

EY35-^D_B

EY35-^{DS}_{BS}

EY40-^D_B

Model **EY40**-^{DS}_{BS}

INSTRUCTIONS for USE

Fujiheavy's

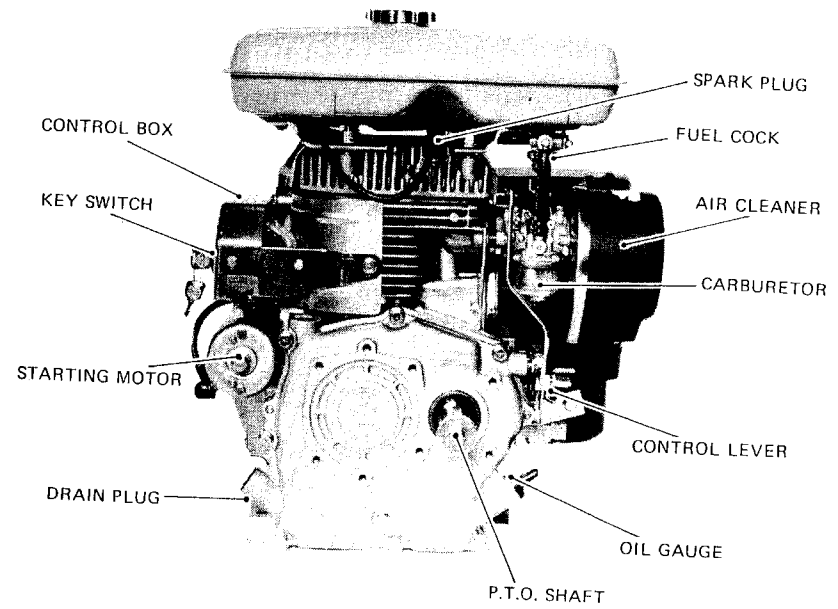
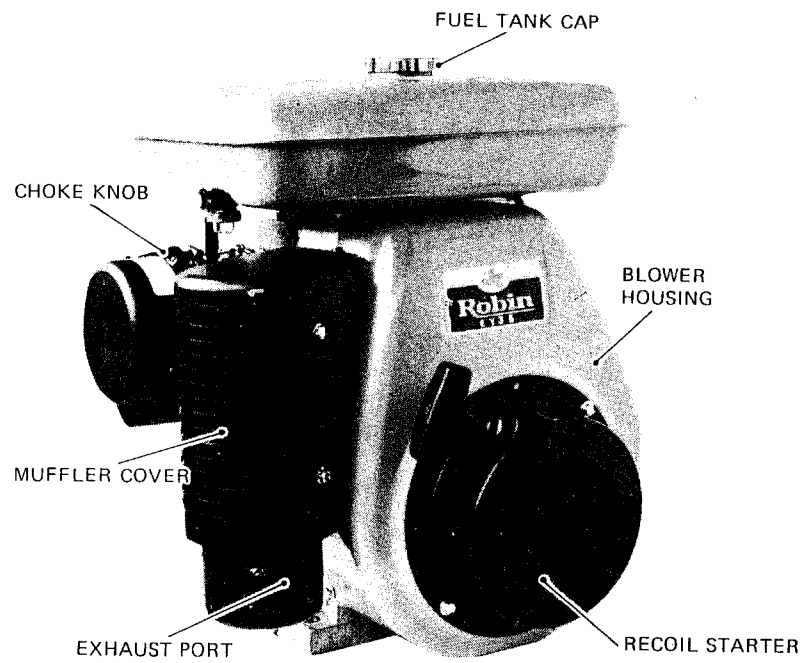
Robin Engine

