

# SUBARU



**WARNING:**



The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

## FOREWORD

Thank you for purchasing a Robin product.

Read this manual carefully to learn how to operate and maintain your engine correctly and safely.

Due to constant efforts to improve our products, certain procedures and specifications are subject to change without notice.

When ordering spare parts, always give us the MODEL, SPECIFICATION NUMBER and SERIAL NUMBER of your engine.

Check the specification number on your engine and fill in the following blanks for your convenience.

SPEC NO.

E	Y
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# SUBARU

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## SYMBOLS

	<i>Read the owner's manual.</i>		
	<i>Stay clear of the hot surface.</i>		
	<i>Exhaust gas is poisonous. Do not operate in an unventilated area.</i>		
	<i>Stop the engine before refueling.</i>		
	<i>Fire, open flame and smoking prohibited.</i>		
	<i>On (Run)</i>	+	<i>Plus; Positive polarity</i>
○	<i>Off (Stop)</i>		<i>Battery</i>
	<i>Engine oil</i>		<i>Engine start (Electric start)</i>
	<i>Add oil</i>		

# **1. SAFETY PRECAUTIONS**

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## **EXHAUST PRECAUTIONS**

- Do not run the engine in an enclosed area or in a poorly ventilated area such as tunnel, cave, etc.  
Exhaust gases contain carbon monoxide, an odorless and deadly poison.

## **FIRE PREVENTION**

A fire or explosion can occur resulting in personal injury if the following instructions are not followed:

1. Do not fill gasoline tank while engine is running. Refuel only after engine has cooled down.
2. Do not operate the engine when an odor of gasoline is present or other explosive conditions exist.
3. If gasoline is spilled, wipe off completely before starting the engine.
4. Do not smoke or allow open flames or spark while refueling, servicing fuel system, draining fuel and adjusting carburetor.
5. Refuel outdoors preferably, or only in well ventilated areas.
6. Do not operate engine without a muffler. Inspect muffler periodically and replace if necessary.
7. Keep clean the muffler area to prevent grass, dirt and combustible material from accumulating.
8. Do not use this engine on any forest covered, bush covered or grass covered unimproved land.
9. Except for adjustment, do not operate the engine if air cleaner or cover directly over the carburetor air intake is removed.
10. When transporting engine or equipment, the fuel valve must be shut off.

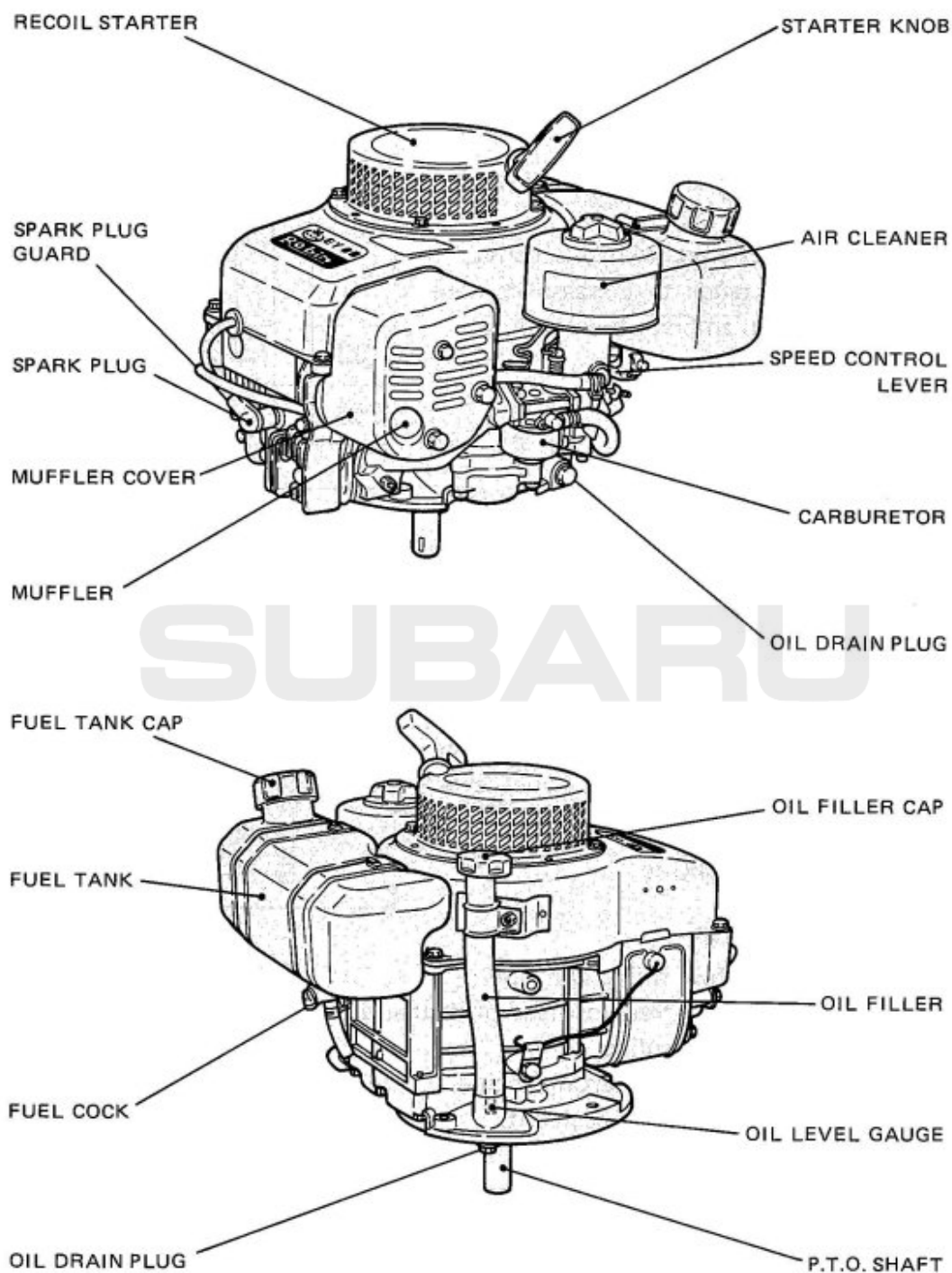
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## **AVOID PERSONAL INJURY**

