

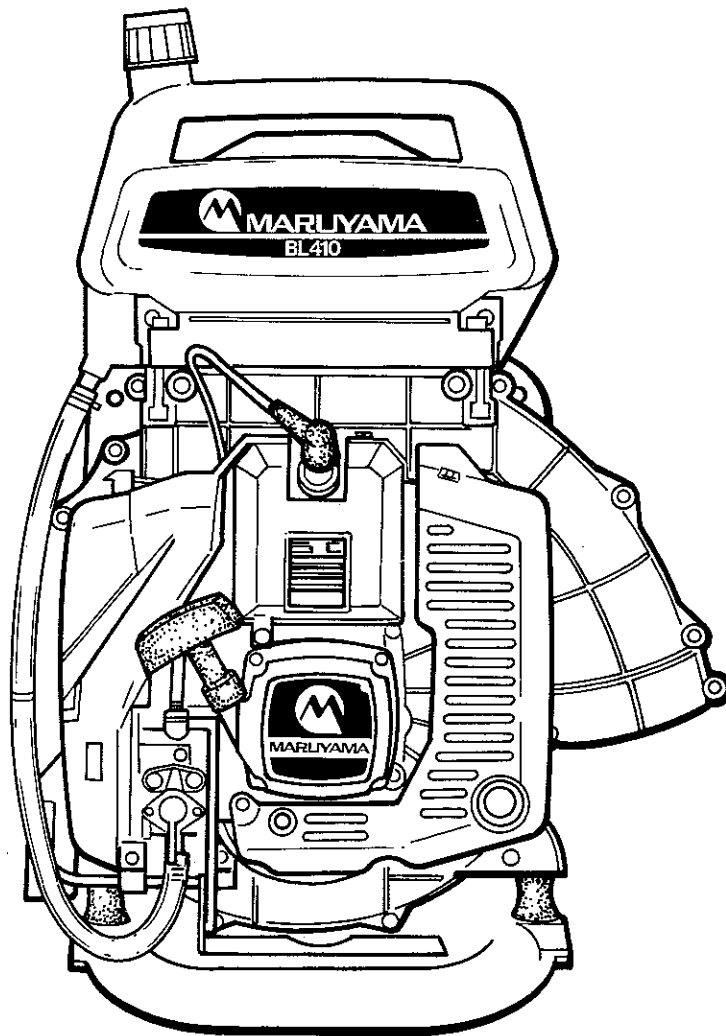


MARUYAMA

BACKPACK POWER BLOWER

MODEL BL410

INSTRUCTION MANUAL



MARUYAMA U.S., INC.

IMPORTANT SAFETY INSTRUCTIONS

Safe Operation Practices for Power Blower

TRAINING

1. Read the operating and service instruction manual carefully. Be thoroughly familiar with the controls and proper use of the equipment.
2. Never allow children to operate blower.
3. Keep area of operation clear of all persons, particularly small children and pets.
4. Regard your units as a piece of power equipment and teach this regard to all who operate the equipment.

PREPARATION

- Thoroughly inspect the area where blower is to be used and remove all stones, sticks, wire, bones and other foreign objects which might be picked up and thrown.
- Do not operate blower when barefoot or wearing open sandals. Always wear substantial foot wear, ear guards safety glasses and pants or slacks that cover your legs when operating blowers.
- Check the fuel before starting the engine. Do Not fill the fuel tank indoors when the engine is running, while smoking, or while the engine is still hot. Replace fuel cap securely and wipe up spilled fuel. Dispose of gas saturated rags properly. In a well ventilated area to avoid possibility of spontaneous combustion. Never use fuel as a cleaner.
- Use only in daylight or in good artificial light.
- Always be sure of your footing: keep a firm holder on the handle and walk, never run.
- Do not smoke near open gasoline container. Do not refuel while strapped on operators back. Refuel outdoors only.
- If gasoline is spilled, do not attempt to start the engine, but move the blower away from the spill area to avoid creating any source of ignition until gasoline vapors have dissipated.

