

Water Pump Manual

DURABLE

By IDH



RDP20,RDP20E

RDP30,RDP30E

RDP40,RDP40E

Brief Introduction

Thanks for purchasing our products.

Our high quality diesel water pump is centrifugal self priming type of water pump.

Its matching diesel engine is air cooling, direct injection, single cylinder, 4 stroke engine. The characteristics of water pump is small dimension, light weight, compact structure, and easy to use. It is ideal tool for irrigation and drainage.

Our water pump has wide application in many different areas, such as agricultural, industry, fire control, construction and fishery, gardening.

This manual will help you know how to operate and maintain new water pump. Please read carefully before operation. To operate machine in best condition can prolong life of it.

Please be noted that the actual product maybe different from this manual due to continuous improvement of it.

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1. Safety notice

1.1 Items for safety operation

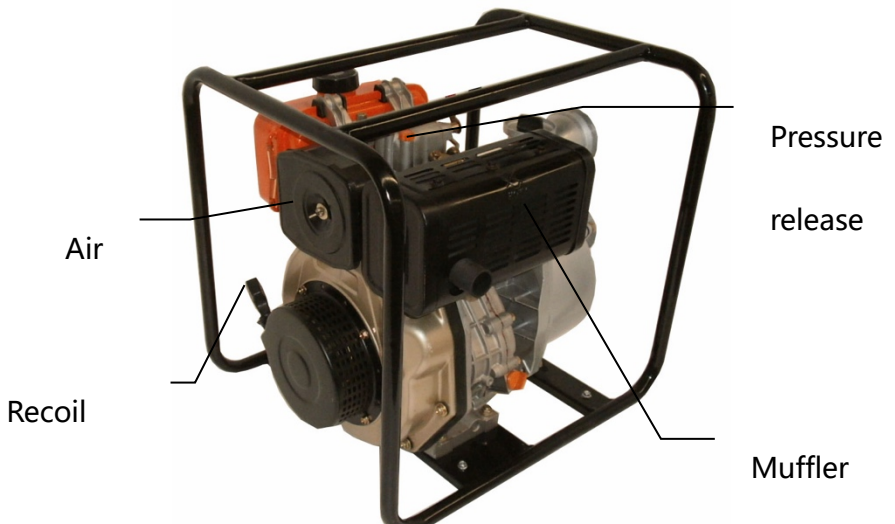
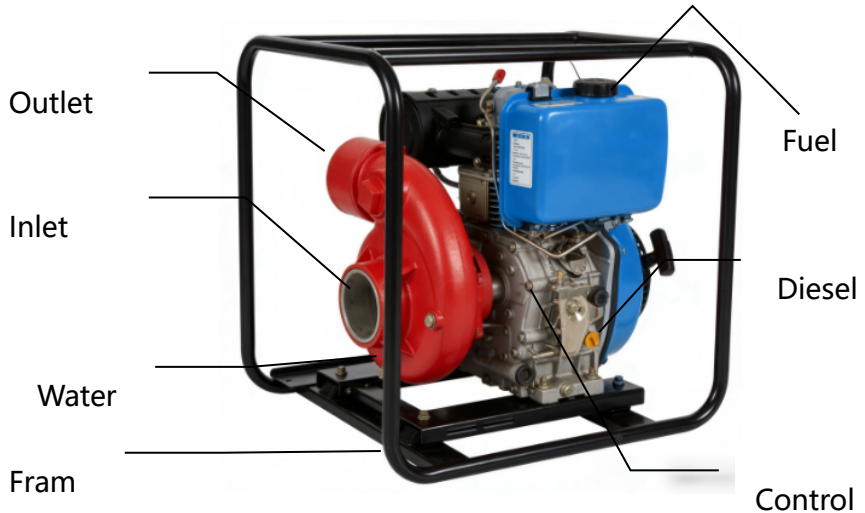
- Before operation of water pump, please read carefully this manual and understand its contents, if not, it may cause injury or damage to the machine.
- 1.1.1 Before starting of engine, make sure to do pre-check so as to avoid injury or damage to machine.
- 1.1.2 To prevent from fire, make sure to put the machine in well-ventilated place. Do not cover anything on the engine. During operation, make sure the water pump is at least one meter away from the wall or other equipments. Do not put inflammable items beside the engine.
- 1.1.3 For safety's sake, do not pump inflammable or corrosive fluid, such as gasoline or acid. Likewise, do not pump dusty water, sea water, chemical or alkalescent fluid, such as used oil, wine, or milk product.
- 1.1.4 Put water pump on solid and level ground. If it inclines or turns over, it will cause leakage of fuel.
- 1.1.5 Children and pets must keep away from operation area, so as to prevent from being scald by engine parts or being hurt by rotation parts.
- 1.1.6 Understand how to stop water pump immediately, and how to use it. It is prohibited to operate it without operation manual.