- Do not run engine at excessive speeds.  
Operating an engine at excessive speeds increases the danger of personal injury.
- 1. Do not change governor setting.  
Do not tamper with governor springs, governor links or other parts which may increase the engine speed.
- 2. Do not tamper with the engine speed selected by the original equipment manufacturer.
- 3. Dirt and grass clippings or other debris in cooling fins or governor parts can affect engine speed.
- Do not touch hot mufflers, cylinders or fins as contact may cause burns.
- Do not touch high-tension cord or spark plug cap while engine is running to avoid an electric shock.
- Always keep hands and feet clear of moving or rotating parts.
- To prevent hand or arm injury, always pull starter rope rapidly to avoid kickback.
- To prevent accidental starting when servicing the engine or equipment, always remove the spark plug or wire from the spark plug.
- Do not strike flywheel with a hard object or metal tool as this may cause flywheel to shatter in operation, causing personal injury or property damage.

## 2. COMPONENTS

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### 3. PRE-OPERATION CHECKS

READ THE OPERATING INSTRUCTIONS OF THE EQUIPMENT THIS ENGINE POWERS.

#### ENGINE OIL

Use a high quality oil classified "For Service SF, SE, SD or SC."

Select the proper grade of oil viscosity.

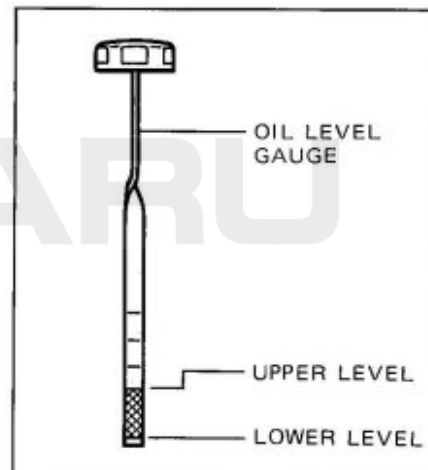
Multi-grade oil tends to increase its consumption at high ambient temperature.

RECOMMENDED SAE VISCOSITY GRADES	
Single grade	5W, 10W, 20W, #20, #30, #40
Multi-grade	10W-30, 10W-40
Ambient temperature	-20 -10 0 10 20 30 40°C -4 14 32 50 68 86 104°F

Before checking or refilling engine oil, be sure the engine is located on a stable, level surface and stopped.

- Remove the oil level gauge.
- When checking the oil level, do not screw the level gauge into the filler neck.
- If the oil level is low, refill with the proper oil (see table) to the upper level.
- Change oil if it is contaminated.

Oil Capacity : 560cc



#### FILL FUEL TANK

Close fuel cock before filling with fuel.

