PWP- 25hpHND FIRE PUMP

OPERATION MANUAL

INTRODUCTION:

Thanks for purchasing a OFI fire pump. This manual will guide you to operate the pumps in good running, high performance and safe. We suggest each customer should read the Operating Instructions carefully before operation. Only after comprehensive understanding of the pump, it will be in good running.

- The pump is used for fire fighting, drainage, drought resistance etc. It is essential that the pumps are operated **ONLY** by **TRAINED PERSONNEL**
- The performance and appearance of the pumps may be changed at any time, without Notice.
- Requirements for maintenance and periodical inspection, should be carried out by OFI authorized dealers OFI customer service

NOTICE:

- User Manual: read the manual carefully and set it free for everyone to handle. Please attach this manual if pump is resent.
- Regular maintenance and periodical inspection ensure the machine in good situation for emergency.
- Warning: Read the manual before operation. Understand the operation steps correctly, including "dangers" "warning" "caution" "attention" which are very important.

CONTENTS

CHARACTERISTICS AND USE

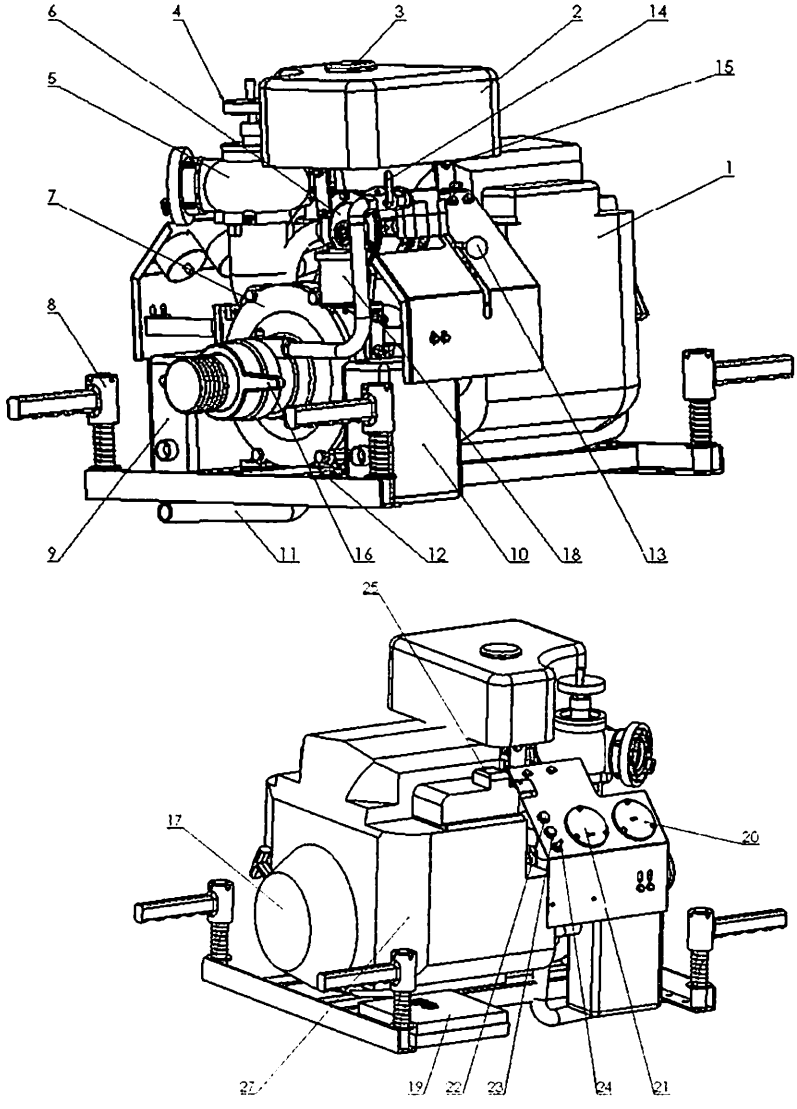
OFI portable fire pump sets are equipped with high performance 4-stroke air-cooled engine and centrifugal pump, with light weight, compact structure, easy start, quick water, low fuel consumption, high pressure, large flow, high lift, work stable and reliable characteristics. It is flexible on narrow road, lane and places where fire truck could not reach. It is suitable for city fire brigade, professional fire brigade, forest fire brigade, volunteer fire brigade, inflammable and explosive enterprises, cultural properties, large warehouses, oil depots, stations, ports, ships, temples, goods yards, forest etc. It is also the ideal equipment for flood drainage, drought remote water supply, site washing, etc.

