turn the fuel valve to the OFF position.



5) Pull the starter grip until feel resistance

NOTICE

Don't stop engine briskly, that will result in unusual high temperature. Please reduce lode when engine stopped slowly.

Maintenance.

6. Maintenance

Periodic inspection and adjustment of the pump are essential if high level performance. The required service intervals and the kind of maintenance to be performed are described in below table.

	Each Use	20Hrs	100Hrs	200Hrs	500Hrs	1000Hrs
ITEM						
Check/Tight Bolt and Nut	○ (2)					
Check/refill engine oil	○ (2)					
Replace engine oil		○1st	○2nd and afterward			
Check oil filler (replace if it break)		○	○			
Check oil leakage	○(2) (3)					
Clean/Replace air cleaner element(paper)		(1)		○Clean	○Replace	
Check/Replace Fuel filter						○
Check Carburetor						▲
Check Fuel Pump						▲
Check Fuel Line					○	
Adjust Valve Clearance		▲ 1st			▲	
Check Valve Ring						▲
Change Piston Ring						▲
Check Battery	○ (2)					

Maintenance

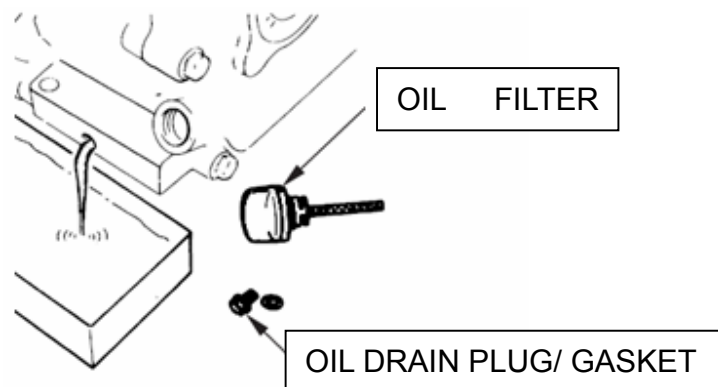
Note:

- (1) Service more frequently when used in dusty areas.
- (▲) These signs should be serviced by your service dealer, unless You have the proper tools and are mechanically proficient.
- (2) There items should be check or revise before use.
- (3) There items should be check or revise after use.

(1) Changing oil

Drain the oil while the engine is still warm to assure rapid and complete drain.

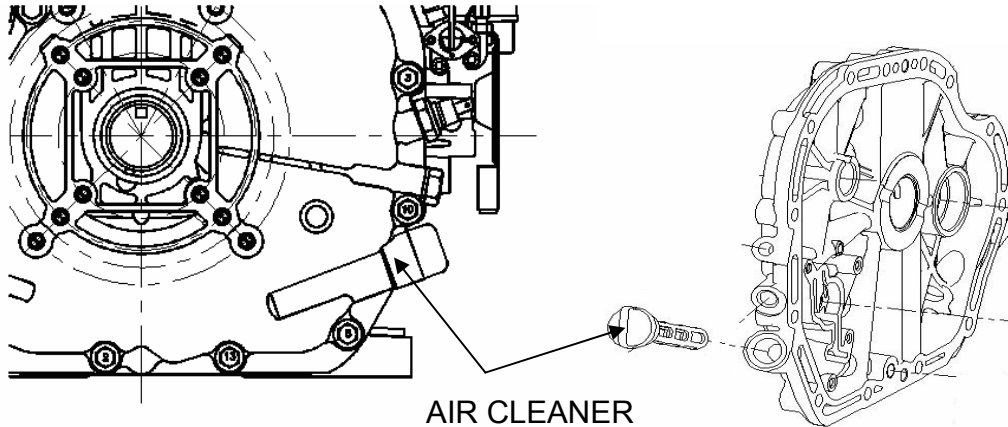
- 1) Place a suitable container below the engine, disassemble oil drain plug and sealing washer, and tap oil filler cap.
- 2) After draining the engine oil, install the drain plug and sealing washer and screw them tightly.
- 3) Place engine on a firm and level surface, refill the recommend oil to the specified level.
- 4) Please dispose of used oil in a manner that is friendly with environment. Do not throw it in the trash or pour it on the ground.



