

ROVER-SCOTT BONNAR LTD.

LAWN MOWER ENGINE M120X

SERVICE SEMINAR

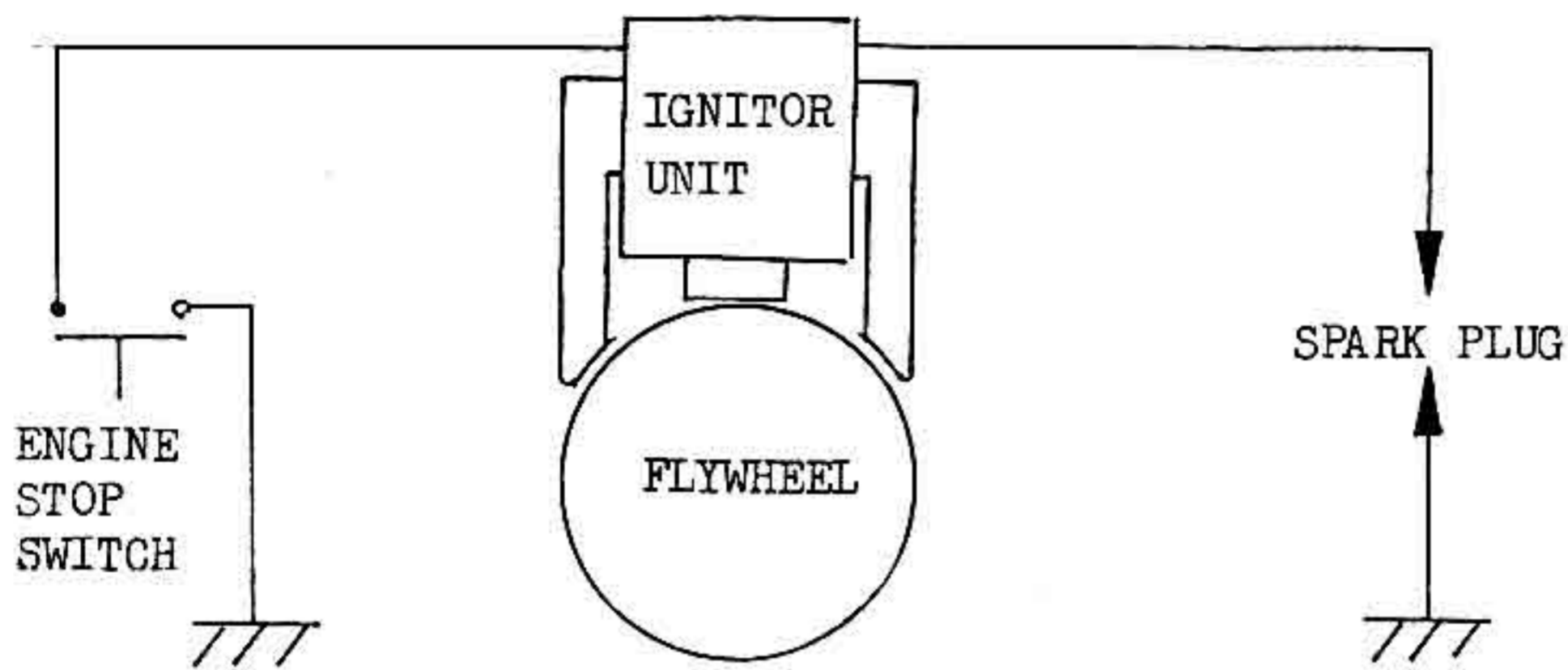
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SUZUKI MOTOR CORPORATION