2ZZ9020018

SPECIFICATIONS

MODEL		EY35-B	EY35-BS	EY35-D	EY35-DS	EY40-B	EY40-BS	EY40-D	EY40-DS
TYPE		Air-Cooled, 4-Cycle, Single-Cylinder, Horizontal P.T.O. Shaft							
PISTON DISPLACEMENT		334 cc (20.4 cu. in)				388 cc (23.7 cu. in)			
OUTPUT	MAXIMUM	8.5 HP/1800 rpm		8.5 HP/3600 rpm		10 HP/1800 rpm		10 HP/3600 rpm	
	CONTINUOUS	6 HP/1500 rpm 7 HP/1800 rpm		6 HP/3000 rpm 7 HP/3600 rpm		7 HP/1500 rpm 8 HP/1800 rpm		7 HP/3000 rpm 8 HP/3600 rpm	
DIRECTION of ROTATION		Counter-clockwise as viewed from P.T.O. shaft side							
LUBRICANT		Automobile oil class SC							
FUEL		Automobile gasoline (non-leaded)							
FUEL TANK CAPACITY		Approx. 6 liters (1.58 U.S. gal.)							
SPARK PLUG		NGK BP-4HS							
REDUCTION RATIO		1/2		—		1/2		—	
STARTING METHOD		Recoil starter	Electric starter	Recoil starter	Electric starter	Recoil starter	Electric starter	Recoil starter	Electric starter
DRY WEIGHT		35 kg (77 lbs.)	38 kg (84 lbs.)	34 kg (75 lbs.)	37 kg (81 lbs.)	34 kg (75 lbs.)	37 kg (81 lbs.)	33 kg (73 lbs.)	36 kg (79 lbs.)
DIMENSIONS	LENGTH	397 mm (15.6")	366 mm (14.4")	397 mm (15.6")	366 mm (14.4")	397 mm (15.6")	366 mm (14.4")	397 mm (15.6")	366 mm (14.4")
	WIDTH	429 mm (16.9")	429 mm (16.9")	429 mm (16.9")	429 mm (16.9")	429 mm (16.9")	429 mm (16.9")	429 mm (16.9")	429 mm (16.9")
	HEIGHT	491 mm (19.3")	491 mm (19.3")	491 mm (19.3")	491 mm (19.3")	491 mm (19.3")	491 mm (19.3")	491 mm (19.3")	491 mm (19.3")
TOOLS		1 set of Standard Tools							

OPTIONAL EQUIPMENT: Recoil Starter, Magneto Assy, for Lighting (6V ~ 8V-15W, 12V ~ 16V-15W)



IMPORTANT

OPERATING NEW ENGINE

The proper break-in of a new engine will greatly increase its life and result in trouble-free operation. The factory test given is not sufficient to establish the polished surfaces of bearings and all sliding members which are so necessary for reliable performance and long engine life. There is no quick way to force the establishment of these good surfaces, and these can only be obtained by running a new engine carefully and under reduced speeds and loads for a short period of time. If at all possible, operate engine at light loads for a period totaling about eight hours before maximum load is applied.

SAFETY CAUTIONS

1. Be careful with the operating place and ventilation.

- * Avoid operating the engine in a closed room, tunnel, or another badly ventilated places, since its exhaust contains deadly poisonous carbon monoxide. If the engine is employed unavoidable operated in such a place, discharge the exhaust outside the room by a suitable means.
- * Be careful with the circulation of cooling air, if the engine is operated in a small room or bonnet.
- * Mount engine on an even and stable place.

NOTE: Avoid operating engine in an inclined position, otherwise seizure may result due to improper lubrication.

2. Be careful with the rotating members.

- * If the P.T.O. shaft, pulley, belt and other rotating members are exposed, they are dangerous. Provide them with sufficient protecting means.

3. Be careful with the hot members.

- * Mufflers and other hot members are dangerous. Provide them with sufficient protecting means.

4. Observe with the following cautions when transporting engine. .

- * Clamp fuel tank cap securely, and close fuel strainer cock tightly during transportation or shipment.
- * Drain gasoline from fuel tank before transporting engine over a long distance or on rough roads.

