

# 4. FUEL SYSTEM

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## SERVICE INFORMATION

### GENERAL

#### ▲WARNING

- Gasoline is extremely flammable and is explosive under certain conditions. Work in a well ventilated area, do not smoke or allow flames or sparks in the work area or where gasoline is stored.

- When disassembling the fuel system parts, note the locations of the O-rings. Replace them with new ones on reassembly.
- The carburetor float chamber has a drain screw that can be loosened to drain residual gasoline.

#### CAUTION

- Do not bend or twist control cables. Damaged control cables will not operate smoothly and may stick or bind.

#### NOTE

- If vehicle is to be stored for more than one month, drain the float chamber. Fuel left in the float chamber may cause clogged jets resulting in hard starting or poor driveability.

## SPECIFICATIONS

Fuel tank capacity 13.0 liters (3.43 US gal, 2.86 Imp gal)  
Fuel reserve capacity 2.5 liters (0.66 US gal, 0.55 Imp gal)

< >: California model

Throttle bore	42.5 mm
Identification No.	VE81A <VE82A>
Float level	18.5 mm (0.73 in)
Main jet	#155
Slow jet	#48
Idle speed	1,300 ± 100 rpm
Throttle grip free play	2–6 mm (1/8–1/4 in)
Pilot screw opening	3 turns out
Air cut-off valve operating pressure	390 ± 20 mm Hg

## TOOL

Common  
Float level gauge 07401–0010000

### TROUBLESHOOTING

#### Engine Turns But Won't Start

- No fuel in tank
- No fuel to cylinder
- Too much fuel getting to cylinder
- No spark at plug (ignition malfunction or fouled spark plug)
- Air cleaner clogged
- Improper throttle operation

#### Engine Idles Faster, Roughly, Stalls, or Runs Poorly

- Idle speed incorrect
  - Ignition malfunction
  - Rich mixture
  - Lean mixture
  - Air cleaner clogged
  - Air leaking into manifold
  - Fuel contaminated
  - Incorrect air screw adjustment
  - Fuel tank breather tube clogged
- (California model only:)
- Faulty purge control valve
  - Faulty emission control system hoses

#### Lean Mixture

- Carburetor fuel jets clogged
- Fuel tank breather tube clogged
- Fuel filter clogged
- Fuel tube kinked or restricted
- Float valve faulty
- Float level too low
- Vacuum stuck piston

#### Rich Mixture

- Worn or damaged starter valve
- Float valve faulty
- Float level too high
- Carburetor air jets clogged
- Sticking float
- Dirty air cleaner
- Vacuum diaphragm damaged

#### Idle Speed Too High

- Incorrect throttle stop screw adjustment
- Faulty choke valve
- Starter valve stuck open

#### Engine Does Not Slow Down Smoothly

- Incorrect pilot screw adjustment

#### Engine Lacks Power at Low and Idle Speeds

- Incorrect air screw adjustment

#### After burning during deceleration

- Faulty ignition system
- Faulty air cut off valve
- Lean mixture  
(California model only:)
  - : Faulty secondary air supply system
  - : Faulty hoses of the emission control system

#### Poor performance (driveability) and poor fuel economy

- Clogged fuel system
- Faulty ignition system
- Dirty air cleaner  
(California model only:)
  - : Faulty purge control valve
  - : Faulty hoses in the emission control system

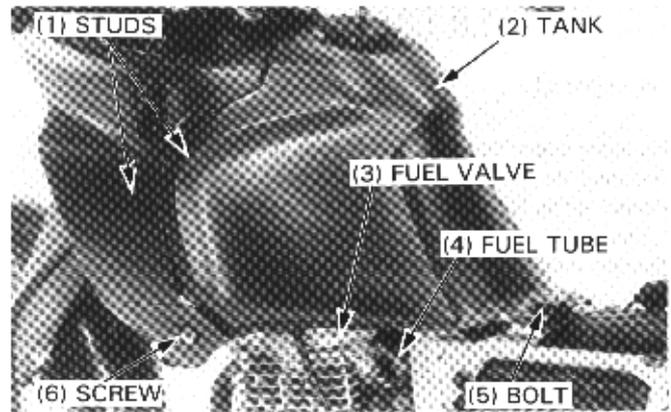
## FUEL TANK

### REMOVAL

Remove the side covers and seat (page 15-2).  
Turn the fuel valve OFF and disconnect the fuel tube at the fuel valve.

**▲ WARNING**

- *Gasoline is extremely flammable and is explosive under certain conditions. Work in a well ventilated area, do not smoke or allow flames or sparks in the work area or where gasoline is stored.*



Remove the right and left front fairing mounting screws.  
Pull the fairing studs out of the gromets of the fuel tank.

### NOTE

- When removing the fairing, be careful not to break them.

Remove the fuel tank mounting bolt and remove the fuel tank by sliding it backward.

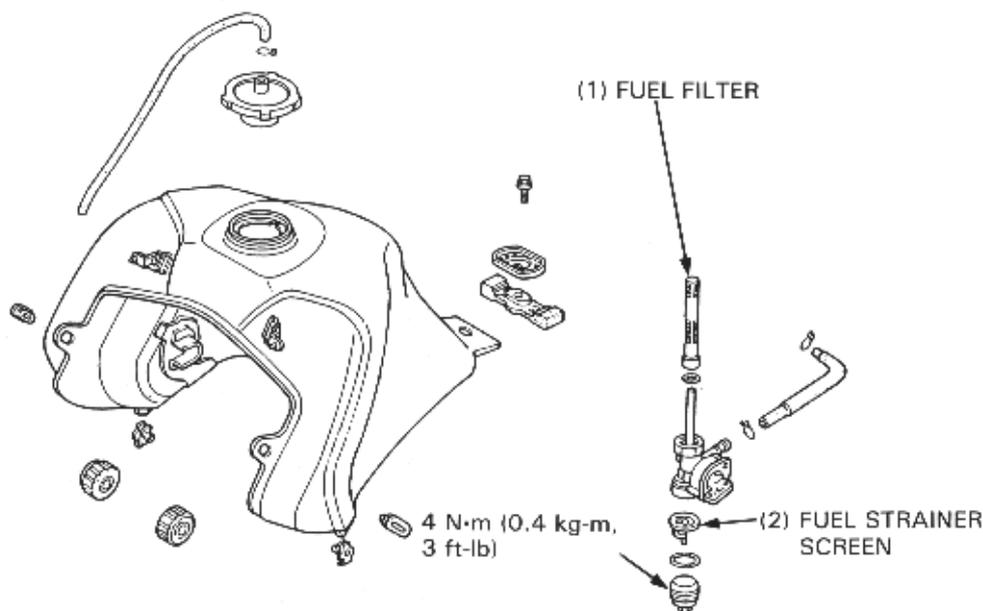
Check that fuel flows out of the fuel valve freely. If flow is restricted, clean the fuel strainer (page 3-4).

### INSTALLATION

Install the fuel tank in the reverse order of removal.

### NOTE

- After assembling, make sure there are no fuel leaks.
- Do not overtighten the fuel valve nut.

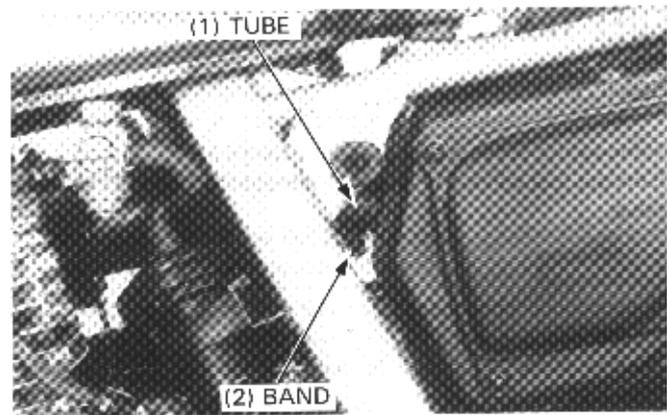


## FUEL SYSTEM

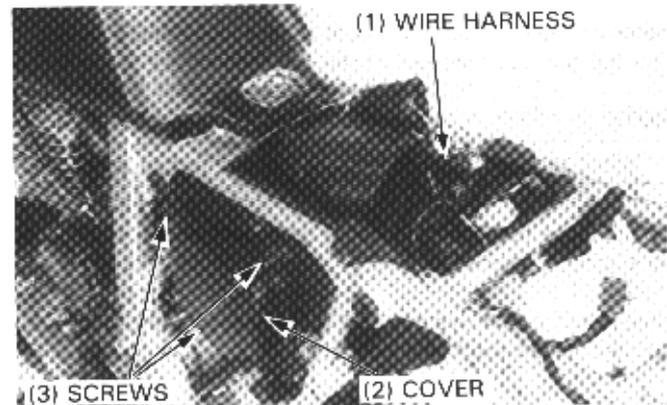
### AIR CLEANER CASE

#### REMOVAL

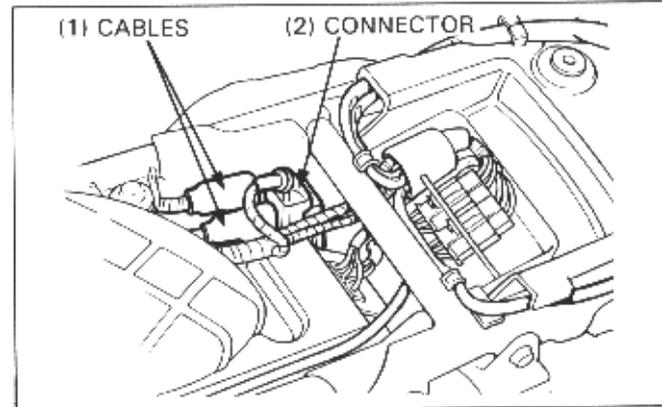
Remove the side covers and seat (page 15-2).  
Remove the rear fender (page 15-5)  
Remove the battery from the air cleaner case (page 16-3).  
Loosen the air cleaner case duct band.  
Disconnect the separator-to-air cleaner case tube.



