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who, well, didn't do much this time, since Paul Lee provided the thing already scanned and compiled into a PDF! (Thanks!). Go visit his website: <http://www.iluvmyrx7.com/index.htm> Lots of RX-7 goodness there.

There are several ways to get around in the document. I have provided Bookmarks to all the sections, and thumbnails are also provided in the Thumbnails side bar.

I have also included a label for the spine of a binder, for those who wish to print out all the pages and keep a dead-tree edition handy.☺

The original document is © 1979 Toyo Kogyo Co., Ltd., and remains so. This version is provided as a service for owners of first generation Mazda RX-7s who are having a devil of a time locating the factory service manual for a reasonable price.

If you really want to send me money, email me and I'll tell you where to send it, but it's not necessary. Consider this payback for all the good advice and information gleaned from the various RX-7 email lists!

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09/16/03

FUEL, INLET AND EXHAUST SYSTEM

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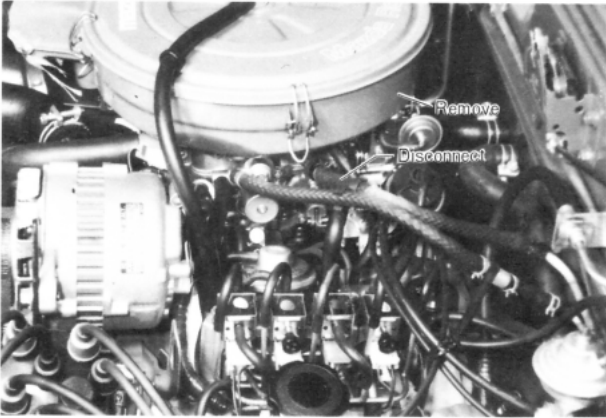


Fig. 4-1

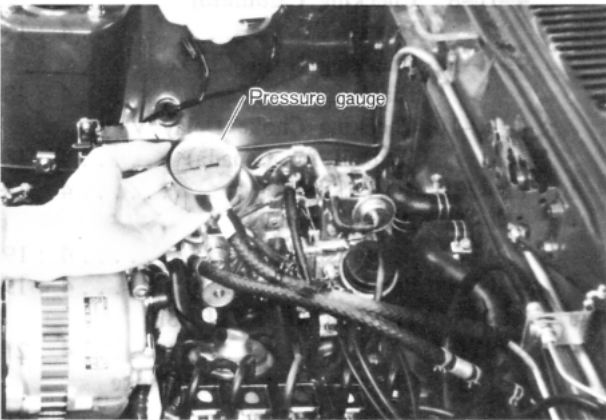


Fig. 4-2

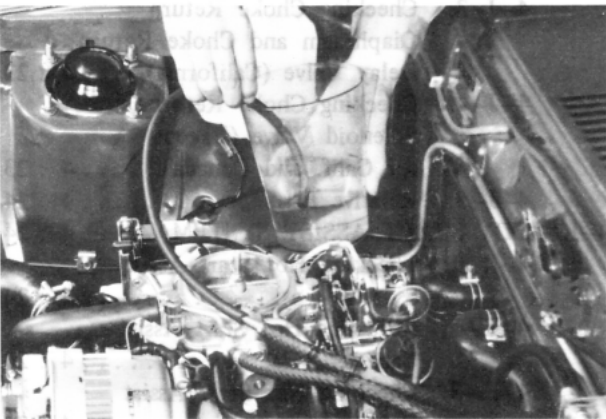


Fig. 4-3



Fig. 4-4

4-A. FUEL PUMP

4-A-1. Testing Fuel Pump

Before the tests, make sure the fuel filter has been changed within the recommended maintenance mileage interval.

a. Pressure test

1. Remove the air cleaner assembly. Disconnect the fuel main hose at the carburetor.

Use care to prevent combustion due to fuel spillage.

2. Connect a pressure gauge, a restrictor and flexible hoses so that the fuel can be discharged into a suitable graduated container.

3. Turn the ignition switch on and vent the system into the container by opening the hose restrictor momentarily.

4. Close the hose restrictor, allow the pressure to stabilize, and note the reading.

Fuel pressure:

0.26 ~ 0.33 Kg/cm² (3.7 ~ 4.7 lb/in²)

If the pump pressure is within the specifications, perform the test for volume.

b. Volume test

With the fuel pump pressure within specifications, test the volume as follows:

1. Turn the ignition switch on.
2. Open the hose restrictor and expel the fuel into the container, while observing the time required to expel **1,100 cc (1.16 U.S. quarts, 0.97 Imp. quarts)**.

Close the restrictor. **1,100 cc or more** of fuel should be expelled within **one minute**.

4-A-2. Replacing Fuel Pump

1. Remove the rear floor mat and floor plate.
2. Disconnect the coupler of the fuel pump.

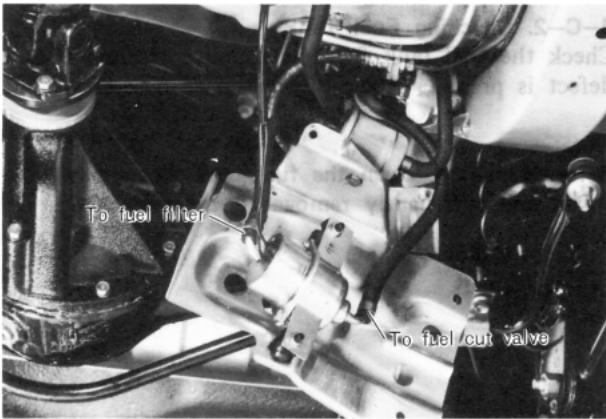


Fig. 4-5

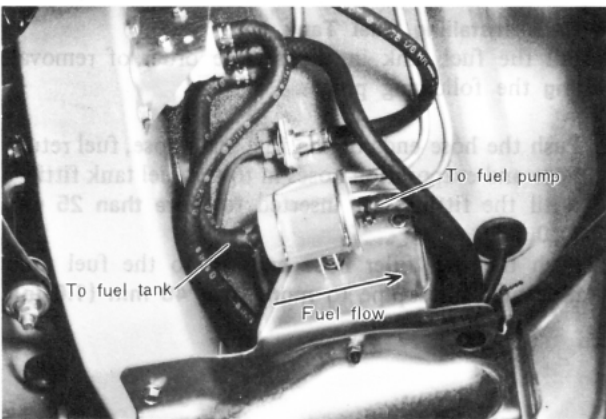


Fig. 4-6

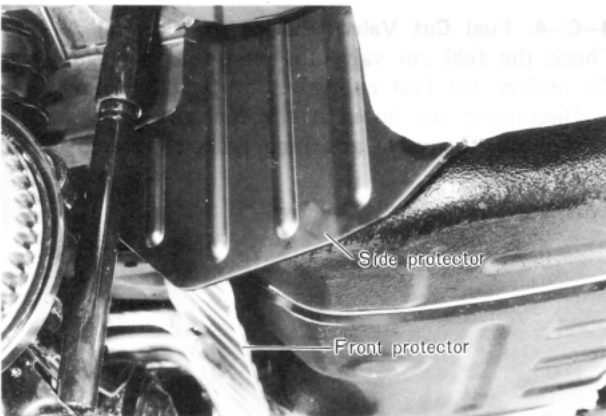


Fig. 4-7

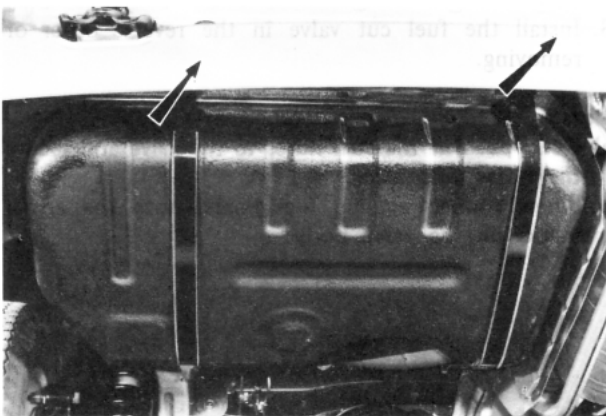


Fig. 4-8

3. Raise the rear end of the vehicle and support it with stands.
4. Remove the fuel pump protector cover.
5. Disconnect the inlet and outlet hoses from the fuel pump.
6. Remove the fuel pump.
7. Install the new fuel pump by following the removal procedures in the reverse order.

Note:

When installing, fully push in fuel hoses to the fuel inlet and outlet fittings of the pump, and secure the hoses with clips.

4-B. FUEL FILTER

The fuel filter should be replaced at intervals, following the maintenance schedule.

To replace the fuel filter, proceed as follows:

1. Raise the rear end of the vehicle and support it with stands.
2. Loosen the clips at both ends of the filter and disconnect the fuel hoses.
3. Remove the fuel filter from the retainer.
4. Install a new filter and connect the fuel hoses.

Note:

When installing the filter, fully push in the fuel hoses to the fuel filter and secure the hoses with clips.

4-C. FUEL TANK AND FUEL LINE**4-C-1. Removing Fuel Tank**

1. Drain the fuel in the tank.
2. Raise the rear end of the vehicle and support it with stands.
3. Remove the tank protectors.

Note:

When removing the fuel tank, keep sparks, cigarettes and open flames away from the fuel tank.

4. Disconnect the fuel main hose, fuel return hose and evaporation hoses from the fuel tank.
5. Remove the fixing band attaching bolts and lower the fuel tank.

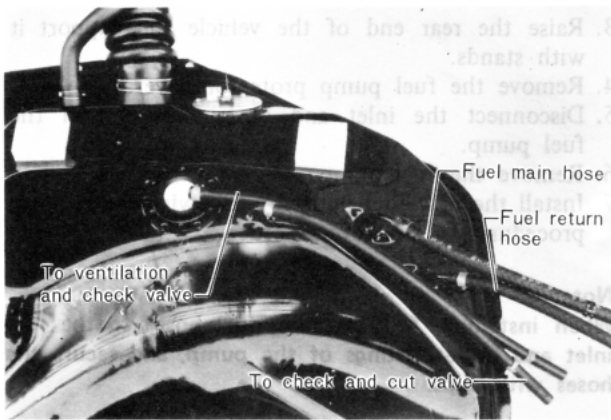


Fig. 4-9

4-C-2. Checking Fuel Tank

Check the fuel tank for cracks and corrosion. If any defect is present, repair or replace as necessary.

Note:

Before repairing, clean the fuel tank thoroughly with steam and sufficiently remove all explosive gas.

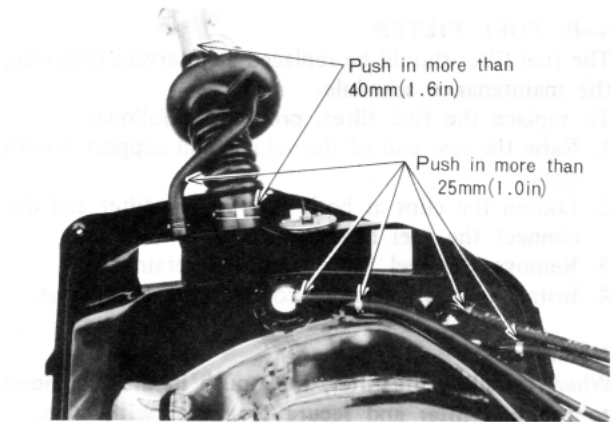


Fig. 4-10

4-C-3. Installing Fuel Tank

Install the fuel tank in the reverse order of removal, **noting** the following points.

1. Push the hose ends of the fuel main hose, fuel return hose and evaporation hoses in to the fuel tank fittings until the fittings are inserted to **more than 25 mm (1.0 in)**.
2. Push the fuel filler hose ends in to the fuel tank pipe and filler pipe to **more than 40 mm (1.6 in)**.

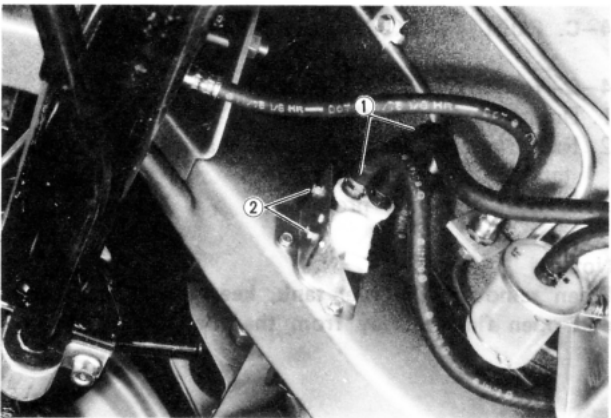


Fig. 4-11

4-C-4. Fuel Cut Valve (Except for Canada)

Check the fuel cut valve for cracks or damages.

To replace the fuel cut valve, proceed as follows:

1. Disconnect the hoses at the fuel cut valve.
2. Remove the valve attaching bolts and remove the fuel cut valve.

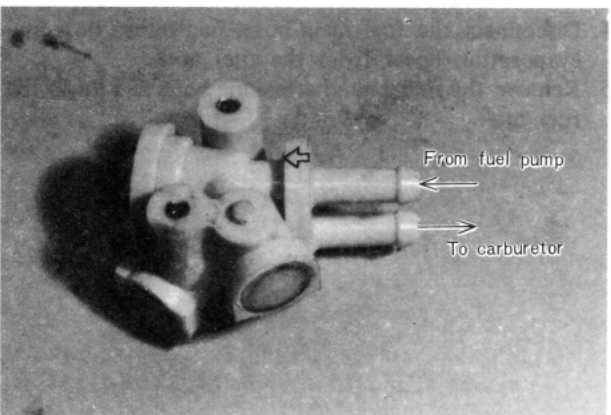


Fig. 4-12

3. Install the fuel cut valve in the reverse order of removing.

Note:

- a) Fully push in the fuel hoses to the valve and secure the hoses with clips.
- b) When connecting the fuel hoses, note the arrow marks on the valve body.