5. Stop engine without fail before replenishing fuel tank.

- * Never replenish gasoline while the engine is running or remains hot, otherwise spilled or evaporated fuel is liable to catch fire from engine sparks or muffler heat.
- * Wipe off spilled fuel, if any, before starting engine.
- * Be careful not to spill fuel.

6. Keep inflammables away from the vicinity of the exhaust port.

- * Be careful with gasoline, match, straw and other inflammables, since the exhaust port is subjected to a high temperature.

7. Make the following checks before operating engine.

- * Fuel leak from fuel pipe, etc.
- * Bolts and nuts for looseness.
- * Components for damaged or broken parts.
- * Oil level.

PREPARATION for OPERATION

1. LUBRICATION

a) RECOMMENDED LUBRICATING OIL

- Use Robin genuine oil or automobile engine oil, referring to the below table as to the relation between ambient temperature and viscosity of the oil.
- Use high quality lubricating oil class "SC" or higher.

Table between ambient temperature and viscosity of the oil

		Remarks						
Single-grade	5W	In case of ambient temperature being lower than -20°C, use the oil, viscosity and grade, of which are suitable to the local temperature.						
	10W							
Multi-grade	20W							
	#20							
	#30							
	#40							
	10W-30	In case of ambient temperature being higher than 40°C, use the oil, viscosity and grade of which are suitable to the local temperature.						
Ambient temperature		-20	-10	0	10	20	30	40°C

*If the oil is short in quantity and lower in quality, the engine will be damaged by seizure.

b) FILLING

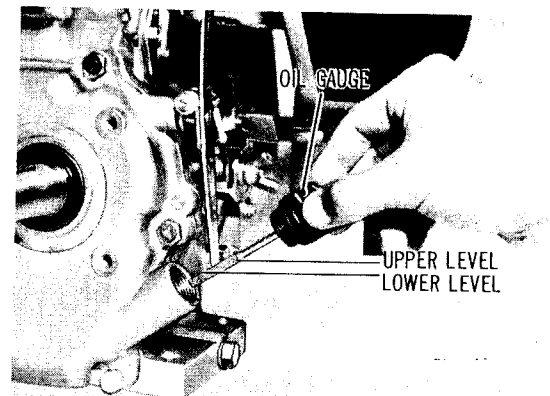
Fill crankcase through oil filler with the engine in horizontal position, until oil reaches the upper level mark on the oil gauge without screwing the cap.

The oil capacity is approx. 1200 cc (2.5 pints.).

2. FUEL

- * The fuel tank capacity is approx. 6 liters (1.58 US gallon).
- * Use regular-grade automobile gasoline.
- * Close fuel cock before replenishing fuel tank.
- * Use fuel strainer provided at the fuel filler without fail whenever pouring fuel.
- * Wipe off fuel, if spilled, before starting engine. Spilled fuel, if any, could cause a fire.

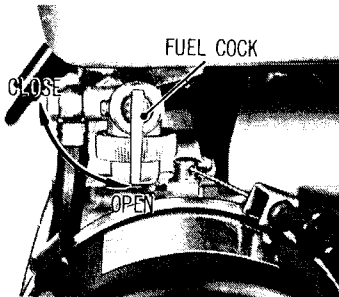
CAUTION: DO NOT REPLENISH FUEL TANK WHILE ENGINE IS RUNNING OR HOT.



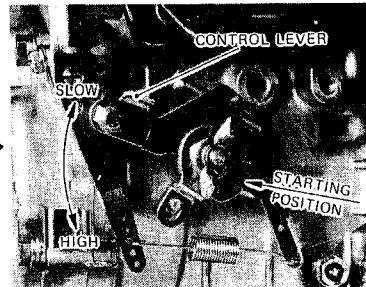
OPERATING THE ENGINE

● STARTING PROCEDURES

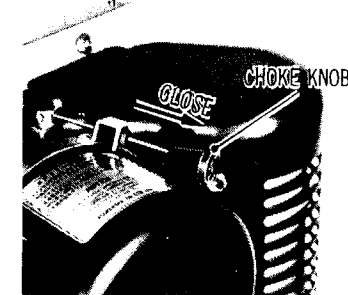
1. Open FUEL COCK.