Disconnect the regulator/rectifier 3P connector. Separate the wire harness from the holder on the air cleaner case.  
Remove the air cleaner element cover by removing three screws.



Disconnect the starter relay switch connector.  
Disconnect the negative and positive battery cables at the starter relay switch.

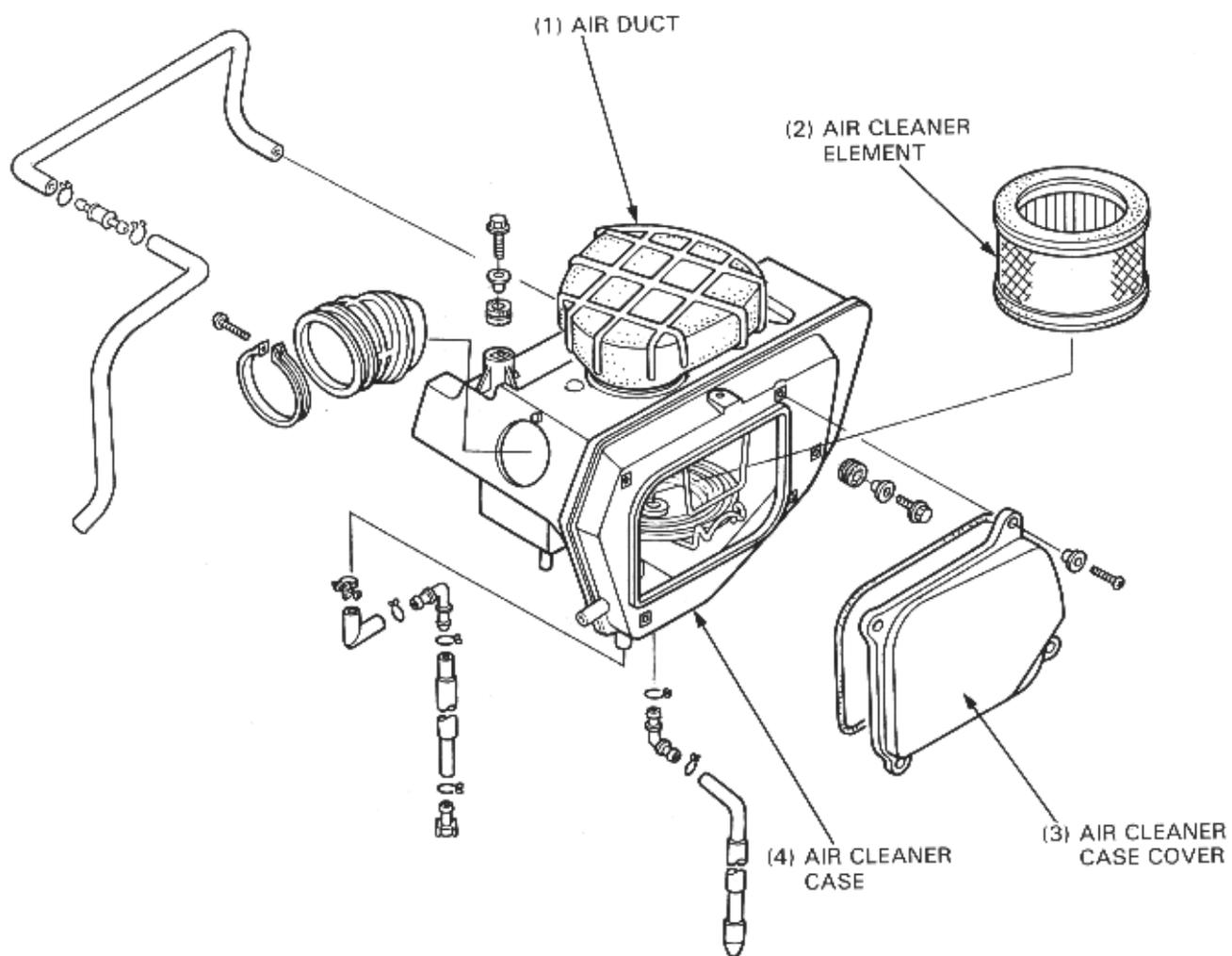


Remove the air cleaner case from the frame as shown.  
Check the air cleaner case for cracks or other damage.  
Refer to page 3-6 for the air cleaner service.



INSTALLATION

Installation is the reverse order of removal.  
Route the wire harness properly (page 1-11 and 12).