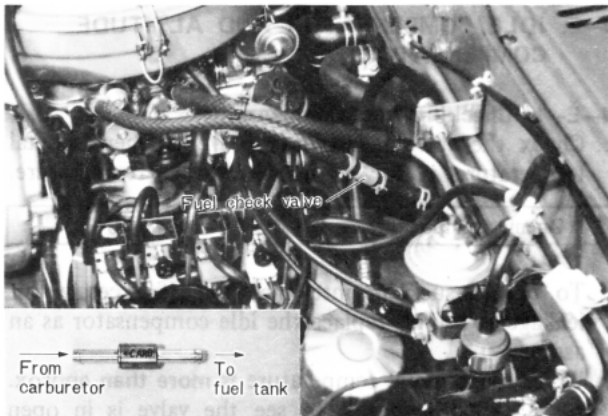


Fig. 4-13

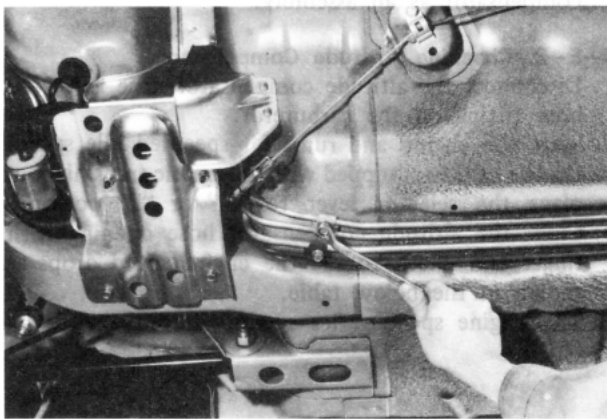


Fig. 4-14

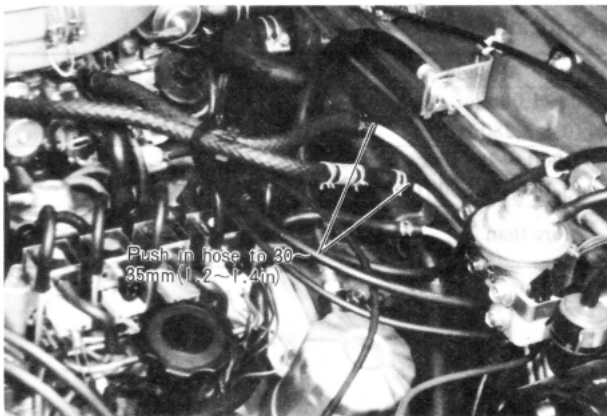


Fig. 4-15

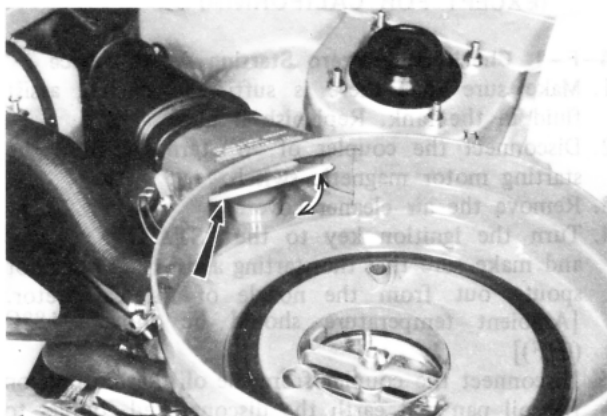


Fig. 4-16

4-C-5. Fuel Check Valve (Except for Canada)

Check the fuel check valve for cracks or damage. To replace the fuel check valve, proceed as follows:

1. Disconnect the hoses from the valve and remove the valve.
2. Install the valve in the reverse order of removing.

Note:

- a) Fully push in the valve to the hose ends and secure it with clips.
- b) Make sure that the arrow mark on the valve is directed as shown in figure.

4-C-6. Fuel Line

Inspect the fuel lines for leaks and tighten the fuel line connections to prevent leakage. It is important to keep the fuel system clean and free from water. If an excessive amount of dirt or water is found, drain the fuel tank and blow out the fuel lines with compressed air.

When replacing the fuel hose, push in the fuel hose end to fuel pipe until the fuel pipe is inserted to 30 ~ 35 mm (1.2 ~ 1.4 in).

4-D. INTAKE AIR TEMPERATURE CONTROL VALVE

The intake of fresh air and hot air is automatically controlled over by means of the bimetal and control valve installed in the air cleaner.

Move the control valve inside the air cleaner and if there is no difficulty to move and also the spring force of the bimetal is felt, it is in good order.

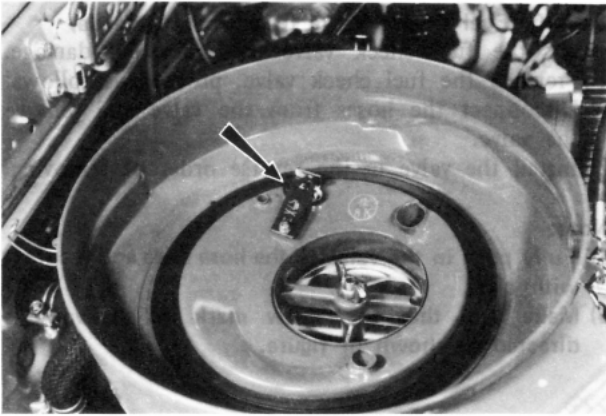


Fig. 4-17

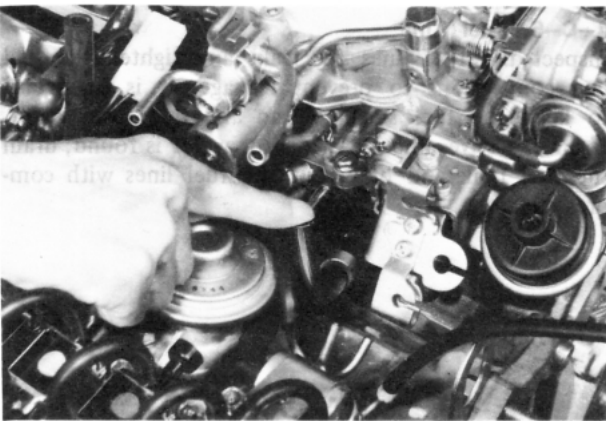


Fig. 4-18



Fig. 4-19

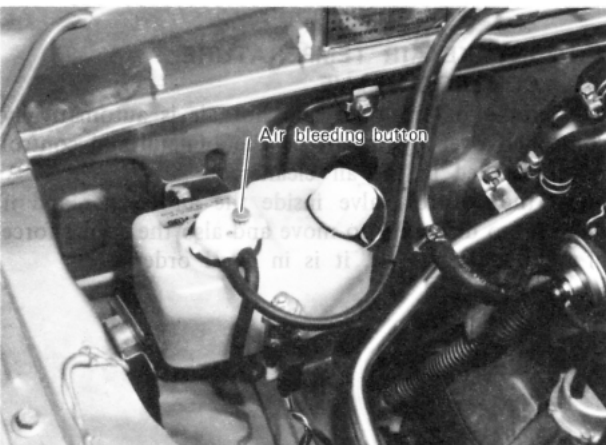


Fig. 4-20

4-E. IDLE COMPENSATOR AND ALTITUDE COMPENSATOR

4-E-1. Checking Idle Compensator

1. Check the valve is in closed position when bimetal temperature is lower than operating temperature.

Opening temperature	65 ± 4°C (149 ± 8°F)
---------------------	----------------------

To check, suck air into the tube. If excessive air leakage is found, replace the idle compensator as an assembly.

2. When the bimetal temperature is **more than approx. 69°C (159°F)**, check to see the valve is in open position. If the valve is not open, replace the idle compensator as an assembly.

4-E-2. Checking Altitude Compensator

1. Disconnect the altitude compensator hose from the hose fitting on the carburetor.
2. Start the engine and run it at specified idle speed. On the vehicle equipped with automatic transmission, place the selector lever to "N" or "P" position.
3. Close the altitude compensator hose opening with finger and check to see the engine speed drops as shown in the below table.

The engine speed varies according to the altitude.

Specification:

Altitude	Drops of idle speed
0 ~ 1,000 m (0 ~ 3,280 ft)	10 ~ 100 rpm
1,000 ~ 2,000 m (3,280 ~ 6,560 ft)	50 ~ 200 rpm
More than 2,000 m (6,500 ft)	More than 100 rpm

4-F. SUB-ZERO STARTING ASSIST DEVICE (EXCEPT FOR CALIFORNIA)

4-F-1. Checking Sub-zero Starting Assist Device

1. Make sure that there is sufficient starting assist fluid in the tank. Replenish if necessary.
2. Disconnect the coupler of "S" terminal from the starting motor magnetic switch.
3. Remove the air cleaner cover.
4. Turn the ignition key to the "START" position and make sure that the starting assist fluid does not spouts out from the nozzle of the carburetor. [Ambient temperature should be above -18°C (0°F)]
5. Disconnect the coupler from the oil thermo unit on the oil pan and earth the disconnected coupler to the body.

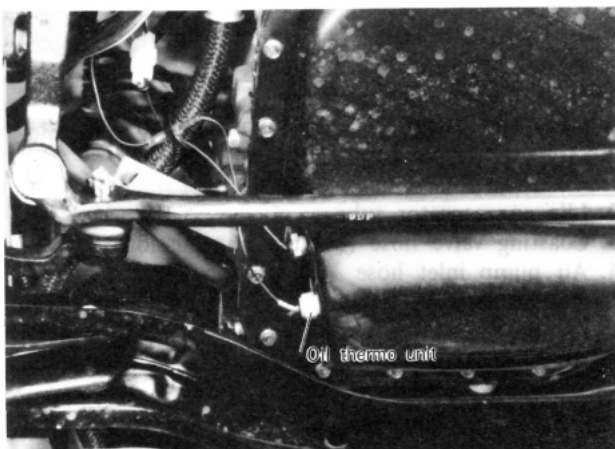


Fig. 4-21

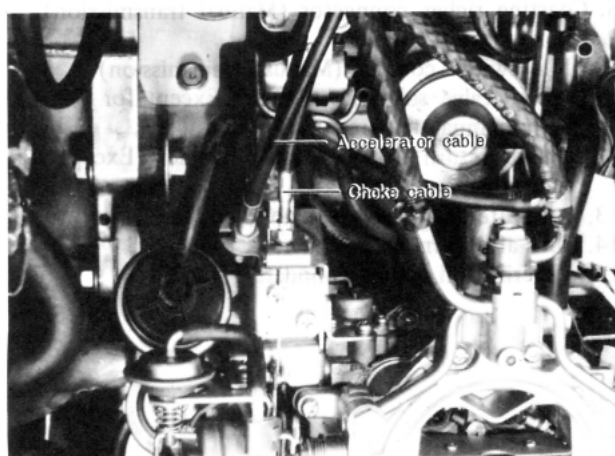


Fig. 4-22

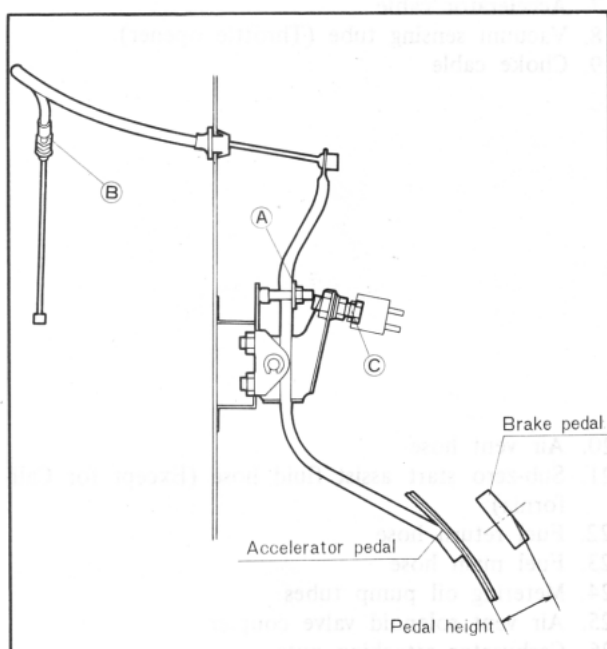


Fig. 4-23

- Turn the ignition key to the "START" position with the air bleeding button of the tank kept pushed and make sure that the starting assist fluid spouts out from the nozzle of the carburetor.

4-F-2. Sub-zero Starting Assist Fluid

The mixture proportion of starting assist fluid should be 90% of high quality ethylene glycole anti-freeze solution plus 10% of water.

4-F-3. Checking Oil Thermo Unit

The oil thermo unit is in normal condition if it is energized below -18°C (0°F) and is not above it.

4-G. ACCELERATOR LINKAGE

4-G-1. Checking Accelerator Linkage

Remove the air cleaner and, with the accelerator pedal fully depressed, observe the position of the carburetor throttle valves. They should be vertical (wide open position).

Check the accelerator linkage to ensure there is no sticking or binding and for full return.

Examine the choke control for free operation.

4-G-2. Adjusting Accelerator Cable

- Check the accelerator pedal position.
The accelerator pedal height should be 42 ± 5 mm (1.7 ± 0.2 in) lower than the brake pedal height.
If necessary, adjust the nut (A) to obtain the correct position.
- Check the free play of the cable at the carburetor.
It should be 1 ~ 3 mm. If the free play is not within the specifications, adjust it by the nut (B).
- Depress the accelerator pedal all the way down to the floor and check to see that the throttle valves are wide open. If necessary, adjust the stopper bolt (C).