SPECIFICATIONS

Model			**PWP-25hpHND**
pump	Type of centrifugal		Twin stage
	Vacuum		Carbon fiber oil Max suction:9m
	Priming time		3m/7s 7m/19s
	Inlet dia		Φ80mm
	Outlet dia		Φ65mm
	Suction:3m flow/pressure		520lpm/1.0Mpa
			660lpm/0.8Mpa
			900lpm/0.5Mpa
	Normal nozzle	size	Φ19mm
			Φ22mm
Engine	Type		Horizontal, double–cylinder, electric start, air-cooled, 4-stroke-gasoline
	Output power		Max:23hp
	RPM		3600rpm/min
	Fuel Tank		6.5L (7L/H)
	Lubrication		Oil lubrication
	Ignition		Wheel Magneto
	Starting system		Starter motor and recoil system
Others	Volume(mm)		750×610×610
	Weight		About 95 kgs
	Storage battery		12V17AH

Main parts

1. Engine
2. Fuel Tank
3. Fuel Tank Cap
4. Outlet Valve Handle
5. Outlet Valve
6. Vacuum Pump
7. Centrifugal Pump
8. Hand Lifting Frame
9. Right Mufler
10. Left Mufler
11. Drainage Pipe
12. Pump Drain Valve
13. Suction Handle
14. Exhaust Valve
15. Fuel Tank Switch
16. Inlet Wrench
17. Hand Starting Device
18. Oil Cup
19. Storage Battery
20. Vacuum Gauge
21. Pressure Gauge
22. Operating Indicator
23. Lighting Indicator
24. Lighting Switch
25. Engine Oil Tank Cap
26. Air Filter Device
27. Starting Control Box



PREPARATIONS FOR OPERATION

1. Check gasoline and oil, position as shown in Picture 3 (93# or above unleaded gasoline) and 25 (4-stroke oil SJ15W40). PETROL is extremely flammable and MUST be HANDLED WITH CARE. Flammable materials or structures, smoking, heating, spark and static electricity will cause explosion

   Dangers:

   - Flame, spark, static electricity will cause explosion and fire, when smell the smell of petrol.
   - No smoking
   - Stop the machine before refueling
   - Be careful NOT TO SPILL fuel; DO NOT OVERFILL the fuel tank

   Caution:

   - Gasoline smoke is toxic. Avoid breathing the gas
   - DO NOT REFUEL until the engine is cold
   - Tighten the fuel tank cap. Open only when refueling.
   - Clean the spilled oil BEFORE starting the engine
   - Note: Use 90# or below gasoline will shorten the engine life, cause starting problems or other problems

2. Check Position 18 (Vacuum pump oil cup) oil is full or not.
3. Check Position 12 (pump drain valve) open or closed, makes sure it is closed before starting
4. Check Position 05 (pump outlet valve) open or closed, make sure it is closed before starting (suction depth ≥ 3m)
5. Check Position 19 (storage battery), connect with engine or not, make sure it is connected
6. Check Position 15 (Oil tank switch) open or not, the fuel directly enter into the combustion chamber
7. Check Position 27 (starting controller), choke is open or not, turn the ignition key to "on"
   NOTES:
   i. When the ignition is "ON", Position 22 (Operating Indicator) should be shiny. (If it is not bright, please check the battery, the fuse in the starting control box, or contact Customer Service)
   ii. When the ignition is "ON", Position 22 (Operating Indicator) is weak shiny (use the hand starting device, as position 17)
8. Check Position 16 (inlet wrench) tighten or not, install the inlet pipe
9. Check Position 05 (outlet valve) connected with hose/ nozzles or not

