



MODELS:

VPHL1000-IS

VPHL1000-GS

OWNERS AND OPERATIONAL MANUAL

FOR USE IN NON-REGULATED TERRITORIES ASIA MIDDLE EAST AND AFRICA

PREFACE

Thank you for purchasing our product.

Please keep this manual for future reference. This specification manual is an essential part of the gasoline engine and must be included if the engine is resold.

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Machinery Co., LTD.

Please pay special attention to the following warnings:

- **Danger:** Indicates a hazardous situation which, if not avoided, **will** result in serious injury or death.
- **Warning:** Indicates a potentially hazardous situation which could result in personal injury or equipment damage if instructions are not followed.
- **Note:** Highlights important information that may prevent property damage if followed correctly.

If a problem occurs, or if you have any questions about this series of gasoline engines, please contact your authorized service centre.

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1. Safety

1.1 User Responsibility

- Read and understand the instructions carefully before operating the engine. Failure to do so may result in personal injury or engine damage.
- Familiarize yourself with the quick-stop procedure and all control operations. Never allow anyone to operate the engine without proper training.
- Never allow children to operate the engine. Always keep children and pets away from the operating area.

1.2 Fuel Up Carefully

- Gasoline is highly flammable. Always refuel outdoors in a well-ventilated area with the engine turned off.
- Do not smoke while refuelling. Keep the engine away from open flames, sparks, or any ignition sources.
- Do not start the engine until all spilled gasoline has completely evaporated. Starting the engine near wet fuel can cause fire or explosion.

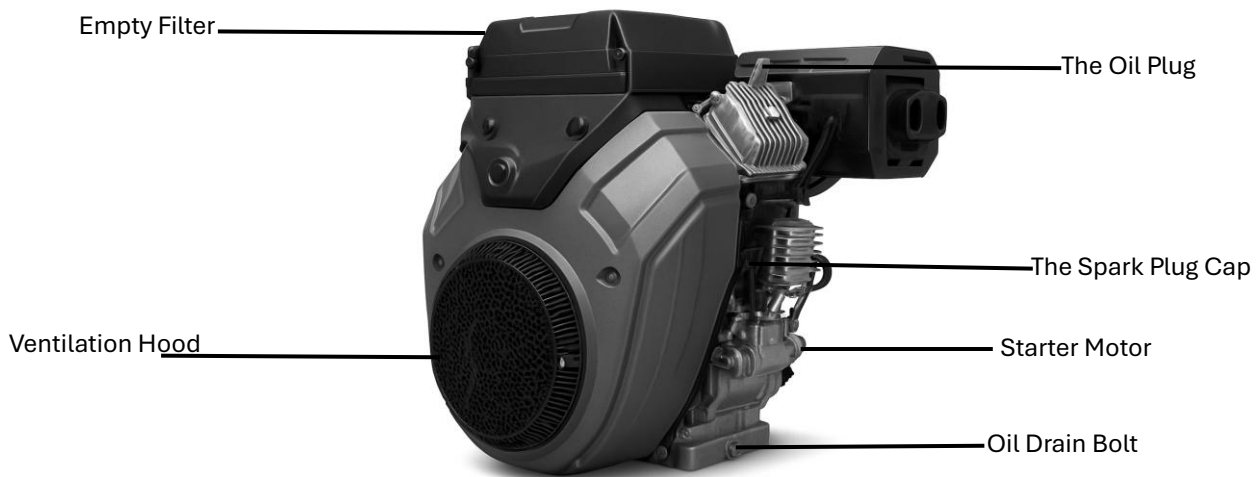
1.3 Hot Removal

- The muffler becomes extremely hot during engine operation and remains hot for some time after the engine is stopped.
Avoid touching the muffler to prevent burns. Allow the engine to cool completely before moving or storing it indoors.
- To prevent fire hazards, maintain a minimum clearance of 1 meter between the engine and any walls or nearby equipment while operating.
Keep all combustible materials away from the engine during use.