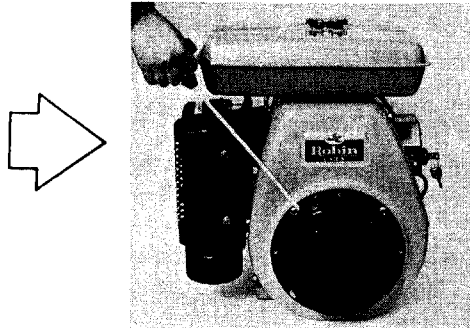
2. Set CONTROL LEVER to the "S" (starting) position.



3. Pull CHOKE KNOB to close choke valve.



4. Pull RECOIL STARTER quickly and forcibly.



- a) Gradually pull handle until it becomes heavy (until it reaches the compression point). Pull it a little further until it becomes light. Return it to the original position, and pull rope forcibly.
- b) Avoid fully pulling out rope. Don't release pulled out handle, but allow it to be wound back slowly.

Adjust choke valve opening according to the engine and/or ambient conditions.

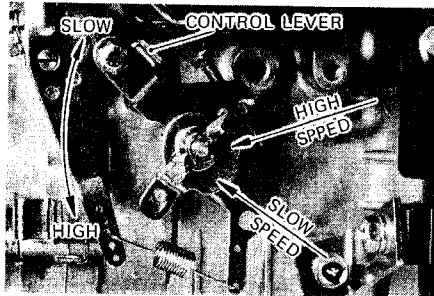
Fully open choke valve or open it halfway, for example, if the engine is warm or air temperature is high.

5. Push back CHOKE KNOB.

Don't push choke knob to fully open the choke valve immediately after starting engine, but gradually open choke valve, monitoring the engine condition. Otherwise the engine may stop.

● **RUNNING**

1. After engine starts, **WARM IT UP** at slow speed without load for about 1 ~ 3 minutes.
2. Increase engine speed to the required level by moving **CONTROL LEVER**, after warm-up. Lock the control lever by turning wing nut clockwise.

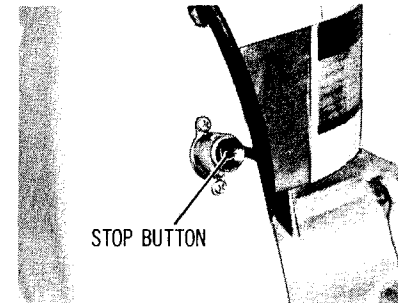


NOTE: Whenever high speed is not required, slow engine down (idle), by means of speed control lever. This practice will result in fuel economy and long engine life.

● **STOPPING**

1. **SLOW DOWN** speed and allow engine to run at idle speed for 2 or 3 minutes before stopping.
2. Depress **STOP BUTTON** and hold down until engine stops.

NOTE: Do not stop engine suddenly while running at high speed.



3. Close **FUEL COCK**.

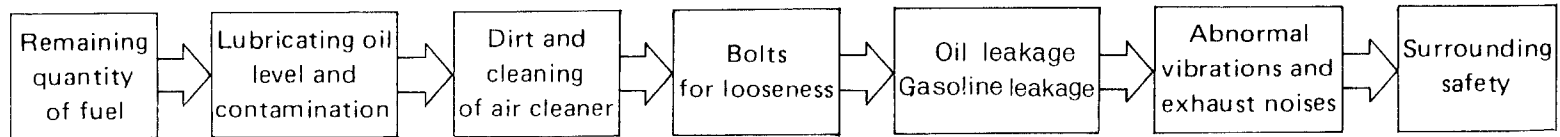
*** Stopping by fuel cock.**

Close fuel cock and wait for a while until engine stops. Avoid leaving the engine for a long time without draining fuel. Otherwise the passage of the carburetor may be clogged with impurities, and malfunctions may result.