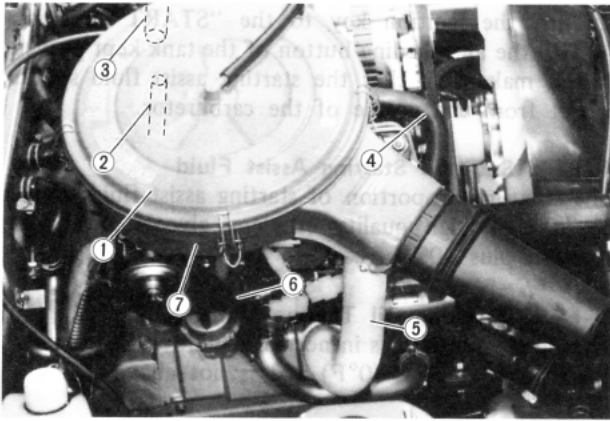


Fig. 4-24

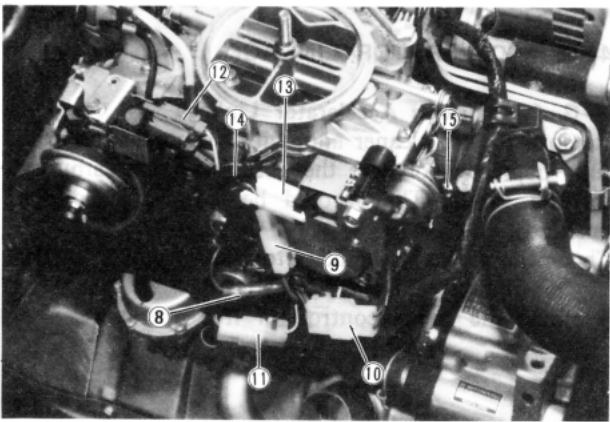


Fig. 4-25

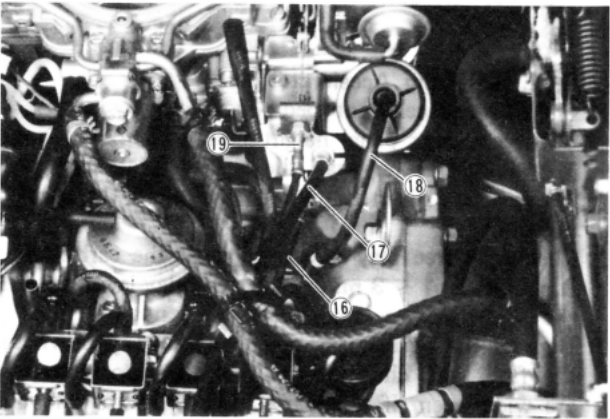


Fig. 4-26



Fig. 4-27

4-H. CARBURETOR

4-H-1. Removing Carburetor

Remove and disconnect the following parts.

1. Air cleaner cover
2. Idle compensator tube
3. Coasting valve hose (Manual transmission)
4. Air pump inlet hose
5. Hot air hose
6. Air hose
7. Air cleaner

8. Coasting richer connector (Manual transmission)
9. Choke heater coupler
10. Idle switch coupler (Manual transmission)
11. Power valve solenoid coupler (Except for Canada with manual transmission)
12. Choke return solenoid valve coupler (Except for California and Canada)
13. Anti-afterburn valve solenoid coupler
14. Anti-afterburn valve solenoid tube
15. Metering oil pump connecting rod

16. Hot start assist cable
17. Accelerator cable
18. Vacuum sensing tube (Throttle opener)
19. Choke cable

20. Air vent hose
21. Sub-zero start assist fluid hose (Except for California)
22. Fuel return hose
23. Fuel main hose
24. Metering oil pump tubes
25. Air vent solenoid valve coupler
26. Carburetor attaching nuts

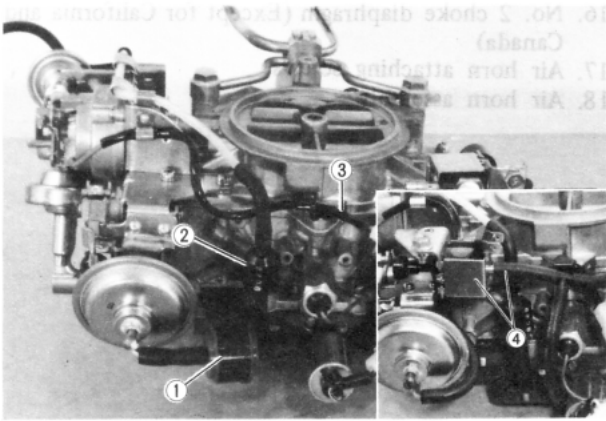


Fig. 4-28

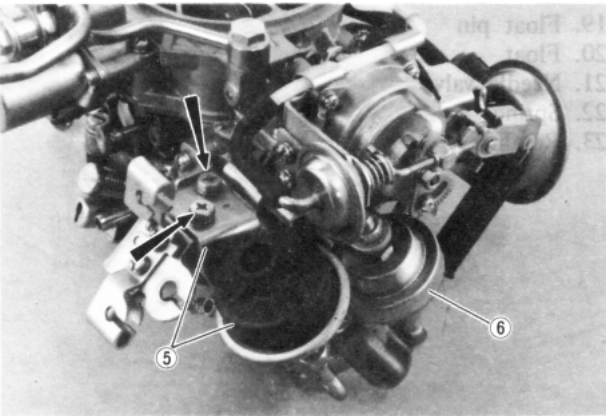


Fig. 4-29

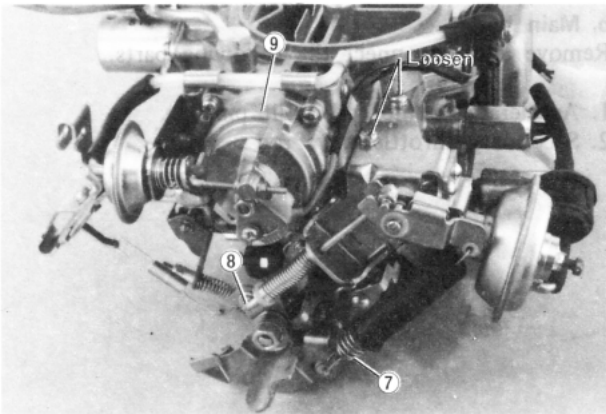


Fig. 4-30

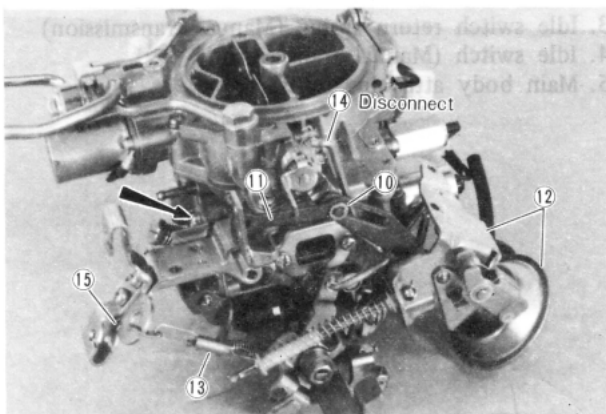


Fig. 4-31

4-H-2. Disassembling Carburetor

a. Bimetal spring housing assembly and air horn
Remove and disconnect the following parts.

1. Choke return delay valve (California)
2. Choke delay valve (Except for Canada)
3. Choke heater lead
4. Choke return solenoid valve (Except for California and Canada)

5. Throttle opener and bracket assembly
6. Dash pot (Manual transmission)

7. Throttle return spring
8. Throttle sub-return spring
9. Bimetal spring housing assembly

10. Clip
11. Choke lever
12. Choke return diaphragm and bracket assembly (Except for Canada)
13. Hot start assist lever spring
14. Fast idle rod (split pin)
15. Bracket

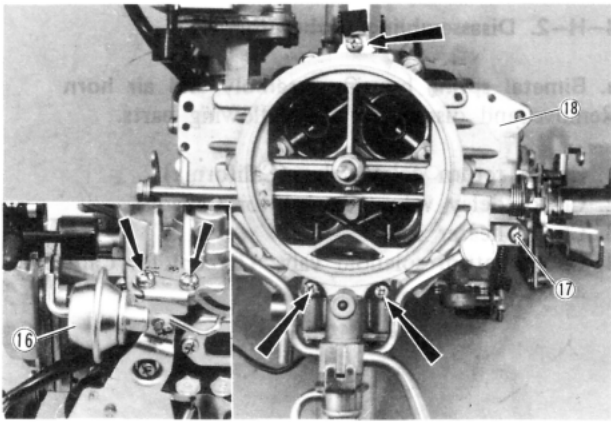


Fig. 4-32

- 16. No. 2 choke diaphragm (Except for California and Canada)
- 17. Air horn attaching screws
- 18. Air horn assembly

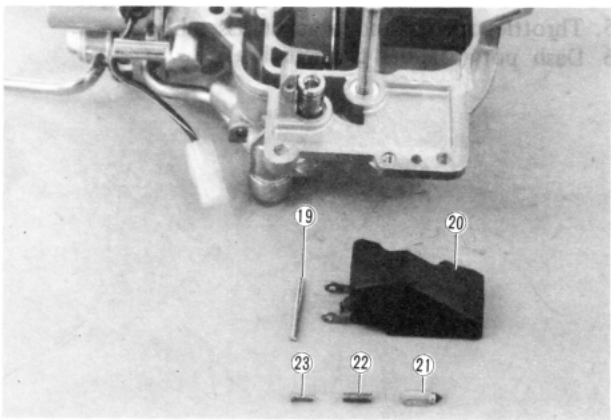


Fig. 4-33

- 19. Float pin
- 20. Float
- 21. Needle valve
- 22. Spring
- 23. Retainer

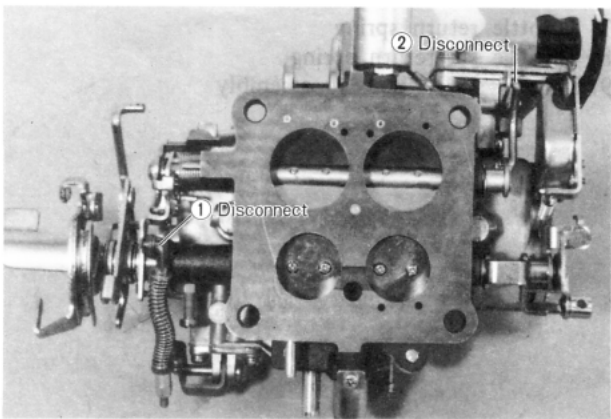


Fig. 4-34

b. Main body

Remove and disconnect the following parts.

- 1. Accelerator pump rod (split pin)
- 2. Secondary throttle valve rod

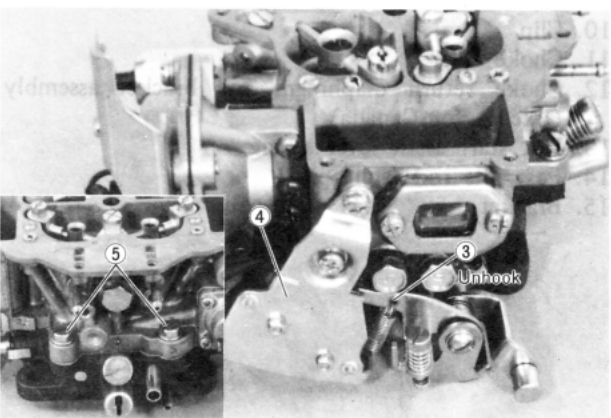


Fig. 4-35

- 3. Idle switch return spring (Manual transmission)
- 4. Idle switch (Manual transmission)
- 5. Main body attaching bolts.

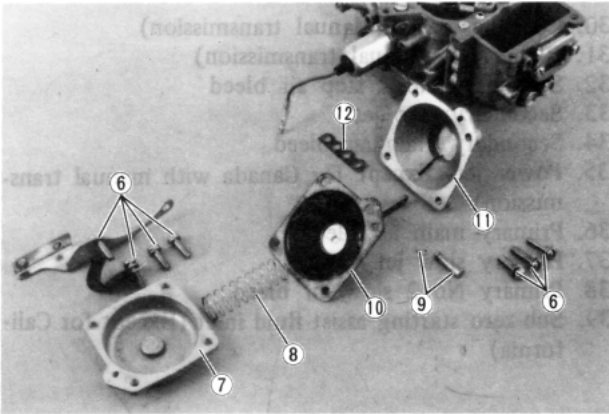


Fig. 4-36

- 6. Attaching screws
- 7. Cover
- 8. Return spring
- 9. Pin and clip
- 10. Diaphragm
- 11. Housing
- 12. Gasket

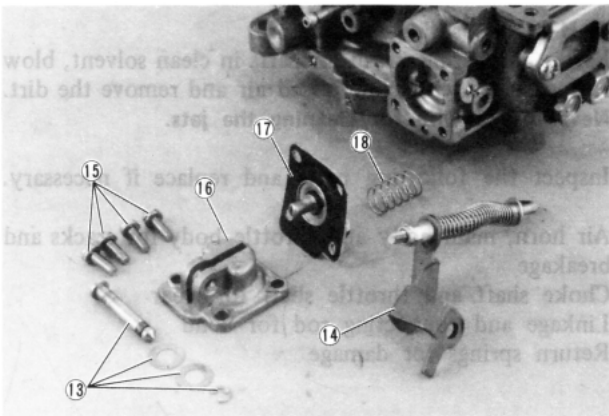


Fig. 4-37

- 13. Clip, washers and shaft
- 14. Accelerator pump lever
- 15. Attaching screws
- 16. Cover
- 17. Diaphragm
- 18. Return spring

