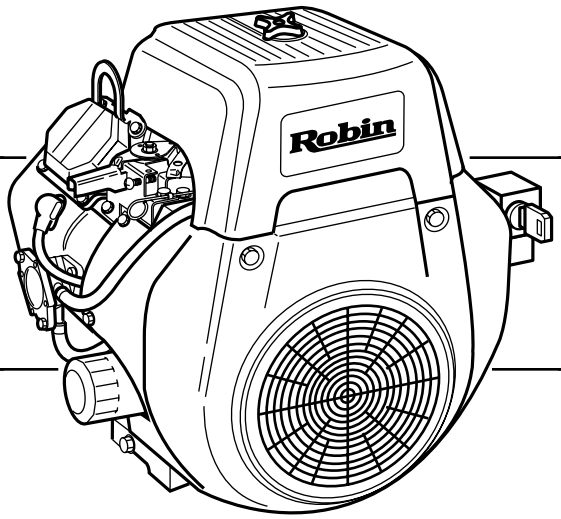
MODEL

EH63D
EH64D
EH65D

INSTRUCTIONS FOR USE
MANUEL D'UTILISATION
BEDIENUNGSANLEITUNG
GEBRUIKSAANWIJZING
MANUAEL D'USO E MANUTENZIONE



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ISSUE EMD-EU1213

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Robin Engines

FOREWORD

Thank you very much for purchasing a **ROBIN ENGINE**.

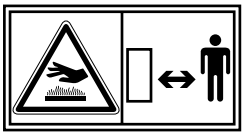
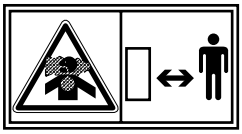
Your ROBIN ENGINE can supply the power to operate various sorts of machines and equipment.
Please take a moment to familiarize yourself with the proper operation and maintenance procedures in order to maximize the safe and efficient use of this product.
Due to constant efforts to improve our products, certain procedures and specifications are subjected to change without notice.
When ordering spare parts, always give us the MODEL, SPECIFICATION and SERIAL NUMBER of your engine.
Please fill in the following blanks after checking the specification number on your engine.

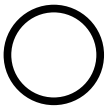
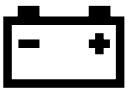
SPEC NO. | E | H | | | | | | | | | | | | |

SERIAL NO. | | | | | | | |

CONTENTS

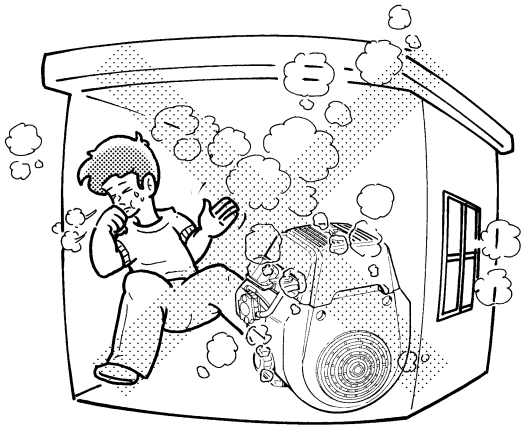
SYMBOLS

	***Read the owner's manual.***
	***Stay clear of the hot surface.***
	***Exhaust gas is poisonous.*** ***Do not operate in an unventilated area.***
	***Stop the engine before refueling.***
	***Fire, open flame and smoking prohibited.***

	On (Run)		***Plus ;*** ***positive polarity***
	***Off (Stop)***		***Battery***
	***Engine oil***		***Engine start (Electric start)***
	***Add oil***		

1. SAFETY PRECAUTIONS

Please make sure you review each precaution carefully.



EXHAUST PRECAUTIONS

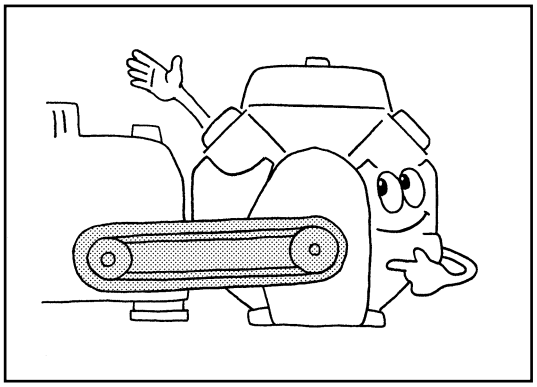
- Never inhale exhaust gas.
  It contains carbon monoxide, a colorless, odorless and extremely dangerous gas which can cause unconsciousness or death.
- Never operate the engine indoors or in a poorly ventilated area, such as tunnel, cave, etc.
- Exercise extreme care when operating the engine near people or animals.
- Keep the exhaust pipe free of foreign objects.

REFUELING PRECAUTIONS

- Be sure to stop the engine prior to refueling.
- Do not overfill the fuel tank.
- If fuel is spilt, wipe it away carefully and wait until the fuel has dried before starting the engine.
- After refueling, make sure that the fuel cap is secured to prevent spillage.

FIRE PREVENTION

- Do not operate while smoking or near an open flame.
- Do not use around dry brush, twigs, cloth rags, or other flammable materials.
- Keep the engine at least 3 feet (1 meter) away from buildings or other structures.
- Keep the engine away from flammables and other hazardous materials (trash, rags, lubricants, explosives).



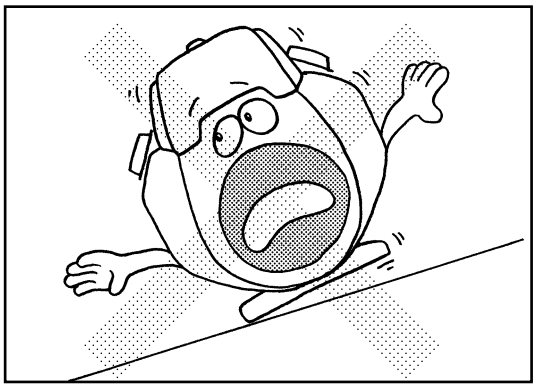
PROTECTIVE COVER

■ **Place the protective covers over the rotating parts.**
If rotating parts such as the drive shaft, pulley, belt, etc. are left exposed, they are potentially hazardous.
To prevent injury, equip them with protective covers or shrouds.

