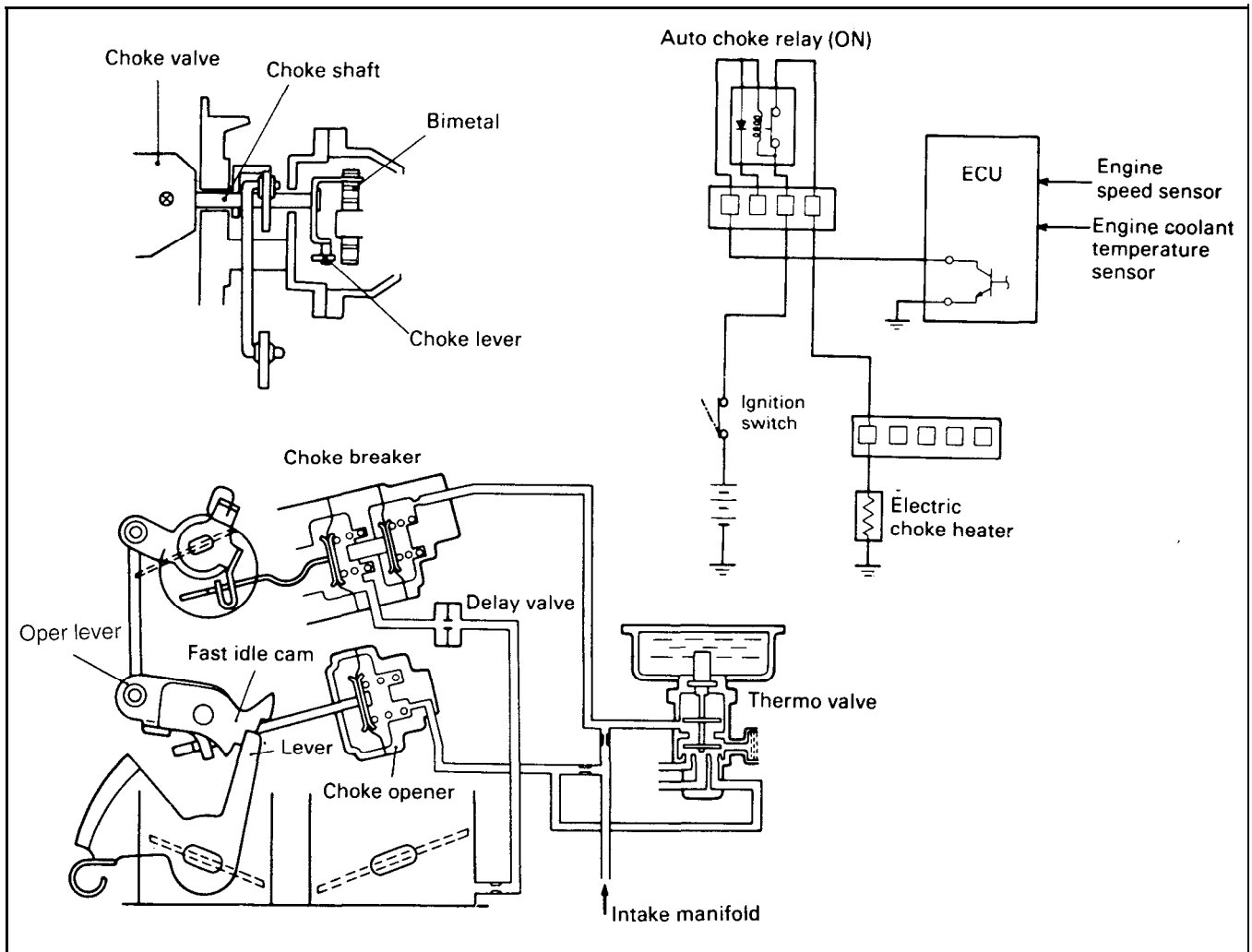


### Electric Auto Choke System

In the carburetor electric choke system, a bimetal choke spring is heated by an electric heater (PTC heater\*).

As the bimetal spring is heated by the heater after start-up, the bimetal opens the choke valve gradually by thermal expansion and pushes down the stopper lever.