OPERATION

- Start the engine carefully.
- Never direct discharge of any material toward bystanders, nor allow anyone near machine while it is in operation.
- Stay alert-Watch what you are doing – use common sense. Do not operate Blower when fatigued or under the influence of alcohol or medication.
- Do not operate the engine in a confined space where dangerous carbon monoxide fumes can collect.

- Never operate the Blower with defective guards or shields, nor without safety protective devices in place.
- If blower should start to vibrate abnormally, stop the engine and check for the cause. Vibration is generally a warning of trouble.
- Stop the engine whenever you leave the blower, and when making repairs or inspections.
- When repairing or inspecting, make certain all moving parts have stopped. Disconnect spark plug wire and keep wire away from plug to prevent accidental starting.
- Do not run engine indoors.
- Watch out for traffic when working near roadways.
- Stay alert for uneven sidewalks, holes in terrain or other hidden hazards when operating.
- Be careful to avoid contacting hot engine parts against trees, brush or other flammable items.
- Do not put hands near rotating parts while engine is running.
- Stop or idle engine when crossing gravel drives, walks, or roads, and under any conditions where thrown objects might be a hazard.

MAINTENANCE AND STORAGE

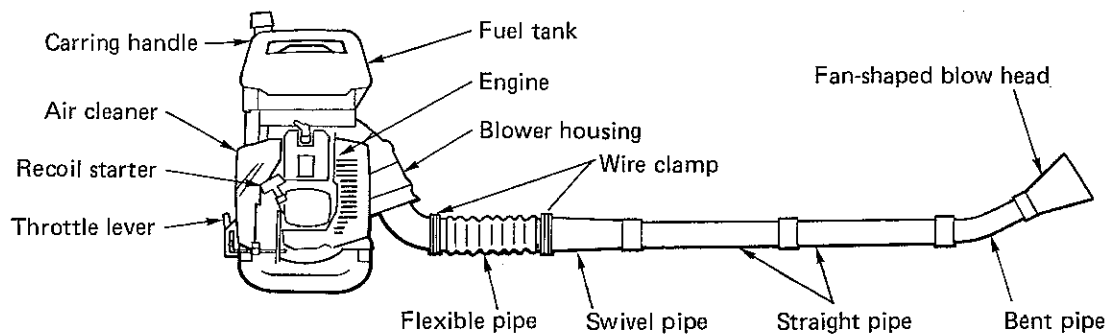
- Keep all nuts, bolts and screws tight to be sure equipment is in safe working condition.
- Never store blower with fuel in the tank in a building where fumes may reach an open flame or spark. Be sure engine has cooled before storing in any enclosure.
- To reduce fire hazard, keep engine free of grass, leaves or excessive grease.
- After operating engine, never touch exhaust muffler until it has cooled completely.
- Keep blower in good operating condition and keep safety devices in place.