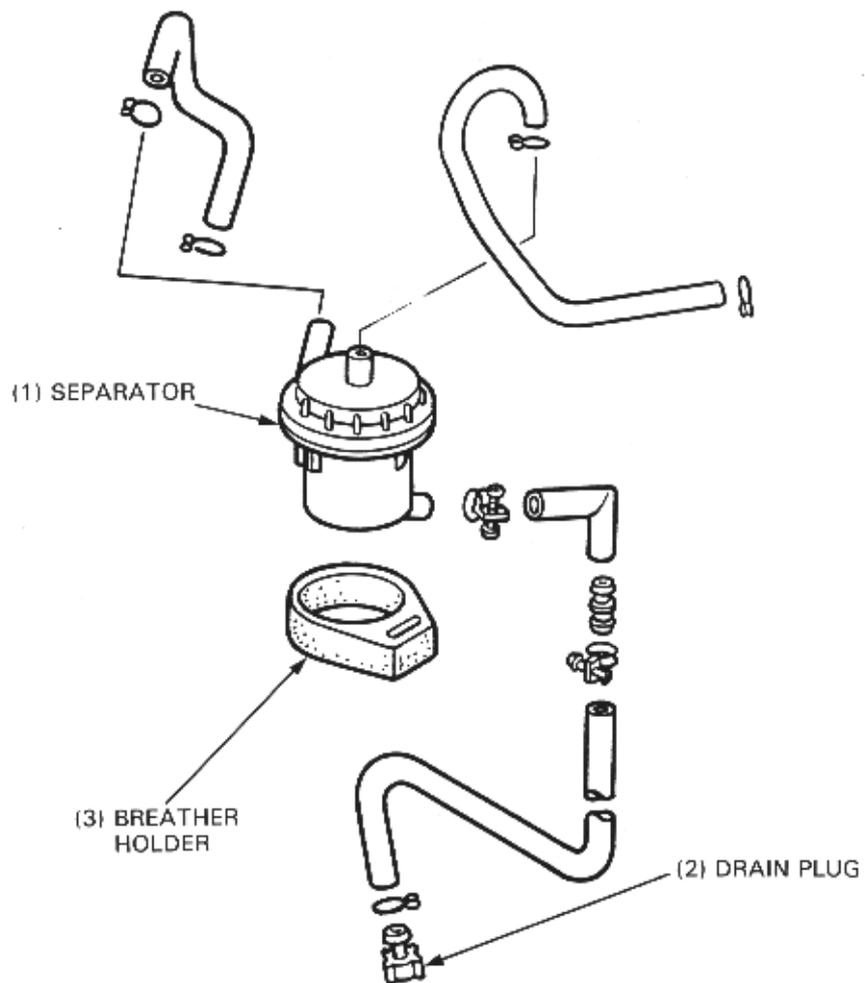


# CRANKCASE BREATHER

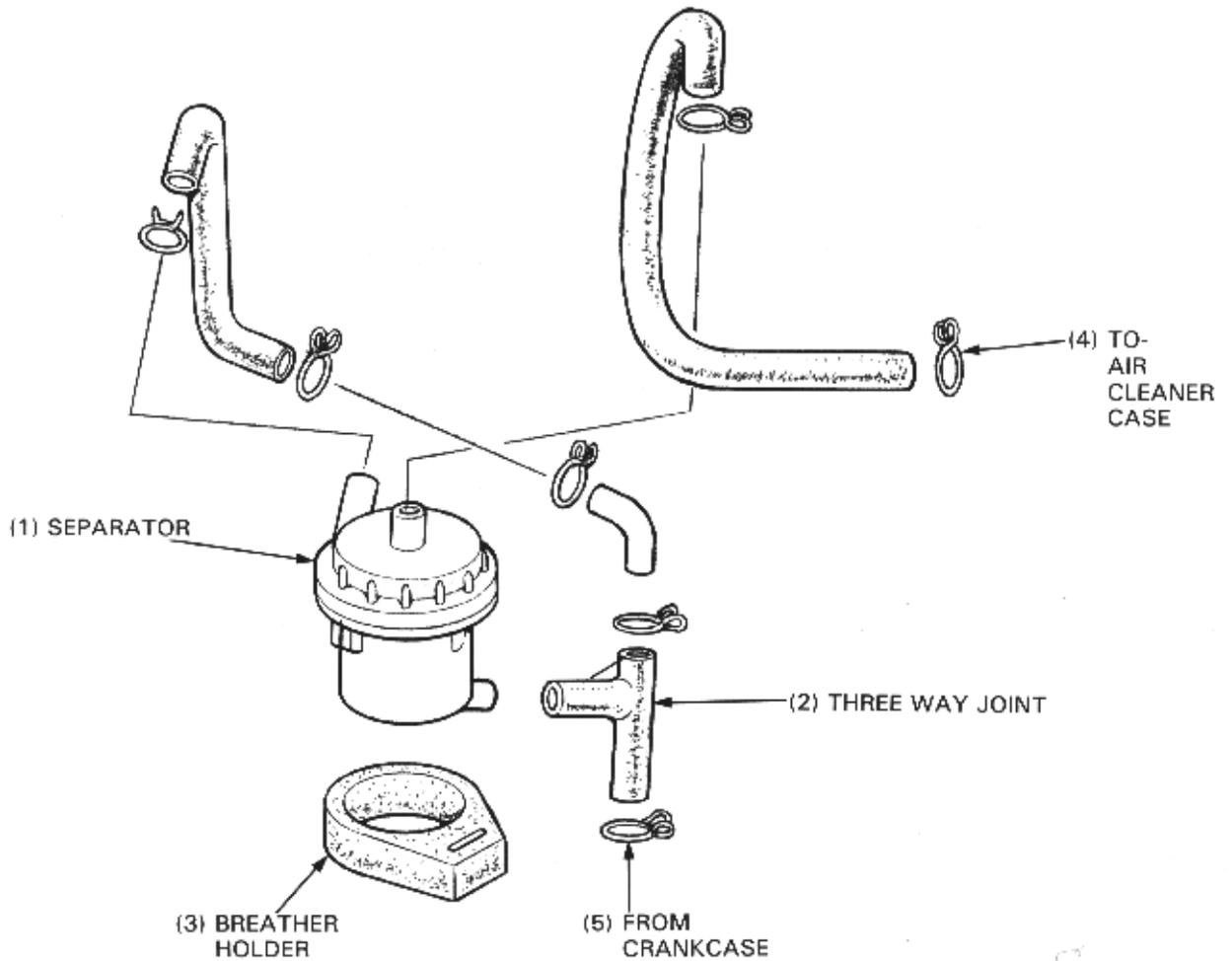
## INSPECTION

Check the crankcase breather tubes for secure connection.  
Check the crankcase breather tubes and separator for damage, cracks, deterioration or blockage.  
Refer to page 1-11 for correct crankcase breather tube routing.

'88:



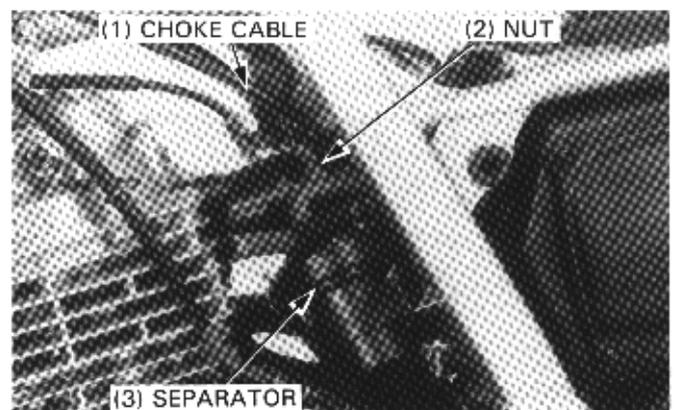
AFTER '88:



## CARBURETOR

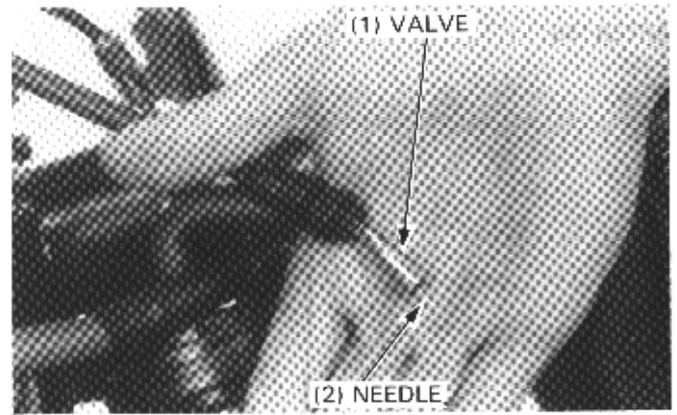
### REMOVAL

Remove the fuel tank (page 4-3)  
 Disconnect the crankcase breather tubes and pull the separator out of the rubber holder.  
 Loosen the nut and disconnect the choke cable at the carburetor.

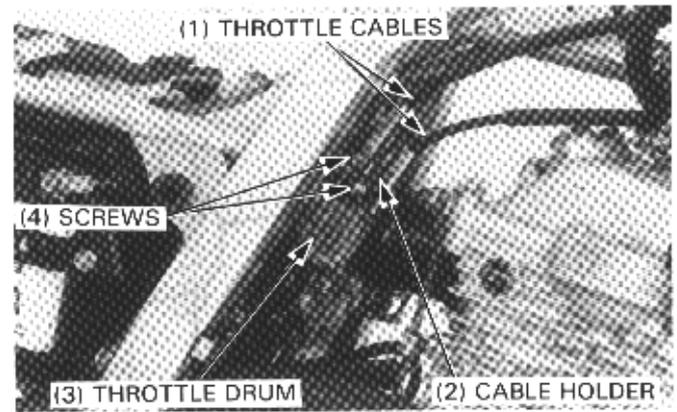


## FUEL SYSTEM

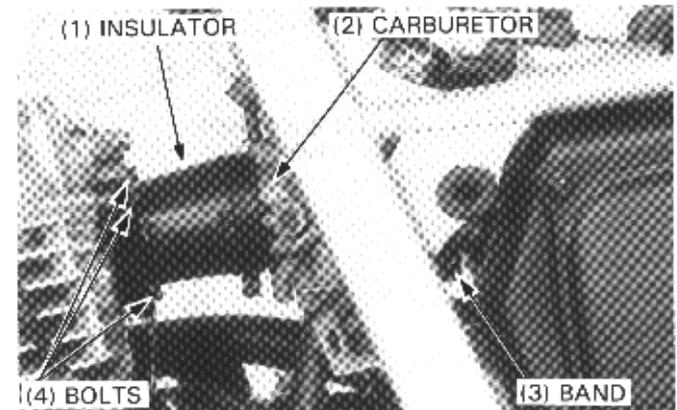
Check the valve and needle for wear or damage.  
If necessary, replace the starter valve.  
Compress the spring into the choke valve nut and remove the choke valve from the choke cable.  
Install a new choke valve in the reverse order of removal.



Remove the throttle cable holder by removing two screws.  
Disconnect the throttle cables from the throttle drum.

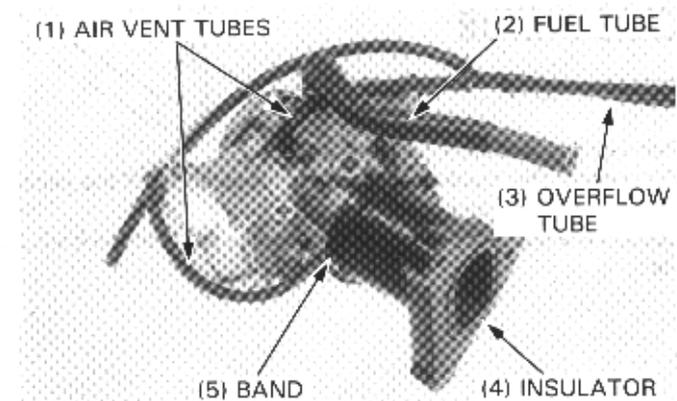


Loosen the air cleaner case duct band.  
Remove the carburetor insulator mounting bolts and remove the carburetor from the left side with the carburetor insulator.

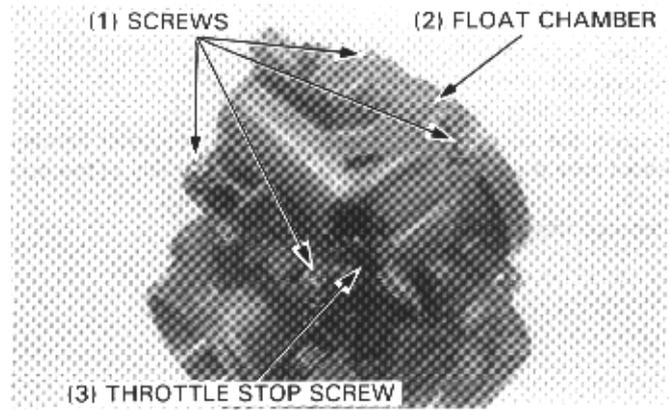


## DISASSEMBLY

Loosen the carburetor insulator band.  
Remove the following parts from the carburetor.  
– Carburetor insulator  
– Fuel tube  
– Air vent tubes  
– Overflow tube

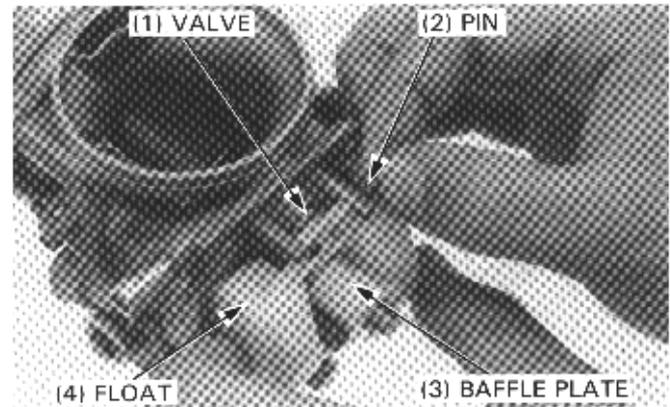


Remove the throttle stop screw.  
Remove the four screws, float chamber and O-ring.

