SERVICE MANUAL

DATSUN 240Z
MODEL S30 SERIES

NISSAN

NISSAN MOTOR CO., LTD.
TOKYO, JAPAN

SECTION EF

FUEL SYSTEM

EF

AIR CLEANER 1
FUEL STRAINER 3
FUEL PUMP 4
SU TYPE TWIN CARBURETOR 7
EVAPORATIVE EMISSION CONTROL SYSTEM 20

AIR CLEANER

CONTENTS

DESCRIPTION EF-1
Air cleaner element EF-1
Automatic temperature control air cleaner ... EF-1
TEMPERATURE SENSOR EF-2
Removal and installation EF-2

DESCRIPTION

The air cleaner element is of a viscous paper type and does not require any cleaning service between renewals.

Note: Never attempt to clean this element with a brush or air blast.

Air cleaner element

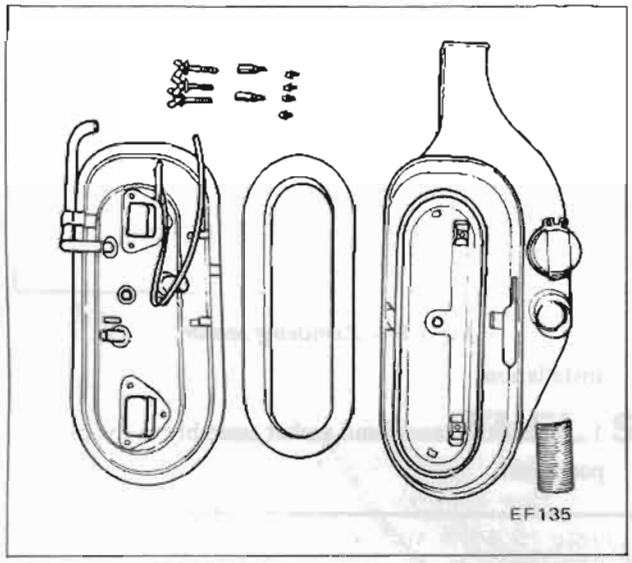


Fig. EF-1 Air cleaner

Automatic temperature control air cleaner

The automatic temperature control air cleaner is of a special type provided with a temperature sensor and vacuum-operated valve. The vacuum acting upon the air control valve is controlled by the sensor (See Figure EF-2.).

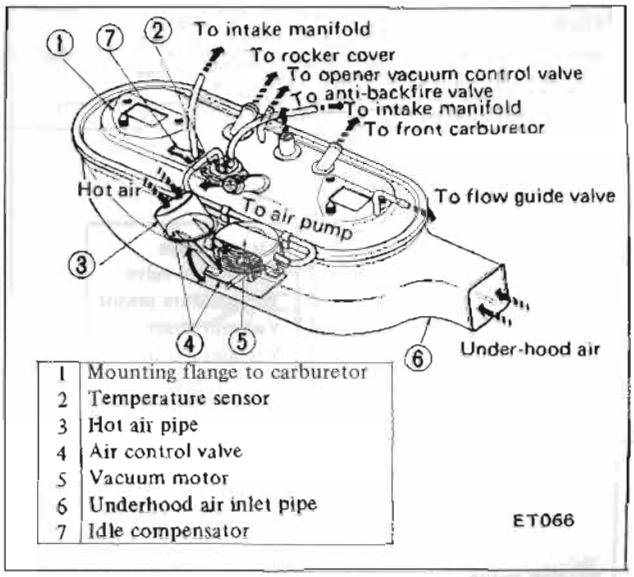


Fig. EF-2 Automatic temperature control air cleaner

If the temperature of suction air is low when the engine is running, the valve closes the underhood air inlet pipe, and introduces hot air through the cover which is installed on the exhaust manifold (See Figure EF-3).

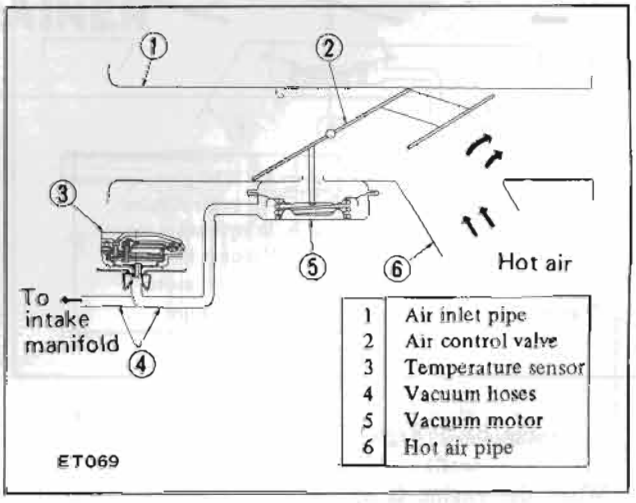


Fig. EF-3 Hot-air delivery mode (during cold engine operation)

When the temperature of suction air around the sensor reaches 34°C (110°F) and above, the sensor actuates to open the valve. When the temperature of suction air around the sensor further rises, and reaches above 37°C (120°F), the valve completely opens to prevent the entrance of hot air, and allows underhood-air alone to be introduced into the carburetor. (See Figure EF-4.).

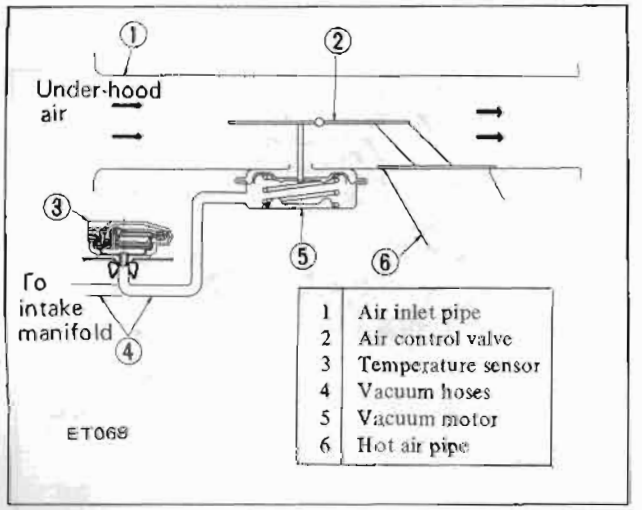


Fig. EF-4 Underhood-air delivery mode (during hot engine operation)

As the valve acts in the manner described above, the temperature of suction air around the sensor is always kept about 34°C (110°F). (See Figure EF-5.)

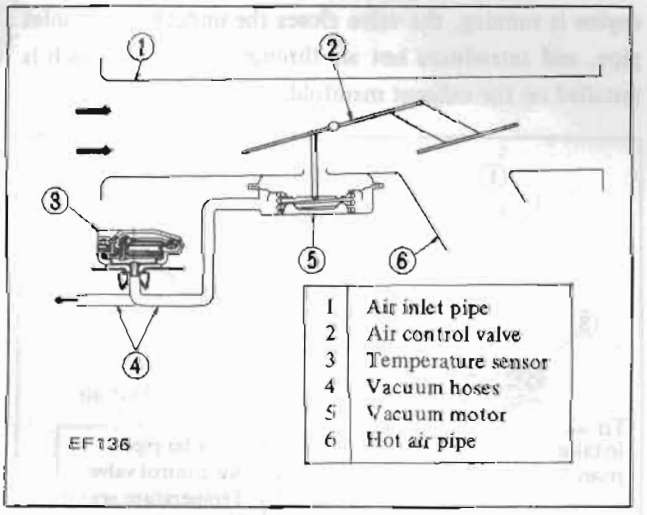


Fig. EF-5 Regulating air delivery mode

When the engine is operating under heavy load, the valve fully opens the underhood-air inlet to obtain full power regardless of the temperature around sensor.

This control of carburetor air temperatures allows leaner carburetor calibration with accompanying reduced emissions than conventional controls and also eliminates carburetor icing.

TEMPERATURE SENSOR

Removal and installation

Removal

1. Flatten the tabs of clip with pliers.
2. Pull out hoses.

Note: Note the respective positions of the hoses from which they were removed.

3. Pry the tab of clip with a screwdriver.
4. Take off the sensor and clip.

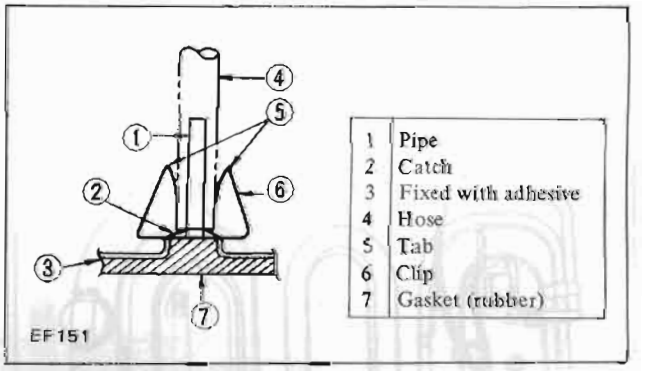


Fig. EF-6 Removing sensor

Installation

1. Install the sensor and gasket assembly in the proper positions.

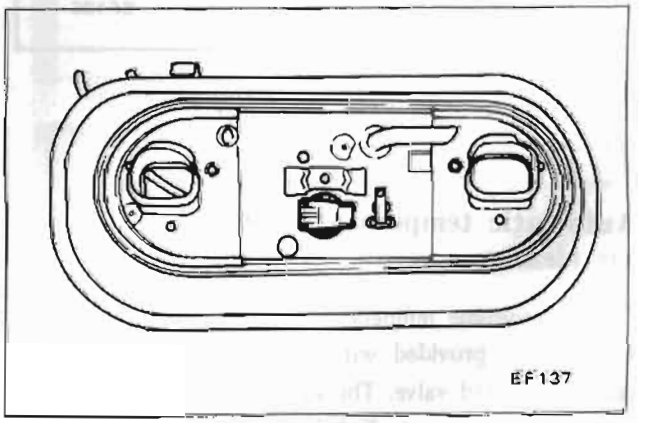


Fig. EF-7 Installing sensor

2. Insert clip. Be sure to hold the sensor at the correct position to avoid damage.

3. Connect the hoses to their proper positions.

Note: Use care not to damage the sensor.

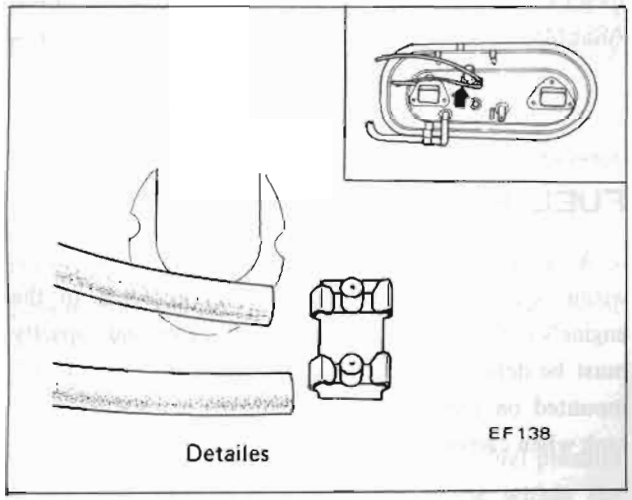


Fig. EF-8 Inserting clip

IDLE COMPENSATOR

The idle compensator is essentially a thermostatic valve to compensates for excessive enriching of the mixture as a result of high idle temperatures. When the under-the-hood temperatures are high, the bimetal located in the air cleaner is heated by intake hot air and lifts the valve to open. This permits additional fresh air that is properly calibrated by the 3 mm (0.118 in) dia. orifice compensates for the increased richness of into the intake manifold and the air-fuel mixture in order to maintain smooth idle engine operation.

