

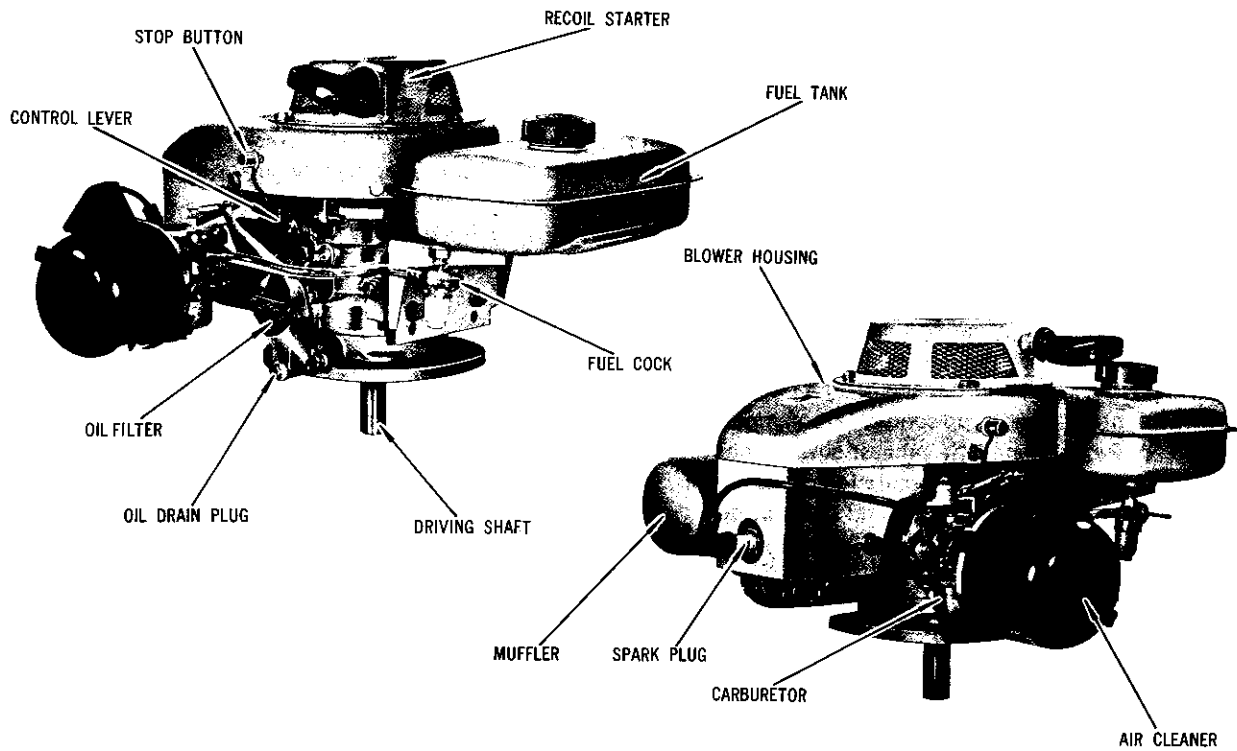
Model **EC 10-V**
INSTRUCTIONS for USE

Fujiheavy's **Robin Engine** 1ZZ9020002

SPECIFICATIONS

MODEL		EC10V
TYPE		Air-Cooled, 2-Cycle, Single-Cylinder, Vertical P.T.O. shaft
PISTON DISPLACEMENT cc (cu.in)		98
OUTPUT	MAXIMUM (HP/rpm)	4.0/5,000
	CONTINUOUS (HP/rpm)	3.0/4,000
DIRECTION of ROTATION		Counter-clockwise as viewed from P.T.O. shaft side
FUEL		Mixture fuel (gasoline 50: lubricant 1) *Note Recommended lubricant: Exclusive 2-Cycle Engine Oil)
FUEL TANK CAPACITY L (U.S. gal.)		Approx. 1,9 (0.5)
SPARK PLUG		NGK B-4
STARTING METHOD		Recoil Starter
DRY WEIGHT kg (lbs.)		13.5 (30)
LENGTH, WIDTH, HEIGHT mm (inch)		500 (19.7) x 422 (16.6) x 328 (12.9)
TOOLS		1 set of Standard Tools

*Note: For the first ten hours of break-in, use 20:1 mixture.