(2) Clean the air cleaner

Unscrew the wing nut, remove the air cleaner cover. Install back again after cleaning. Replace if there is broken

Maintenance



(3) Clean and Replace Air Cleaner Element

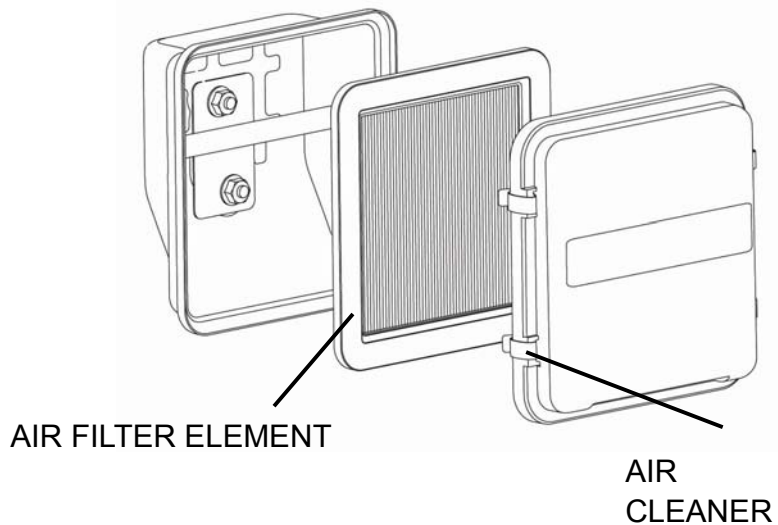
A dirty air cleaner element can cause engine starting malfunction.

NOTICE

Rapid engine wear result from running the pump without the air cleaner or element damage.

1) Paper air filter element

Remove the wing nut from the air cleaner cover, and remove the cover and air filter element (Tap the filter element several times on a hard surface, or blow compressed air through the filter element from the inside). Clean or replace dirty filter element. Always replace damaged filter element.