SPECIFICATIONS

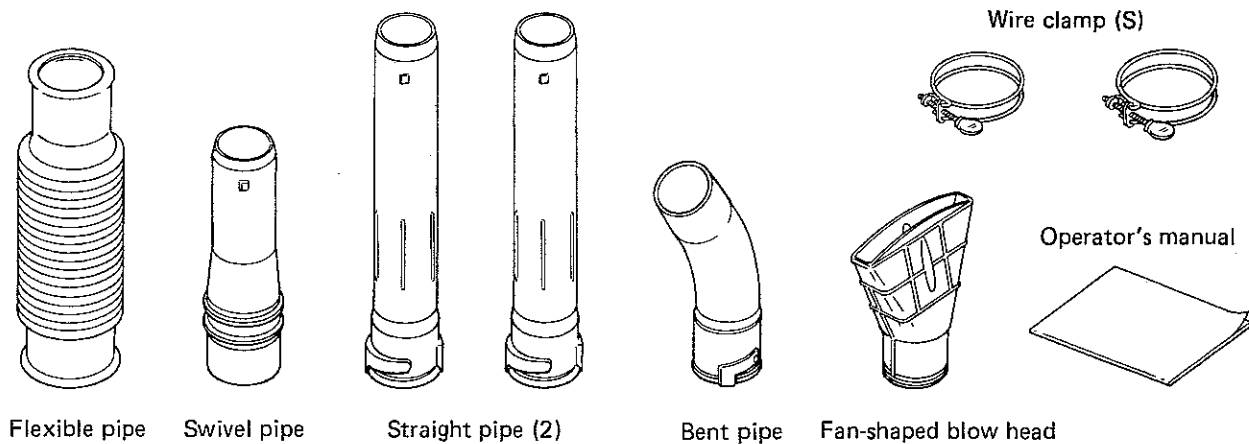
MODEL NAME	BL410
Dimensions (L) x (W) x (H) (in./mm)	19.9 x 14.6 x 20.3/505 x 370 x 515
Dry Weight (lbs./kg)	21.4 / 9.7
Engine Type — 2 stroke / air cooled	Mitsubishi
Displacement (c.c.)	41.0
Electronic Ignition	Standard
Carburetor	Float
Fuel Tank Capacity (oz./l)	76.7 / 2.2
Air Volume — at fan outlet cfm (m ³ /min)	530 / 15
Attachments — standard	Five section fishtail blower pipe

ASSEMBLING

1. Inspect the main body and accessories.
2. Connect flexible pipe to blower, and swivel pipe to flexible pipe. Fasten them with wire clamps securely.
3. Connect straight pipes together and connect to swivel pipe.

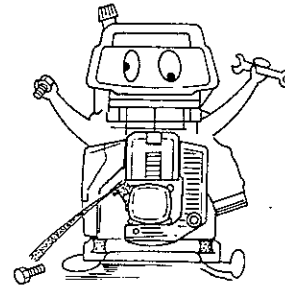


STANDARD ACCESSORIES



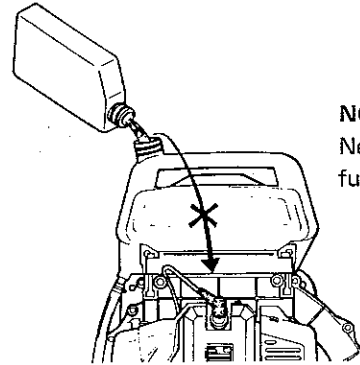
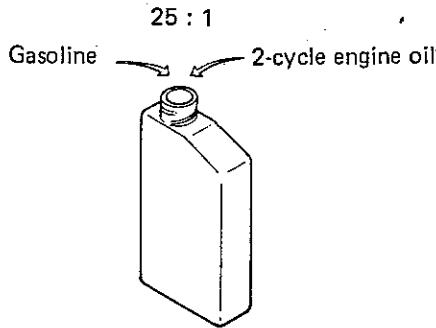
PREPARATION

1. Check the followings before operation.
 - a) Every screw is tightened securely. If loosened, tighten it securely.
 - b) All the pipes are connected firmly.



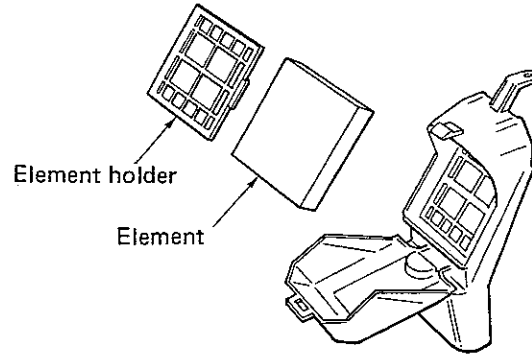
2. Fuel

Be sure to use gasoline and 2-cycle engine oil mixture.