DAILY and ROUTINE CHECKS

* DAILY CHECK

Make the following daily checks without fail before starting engine.



* ROUTINE CHECK

Perform maintenance and checks according to the following check list (when the engine is employed under ordinary conditions) to of maintain the engine in good operating conditions.

Items	Operating hours	every 8 hours (daily)	every 50 hours (weekly)	every 200 hours (monthly)	every 500 hours
Clean & Re-tighten Loose Parts		○			
Check & Add Lubricating Oil		○			
Changes Oil		after 20 hours (new engine)	○		
Clean Spark Plug			○		
Clean Air Cleaner			○		
Clean Fuel Strainer				○	
Clean Spark Plug Gap				○	
Remove carbon from Cylinder Head					○
Clean Carburetor					○
Check and Lapping Intake & Exhaust Valve Seats					○
Overhaul					○

CAUTION : Replace rubber pipes for passage every two years.
If and when fuel leakage is found, replace pipe at once.

MAINTENANCE and ADJUSTMENTS

1. Cleaning and Adjusting Spark Plug

- a) If the plug is contaminated with carbon, remove it using a plug cleaner or wire brush.
- b) Adjust the electrode gap to 0.6~0.7mm (.020" to .027").

2. Changing Lubricating Oil

First time: Replace oil after 20, operating hours.

Second time thereafter: Replace oil once every 50 operating hours.

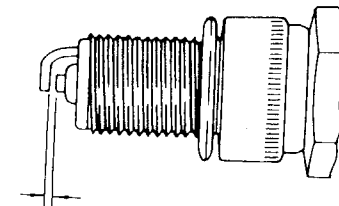
- a) Drain oil by unplugging the drain plug using a wrench while the engine is warm. (Remove the oil filler cap for quick drainage.)
- b) Clamp drain plug securely, and put lubricating oil until it reaches the upper level mark.

c) For the lubricating oil brand, refer to the GRADE OF OIL CHART.

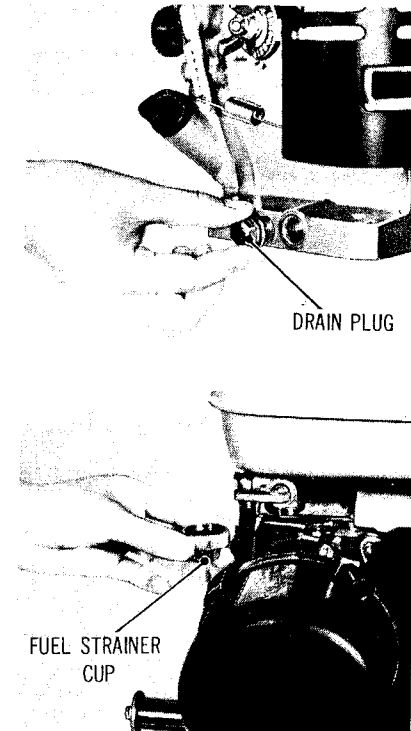
CAUTION: POUR FRESH HIGH QUALITY LUBRICATING OIL THE SPECIFIED QUANTITY. IF CONTAMINATED OR DETERIORATED OIL IS USED, OR IF OIL IS SHORT, THE ENGINE LIFE WILL BE GREATLY SHORTENED.

3. Cleaning Fuel Strainer

- a) Check the strainer cup for water and dust deposit.
- b) If it is dirty, remove cup, and remove dust and water.
Then, wash it in gasoline and tightly fasten it to the main body, making sure to avoid fuel leak.