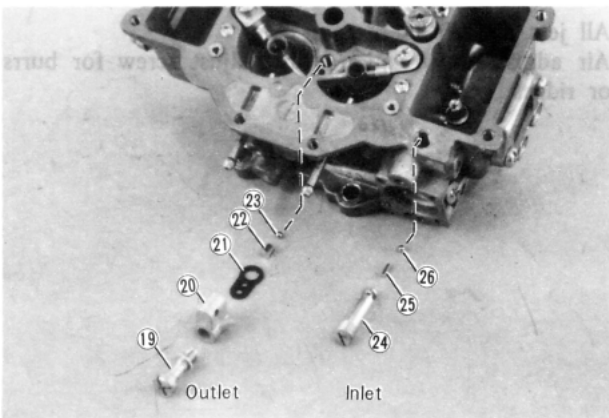


Fig. 4-38

- 19. Screw
- 20. Nozzle
- 21. Gasket
- 22. Weight
- 23. Outlet check valve
- 24. Check valve seat
- 25. Weight
- 26. Inlet check valve

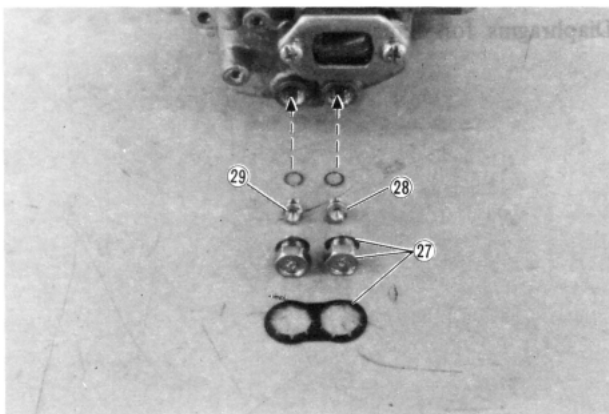


Fig. 4-39

- 27. Retainer, blind plug and washer
- 28. Primary main jet
- 29. Secondary main jet

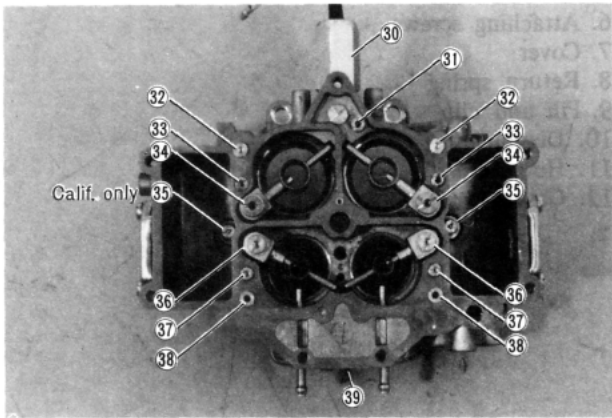


Fig. 4-40

- 30. Coasting richer (Manual transmission)
- 31. Richer jet (Manual transmission)
- 32. Secondary No. 2 step air bleed
- 33. Secondary step jet
- 34. Secondary main air bleed
- 35. Power jet (Except for Canada with manual transmission)
- 36. Primary main air bleed
- 37. Primary slow jet
- 38. Primary No. 2 slow air bleed
- 39. Sub-zero starting assist fluid inlet (Except for California)

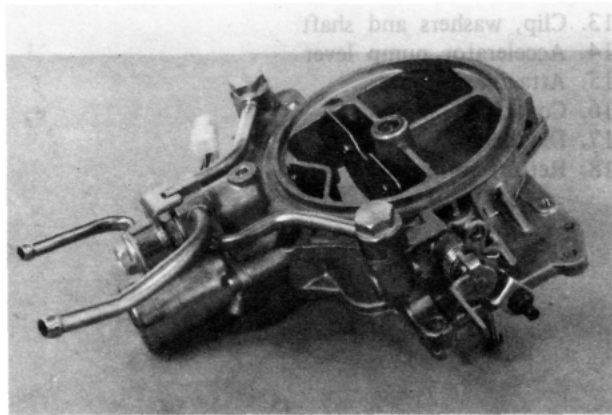


Fig. 4-41

4-H-3. Inspecting Carburetor

Before inspecting, wash all parts in clean solvent, blow fuel passages with compressed air and remove the dirt. **Never use a wire for cleaning the jets.**

Inspect the following parts and replace if necessary.

Air horn, main body and throttle body for cracks and breakage

Choke shaft and throttle shaft for wear

Linkage and connecting rod for bend

Return springs for damage

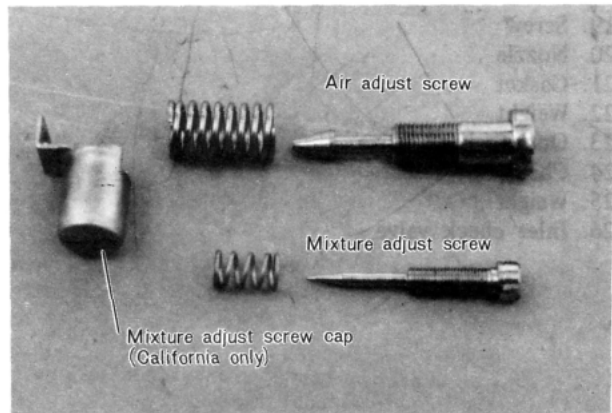


Fig. 4-42

All jets and air bleeds for clog

Air adjust screw and mixture adjust screw for burrs or ridges

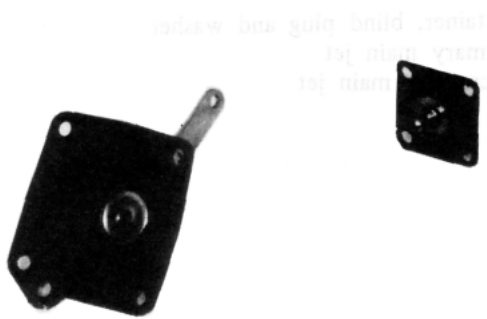


Fig. 4-43

Diaphragms for damage

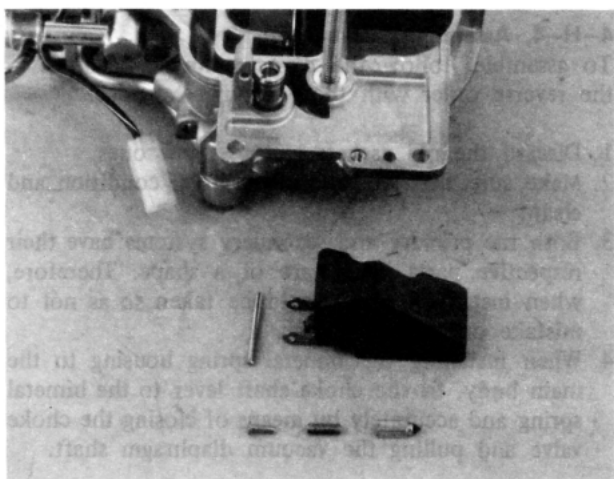


Fig. 4-44

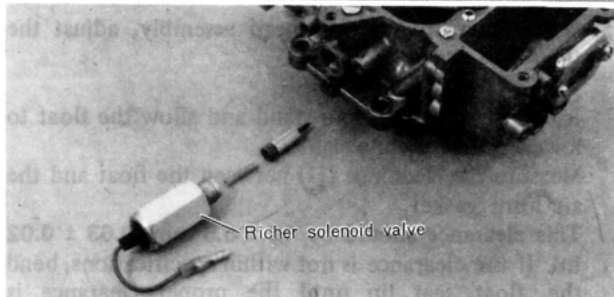
Inspect the following parts and replace if necessary.

- Float for damage
- Needle valve and seat for wear or rust
- Strainer for clog or rust



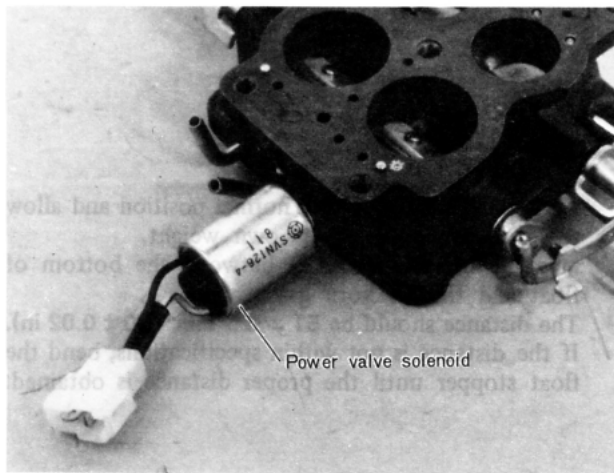
Air vent solenoid valve

Air vent solenoid valve
 Richer solenoid valve (Manual transmission)
 When battery power is applied to the solenoid valve, the valve stem should be pulled in to the valve body.



Richer solenoid valve

Fig. 4-45



Power valve solenoid

Fig. 4-46

Power valve solenoid (Except for Canada with manual transmission)
 When battery power is applied to the solenoid valve, the valve stem should be come out from the valve body.

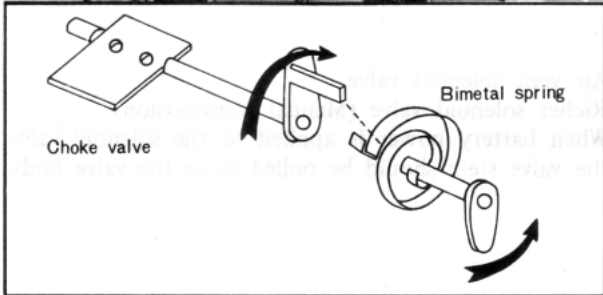
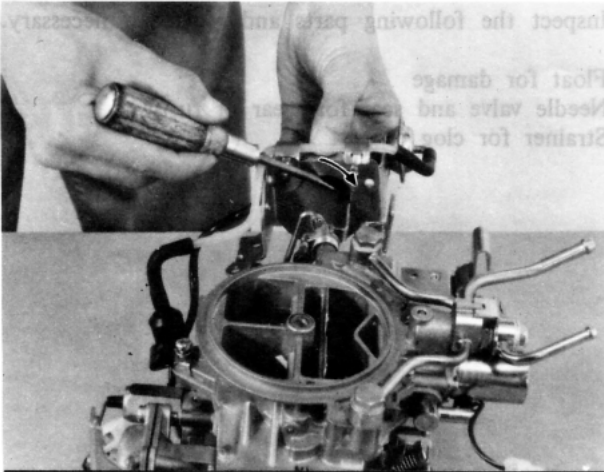


Fig. 4-47

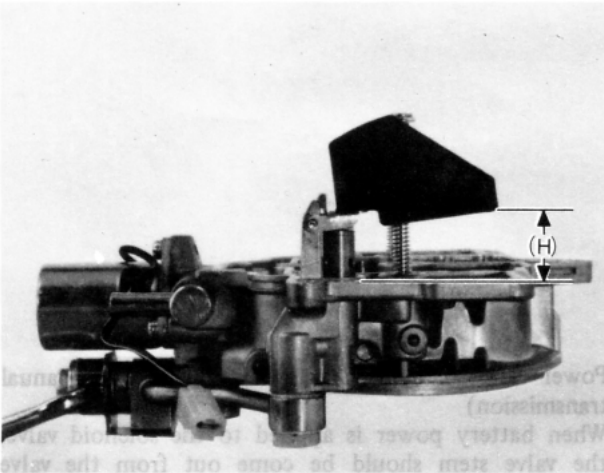


Fig. 4-48

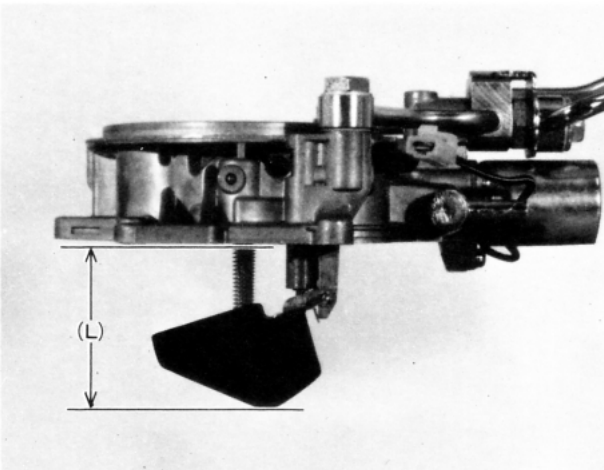


Fig. 4-49

4-H-4. Assembling Carburetor

To assemble, follow the disassembling procedures in the reverse order with the following cautions.

1. Discard the old gaskets and use new ones.
2. Make sure that all parts are in good condition and clean.
3. Both the primary and secondary systems have their respective parts which are of a shape. Therefore, when installing, care should be taken so as not to mistake one for the other.
4. When installing the bimetal spring housing to the main body, fit the choke shaft lever to the bimetal spring and accurately by means of closing the choke valve and pulling the vacuum diaphragm shaft.

5. Before installing the air horn assembly, adjust the float level as follows:

Invert the air horn on a stand and allow the float to lower by its own weight.

Measure the clearance (H) between the float and the air horn gasket.

This clearance should be $16 \pm 0.5 \text{ mm}$ ($0.63 \pm 0.02 \text{ in}$). If the clearance is not within specifications, bend the float seat lip until the proper clearance is obtained.

Turn the air horn to the normal position and allow the float to lower by its own weight.

Measure the distance (L) between the bottom of float and the air horn gasket.

The distance should be $51 \pm 0.5 \text{ mm}$ ($2.0 \pm 0.02 \text{ in}$). If the distance is not within specifications, bend the float stopper until the proper distance is obtained.