Use clean, fresh, "lead-free, low-lead or regular grade leaded" gasoline.

Do not mix oil with gasoline.

Wipe off spilt fuel before starting engine.

Spilt fuel could cause a fire accident.

Fuel Tank Capacity: 1.5 liters

Large capacity fuel tank is available as option: 1.9 liters

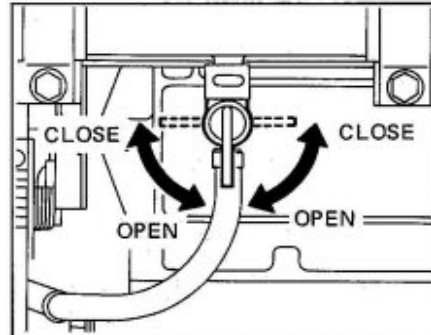
#### ⚠ WARNING

Do not refuel while engine is running or hot.

## 4. OPERATING YOUR ENGINE

### STARTING

Open fuel cock.

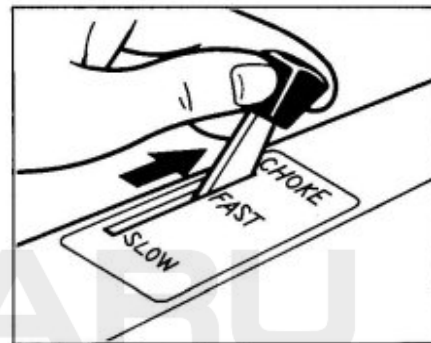


### CHOKE

Move equipment control lever to "CHOKE" position.

**NOTE:**

*A warm engine requires no choking or less choking than a cold engine.*



### TO START ENGINE

**CAUTION:**

**ALWAYS KEEP HANDS AND FEET CLEAR OF MOWER BLADE OR OTHER ROTATING MACHINERY.**

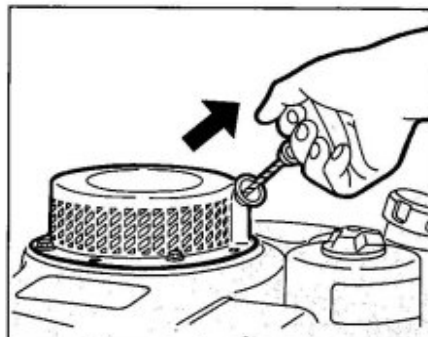


## RECOIL STARTER

1. Pull recoil starter rope slowly until you feel compression, then pull it swiftly.

### NOTE:

- Do not pull out rope all the way.
- Do not drop rope, hold on to knob while rewinding, or rope may rewind improperly and jam assembly.



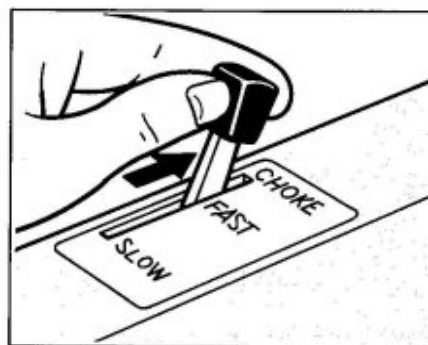
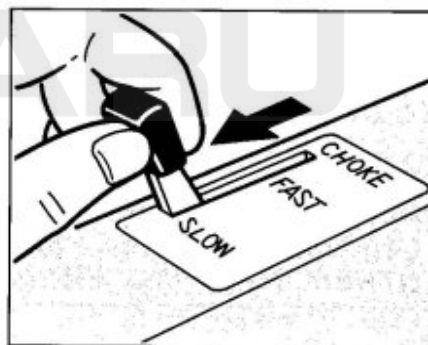
- If engine does not start after one or two attempts, open choke half-way. Should flooding occur, open choke fully and continue cranking.

## RUNNING

1. After engine starts, open choke by moving control lever on equipment toward slow speed position.
2. Warm-up by allowing engine to run at slow speed for about 5 minutes without load.
3. Gradually move the control lever toward "FAST" position and set it at the required engine speed.

### NOTE:

Whenever high speed operation is not required, slow engine down by moving the control lever. This practice will result in fuel economy and increase engine life.