■ **Be careful of hot parts**.
The muffler and other engine parts become very hot while the engine is running or just after it has stopped. Operate the engine in a safe area and keep children away from the running engine.

■ Never make adjustments on the machinery while it is connected to the engine, without first removing the ignition cable from the spark plug. Turning the crankshaft by hand during adjusting or cleaning might start the engine, and the machinery with it, causing serious injury to the operator.

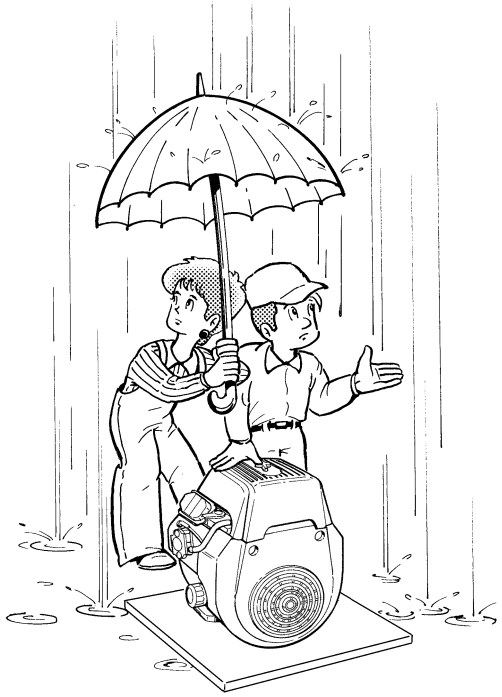
■ Never run the engine with governor disconnected, or operate at speeds in excess of 3600 rpm load.



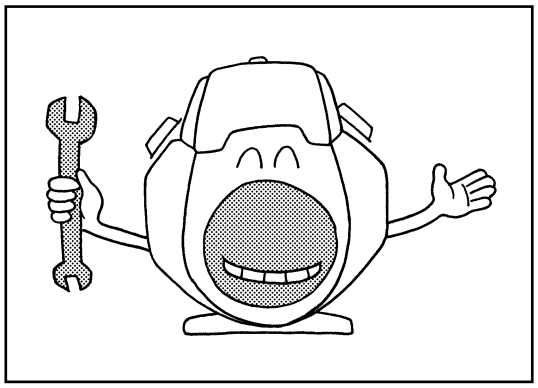
SURROUNDINGS

■ Operate the engine on a stable, level surface free of small rocks, loose gravel, etc.

NOTE
Operating the engine at a steep incline may cause seizure due to improper lubrication even with a maximum oil level.



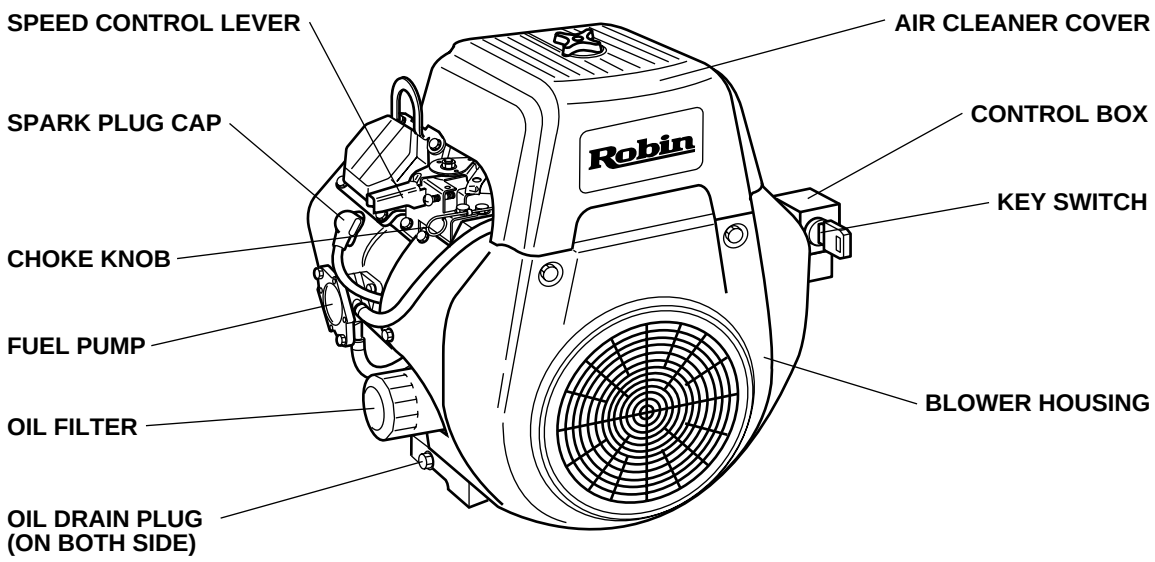
- **Drain the fuel when transporting the engine.**
- **Do not move the engine while in operation when it has been removed from the equipment.**
- Keep the unit dry (do not operate it in rainy conditions).

