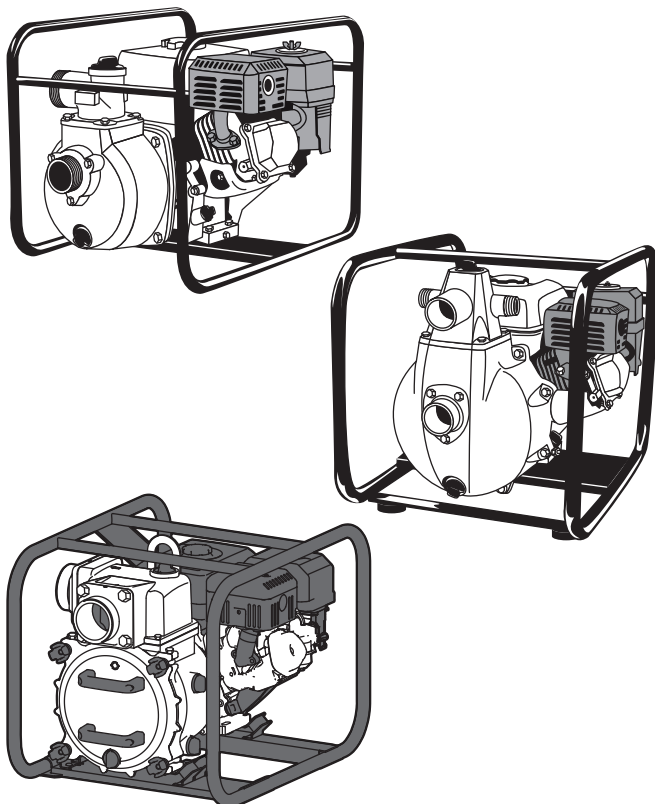


# KOSHIN



## ENGINE DRIVEN PUMP

### OPERATION MANUAL

#### Applications

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##### Water transportation

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Do not use it for any purpose other than its intended purpose.

Thank you for purchasing this product.

- Read this manual carefully before using the product.
- Store the manual once you have finished reading it.
- Those who do not understand the content of this operation manual should not operate the product.
- If you lend this product to another person, explain how to use the product and instruct them to read the operation manual carefully.

Please note that the illustrations and content in this operation manual may differ to the actual product due to changes to the specifications.

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## KOSHIN LTD.

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**SPARE PARTS**

For spare parts information, visit

[▶ Service & Supports](#)

→ [▶ Parts List](#)