1.4 Carbon Monoxide Poisoning

- Engine exhaust contains toxic carbon monoxide. Avoid inhaling the fumes at all times.
- Do not operate the engine in an enclosed space or in areas with poor ventilation. Ensure there is sufficient airflow to prevent the buildup of harmful exhaust gases.

2. NAME OF EACH COMPONENT



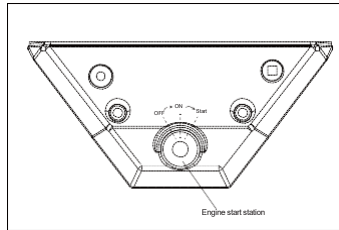
3. USE OF ENGINE

3.1 Engine Switch

The engine switch controls the ignition circuit for starting and stopping the engine.

When the switch is in the “ON” position, the ignition circuit is connected and the engine can operate.

When the switch is turned to the “OFF” position, the ignition circuit is cut off, and the engine will stop.

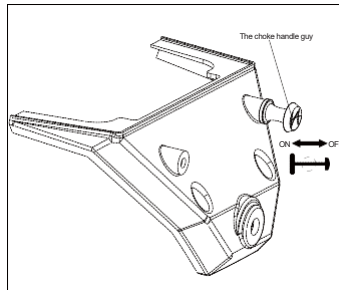


3.2 Choke Button

The choke pull rod is used to open and close the choke valve in the carburettor.

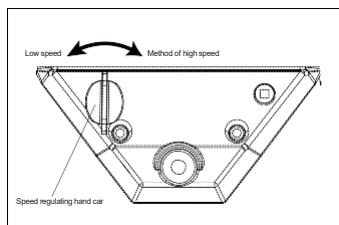
Pulling the choke rod outward closes the choke, which makes it easier to start a cold engine.

After the engine starts and begins to run normally, push the choke rod inward to place it in the open position for proper operation.



3.3 Speed Control Handle

Adjust the speed control handle to achieve the desired engine speed. For correct operating speed, always follow the specifications provided by the equipment manufacturer.



3.4 Engine Protection System

The oil protection system is designed to prevent engine damage caused by insufficient oil in the crankcase. When the oil level falls below the safe limit, the system will automatically shut down the engine (even if the engine switch remains in the “ON” position).

If the engine stops automatically and cannot restart, first check the oil level. If the oil level is correct, proceed to inspect other possible faults

4. CHECK BEFORE OPERATION

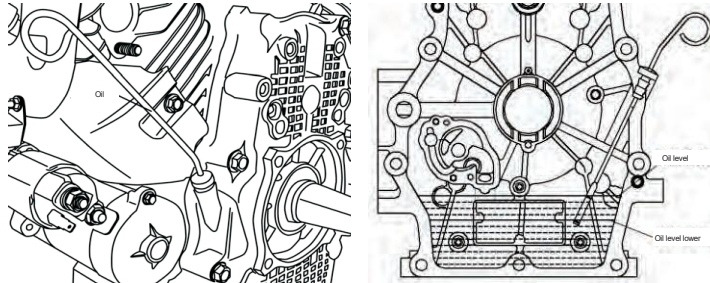
4.1 Routine Inspection

- Check for any signs of oil or gasoline leakage.
- Inspect the engine for any visible damage.
- Ensure all guards, covers, bolts, nuts, and screws are correctly positioned and securely fastened.

4.2 Check Engine Oil

Notice: Hold the engine horizontally after stopping, then check the oil level.