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 ten hours before maximum load is applied.

Use the mixture of 20 parts gasoline and one part oil as fuel for the first 10 hours of break-in.

SAFETY CAUTIONS

1. Be careful with the operating place and ventilation.

- * Avoid operating the engine in a closed room, tunnel, or another poorly ventilated areas, since its exhaust contains deadly poisonous carbon monoxide. If the engine is employed in unavoidable operation 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 enclosure.
- * Mount engine on a level and stable place.

NOTE: Avoid operating engine in an inclined position, otherwise engine 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 covers.

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 damage or broken parts.
- * Oil level. (Governor Chamber)

PREPARATION for OPERATION

1. LUBRICATION to GOVERNOR CHAMBER

a) RECOMMENDED LUBRICATING OIL

Engine oil SAE30.

b) FILLING

Fill governor chamber through oil filler while keeping the engine horizontally, until oil reaches the upper level mark on the oil gauge without screwing the cap.

The oil capacity is approx. 150cc (15 oz.)

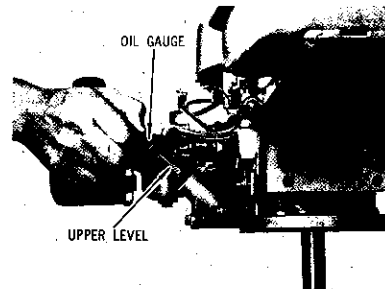
c) CHANGING

FIRST TIME: Change oil after 50 hours of operation.

SECOND TIME and THEREAFTER: Change oil every 200 hours of operation.

TO CHANGE OIL: Remove oil drain plug while engine is still warm and drain oil completely.

Reinstall drain plug and fill with fresh oil.



- 2. FUEL :** oil mixed gasoline
- * For the first ten hours of break-in of a brand new engine, use the mixture of 20 parts gasoline and one part 2-cycle engine oil.
 - * After the engine is broken-in, use the mixture of 50 parts gasoline and one part 2-cycle engine oil.
 - * Close the fuel cock before refueling.
 - * Be sure to use fuel filter provided in the fuel filler neck when refueling.
 - * Wipe off spilled fuel thoroughly before restarting the engine.

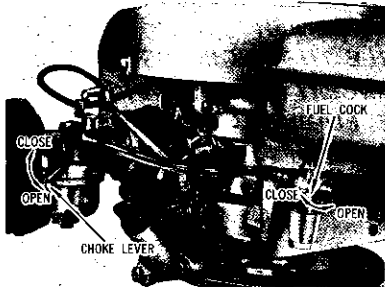
CAUTIONS:

1. NEVER OPERATE THE ENGINE WITH GASOLINE ONLY.
2. NEVER REPLENISH FUEL TO FUEL TANK WHILE THE ENGINE IS RUNNING OR HOT, SINCE IT IS VERY DANGEROUS. STOP THE ENGINE AND CLOSE FUEL COCK WITHOUT FAIL BEFORE SUPPLYING FUEL.

OPERATING THE ENGINE

● STARTING PROCEDURES

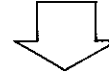
1. Open FUEL COCK.



2. Close CHOKE LEVER.

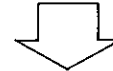
Adjust choke valve opening according to the engine and or ambient conditions.
Fully open choke valve or open it halfway, for example, if the engine is warm or air temperature is high.

3. Open THROTTLE LEVER halfway or more.



4. Pull HANDLE of RECOIL STARTER forcibly.
 - a) Gradually pull handle until it becomes heavy (until it reaches the compression point). Continue pulling it slightly, and the handle will become loose. Return it to the original position, and pull rope forcibly.
 - b) Avoid fully pulling out rope.

CAUTION: DON'T LEAVE PULLING HANDLE, BUT RESET IT IN POSITIONS AS SOON AS POSSIBLE.