3. Inspect and clean the air cleaner.

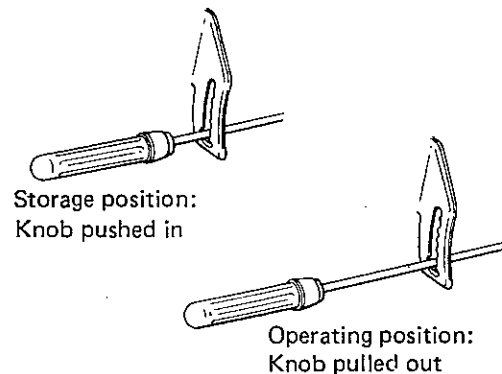
The inside of air cleaner must always be clean. Dirty air cleaner will decrease the output capacity. If fouled with dirt, take out the element; clean it in gasoline; clean the inside of cleaner and replace the cleaned element to its position. The cleaned element must be dipped in oil and excess oil must be squeezed out before re-installing.



4. Use of throttle lever.

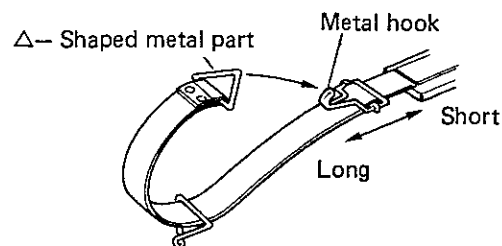
The throttle lever is located on the left side of the blower (when mounted on back) and is used to regulate engine speed. Pull up on lever to increase speed and push lever all the way down to stop engine. The throttle lever should be in the mid position when starting engine.

Push – Pull Throttle knob

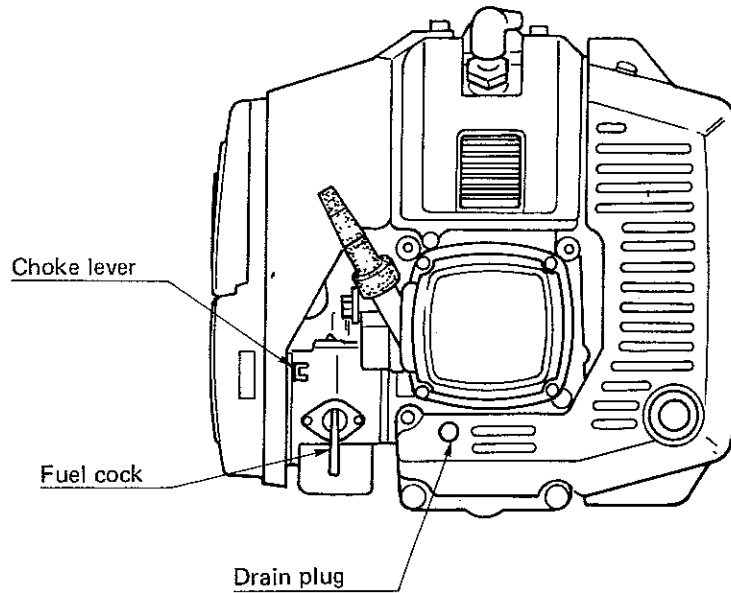


5. Use of shoulder straps

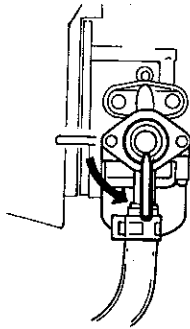
Swing blower over right shoulder first. Work left arm through left strap then pull up on metal triangle of left shoulder strap and attach to metal hook. Adjust both straps to best fit by sliding metal adjusters up on down.



STARTING

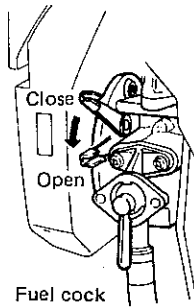


1. Open the fuel cock.



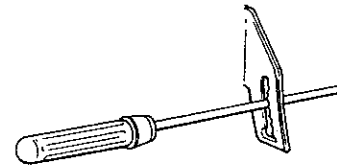
It takes fuel about 1–2 minutes to flow into the carburetor to full level.