The idle compensator thermostatic valve partially opens at 50°C (122°F) and fully opens at 60°C (140°F).

Never attempt to disassemble this unit since it is sealed for tightness and properly adjusted for valve timing.

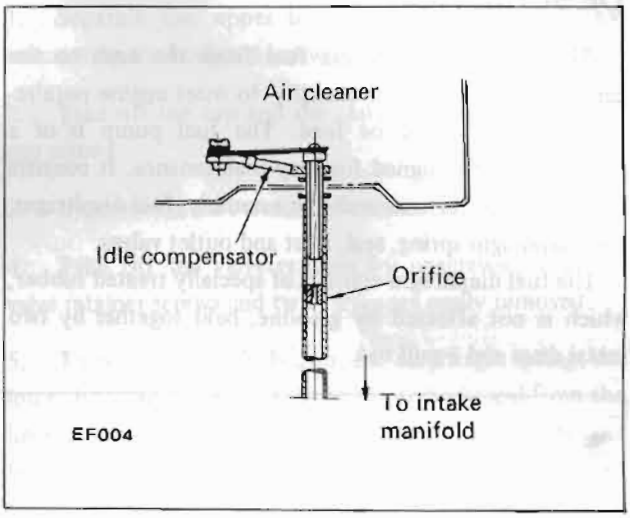


Fig. EF-9 Schematic of idle compensator

FUEL STRAINER

DESCRIPTION

The fuel strainer is of a cartridge type. It uses a fiber mat as the strainer element which can be checked for condition from the outside.

REMOVAL

Disconnect inlet and outlet fuel lines from the fuel strainer, and remove the fuel strainer.

Note: Before disconnecting fuel lines, use a container to receive the remaining fuel in lines.

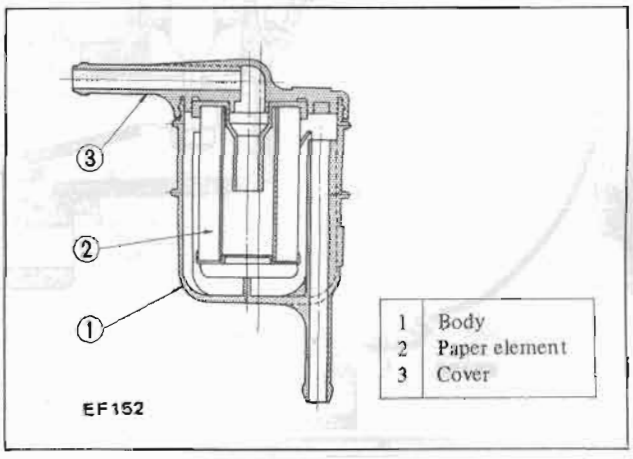


Fig. EF-10 Sectional view of cartridge type fuel strainer

FUEL PUMP

CONTENTS

DESCRIPTION EF-4
FUEL PUMP TESTING EF-4
Static pressure test EF-5
Capacity test EF-5
REMOVAL AND DISASSEMBLY EF-5
INSPECTION EF-6
ASSEMBLY EF-6

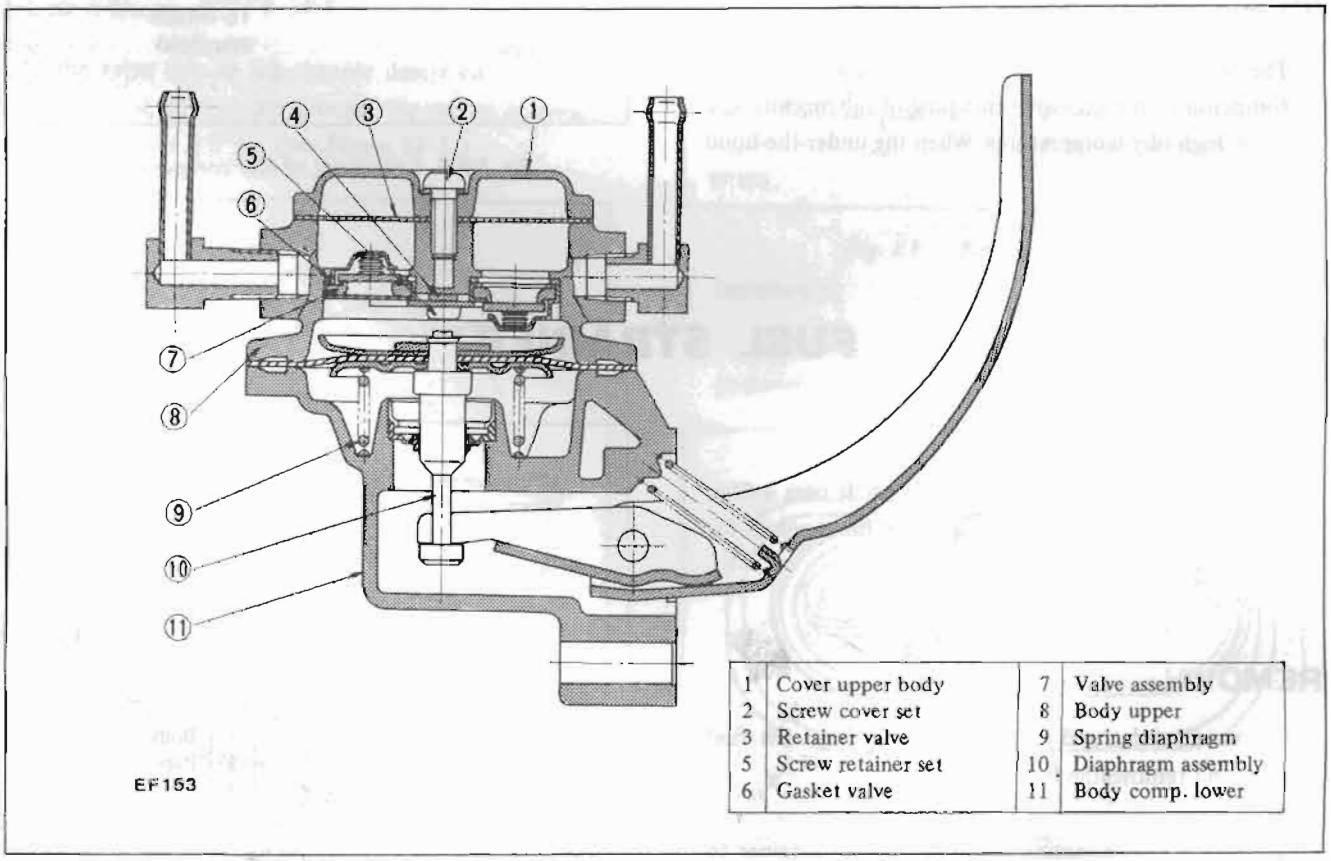
DESCRIPTION

The fuel pump transfers fuel from the tank to the carburetor in sufficient quantity to meet engine requirements at any speed or load. The fuel pump is of a pulsating type designed for easy maintenance. It consists of a body, rocker arm and link assembly, fuel diaphragm, fuel diaphragm spring, seal, inlet and outlet valves.

The fuel diaphragm consists of specially treated rubber, which is not affected by gasoline, held together by two metal discs and a pull rod.

FUEL PUMP TESTING

A fuel pump is operating properly when its pressure is within specifications and its capacity is equal to the engine's requirements at all speeds. Pressure and capacity must be determined by two tests, while the pump is still mounted on the engine. Be sure there is gasoline in the tank when carrying out the tests.



1	Cover upper body	7	Valve assembly
2	Screw cover set	8	Body upper
3	Retainer valve	9	Spring diaphragm
5	Screw retainer set	10	Diaphragm assembly
6	Gasket valve	11	Body comp. lower

Fig. EF-11 Sectional view of fuel pump

Static pressure test

The static pressure test should be conducted as follows:

1. Disconnect the fuel line between the carburetor and the fuel pump.

2. Connect a rubber hose to each open end of a T-connector, and connect this connector-hose assembly between the carburetor and the fuel pump.

Note: Locate this T-connector as close to the carburetor as possible.

3. Connect a suitable pressure gauge to the opening of T-connector, and fasten the hose between the carburetor and T-connector with a clip securely.

4. Start and run the engine at varying speeds.

5. The pressure gauge indicates the static fuel pressure in the line. The gauge reading should be within the following range.

0.24 to 0.30 kg/cm^2 (3.41 to 4.27 lb/sq in)

Note: If the fuel in the carburetor float chamber has run out and engine has stopped, remove the clip and pour fuel into the carburetor. Fasten the clip securely and repeat the static pressure test.

Pressure below the lower limit indicates the extreme wear on one part or a small amount of wear on each working part. It also indicates the ruptured diaphragm; worn, warped, dirty or gumming valves and seats, or a weak diaphragm return spring. Pressure above the upper limit indicates an excessively strong tension of the diaphragm return spring or a diaphragm that is too tight. Both of these conditions require the removal of the pump assembly for replacement or repair.

Capacity test

The capacity test is conducted only when the static pressure is within the specification. To conduct this test, proceed as follows:

1. Disconnect pressure gauge from T-connector and, in its vacant place, install a suitable container as a fuel sump.

2. Start the engine and run at 1,000 rpm.

3. The pump should deliver 1,600 cc (3⅜ U.S. pts.) of fuel in one minute or less.

If little or no fuel flows from the open end of pipe, it is an indication that fuel line is clogged or pump is malfunctioning.

REMOVAL AND DISASSEMBLY

Remove the fuel pump assembly by unscrewing the three mounting bolts and disassemble in the following order.

1. Separate the upper body and the lower body by unscrewing the body set screws.

2. Take off the cap and the cap gasket by removing the cap screws.

3. Unscrew the elbow and the connector.

4. Take off the valve retainer by unscrewing the two valve retainer screws and two valves are easily removed.

5. To remove the diaphragm, the diaphragm spring, the lower body seal washer and the lower body seal from the lower body, press down the diaphragm counter to the force of the diaphragm spring with the diaphragm pressed down, tilt it until the end of pull rod touches the inner wall of body. Then, release the diaphragm to unhook push rod. Use care during this operation not to damage diaphragm or oil seal.

