



MODELS:

VPHL750-IS

VPHL750-GS

OWNERS AND OPERATIONAL MANUAL

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

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1. Safety

1.1 Consumers Responsibility

- Before operating the engine, read the entire manual carefully and make sure you fully understand all instructions. Improper use or misunderstanding of the guidelines can lead to serious injury or damage to the engine.
- Familiarize yourself with all operating controls, safety features, and the emergency stop procedure. The engine must only be operated by individuals who are properly trained and authorized to use the equipment.
- Children must never operate the engine under any circumstances. Keep children, pets, and any unauthorized persons at a safe distance from the operating area to prevent accidents or injuries.

1.2 Caution for Filling Fuel

- Petrol is extremely flammable. Always refuel the engine outdoors or in a well-ventilated area, and only when the engine is completely stopped and cooled.
- Smoking is strictly prohibited. Keep all flames, sparks, and any sources of ignition far away while filling fuel.
- Do not start the engine if any spilled petrol remains. Wipe off all fuel drips immediately before attempting to start the engine.

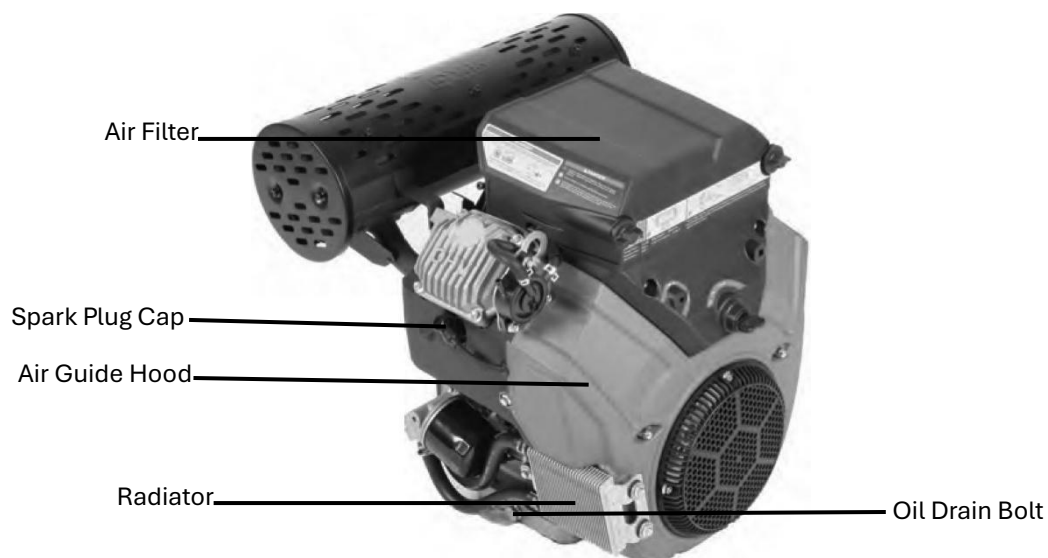
1.3 Hot Exhaust

- The muffler becomes extremely hot during operation and remains hot for some time after the engine is stopped. Avoid touching the muffler to prevent burns, and do not store the engine indoors until it has fully cooled down.
- To prevent fire hazards, keep the engine at least 1 meter away from walls or other equipment. All flammable materials must be kept well away from the engine while it is running.

1.4 Carbon Monoxide Intoxication

- 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. PART AND COMPONENT NAMES



3. USE OF ENGINE

3.1 Engine Switch

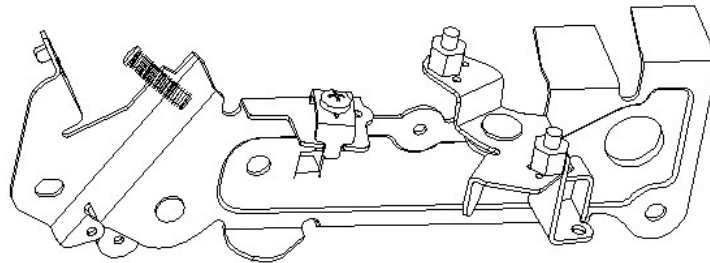
The engine switch controls the ignition circuit used for starting and stopping the engine. When the switch is turned to the **“ON”** position, the ignition circuit is activated and the engine can run. When the switch is turned to the **“OFF”** position, the ignition circuit is cut, and the engine stops.