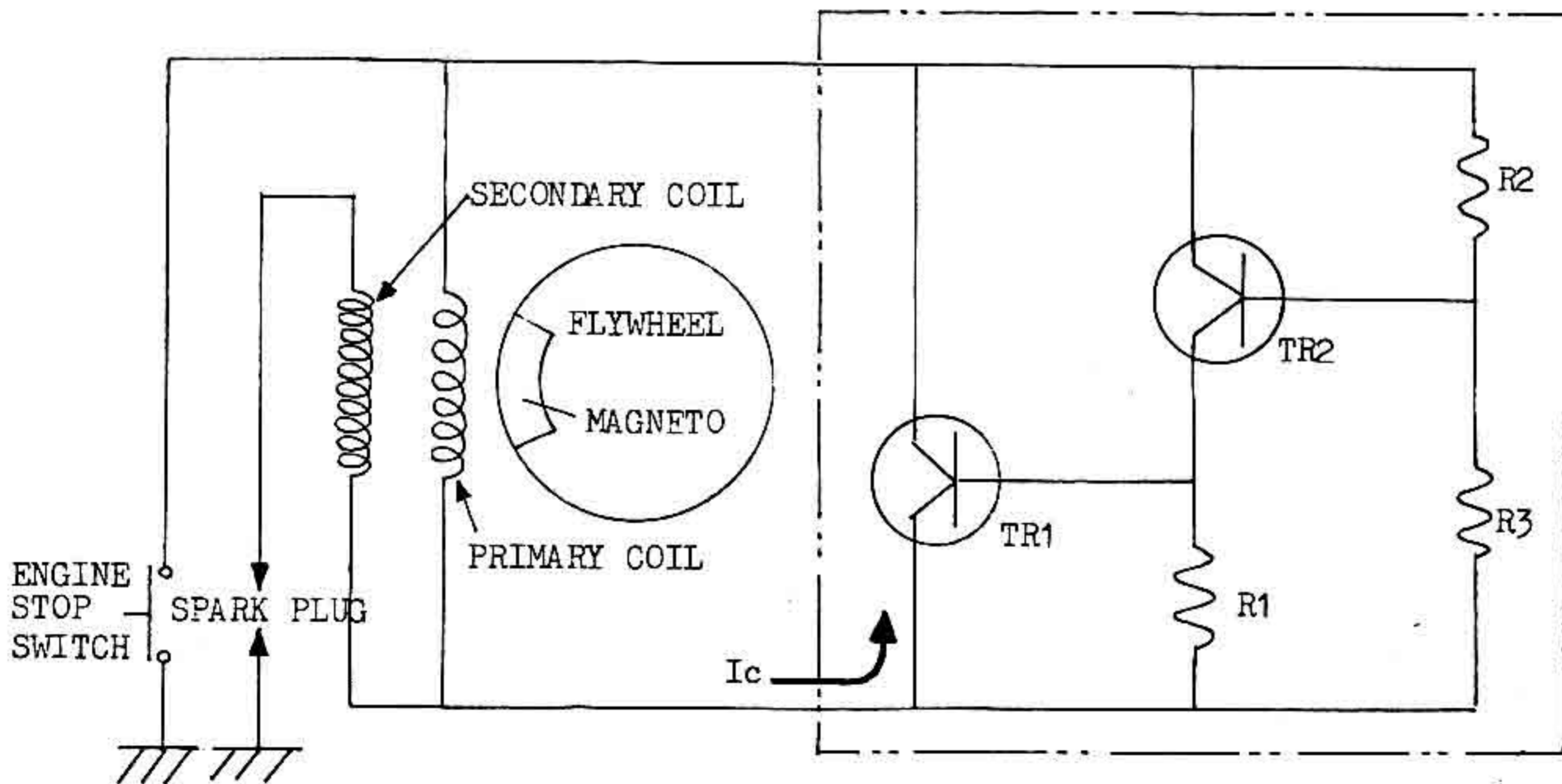
# IGNITION SYSTEM

The M120X has a pointless transistorized ignition system. This ignition system does not required the periodic reconditioning of contact point surfaces or point gap adjustment. A strong spark is produced, even at low speed, so that maximum reliability can be ensured.