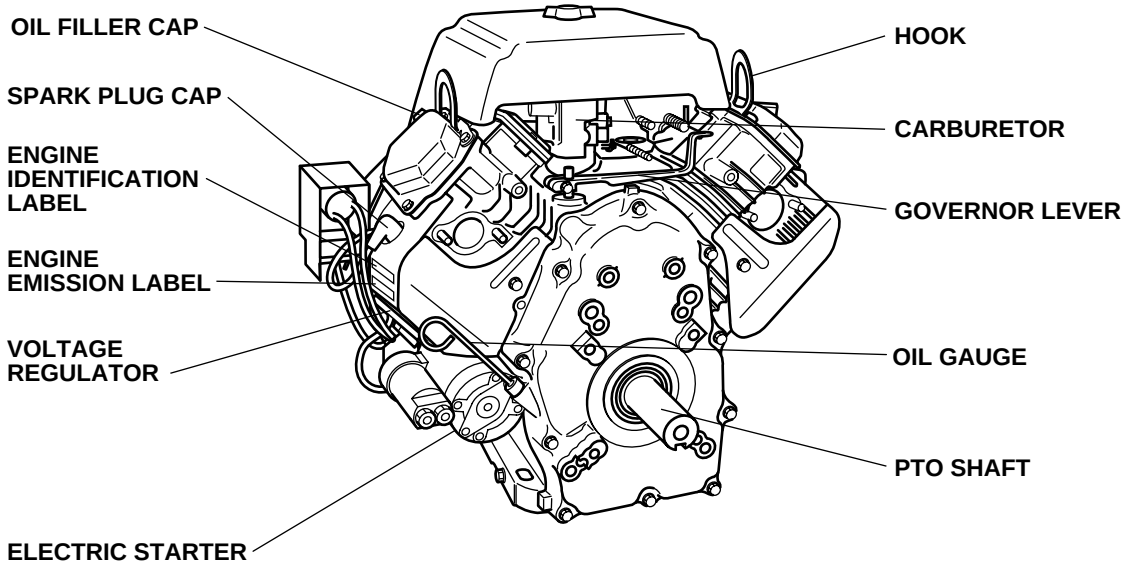


PRE-OPERATION CHECKS.

- Carefully check fuel hoses and connections for looseness and fuel leakage. Leaking fuel creates a potentially dangerous situation.
- Check bolts and nuts for looseness. A loose bolt or nut may cause serious engine trouble.
- Check the engine oil daily and refill if necessary.
- Check the fuel level and refill if necessary.
  Do not overfill the tank.
- Wear snug fitting working clothes when operating the engine.
  Loose aprons, towels, belt, etc., may be caught in the engine or drive train, causing a dangerous situation.

2. COMPONENTS

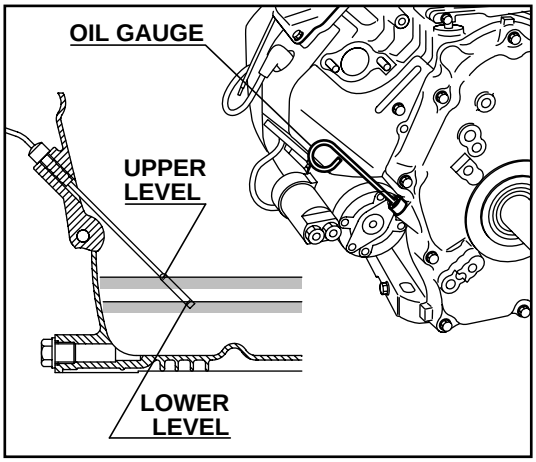


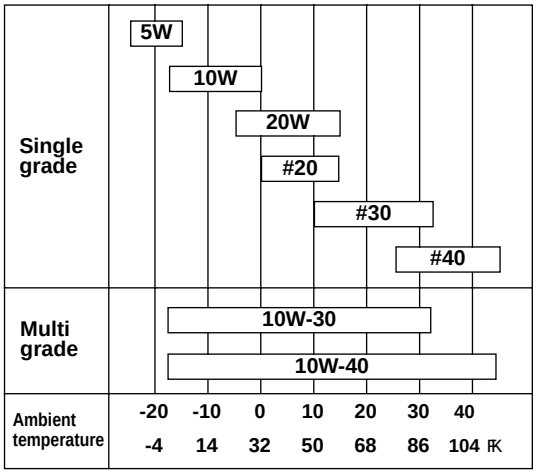


REMARKS :

- Fuel tank, valve (sediment bowl type is recommended), fuel hoses, and fuel filter are required for connecting fuel source to carburetor.
- A battery rated at 12V-30AH or larger with the specified cable are required for electric starter operation. Make the proper electrical wiring arrangements before normal engine operation. See Section 4 in this manual for instructions.

3. PRE-OPERATION CHECKS

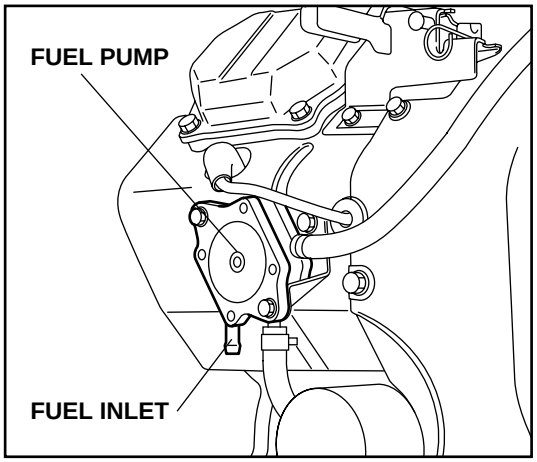




CHECK ENGINE OIL (DAILY)

Before checking or refilling engine oil, be sure the engine is not running and is located on a stable, level surface.

- If the oil level is below the lower level line on the oil gauge, refill with the proper oil (see table) to the upper level.
  OIL CAPACITY : 1.55 liter
- When filling oil in the engine, keep the engine level and fill the oil up to the upper mark of the oil gauge. Measure the oil level with the oil gauge plugged in position.
- After an oil change, run the engine, and recheck the oil level. The oil level may drop a little as the oil fills the oil filter. Fill the oil up to the upper mark of the oil gauge.
- Change oil if it is contaminated. (See page 14 Maintenance Schedule.)
- Use class SE, SF (API classification) or higher grade oil.
- If multi-grade oil is used, oil consumption tends to increase when the ambient temperature is high.



CHECK FUEL

⚠ WARNING

Do not refuel while smoking, near an open flame or other potential hazards.

■ The fuel tank shall be provided separately, because the engine is not equipped with a fuel tank.

A fuel valve and fuel filter should be connected between the fuel tank and fuel pump.

Securely connect with fuel hoses to the fuel pump to prevent leakage.

■ Fuel tanks may be mounted up to .66 meters (2 feet) below the carburetor.

If the fuel tank is mounted above the carburetor, a fuel shut off valve must be connected between the fuel tank and fuel pump. The fuel valve must be shut off when the engine is not operating to prevent fuel from flooding the carburetor.

■ A serious accident may occur if the fuel hose comes off. Properly secure the fuel line connections by completely inserting the hose onto the fittings and securing the connection with a hose clamp.