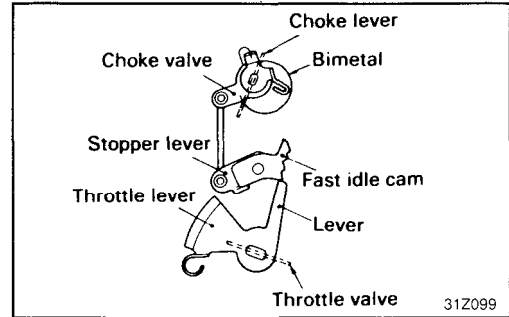
The lower the temperature when the engine is started, the tighter the bimetal closes the choke valve, thus improving at cold weather starting.



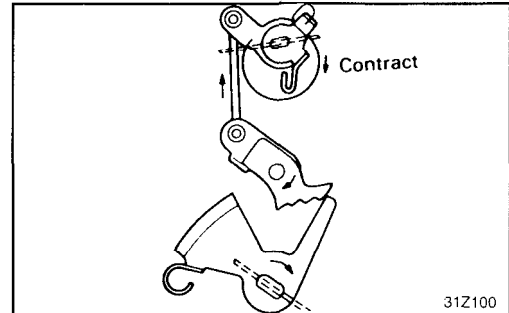
\*PTC heater : Positive Temperature Coefficient heater

## 1. Choke Valve and Fast Idle Cam Operation

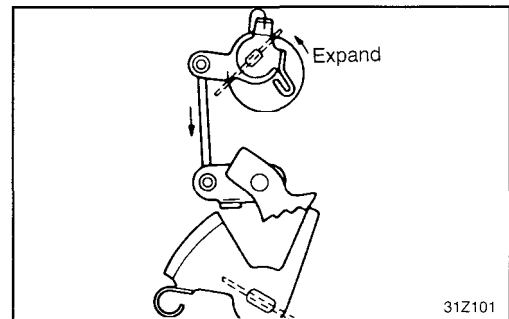
- 1) Before starting the engine, the throttle valve is in normal idle opening state.



- 2) Before starting the engine, depress the accelerator pedal to the floor, and the fast idle cam will turn clockwise. Release the accelerator pedal, and the lever will ride on the fast idle cam and the throttle valve will open.
- 3) When the engine starts, the intake manifold vacuum is applied to the choke breaker to slightly open the choke valve, preventing a rich air-fuel mixture.

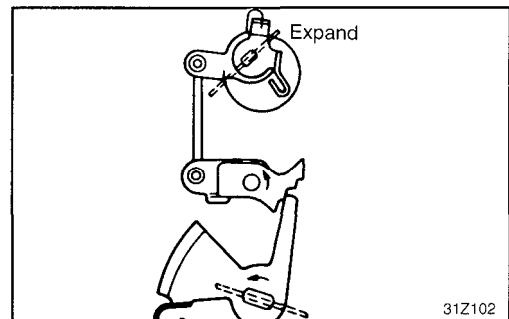


- 4) Shortly after starting of engine, the bimetal is heated by the heater and expands to open the choke valve gradually and push down the stopper lever. At this time, the engine speed increases gradually.



- 5) Depress the accelerator pedal, and the fast idle cam will turn counterclockwise. Release the accelerator pedal and the lever will ride on the lower step of fast idle cam and the throttle valve will close slightly, decreasing the engine speed. After warming up the engine for a while, depress the accelerator pedal and the throttle valve will be further closed.

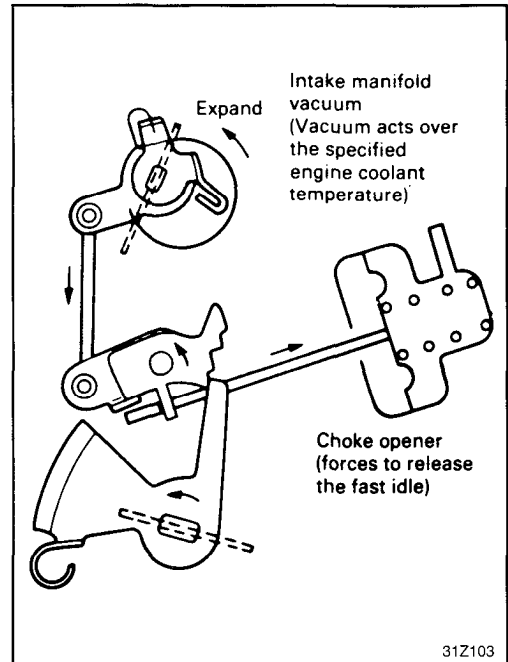
By repeating this procedure, the fast idle cam is released and the throttle valve comes to have a normal idle opening.