## 1. WIRING DIAGRAM

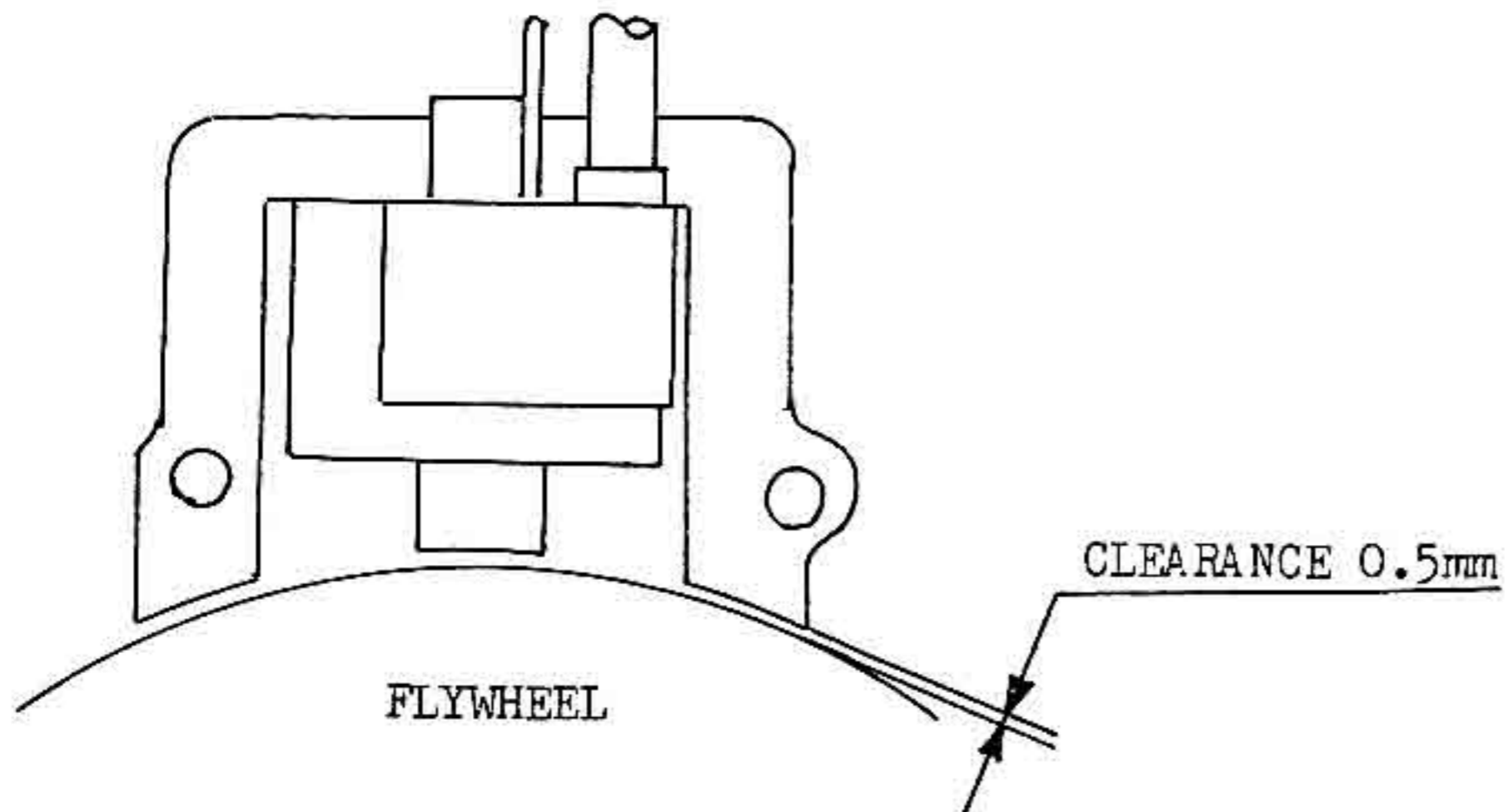


## 2. OPERATION OF IGNITION SYSTEM



- 1) When the recoil starter grip is pulled, the flywheel turns.
- 2) As the flywheel turns, a voltage is induced within the primary coil.
- 3) Due to this voltage, the base current flows through the transistor TR1 and then turn the transistor on allowing the current  $I_c$  to flow.
- 4) As the current  $I_c$  increases, the collector-emitter voltage also increases which then raises the TR2 base voltage. When the TR2 base voltage rises to a predetermined level being controlled by R2/R3 ratio, the TR2 is turned on and then the TR1 is turned off.
- 5) To stop the engine, the engine stop switch is closed for stopping the current  $I_c$  and shutting off the spark.