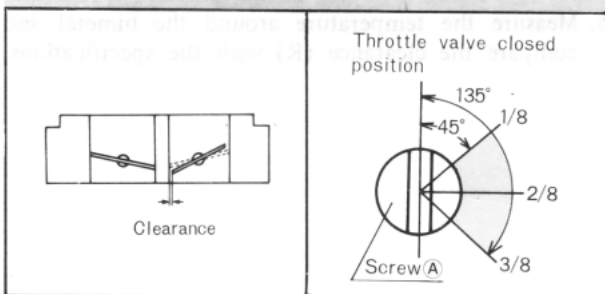
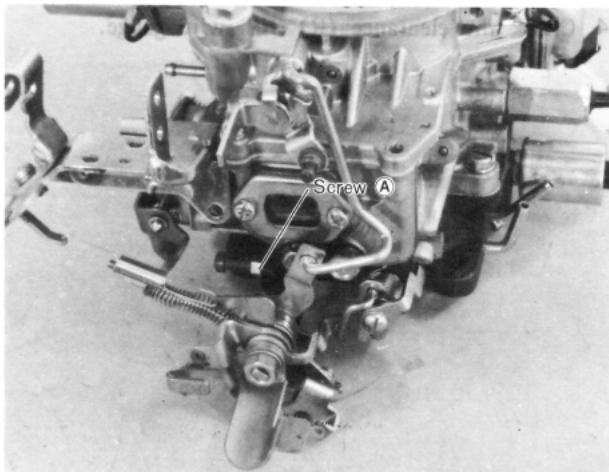


Fig. 4-50

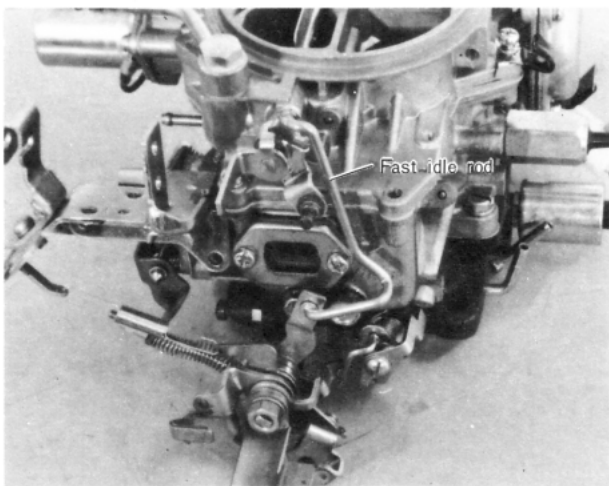


Fig. 4-51

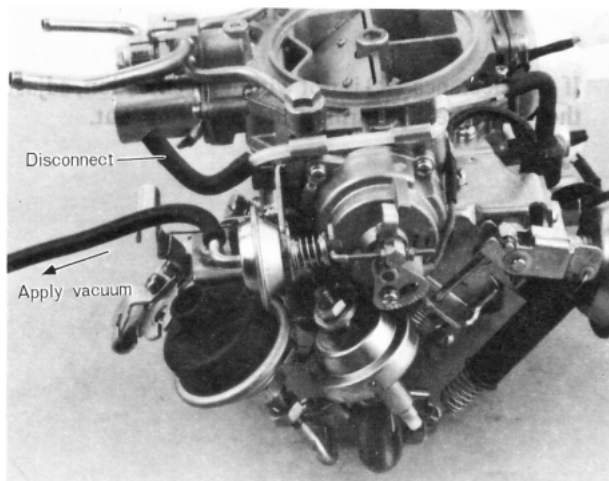


Fig. 4-52

4-H-5. Adjusting Carburetor

a. Primary throttle valve initial opening angle

1. Loosen the lock nut and unscrew the screw (A)
2. Close the throttle valve completely and gradually screw in the screw (A) until the screw just touches the throttle lock lever. Then, further screw in the screw (A) which is the above position by $1/8 \sim 3/8$ turns.
3. Tighten the lock nut.

Clearance: 0.05 mm (0.002 in)

Initial opening angle: 1°

Note:

The above adjustment should be done when the throttle body, throttle lock lever and screw (A) have been changed.

b. Fast idle opening angle

With the choke valve fully closed, measure the clearance between the primary throttle valve and the wall of the throttle bore.

Clearance:

U.S.A. 1.30 ~ 1.50 mm
(0.051 ~ 0.059 in)

Canada 0.90 ~ 1.10 mm
(0.035 ~ 0.04 in)

If the clearance is not within specification, bend the fast idle rod until the proper clearance is obtained.

c. Choke valve opening angle

1. Disconnect the vacuum sensing tube from the vacuum diaphragm.
2. Fully pull out the choke lever link and keep its position.
3. Apply the vacuum of more than 500 mm-Hg (19.7 in-Hg) to vacuum diaphragm.

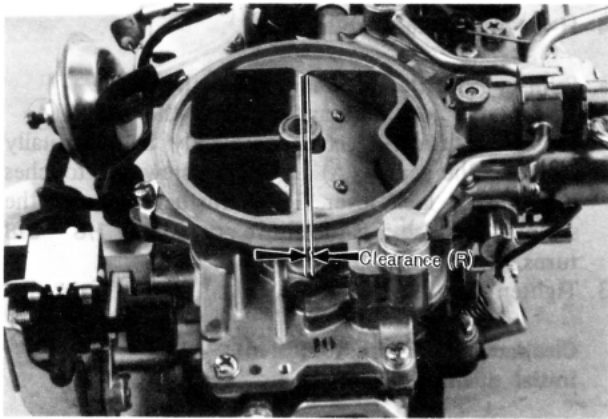


Fig. 4-53

4. Check the clearance (R) with wire gauge.

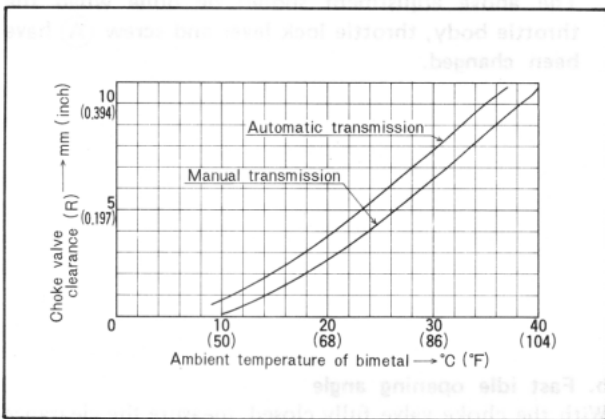


Fig. 4-54 California

5. Measure the temperature around the bimetal and compare the clearance (R) with the specifications.

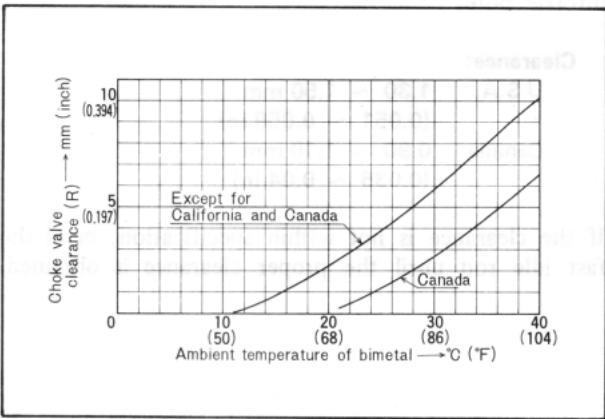


Fig. 4-55 Canada and except for California

If the clearance (R) is not within specification, adjust the clearance by turning the adjusting nut.

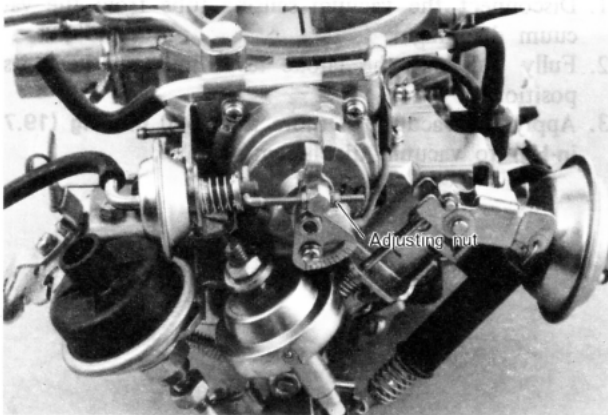


Fig. 4-56

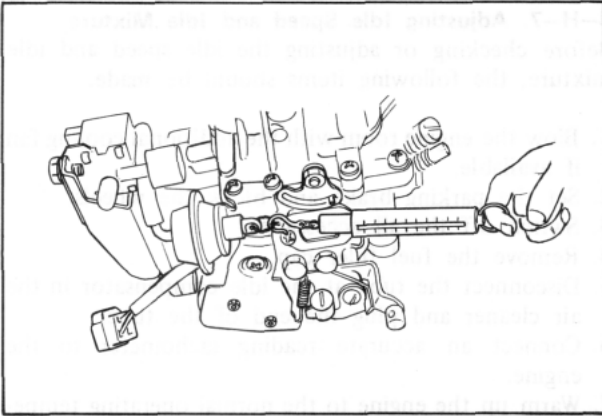


Fig. 4-57

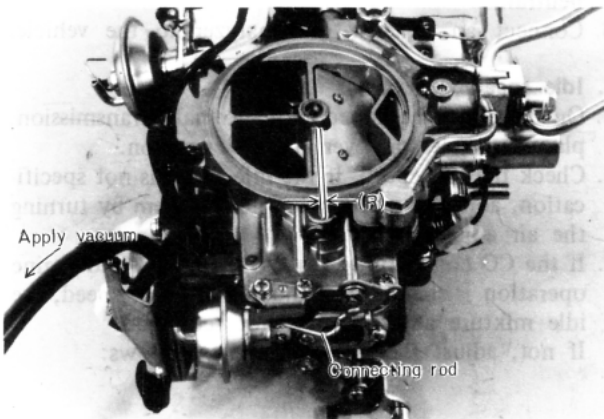


Fig. 4-58

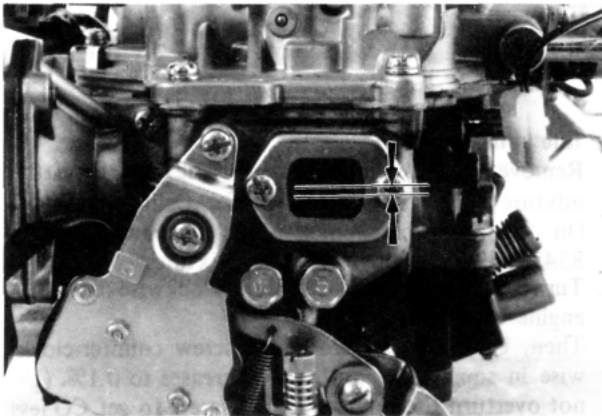


Fig. 4-59

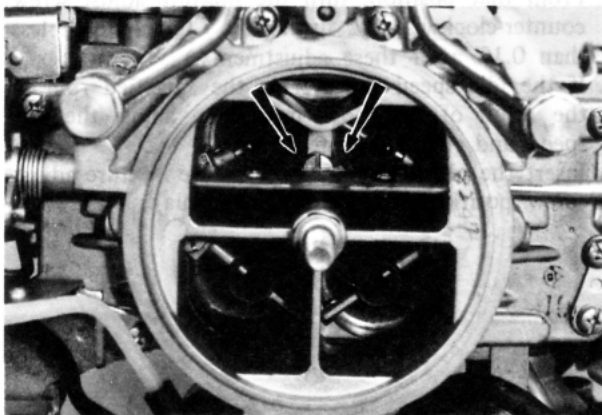


Fig. 4-60

d. No. 2 Choke diaphragm (except for Calif. and Canada)

1. Disconnect the connecting rod of the No. 2 choke diaphragm and hook the spring scale onto the diaphragm shaft.

2. Slowly pull the spring scale and take a reading of the spring scale when the diaphragm shaft just starts come out.

The reading should be 34 ~ 52 gr (1.2 ~ 1.8 oz).

3. Pull out the diaphragm shaft about 3.3 ± 0.3 mm (0.13 ± 0.01 in) and make sure the reading of the spring scale is 54 ~ 82 gr (1.9 ~ 2.9 oz).

4. Reconnect the connecting rod of the No. 2 choke diaphragm.

Fully pull out the choke lever link and keep its position.

5. Apply the vacuum of more than 450 mm-Hg (17.7 in-Hg) to the No. 2 choke diaphragm and fully push in the diaphragm shaft (plastic shaft) with finger. Check the clearance (R) with wire gauge. The clearance (R) is 1.78 ~ 2.94 mm (0.070 ~ 0.116 in).

Next, pull out the diaphragm shaft (plastic shaft) with finger and check the clearance (R). The clearance (R) is 1.02 ~ 1.38 mm (0.040 ~ 0.054 in).

4-H-6. Installing Carburetor

Install the carburetor in the reverse order of removing.

Note:

Push in the hose ends of the fuel main and fuel return hoses to the carburetor fittings until the fittings are inserted to 30 ~ 35 mm (1.2 ~ 1.4 in).

After installing, note the followings.

1. Start the engine and check for fuel leakage.
2. With the engine operating, check the fuel level. The fuel level should be in the specified mark in the sight glass.

3. Inspect the accelerator pump as follows.

1) Place the vehicle on a level ground.
2) Remove the air cleaner cover.
3) Start the engine and check if the fuel level is to the specified mark in the sight glass.
4) Stop the engine. Operate the throttle valve and check to see that the fuel is discharged from the nozzles of the pump.