1.2 Operations to ensure safety operation

- 1.2.1 When adding fuel to water pump, make sure it is far away from inflammables. Do not fill too full in the fuel tank, there shouldn't have fuel at the neck of the fuel tank filling place. Put water pump at level place, so as to avoid diesel to split out.
- 1.2.2 Use clean fuel. Before usage, filtrate fuel or keep it for more than 24 hours. When machine is running, do not add fuel into fuel tank or add oil into crankcase.
- 1.2.3 There is poisonous carbon monoxide in emission gas, therefore, make sure use it in well-ventilated place, so as to avoid influence to people or livestock.
- 1.2.4 When the machine is in operation or just finish operation and it is still hot, please do not touch the muffler and its cover.
- 1.2.5 First 20 hours of usage and maintenance for the new machine, please run it with low speed and low load, rather than high speed and full load.

2.Diesel water pump structure and introduction

2.1 Main structure for the water pump



2.2 Diesel water pump structure and introduction

Diesel water pump is composed of diesel engine and water pump parts. Water pump is fixed at a frame with vibration rubber cushion.

Self priming water pump is composed of pump body, pump cover, impeller, impeller cover, seal etc. Shaft seal adopts mechanical seal. Pump inlet is at the center of the impeller rotation. Due to the negative pressure caused by the impeller rotation, the water is sucked into pump body. Impeller rotation generates negative pressure which can cause water to get into pump body, therefore, it can have self priming effect. Users only need to fill pump body with water first. At the inlet of the water pump, there is a one-way valve. After the machine stops operation, it can prevent water in pump body from being siphoned into water pool, thus pump body can store enough water to be used in next time starting.

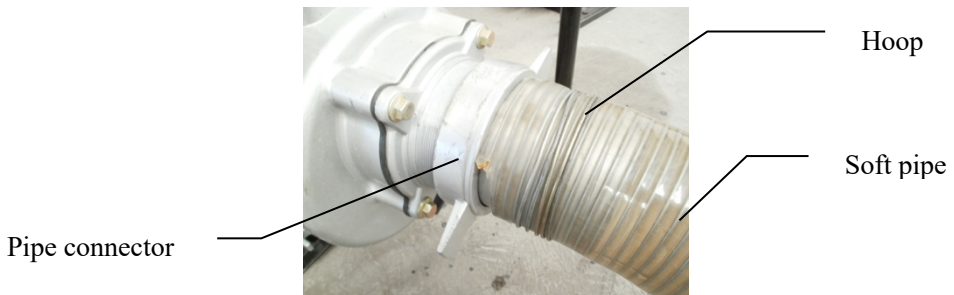
Self priming pump impeller cover and impeller are made of high strength cast iron. Therefore, it has wide application area.

3. Operation instruction

3.1 Operation main points

3.1.1 Soft pipe connects with water inlet and outlet pipe must be tight and reliable, and without any leakage. Water inlet pipe must not have distortion during work.

Notice, soft pipe should cover all screw thread and tighten it with hoop. See picture below.