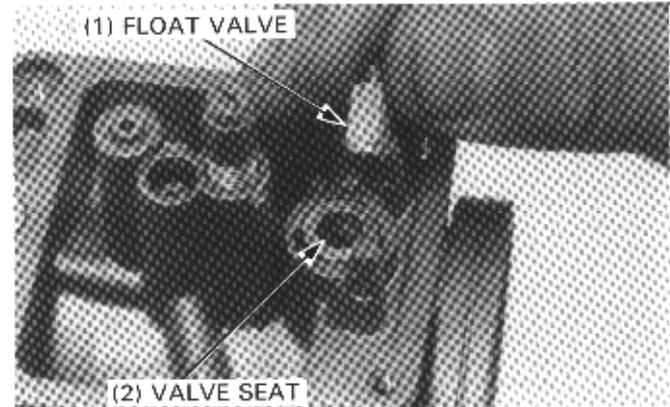


Remove the following.

- float pin
- float
- float valve
- baffle plate



Inspect the float valve and valve seat for wear or damage.



Remove the following.

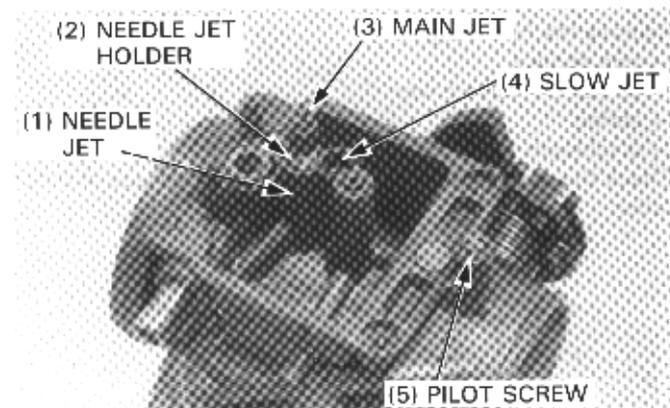
- main jet
- needle jet holder
- needle jet
- slow jet

Turn the pilot screw in and carefully count the number of turns before it seats lightly. Make a note of this to use as a reference when reinstalling the pilot screw.

**CAUTION**

- *Damage to the pilot screw seat will occur if the pilot screw is tightened against the seat.*

Remove the pilot screw.



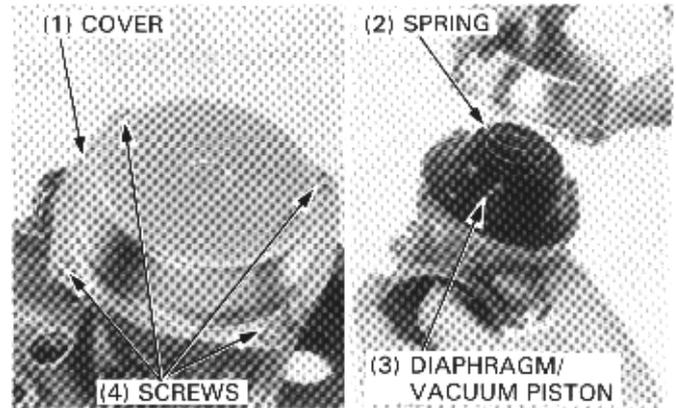
## FUEL SYSTEM

Remove the following.

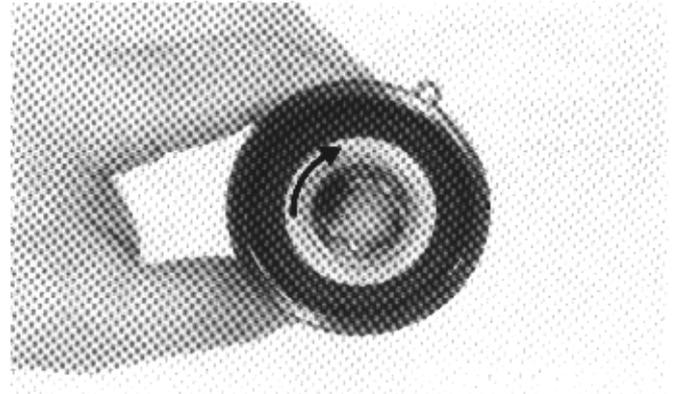
- four screws
- vacuum chamber cover
- compression spring

Inspect the vacuum piston for wear, nicks or other damage. Make sure the piston moves up and down freely in the piston bore.

Remove the diaphragm/vacuum piston.

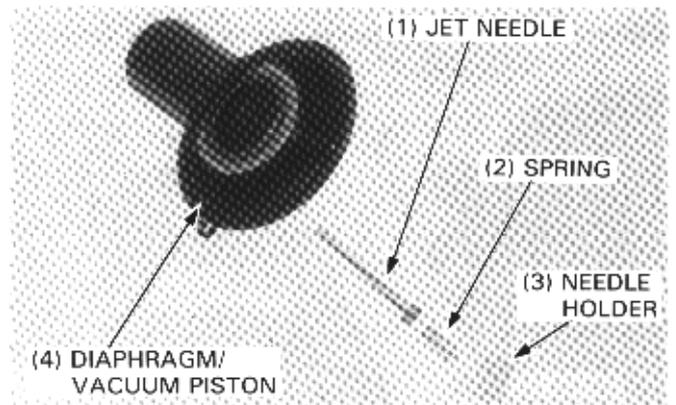


Push the jet needle holder and turn it clockwise 90 degrees with an 8 mm socket. Then remove the needle holder, spring and jet needle from the vacuum piston.



Inspect the jet needle for excessive wear at the tip or other damage.

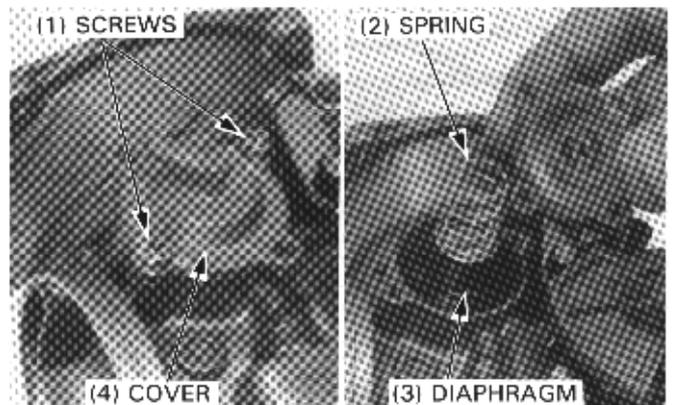
Check for diaphragm for tear or deterioration.



Remove the following.

- two screws
- air cut off valve cover
- spring
- diaphragm

Check the diaphragm and spring for wear, damage or deterioration.



Remove the two screws and carburetor link arm.  
 Draw out the carburetor link shaft with its spring.

Remove

NOTE

Inspect

INITIAL

CAUTION

Do not

Check the link arm and link shaft for bends or other damage.  
 Check the spring and roller for wear or damage.  
 If the linkshaft, spring and roller are dirty, clean them thoroughly.

Inspect

Insert the link shaft with the spring and secure the link arm with two screws.  
 Check the link shaft and arm for smooth operation when turning the throttle drum.