3.2 Choke Button

The choke button controls the choke valve in the carburettor. When the button is pulled out, the choke valve closes, which helps the engine start more easily when it is cold. Once the engine is running normally, the choke button must be pushed in, placing the choke valve in the open position for proper operation.

3.3 Regulation Lever

Adjust the position of the speed regulation lever to achieve the desired engine speed. For correct and safe operating speed, refer to the recommended parameters provided by the equipment the engine is matched with.



3.4 Engine Protection System

The engine protection system is designed to prevent damage caused by low oil levels in the crankcase. When the engine oil drops below the safe level, the protection system automatically shuts the engine down (even if the engine switch remains in the **“ON”** position).

If the engine shuts down automatically and cannot be restarted, first check the engine oil level. If the oil level is correct and the issue continues, proceed with further inspection.

4. CHECK BEFORE OPERATION

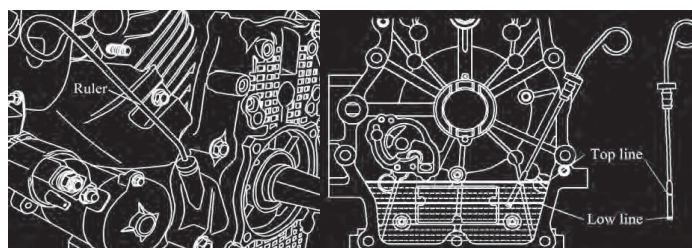
4.1 Routine Inspection

- Check for any leakage of engine oil or fuel.
- Inspect the engine for signs of damage.
- Ensure all guards, covers, and caps are correctly positioned, and verify that all screws, bolts, and nuts are properly tightened.

4.2 Check Engine Oil

Caution: After stopping the engine, place it on a level surface before checking the oil level.

1. Pull out the dipstick and wipe it clean.
2. Insert the dipstick fully, then remove it again to check the oil level.
3. If the oil level is below the lower limit, remove the filler cap and add the recommended oil until the level reaches the upper limit.
4. After filling, reinstall the dipstick and securely tighten the filler cap.



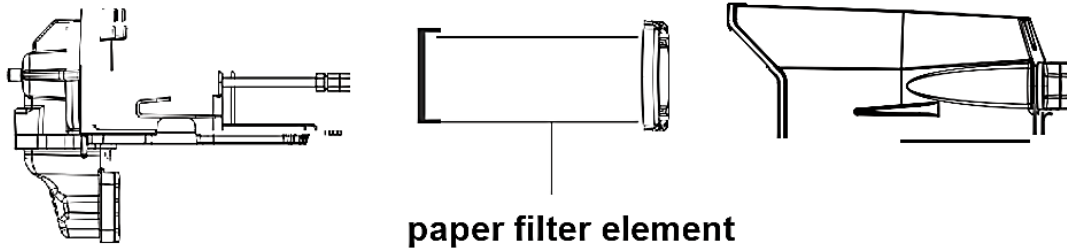
When the engine oil level falls below the safe line, the engine protection system will automatically stop the engine. To prevent unexpected stalling, always check the oil level before starting the engine.

Caution:

- When refuelling, do not fill the fuel above the shoulder of the fuel filter (top level).
- Use unleaded petrol of grade 90 or higher. Unleaded fuel produces less carbon buildup, helping to prolong the service life of the exhaust system.
- Do not use waste fuel, contaminated fuel, fuel mixed with engine oil, or old gasoline, as these can damage the engine and exhaust system.

4.3 Check the Air Filter

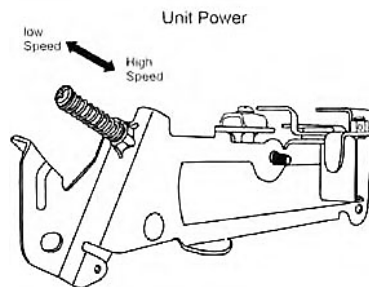
Remove the filter cover and inspect the filter element. Clean or replace it as necessary.



5. START THE ENGINE

When starting the cooler, place the shutter handle on the machine in the “OFF” position. After the engine starts, move the shutter handle to the “OPEN” position.

Move the speed control handle from “LOW SPEED” toward “HIGH SPEED,” stopping at approximately one-third of the distance before reaching the full “HIGH SPEED” position.