Distancia entre los electrodos:
0.6 ~ 0.7 mm. (0.024 a 0.027")



4. Fuel Pipe

As the rubber pipe connecting fuel tank to fuel strainer, and vinyl pipe connecting fuel strainer to carburetor may deteriorate and develop leaks after a prolonged service, these pipes must be replaced after one year's use.

5. Cleaning Air Cleaner

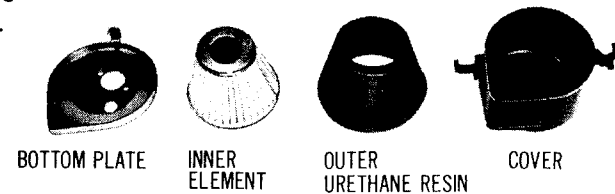
The air cleaner is used to remove dust air to feed the engine with clean air. If the cleaner element is seriously contaminated, start-up failure, poor output, and other engine malfunctions may result, and also the service life of the engine will be greatly shortened.

Keep cleaner element always clean, according to the following procedures.

- a) Remove outer urethane resin foam and inner element from the air cleaner, and wash them in kerosene.
- b) Swish them dry, dip them in mixed oil composed of kerosene and lubricating oil in 3:1 ratio, and mount them in the air cleaner main body after squeezing well.

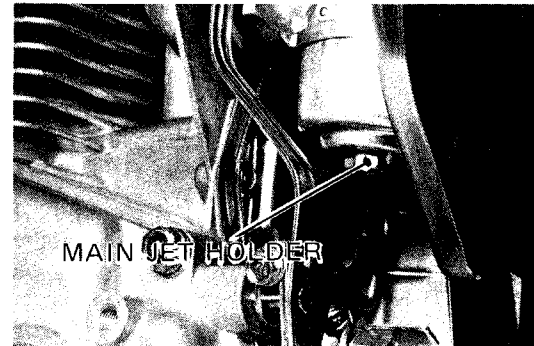
6. Check for loose or Broken Bolts.

- a) Tighten loose bolts, if any.
- b) Check all members for fuel or oil leak.
- c) Replace broken or damaged parts, if any, with new ones.



PREPARATION for LONG STORAGE

1. Drain the fuel tank and carburetor (by unscrewing the main jet holder at the bottom of the float chamber).
2. Change the lubricating oil with new oil.



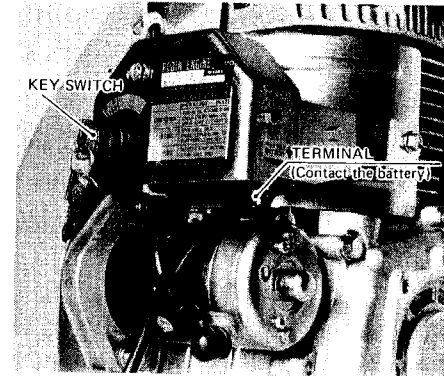
3. Remove spark plug, and pour 5~10cc (1 oz) of lubricating oil through the plug hole.
Turn the starting pulley several times, and then, mount the spark plug.
4. Turn starting pulley until it becomes heavy (at the beginning of the compression stroke), otherwise sticky valves, may result.
5. Clean the engine outside with oiled cloth.
6. Select a dry, clean storing place, and put cover for long storage.

ENGINE with STARTING MOTOR

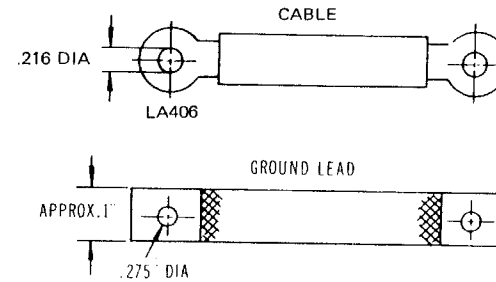
1. Items to be prepared by user.

- a) Battery: 12V, 18AH or large.

When battery electrolyte level goes below the specified level, add distilled water.