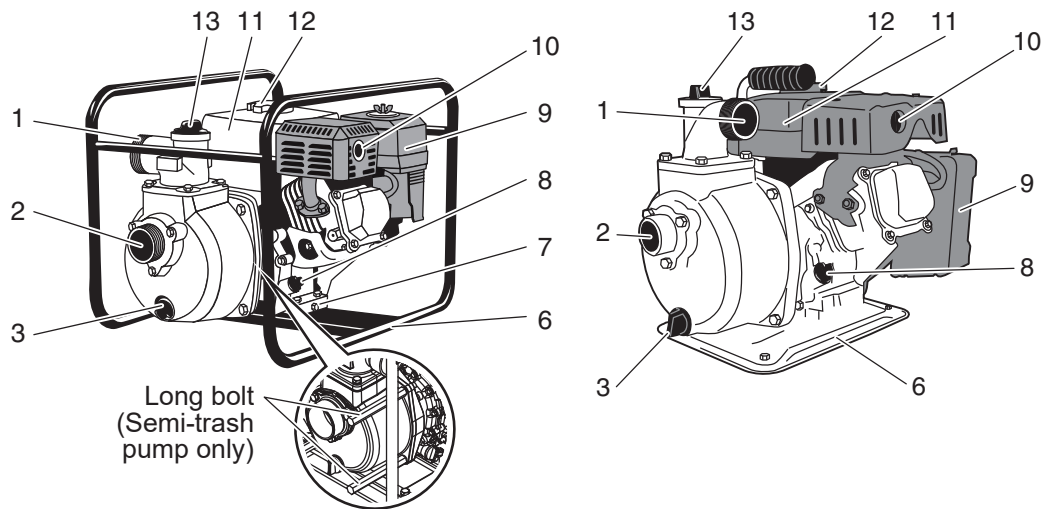
Click

23-09 012368501(EN)  
Original instructions

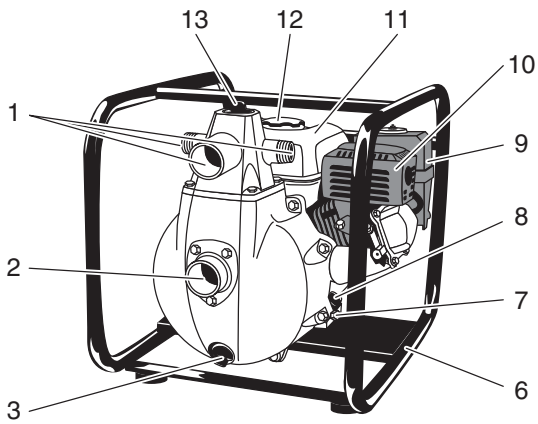
# NAME OF PARTS

1	Discharge port
2	Suction port
3	Water drain plug
4	Knob
5	Impeller removing plug
6	Frame / Base
7	Oil drain plug
8	Oil filler cap / dipstick
9	Air cleaner
10	Muffler
11	Fuel tank
12	Fuel filler cap
13	Priming water filler cap

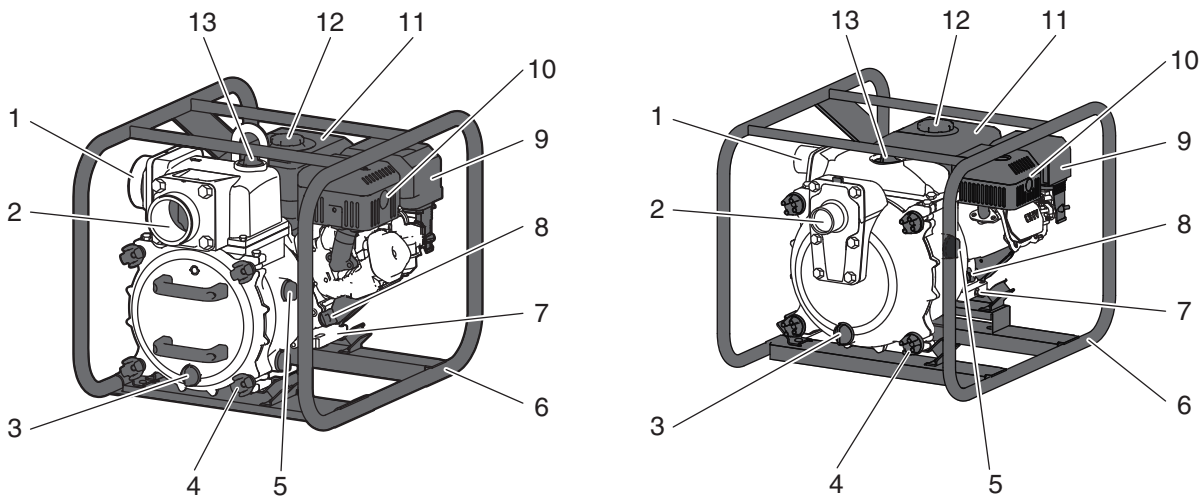
## ■ Centrifugal pump (Hidels pump), Semi-trash pump



## ■ High pressure pump



## ■ Trash pump



# SAFETY PRECAUTIONS

Read and understand this manual completely before operation.

Below information should not be neglected for proper use of this product.

Your understanding can prevent harm or danger to user or others.

Following information is very important for safety in handling this product. Be sure to observe them.



## DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



## WARNING

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



## CAUTION

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

■ Other indications: **NOTICE** ...Indicates the correct way to operate the product, and notes on inspection and maintenance.



## DANGER

Never use the engine indoors. Take special care of ventilation. Beware of CO poisoning.

Keep inflammables at least 1 m (39.4 in) away from the exhaust outlet.

In case of operating pump in a well or in a hollow, the person operating the pump must **not enter the small space** as there is danger of gas poisoning.

Never refuel while smoking or in the vicinity of an open flame.



## WARNING

**Do not use pump on slope.**

Fuel spillage at tank cap or carburetor may cause fire.

Before refueling, be sure to stop the engine.