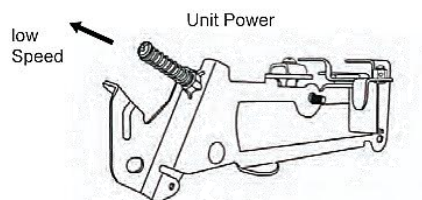


6. STOP THE ENGINE

In an emergency, the quickest way to stop the engine is to turn the engine switch to the “OFF” position.

Under normal conditions, follow the shutdown procedure below:

- 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

After warming up the engine, the oil drains more easily, ensuring faster and more complete removal of the used oil.

- Place a suitable container beneath the engine to collect the used oil. Remove the dipstick and loosen the drain bolt and washer.
- After the oil has fully drained, reinstall the drain bolt and washer, and tighten them securely.

For environmental protection, dispose of used oil properly. It is recommended to take the waste oil to a local service station or recycling centre. Do not discard oil containers in general waste and never pour used oil on the ground or into drains or ditches.

- Place the engine on a level surface and refill with the recommended engine oil until the oil level reaches the upper limit.

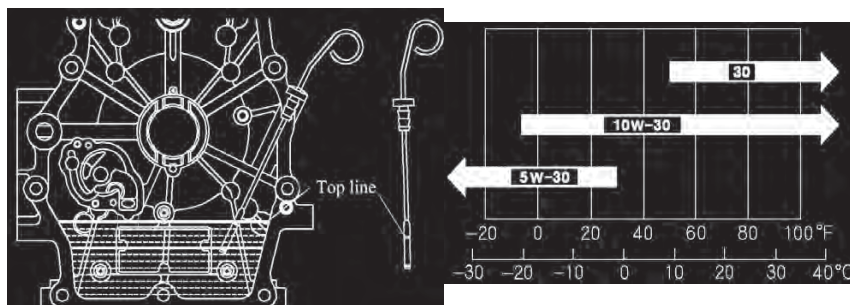
Engine Oil Capacity:

- Without replacing the fine oil filter: 1.3 L
- With fine oil filter replacement: 1.5 L
- Reinstall the dipstick and securely tighten the filler cap.

Recommended Engine Oil:

Use 4-stroke engine oil that meets the following specifications:

- API classification: SE, SF, or SG equivalent
- Viscosity grade: SAE 10W-30



If the temperature range in your area falls within the limits shown in the chart, select the engine oil grade that corresponds to that range.

7.3 Maintain Air Filter

A dirty air filter element will restrict airflow and reduce engine power. In dusty operating environments, perform air-filter maintenance more frequently than the standard maintenance schedule.

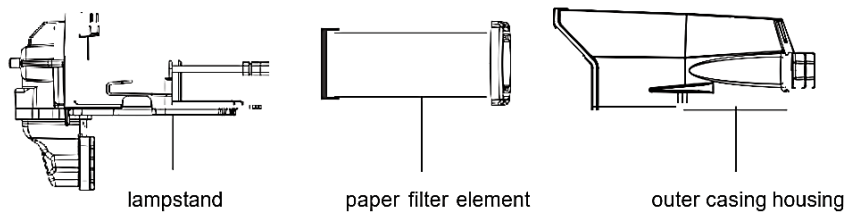
Using incorrect or damaged filter elements can allow dust to enter the engine, causing accelerated wear and severe damage.

Paper Filter Element Air Filter:

- Unscrew the plastic knob and remove the outer cover.
- Remove the paper filter element.
- Inspect the filter element and replace it if it is damaged. Normally, the paper filter element should be replaced according to the recommended maintenance interval.

To clean the paper filter element:

- Gently tap the filter repeatedly against a hard surface to remove accumulated dust, or
- Blow compressed air from the inside outward (pressure not exceeding 2.1 kg/cm^2).
- Do not use a brush, as brushing forces dust deeper into the fibres and blocks the airflow passages.
- Clean the lower case and the inside of the air filter housing. Prevent dust from entering the air intake leading to the carburettor.
- Reinstall the paper filter element correctly.
- Install the outer cover and tighten the plastic knob.