3.1.2 Water inlet pipe should have a filter to avoid dust getting into water pump and stick to or damage impeller.

3.1.3 Fill water into water pump until it spills out.

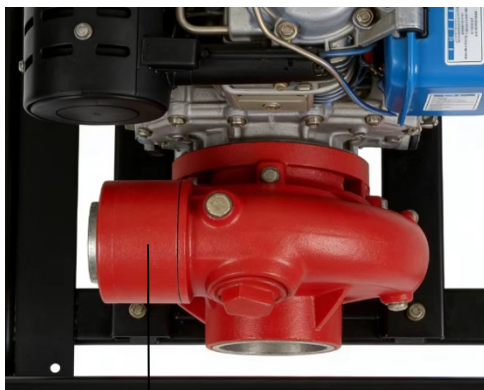
3.1.4 When water pump is not filled with water, please do not operate it.

3.1.5 Get rid of dust inside water pump.

3.2 Starting

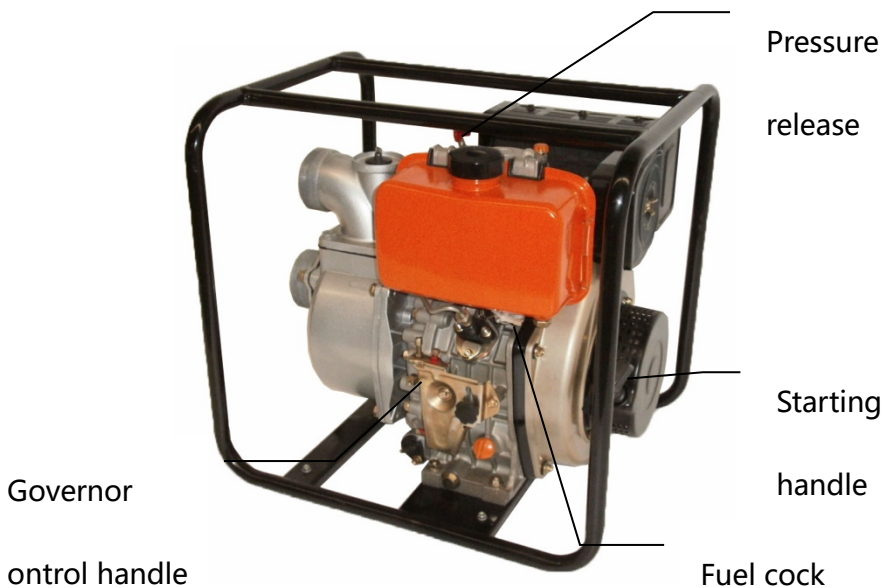
3.2.1 Add water

When starting water pump, add enough water inside pump body and pipe. See picture in the right.