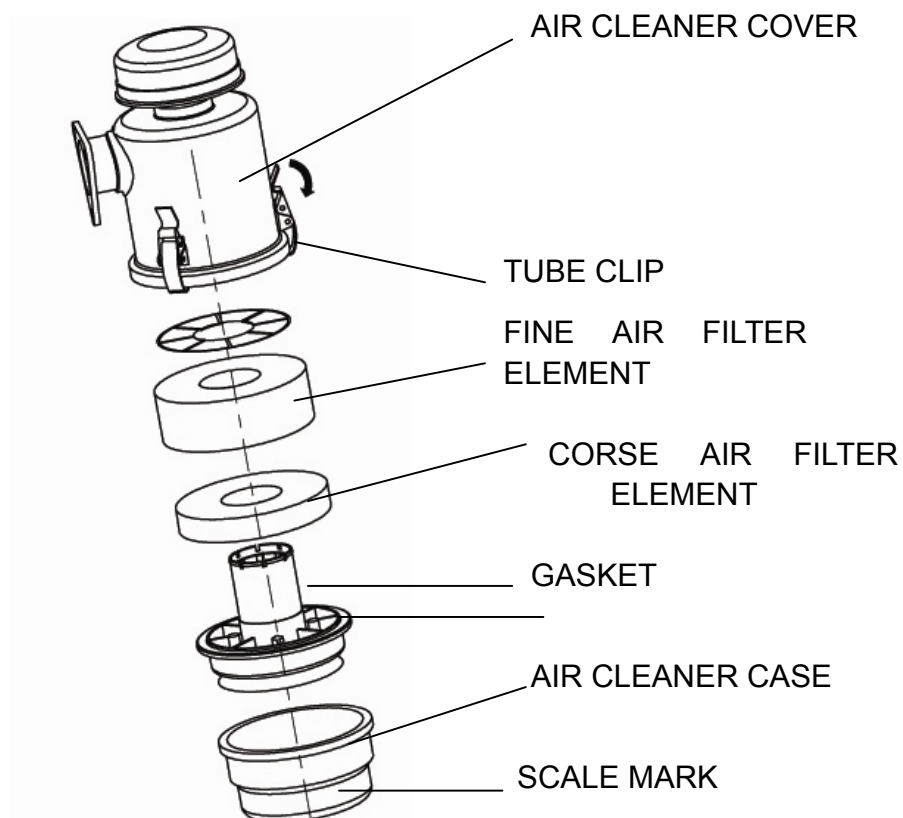
Maintenance

2) Oil bath air filter element

Please check diesel oil in the air cleaner case before operating engine.

When rock the air cleaner case, oil is not easy to flow, it's necessary to wash element. In general, engine can be used 50h successively after changing oil once. Be sure to check engine daily after operation in bad condition. Filter elements only need wash everyday.

- ① Waiting for more than 10min after stopping engine, remove the tube clip, and remove the oil pan and air filter elements.
- ② Drain the stale oil from air cleaner case and wash it.
- ③ Dip the filter elements in clean diesel oil to wash and rinse. Wash air cleaner cover if it is dirty.
- ④ Check the gasket if break.
- ⑤ Fill the air cleaner case to the OIL LEVEL mark with the same oil that is recommended for the engine.
- ⑥ Reassemble the air filter element, air cleaner case and tube clip