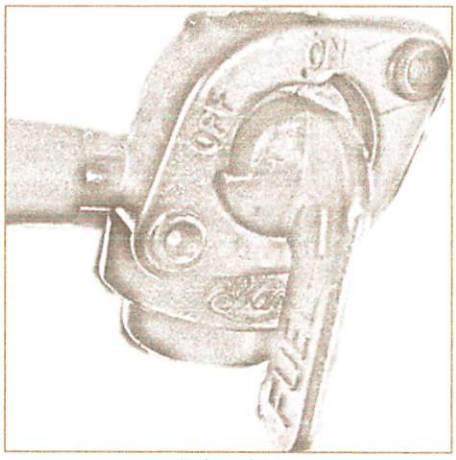
STARTING THE ENGINE

Place the pump

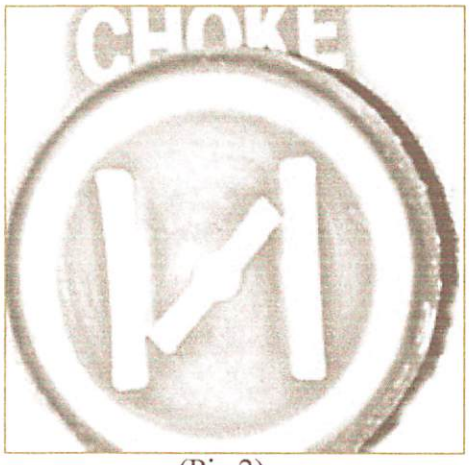
1. The pump should be placed on the ground near water, easy to carry and operate
2. Connect the suction hose and fire hose safety. Put the other head of the suction hose to the water. (Suction hose must be with filters and put in baskets)
3. Water will be spray out from the hose nozzle.

Starting the engine

1. Pull Down the handle to open the oil switch (as Pic 1)

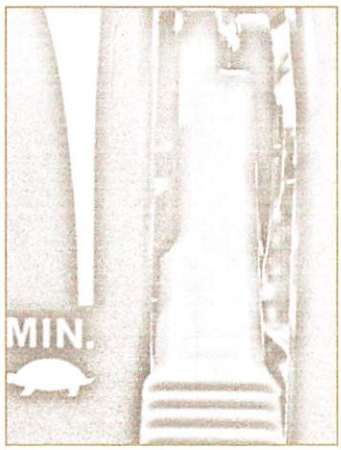


(Pic 1)

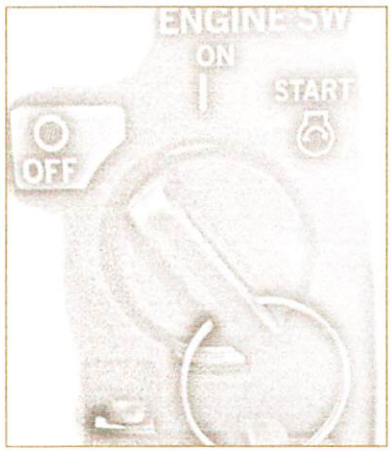


(Pic 2)

2. Pull out the choke switch, to close position (as Pic 2), return it after normal running
3. Turn the throttle to 1/3 of Min——Max (as Pic 3)



(Pic 3)



(Pic 4)

4. Turn the main switch to "start", loose it once the engine start.

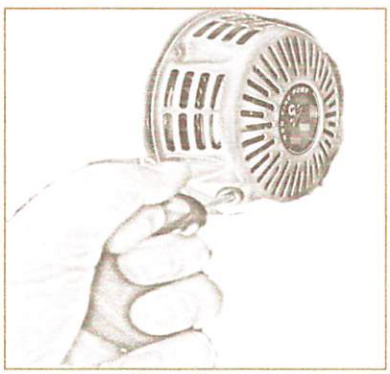
Suggestions:

1. Redundant operation with the starter will run-out of the battery. Max time for running the engine is 5 seconds. Please restart the engine after 10 second.
2. Once the engine start, DO NOT RESTART the engine.
3. Check the battery is connected firmly and sufficient; if the engine is not in idle running

USE HAND STARTING DEVICE TO START THE ENGINE

If the electric starter failed, use the hand starting device

Pull out the rope slowly, make the starter gear meshing, then pull it out with a sudden force when you think it's ok. (Step on the pump) (As Pic 5)