## 2. Operation of Choke Opener

If the engine has been started with the throttle valve lever on the highest fast idle cam step then the engine speed will increase with the engine coolant temperature. This results in the engine overrun. In order to prevent such overrun, the choke opener is provided.

- 1) When the thermo valve closes as the engine coolant temperature rises [65°C (149°F)], the intake manifold vacuum acts on the fast idle breaker.
- 2) The fast idle breaker forces the fast idle cam to counter clockwise so that the lever will rest on the lowest detent of cam, closing the throttle valve to decrease the engine speed.

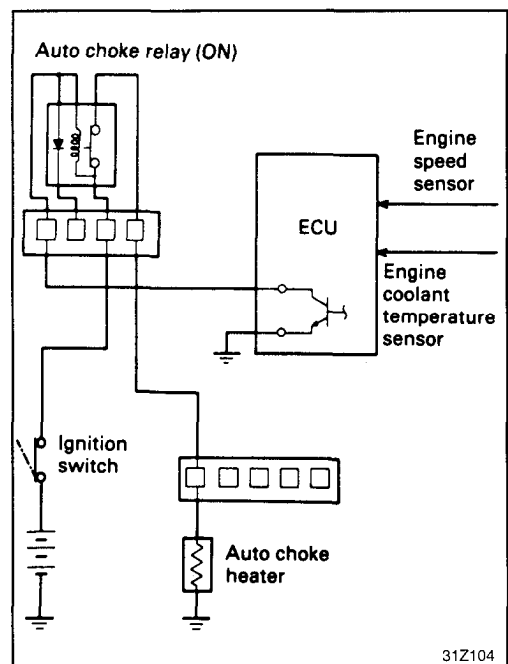


31Z103

## 3. Electric Auto Choke Relay

The electric choke relay is normally closed (ON) and it opens when its coil is energized.

During engine cranking or for approx. 80 seconds at an engine coolant temperature of -10 to 18°C (-14 to 64°F), the ECU energizes the electric choke relay coil. This prevents heating of the electric choke heater, until the engine has started.



31Z104

## SERVICE ADJUSTMENT PROCEDURES

### FBC SYSTEM

#### Inspection

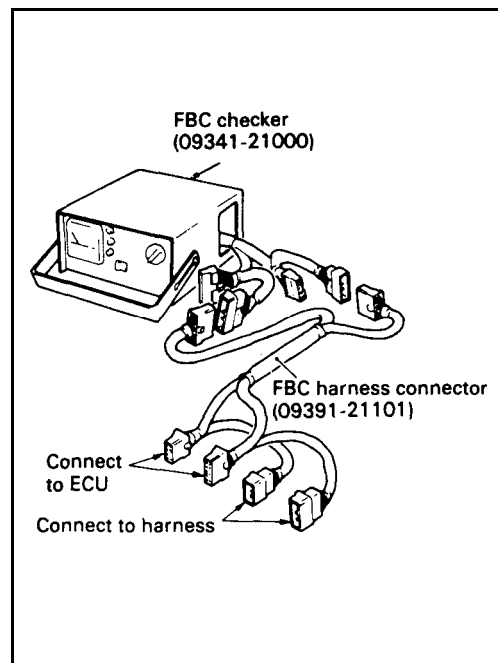
If FBC system components (sensors, carburetor control unit-computer, solenoid, etc.) fail, one of the following situations may be encountered.