2. Close the choke lever fully.



If the engine is warm, the choke lever should be opened fully or midway.

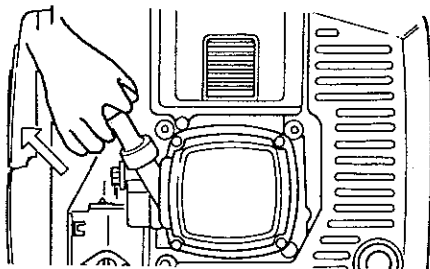
3. Throttle lever



At 3 to 4 stage

Position the throttle lever onto the "3 to 4" stage.

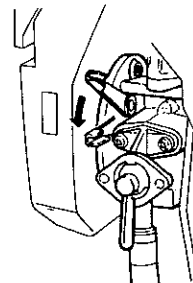
4. Starting right hand.



Cautions: Read the instruction label carefully in handling the recoil starter.

- Do not let go of the knob while the rope is pulled out.
- Do not pull the rope all the way to the end.
- Pull the rope straight.

5. Warming up the engine.



For 1 to 3 minutes after opening the choke.

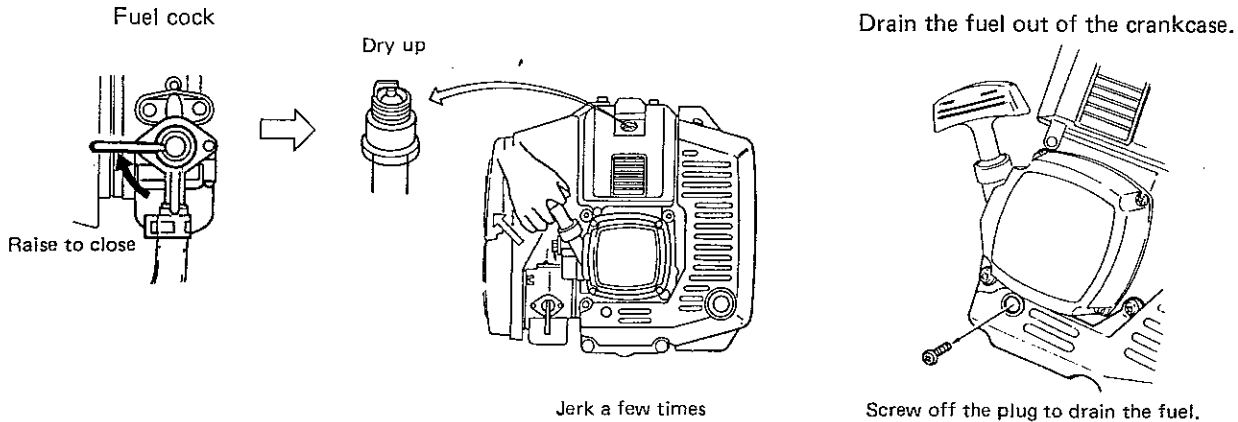
Once the engine gets started, open the choke lever gradually, and lower the throttle lever "1 to 2" stage and run the engine for a few minutes at a low speed for warming up the engine.

* When the engine is already warmed or when the engine requires several trials of pulling the rope of recoil starter, open the choke lever fully. Excessive use of the choke lever will cause flooding, making starting difficult.

* When difficult to start.

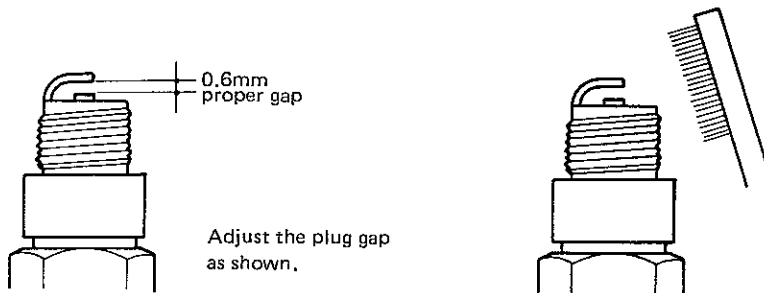
1. When the engine fails to start even after the repeated trials, check the followings:

- a) A dry plug indicates the fuel stops on the way. Inspect the fuel passage. One of the main causes is clogging or leakage.
- b) A wet plug indicates the flooding of fuel. Close the fuel cock. Remove the spark plug, and pull the recoil starter three to five times.