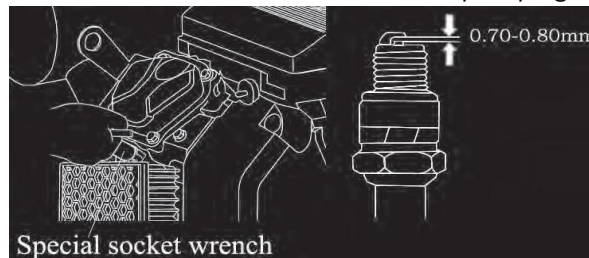


7.4 Spark Plug

It is recommended to use an F7TC spark plug or an equivalent type.

Caution: Using an incorrect spark plug type may damage the engine.

- Remove the spark plug cap and clean any dust or debris around the spark plug.
- Use the proper spark plug socket wrench to unscrew and remove the spark plug.



- Inspect the spark plug. If the electrode is damaged or the insulator is cracked, replace the spark plug. The correct electrode gap is 0.70–0.80 mm. Adjust the side electrode if needed.

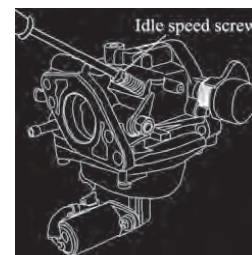
Carefully thread the spark plug into the cylinder head by hand to avoid damaging the threads.

- Once the spark plug is seated, tighten it using the spark plug socket wrench to compress the washer.
- If reinstalling a used spark plug, tighten it an additional 1/8 to 1/4 turn after the washer is compressed.
- Reinstall the spark plug cap securely.

7.5 Regulate Idle Speed

- Start the engine outdoors and allow it to warm up for a short period.
- Move the speed regulation lever to the “LOW” position.
- Adjust the idle speed using the proper tool and set it within the specified range:

Standard idle speed: $1600 \pm 160 \text{ rpm}$



8. ENGINE STORAGE

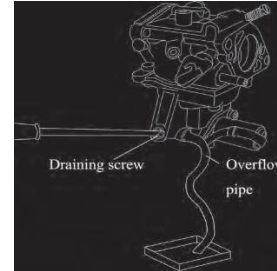
After the engine has stopped, do not clean it until it has cooled for at least 30 minutes. Clean all external surfaces and repair any damaged paint. Apply anti-rust oil to areas showing signs of corrosion.

Caution:

- Do not rinse the engine with high-pressure water, as it may enter the air cleaner, muffler, or cylinder through the intake line, causing rust.
- Do not clean the engine while it is hot, as splashing water on a hot engine can cause damage.

Carburettor Fuel Drain Procedure:

- Place a container under the carburettor, below the overflow pipe.
- Unscrew the carburettor drain screw and allow the fuel to drain from the overflow pipe into the container. After draining, securely tighten the drain screw.



- When using the engine again, replace the engine oil.
- Remove both spark plugs.
- Pour 5–10 ml of oil into each cylinder head.
- Rotate the engine several times to distribute the oil evenly inside the cylinder head.
- Reinstall the spark plugs.
- Rotate the engine slowly until resistance is felt. This ensures that all valves are closed, preventing moisture from entering the engine.
- Cover the engine with a dust cap and store it in a dry, well-ventilated area.
- For battery maintenance during storage, charge the battery once a month to prolong its service 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
				Improper spark plug clearance	Regulate clearance
		Spark Plug Normal	No Spark	High tension wire damaged	Replace high tension wire
				Ignition coil damaged	Replace high tension coil
				Magnetic intensity insufficient	Magnetize or replace
Cylinder Pressure Abnormal				Fuel System Normal	Ignition System Normal
	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)

Choose a 12V battery with a rated capacity of 20Ah or higher.

Caution:

Never connect the battery terminals in reverse. Reversing the positive and negative electrodes can cause severe damage to both the engine and the battery.

Check the electrolyte level in each cell. The level should be between the upper limit and lower limit marks.

If the electrolyte is below the lower limit, remove the cell cap and add distilled water until it reaches the upper limit.

Ensure that the electrolyte levels in all cells are kept at approximately the same height.

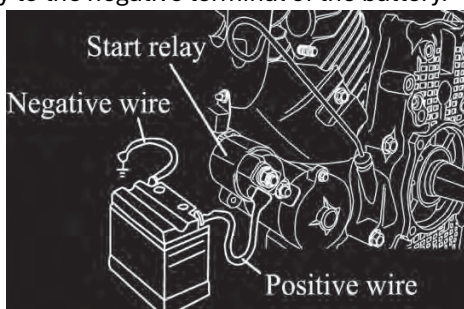


- If it operates improperly, the battery may explode, thus, hurt may occur to the persons around, therefore, keep the smoke and flame and inflammable things away from the battery.
- The battery will release explosion gas, keep the fire away from it. When charge the battery or use the battery, keep ventilating.