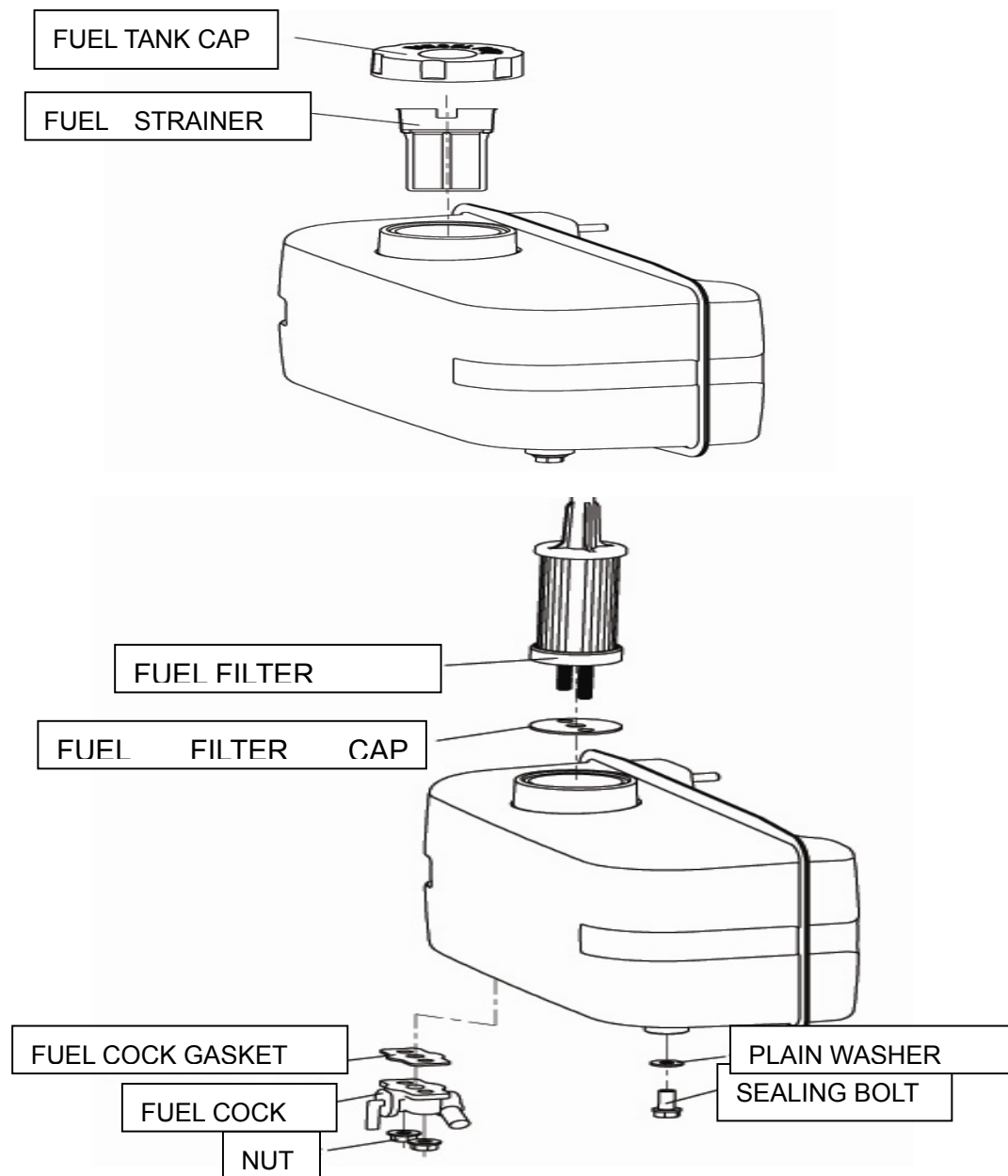
Maintenance

(4) . Clean the air filter elements and replace fuel strainer

1) Remove the fuel tank cap from fuel tank, then remove the fuel strainer and clean(Replace a new one if the fuel strainer was broken).

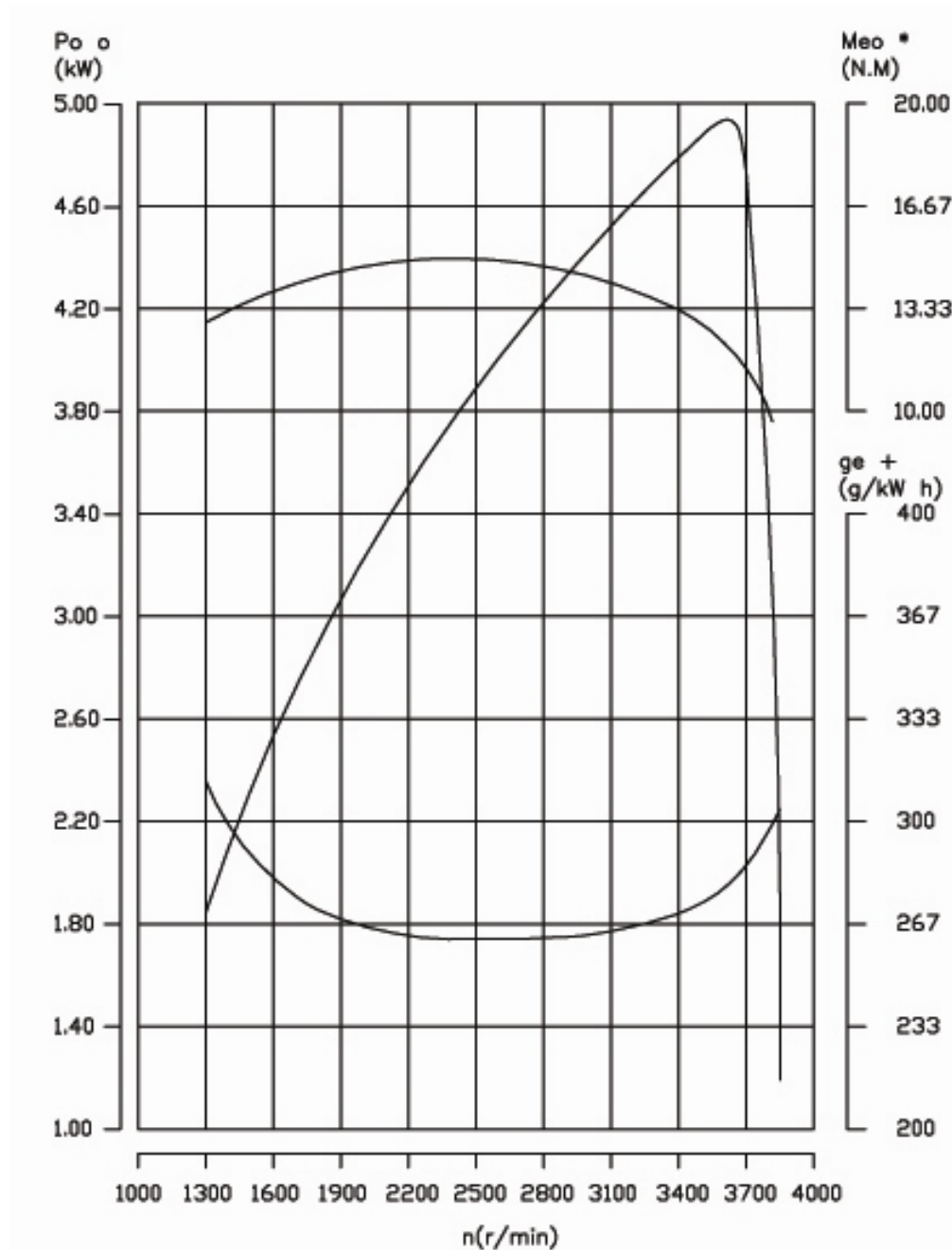
2) Remove the sealing bolt; drain the rest fuel from the tank. Then remove the two nuts below the fuel cock