(Pic 5)

(Pic 6)

Warning: DO NOT RUN the engine when you open the cap of the hand starting device, otherwise it will be serious injured)

SUCTION AND SPRAY OUT

1. After starting the engine, pull down the vacuum pump handle. (As Pic 6)
2. Check the water comes out from the drainage pipe or not, the pressure gauge point to the positive range.
3. Return the vacuum pump handle to original position

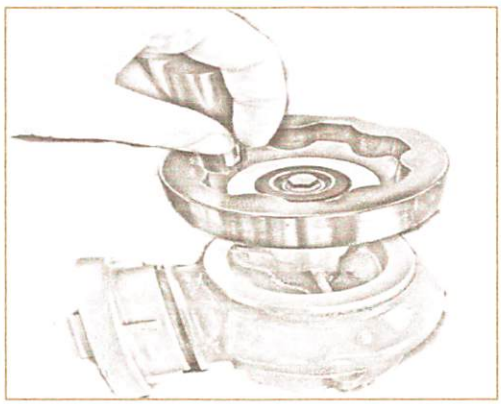
   Notice:

   - No water come out after 30seconds; check the relevant items on "Fault handling table"
   - Water should not be lower than 7m, otherwise the pump could not suction.

- Put the suction pipe on uneven or rough place, air will accumulate. If water do not spray out fluently after open the outlet valve. Please re-operate the vacuum pump. If suction hose accumulate air, open the outlet valve; run the vacuum pump every 3-5seconds, till the water flow fluently.
- Inspect the height of the water frequently when spraying. The hose filter should be 30cm below the water. If there is much sediment in the water, use dense mats or meshes to keep it away.

4. Open the outlet valve. (As Pic 7)
   - Notify the nozzle operator before open the outlet valve.
   - The outlet could be rotated about 90 degrees, stop the engine and open the valve when rotating

Note: Suction hose will accumulate air if some parts is higher the outlet. Water does not flow to the outlet when the outlet valve is open; Reopen the vacuum if such thing happens.



(Pic 7)

5. Use throttle to adjust water outflow and pressure

STOP THE MACHINE

1. Pull the throttle to low speed position
2. Close the outlet valve
3. Turn on the main switch to "off"
4. Close the oil tank switch
5. Open the drain valve, make sure all water is out of the pump, then close it.

Attentions during operations

To avoid improper operation of fire pumps, read and comply with the following attentions

Warning: DO NOT run the engine in an enclosed area as poisonous gases are given off, which can cause injury.

Warning: DO NOT touch pulley, belt or other moving parts which can lead to serious injury, when the engine is running

Caution: DO NOT touch the spark plug ignition wires, which are with high voltage, and can lead to serious injury.

Caution: DO NOT touch the exhaust system and muffler when the engine is running or stopped within 10 minutes, as they are very hot and can cause injury.

Caution

1. DO NOT OPERATE the fire pump close to flammable materials or structures (distance should be more than 3m)
2. DO NOT OPERATE the fire pumps on dry grass ground. The exhaust system is very hot and easy to light it. Clean it if needed.
3. Do not bend or squeeze the suction hose during working, which may cause injury).
4. DO NOT START the engine when the outlet valve is open
5. Engine must be in idle running when open or close the outlet valve.
6. MUST NOTIFY the nozzle operator if the engine speed or the position of the outlet changes, which cause injury.
7. Nozzle operator should adapt shoulder leather hose to control it, it need 2 persons to control it if too much pressure
8. Do not spray to people directly at any case.
9. Do not look into the hose when open the outlet at any case.
10. Cover head of the suction hose when the pump is in no use.
11. Do not put the hand or finger to the mouth of the nozzle
12. Be careful when moving, lifting or putting the pump, as the fire pump is heavy.
13. Comply with the operating instructions to clean the spilled fuel.
14. Battery, gasoline, oil and other harmful elements should be treated through AUTHORISED waste-disposal contractors to licensed waste disposal sites.
15. This type of fire pumps do not recommend in building projects, cleaning, irrigation etc.
16. This type of fire pump is designed for pump water use, not for flammable liquid, chemical liquid or corrosive liquid.
17. DO NOT run the engine without water for a long time (no more than 3 minutes), to avoid damaging the seals.