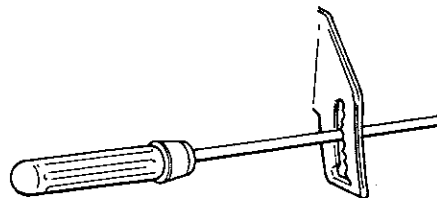
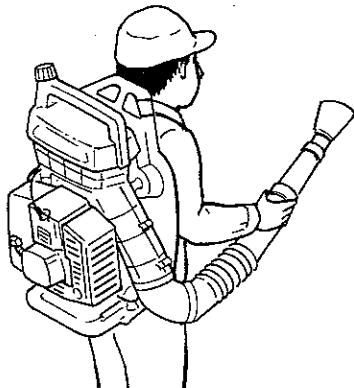
Cautions: 1) When flooding is extreme, remove the drain plug to let the fuel out of the crankcase.
2) Keep inflammables away.

2. The stained spark plug is to be replaced with a new one or the carbon on it must be removed. The wet spark plug must be dried before re-use.



OPERATION

1. When the engine is warmed up enough, set the throttle lever at a required speed and let it clutch in to load the engine.
2. Shoulder the machine on the back.
3. Raise the throttle lever to the "Max." stage to run the engine at a high speed.
4. Check the fuel level in the tank now and then, and replenish the tank with fresh fuel before exhausting. Too low fuel level in the tank will be a cause of next start failure.

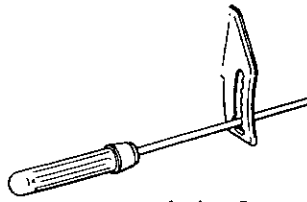


Our recommendation stage is at 4

Cautions: Do not keep the engine running at a full speed for a long time without putting the bent pipe on top of the pipes. or the engine will get over-heated.

STOPPING

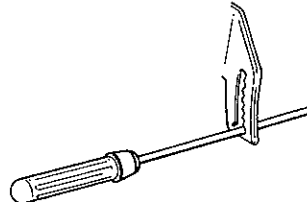
1. Cooling off the engine
(for 1 to 3 minutes)



At 1 to 2 stage

To stop the engine after operation, lower the shutter lever onto the bottom stage. Keep the engine run at a low speed for a few minutes to cool it.

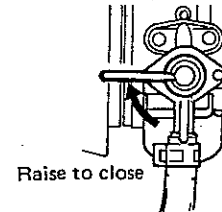
2. Stopping



Down to the bottom stage

After that, lower the throttle lever to stop the engine.

3. Fuel cock



Raise to close

Be sure to close the fuel cock after the engine stops.

Cautions: Store the machine always in the shade, not in direct sunlight.

CLEANING

Be sure to remove the dusts, oil etc. off the machine, pipes, nozzles, etc. Dry them well for the next use.

PERIODICAL MAINTENANCE

1. Daily inspection
 - Check all the bolts and nuts for looseness.
 - Check for fuel or gas leak.
2. Inspection at every 20 hours' operation
 - Clean the air cleaner element.
3. Inspection at every 50 hours' operation.
 - Retighten the cylinder head bolts and nuts.
4. Inspection at every 100 hours' operation
 - Clean the spark plug and adjust the firing gap to 0.7mm.
 - Clean the inside of the fuel tank by flushing gasoline.
5. Remove carbon layer from the cylinder combustion chamber, the exhaust port and the outlet/inlet of the muffler.
6. Adjust the clearance of the contact breaker point.