4. Adjust the idle speed and idle mixture as instructed in Par. 4-H-7.

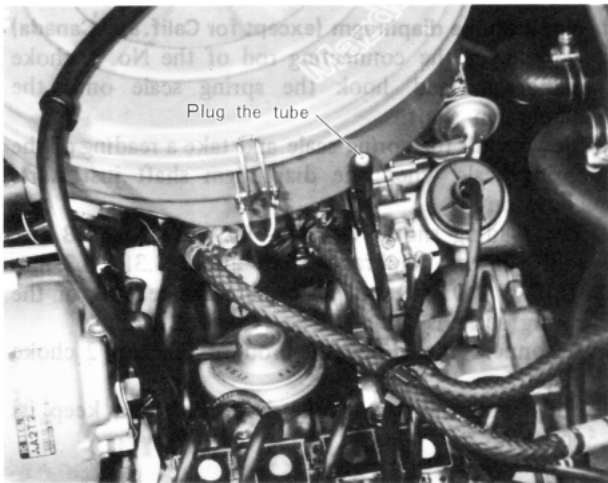


Fig. 4-61

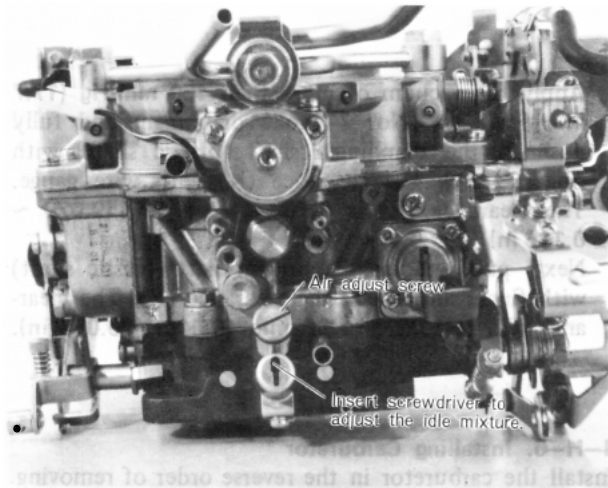


Fig. 4-62 California

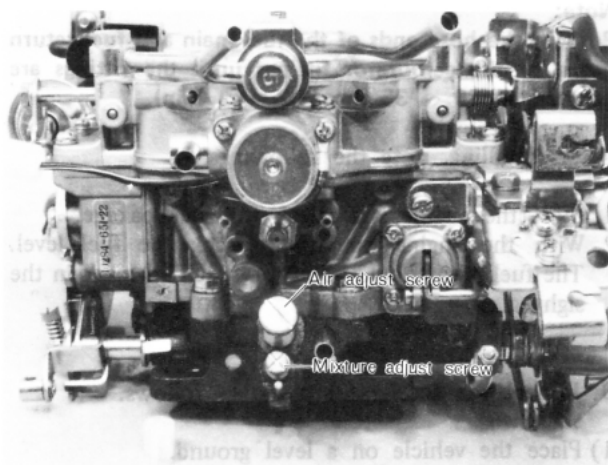


Fig. 4-63 Except for California

Idle speed:

Manual transmission	750 ± 25 rpm in neutral
Automatic transmission	750 ± 25 rpm in "D" range

CO concentration (with air injection):

All vehicles	Less than 0.1%
--------------	----------------

4-H-7. Adjusting Idle Speed and Idle Mixture

Before checking or adjusting the idle speed and idle mixture, the following items should be made.

1. Blow the engine room with the additional cooling fan if available.
2. Set the parking brake and block the wheels.
3. Switch off the all accessories.
4. Remove the fuel filler cap.
5. Disconnect the tube at the idle compensator in the air cleaner and plug the end of the tube.
6. Connect an accurate reading tachometer to the engine.
7. Warm up the engine to the normal operating temperature and run it three minutes at **2,000 rpm** in neutral.
8. Connect an exhaust gas analyzer to the vehicle.

a. Idle speed

1. On the vehicle equipped with automatic transmission, place the selector lever to "D" position.
2. Check the idle speed. If the idle speed is not specification, adjust the idle speed to **750 rpm** by turning the air adjust screw.
3. If the CO concentration is less than 0.1% and engine operation is stable after adjusting the idle speed, the idle mixture adjustment is not required. If not, adjust the idle mixture as follows:

b. Idle mixture

1. Remove the idle limiter cap (Plastic cap) from the mixture adjust screw (Except for California). On the California vehicles, use a **screwdriver** (49 8343 869) to adjust the idle mixture.
2. Turn the mixture adjust screw clockwise until the engine hunts severely.
3. Then, turn the mixture adjust screw counter-clockwise in small steps until CO decreases to 0.1%. (Do not overturn the mixture adjust screw to get CO less than 0.1%.)
4. From that position, turn the mixture adjust screw counter-clockwise 1/2 turn. (Idle CO should be less than 0.1% after these adjustments.)
5. If the idle speed shifts from the specified rpm as the result of the above procedure, adjust the idle speed and repeat the procedure 2 ~ 5.
6. Insert the idle limiter cap to fix the mixture adjust screw position (Except for California).

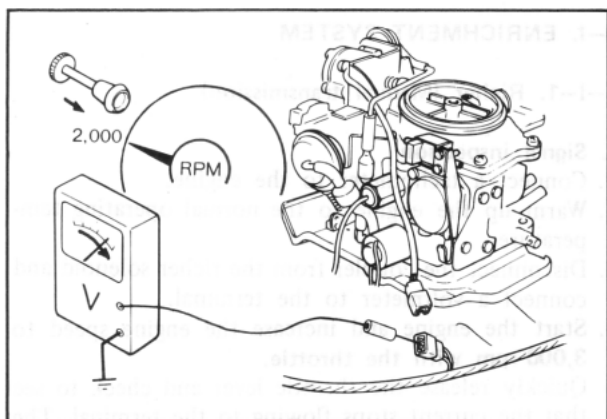


Fig. 4-64

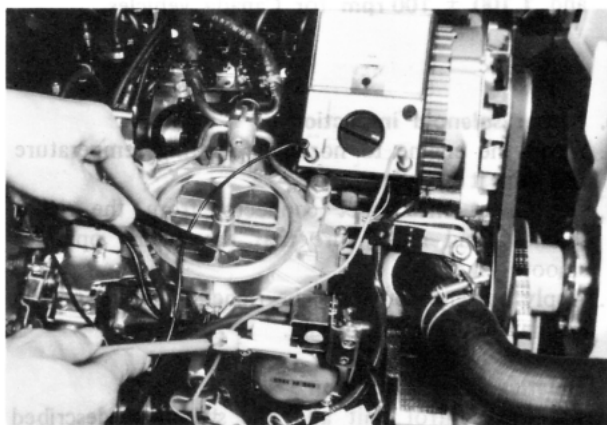


Fig. 4-65

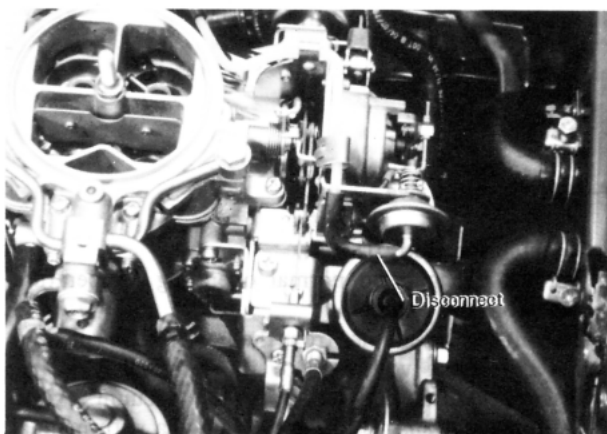


Fig. 4-66



Fig. 4-67

4-H-8. Checking Carburetor Heater

1. Disconnect the coupler of the No. 1 water temperature switch and connect a jumper wire to both terminals in the coupler.
2. Connect a tachometer to the engine.
3. Disconnect the carburetor heater coupler and connect a voltmeter to the coupler.
4. Start the engine and set engine speed to **2,000 rpm with choke knob**.

See that current flows to the carburetor heater lead, but it does not flow when the choke knob is pushed back completely.

5. Connect one probe of an ohmmeter to the carburetor heater lead and the other to the carburetor body. If there is no meter movement, the carburetor heater is open circuit and must be replaced.

4-H-9. Checking No. 1 Choke Diaphragm

1. Remove the air cleaner assembly.
2. Start the engine and run it at idle.
3. Disconnect the vacuum sensing tube from the No. 1 choke diaphragm.
The diaphragm shaft should be come out from the No. 1 choke diaphragm.

4-H-10. Checking Choke Delay Valve (Except for Canada)

1. Warm up the engine to the normal operating temperature.
2. Stop the engine and remove the air cleaner assembly.
3. Disconnect the vacuum sensing tube from the No. 1 choke diaphragm.
4. Start the engine and run it at idle. Check to see that the diaphragm shaft is fully pulled in to the diaphragm in **10 ~ 20 seconds** after connecting the disconnected vacuum sensing tube to the No. 1 choke diaphragm.

Note:

On the vehicle equipped with automatic transmission, place the selector lever to "N" position.

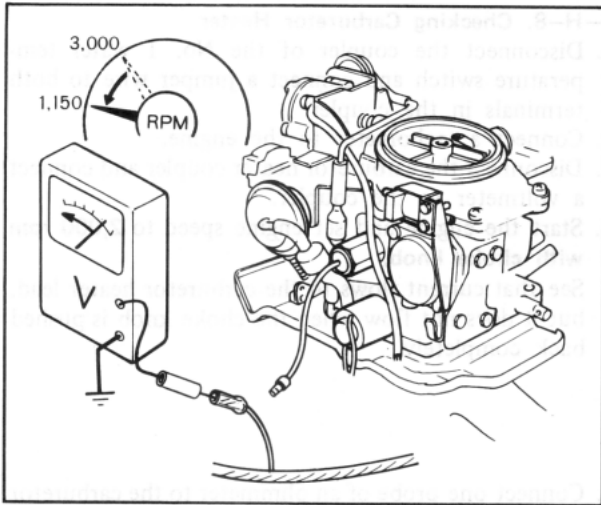


Fig. 4-68

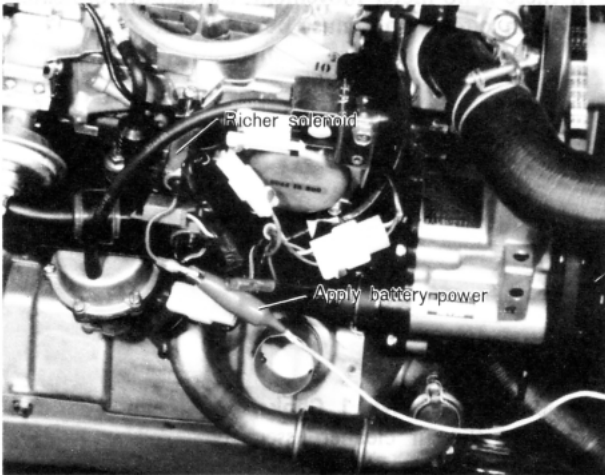


Fig. 4-69

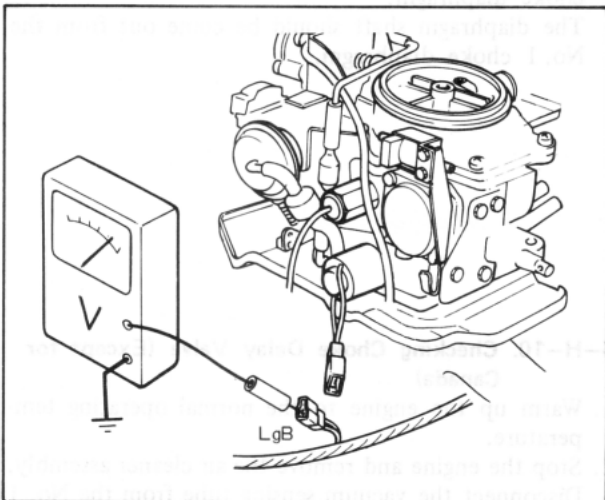


Fig. 4-70

4-I. ENRICHMENT SYSTEM

4-I-1. Richer (Manual transmission)

a. Signal inspection

1. Connect a tachometer to the engine.
2. Warm up the engine to the normal operating temperature.
3. Disconnect the coupler from the richer solenoid and connect a voltmeter to the terminal.
4. Start the engine and increase the engine speed to **3,000 rpm with the throttle.**

Quickly release the throttle lever and check to see that the current stops flowing to the terminal. The engine speed should be **1,150 ± 100 rpm** for U.S.A. and **1,100 ± 100 rpm** for Canada vehicles.

b. Richer solenoid inspection

1. Warm the engine to normal operating temperature and run it at idle.
2. Disconnect the bullet connector from the richer solenoid and make sure that the engine operates smoothly.
3. Apply battery power to the richer solenoid and the engine should hunt or die.

c. Relative parts inspection

Check the control unit and idle switch as described in Par. 1A-G.

4-I-2. Power Valve

a. Signal inspection (U.S.A.)

1. Warm the engine to normal operating temperature and stop the engine.
2. Disconnect the coupler from the power valve solenoid and connect a voltmeter to the terminal.
3. Disconnect the coupler from the vacuum switch (Automatic transmission and California with manual transmission).