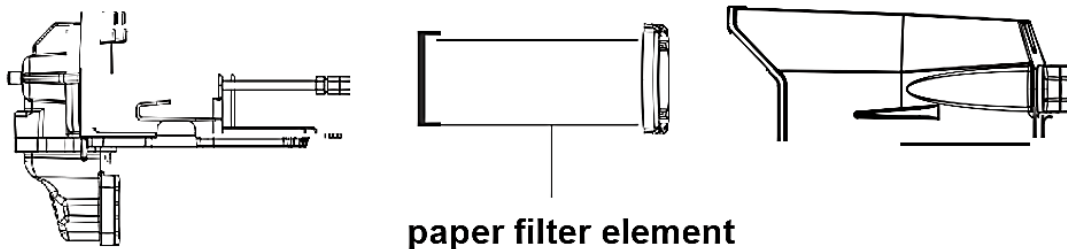
- Remove the dipstick and wipe it clean.
- Fully insert the dipstick, then remove it again to check the oil level.
- If the oil level is below the lower limit, remove the oil filler cap and add the recommended engine oil until it reaches the upper limit.
- After adding oil, be sure to reinstall the dipstick and tighten the oil filler cap securely.



- When the oil level is below the safety mark, the oil protection system will automatically stop the engine. To prevent unexpected downtime, always check the oil level before starting the engine.
- When refuelling, ensure the oil level does not exceed the shoulder of the fuel filter (i.e., the maximum fuel-oil level).
- Use unleaded gasoline with an octane rating of 90 or higher.

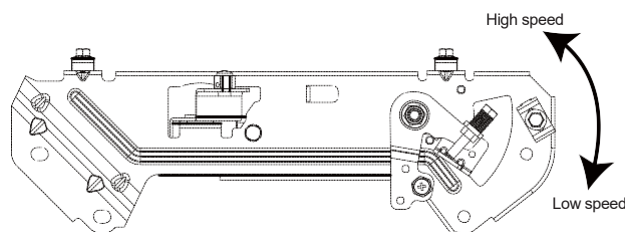
4.3 Check the Air Filter

Remove the filter cover and inspect the filter element. Clean or replace it as necessary.



5. START THE ENGINE

- When starting the cooler, set the choke handle on the machine to the “Off” position. Move the choke to the “Open” position once the engine has warmed up.
- Adjust the speed control handle from “Low Speed” toward “High Speed”, stopping approximately one-third of the way from the high-speed setting.



Turn the machine's main switch to the “Open” position.

Note: If the machine has been stopped for more than 24 hours, run it unloaded for 5 minutes before beginning normal operation.

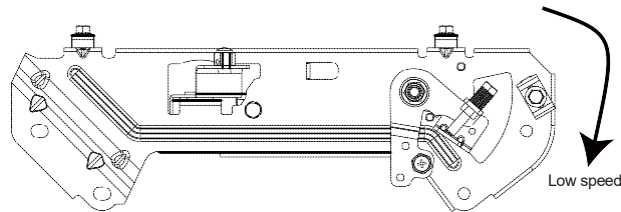
6. STOP THE ENGINE

Emergency Stop: In an emergency, you can stop the engine simply by turning the engine switch off and then on.

Normal Shutdown: Follow these steps for a standard shutdown:

Move the speed control handle to the “Low Speed” position.

- Turn off the engine switch.



7. MAINTENANCE

7.1 Maintenance Schedule

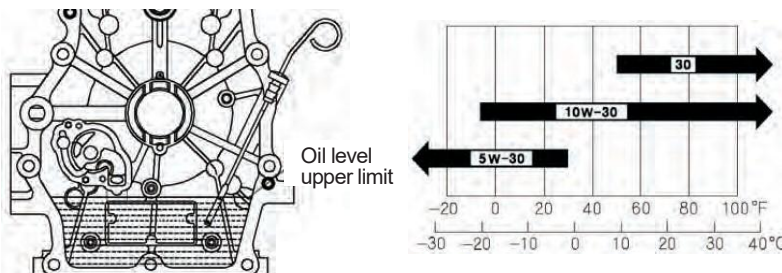
Periodical maintenance schedule		Every time	20 hours or the first month	50 hours or every 3 months	100 hours or every 6 months	300 hours or every year
Engine oil	Oil level	0				
	Replace		0		0	
Fine oil filter	Replace					0(2) or 200 hours
Air cleaner	Check	0				
	Clean			0(1)		
	Replace					0(3)
Fuel depositing cup	Clean				0	
Electrolyte level of battery	Check	0				
Spark plug	Clean				0	Replace
Valve gap	Regulate					0(2)
Fuel pipe	Replace	Every 2 years (2)				

- Perform maintenance more frequently when the engine is used in dusty environments.
- Maintenance should be carried out by an authorized service provider unless you have the proper tools and technical expertise.
- Replace the filter element only with the correct specified part.