5. After engine starts, fully open CHOKE LEVER gradually, and reset THROTTLE LEVER to slow speed.

● **RUNNING**

1. After engine starts, WARM IT UP at slow speed without load for about 5 minutes.
2. Increase engine speed to the required value by moving CONTROL LEVER after warm-up.

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

CAUTION: AVOID OPERATING THE ENGINE AT HIGH SPEED FOR A LONG TIME WITHOUT LOAD.

● **STOPPING**

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

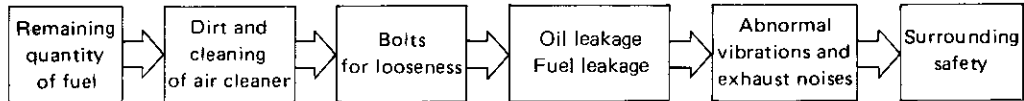
NOTE: Do not stop engine suddenly while running at high speed.

3. Close FUEL COCK.

DAILY and REGULAR CHECKS

* DAILY CHECK

Make the following daily checks without fail before starting engine.



* REGULAR CHECK

Perform maintenance and checks according to the following check list (when the engine is employed under ordinary conditions) to 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
Cleaning & Clamping check for Each Part		○			
Changing of oil (governor chamber)		Initial 20 hours		○	
Cleaning of Spark Plug			○		
Cleaning of Air Cleaner			○		
Cleaning of Fuel Strainer				○	
Cleaning of Spark Plug Gap & Contact Breaker				○	
Removal of carbon from Cylinder Head					○
Cleaning of Carburetor					○
Overhaul					○
Cleaning of Fuel Tank					○

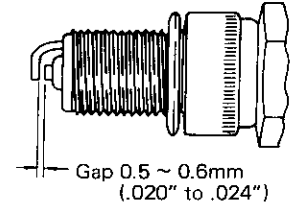
CAUTION: Replace rubber pipes for fuel system every two years. If and when fuel leakage is found, replace pipe at once.

MAINTENANCE and ADJUSTMENT

1. Spark Plug

Use the following types;
NGK B-4

- a) If the plug is contaminated with carbon, remove it using the plug cleaner or wire brush.
- b) Adjust the electrode gap to 0.5 ~ 0.6mm (.020" to .024").



2. Magneto

a) Ignition Timing

This magneto is designed for optimum operating conditions to be ignited at a crank angle of $18^{\circ} \pm 3^{\circ}$ before the top dead center.

b) Contact Breaker Point

The clearance of the contact breaker point is designed to 0.40 ± 0.05 mm. If the contact breaker is contaminated with dust or oil, ignition failure may result.

Accordingly, wipe off all dusts and oil when adjusting the contact breaker.

3. Carburetor

The carburetor affects the operating conditions of the engine very closely. Since it has been adjusted carefully at the factory before shipment, avoid adjusting it unless absolutely necessary.

If adjustments are needed, contact your nearest service representative.

4. Fuel Pipe

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

5. 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, the start-up failure, poor output, and malfunctions of the engine may result, and also the service life of the engine will be remarkably shortened.

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

* CYCLONE TYPE AIR CLEANER

Outer element (Urethane foam)

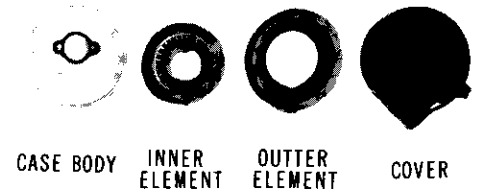
1. Wash the outer element in kerosene.
2. Soak it in a mixture of 3 parts kerosene and one part engine oil.
3. Squeeze out the excess.

Inner element

1. Clean the inner element in kerosene.
2. Soak it in a mixture of 3 parts kerosene and one part engine oil.
3. Squeeze out the excess and reinstall.

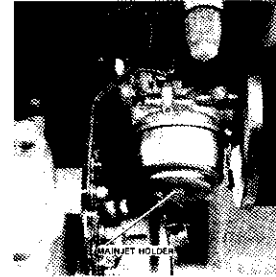
6. Check each part for Loosen or Broken Bolts.