3) Remove the fuel cock and the fuel cock gasket, remove the element .Replace a new fuel filter(change a gasket if it was broken).



CHARACTERISTIC CURVE OF DIESEL ENGINE

7. CHARACTERISTIC CURVE OF DIESEL ENGINE



TROUBLESHOOTING OF DIESEL ENGINE

8. TROUBLESHOOTING OF DIESEL ENGINE

(1) Engine Will Not Start

Possible Cause	Correction
No fuel	Add fuel
Add wrong fuel	Add recommended fuel
Fuel filter clogging	Change a new fuel filter
Carburetor poorly fuel misting	Clean/Check
Engine not work (electric start)	Check connecting wire
Battery discharged (electric start)	Charge

(2) Engine Lacks Power

Possible Cause	Correction
Check fuel system (air filter/other parts restricted)	Check fuel line /switch/filter (change if necessary)
Fuel pump poorly pumping fuel	Repair/Replace
Carburetor poorly fuel misting	Clean/Check
Air cleaner clogging	Clean/Check

(3) Engine exhaust black smock

Possible Cause	Correction
Overload	Reduce loads
Not suitable fuel	Replace recommended fuel
Poorly fuel support	Change a new carburetor
Lack air	Clean element, Check valve

STORAGE

9. STORAGE

1. Remove priming water filler cap, wash the inside of pump and screw cap again. If the engine is running, allow it cool for at least half an hour before cleaning. Wipe the surface of water pump.
2. Engine stop after running for 3 minutes in low speed.
3. Drain the oil while the engine is still warm to assure rapid and complete drain. Add new engine oil.
4. Gently pull up the starter grip until a resistance is felt, let inlet and exhaust valves in the "closed" state in case of mist into the cylinder. Return the starter grip gently.
5. Clean the dist and oil stain, put the water pump in a clean and dry area.
6. Clean all exterior surface, touch up any damaged paint and coat other areas that may rust with a light film of oil.
7. Cover the pump to keep out dust.