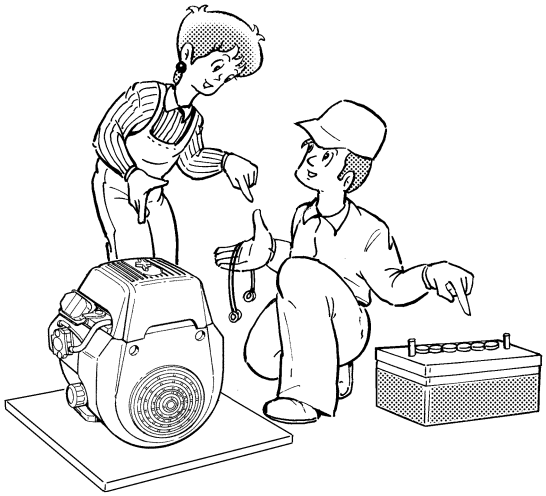
■ Use unleaded gasoline only.

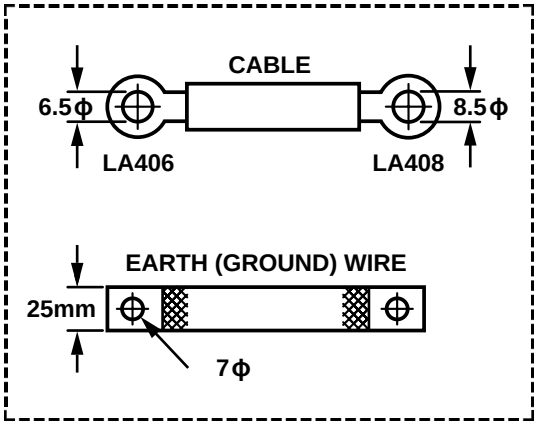
■ Stop the engine and close the fuel valve before filling the fuel tank.

■ Wipe off any spilled fuel before starting the engine.

4. BATTERY INSTALLATION

For electric starter operation, proper electric wiring arrangements are needed before normal engine operation.





PARTS NEEDED

- Use a battery rated 12V-30AH or larger.
- Use a proper cable and ground wire to connect battery and key switch and magnetic switch.

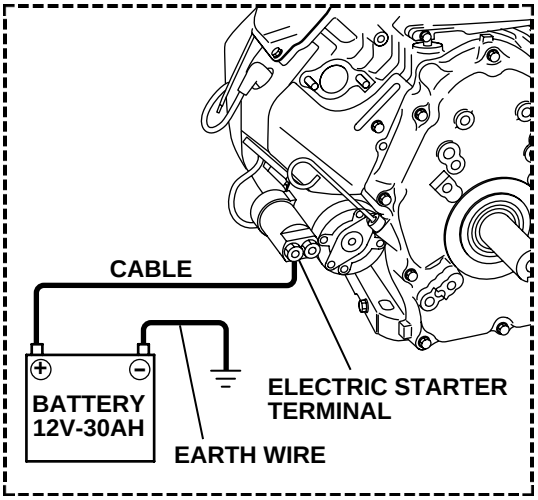
BATTERY CABLE

CABLE LENGTH	CABLE DIA.	WIRE GAUGE		
		AWG (BS) BWG	SAE	JIS
Less than 1.5 m	7.3 mm	1	6	AV15
1.5 m to 2.5 m	8.5 mm	0	4	AV20
2.5 m to 4.0 m	10.8 mm	3/0	2	AV30

GROUND WIRE, use a flat braided wire of 0.03 sq. in. or larger sectional area. (SAE GAUGE 4)

KEY SWITCH CABLE

CABLE LENGTH	CABLE DIA.	WIRE GAUGE		
		AWG (BS)	BWG	JIS
Less than 1.5 m	1.5 mm	14	16	AV1.25
1.5 m to 3.0 m	1.9 mm	12	14	AV2
3.0 m to 5.0 m	2.4 mm	10	13	AV3



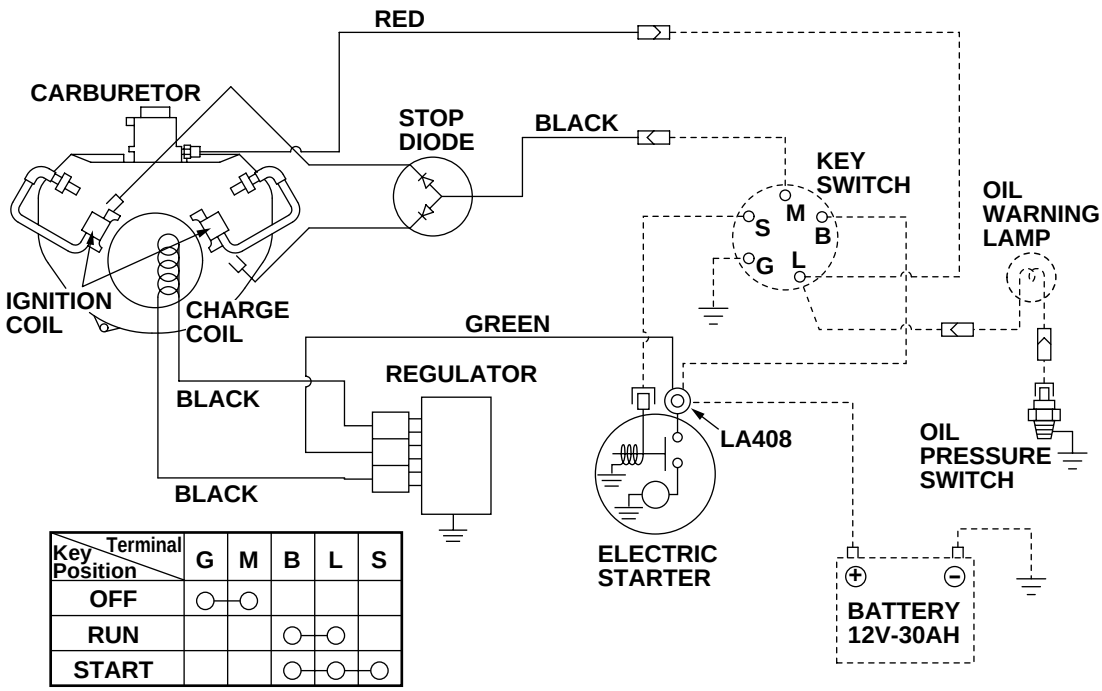
WIRING

- **Connect positive terminal of electric starter and positive terminal of the battery with battery cable.**
- **Ground negative terminal of the battery to the body of engine or machine with ground wire.**

NOTE

Tighten bolts and nuts on terminals securely so they will not be loosened by vibration.