6. Drive out the rocker arm pin by using a press or hammer.

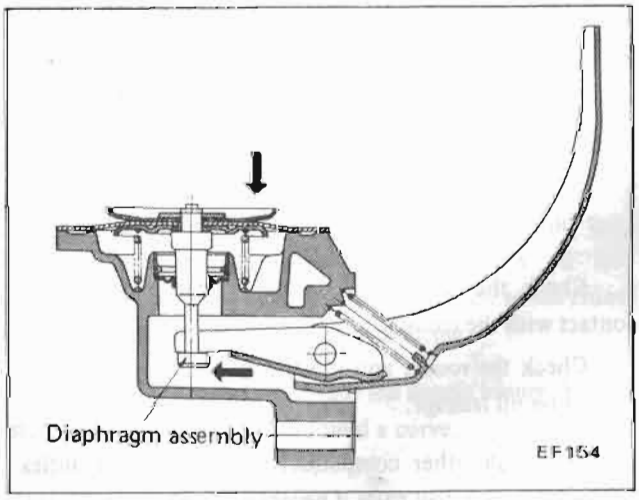


Fig. EF-12 Pull rod removal

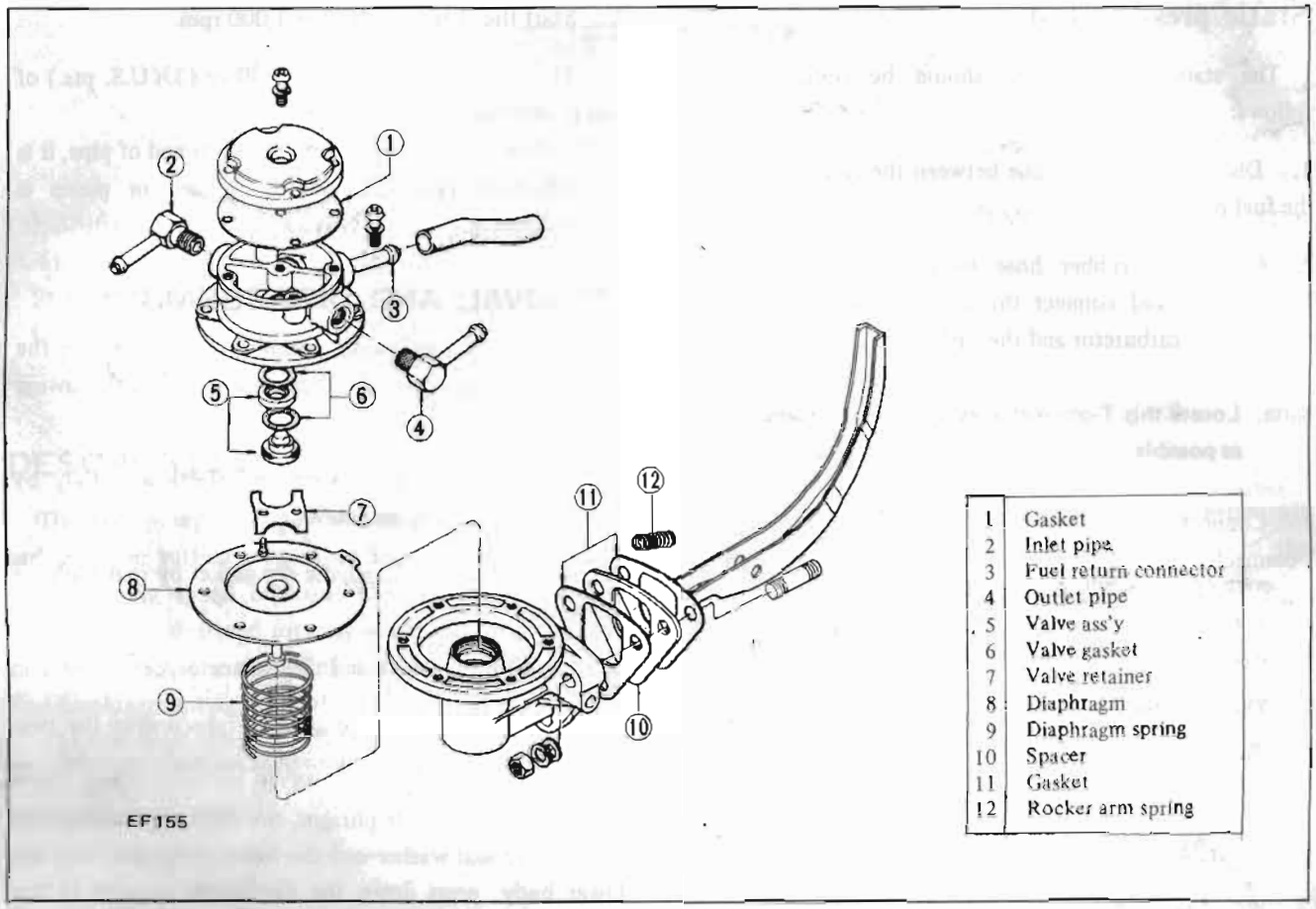


Fig. EF-13 Components of fuel pump

INSPECTION

1. Check the upper body and the lower body for cracks.

2. Check the valve assembly for wear of the valve and valve spring. Blow the valve assembly by breath to examine its function.

3. Check the diaphragm for small holes, cracks and wear.

4. Check the rocker arm for wear at the portion in contact with the camshaft.

5. Check the rocker arm pin for wear since a worn pin may cause oil leakage.

6. Check all other components for any abnormalities and replace with new parts if necessary.

ASSEMBLY

Assembly is done in the reverse order of disassembly. In case of reassembly and reinstallation, the following points should be noted.

1. Use new gaskets.

2. Lubricate the rocker arm, the rocker arm link, the rocker arm pin and the lever pin before installation.

3. To test the function, position the fuel pump assembly about 1 meter (3.3 ft) above fuel level with a pipe connecting the fuel pump and the fuel strainer and operate the rocker arm by hand. If fuel is drawn up soon after the rocker arm is released, the function of the pump is sufficient.

SU TYPE TWIN CARBURETOR

CONTENTS

DESCRIPTION ..... EF- 7
STRUCTURE AND OPERATION ..... ET- 8
Float system ..... EF- 8
Venturi control system ..... EF- 8
Fuel system ..... EF- 9
CONTROL AND ADJUSTMENT EF-10
Adjusting engine idle rpm, mixture ratio and ignition timing EF-10
Idle limiter cap EF-14
Inspection of float level EF-14
Adjustment of float level EF-15
Checking the damper oil EF-15
Fast idle adjustment EF-16
Periodic inspection of suction chamber and suction piston EF-16
DISASSEMBLY AND ASSEMBLY EF-17
SPECIFICATIONS EF-18
TROUBLE DIAGNOSES AND CORRECTIONS EF-18

DESCRIPTION

The model HMB46W carburetor is of a horizontal, variable venturi type. This carburetor is designed to keep constant flow of intake air through the venturi under all engine speeds. That is, the venturi opening is automatically adjusted by sliding the suction piston in accordance with change in the volume of intake air.

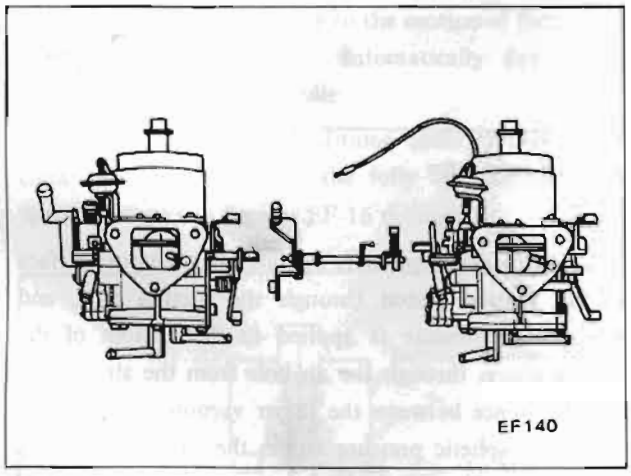


Fig. EF-14 HMB46W carburetor

Metering calibration of main system is accomplished by the jet needle fixed into the suction piston. Then, the related situation between the taper jet needle and nozzle gives the correct air-fuel mixture. A power valve in provided to improve the performance during the acceleration from the medium speed.

When starting the engine, choke valve is closed by pulling the choke knob and excess fuel is drawn from auxiliary nozzle at the intake side of each carburetor. Consequently, an enriched air fuel mixture is obtained. Under normal running, a proper mixture is supplied by sliding the jet needle, and vaccum in the suction chamber operates the suction piston.

This carburetor has the following characteristics:

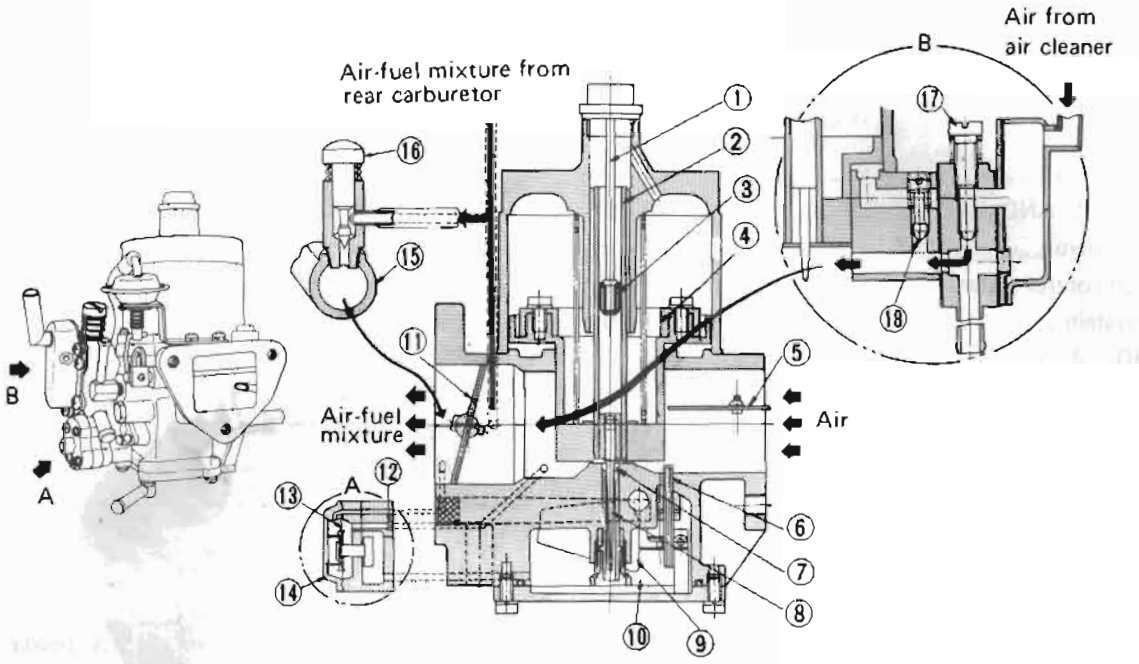
1. Air flows fast in the venturi even when the engine runs at low speeds. Therfore, fuel is fully turned into spring, so that good driveability can be obtained.

2. As the venturi opens wide at high speed running, with the use of two carburetors, high output can be provided to reduce air intake resistance.

3. Idle control system assures stable idling. And two adjusting screws (Idle speed adjusting screw on the balance tube and Idle mixture adjusting screw at the front carburetor) permit easy access for servicing.

4. Float chamber just beneath the nozzle ensures better starting stopping or turning round a curve.

STRUCTURE AND OPERATION



1	Plunger rod	11	Throttle valve
2	Suction piston rod	12	Power jet
3	Oil damper	13	Diaphragm
4	Suction piston	14	Power valve
5	Choke valve	15	Balance tube
6	Auxiliary nozzle for starting	16	Idle speed adjusting screw
7	Main nozzle	17	Idle mxture adjusting screw
8	Jet needle		
9	Float		
10	Float chamber		

Fig. EF-15 Sectional view of front carburetor

Float system

The float circuit is a dual float construction where two floats are arranged around the nozzle symmetrically. The float bowl is positioned just beneath the nozzle so that the level of fuel in the float bowl is constant when the car is accelerated or decelerated, or when it is turning a corner. See Figure EF-15.

Venturi control system

The suction chamber is mounted above the venturi, and the suction piston slides vertically within the suction chamber, changing the venturi opening area.