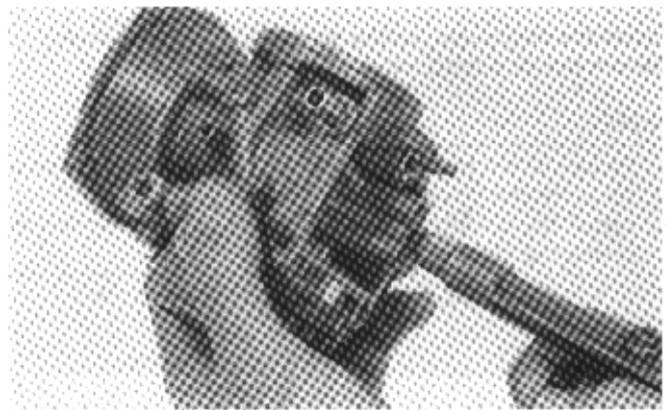
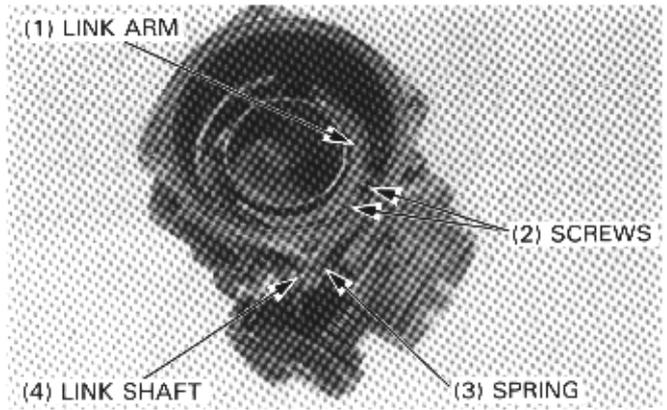
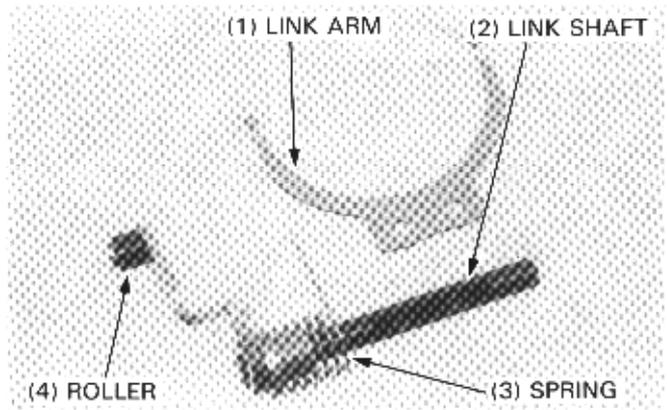
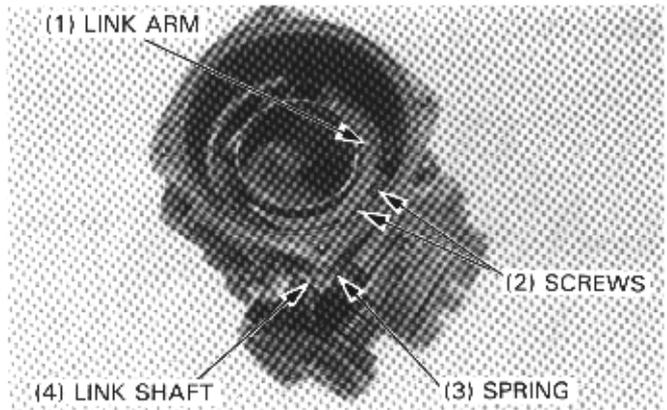
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check

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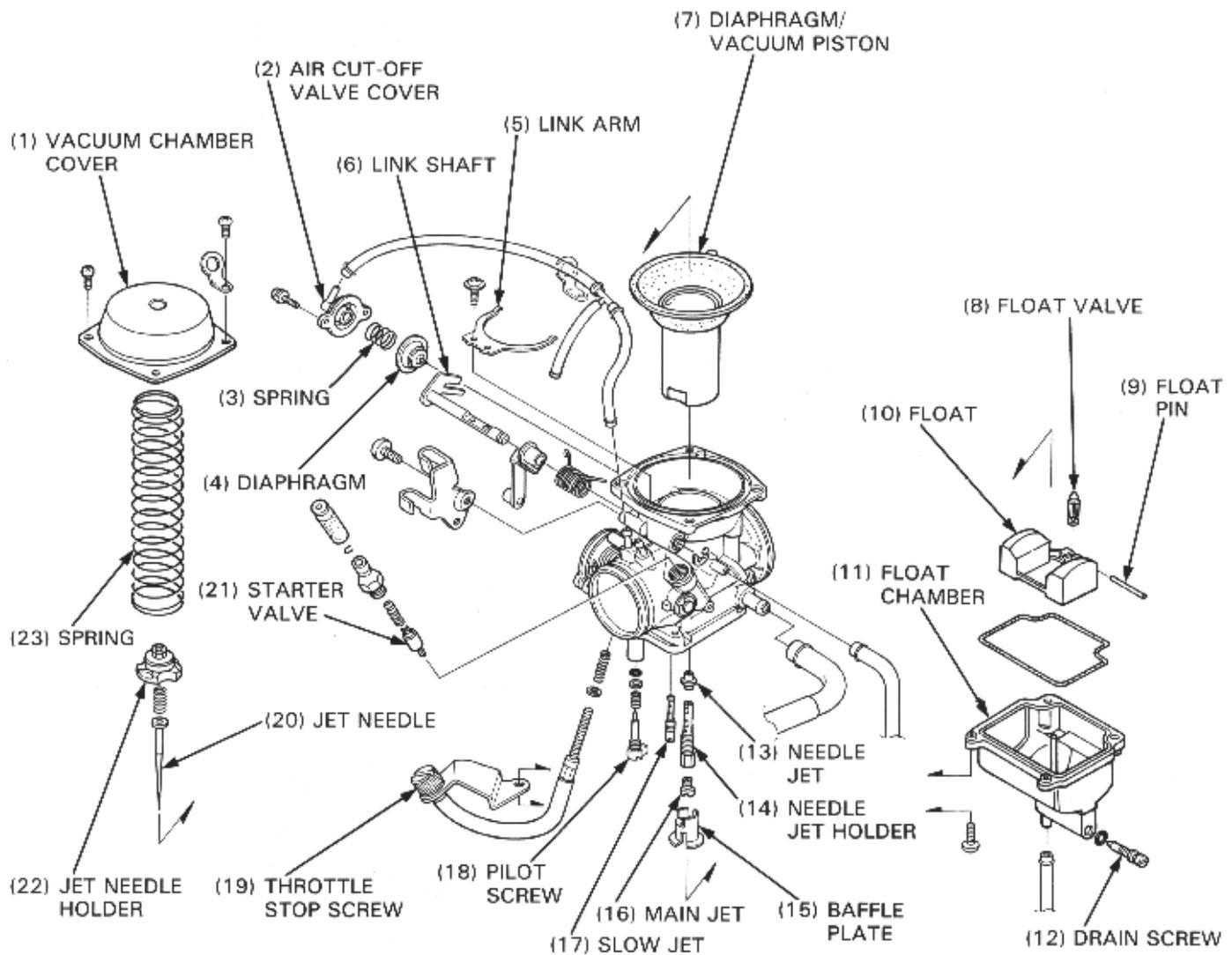
part



Blow compressed air through each jet to be sure it is clean.

## FUEL SYSTEM

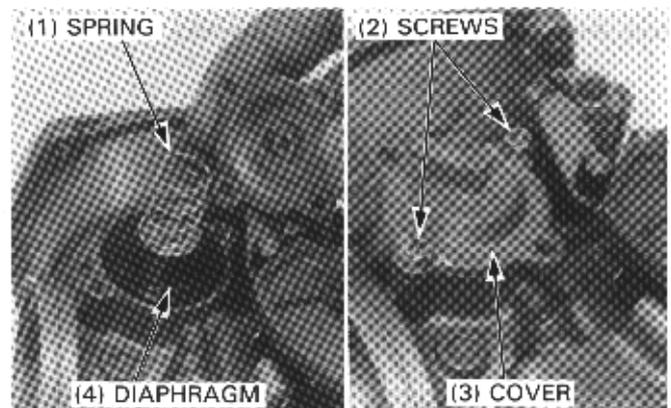
### ASSEMBLY



Install the diaphragm, spring and air cut-off valve cover.  
Secure the air cut-off valve with two screws.

#### NOTE

- Be careful not to pinch the diaphragm between the carburetor body and air cut-off valve cover.
- Install the diaphragm with its valve side (projection side) facing the carburetor body.



Install the pilot screw and screw in until it seats lightly. Return the pilot screw to its original position as noted during removal.

**NOTE**

- Install the pilot screw by referring to the pilot screw adjustment on page 4-17.

**INITIAL OPENING: 3 turns out**

**CAUTION**

- *Damage to the pilot screw seat will occur if the pilot screw is tightened against the seat.*

Install the needle jet, needle jet holder, main jet and slow jet.

Set the float valve into the valve seat.  
Install the float, aligning its tangs with the gap of the float valve.  
Insert the float pin and install the baffle plate.

Set the float level gauge above the main jet perpendicular to the carburetor body edge.  
Incline the carburetor body edge.  
Incline the carburetor slowly and measure the float level when the float tang just contacts the float valve.