### 3. INSTALLATION OF IGNITOR UNIT



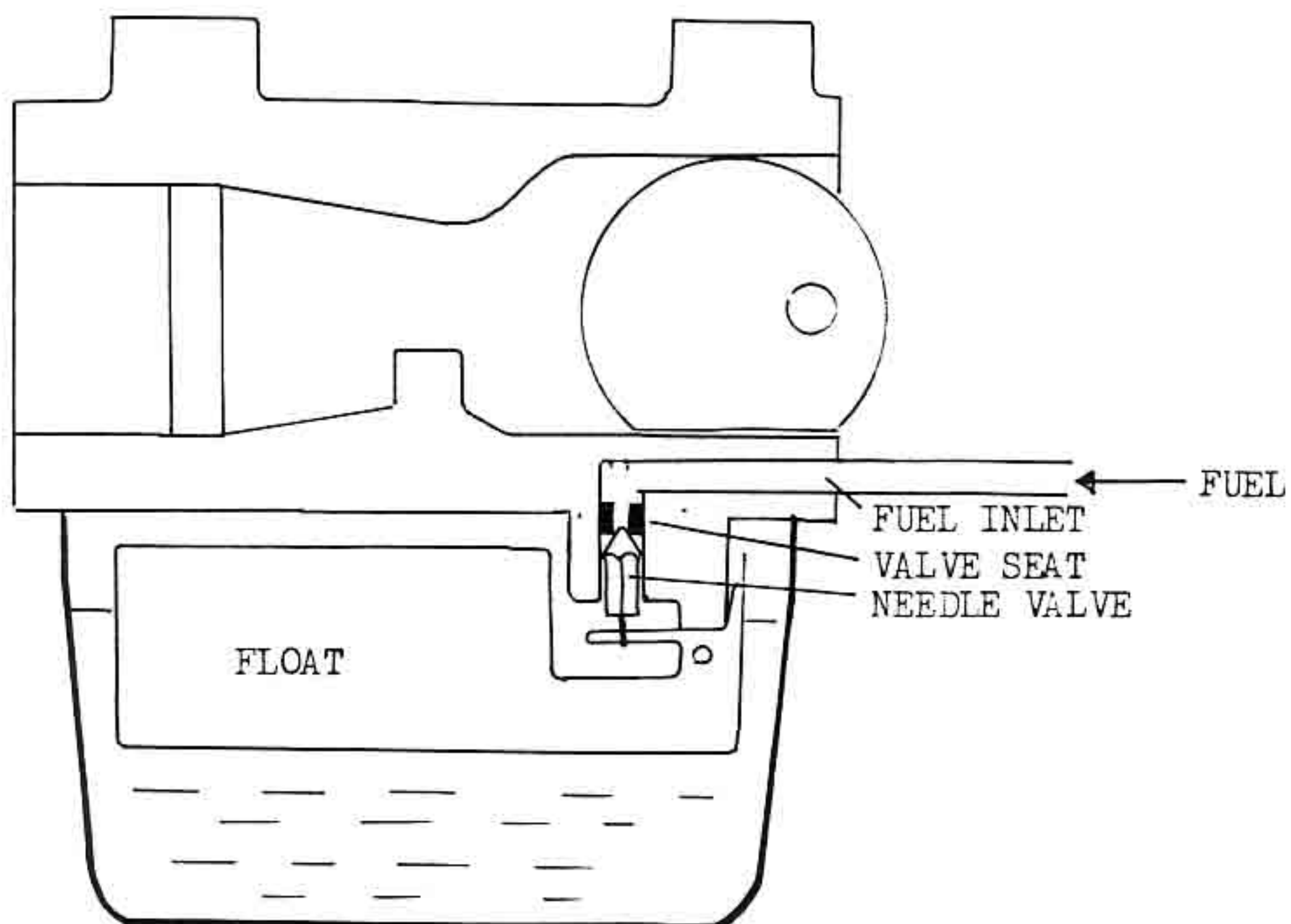
When installing the ignitor unit, the clearance to the flywheel should be set to 0.5 mm.