Venturi vacuum pressure operates on the upper surface of the suction piston through the suction port, and atmospheric pressure is applied to the bottom of the suction piston through the air hole from the air cleaner. The difference between the upper vacuum pressure and lower atmospheric pressure moves the suction piston up and down. The suction piston stops as a balanced condition exists between the pressure difference and the piston weight plus spring tension. The vacuum pressure is produced by the air flow velocity. For instance, when the throttle valve is opened by depressing the accelerator pedal, the flow velocity of the intake air increases. This also increases vacuum pressure in the venturi, and the suction piston is lifted until the piston is balanced, and

the venturi opening area enlarges.

When the throttle valve is closed by releasing the accelerator pedal, the flow velocity of the engine intake air in the venturi is reversely decreased. The piston goes down and the venturi opening area becomes small. The intake air flow velocity recovers as the venturi opening decreases. The piston stops going down because of a balance between the upper and the lower forces operating the suction piston.

Thus, the opening area is adjusted automatically to keep the flow of the intake air at constant velocity in the venturi. Consequently, the venturi opening is optimum for any engine operating conditions. In addition, the suction piston rod is equipped with an oil damper to prevent the piston coming up quickly as a result of sharp throttle opening. As the plunger rod positioned in an oil well operates on a fluid brake on rapid rising stroke but exerts no restriction on its fall, it provides an approximate degree of enrichment for acceleration.

Fuel system

Air velocity through the venturi (vacuum pressure) causes fuel to be sprayed from the float chamber, through the opening between the nozzle and jet needle into the Venturi.

The jet needle below the suction piston moves up and down in the nozzle according to the motion of the suction piston. Fuel flow changes automatically due to the tapered shape of the jet needle.

Moreover, operating conditions under various driving conditions from idling to the fully opened, maximum speed are shown in Figures EF-16 through 19.

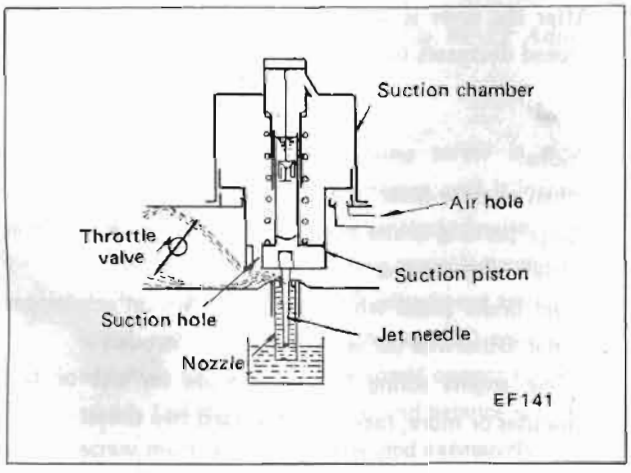


Fig. EF-16 Idling

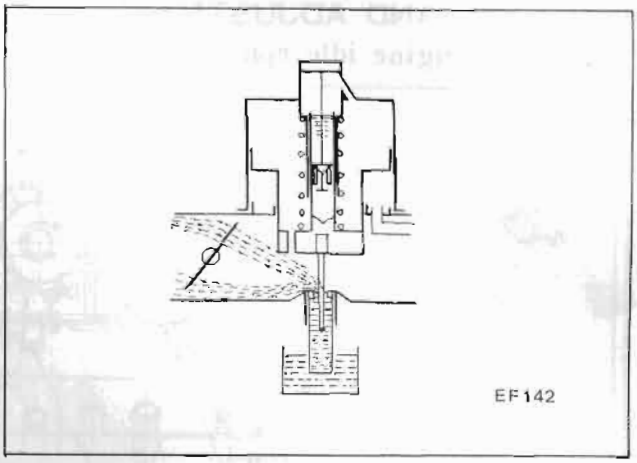


Fig. EF-17 Intermediate and low speed

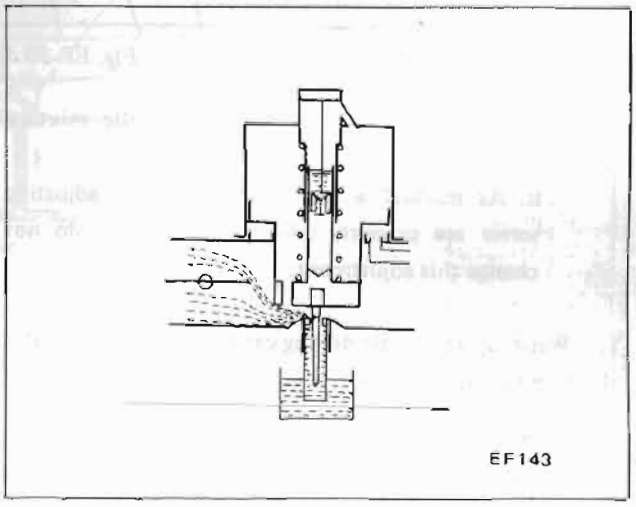


Fig. EF-18 Fully-opened low speed

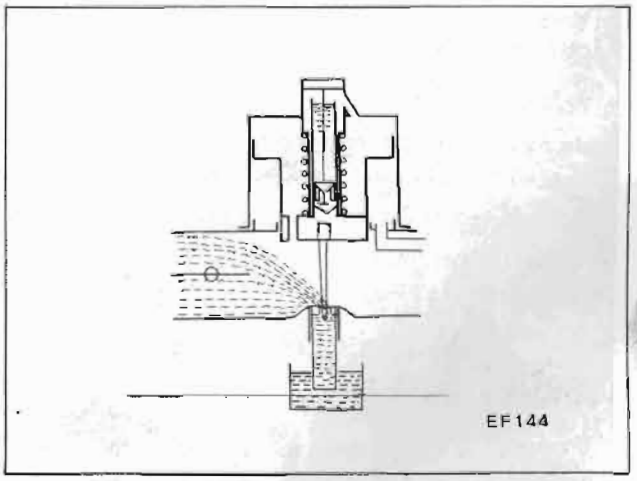
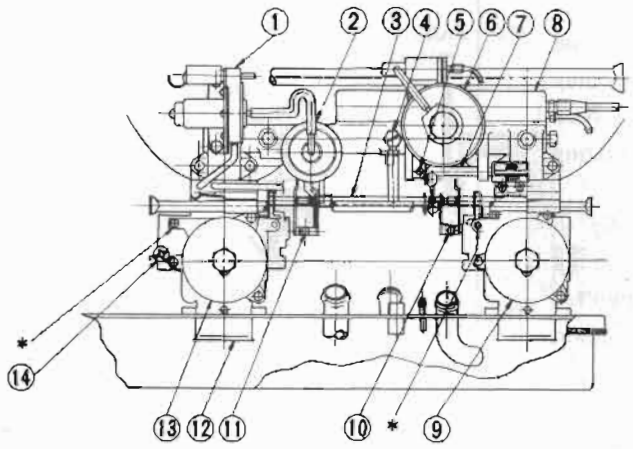


Fig. EF-19 Fully-opened high speed

CONTROL AND ADJUSTMENT

Adjusting engine idle rpm, mixture ratio and ignition timing



1	Throttle opener control valve assembly
2	Servo diaphragm
3	Throttle shaft
4	Idle speed adjusting screw
5	Fast idle setting screw
6	E.G.R. control valve
7	Auxiliary throttle shaft
8	Balance tube
9	Rear carburetor
10	Balance adjusting screw
11	Throttle opener adjusting screw
12	Air horn
13	Front carburetor
14	Idle mixture adjusting screw (Idle limiter cap)

Fig. EF-20 Carburetor linkage

Notes: a. Idle limiter cap equipped with idle mixture adjusting screw must not be removed.
b. As marked * screws and fast idle adjusting screw are properly adjusted at factory, do not change this adjustment.

1. Warm up engine by driving car more than 20 minutes at a speed about 48 km (30 mph).

2. Remove air cleaner cover and oil damper cap, raise suction piston with a suitable soft bar. Make sure that suction piston can be raised smoothly.

3. Check damper oil level and add oil (MS #20 or 10W-30) if insufficient.

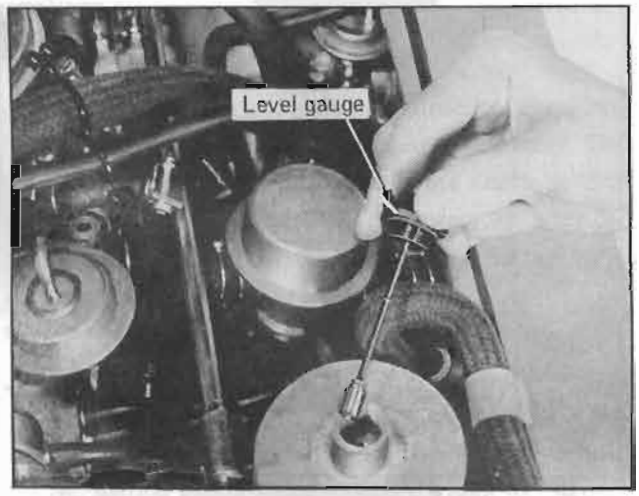


Fig. EF-21 Checking damper oil level

4. Loosen balance adjusting screw and throttle opener adjusting screw completely.

Notes: a. Make sure that front carburetor is separated from rear one in operation.
b. When the engine idling speed is being adjusted, do not touch fast idle setting screw, because this screw has already been adjusted at the factory.

5. Connect engine tachometer and timing light in proper position.

6. Adjust idling speed to 750 rpm by turning idle speed adjusting screw. On automatic transmission model, adjust to about 750 rpm with selector lever in "N" position and then shift selector lever in "D" position.

After the lever is shifted in "D" position, insure that idle speed decreases to 600 rpm.

Cautions:
a. When selector lever is shifted to "D" range, be sure to apply parking brake and to block both front and rear wheels with chocks.
b. Hold brake pedal while stepping down on accelerator pedal. Otherwise car will rush out dangerously.
c. After engine idling has been made for one or two minutes or more, race engine at least two times.