After refueling, make sure the tank cap is tightened securely.

**Do not overhaul or repair, except by person who is trained to do so.**

As this product is heavy, you may be injured if you drop it on your feet or hurt your back when moving it, so use several people to move it.

**Keep children away from pump when in operation.**

## SAFETY PRECAUTIONS

### CAUTION

- Don't touch the engine when it is hot.
- Avoid touching the engine and muffler with any part of your body or clothing during inspection or repair, while they are still hot.
- Pump failure will occur if the suction strainer is not properly fitted. The strainer keeps the size of the suspended solids entering the pump to the predetermined size the pump has been designed to handle. The strainer should be installed in the position where water accumulates most easily. When installing on soft ground, such as gravel or sand, position wooden boards or blocks, etc. below the strainer to prevent it from sinking into the ground.
- Never run the engine if the ambient temperature is above 40 °C (104 °F) or below 5 °C (41 °F).
- Never run the engine if the humidity is over 80%.
- Avoid operating in the presence of chemical gases or fumes.
- Never run the engine in a hazardous area.
- Never run the engine if a sandstorm occurs.
- Never run the engine if an earthquake occurs.
- Avoid operating in the presence of machine that generates vibration.
- The engine should be used under an altitude of 1000 m.
- Never install the engine in a floodplain unless proper precautions are taken to avoid being subject to a flood.
- Follow the instructions for disposal in each country.

### NOTICE

- Clear water refers to water-supply water, well-water with no heavy filth (such as silt, clay, heavy mud). Also, it is not suitable for seawater.
- Seawater refers to water that contains salt.
- Sandy and muddy water (suspended solids) are defined as debris "floating" within the water. Also, it is not suitable for seawater.
- Trash Pumps/Semi-Trash Pumps are designed to pump water with up to 25%/10% suspended solid\* solution. If the suspended solid percentage is higher, premature wear and failure will occur. To properly pump water with any debris, any solids must be in a suspension.
- \* Suspended solids are defined as debris "floating" within the water. The size of the suspended solid that can be pumped is determined by the size of the pump. Refer to the chart below for maximum suspended size.
- Use correct type of **suction hose**. **Water temperature tolerance: 5 to 45°C (41 to 113 °F)**. May cause breakage if use outside the mentioned range.
- **Please use suction hose for suction side.** Please purchase suitable hose to fit to connection dia and suitable length.
- **Do not run pump without water inside the pump.** This will cause pump damage.
- **Please firmly connect hose with coupling and hose band** when you connect suction or discharge hose to pump.

# PREPARATIONS FOR STARTING

## Selection and Handling of Fuel Oil

### 1. Check accessories provided

List of accessories provided are printed on the specification sheet.

### 2. Fuel / Engine oil

The engine needs the right fuel and engine oil. Pour them properly before starting the engine.

Incorrect fuel, engine oil, mixing ratio and amount may cause the engine malfunction. Engine seizure that occurs without engine oil is not covered by the warranty.

Check the specification sheet for the fuel and engine oil.

## ⚠ WARNING

**Inflammable!! Avoid fire when refuel or maintenance.**

## ⚠ CAUTION

**Before starting engine, please check if engine oil is filled to required level. Without engine oil or shortage of engine oil can cause troubles for engine.**

**Please read carefully Engine Operation Manual for engine oil instructions.**

**Inflammable! Do not operate near open fire.**

**Any fuel spillage must be cleaned completely.**

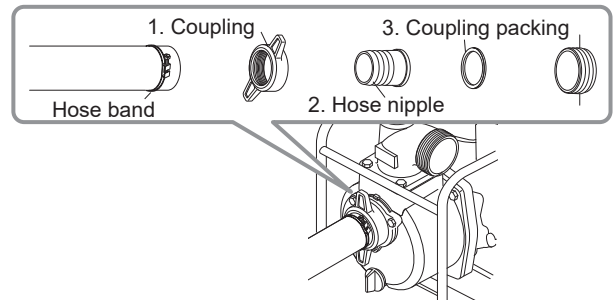
**Check engine oil before operation. Check and refuel periodically. Please read Engine Operation Manual for instructions.**

**Stop engine operation when refuel engine oil. Engine oil can be very hot after operation.**

### 3. How to install Coupling

## ⚠ CAUTION

**Different accessories are suitable for different models. Please check connection diameter and install correct parts.**



## ⚠ CAUTION

**Do not change pump diameter by altering suction hose.**

### 4. Make sure suction hose is connected properly

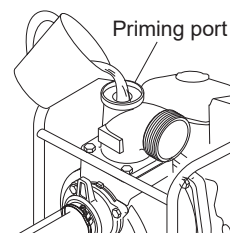
In case of no self-priming after filling pump with water and engine is started, check suction hose connection carefully again. Most cases of no self-priming are caused by improper hose connection.