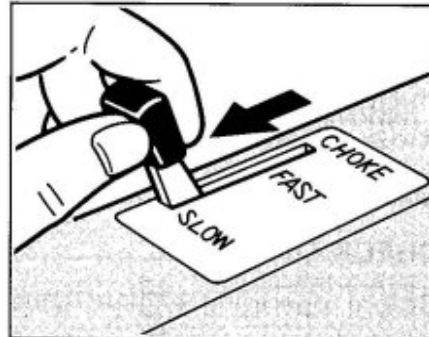
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## STOPPING

1. Move control lever to "SLOW" position until engine stops completely.
2. Close fuel cock.

### NOTE:

- *Do not stop engine while running at high speed.*
- *Do not choke carburetor to stop engine.*



# SUBARU

## 5. MAINTENANCE

### WARNING

To prevent accidental starting when servicing engine or equipment, always remove the spark plug or wire from the spark plug.

### DAILY INSPECTION

#### CHECK OIL LEVEL.

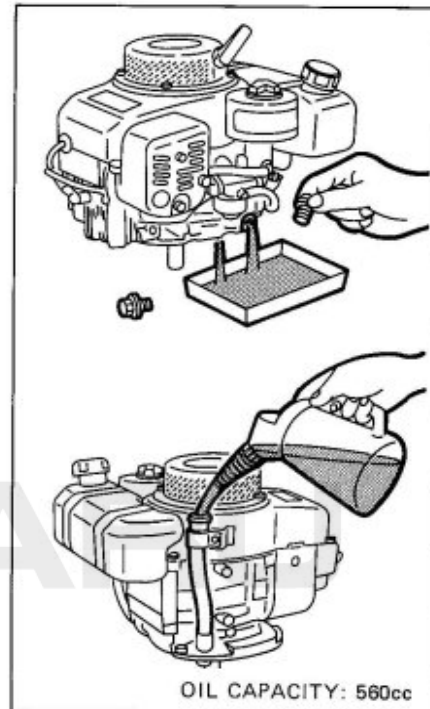
Before operating engine, check oil level regularly.

#### CHANGE ENGINE OIL.

Change engine oil after first 20 hours of operation.

Thereafter change every 50 hours of operation.

1. Remove oil drain plug and drain oil while engine is warm.  
Replace drain plug.
2. Remove oil level gauge and refill with fresh oil of proper grade.  
Replace oil level gauge.



### CLEANING FUEL STRAINER

When the strainer is contaminated with dirt, remove it from the tank and wash in kerosene.

### CARBURETOR

The carburetor greatly affects the operating conditions of the engine. Since it has been adjusted carefully at shop before shipment, avoid adjusting it unless absolutely necessary. If adjustments are needed, contact your nearest dealer.

### FUEL PIPE

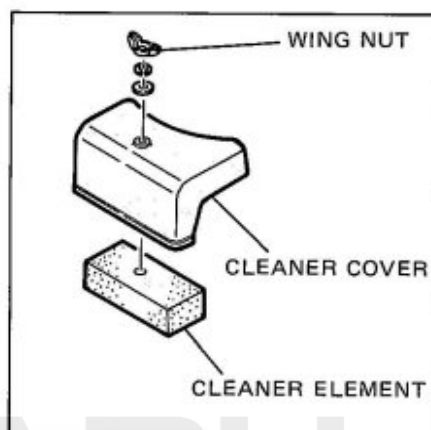
The rubber hose connecting the fuel strainer to carburetor may deteriorate and develop leaks after prolonged service. Therefore, this hose must be replaced every two years.

## CLEANING AIR CLEANER

The air cleaner is used for removing dust in the air so as to feed fresh air into the engine. If this cleaner element is seriously contaminated, start-up failure, poor output, and malfunctions of the engine may result, and also the service life of the engine will be shortened. Keep cleaner element always clean, according to the following procedures.

### Single Element Type Air Cleaner

1. Loosen the wing nut and take out the cleaner element.
2. Wash the element in kerosene or detergent and water.  
After washing, squeeze the element to remove kerosene or detergent.
3. Saturate the element into the mixture of 3 parts kerosene and 1 part engine oil.  
Wring the element to remove the mixture.
4. Install the element to the air cleaner.



### Double Element Type Air Cleaner

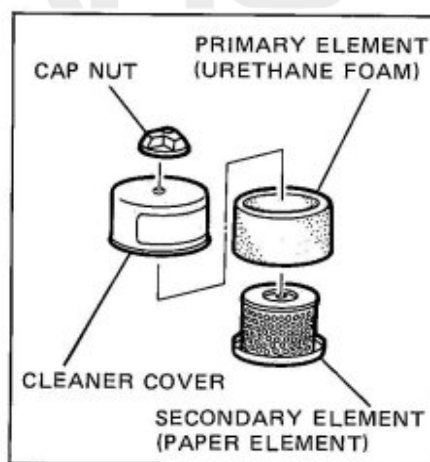
1. Loosen the cap nut and take out primary element and secondary element.