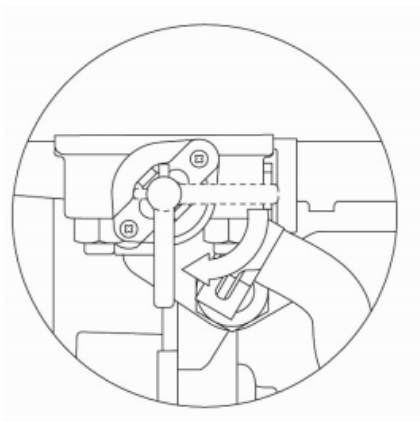


Water-filling

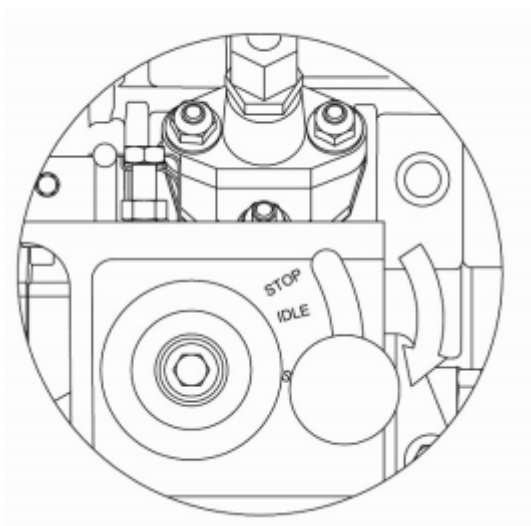
3.2.2 Start engine



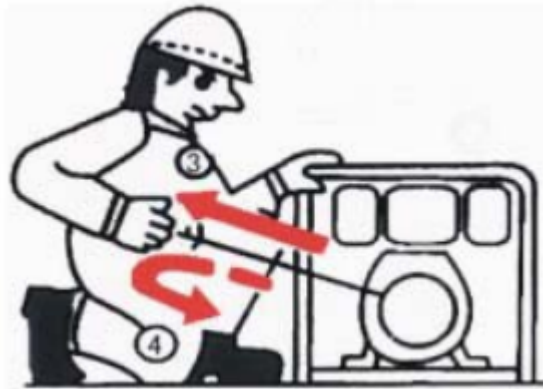
1. Open fuel cock.



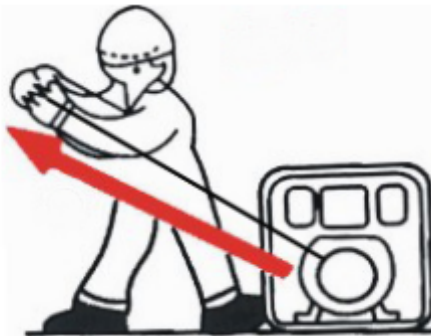
2. Adjust governor control handle bar to position of “START”, and tighten it.



3. Press down pressure release valve, and pull recoil starter.
- Pull recoil starter until the resistance is felt, and then put the hand back to previous position.
 - Put the pressure release valve to the position where has no compression. After the start of diesel engine, pressure release valve will restore to its previous position automatically.



- c. Start: Hold recoil starter handle bar and pull it until resistance is felt and then pull the rope rapidly.



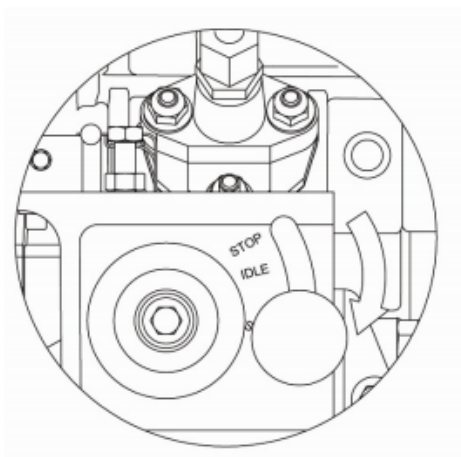
- d. If the engine is not started, start from action “③” and repeat it

again.

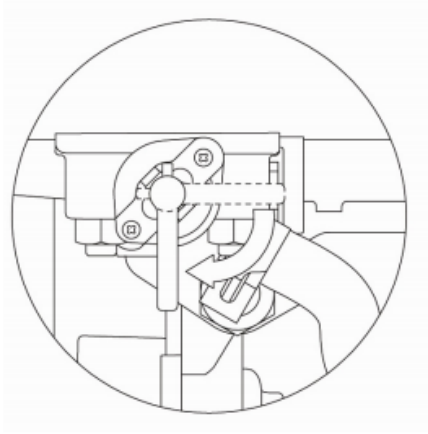
After start, put recoil handle bar back lightly, and do not let it spring back suddenly.

3.3 Stop

1. Before the engine stops, move the engine governor handle bar to its lowest rotation speed position, and then run the engine without load for 3 minutes.
2. Adjust governor handle bar to “STOP” position.



3. Put fuel cock back to close position.



4. Pull slightly recoil starter handle bar until pressure is felt.

When engine stops, reduce its load gradually, do not stop engine suddenly, otherwise it will cause temperature to rise abnormally.

3.4 Operation knowledge

3.3.1 Theoretically, pressure and water pump suction will decrease proportionally to the increase of altitude. Decrease value can be estimated through the decrease of local atmospheric pressure (1 atmospheric pressure equals about 10 meters water column) .