7.2 Replace Oil in Crankcase

Letting the engine warm up before draining the oil ensures a quick and complete drain.

- Place a suitable container under the engine to catch the old oil. Remove the oil gauge, then remove the oil drain bolt and gasket.
- After the oil has fully drained, reinstall the oil drain bolt and gasket, and tighten securely.
Environmental Note: Properly dispose of used oil. Place it in an airtight container and take it to a local service station or recycling centre. Do not discard it in the trash, on the ground, or into drains.
- Position the engine horizontally and refill with the recommended oil up to the upper limit.



Oil Capacity:

- Fine filter without oil change: **2.5 L**
- With oil change and fine filter replacement: **2.7 L**
- Install the oil gauge and securely tighten the refuelling cap.

Recommended Oil:

- Four-stroke gasoline engine oil
- API classification: SE, SF, or equivalent to SG-rated SAE 10W-30

Ambient Temperature Guidance:

- If the temperature in your area falls within the range recommended for a particular brand on the chart, use that brand of oil.

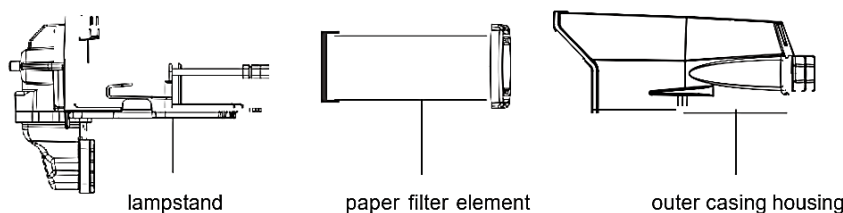
7.3 Maintain Air Filter

A dirty air filter element can reduce engine intake and power. In dusty environments, perform maintenance more frequently than the standard schedule.

Important: Operating the engine without a filter element, or using a damaged one, will allow dust into the engine and cause rapid wear.

Paper Core Type Air Filter:

- Unscrew the plastic knob and remove the outer cover.
- Remove the paper filter element.
- Inspect the filter element. Replace it if damaged. Normally, replacement follows the maintenance schedule.
- To clean the paper filter element:
- Gently tap the filter several times on a hard surface to remove dust, **or**
- Use high-pressure air ($\leq 2.1 \text{ kg/cm}^2$) from **inside out**.
Do not use a brush, as it can push dust deeper into the fibres and block airflow.
- Clean the lower body and outer cover of the air filter. Ensure dust does not enter the carburettor inlet.
- Reassemble the paper filter element properly.
- Install the outer cover and tighten the plastic knob securely.
- the paper filter element correctly.
- Install the outer cover and tighten the plastic knob.

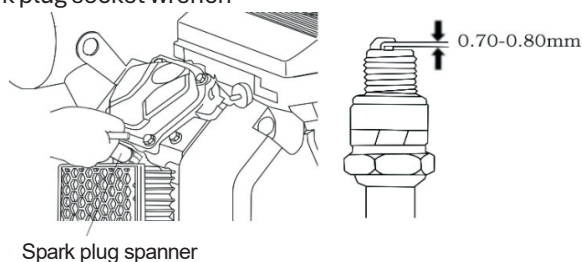
**7.4 Spark Plug**

Recommended spark plug: F6TC or equivalent.

The wrong type of spark plug can damage the engine.