# CARBURETOR SYSTEM

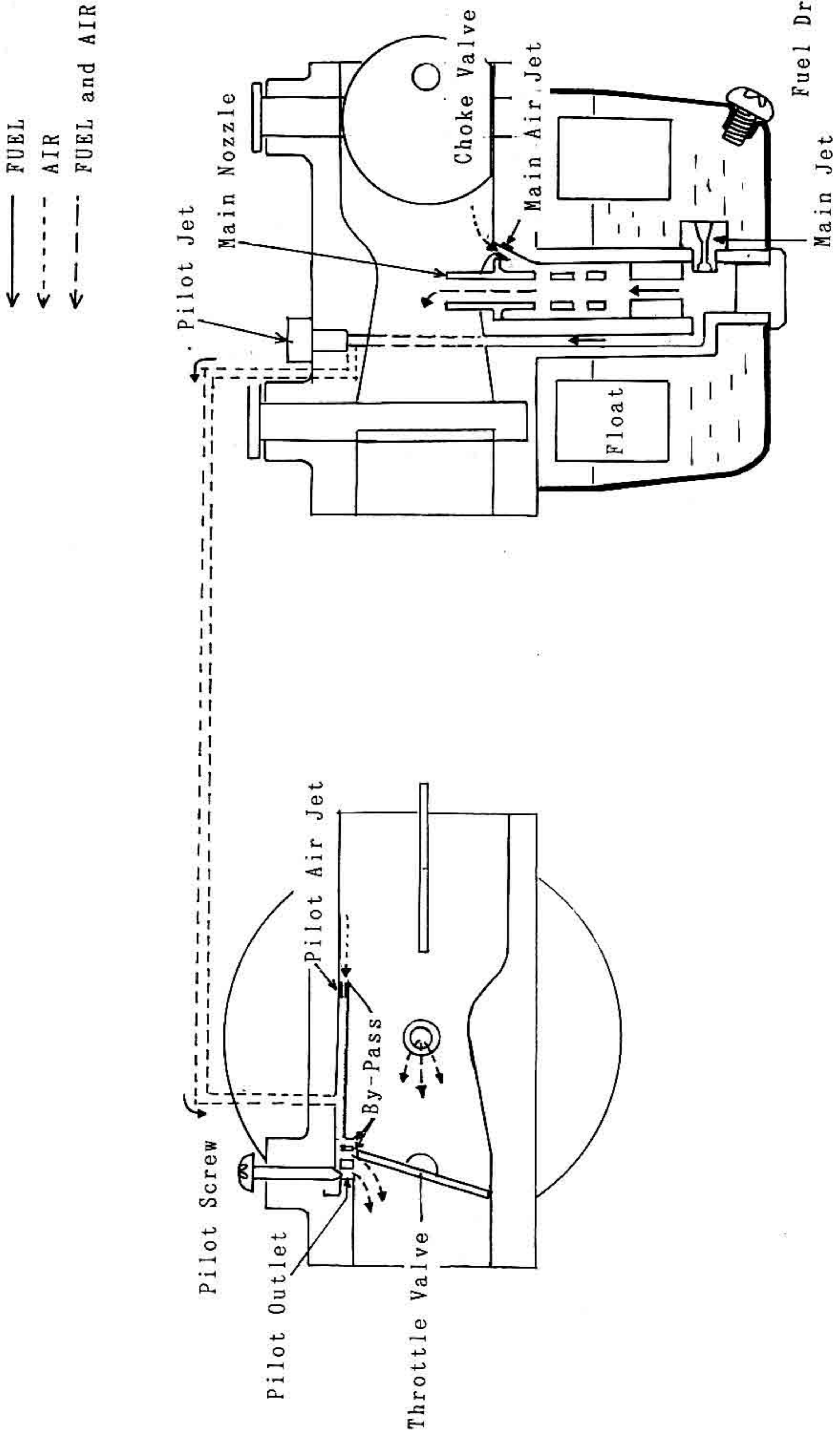
## 1. SPECIFICATION

TYPE : MIKUNI BV18-15  
MAIN JET : #76.3  
MAIN AIR JET :  $\phi 1.1\text{mm}$   
PILOT JET : #35  
PILOT AIR JET :  $\phi 1.0\text{mm}$   
PILOT OUTLET :  $\phi 0.7\text{mm}$   
THROTTLE VALVE : #150  
BY-PASS :  $\phi 0.7\text{mm}$ ,  $\phi 0.7\text{mm}$   
VALVE SEAT :  $\phi 1.5\text{mm}$