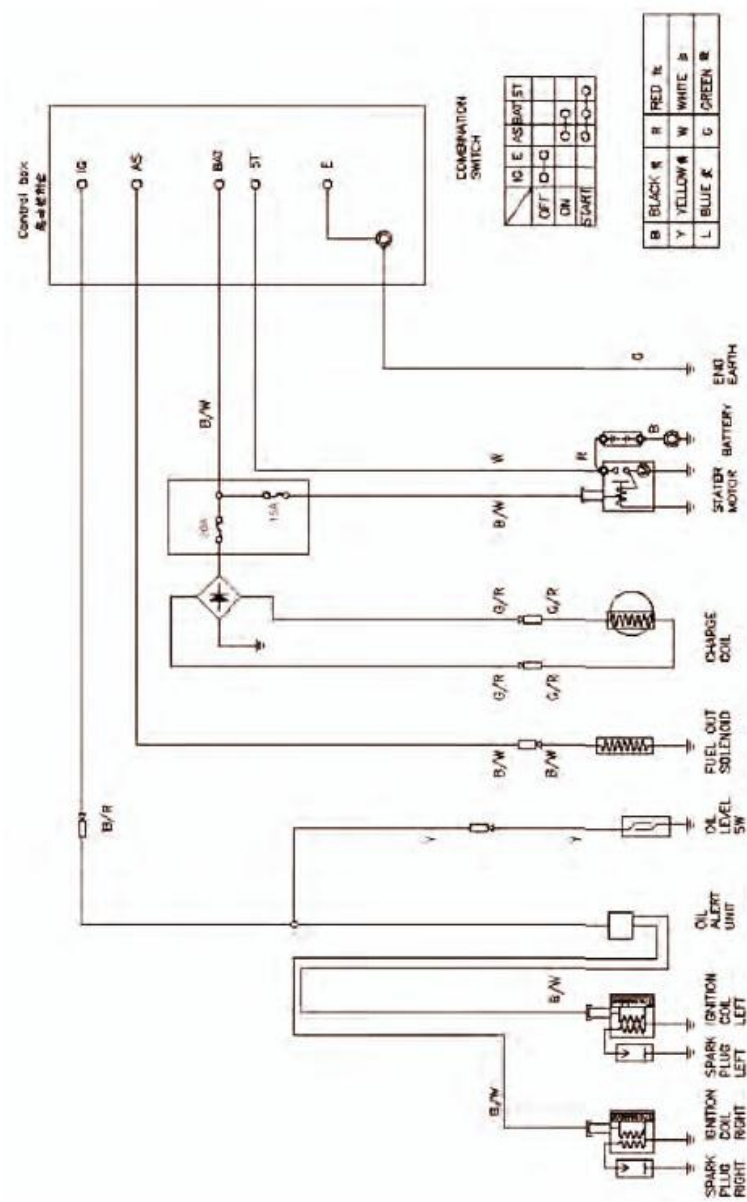
Connect start motor,

Be careful not to connect the terminals in reverse, or short circuit occurs. As usual, connect the positive electrode before doing the negative one.

- Connect positive wire of the battery to the terminal of start relay.
- Connect negative wire of the battery to the screw of engine bracket.
- Connect positive wire of the battery to the positive terminal of the battery.
- Connect negative wire of the battery to the negative terminal of the battery.



11. WIRING DIAGRAM



12. ENGINE PARAMETERS

Engine Type	VPHL750
Displacement (bore X stroke)	744ml (80x74mm)
Rated power (kW/3600rpm)	17,5
Max torsion(N·m) speed(rpm)	52 / 2800
Fuel rate (g/kW·h)	370
Idle speed (rpm)	1600±160
Speed fluctuation ratio	
Start mode	Electric start
Rotation direction	Counterclockwise (viewed from the output end direction)
Valve gap (mm)	Inlet 0.10-0.15
	Outlet 0.15-0.20
Spark plug	F7TC / F7RTC
Plug clearance (mm)	0.7-0.8
Ignition mode	Thyristor no-contact ignition
Type of air cleaner	Paper element
Dimension (mm) LXWXH	516x460x485
Net weight (kg)	50

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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