WIRING DIAGRAM



Key Position \ Terminal	G	M	B	L	S
OFF	○	○			
RUN			○	○	
START			○	○	○

Key switch (Option parts)

Optional hardware shown by dotted lines. Select wires of proper gauge and connect battery as shown by the dotted line in the wiring diagram.

5. OPERATING YOUR ENGINE

STARTING

FUEL VALVE

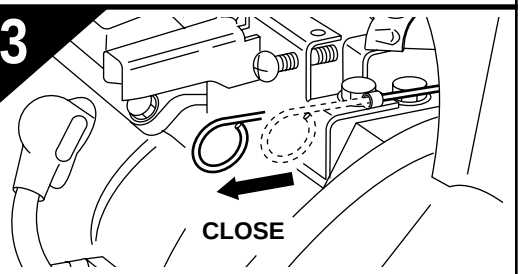
1

(Provided by the equipment manufacturer)

Open the fuel valve.

CHOKE KNOB

3

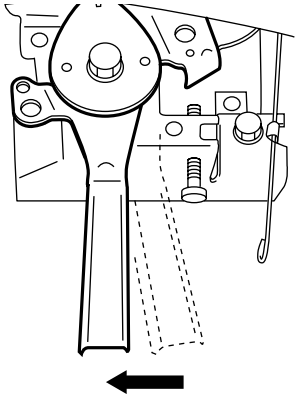


Pull the choke knob.

- If the engine is cold or the ambient temperature is low, pull the choke knob fully.
- If the engine is warm or the ambient temperature is high, pull the choke knob half-way, or keep it fully open.

SPEED CONTROL LEVER

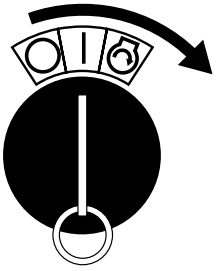
2



Set the speed control lever 1/3 of the way towards the high speed position.

ELECTRIC STARTER

4

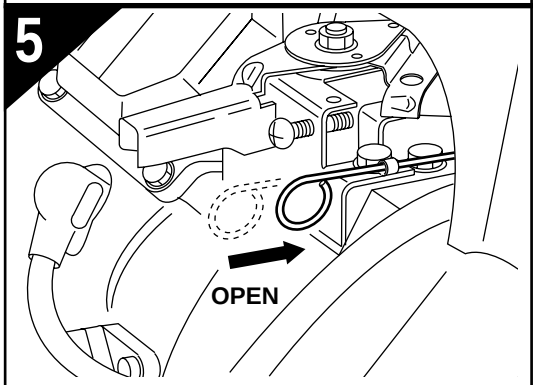


Turn the key switch to the "START" position.

- Do not operate the electric starter continuously for more than 5 seconds, even if the engine dose not start.
- If the engine failed to start, set the key to the "RUN" position and wait for about 10 seconds before retying.
- Never turn the key switch to the "START" position while engine is running.

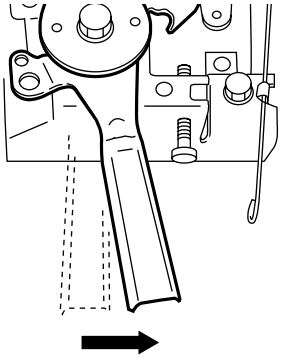
RUNNING

CHOKE KNOB

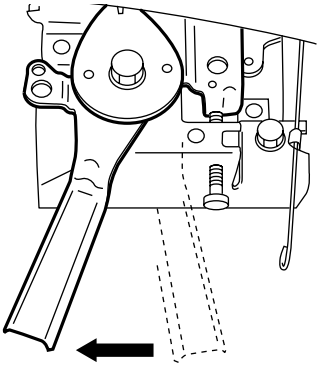


- After starting the engine, gradually open choke by pushing the choke knob and finally keep it fully opened.
- Do not fully open the choke immediately when the engine is cold or the ambient temperature is low, because the engine may stop.

SPEED CONTROL LEVER



After the engine starts, set the speed control lever at the low speed position and warm it up without load for a few minutes.



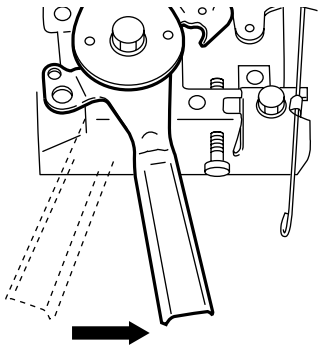
Gradually move the speed control lever toward the high speed position and set it at the required engine speed.

NOTE :
Whenever high speed operation is not required, slow the engine down (idle) by moving the speed control lever to save fuel and extend engine life.

STOPPING

SPEED CONTROL LEVER

1



Set the speed control lever at the low speed position and allow the engine to run at low speed for 2 or 3 minutes before stopping.

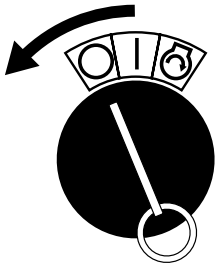
FUEL VALVE

3

Close the fuel valve.

ELECTRIC STARTER

2



Turn the key switch to the "STOP" position.

STOPPING ENGINE WITH THE FUEL VALVE

Close the fuel valve while the engine is running and wait until the engine stops.

Set the key switch to the "STOP" position after stopping the engine.

This procedure eliminates the fuel from the carburetor.

Avoid allowing the fuel to remain in the carburetor over long periods, or the passages of the carburetor may become clogged and malfunctions may result.

6. EASY TROUBLESHOOTING

WHEN ENGINE WILL NOT START:

■ Perform the following checks before you take the engine to your Robin dealer.

■ If you still have trouble after completing the checks, take the engine to your nearest Robin dealer.

Is there enough compression?