## 2. FLOAT SYSTEM



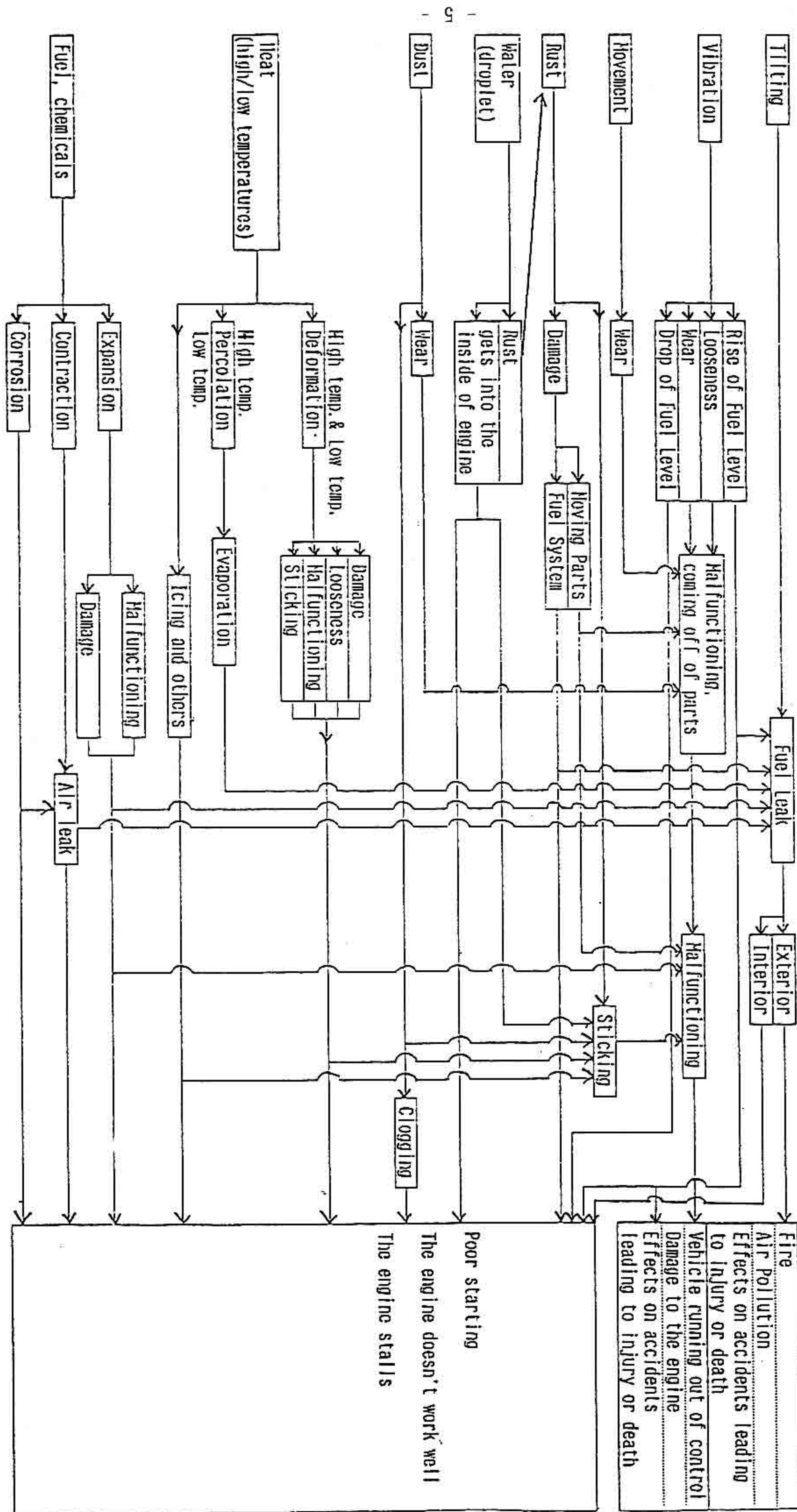
### 3. MAIN AND PILOT SYSTEM



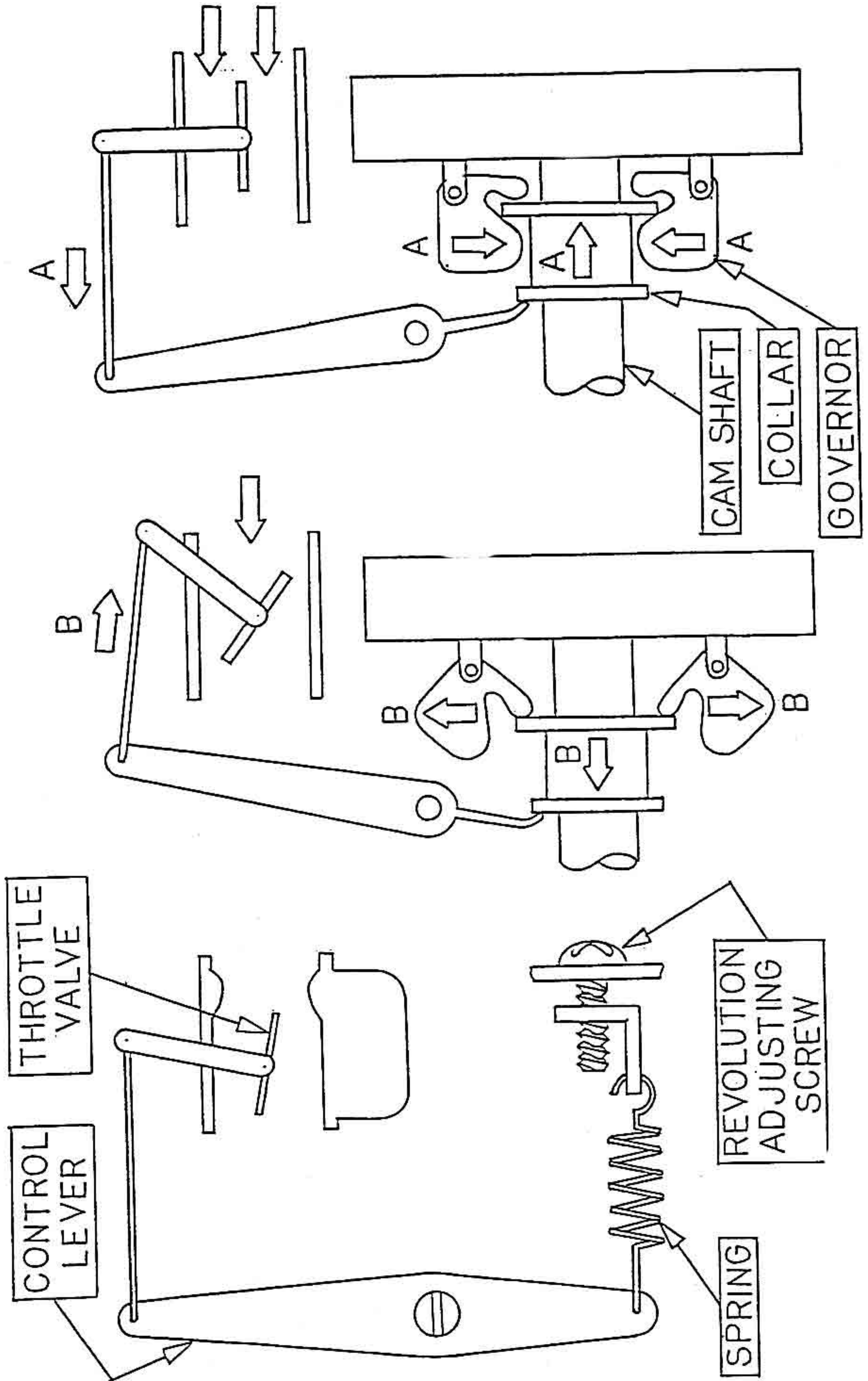


# 4. TROUBLESHOOTING

Check Sheet on functioning of carburetors for general-purpose engines



CENTRIFUGAL TYPE GOVERNOR





# ENGINE TROUBLESHOOTING

## ENGINE DOES NOT START

CAUSE	REMEDY
Fuel tank empty	Fill tank.
Fuel cock closed	Open cock.
Fuel hose obstructed	Clean fuel filter and hose, remove and clean carburetor.
Fuel tank cap vent obstructed	Remove obstruction.
Gasoline contaminated	Clean tank and entire delivery system.
Overchoked	Close fuel cock and pull starter until engine starts. Open fuel cock again for normal fuel flow.
Carburetor adjusted incorrectly	Adjust carburetor.
Magneto wire shorting or disconnected	Repair, replace or connect wire.
Flywheel magnets weak	Replace flywheel.
Ignition coil assy. defective	Replace coil assy.
Spark plug fouled or damaged	Clean or replace spark plug.
Engine stop switch malfunction	Replace stop switch.
Spark plug tightened incorrectly or faulty gasket	Tighten to specified torque or replace spark plug.