## ⚠ CAUTION

**Use suction hose for suction side. Use couplings / hose band as provided in accessory and attach hose properly. Installation of strainer at the end of suction hose is necessary.**

### 5. Fill pump with water before use

As pump is self-priming type, fill water fully from priming port into pump before running. Insufficient water can cause damage to pump.



## ⚠ CAUTION

**Running without filling water can damage mechanical seal.**

## STARTING THE ENGINE AND PUMP

### HOW TO USE

1. Ensure pump is fully filled up with water.
2. Ensure strainer at the end of suction hose is in water.  
(If any mud or sand is at the bottom of water, suspend hose avoiding the bottom.)
3. Ensure no obstacle is at discharge hose side.

### Checks During Operation

#### **⚠ WARNING**

Do not remove plugs or hoses when there is heat or pressure inside the pump.

Operating the pump for an extended period with the discharge closed or experiencing self-priming issues can cause the water inside the pump to become hot and pressurised.

If the plug or hose is removed under such conditions, hot water may spray out, resulting in potential burns.

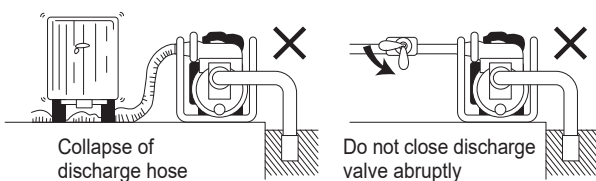
**Never refuel the engine while it is running or when it is hot even if the engine is stopped.**

#### **⚠ CAUTION**

#### **Beware of water hammering**

Do not allow any vehicle to run over the discharge hose.

Do not close the discharge valve abruptly because water-hammer may occur. This may result in heavy damage to the pump.

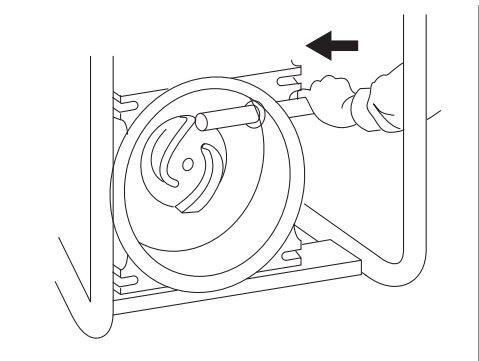


For engine manual and notes, please refer Engine Operation Manual enclosed.

## PERIODIC CHECKS AND MAINTENANCE

### Trash pump: DISASSEMBLY AND CLEANING (Parts replacement)

1. Turn the knob counterclockwise and remove the knob.
2. Pull the handle towards you, and then both front cover and volute casing can be removed.
3. Remove the peripheral plug before taking impeller out.  
The impeller can be detached by giving it a shock with a rod or the like.
4. Draw out the mechanical seal from the engine shaft along with the sleeve.



#### **NOTICE**

- Please do not hammer an impeller directly when you want to take it out from the machine. It might damage the impeller. Instead, take out the plug set first and then insert something like a stick which is thin enough to get through the hole and hammer the stick at the other end. The impeller can be removed out easily without damaging it.
- When assembling the parts, do not forget to place the adjusting washer, O-ring, etc., in the right positions. Also, correctly install the front cover and evenly tighten the right and left knobs.  
Note that incomplete assembling may affect the performance of the unit.

# AFTER USING THE PRODUCT

## TRANSPORTING

### **⚠️ WARNING**

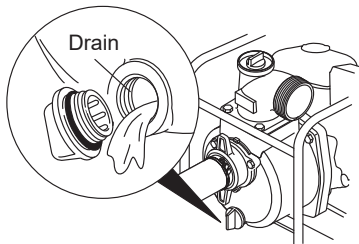
To avoid severe burns or fire hazards, let the engine cool before transporting this product or storing it indoors.