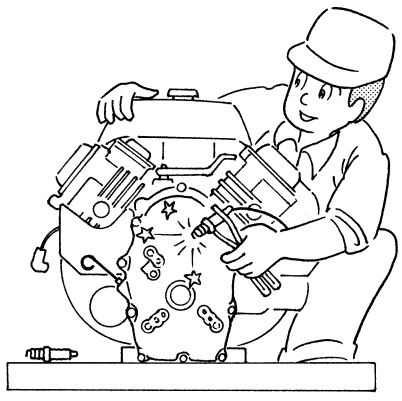
If the spark plug is loose, tighten it.

Is the spark plug wet with gasoline?

1. Choke (close choke lever) and slowly start the engine for 2 or 3 seconds. Remove the plug and check if its electrode is wet. If the electrode is wet, fuel is well supplied to your engine.
2. When the electrode is dry, check to find where the fuel is restricted. (Check the fuel intake of the carburetor and fuel strainer intake.)
3. In case the engine does not start with well supplied fuel, try using fresh fuel.

⚠ WARNING

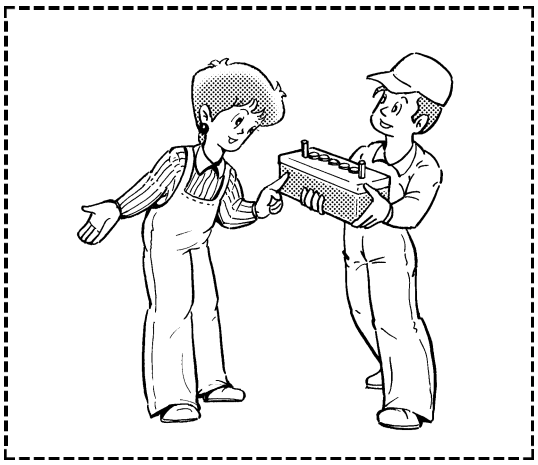
Wipe off spilled fuel carefully before checking the spark plug. Place spark plug as far away from spark plug hole as possible. Do not hold spark plug by hand while checking.



Is there a strong spark across the electrode?

1. Remove the spark plug and connect it to the plug cap.

   Turn key switch to START position while grounding spark plug against engine body.
2. Try with a new spark plug if the spark is weak or there is no spark.
3. The ignition system is faulty if there is no spark with a new spark plug. Take your engine to your nearest Robin dealer.



Is your battery well charged ?

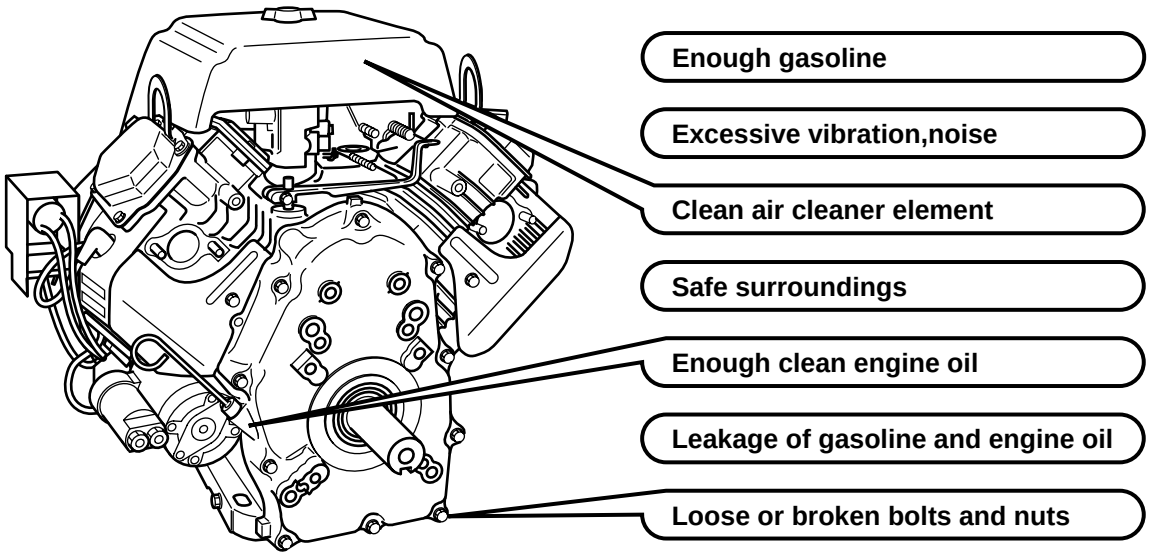
Check the battery, it may be discharged and unable to operate the electric starter.

Consult your nearest dealer or service shop.

7. MAINTENANCE SCHEDULE

DAILY INSPECTION

Before running the engine, check the following service items.



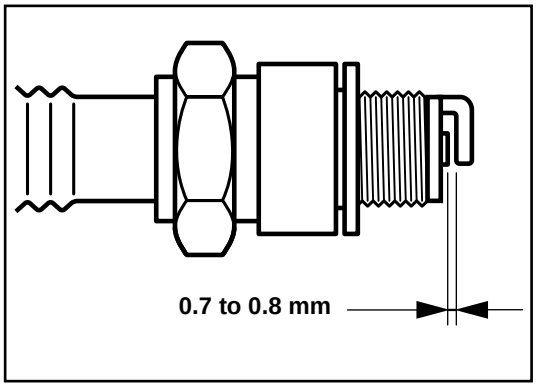
PERIODIC MAINTENANCE

Periodic maintenance is vital to safe and efficient operation of your engine.
Check the table below for periodic maintenance intervals.
The following chart is based on the normal engine operation schedule.