#### PRIMARY ELEMENT (URETHANE FOAM)

- Wash it in detergent and water.  
After washing, dry it thoroughly.
- Saturate it in oil (SAE #30) and squeeze to remove excess oil.

#### SECONDARY ELEMENT (PAPER ELEMENT)

- Wash it in detergent and water.  
After washing, dry it thoroughly.
  - Replace secondary element once a year or every 100 hours of operation whichever comes earlier.
2. Install primary element and secondary element to the air cleaner.





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### CHECK EACH PART FOR LOOSEN OR BROKEN BOLTS

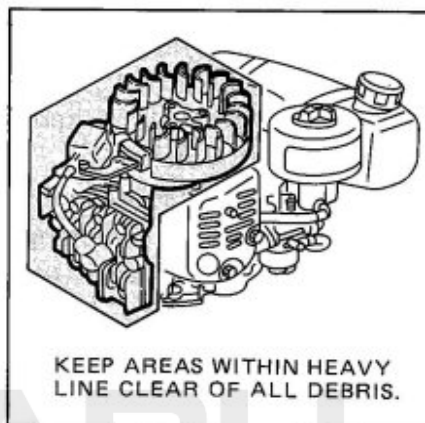
1. Tighten loose bolts.
2. Check each part for fuel or oil leak.
3. Replace broken or damaged parts with new ones.

### CLEAN COOLING SYSTEM

Grass, chaff or dirt may clog the recoil starter and the air cooling system after prolonged service.

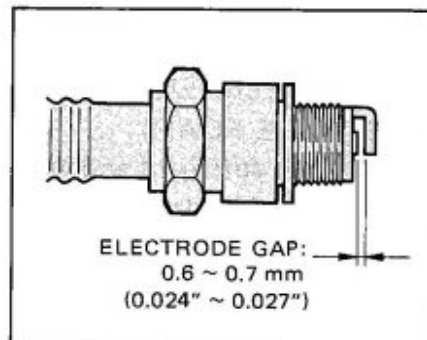
Before each use check the recoil starter and clean grass and debris if necessary.

Yearly or every 100 hours, whichever occurs first, remove the recoil starter, blower housing, cylinder baffle and head cover and clean the cooling fins to avoid overheating and engine damage.



### TO SERVICE SPARK PLUG

- Remove and clean spark plug periodically.  
Use a plug cleaner or wire brush to clean electrode.
- Adjust gap 0.6 to 0.7 mm.  
(0.024 to 0.027 inch)
- When replacing, use a plug of correct heat range.



### RECOMMENDED SPARK PLUG

NGK ..... BM4A  
CHAMPION ..... CJ8

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## PERIODIC INSPECTION

Periodic maintenance is vital to the 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.

	8 hours (Daily)	50 hours (Weekly)	200 hours (Monthly)	500 hours
CLEAN ENGINE AND CHECK BOLTS & NUTS	○			
CHECK AND REFILL ENGINE OIL	○ (Refill daily up to upper limit.)			
CHANGE ENGINE OIL	(Initial 20 hours)	○		
CLEAN SPARK PLUG		○		
CLEAN AIR CLEANER		○ (25 hours)		
CLEAN FUEL STRAINER			○	
CLEAN AND ADJUST SPARK PLUG GAP			○	
CLEAN CYLINDER HEAD				○
CLEAN COOLING SYSTEM		○ (100 hours)		
CLEARN AND ADJUST CARBURETOR				○
OVERHAUL ENGINE				○
CLEAN FUEL TANK				○

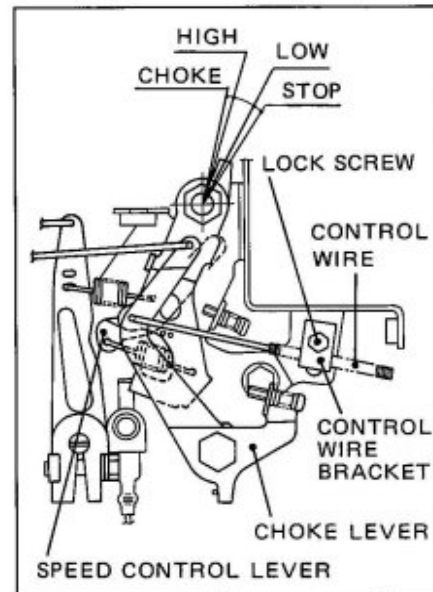


## 6. INSTALLATION

### TO INSTALL CONTROL WIRE

This engine is designed to accept a remote control wire.