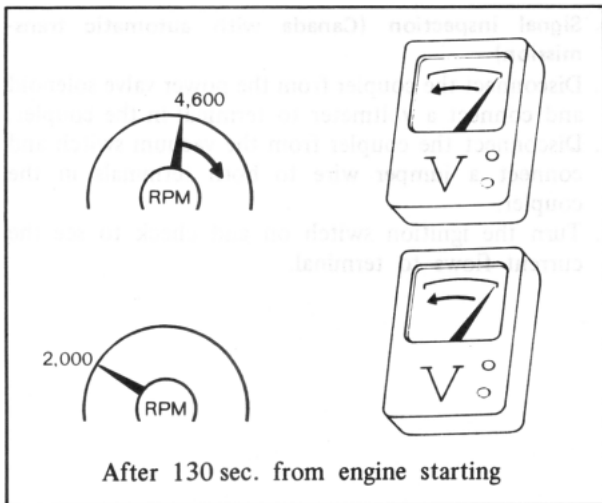


Fig. 4-71

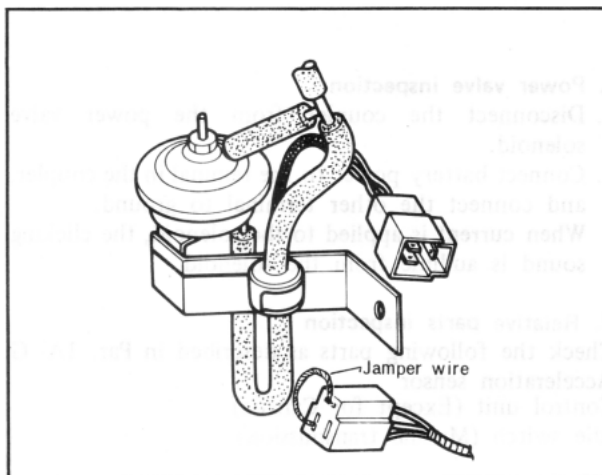


Fig. 4-72

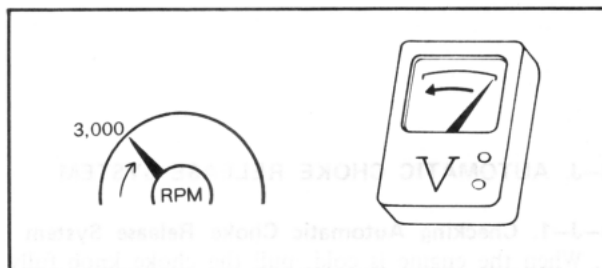


Fig. 4-73

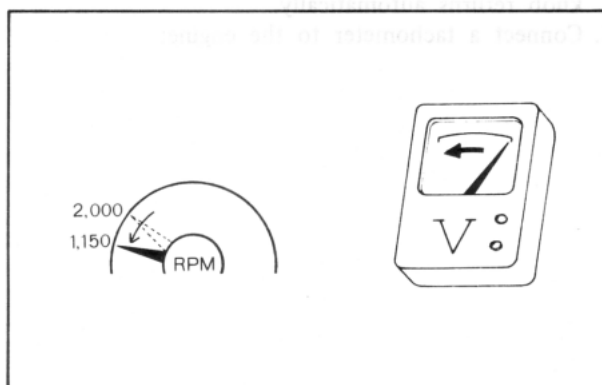


Fig. 4-74

4. Start the engine with choke knob fully pulled and push back the choke knob completely.
5. Increase the engine speed from **2,000 rpm** and check to see that current stops flowing to terminal when the engine speed is **more than $4,600 \pm 400$ rpm**.

6. Increase the engine speed to **2,000 rpm with the throttle** and check to see that the current stops flowing to terminal **after 130 ± 26 seconds** from engine starting in Step 4.

7. Connect a jumper wire to both terminals in the disconnected vacuum switch coupler in Step 3 (Automatic transmission and California with manual transmission).

8. Slowly increase the engine speed and check to see that current stops flowing to terminal when the engine speed is **more than $3,000 \pm 300$ rpm** and **$3,300 \pm 300$ rpm** for California with automatic transmission.

9. Increase engine speed to **2,000 rpm with throttle**. Slowly decrease engine speed and record the engine speed at which current stops flowing to terminal. The engine speed should be **$1,150 \pm 100$ rpm**.
10. Slowly increase the engine speed from idle and check the engine speed at which current begins flowing. The difference between the engine speeds recorded in Steps 9 and 10 should be **150 ± 70 rpm**.

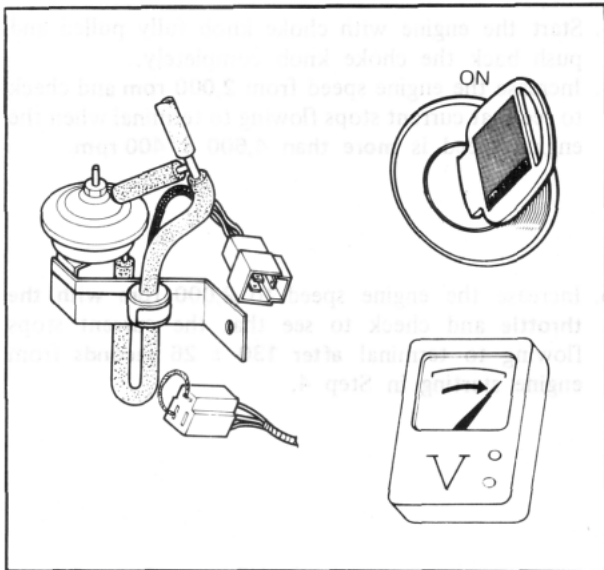


Fig. 4-75

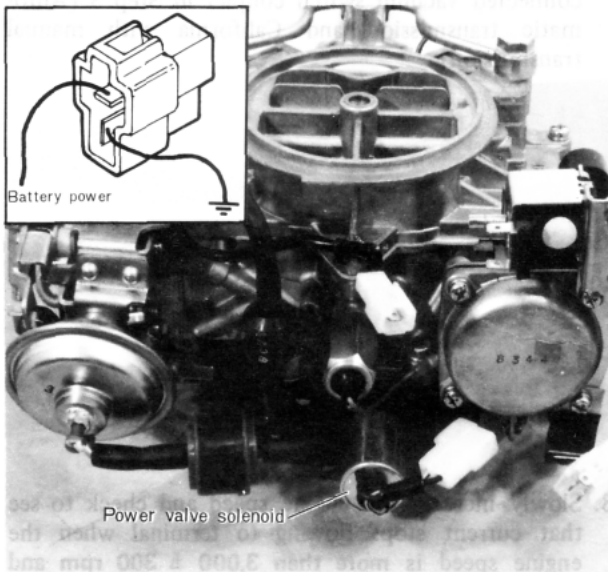


Fig. 4-76

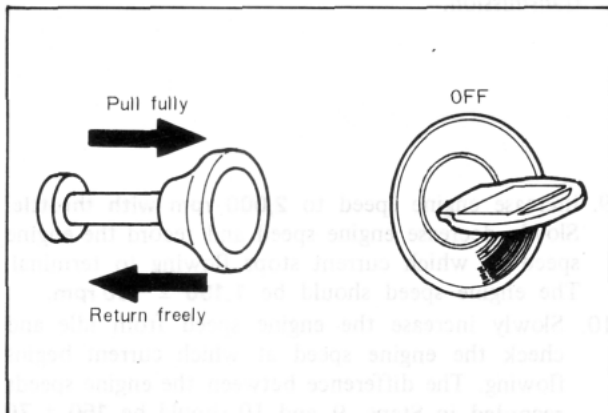


Fig. 4-77

b. Signal inspection (Canada with automatic transmission)

1. Disconnect the coupler from the power valve solenoid and connect a voltmeter to terminal in the coupler.
2. Disconnect the coupler from the vacuum switch and connect a jumper wire to both terminals in the coupler.
3. Turn the ignition switch on and check to see the current flows to terminal.

c. Power valve inspection

1. Disconnect the coupler from the power valve solenoid.
2. Connect battery power to the terminal in the coupler, and connect the other terminal to ground.
When current is applied to the solenoid, the clicking sound is audible from the solenoid.

d. Relative parts inspection

Check the following parts as described in Par. 1A-G.
 Acceleration sensor
 Control unit (Except for Canada)
 Idle switch (Manual transmission)

4-J. AUTOMATIC CHOKE RELEASE SYSTEM

4-J-1. Checking Automatic Choke Release System

1. When the engine is cold, pull the choke knob fully with the ignition switch off, and check that the choke knob returns automatically.
2. Connect a tachometer to the engine.

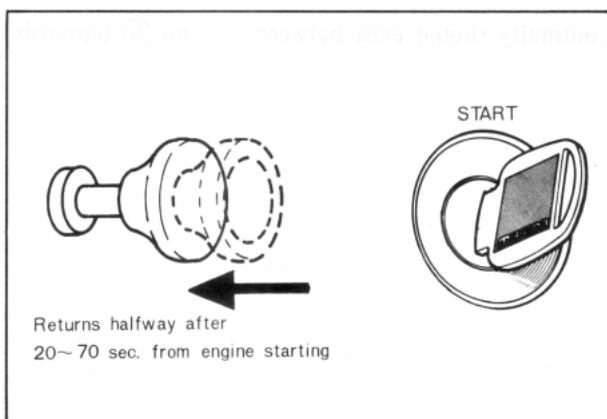


Fig. 4-78

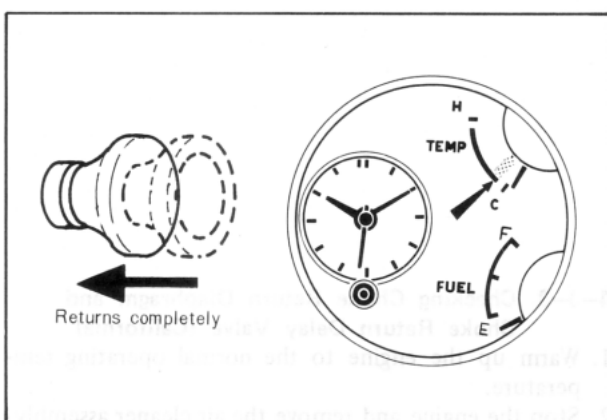


Fig. 4-79

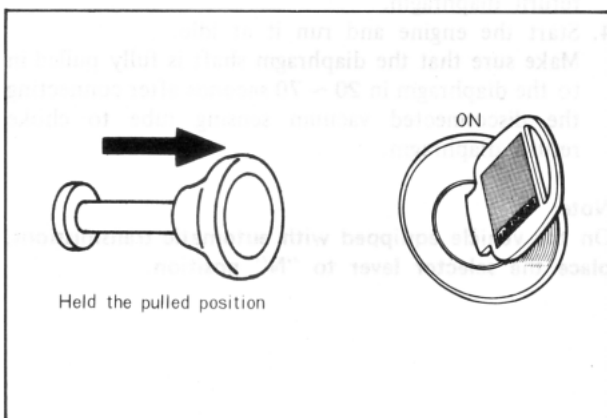


Fig. 4-80

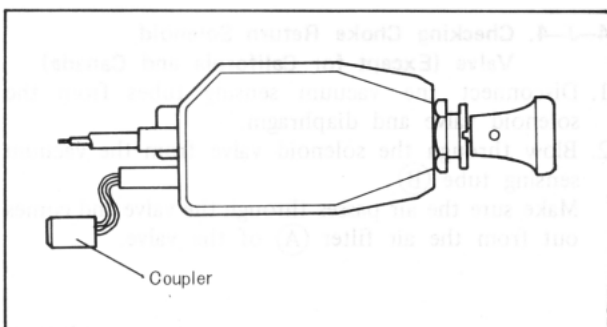


Fig. 4-81

- On the U.S.A. vehicles, start the engine with the choke knob fully pulled and see that the choke knob automatically returns halfway **within the specifications after engine starting.**

Specifications:

California 20 ~ 70 seconds

Except for California 48 ~ 72 seconds

- Set engine speed to **2,000 rpm with choke knob.**
- Leave the engine running and see that the choke knob automatically returns completely when the temperature gauge indicates the range shown in figure.

- On the U.S.A. vehicles, stop the engine.
Pull the choke knob fully with the ignition switch on.
The choke knob should be held the pulled position.

4-J-2. Checking Choke Magnet

- Disconnect the coupler from the choke switch.
- Check the continuity between the numbered terminals in the coupler using an ohmmeter.

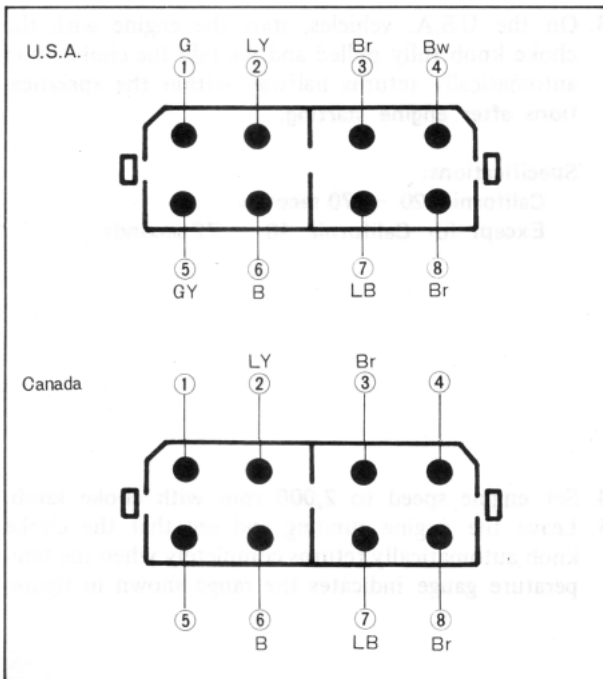


Fig. 4-82

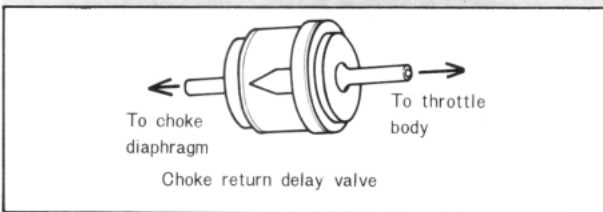


Fig. 4-83

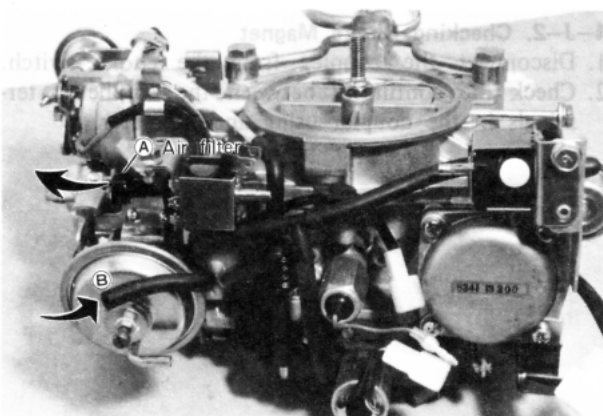
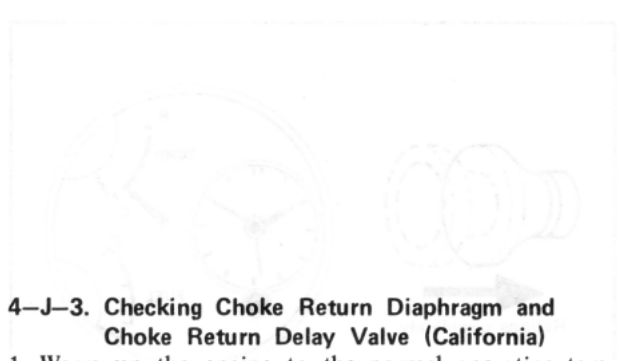


Fig. 4-84

Continuity should exist between ⑧ and ⑥ terminals.