When transporting this product, turn the fuel valve to the OFF position, close the fuel tank cap, and keep the pump level to prevent fuel spillage. Spilled fuel or fuel vapor may ignite.

## ATTENTION AFTER USE

### Drain water after use

After use, remove the drain plug at the bottom and pour water from the suction / discharge ports so that the remaining sand is forced out of the pump. If the pump is used to transfer muddy water over a long period of time, a large volume of sand will be piled up in the pump casing, making it difficult to remove the front cover. Therefore, clean the inside the pump periodically.



### **⚠️ CAUTION**

Water inside may freeze at below 0°C (32 °F) in winter and may damage pump. After use, drain water from drain plug before storing.

## LONG STORAGE

Discharge fuel in fuel tank and carburetor completely. Unused fuel in tank (if kept more than 30 days) may cause engine failure.

\*Please refer Engine Operation Manual.

### **⚠️ CAUTION**

Do not smoke as fuel is highly inflammable.

Unused fuel must not remain in the tank for long term storage. Unused fuel may cause future engine failure.

# TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE(S)	SOLUTION
Pump does not revolve	Rusting inside engine	Refer to Instruction manual of engine (Repair)
	Burn out of engine	
	Stuck impeller	Disassemble & clean the impeller
	Intrusion of foreign matters	Remove foreign matters
Not enough discharge volume	Air leakage from suction side	Check piping at suction side ->SOLUTION 1
	Output power down from engine	Check & Repair engine
	Damaged mechanical seal	Replace mechanical seal (Repair)
	Suction lift is high	Make suction lift lower
	Thin or too long or kinks of hose	Thicken or shorten or straight
	Leakage of water from discharge hose or pipe	Check and stop leakage of water
	Clogging of foreign matters at impeller	Disassemble & clean the impeller
	Wearing out of impeller	Replace the impeller (Repair)
Pump does not self-prime water	High sand content	Remove sand content
	Air goes in from suction side	Check piping at suction side ->SOLUTION 1
	Insufficient priming water inside pump casing	Prime water fully. Refer [BEFORE USE] "5 Fill pump with water before use"
	Drain plug is not tighten	Tighten drain plug firmly. Please refer "ATTENTION AFTER USE"
	Imperfect revolution of engine	Refer to Engine Operation Manual.
	Air leakage from mechanical seal	Replace mechanical seal (Repair) ->SOLUTION 2
	discharge hose is broken	Replace discharge hose

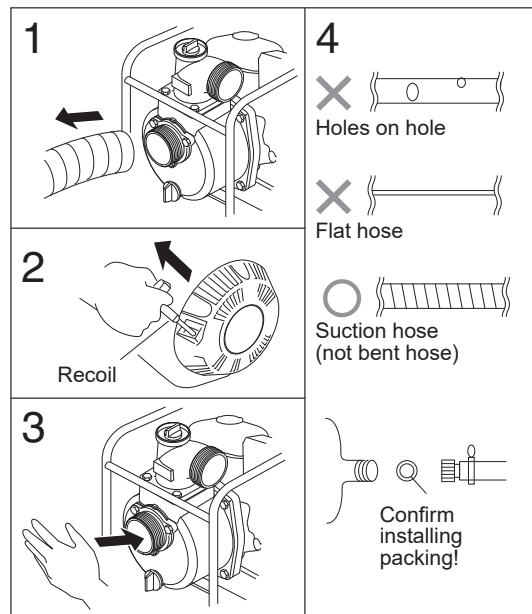
## SOLUTION 1

Check suction pipe!

In case of no suction or small discharge, the cause is usually due to air leakage at suction side.

In such case :

- 1.Remove suction hose.
- 2.Start engine with water inside the pump.
- 3.Press the palm of your hand to cover the suction hole and wait 30 seconds. If you feel suction on your palm, the pump is working fine but hose connection needs correction.
- 4.Please check if rubber packing is installed and if there is any hole on suction hose.



## SOLUTION 2

A leak between the pump casing and the engine is usually due to a damaged mechanical seal.

Refer to a local service center.