CABLE LENGTH	CABLE DIA.	SAE GAUGE
Below 1.5m (60in)	JIS AV15 7.3mm dia.	6
1.5m to 2.5m (60in to 100in)	JIS AV20 8.5mm dia.	4
2.5m to 4m (100in to 180in)	JIS AV30 10.8mm dia.	2



FLAT BRAIDED WIRE OF .03 cu in or GREATER SECTIONAL AREA (SAE 4 GAUGE)

In case the KEY SWITCH must be located away from an engine it self the wire size between KEY SWITCH and STARTING MOTOR should be specifical as follows:

WIRE LENGTH	JIS STD	CONDUCTOR Diameter
Shorter than 1.5 meter	AV1.25	1.5 milli-meter
1.5 meter~3 meter	AV 2	1.9 milli-meter
3 meter~5 meter	AV 3	2.4 milli-meter

2. Wiring

- a) Connect the cable between the (+) side of battery and the magnetic switch terminal.
NEVER CONNECT THE CABLE TO THE STARTING MOTOR TERMINAL.
- b) Ground the (-) side of battery to an anchor bolt of the engine or the equipment main body using the ground lead.
- c) **When starting the engine BY THE RECOIL STARTER WITH THE BATTERY DICONNECTED, DISCONNECT the green/white charging cable and insulate the terminal.**

3. Starting Procedures

- a) Insert starter key into the key switch.
- b) When this key is turned clockwise by one step, the engine is ready for operation.
When turned clockwise by another step successively, the starting motor starts operating at this second step.

CAUTION: DON'T RUN STARTING MOTOR OVER 5 SECONDS, AS IT MAY OVERHEAT.

- c) After the engine starts, leave your hand, and the key will be returned to the operating position automatically.

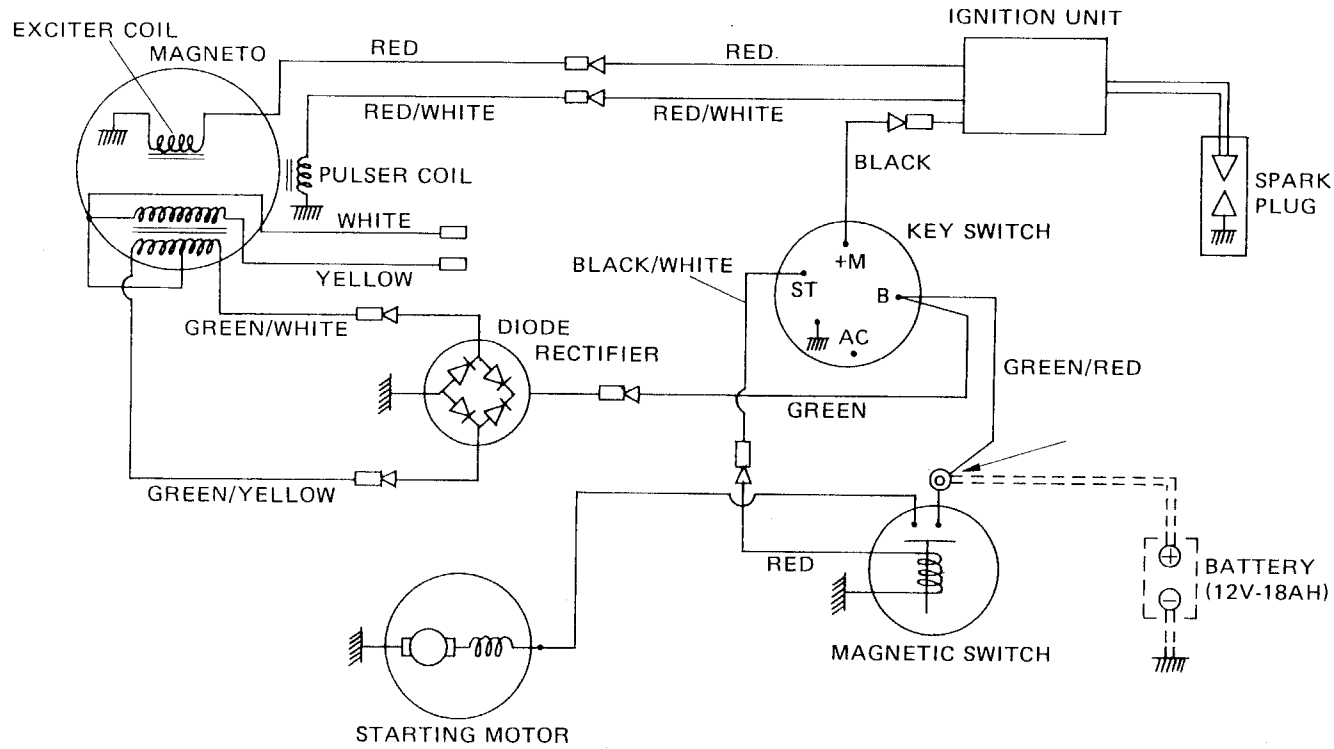
If the engine does not start once, wait for about 10 seconds before starting the second or higher keying operation.