4-J-3. Checking Choke Return Diaphragm and Choke Return Delay Valve (California)

1. Warm up the engine to the normal operating temperature.
2. Stop the engine and remove the air cleaner assembly.
3. Disconnect the vacuum sensing tube from the choke return diaphragm.
4. Start the engine and run it at idle.
Make sure that the diaphragm shaft is fully pulled in to the diaphragm in **20 ~ 70 seconds** after connecting the disconnected vacuum sensing tube to choke return diaphragm.

Note:

On the vehicle equipped with automatic transmissions, place the selector lever to "N" position.

4-J-4. Checking Choke Return Solenoid Valve (Except for California and Canada)

1. Disconnect the vacuum sensing tubes from the solenoid valve and diaphragm.
2. Blow through the solenoid valve from the vacuum sensing tube ②.
Make sure the air passes through the valve and comes out from the air filter ① of the valve.

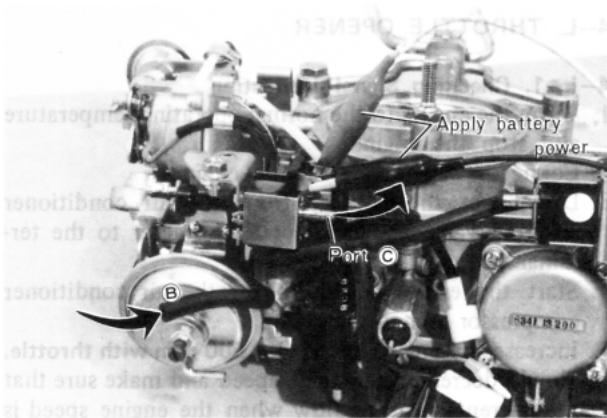


Fig. 4-85



Fig. 4-86

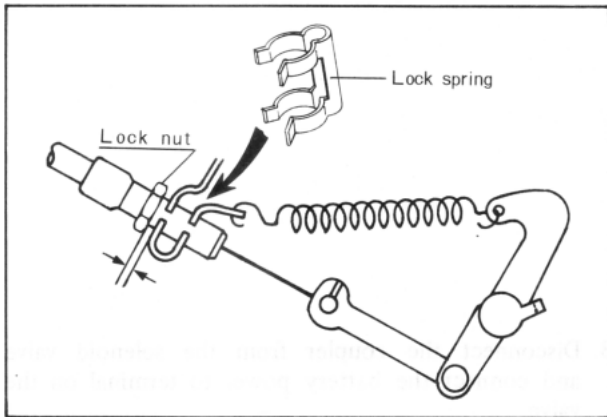


Fig. 4-87

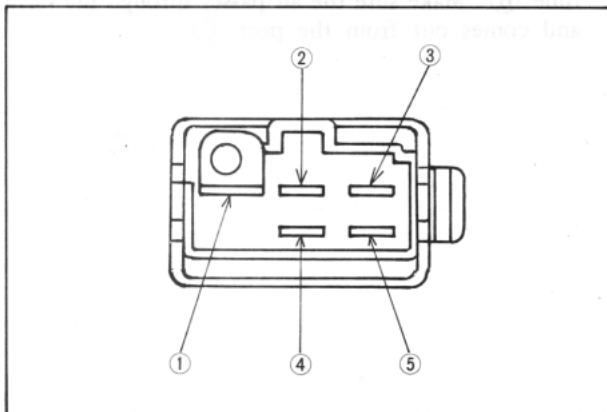


Fig. 4-88

3. Disconnect the coupler from the solenoid valve and connect the battery power to terminal on the valve.
4. Blow through the valve from the vacuum sensing tube (B).
Make sure the air passes through the valve and comes out from the port (C).

4-J-5. Relative Parts

Check the following parts as described in Par. 1A-G.
Water temperature switch
Full choke switch (Except for Canada)
Control unit (Except for California and Canada)

4-K. HOT START ASSIST SYSTEM

4-K-1. Checking Hot Start Assist System

1. Inspect the hot start assist linkage for proper installation, no sticking or binding, and full return.
2. Warm the engine to normal operating temperature and stop the engine.
3. Disconnect the couplers for leading and trailing primary wires from the distributor.
4. Crank the engine. Check to see that the hot start lever operates and throttle valves open.

4-K-2. Adjusting Hot Start Assist Cable

1. Remove the lock spring of the hot start assist cable from the cable bracket.
2. Slowly pull the outer cable until the hot start lever just touches the stopper lever. Then check the clearance between the cable bracket and the lock nut of the cable. The clearance should be 1.25 ± 0.75 mm (0.05 ± 0.03 in). If the clearance is not within the specification, adjust it by turning the lock nut.
3. Install the lock spring of the cable securely.

4-K-3. Checking Hot Start Assist Relay

1. Disconnect the coupler from the relay.
2. Check the continuity, referring to the following table.

Numbers-continuity	Numbers-No continuity	Remarks
① to ⑤	① to ③	Without power applied
① to ③	① to ⑤	Connect the battery: positive to terminal ② and negative to ④.

4-K-4. Relative Part

Check the water temperature switch as described in Par. 1A-G.

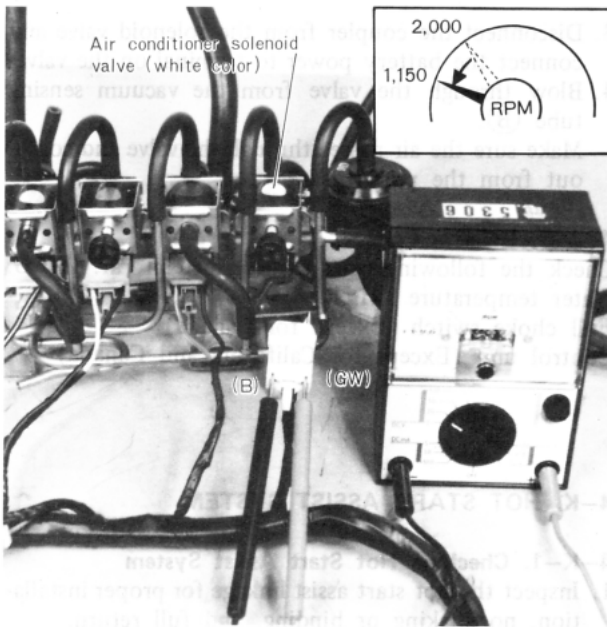


Fig. 4-89

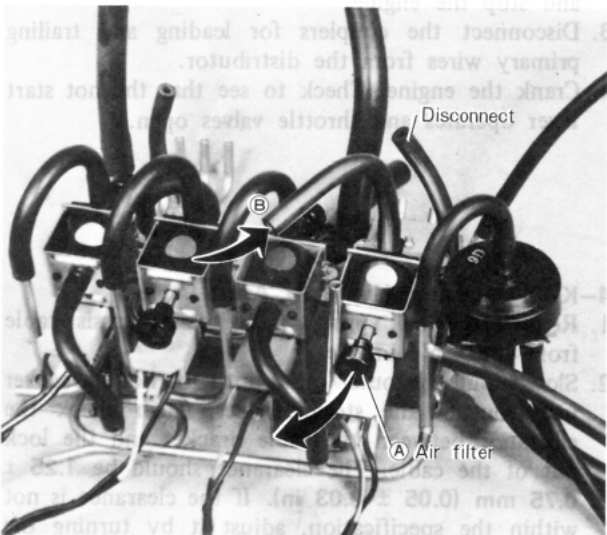


Fig. 4-90

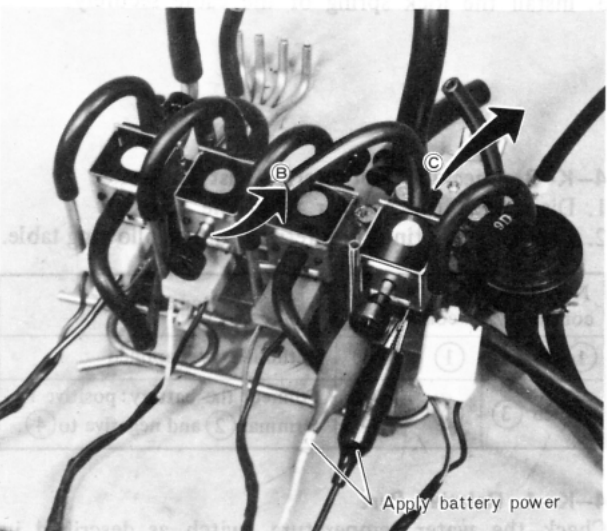


Fig. 4-91

4-L. THROTTLE OPENER

4-L-1. Checking Signal Inspection

1. Warm the engine to the normal operating temperature and stop the engine.
2. Connect a tachometer to the engine.
3. Disconnect the coupler from the air conditioner solenoid valve and connect a voltmeter to the terminal.
4. Start the engine and turn on the air conditioner compressor switch.
5. Increase the engine speed to **2,000 rpm with throttle**. Slowly decrease the engine speed and make sure that the current starts to flow when the engine speed is **1,150 ± 100 rpm**.

4-L-2. Checking Air Conditioning Solenoid Valve

1. Disconnect the vacuum sensing tubes from the solenoid valve and vacuum pipe.
2. Blow through the solenoid valve from the vacuum sensing tube (B). Make sure the air passes through the valve and comes out from the air filter (A) of the valve.

3. Disconnect the coupler from the solenoid valve and connect the battery power to terminal on the valve.
4. Blow through the valve from the vacuum sensing tube (B). Make sure the air passes through the valve and comes out from the port (C).

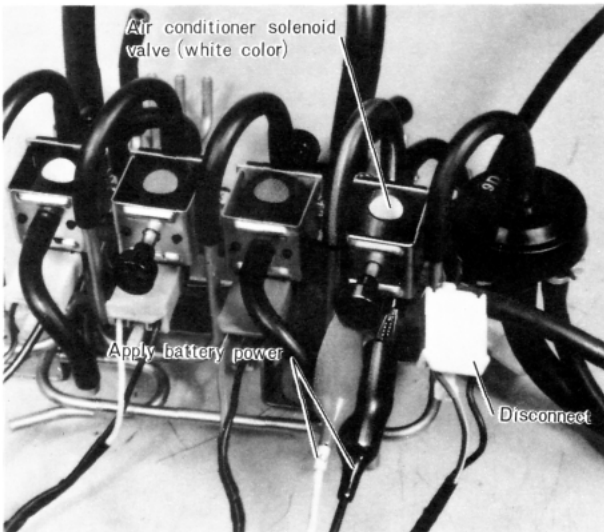


Fig. 4-92

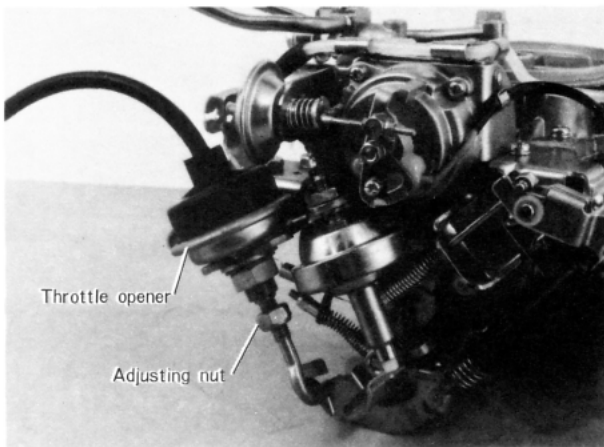


Fig. 4-93

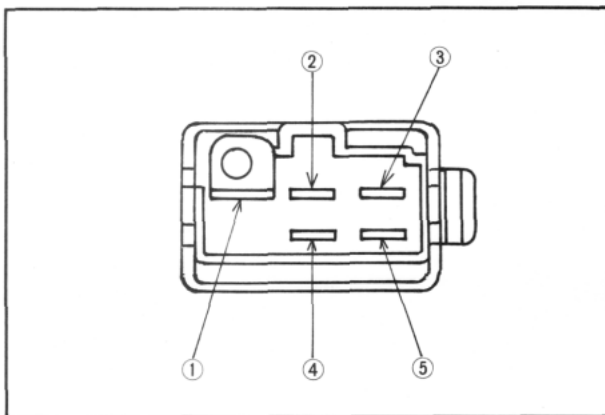


Fig. 4-94

4-L-3. Inspecting and Adjusting Throttle Opener

1. Switch off the all accessories.
2. Disconnect the tube at the idle compensator in the air cleaner and plug the end of the tube.
3. Connect a tachometer to the engine and warm the engine to the normal operating temperature.
4. Turn off the air conditioner switch.
5. Disconnect the coupler from air conditioner solenoid valve. Connect the battery power to the terminal in the coupler, and connect the other terminal to ground. Check to see that the throttle opener operates and engine speed increases to **1,200 ± 50 rpm in neutral.**
6. If the engine speed is not within the specification, adjust it by turning the adjusting nut.

4-L-4. Checking Air Conditioning Relay

1. Disconnect the coupler from the relay.
2. Check the continuity, referring to the following table.

Numbers-continuity	Numbers-No continuity	Remarks
① to ⑤	① to ③	Without power applied
① to ③	① to ⑤	Connect the battery: positive to terminal ② and negative to ④.

4-L-5. Relative Part

Check the control unit as described in Par. 1A-G.