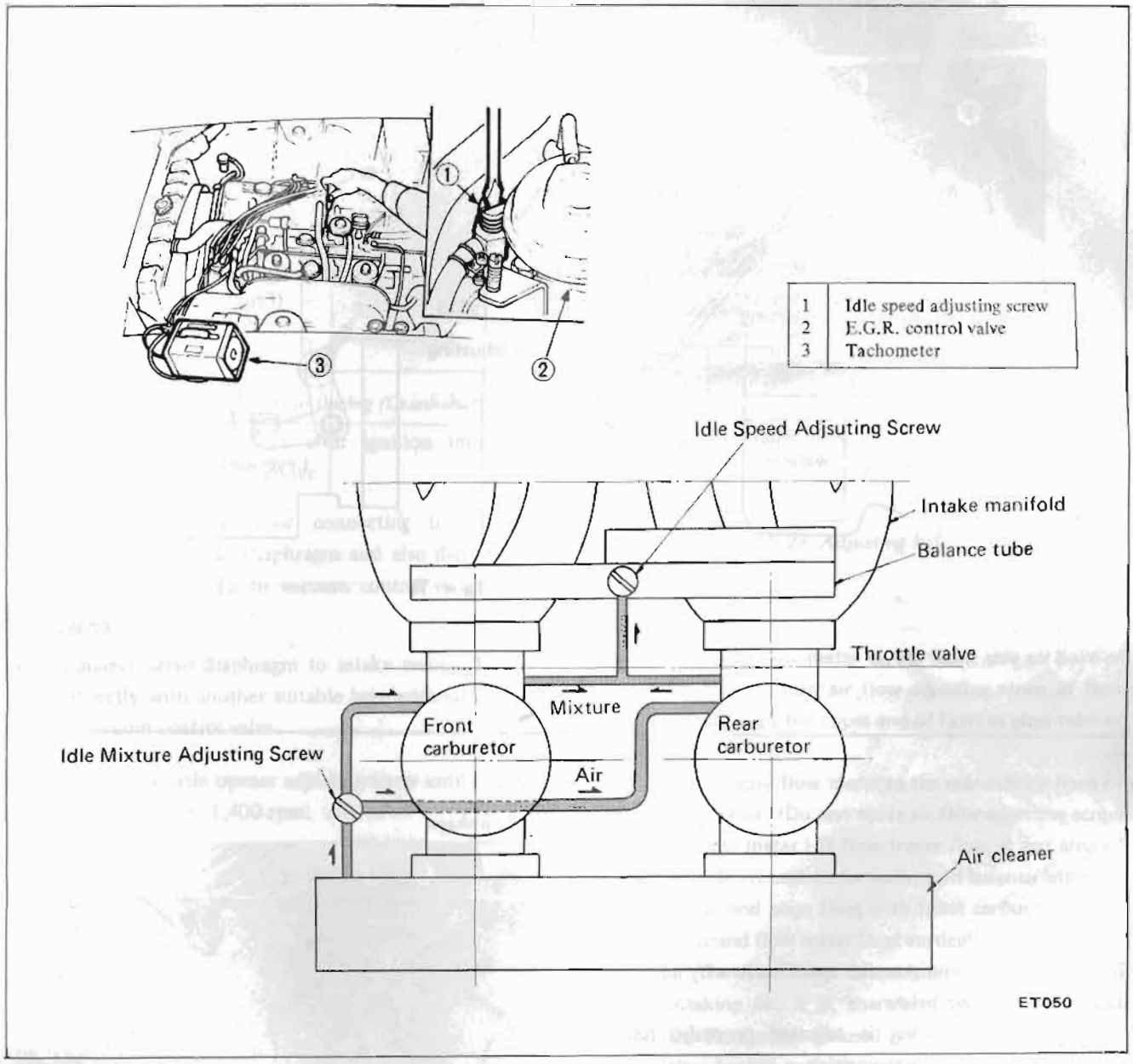


Fig. EF-22 Adjusting idle speed adjusting screw

Notes: a. When idle speed adjusting screw is turned clockwise, idling speed decreases, and it increases when the screw is turned counterclockwise.

b. When idle speed adjusting screw is turned fully clockwise during the above adjustment and engine speed cannot be reduced below 750 rpm, other adjusting screws such as throttle opener adjusting screw, fast idle setting screw and balance adjusting screw must have been tightened excessively or the accelerator linkage must have been adjusted incorrectly. Under the normal condition, the auxiliary throttle shaft and throttle shaft should have a slight play during engine operation under the idling speed. In other words, the auxiliary throttle shaft should be provided with a play "*0*" which corresponds to the clearance Ta = Tb as shown in Figure EC-17.

c. When adjusting in idling condition for 1 to 2 minutes or more, make sure to race the engine beforehand.

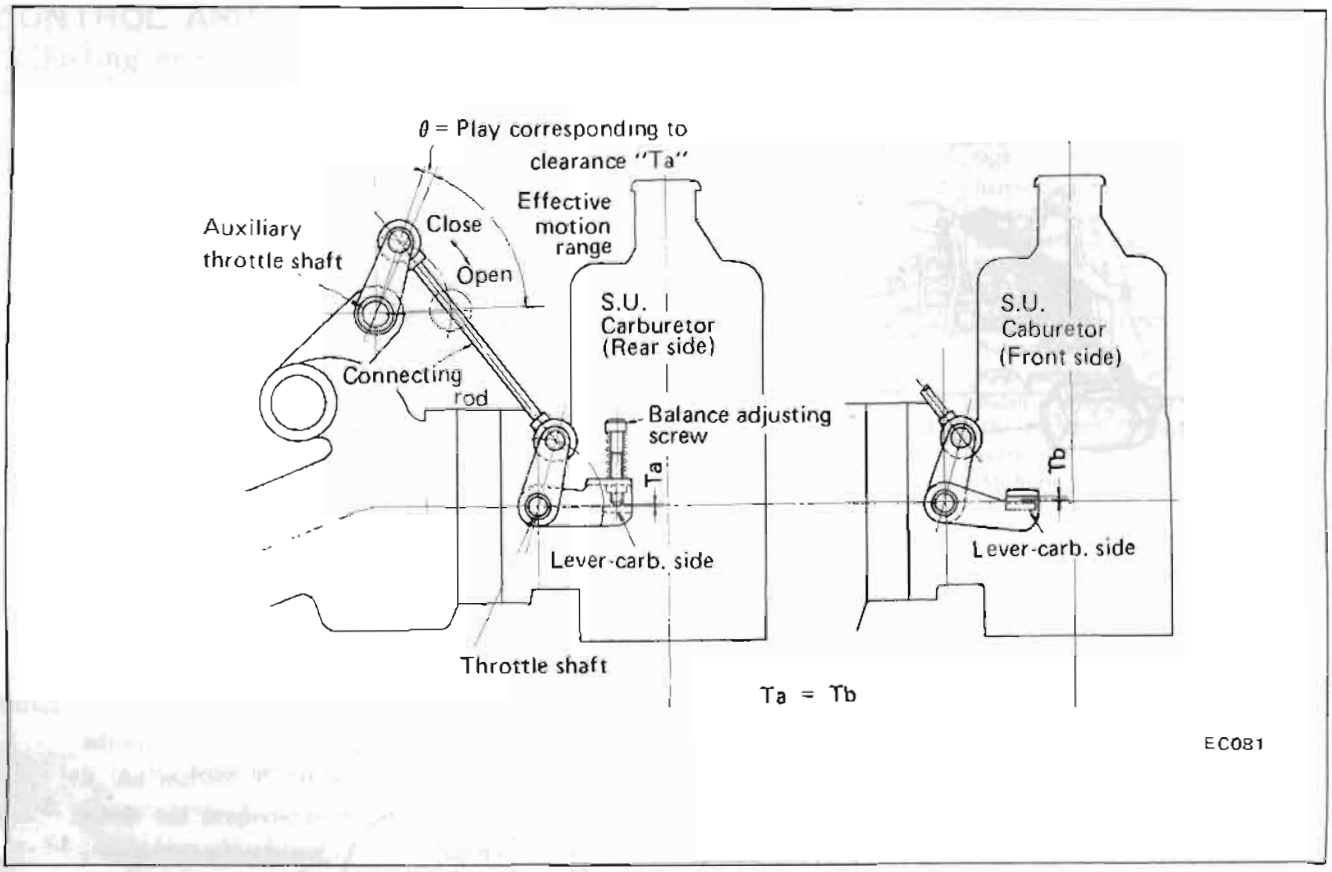


Fig. EF-23 Carburetor linkage

7. Set ignition timing to the specifications by adjusting distributor as shown below.

After ignition timing is adjusted properly, return selector lever to "N" range position.

	Ignition timing
With manual transmission	7° B.T.D.C./750 rpm
With automatic transmission (in "D" range)	5° B.T.D.C./600 rpm (Retard) 15° B.T.D.C./600 rpm (Advance)

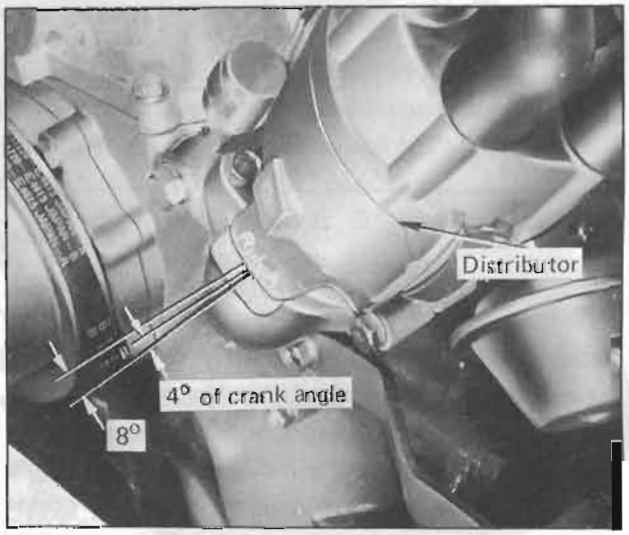


Fig. EF-24 Checking ignition timing (Distributor)

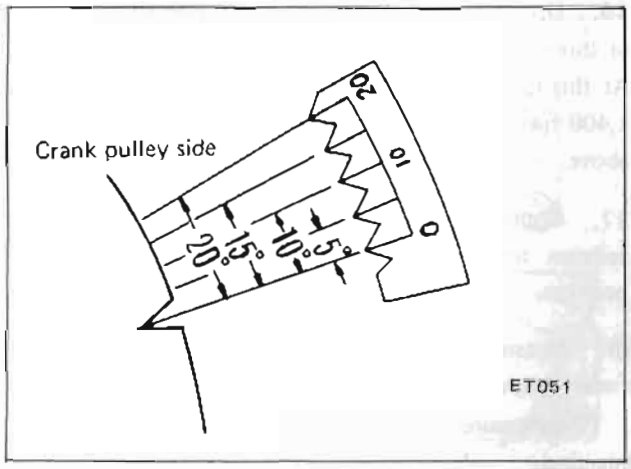


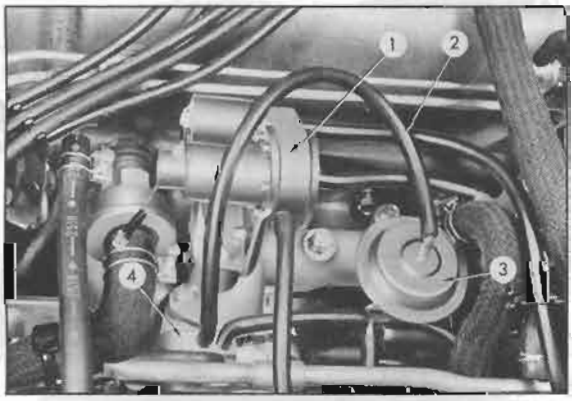
Fig. EF-25 Checking ignition timing (Crankshaft)

8. If engine speed changes after ignition timing is adjusted, repeat steps 6 to 7 above.

9. Disconnect vacuum hose connecting to vacuum control valve from servo diaphragm and also disconnect vacuum hose connecting to vacuum control valve from intake manifold.

10. Connect servo diaphragm to intake manifold connector directly with another suitable hose without laying through vacuum control valve.

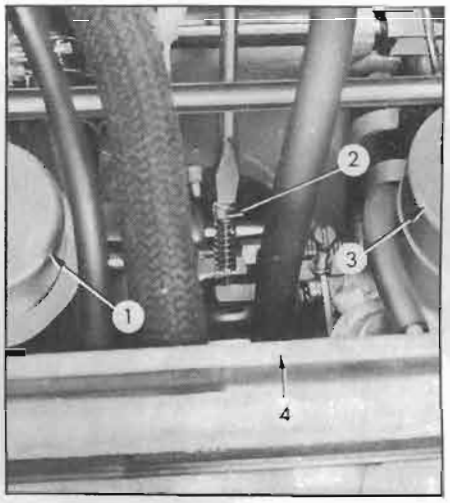
11. Turn in throttle opener adjusting screw until engine speed is set at approx. 1,400 rpm.