STORAGE

When shutting down the engine for long period of time during out of the season, the following maintenance procedures are necessary for the smooth restarting for the next use.

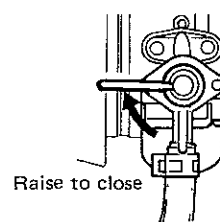
1. The cylinder, combustion chamber, exhaust port, and inlet/outlet of muffler are subject to the accumulation of the carbon. If much carbon accumulated, the output will decrease, so these must be cleared of periodically by dismantling the muffler.

NOTE: When dismantling the muffler and cleaning the combustion chamber, be careful not to spoil the piston and cylinder.

2. Be sure to drain out the fuel entirely from the fuel tank and the carburetor. To do so,
 - a) Close the fuel cock. Open the drain of the low part of the carburetor to let the residual fuel go out of the carburetor.
 - b) Take off the fuel line at the side of the carburetor to let the fuel go out of the fuel tank.
 - c) Keep the throttle lever at "Stop" stage.
3. Drain all the fuel from the tank and the float chamber of

carburetor and jerk the recoil starter two or three times with the choke lever closed entirely.

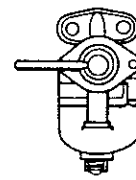
4. Remove the spark plug and pour a spoonful of engine oil at the plug fitting hole into the engine and stroke the recoil starter (or the start rope) 2 or 3 times and keep the cylinder head at compressed position. Be sure to replace the spark plug to its position.
5. Clean the outside of the engine with an oil soaked cloth and keep it in a moisture-free place until next use.
6. Cleanse the fuel filter and suction pipe in gasoline.



Raise to close

Drain up fuel out of the tank and close the cock.

Cock



↑
Push

Drain up fuel out of the carburetor.

TROUBLE SHOOTING

ENGINE RUNS ABNORMALLY	The fuel reaches the carburetor, but the spark plug never ignites.	The current reaches the terminal.	<ul style="list-style-type: none"> a. Over-suction of the fuel b. Too much carbon on the spark plug c. Poor insulation of the spark plug d. Improper gap of the spark plug
		No current reaches the terminal.	<ul style="list-style-type: none"> a. Stained contact point b. Poor or disconnection of TCI unit c. Poor connection between ignition coil and TCI unit d. Cut or short circuit in the ignition coil
	The fuel reaches the carburetor, and the spark plug ignites well.	The compression is good.	a. Improper fuel
		The compression is bad.	<ul style="list-style-type: none"> a. Worn or loosened cylinder packing b. Loosened spark plug c. Worn piston rings
The fuel fails to reach the carburetor.		<ul style="list-style-type: none"> a. No fuel in the tank b. Fuel cock closed c. Clogging of the ventilating hole of the fuel tank d. Clogging of the passage in the carburetor e. Bent or torn vinyl pipe 	
ENGINE FAILS TO START	The engine runs, but no power.	The compression is good, and no misfire.	<ul style="list-style-type: none"> a. Improper fuel b. Clogging of the aircleaner element c. Air in the joint of the fuel pipe d. Abnormal choke lever or fuel height in the float chamber e. Too much carbon inside the cylinder, exhaust pipe and muffler
		The compression is bad, and misfire, too.	<ul style="list-style-type: none"> a. Stained ignition plug b. Intermittent short circuit of cord c. Bad fuel d. Worn piston ring e. Scars inside the cylinder f. Cracks on the piston head
	The engine is overheated.		<ul style="list-style-type: none"> a. Shortage of the fuel b. Thin mixing ratio of the fuel c. Oil is not well mixed d. Too much carbon build up e. Overloaded running f. Unloaded running g. Bad spark plug (Improper timing) h. Build up of dirt on the cooling fins of cylinder
	Poor acceleration		<ul style="list-style-type: none"> a. Carburetor out of adjustment b. Poor quality of gasoline and oil c. Too much carbon built up