- Use control wire which will fit into 2.5 mm (0.098 in.) dia. wire hole and 6 mm (0.236 in.) dia. casing.
- Assemble the control wire and casing to the engine through the control wire bracket.
- Insert the control wire into a hole (2 mm dia.) on the speed control lever.
- Place control lever in fully "STOP" position and tighten control wire bracket lock screw.



# SUBARU

## 7. EASY TROUBLE SHOOTING

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### WHEN ENGINE DOES 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?

1. Pull the starter knob slowly and check if resistance is felt.
2. If little force is required to pull the starter knob, check if the spark plug is tightened firmly.
3. If the spark plug is loose, tighten it.

#### Is the spark plug wet with fuel?

1. Choke (close choke lever) and pull the starter knob five or six times.  
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 where the fuel stops. (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 different fuel.

#### Is there a strong spark across the electrode?

1. Remove the plug and connect it to the plug cap.  
Pull the starter knob while putting the plug against the engine ground.
2. Try with a new 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 plug.  
Take your engine to your nearest Robin dealer.

#### WARNING

Before testing, carefully wipe up spilled fuel.

Put the plug as far away from the spark plug hole as possible.

Ground the side of the electrode to any engine ground.

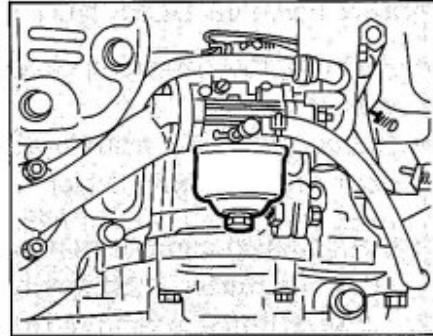
#### Is the cooling system clean?

1. Pull the starter knob and if you feel hard to pull the starter knob, foreign objects are in the cooling system.
2. Remove the blower housing and cylinder baffle.
3. Take the foreign objects away.

## 8. PREPARATION FOR LONG STORAGE

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1. Drain fuel tank.
2. Drain fuel from carburetor and fuel lines.
  - Remove float chamber from carburetor and open fuel cock to drain fuel.
  - Fuel can be removed by running the engine until it stops from lack of fuel.



**⚠ WARNING**

Take extreme caution when draining;  
gasoline is flammable.

3. While engine is still warm, drain oil from crankcase, and refill with fresh oil.
4. Remove spark plug and pour 1 ounce (30 cc) of engine oil into cylinder. Crank slowly to distribute oil, and stop when piston is at the top on compression stroke.
5. Clean dirt and chaff from cooling fins and blower housing.
6. Store in a clean and dry area.

## 9. SPECIFICATIONS

Model		EY15V	EY20V
Type		Air-Cooled, 4-Cycle, Single-Cylinder, Vertical P.T.O. shaft	
Piston Displacement		143 cc	183 cc
Output	Maximum	3.5 HP/3600 rpm (2.6 kW/3600 min <sup>-1</sup> )	4.6 HP/3600 rpm (3.4 kW/3600 min <sup>-1</sup> )
	Continuous	2.7 HP/3600 rpm. (2.0 kW/3600 min <sup>-1</sup> )	3.5 HP/3600 rpm (2.6 kW/3600 min <sup>-1</sup> )
Direction of Rotation		Counter-clockwise as viewed from P.T.O. shaft side	
Lubricant		Class SC or higher grade, SAE #20, #30 or 10W-30	
Fuel		Automobile Gasoline	
Fuel Tank Capacity		1.5 liters (Large capacity fuel tank is available as option: 1.9 liters)	
Spark Plug		NGK BM4A or CHAMPION CJ8	
Starting Method		Recoil Starter	
Dry Weight		12.7 kg	14.5 kg
Length, Width, Height		371mm x 305mm x 344mm	383mm x 311mm x 356mm

\*Optional Equipment: Engine Brake, Spark Plug Guard

ISSUE EMD-EU0972

SUBARU



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**FUJI HEAVY INDUSTRIES LTD.**

**INDUSTRIAL PRODUCTS COMPANY**

4-410 ASAHI, KITAMOTO-SHI, SAITAMA, 364-8511, JAPAN

TEL:+81-48-593-7798, FAX:+81-48-593-7946

<http://www.fhi.co.jp/robin/>