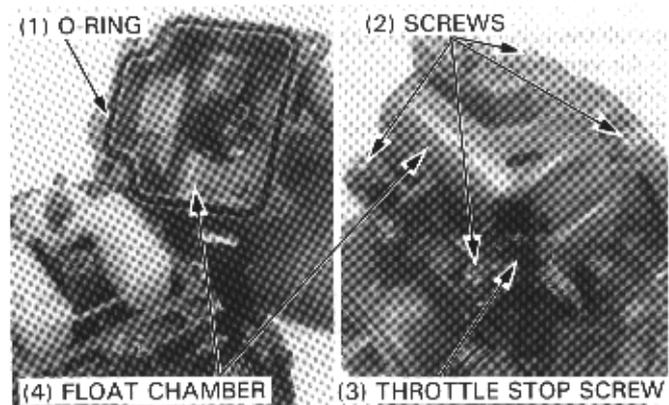
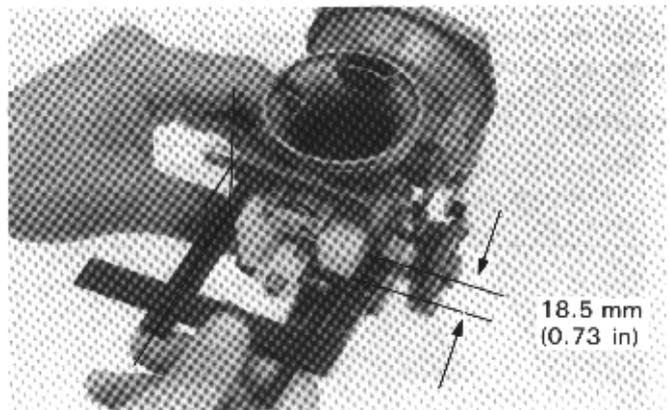
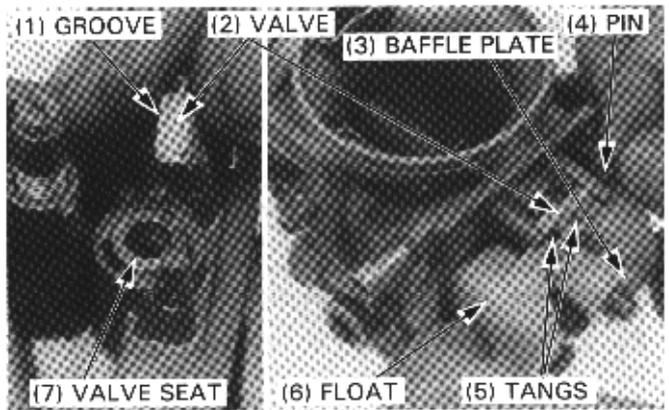
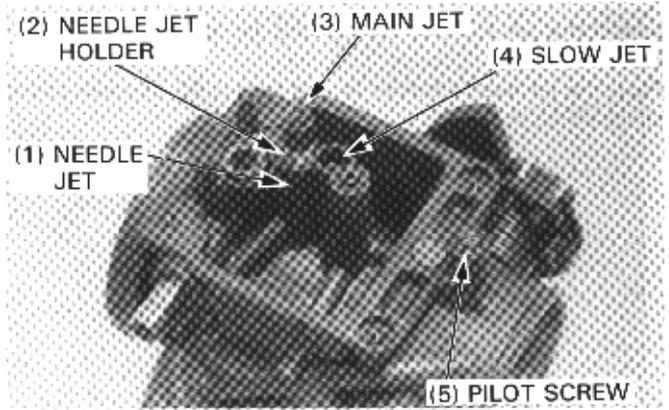
**FLOAT LEVEL: 18.5 mm (0.73 in)**

**TOOL:**

Float level gauge **07401-0010000**

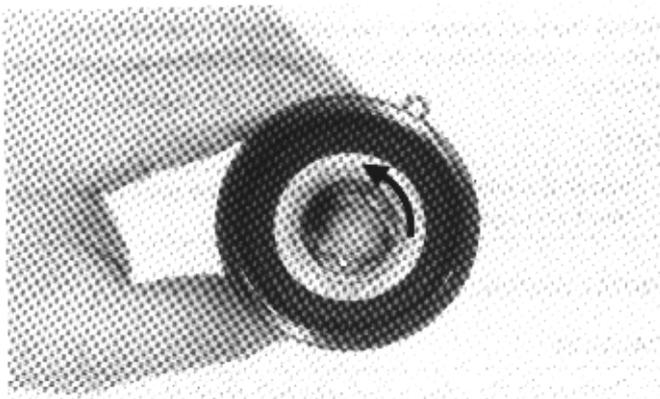
Replace the float if necessary.

Install the float chamber with a new O-ring.  
Secure the float chamber with the four screws.  
Install the throttle stop screw.



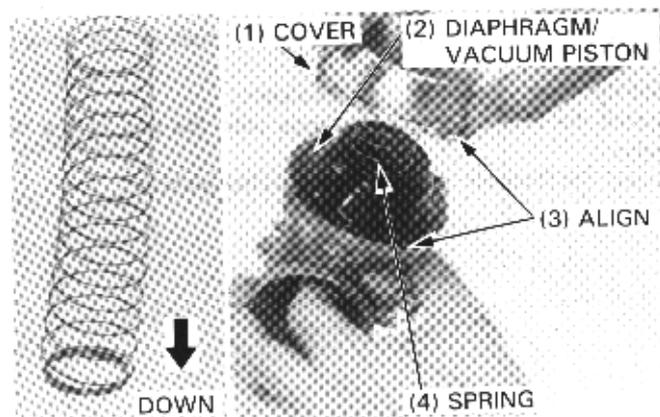
## FUEL SYSTEM

Install the jet needle, spring and jet needle holder to the vacuum piston.  
Push the jet needle holder in and turn it 90 degrees counter-clockwise.



Install the diaphragm/vacuum piston, aligning the tab of the diaphragm with the cut out in the carburetor and with the vacuum piston held up to almost full open so it does not pinch the diaphragm on the chamber cover.

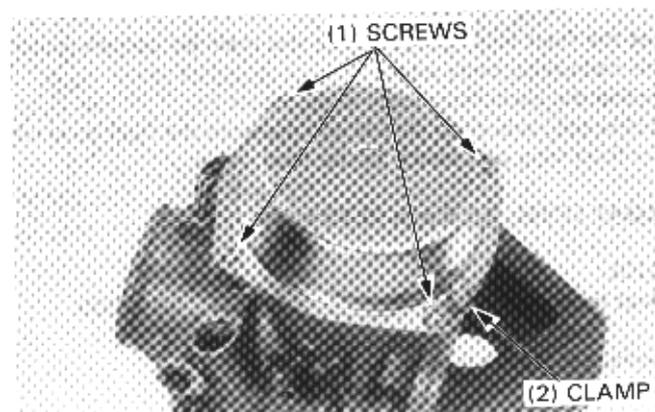
Install the compression spring into the diaphragm/vacuum piston with the tight coil pitch down.  
Install the vacuum chamber cover, aligning the groove in the cover with the tab of the diaphragm, and secure the cover with at least two screws before releasing the vacuum piston.



Install the remaining screws and secure the vacuum chamber cover by tightening the screws.

### CAUTION

- Do not pinch the diaphragm on the vacuum chamber cover.
- Tighten one screw with the tube clamp noting its position as shown.



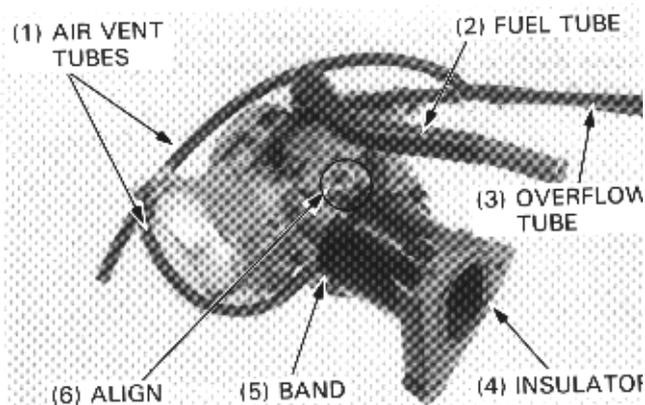
Install the following parts to the carburetor.

- Air vent tubes
- Overflow tube
- Fuel tube

### NOTE

- Secure each tube end with a tube clip.

Install the carburetor insulator, aligning its tabs with the projection on the carburetor, and tighten the insulator band securely.

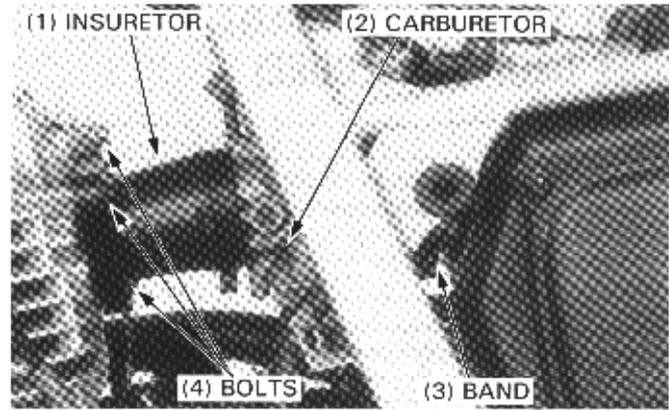


**INSTALLATION**

From the left side, install the carburetor with the carburetor insulator.

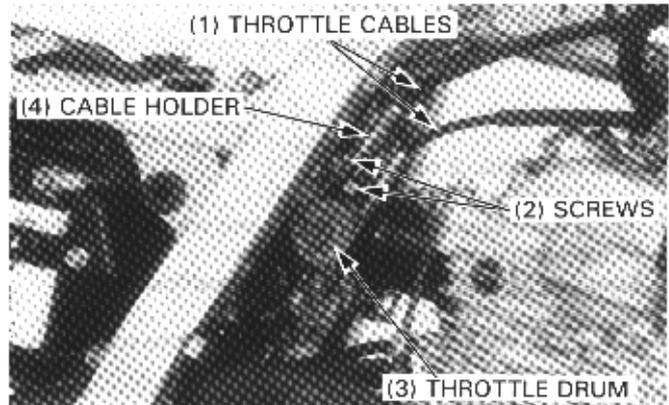
Insert the carburetor intake bore into the air cleaner case duct, and tighten the duct band securely.

Secure the carburetor insulator onto the cylinder head with three bolts.