1	Control valve	3	Servo diaphragm
2	Connecting hose	4	Intake manifold

Fig. EF-26 Connecting servo diaphragm to intake manifold with a hose

12. Use a flow meter and adjust balance adjusting screw properly so that front and rear carburetor intake air volume is balanced under the condition described in step 10 above.



1	Anti-backfire valve
2	Balance adjusting screw
3	Carburetor
4	Air cleaner

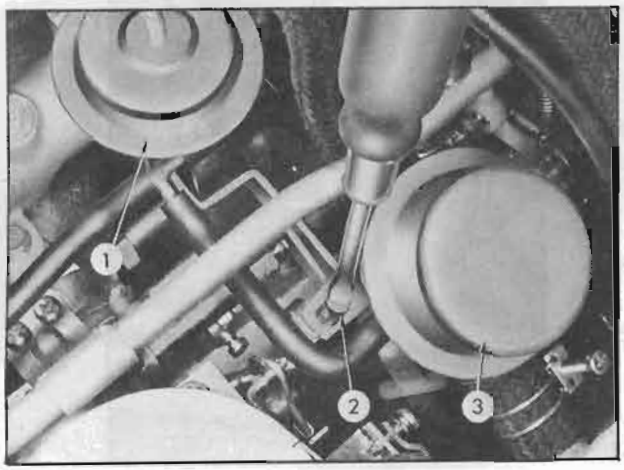
Fig. EF-28 Adjusting balance screw

Notes: a. Apply flow meter to the front side air horn of air cleaner, turn air flow adjusting screw of flow meter, align the upper end of float in glass tube to scale.
Then apply flow meter to the rear side air horn of air cleaner. (Do not move air flow adjusting screw of flow meter.) If flow meter float is not aligned with front carburetor scale, turn balance adjusting screw and align float with front carburetor scale.
b. Stand flow meter float vertically.
c. The flow meter is used to hinder engine from intaking air, it is, therefore, recommended that the flow meter be used for a very short period of time (one to two seconds).
It should not be used continuously.

13. Connect vacuum motor to temperature sensor with vacuum hose and install air cleaner cover in position.

14. Raise engine speed to 1,400 rpm by turning throttle opener adjusting screw.

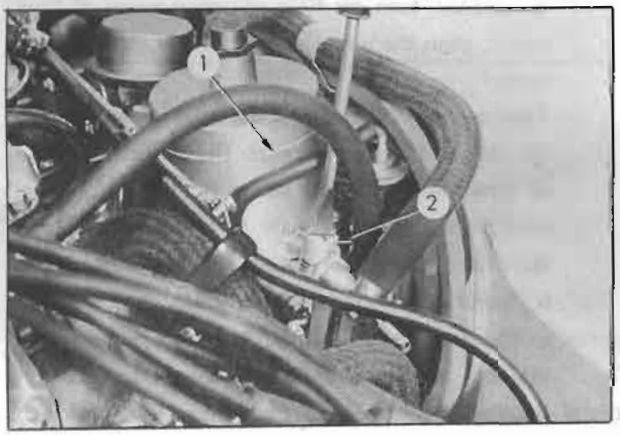
Note: Before adjusting engine speed, one race engine at 3,000 rpm. And raise again the engine speed to 1,700 rpm with opener adjusting screw, then gradually decreace the engine speed to 1,400 rpm.



1	Servo diaphragm
2	Throttle opener adjusting screw
3	Anti-backfire valve

Fig. EF-29 Adjusting throttle opener adjusting screw

15. First, disconnect check valve inlet hose and plug check valve. Using "CO" meter, adjust "CO" percentage to specifications by turning idle mixture adjusting screw



1	Carburetor
2	Idle mixture adjusting screw

Fig. EF-30 Adjusting idle mixture adjusting screw

With manual transmission	1.0 to 1.6 %
With automatic transmission (in "N" range)	0.6 to 1.2 %

Note: When idle mixture adjusting screw is turned clockwise, "CO" percent becomes rich, and it becomes lean when idle mixture adjusting screw is turned counterclockwise.

16. Disconnect servo diaphragm vacuum tube for two or three seconds and then connect it to its position again. At this time, make sure that engine speed is increased to 1,400 rpm from idling speed. If not, repeat steps 11 to 15 above.

17. Connect servo diaphragm and opener control valve vacuum hoses and check valve inlet hose to original position.

18. Measure "CO" percent at idle speed using CO-meter. Ascertain that it is below 3.0%.

This measurement should be under the operation of air injection.

Idle limiter cap

Idle limiter cap is attached to idle mixture adjusting screw.

Do not remove this idle limiter cap unless necessary. If this unit is removed, it is necessary to re-adjust it at the time of installation.

To adjust, proceed as follows:

1. Make sure that the percentage of CO contents satisfies the specifications.

2. Install idle limiter cap in position, making sure that the adjusting screw can further turn 1/8 rotation in the "CO-RICH" direction.

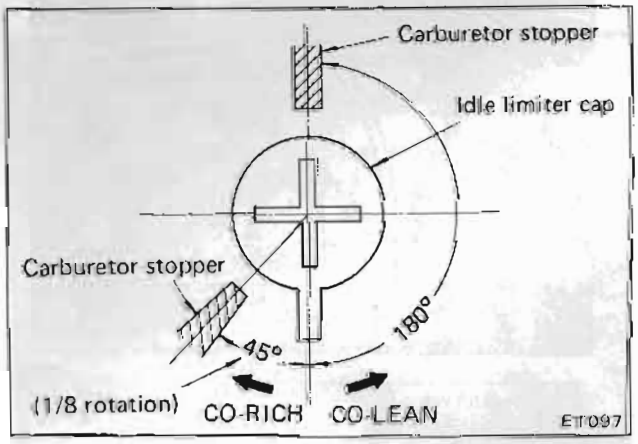


Fig. EF-31

Inspection of float level

The level of fuel in the float bowl can be checked through a circular window located behind the carburetor as it is mounted.

It is necessary to use a mirror to inspect the fuel level.

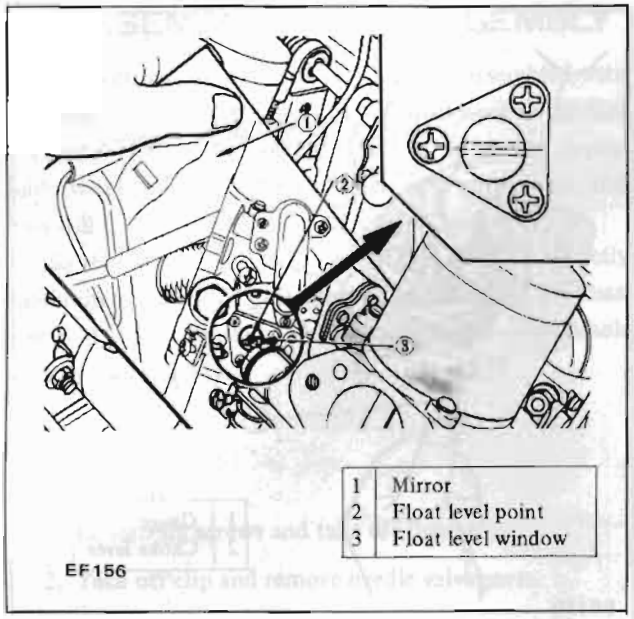


Fig. EF-32 Checking float level

Adjustment of flost level

It is necessary to adjust the float level, the float lever should be bent as required.

1. First, check the position of float lever.

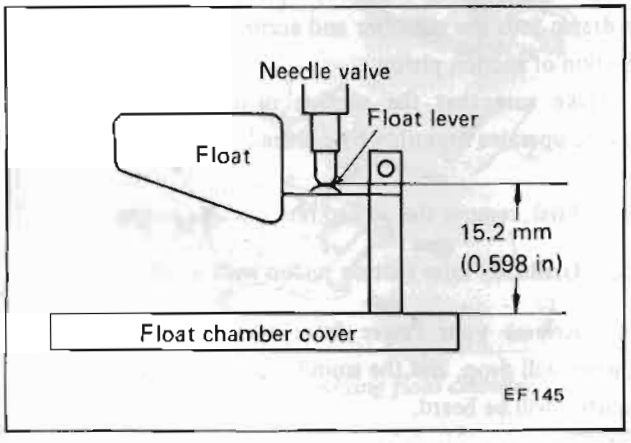


Fig. EF-33 Float level height (normal)

2. Adjust the float level by bending the stopper of the float lever.

Lower the stopper by 0.23 mm (0.0091 in) for raising the float level by 1 mm (0.0394 in).
Raise the stopper by 0.23 mm (0.0091 in) for lowering the float level by 1 mm (0.0394 in).

3. After adjusting the stopper of the float lever, install the cover to the carburetor float chamber and install the carburetor to the engine.

Check the float level by cranking the engine.

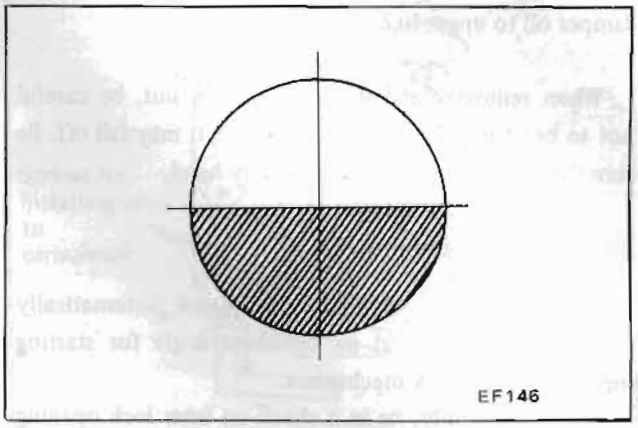


Fig. EF-34 Float level

The normal fuel level should be 6 mm (0.2362 in) below the center line of the float level window.

Checking the damper oil

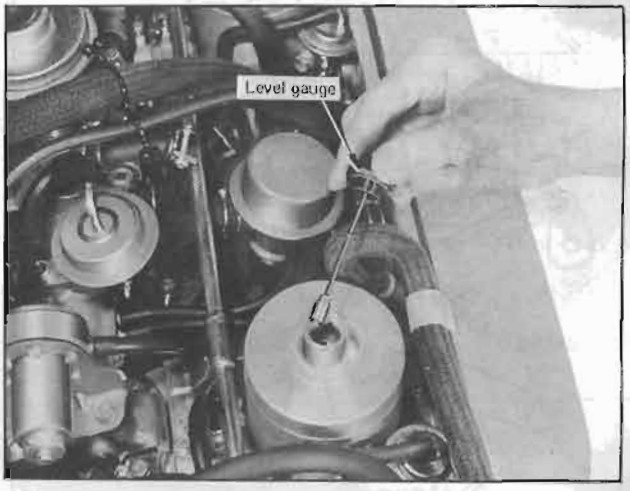


Fig. EF-35 Checking damper oil

When there is not a sufficient amount of damper oil, acceleration and other operating performance features become sluggish. When new carburetors are installed on the engine, or when overhaul is performed, damper oil must be added without fail. Use engine oil MS #20 or SAE 10W-30 for damper oil. Do not use lower or higher weight oils.