Remove the spark plug cap and remove dust around the spark plug.

Remove the spark plug using a spark plug socket wrench



Inspect the spark plug:

Replace it if the electrode is damaged or the insulator is broken.

Ensure the gap between electrodes is 0.70–0.80 mm. Adjust the side electrode if necessary.

Carefully screw the spark plug in by hand to avoid damaging the cylinder head threads.

Tighten the spark plug using a spark plug socket wrench:

Used spark plug: Press the washer and tighten 1/8–1/4 turn.

New spark plug: Press the washer and tighten 1/2 turn.

Install the spark plug cap.

7.5 Regulate Idle Speed

- Start the engine outdoors and allow it to warm up for a few minutes.
- Set the speed control handle to the lowest speed position.

8. ENGINE STORAGE

After stopping the engine, allow it to cool for at least 30 minutes before cleaning. Clean all exterior surfaces, repair any damaged paint, and apply a thin coat of anti-rust oil to areas prone to corrosion.

Important:

- High-pressure water can enter the air filter, muffler, or cylinder through the intake, causing corrosion.
- Splashing water on a hot engine can cause damage. Always wait for the engine to cool before cleaning.

Steps for Cleaning and Storage:

- Place a suitable container under the carburettor (below the overflow line).
- Loosen the carburettor drain bolt and discharge the fuel into the container. Tighten the bolt after draining.
- Change the engine oil before the next use.
- Remove both spark plugs.
- Pour 5–10 ml (1 tablespoon) of clean oil into the cylinder head.
- Rotate the engine several times to distribute the oil evenly.
- Reinstall the spark plugs.
- Turn the engine slowly until resistance is felt, ensuring intake and exhaust valves are closed to prevent moisture from entering the cylinder.
- Cover the engine with a dust-proof cover and store it in a ventilated, dry area.
- If equipped with a battery, charge it once a month to prolong battery life.

9. TROUBLESHOOT

9.1 Difficult to Start

Phenomena				Causes	Elimination
Cylinder Pressure Normal	Spark Plug Normal	Fuel System Abnormal	Fuel Line Blocked	No fuel or fuel cock off	Fill fuel, turn on fuel cock
				Vent on fuel tank cap blocked	Unblock
				Fuel cock blocked	Clean
				Orifice improperly regulated or blocked	Regulate, clean and blow off
				Needle valve or float jammed	Repair or replace
			Fuel Line Unblocked	Dirty fuel or deterioration	Replace fuel and clean carburettor
				Fuel mixed with water	Replace fuel and clean carburettor
				Exceeded fuel in cylinder	Drain fuel and dry spark plug
				Fuel grade is not correct	Fill with specified fuel
	Fuel System Normal	Spark Plug Normal	Spark Plug Poor	Carbonized, electrode dirt	Clean carbonized dirt
				Isolator damaged	Replace
				Electrode burnt out	Replace
		Spark Plug Normal	No Spark	Improper spark plug clearance	Regulate clearance
				High tension wire damaged	Replace high tension wire
				Ignition coil damaged	Replace high tension coil
Cylinder Pressure Abnormal	Fuel System Normal	Ignition System Normal	Spark Plug Normal	Magnetic intensity insufficient	Magnetize or replace
				Piston ring worn out or broken	Replace
				Piston ring agglutinated	Clean carbonized dirt
				Spark plug without washer or is loose	Fit washer or tighten
				Leakage between head and block	Replace cylinder
				Poor airtight at valve	Grind or replace

9.2 Inefficient Power

Phenomena	Causes		Elimination
Speed increase slowly while accelerating, even decrease or engine stall in severe condition	Ignition System	Improper timing	Replace ignition coil
	Fuel System	Air mixed in fuel line	Exhaust air
		Orifice regulated improperly	Regulate
		Needle valve or orifice blocked	Clean or blow off
		Fuel cock blocked	Clean or replace
		Carbonized in combustion chamber	Clean carbonized dirt
	Inlet System	Air cleaner block	Clean or replace element
		Inlet system leakage	Repair or replace
	Poor Compression	Piston, cylinder or piston ring worn out	Replace
		Leakage between block and head	Replace gasket
		Incorrect valve clearance	Regulate
		Valve untight	Grind or replace