Connect each throttle cable to the throttle drum.

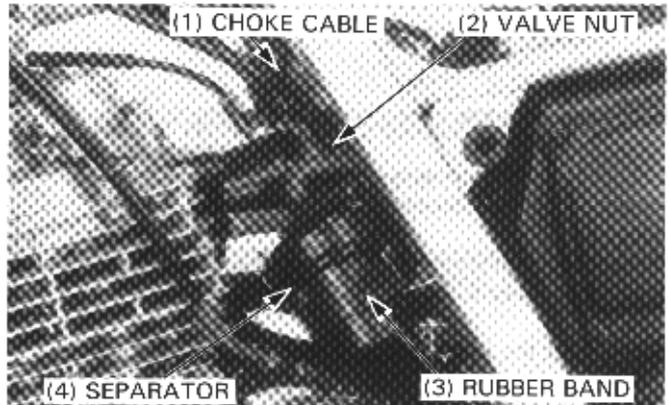
Secure the cable holder on the carburetor with two screws.



Connect the choke cable to the carburetor, and tighten the choke valve nut.

Install the separator into the rubber band, and connect the crankcase breather tubes.

Secure each tube end with tube clip.



Route the air vent tube, overflow tube correctly, referring to page 1-11.

Install the following parts.

- Fuel tank (page 4-3)
- Seat, side covers (page 15-2)

After installation adjust the following.

- throttle grip free play (page 3-4)
- carburetor idle speed (page 3-8)

Start the engine, and check for inhaling air around the carburetor.

## PILOT SCREW ADJUSTMENT (IDLE DROP PROCEDURE)

### NOTE

- The pilot screw is factory preset and no adjustment is necessary unless the pilot screw is replaced (see page 4-8) for removal.

### CAUTION

- *Any forcible attempt to remove the pilot screw limiter cap will cause screw breakage.*

1. Turn the pilot screw clockwise until it seats lightly and back it out to the specification given.  
This is an initial setting prior to the final pilot screw adjustment.

### INITIAL OPENING: 3 turns out

2. Install the carburetor (page 4-15) and warm the engine up to the normal operating temperature.  
Stop and go riding for 10 minutes is sufficient.

3. Adjust the idle speed by turning the throttle stop screw.

### IDLE SPEED: 1,300 ± 100 rpm

4. Turn the pilot screw in or out slowly to obtain the highest engine speed.

5. Readjust the idle speed with the throttle screw.

6. Turn the pilot screw in gradually until the engine drops 100 rpm.

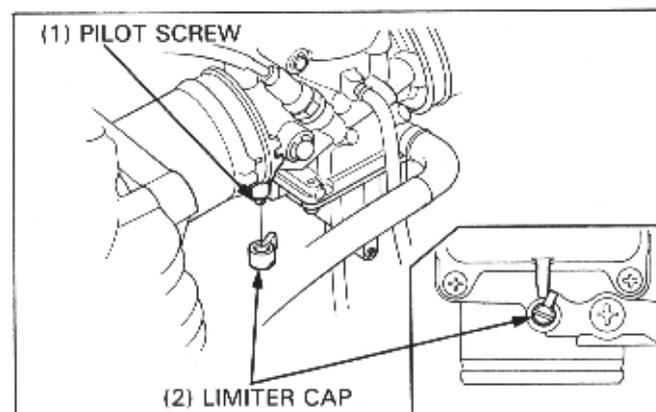
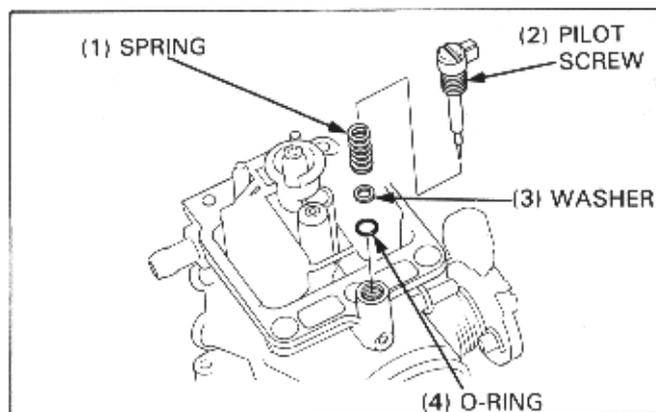
7. Turn the pilot screw 1-1/2 turns open from the position obtained in step 6.

8. Readjust the idle speed with the throttle stop screw.

9. Apply Loctite 601 or equivalent to the inside of the limiter cap. Install the limiter cap onto the pilot screw so that its tab rests against the float chamber stop so it can be turned clockwise only. This will prevent adjustment in the counter-clockwise direction which richens the fuel mixture.

### NOTE

- Be careful not to turn the pilot screw when installing the limiter cap.



## HIGH ALTITUDE ADJUSTMENT (U.S.A. ONLY)

When the vehicle is to be operated continuously above 2,000 m (6,500 feet), the carburetor must be readjusted as follows to improve driveability and decrease exhaust emissions. Warm up the engine to operating temperature. Stop and go driving for 10 minutes is sufficient. Turn the pilot screw clockwise 1/2 turn <California type 1/2 turn>.

Adjust the idle speed to specification, with the throttle stop screw.

**IDLE SPEED: 1,300 ± 100 rpm**

### NOTE

- This adjustment must be made at high altitude to ensure proper high altitude operation.

Attach the Vehicle Emission Control Information Update label as shown. See SL#132 for information on obtaining the label.

### NOTE

- Do not attach the label to any part that can be easily removed from the vehicle.

### ▲ WARNING

- Operation at an altitude lower than 1,500 meters (5,000 feet) with the carburetors adjusted for high altitudes may cause the engine to idle roughly and stall.

When the vehicle is to be operated continuously below 1,500 meters (5,000 feet); turn the pilot screw counterclockwise 1/2 turn to its original position and adjust the idle speed to specification.

Be sure to do this adjustments at low altitude with the engine at normal operating temperature.

## PURGE CONTROL VALVE INSPECTION (California model)

### NOTE

- The purge control valve should be inspected if hot restart is difficult.

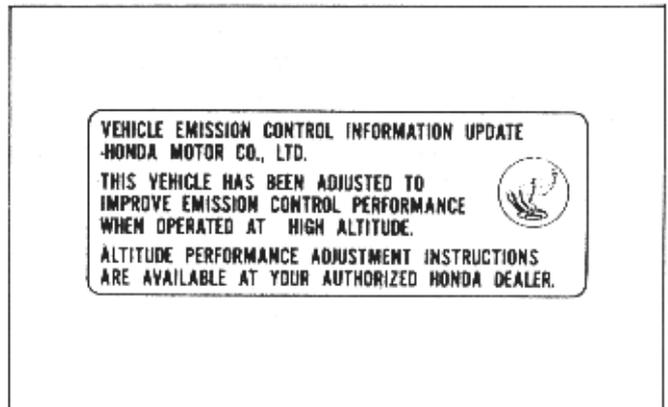
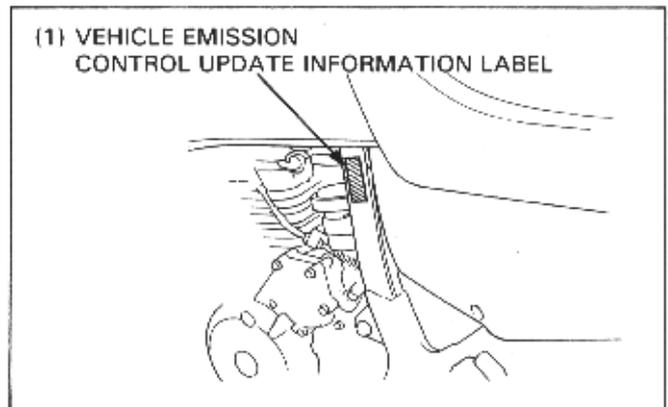
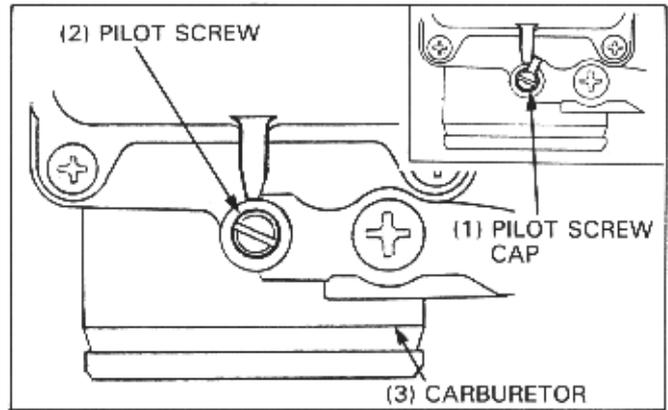
Check all fuel tank, Purge Control Valve (PCV) and charcoal filter hoses to be sure they are not kinked and are surely connected. Replace any hose that shows signs of damage or deterioration.

### NOTE

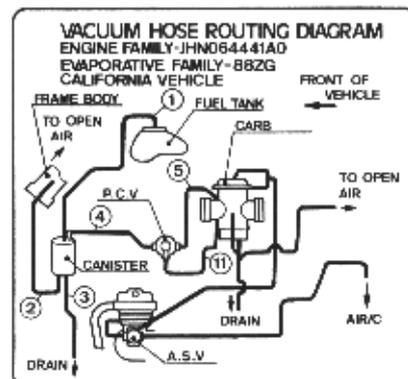
- The PCV is located above the breather separator.