To check damper oil level, remove oil cap nut and check oil level marking on the two grooves on plunger rod. No difficulty will be encountered and there is no damper until the oil level reaches the lower line. If the oil level drops below the lower line, add oil. Slowly fill damper oil to upper line.

When removing and replacing oil cap nut, be careful not to bend rod. If oil cap nut is loose, it may fall off. Be sure that it is sufficiently tightened by hand.

Fast idle adjustment

Choke valve at fully closed position automatically opens throttle valve at an optimum angle for starting engine through a link mechanism.

After reassembly, or in a check on inter lock opening angle, place upper side of fast idling screw on the first step of fast idle cam. Then adjust fast idle adjusting screw in such a way that the clearance of throttle valve (shown at "G" in Figure EE-36) will be 0.59 to 0.64 mm (0.023 to 0.025 in). When it is not correct, adjust by turning fast idling screw in or out as necessary.

If necessary, adjust choke valve opening by bending the connecting rod between choke valve shaft and first idle cam.

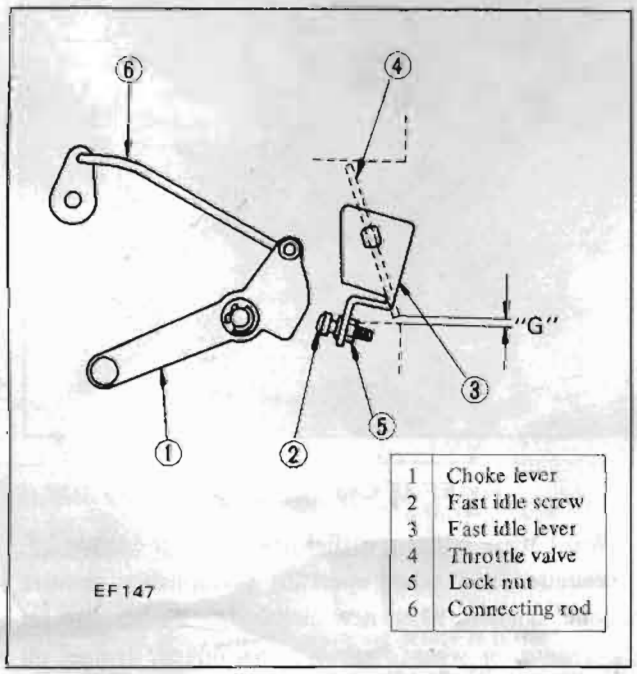


Fig. EF-36 Adjusting fast idle opening

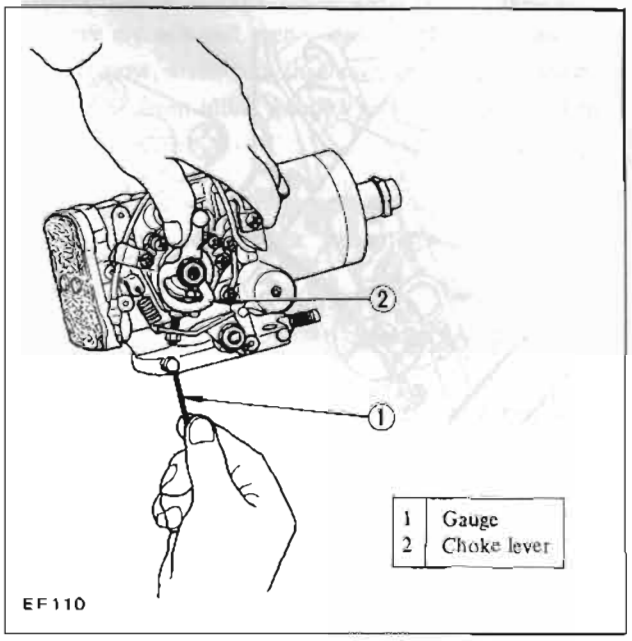


Fig. EF-37 Measuring fast idle opening

Periodic inspection of suction chamber and suction piston

Periodic inspection in required to constantly maintain the suction chamber and suction piston in porper operating condition. This is due to the fact that dust in the air is drawn into the chamber and accumulates on the sliding portion of suction piston.

Make sure that the suction piston installed on the engine operates smoothly by proceeding as follows:

1. First, remove the oil cap nut and air cleaner.
2. Gradually raise suction piston with a suitable bar.
3. Release your finger from suction piston. Suction piston will drop, and the sound of suction running against venturi will be heard.

The conditions of piston and chamber are satisfactory if suction piston rises smoothly.

To check the bend of the plunger rod, raise suction piston with your finger tip with oil cap nut applied to the assembly, and let piston drop freely. Suction piston will offer strong resistance when lifted since oil damper is actuated. Under satisfactory conditions, piston will drop smoothly when your finger is removed from suction piston.

DISASSEMBLY AND REASSEMBLY

The components of this carburetor are assembled with an utmost care at the factory. The adjustment of the fuel metering system, especially jet needle, is almost impossible without using the proper metering equipment, and this will greatly affect the emission control system.

So the disassembly of the carburetor should be strictly prohibited. Only the following are allowed to be disassembled and adjusted. Otherwise, replace the whole carburetor assembly.

Float

Disassembly

1. Loosen six screws and take off float.
2. Take off clip and remove needle valve parts.

Notes: a. Do not touch jet needle setting nut.
b. Do not bend float stopper.

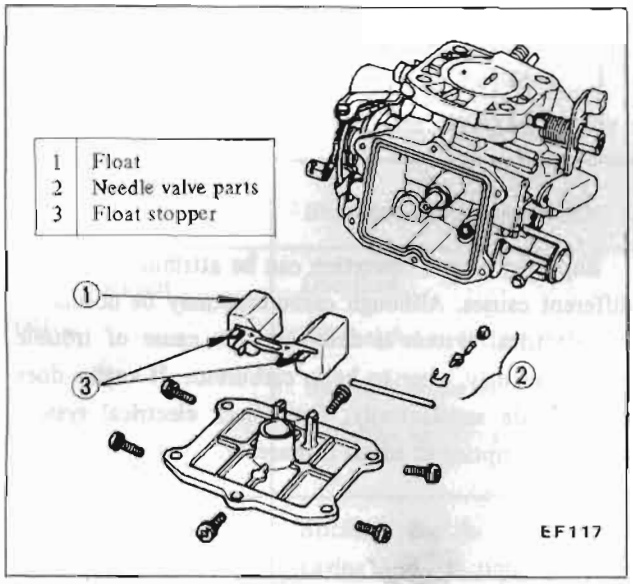


Fig. EF-38 Disassembling float chamber

Assembly

Follow disassembly procedures in reverse. To adjust float level, refer to ADJUSTMENT OF FLOAT LEVEL in ENGINE FUEL.

Power valve

If the exhaust "CO" will be found abnormally rich at idling and no other cause will be found in the carburetor adjustment, the power valve should be checked for proper functioning.

The six fixing screws are used for this valve, three for assembling valve and three for fixing valve to carburetor.

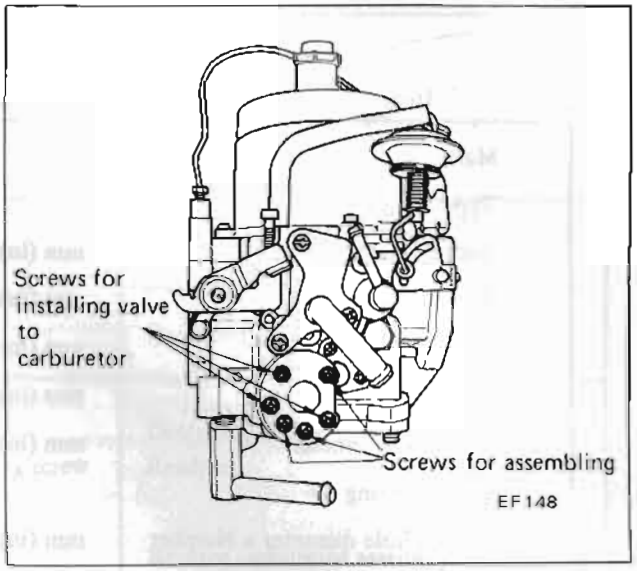


Fig. EF-39 Power valve unit

Remove power valve from carburetor and disassemble valve to check diaphragm. If any defect is found in diaphragm, replace valve unit.

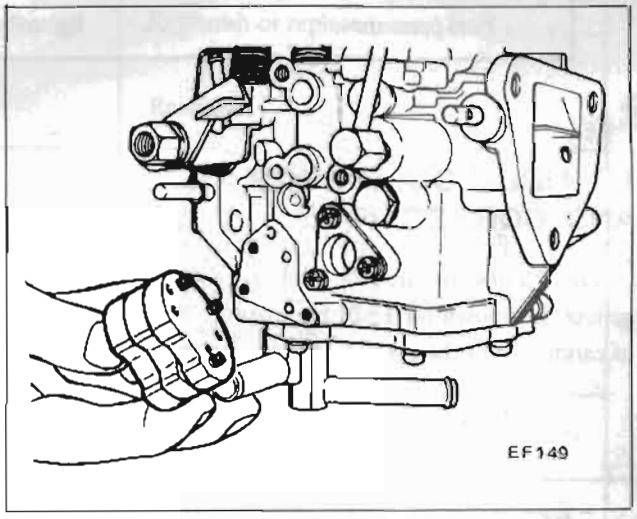


Fig. EF-40 Removing power valve

Link and related components

In disassembling and reassembling interlock link and related components, be careful not to bend or deform any of components.

Before disassembly, mark links and levers so that they can be placed back to their original positions from which they were removed.

After assembly, check to be sure that they operate smoothly.

SPECIFICATIONS

Item \ Carburetor model		HMB46W-1
Make		HITACHI
Type		SU type side draft
Venturi diameter	mm (in)	42 (1.654)
Bore diameter	mm (in)	46 (1.811)
Suction piston lift	mm (in)	34 (1.339)
Jet needle	mm (in)	N-62
Nozzle jet diameter	mm (in)	2.54 (0.100)
Suction spring		# 50
Suction hole diameter x Number	mm (in)	7.5 x 2 (0.295 x 2)
Fast idle throttle valve opening	mm (in)	0.59 to 0.64 (0.0232 to 0.0252)
Float venting		Inner vent type
Oil damper plunger diameter	mm (in)	8.86 (0.349)
Power jet		# 40
Fuel pressure	kg/cm² (psi)	0.24 (3.4)

TROUBLE DIAGNOSES AND CORRECTIONS

The causes of trouble and appropriate corrective actions are shown on TABLE to permit immediate repair of carburetor in the event carburetor trouble develops.

Improper engine operation can be attributed to many different causes. Although carburetor may be normal, if the electrical system is defective, the cause of trouble sometimes may seem to be in carburetor. If engine does not operate satisfactorily, first check electrical system before attempting to adjust carburetor.

Condition	Probable cause	Corrective action
Overflow	Leakage from float, or float bent or damaged.	Replace float.
	Dirty needle valve seat.	Clean valve seat.
	Loose needle valve.	Retighten.
	Defective needle valve seat.	Refit or replace.
	Excessive fuel pump pressure.	Repair pump.
	Fuel pump drawing in air.	Repair pump.