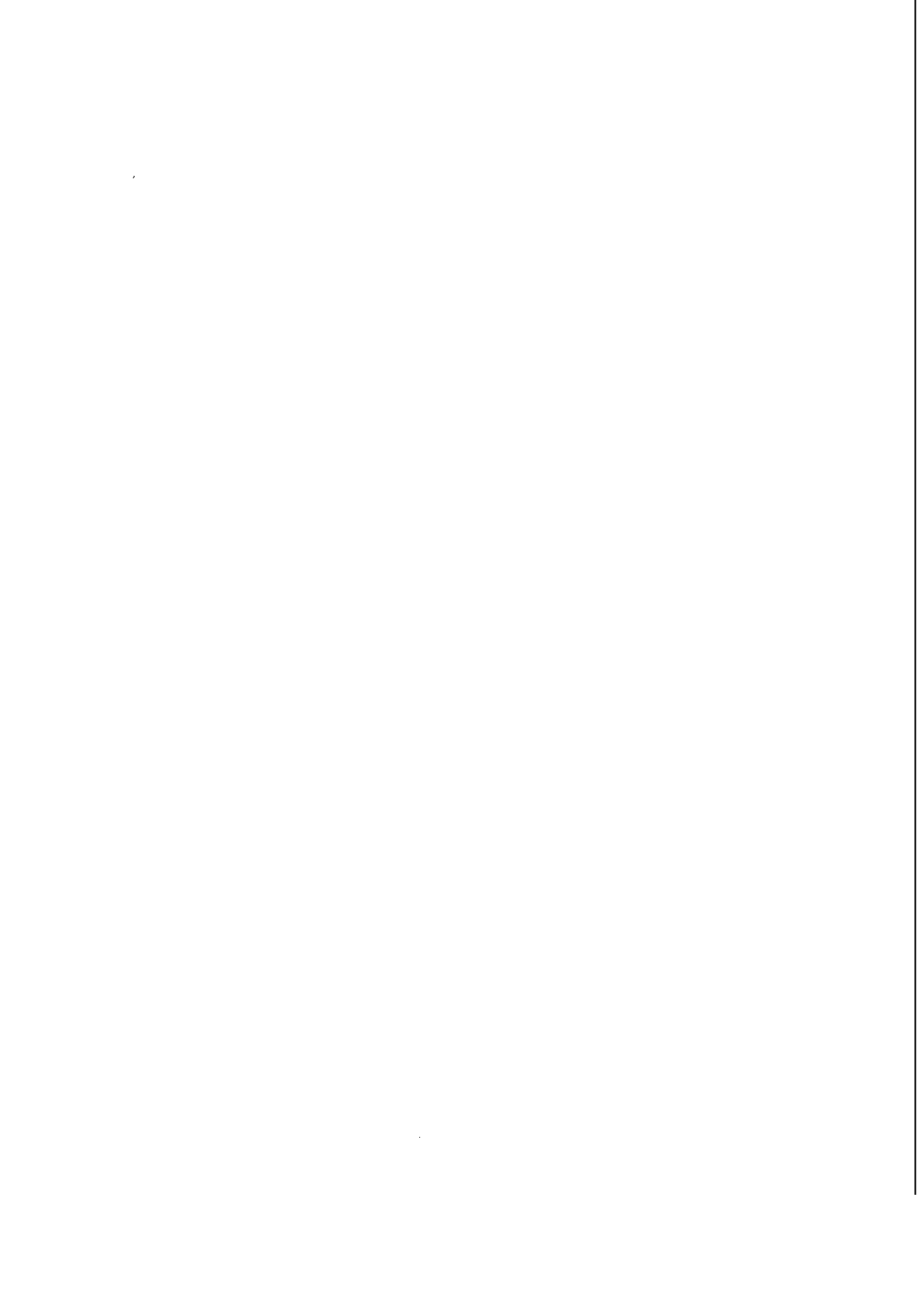
- a) Tighten loose bolts, if any.
- b) Check each part for fuel or oil leak.
- c) Replace broken or damaged parts, if any, with new ones.



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 recoil starter several times, and then, mount the spark plug.
4. Clean the engine outside with slightly oiled cloth.
5. Select a dry, clean storing place, and put cover for long storage.





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WARNING:



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



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