(Periodic Maintenance Schedule table)

Maintenance Items	Every 8 hours (daily)	Every 50 hours	Every 200 hours	Every 500 hours	Every 1000 hours
Clean engine and check bolts and nuts	● (Daily)				
Check and refill engine oil	● (Refill daily to fuel level)				
Change engine oil		●			
Check battery electrolyte fluid level		●			
Clean spark plug		●			
Clean air cleaner		●			
Clean fuel strainer			●		
Replace air cleaner element			●		
Clean and adjust spark plug and electrodes			●		
Replace engine oil filter			●		
Clean carburetor				●	
Clean cylinder head				●	
Clean engine base (oil pan)				●	
Check and adjust vale seats				●	
Adjust valve clearance				●	
Replace spark plug				●	
Replace fuel line					●
Overhaul engine if necessary					●

8. "HOW-TO" MAINTENANCE

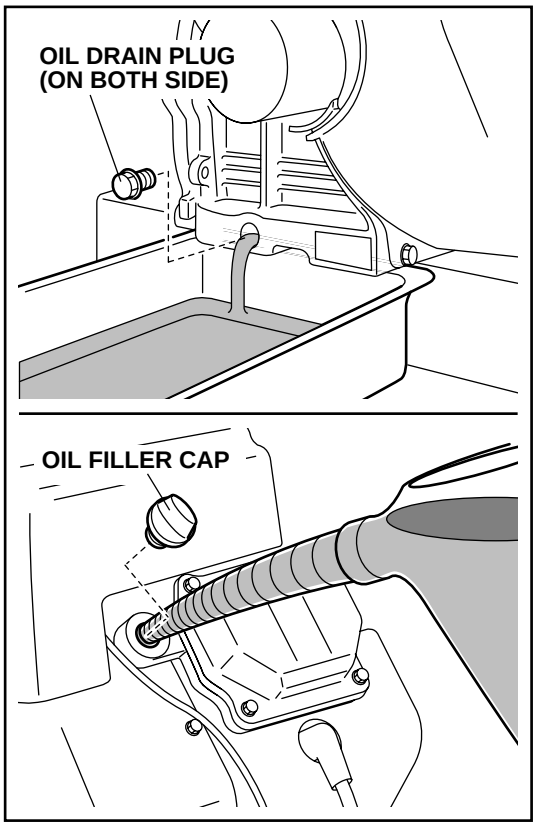


INSPECTING THE SPARK PLUG

■ Clean off carbon deposits on the spark plug electrode using a plug cleaner or wire brush.

■ Check electrode gap.
Adjust gap to : 0.7mm to 0.8mm

■ Use a proper spark plug :
NGK : BP6ES



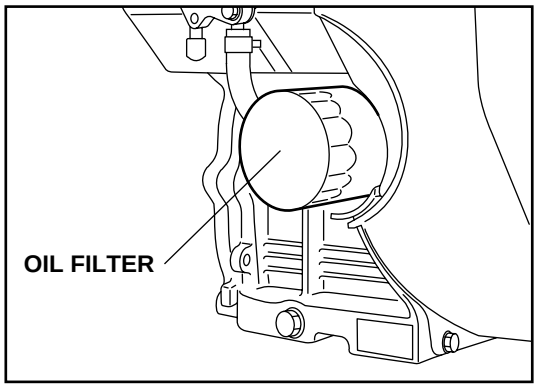
ENGINE OIL CHANGE

■ Initial oil change
・・・・・After 20 hours of operation

■ Thereafter
・・・・・Every 50 hours of operation

1. When changing oil, stop the engine and loosen the drain plug.
2. Re-install the drain plug before refilling oil.
3. Refer to the recommended oil table on page 5.
4. Always use the best grade and clean oil. Contaminated oil, poor quality oil and shortage of oil cause damage to engine or shorten the engine life.

OIL CAPACITY : 1.55 liter

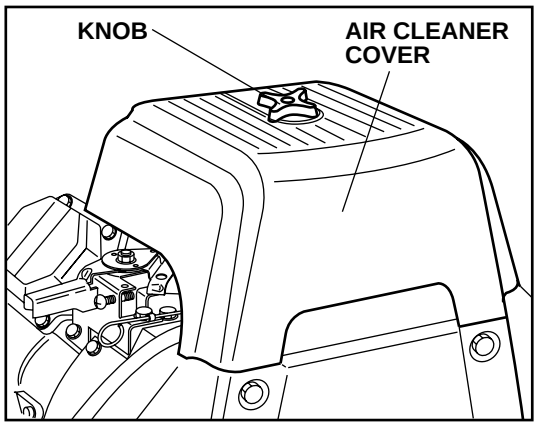


⚠ CAUTION

To prevent injury, pay attention to the spilled hot engine oil when replacing engine oil filter.

ENGINE OIL FILTER REPLACEMENT

- Initial engine oil filter replacement should be performed after 20 hours of operation. Thereafter replace the engine oil filter every 200 hours.
- When installing a new oil filter, apply oil to O-ring, attach the oil filter in position and tighten 2/3 turns by hand or with wrench after touching the O-ring to the sealing surface of engine.
- Run the engine for a minute ; stop the engine and check for oil leakage around the oil filter and recheck the oil level.

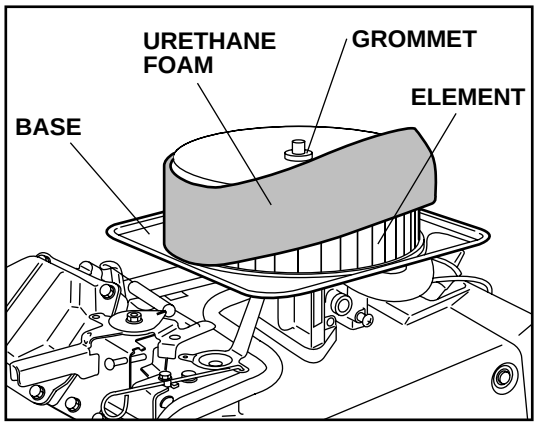


CLEANING AIR CLEANER

A dirty air cleaner element will cause starting difficulty, power loss, engine malfunctions, and shorten engine life extremely.

Always keep the air cleaner element clean. Replaced the air cleaner element set more often in dusty environments.

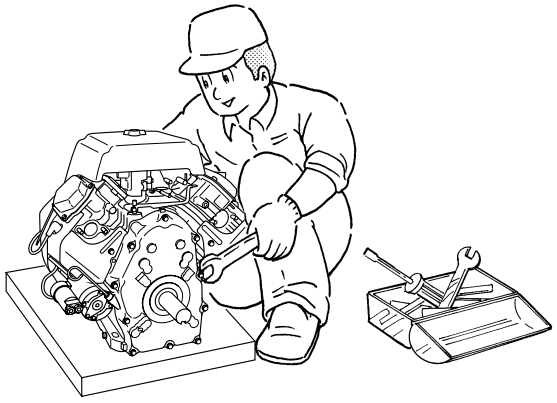
The air cleaner paper inner element and urethane foam outer element can be removed after removing knob and air cleaner cover. When installing, set the paper element and urethane foam on the air cleaner base. Check that the grommet is in position, and then install the cover with knob tightened securely.