Condition	Probable cause	Corrective action
Excessive fuel consumption	Overflow.	Described above.
	Faulty suction piston operation.	Described below.
	Leakage from power valve.	Replace valve assembly.
	Improper idling adjustment.	Readjust.
Insufficient output	Throttle valve does not open fully.	Readjust.
	Faulty suction piston operation.	Described below.
	Defective fuel pump.	Replace.
Improper idling	Faulty suction piston operation.	Described below.
	Improper adjustment of idle adjusting screw and idle mixture adjusting screw.	Readjust.
	Worn throttle valve shaft.	Replace carburetor assembly.
	Air leakage due to defective packing between manifold and carburetor.	Replace gasket.
Engine operation is irregular or erratic	Defective suction piston.	Described below.
	Insufficient damper oil, or improper oil used.	Replenish or replace.
	Improper idling adjustment.	Readjust.
Engine does not start.	Overflow.	Described above.
	No fuel fed to the engine.	Check pump, fuel line, and needle valve.
	Improper idling adjustment.	Readjust.
	Defective suction piston.	Described below.
Faulty suction piston operation	Sticking due to deformation (bulging or caving) of suction chamber or suction piston.	Replace carburetor assembly.
	Bent jet needle.	Replace carburetor assembly.
	Bent plunger rod.	Replace.

EVAPORATIVE EMISSION CONTROL SYSTEM

CONTENTS

DESCRIPTION EF-20
FLOW GUIDE VALVE EF-21
Checking fuel tank, vapor-liquid separator and vapor vent line EF-21
Checking flow guide valve EF-21
Checking fuel tank vacuum relief valve operation EF-22

DESCRIPTION

This system consists of four basic elements indicated below:

1. Fuel tank with positive sealing filler cap.
2. Vapor-liquid separator.
3. Vapor vent line.
4. Flow guide valve.

The flow guide valve prevents blow-by gas from flowing into the fuel tank and guides fresh air into it, preventing gasoline vapor from escaping into the carburetor air cleaner.

Flow guide valve operates and blow-by gas and gasoline vapor flow as follows.

When the engine is not running, the vapor vent line, vapor liquid separator and fuel tank are filled with gasoline vapor produced in the sealed type fuel tank. A flow guide valve opens when the gas pressure is above 10 mmHg (0.4 inHg). The gas passed through the flow guide valve (2) is accumulated in the crankcase. Once the engine starts, the gas evaporating in the crankcase, is sucked into the manifold for combustion. When the pressure of the sealed type fuel tank, vapor liquid separator and vapor vent line becomes negative by decreasing the fuel, the flow guide valve (1) opens to send fresh air from the carburetor air cleaner to the fuel tank. (See Figure EF-44.)

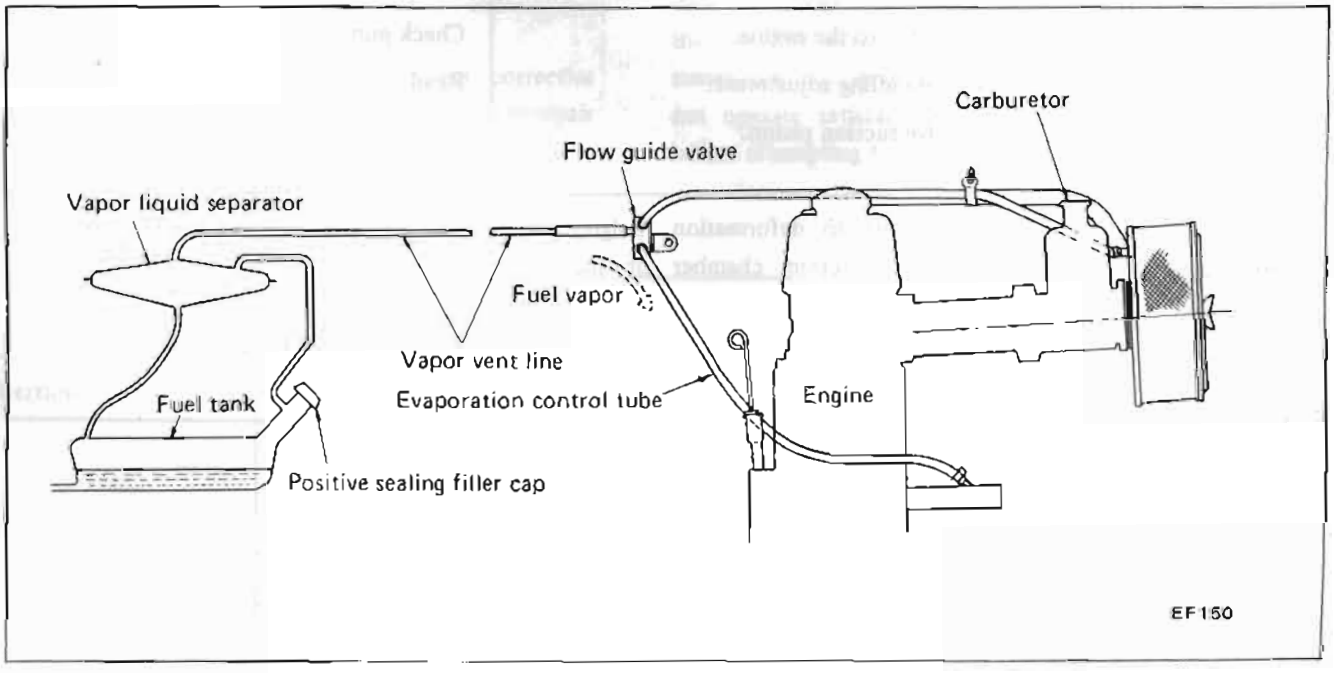


Fig. EF-41 Evaporative emission control system

FLOW GUIDE VALVE

This valve is mounted in the engine compartment. Marks A, F and C are engraved in the body of the valve to indicate the connection of the vapor vent line.

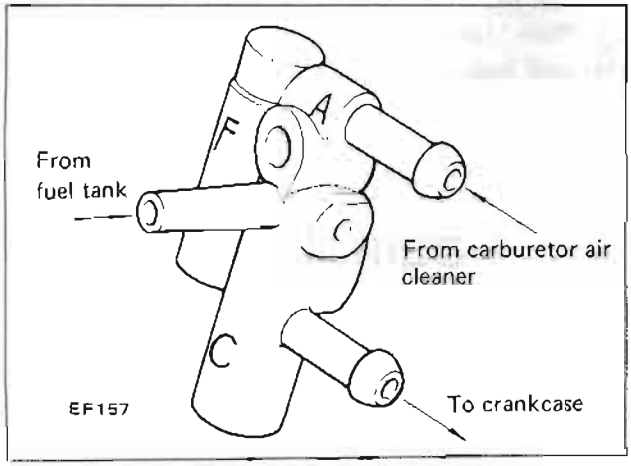


Fig. EF-42 Flow guide valve

Checking fuel tank, vapor-liquid separator and vapor vent line

1. Check all hoses and fuel tank filler cap.

2. Disconnect the vapor vent line connecting flow guide valve to vapor-liquid separator.

3. Connect a 3-way connector, a manometer and a cock (or an equivalent 3-way change cock) to the end of the vent line.

4. Supply fresh air into the vapor vent line through the cock little by little until the pressure becomes 14.5 inch Aq.

5. Shut the cock completely and leave it that way.

6. After 2.5 minutes, measure the height of the liquid in the manometer.

7. Variation of height should remain within 1.0 inch Aq.

8. When the filler cap does not close completely the height should drop to zero in a short time.

9. If the height does not drop to zero in a short time when the filler cap is removed, it is the cause of the stuffy hose.

Note: In case the vent line is stuffy, the breathing in fuel tank is not thoroughly made, thus causing insufficient delivery of fuel to engine or vapor lock. It must, therefore, be repaired or replaced.

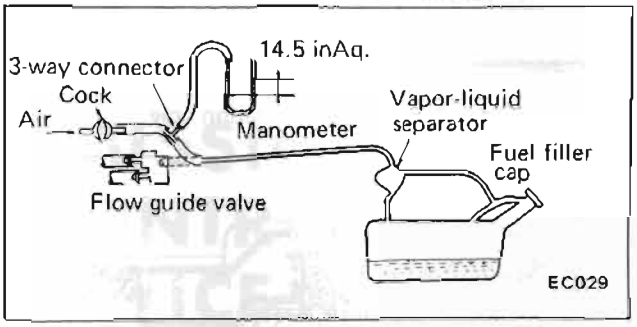


Fig. EF-43 Checking evaporative emission control system

Checking flow guide valve

1. Disconnect all hoses connected to the flow guide valve.

2. While lower pressure air is pressed into the flow guide valve from the ends of vent line of fuel tank side, the air should go through the valve and flow to crankcase side. If the air does not flow the valve should be replaced. But when the air is blown from crankcase side, it should never flow to the other two vent lines.

3. While the air is pressed into the flow guide valve from the carburetor air cleaner side, it flows to the fuel tank side and/or crankcase side.

4. This valve opens when the inner pressure is 10 mmHg (0.4 inHg). In case of improper operations or breakage, replace it.

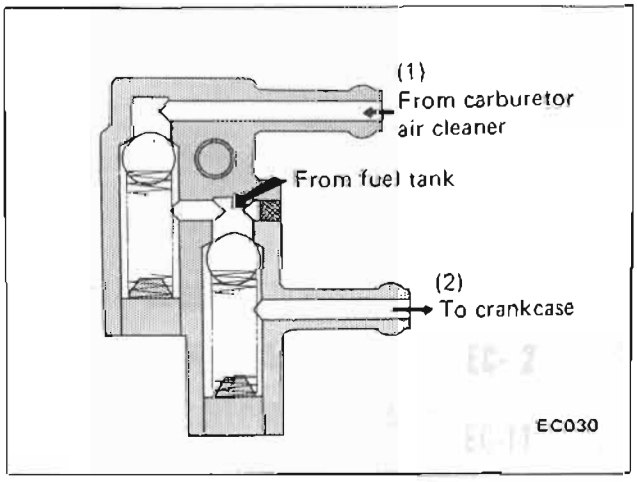


Fig. EF-44 Flow guide valve

Checking fuel tank vacuum relief valve operation

Remove fuel filler cap and see if it functions properly.

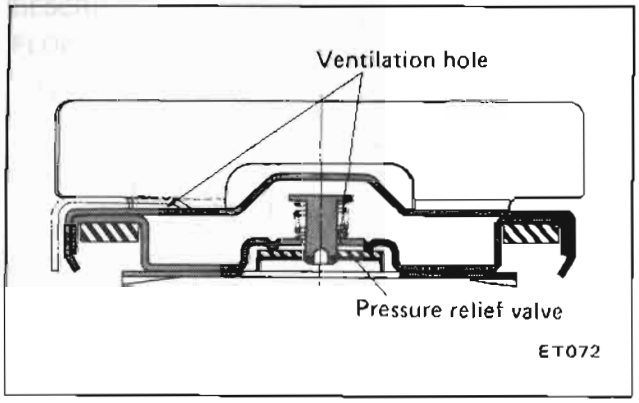


Fig. EF-45 Fuel filler cap

1. Wipe clean valve housing and have it in your mouth.
2. Inhale air. A slight resistance accompanied by valve click indicates that valve is in good mechanical condition.
   Note also that resistance will disappear as valve clicks.
3. When valve is clogged, or when there is nor resistance, replace cap as an assembled unit.