Remove the fuel tank (page 4-3).

Disconnect the PCV hoses from their connections and remove the PCV from its mount. Refer to the routing level on the inside of the left side cover.



'88: SHOWN, AFTER '88: Similar



## FUEL SYSTEM

Connect the vacuum pump to the 4.5 mm (0.18 in) I.D. hose that goes to the carburetor body. Apply the specified vacuum to the PCV.

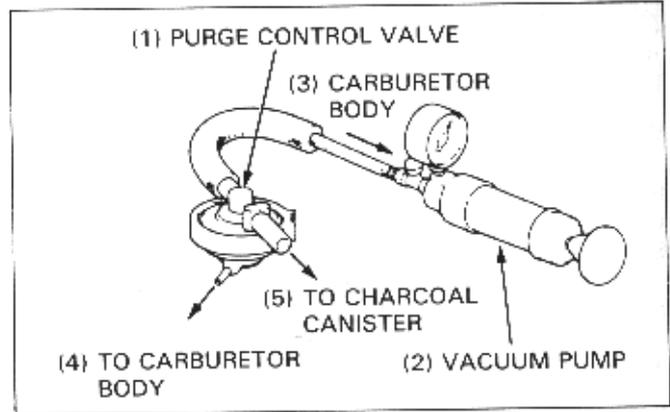
**SPECIFIED VACUUM: 250 mm (9.8 in) Hg**

The specified vacuum should be maintained.  
Replace the PCV if vacuum is not maintained.

**TOOL:**

Vacuum/Pressuer pump  
Vacuum pump

A937X-041-XXXXX or  
ST-AH-260-MC7  
(U.S.A. only)



Remove the vacuum pump and connect it to the vacuum hose that goes to the carburetor body.  
Apply the specified vacuum to the PCV.

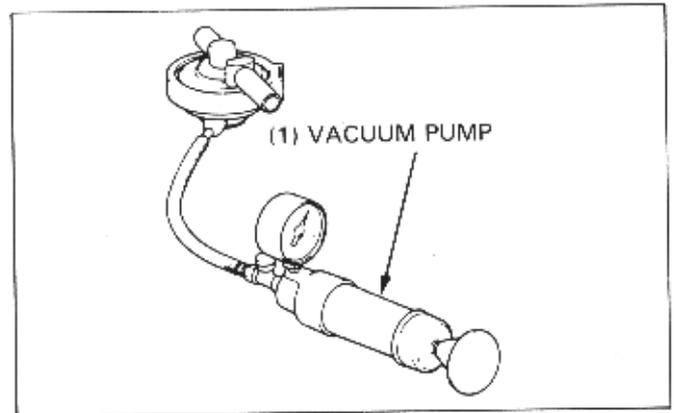
**SPECIFIED VACUUM: 250 mm (9.8 in) Hg**

The specified vacuum should be maintained.  
Replace the PCV if vacuum is not maintained.

**TOOL:**

Vacuum/Pressure pump  
Vacuum pump

A937X-041-XXXXX or  
ST-AH-260-MC7  
(U.S.A. only)



Connect a pressure pump to the 8 mm (0.31 in) I.D. hose that goes to the charcoal canister. While applying the specified vacuum to the PCV hose that goes to the carburetor body, pump air through the canister hose.  
Air should flow through the PCV and out the hose that goes to the carburetor body.  
Replace the PCV if air does not flow out.

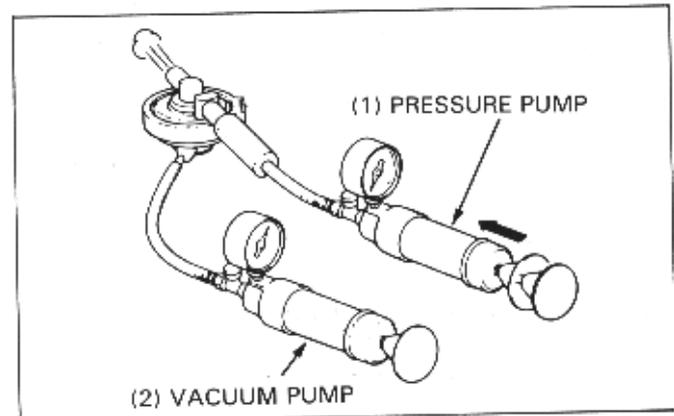
**CAUTION**

- To prevent damage to the purge control valve, do not use high air pressure sorses. Use a hand operated air pump only.

**TOOL:**

Vacuum/Pressure pump  
Vacuum pump  
Pressure pump

A937X-041-XXXXX or  
ST-AH-260-MC7  
ST-AH-255-MC7  
(U.S.A. only)



Remove the pumps, install the PCV its mount, route and re-connect the hoses according to the routing label.

## SECONDARY AIR SUPPLY SYSTEM (California model)

### SYSTEM INSPECTION

Start the engine and warm it up the normal operating temperature.  
Disconnect the secondary air intake hose from the air chamber.

Check the secondary air intake port is clean and free of carbon deposits.

Check the secondary air intake hose for clogging, deterioration or damage and replace if necessary.  
Check the reed valve in the air suction valve (ASV) if the intake hose or supply hose is damaged by exhaust gas.  
Connect the vacuum pump to the vacuum tube.

**TOOL:**

Vacuum/Pressure pump  
Vacuum pump

A937-041-XXXXX or  
ST-AH-260-MC7  
(U.S.A. only)

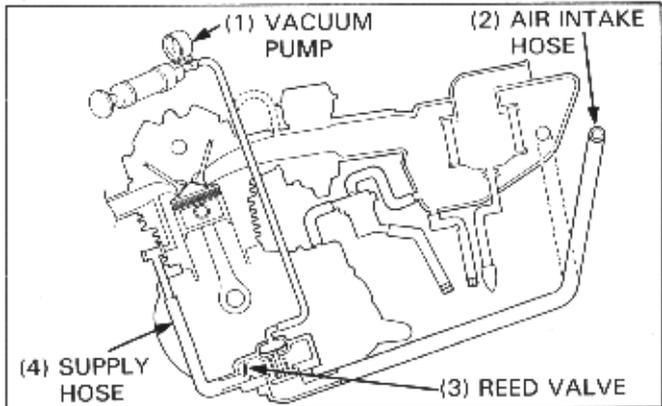
Start the engine and open the throttle slightly to be certain that air is sucked in through the air intake hose.  
If air is not drawn in, check the air supply hose and vacuum tube for clogging.

With the engine running, gradually vacuum to the ASV.  
Check the air intake hose stops drawing air, and that vacuum does not bleed.

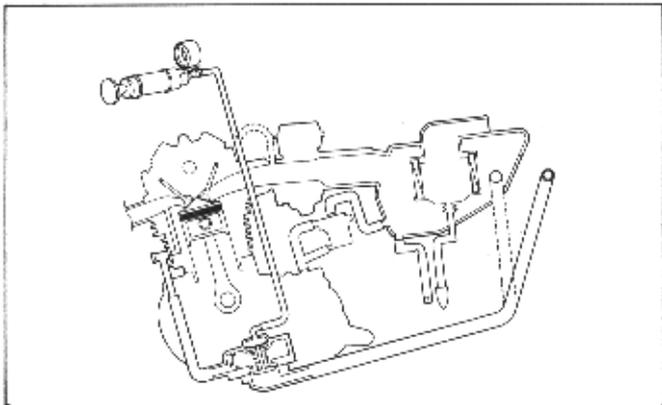
**SPECIFIED VACUUM: 300–360 mm (11.8–14.2 in) Hg**

If air is still drawn in, if the specified vacuum is not maintained, replace the ASV with a new one.  
If afterburn occurs on deceleration, even when the secondary air supply system is normal, check the air cut off valve for correct vacuum operation.

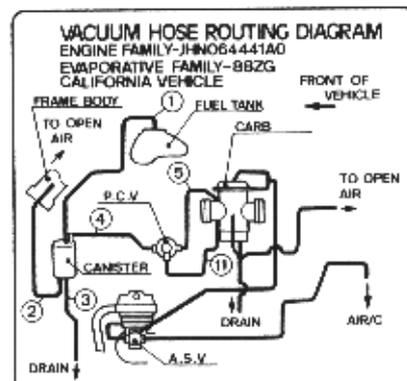
'88:



AFTER '88:



'88: SHOWN, AFTER '88: Similar



## FUEL SYSTEM

### REED VALVE INSPECTION

Disconnect the air supply hoses from the reed valve cover of the ASV.

Disconnect the vacuum tube and air intake hose from the ASV and remove the ASV mounting bolts and ASV.

Check the reed valve for damage or wear, and replace if necessary.

Replace the reed valve with a new one if the seat rubber is cracked or damaged, or if there is any clearance between the seat rubber and valve.

#### CAUTION

- Do not disassemble the reed valve assembly or bend the reed stopper.
- If the stopper, reed or seat is faulty, replace the reed valve as an assembly.

Assemble and install the ASV in the reverse order of disassembly/removal.

#### NOTE

- After installing, make sure the air and vacuum tubes are correctly connected (page 1-11 and 1-14).