3.3.2 Straight and short pipe can reduce unnecessary resistance loss. Pipe must reasonably fixed so as to avoid vibration and damage to the water pump. Before operation, operator must check and see if the hoop which connects water pump and pipe is loosen. Specially pay attention to water inlet pipe and see if it leaks.

3.3.3 Water inlet filter and water surface, river and riverbank

must keep certain distance, so as to avoid air gets into it. The distance between filter and water surface should not be less than 0.3m, so as to avoid small stone or dust to get into it. The distance between filter and river bank and river surface should not be less than 1.2m.

- 3.3.4 When using water pump in winter, in order to avoid water pump to get damaged due to freeze. When machine stops running, unscrew water drainage plug at the pump bottom, drain all water inside the pump, so as to prevent from freeze to damage water pump.

4. Main performance specifications

Diesel water pump specifications

Self priming water pump	Model	RDP20	RDP30	RDP40
	Inlet (mm)	50	80	100
	Outlet (mm)	50	80	100
	Discharge (m ³ /h)	35	50	105
	Lift (m)	63/85	70/88	45
	Time for self priming (s/5m)	≤60	≤120	≤180
	Model	186F/192F diesel engine	186/192F diesel engine	192F diesel engine
Engine	Rated power (kw/rpm)	6.3/3600 8.5/3600	6.3/3600 8.5/3600	8.5/3600
	Displacement (mL)	418/498	418/498	498
	Fuel tank capacity (L)	5.5	5.5	5.5
Package	Net weight (kg)	67	72	80

5. Maintenance

Proper regular maintenance can prolong the life of machine. Please maintain according to below chart. With mark of  should be maintained by professionals. Please contact local dealer.

Warning

Please do not do maintenance work when machine is running.

5.1 Items for maintenance

Maintenance items

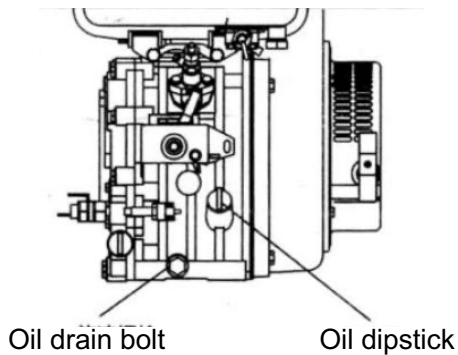
Interval time Items	Daily	20h	100h	200h	500h	1000h
Bolt and nuts check						
Fuel and oil check						
Change oil		 First time	 Second time			
Clean oil filter						
change air filter element						
Fuel injection nozzle check						
Fuel injection pump check						

Intake valve, exhaust valve distance check						
Intake valve seat, exhaust valve seat check						
Change piston ring						
Impeller gap						

5.2 Method of maintenance

5.2.1 Change oil

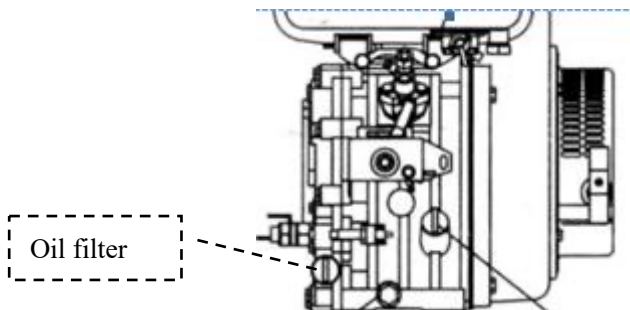
When diesel engine is still hot, take down oil-drain bolt to drain old oil, and then fill in the kind of new oil as shown below:



Temperature	Oil spec.	No. of Oil
Above 20°C (Summer)	Above CC great	SAE30
10°C-10°C(Spring, autumn)		SAE20
Below 10°C (winter)		SAE10W-30