CAUTION: NEVER TURN THE KEY SWITCH TO THE STARTING POSITION DURING THE ENGINE OPERATION. ALL THE OTHER START-UP PREPARTION AND OPERATION ARE THE SAME AS IN ORDINARY ENGINES.

WIRING DIAGRAM (engine with starting motor)

- JIS CB female terminal
- ▶— JIS CA male terminal
- ⊙— JIS LA 406 plate terminal
- * The dotted parts are not supplied with the engine.

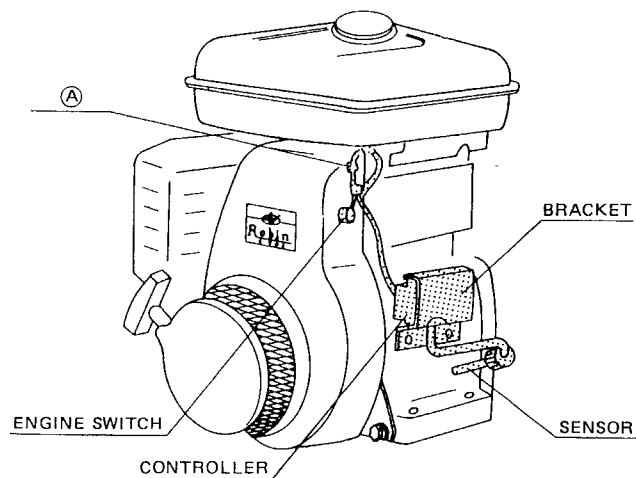
POINTLESS TYPE (SOLID STATE IGNITION)



OIL SENSOR (OPTIONAL EQUIPMENT)

The engine oil sensor developed for Robin engines detects engine oil quantity in the crankcase and, if it falls below the lower limit, automatically stops the engine to protect the engine from sticking due to oil shortage.

COMPOSITION:



1. Engine stop by the oil sensor

The oil sensor detects engine oil quantity in the crankcase and, if it falls below the minimum limit, automatically stops the engine. When the engine is stopped, check fuel level and engine oil level without fail.

2. Restarting up engine

- 1) Add the engine oil up to the specified maximum level. Also fill up the fuel tank with gasoline for ensuring longer operation.
- 2) For restarting and operation, please refer to the paragraph headed "Starting and Operating" in the "Instrument for Use."

3. Caution

- 1) If the harness (A) from the oil sensor controller is off, the sensor does not function. So, please check daily.
- 2) When checking oil level or adding the oil, never try to remove the sensor from the engine.
- 3) The oil sensor is unable to detect deterioration of the oil. Please, therefore, execute daily care and periodical check following the "Instructions for Use."



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