Compression leak	Replace gasket.
Worn piston, ring or cylinder	Replace ring and piston. Rebore or replace cylinder.



### ENGINE MISSES UNDER LOAD

CAUSE	REMEDY
Spark plug fouled or damaged	Clean or replace spark plug.
Spark plug gap improper	Adjust gap.
Carburetor adjusted incorrectly	Adjust carburetor.

### ENGINE LACKS POWER

CAUSE	REMEDY
Choke partially closed	Open choke.
Carburetor adjusted incorrectly	Adjust carburetor.
Piston rings worn	Replace rings.
Air cleaner clogged	Clean air cleaner.
Fuel filter clogged	Clean filter element.
Carburetor jets clogged	Disassemble and clean jets.
Air leaking at carburetor gasket	Replace gasket.

### ENGINE KNOCKS

CAUSE	REMEDY
Carbon deposit in combustion chamber	Remove carbon.
Flywheel loose	Check flywheel key and replace it if necessary. Tighten flywheel nut to proper torque.
Cylinder worn	Replace cylinder.
Improper spark plug gap causing slapping noise	Adjust gap.

## ENGINE OVERHEATS

CAUSE	REMEDY
Carburetor adjusted incorrectly	Adjust carburetor.
Cooling air flow obstructed	Remove obstruction.