CAUTIONS AFTER OPERATION

1. Pump maintenance after sea water or sewage
2. Clean the pump with clean fresh water after sea water or sewage
   Check the suction performance. Make sure the water is completely discharged. Close all valves and suction hose capes. Set the throttle to "MIN" position, open the vacuum pump without water for a while. Check the vacuum gauge normal and stable to confirm the suction is ok. Stop the machine and open the discharge valve, close it after the vacuum turn to position"0"
3. Charge the battery
   Charge the battery regularly; ensure enough electricity for next use.
4. Refill fuel/oil
   Check fuel and oil. Refill them for use at any time.
5. Discharge the oil
   Ensure all oil discharged from carburetor, before putting the pump in warehouse for a long time..

❖ Turn off the oil tank switch before stopping the engine, close the starting key after the engine stopped.

CAUTIONS UNDER LOW TEMPERATURE

1. Start the engine, which become warmer and in normal operating.
2. Use anti-freeze

Operations

a) Open the outlet valve, close the suction hose cap.
b) Open the pump discharge valve (As Pic 13), connect the Vinyl tube (optional) to outlet valve.
c) Put the other head of Vinyl tube to the anti-freeze (about 200ml)

d) Set the throttle to position "start", let the anti-freeze to enter pump body through vacuum pump. Let air enter the vacuum pump after 30s' running; ensure the anti-freeze reach the whole pump.
e) Stop the machine and close the oil valve.
f) Close the handle of outlet valve; stick the anti-freeze on the valve directly.
g) The battery will freeze in low-gravity and the performance will drop in low temperature. Remember to keep the battery in proper gravity and full charged.

USE ACCESSORIES

1. Battery charger (manual type)
   Connect the charger positive (+) and negative (–) cable to the battery +,- pole ("+" red stigma, "-" black stigma)
   a) Check the electrolytic liquid, clean and tighten the wire.
   b) Plug the charger to battery terminals
   c) Power the charger to 220AC current. Input light (red) begin to charge
   d) The light is off when the battery is full. Turn of the power switch "off", pull out the charge plug.

❖ Note: It takes 4 hours to charge a 50% battery to full.

Caution

- Place the battery charger on non-flammable table, or fix it on the tall. Do not put on the ground
- Connect the charger positive or negative correctly, otherwise it will damage battery and charger.
- Keep the battery surface clean at any time.
- Battery life is normally 2 years. Replace the battery every 2 year and check its performance.
- Connect the battery positive (+) cable BEFORE the negative (–) and disconnect the negative BEFORE the positive.
- The electrolytic liquid is highly corrosive, which damage skin and clothes.

Warning

- Charge the battery in good ventilation, not in bad ventilations.
- Batteries produce EXPLOSIVE GASES so keep sparks, flames and cigarettes away
- Do not charge the battery for long time, which cause explosion.

MAINTENANCE

1. Place the fire pump on dry ground. high humidity will harm the steel parts, which is easy to get rust
2. Keep the fire pump clean and dry.
3. Keep the fuel and oil tanks full
4. Keep the vacuum oil cup in proper level
5. Run the pump at least once per month
6. Check the battery once per month
7. Discharge the carburetor oil completely if the pump will be in warehouse for more than one month
8. Replace the spark plug when it is worn NGK F7TC
9. Replace the V-type belt when it is broken or worn. Size: A-838

PERIODIC INSPECTION AND MAINTENANCE

Periodic inspection and maintenance as following

Item	Inspection time and frequency	points	measures	remarks
Fuel	After operation	Fuel in tank	Refuel	
Oil	After operation	Oil in vacuum oil tank	Refuel	
Light	After operation	Shiny	Replace	
Carburetor circuit	Every 50 hours or 3 months	Carburetor float	Clean or replace	
battery	Every month	Liquid level	Fill	
Recoil rope	Every month	worn	Replace	*
Spark plug	Every 50 hours or every month	Dirty, damage, big gap	Clean or replace	
Fuel system	Every 50 hours or every month	Dirty filter, leakage	replace	*
Pump		Running situation	Replace when necessary	0
Outlet valve	Every 50-100 hours	Vacuum leak	Replace when necessary	0
V belt	Every 100 hours or every year	Worn or break	Replace	0
All other accessories	Every 300 hours or every 3 years	Check thoroughly	Replace when necessary	0