9.3 Sudden Stall

Phenomena	Causes		Elimination
Sudden stall at run	Fuel System	Fuel runs out	Full fuel tank
		Carburettor blocked	Check fuel line and unblock
		Oil leaked from carburettor float	Repair float
		Needle valve jammed	Repair needle valve
	Ignition system	Spark plug sparked through carbonized dirt, makes short circuit	Replace spark plug
		Spark plug electrode dropped off	Replace spark plug
		High tension wire dropped off	Replace or repair
		Ignition coil broken down	Replace
	Others	Severely scuffing of cylinder bore or valve dropped off	Repair or replace damaged part

9.4 Engine Overheating

Phenomena	Causes	Elimination
Engine Overheating	Improper timing	Replace ignition coil
	Outlet blocked	Clean outlet
	Ventilation hood leakage	Repair damaged place
	Air conduit blocked with foreign thing	Clean radiator
	Cooling fan failed	Reinstall fan
	Piston ring failed to result in cylinder and crank case flowing by	Replace worn part
	Insufficient engine oil	Fill engine oil
	Engine runs at over speed	Check regulating system or replace regulating gear

9.5 Abnormal Noise

Phenomena	Causes	Elimination
Slap	Piston or piston ring worn out	Replace worn part
	Connection rod, piston pin, pin hole worn out	Replace worn part
	Crank worn	Replace or repair
	Piston ring broken	Replace piston ring
Knocking with metallic sound	Exceeded carbonized dirt in combustion chamber	Clean carbonized dirt
	Spark plug electrode clearance too small	Regulate electrode clearance
	Severely enriched fuel	Check carburettor
	Improper fuel grade	Replace fuel
	Engine overheating	Refer to overheat fault column
Abnormal noise	Regulate valve improperly	Regulate valve
	Loose connection between flywheel and crank	Replace connecting key and reinstall

10. BATTERY (OPTIONAL)

- Use a 12V battery with a rated capacity of at least 45 Ah.
- Ensure correct polarity: connecting the battery incorrectly can cause serious damage to both the generator and the battery.

Battery Maintenance:

- Charge the battery periodically within three months.
- Use a charging voltage no higher than 14.5V or run the generator for 30 minutes for supplementary charging.

Warnings:

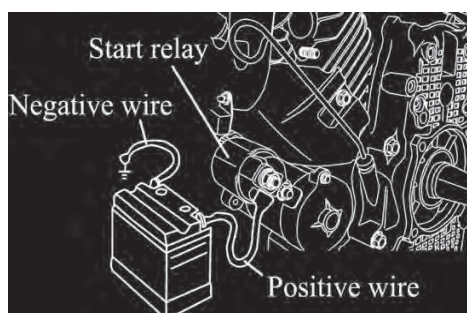
- Improper handling may cause the battery to explode, posing serious risk. Keep flammable objects away.
- Batteries can emit explosive gases. Maintain good ventilation and keep sparks, flames, or fireworks away during charging or use.