- Urethane Foam cleaning
  Wash and clean the urethane foam in kerosene. Saturate in a mixture of 3 parts kerosene and 1 part engine oil, and then squeeze to remove excess oil. Clean or replace the urethane foam element every 50 hours. (more often in dusty environments)

■ Paper element

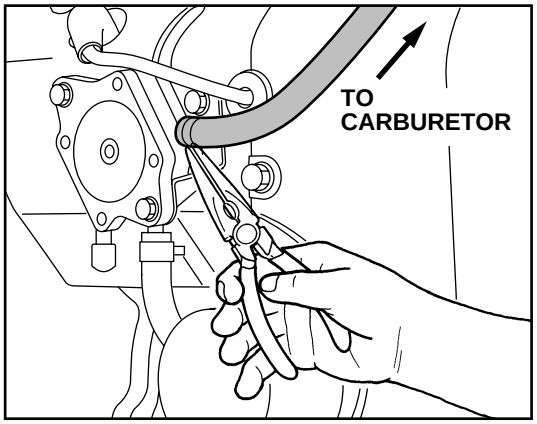
Clean by tapping gently to remove dirt and blow off dust. Never use oil.
Clean or replace the paper element every 50 hours of operation, and replace element set every 200 hours or once a year.



Clean and replace air cleaner elements more often when operating in dusty environments.

CHECKING BOLTS, NUTS AND SCREWS

Retighten loose bolts and nuts.
Check for fuel and oil leaks.
Replace damaged parts with new ones.
Keep safety in your mind.

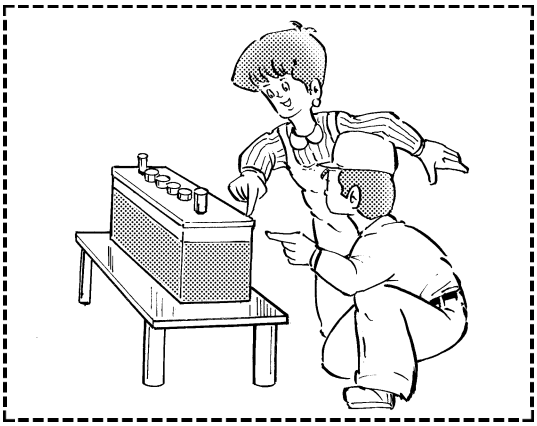


FUEL HOSE REPLACEMENT

⚠ WARNING

Take extreme caution when replacing fuel hose ; gasoline is flammable.

Replace the fuel hose every 1,000 hours or every year.
If fuel hose leak is found, replace the fuel hose immediately.



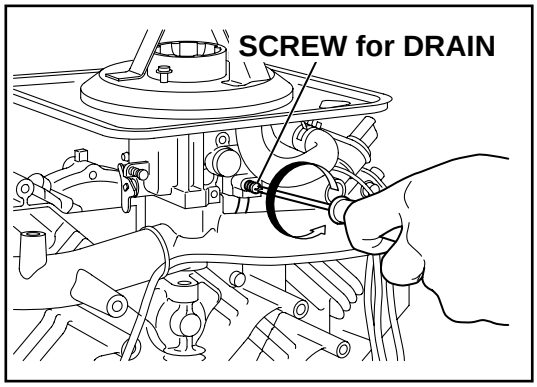
CHECKING BATTERY

⚠ WARNING

Battery electrolyte is an acid and is poisonous and corrosive.
Serious injury results from contact with the skin, eyes or clothing.

If the electrolyte fluid is below level line, refill battery with distilled water.

9. PREPARATIONS FOR STORAGE

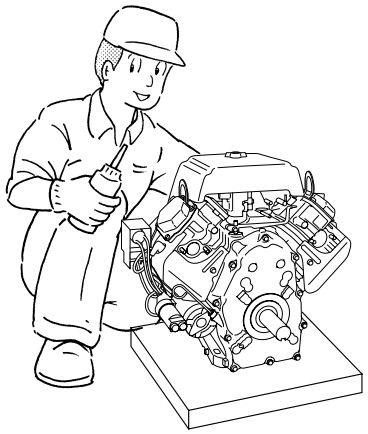


DISCHARGE FUEL (NO SMOKING !)

⚠ WARNING

Take extreme caution when draining gasoline. It is flammable.

Drain fuel from fuel tanks, carburetor and fuel line.



ENGINE OIL

- Change the engine oil with fresh oil.
- Remove the spark plug, pour about 5 cc of engine oil into the cylinder, slowly start the engine for 2 or 3 seconds, and re-install the spark plug.

CLEAN AND STORE

- Remove the spark plug wires from the spark plugs.
- Slowly turn the crankshaft until resistance is felt and leave it in that position.
- Clean the engine thoroughly with an oiled cloth, cover the engine, and store the engine indoors in a well ventilated, low humidity area.

10. SPECIFICATIONS

MODEL	EH63D	EH64D	EH65D
Type	Air-Cooled, 4-Stroke, V-Twin Cylinder, Horizontal P.T.O. shaft, OHV Gasoline Engine		
Bore x stroke	2-80 mm x 65 mm		
Displacement	653 cm^3		
Continuous Output kW (HP) / rpm	10.8 (14.5) / 3600	11.9 (16.0) / 3600	13.4 (17.0) / 3600
Maximum Output kW (HP) / rpm	13.4 (18.0) / 3600	15.3 (20.5) / 3600	16.4 (22.0) / 3600
Max. Torque N·m (kgf·m)/ rpm	43.3 (4.41) / 2000	44.4 (4.52) / 2200	45.6 (4.65) / 2500
Direction of Rotation	Counterclockwise as viewed from P.T.O. shaft side		
Lubricant	Automobile Engine Oil SAE #20, #30 or 10W-30 ; Class SE, SF or higher		
Capacity of Lubricant	1.55 liter		
Fuel	Automobile Unleaded Gasoline		
Spark plug	NGK BP6ES		
Starting System	Electric Starter		
Dry Weight	44 kg		
Dimension (L x W x H)	317 mm x 477 mm x 475 mm		

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