5.2.2 Clean oil filter

Unscrew bolt and take out oil filter to clean

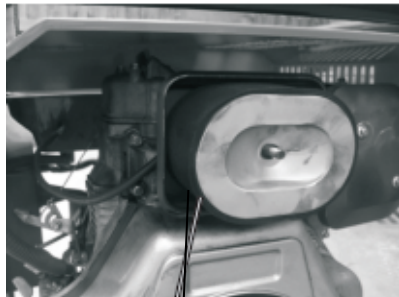
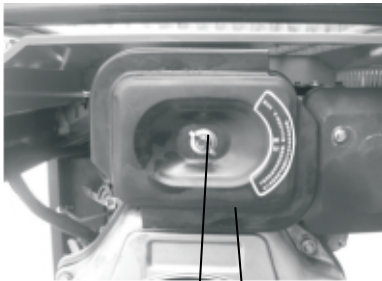


5.2.3 Change air filter element

If air filter element is too dirty, it can cause starting difficulty, lack of output power or emission deterioration. Do not run engine when the filter element is damaged or when there is no air filter, otherwise, it can faster abrasion of the engine.

Change method:

Unscrew butterfly nut, take off air filter cover and element. If the element is dirty, clean it by patting it lightly or blow it by compressed air from inside to outside. If it is damaged and too dirty, change a new one.



Butterfly
nut

Air filter cover

Air filter element

6. Trouble shooting

Problems	Cause	Trouble shooting measures
Can't Pump Water	Lack of water	Fill in water again
	Water inlet pipe entrance leakage	Check water inlet entrance and connector, change pipe or tighten screw
	Pump speed too low	Check rotation speed and find reason
	Filter jam	Check and clean filter
	Pump can't pump water	Check pump mounting position
	Seal damage leaks air	Change mechanical seal components
Not enough flow	Filter, pipe and impeller jam	Clean jam place
	Rotation speed too low	Adjust the rotation speed to be higher
	Serious abrasion of the oil seal impeller	Clear up abrasion slice, or change impeller and mechanical seal
	Water inlet pipe crack	Check water inlet pipe and connector, change pipe or bolt
	Impeller damage and leaks	Change impeller
	Lift is too high, water gets into water pump or inlet pipe, seal leaks air	Find reason and clear up. Unscrew bolt which leaks air, and exclude air. Check pipe or change seal.
	Engine speed not stable	Adjust speed
Pump consume too much power	There is friction between impeller and pipe connector	Listen carefully of the sound, and see if the impeller has been collided and needs adjustment.
	Impeller has been jammed by impurities	Check and clean impeller
Sudden no water out	Water inlet pipe connect is loose or leaks	Check water inlet pipe
	Suction too high, there is air pocket	Check suction, lower water pump position
Vibration and	Suction too high, there is air pocket	Check suction, lower water pump position

n o i s e	Water amount is too big	Reduce water amount
	Water inlet is jammed, resistance is too big	Check and clean water inlet pipe and filter
	Rotation part is loose	Listen carefully and check source of noise, stop the machine and adjust
	There is air inside pump or pipe	Unscrew air emission cover, and exclude air
	Impeller is damaged	Stop running and change new impeller

7. Parts category and its main problems

Class	Name of parts	Main problems of spare parts
Easy broken parts	Air filter element, air valve adjusting bolt, nut, all kinds of clips, power wire, trimming governor spring On/off switch, pump connector and entrance (aluminum or plastic) , water outlet pipe, water inlet pipe, water inlet filter	Deterioration, aging or damage
	Standard parts, recoil starter rope, seal parts (paper washer, oil seal) , and water seal	Broken and lose effectiveness
Normal parts	Water draining plug, fuel cock, spring	Parts quality problem causes damage or lose effectiveness
Main parts	Bottom valve, pump cover, pump body, impeller, impeller cover, muffler, recoil starter assembly	Crack caused by assembly, air hole, and sand hole which cause leakage of oil, crack and lose effectiveness
Appearance parts	All appearance quality problems	Surface aging and fall off, scratch but not affect its performance