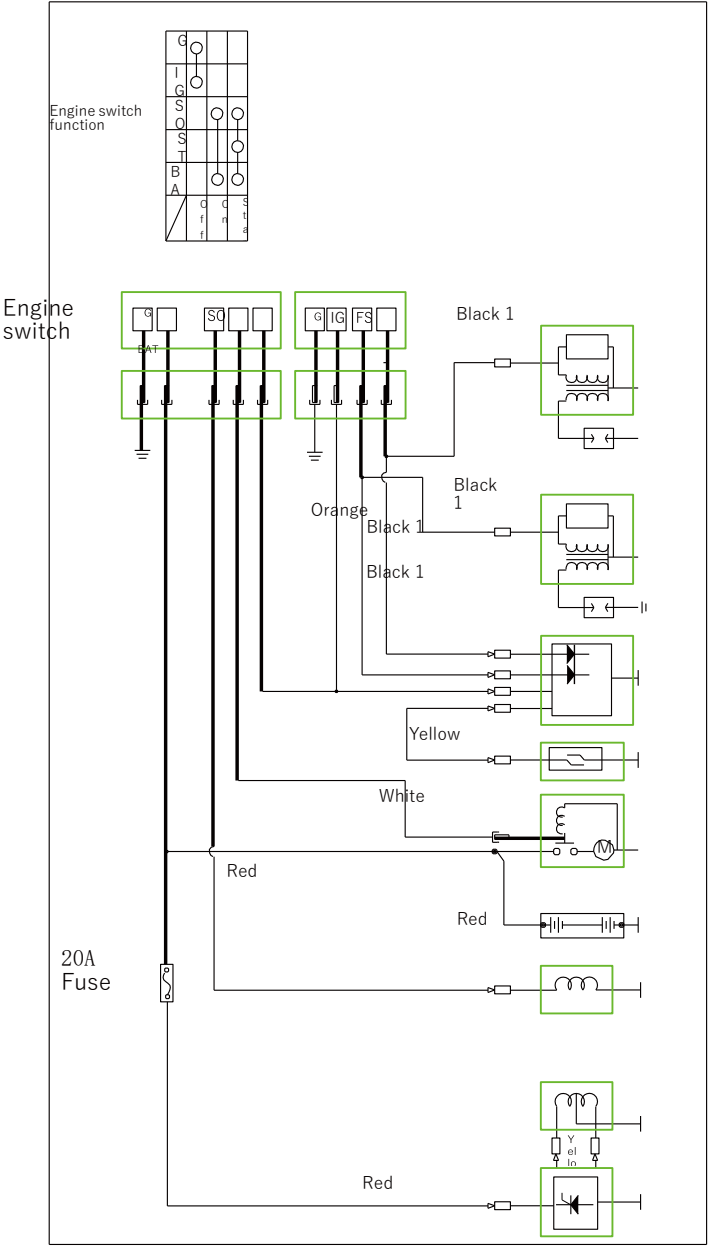
Starter Motor Connection:

- Do not reverse battery polarity, as this can cause a short circuit.
- Always connect the positive terminal first, followed by the negative terminal.

Connection Steps:

- Connect one end of the positive battery cable to the relay terminal.
- Connect one end of the negative battery cable to the engine mounting bolt on the frame.
- Connect the other end of the positive cable to the positive battery terminal.
- Connect the other end of the negative cable to the negative battery terminal.





12. ENGINE PARAMETERS

Engine model	VPHL1000
Engine type	Two-cylinder, four-stroke, strong cooling air, overhead valve
Displacement (bore diameter x stroke)	999cc(90 x 78.5)
Rated power(kW/3600rpm)	24
Maximum torque(N.m/rpm)	70/2800
Fuel consumption(g/kW·h)	≤360
Idle speed(rpm)	1600 ± 160
Speed fluctuation rate	≤10%
Start method	Recoil & E-start
Turn around	Counterclockwise (viewed from the direction of the output end)
Valve clearance(mm)	Intake valve 0.10 ~0.15 /Exhaust valve 0.15 ~0.20
Spark plug	F6TC
Spark plug gap(mm)	0.7 ~ 0.8
Ignition method	Transistor contactless ignition
Air filter type	Paper filter
Weight(kg)	60

The rated power shown for this engine represents the net output of this model at 3,600 rpm (net power) and at 2,500 rpm (maximum net torque). These values may differ slightly from mass-production engines.

The actual power output of an engine installed on equipment may vary depending on several factors, including operating speed, environmental conditions, maintenance practices, and other variables.

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