Cooling fins obstructed	Clean cooling fins.
Excessive load on engine	Reduce excessive load.
Carbon deposit in combustion chamber	Remove carbon.

## ENGINE SURGES OR RUNS UNEVENLY

CAUSE	REMEDY
Fuel tank cap vent obstructed	Remove obstruction.
Governor parts sticking or binding	Clean, and if necessary repair governor part.
Carburetor throttle linkage sticking or binding	Clean, lubricate or adjust linkage.
Intermittent spark	Repair or replace coil assy.
Carburetor adjusted incorrectly	Adjust carburetor.
Dirt in carburetor	Clean carburetor.
Fuel filter clogged	Clean filter element.
Air leaking at carburetor gasket	Replace gasket.

ENGINE VIBRATES EXCESSIVELY

CAUSE	REMEDY
Engine not securely mounted	Tighten mounting bolts.
Crankshaft bent	Replace crankshaft.
Associated equipment out of balance	Check associated equipment.

ENGINE USES EXCESSIVE AMOUNT OF OIL

CAUSE	REMEDY
Engine speed too fast	Adjust engine rpm to spec.
Cylinder wall worn or glazed	Bore hole, or deglaze as necessary.
Piston rings and grooves worn excessively	Replace piston and rings.
Piston worn	Measure and replace as necessary.