NOTICE

●Using pressure washing equipment can force water into the air cleaner or muffler opening, and water passing through them can enter the cylinder, causing damage.

●Let the engine cool before cleaning water pump. Because water vapor spilling on the hot engine will result in burns or fire hazards.

TROUBLE SHOOTING

10. TROUBLE SHOOTING

WATER PUMP

Pump can't pump water	Possible Cause	Correction
1. Check pump casing	Not add water	Add water
2. Check suction hose	Suction hose damage or hole	Replace suction hose
	Strainer not immerse into water completely	Immerse strainer/the end Of suction hose into water completely
	Check gas leakage on hose connecting point	Screw hose band tightly; Replace sealing washer if It lack or break
	Strainer clogging	Clean
3.Measure Pumping/Suction Head	Head too high	Adjust pump position and Head
4. Check engine	Engine lack power	Refer to " <i>Engine Lack power</i> "

TROUBLE SHOOTING

Flux Small	Possible Cause	Correction
1. Suction Hose.	Suction hose bent/damage/long/ small diameter	Replace suction hose
	Check gas leakage on hose connecting point	Screw hose band tightly, Replace sealing washer if It lack or break
	Strainer clogging	Clean
2. Discharge Hose	Discharge hose damage/long/ small diameter	Replace discharge hose
3. Measure Pumping/Suction Head	Reach a critical head	Adjust pump position and head
4. Engine	Engine lack power	Refer to " <i>Engine Lack power</i> "

SPECIFICATIONS

11. SPECIFICATIONS

ITEM	MODEL	LC80ZB30-4.9C	LC50ZB60-4.9C
WATER PUMP	Length (mm)	570	
	Width (mm)	490	
	Height (mm)	550	
	Dry Weight (kg)	52.5	55
	Dia. of suction port	80 mm (3 in)	50mm (2 in)
	Dia. of discharge port	80 mm (3 in)	50 mm (2 in)
	Max suction head(m)	6	6
	Max.head (m)	30	60
	Max. flux (m ³ /hr)	60	30
ENGINE	Type	LC178F	
	Displacement(c)	349CC	
	Nominal Power (kW/3600rpm)	4.9	
	Fuel tank capacity	3.5L	
	Oil capacity	1.1L	

The power rating of the engine indicated in this document is the net power output tested on a production engine for the engine model and measured in accordance with SAE J1349 at 3,600rpm (Net Power). Mass production engines may vary change from this value.

Actual power output for the engine installed in the final machine will vary depending on numerous factors, including operating speed of engine in application, environmental conditions, maintenance, and other variable.

SPECIFICATIONS

Main Bolt and Nut Torque

No.	PARTS NAME	Description	TORQUE (N.m)
1	Pivot Bolt	M8 8.8 Level	30±2
2	Pivot lock nut	M6x0.75 8.8 Level	10±1
3	Rod connecting bolt	M7x38.5 10.9 Level	30±2
4	Flywheel bolt	M12x40 8.8 Level	80±2
5	Cover bolt	M8x35 8.8 Level	22±2
6	Muffler nut	M8 8.8 Level	25±2
7	Drain bolt plug	M16x1.5 8.8 Level	30±5
8	Head cover bolt	M6x25 8.8 Level	10±1
9	Cylinder head bolt	M10x90 10.9 Level	58~62
10	Fuel pump nut	M6 8.8 Level	11±1
11	Carburetor nut	M6 8.8 Level	8±1
12	Muffler sonar dome bolt	M6x25 8.8 Level	10±1
13	Fan cover bolt	M6x30 8.8 Level	10±1
14	Air cleaner bolt	M8 8.8 Level	25±2
15	Fuel tube (Fuel pump side)	M12x1.5	35±2
16	Fuel tube (Fuel strainer side)	M14x1.5	35±2

Those unwritten bolts and nuts torque value, please refer to Torque Value Standard



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