Notice

1. Contact customer service if "0" or "*" happens
2. Check time and frequency base on above table

FAULT HANDLING

Typical faults as following

Type	position	Reason	Remedy	Remarks
Starting	Engine system	No or low electricity	Charge the battery /hand starting device	
		Electrode loose	Tighten	
		Fuse blowing	Replace	In starting box
		Wire loose	Tighten	
		Spark plug cap off	Cover it	
		Spark plug loose	Tighten	Spark plug sleeve
		Spark plug burn, dirty ,damage	Replace	
	Fuel system	Fuel tank empty	Refill it with 93#unleaded gasoline	
		Oil switch (with filter) closed	Open	
		Leaded gasoline（overtime or dirty）	Change and clean with new gasoline	
		Blockage in fuel pipeline	Clean /replace	
		Carburetor blocked	Clean /replace	0
		Insufficient choke.	Check and correct	

	Others	Cylinder compression pressure not enough	Adjust air throttle	0
		Oil pressure sensor start	Check oil level	0
		Engine speed control handle not in right position	Check and correct	
Suction	No vacuum	End of suction hose not in water	Put into water	
		Suction-hose joints loose	tighten	
		Suction hose washer break	Replace	
		Suction hose break or damage	Replace	
		Vacuum gauge hose break	Replace	
		Discharge valve open	close	
		Vacuum pump hose loose	tighten	Beside the pump
		V-belt worn or break	Replace	0
		Vacuum pump handle could not be pulled down	Check V-belt	
		Rotor or shaft locked	repair	0
		Outlet valve could not be closed	Clean or replace	
		Seal dirty or damaged	Replace	0
		No oil in vacuum oil cup	Refill the cup	
	vacuum	Suction head too high	Lower the height	
		Filter blocked	clean	
		Vacuum from time to time	End of the hose near the water	
Water flow	Pump	Suction height too high	Lower the height	
		Suction hose too long	shorten	
		Filter or hose blocked	Clean	
		Suction hose break	Check and repair	
		Inlet cap break	Replace	0
		Out let valve half open	Full open	
		Impeller obstruction	Clean	0
	Engine	Nozzle diameter not proper	correct	
		Throttle open not enough	Open	
		Carburetor blocked	clean	0

TOOLS AND ACCESSORIES

Name	Size	Quantity	Remarks
User manual		1	
Engine operating instructions		1	
Warranty card		1	
Suction hose accessories	Φ80×7M	1	rubber
Suction hose washer	Φ100×Φ76	2	
Spark plug	NGK F7TC	1	
Fire hose	Φ65-20	1	With couplings
Fire nozzle	QZ19	1	
Screw driver	6"(two-head)	1	
Wrench	8-10	1	
Wrench	12-14	1	
Wrench	13	1	
Battery Charger	12V/6V	1	
V-belt	A838	1	

USER INSTRUCTIONS

1. If customer uses it according the "user manual", the defective or damage caused by design or manufacture, the company is responsible for "three guarantees", warranty period is one year from the shipping date.
2. Customer should provide quality certification, original or copy invoice, and relevant information for use and damage, to contact OFI customer service for "three-guarantees". We will provide "three-guarantees" after investigation.
3. Our company is responsible for "three-guarantees" for pump parts, and authorized engine dealers are responsible for engine parts.
4. Customer should check the fire pump sets when they buy it from any company or dealers, and clear the quality responsibility. Our company does not provide "three-guarantee" services if pumps (including accessories) are opened or damaged by others.
5. Our company will provide paid services according to following situations, which do not belong to "three-guarantees"
    i. Damaged by incorrect maintenance or use
    ii. Opened or refitted without authorization
    iii. No quality certifications or invoice
    iv. Quality certification, invoice are not accordance with the model, item no, engine no with the product need repairing
    v. Refit and affect the pump performance without authorization