1. Engine is hard to start or does not start at all.
2. Unstable idle.
3. Poor driveability.

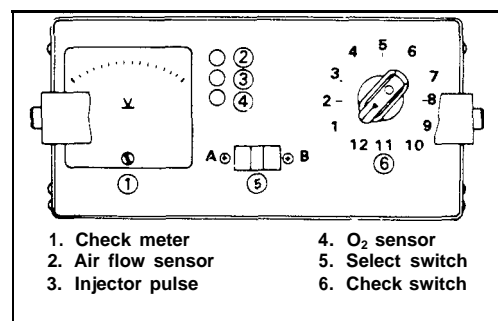
If any of above conditions is noted, first perform basic engine checks (ignition system malfunctions, incorrect engine adjustment, etc.). The FBC system can be checked by use of FBC checker and FBC harness connector. Inspection procedure is as follows.

#### CAUTION

- 1) Before battery terminals are disconnected, make sure that ignition switch is OFF. If battery terminals are disconnected while engine is running or when ignition switch is in ON position, malfunction of computer could result.
- 2) Disconnect battery cables before charging battery.
- 3) When battery is connected, be sure not to reverse polarity.
- 4) Make sure that harness connectors are securely connected. Take care not to allow entry of water or oil into connectors.



1. Turn ignition switch to OFF.
2. Remove the harness connector "A" (13 poles) and connector "B" (7 poles) from carburetor control unit (computer).
3. Set check switch of FBC checker to OFF.
4. Set select switch of checker to A.
5. Connect the FBC harness connector to the connectors of FBC checker, and then connect FBC harness connector to carburetor control unit and harness connectors. Place FBC checker on front passenger's seat.
6. Perform checks according to the "FBC System Check Procedure Chart".
7. If check shows any departure from specifications, check corresponding sensor and related electrical wiring, repair or replace.
8. After repair or replacement, recheck with FBC checker to confirm that repaired or replaced parts is performing well.
9. Set check switch of FBC checker to OFF.
10. Turn the ignition switch to OFF.
11. Disconnect connectors of FBC checker and FBC harness connector from carburetor control unit and body side harness connectors.
12. Connect body side harness connector to carburetor control unit.



## Check Procedure Chart

FBC checker setting		Check item	ECU Terminal # checked	Condition		Test specification	
Select switch	Check switch						
“A”	1	Power supply A-2	8 (C60-1)	Ignition switch “LOCK” “ON”		11V-13V	
	2	Spark advance control A-13 solenoid valve	3 (C60-1)	Idling (warm engine)		0V-0.6V	
				Start engine. Drive vehicle at a speed higher than 8 km/h (5 mph), then hold 2,000 rpm (warm engine)		13V-15V	
	3	Throttle position B-9 sensor (TPS)	3 (C60-2)	Ignition switch “LOCK” “ON” (warm engine)	Accelerator fully closed	0.4V-0.7V	
					Accelerator fully opened	4.5V-5.5V	
	4	Engine coolant B-3 temperature sensor	8 (C60-2)	Ignition switch “LOCK” ; “ON”	0°C (32°F)	3.4V-3.6V	
					20°C (68°F)	2.4V-2.7V	
					40°C (104°F)	1.5V-1.8V	
					80°C (176°C)	0.5V-0.7V	
	5						
	6	Vacuum switch for A-6 idle position	13 (C60-1)	Ignition switch “LOCK” ; “ON”		9V-13V	
				Idling (warm engine)		0V-0.6V	
	7	Idle up (throttle opener) A-12 control solenoid valve	2 (C60-1)	Idling	Power steering switch ON or lighting switch ON	0V-0.6V	
				2,000 rpm		9V-15V	
	8	Electric choke relay A-	4 (C60-1)	Ignition switch “LOCK” ; “ON”		0V-0.6V	
				Idling		13V-15V	
	9	Air conditioner cut-off A-8	11 (C60-1)	Ignition switch “LOCK” ; “ON” and air conditioner switch “ON” *1	Accelerator fully closed	0V-0.6V	
					Accelerator fully opened	M/T	0V-0.6V
A/T						13V-15V	
10	Power supply for B-1 sensor	16 (C60-1) 17 (C60-1)	Ignition switch “LOCK” ; “ON”		4.5V-5.5V		
11							
12	Secondary air control A-9 solenoid valve	10 (C60-1)	Idling, 70 seconds after start of warm engine		0V-0.6V then 13V-15V		
			Quick deceleration from above 2,000 rpm to idling with gear in “N” position		Momentarily drop		

\*1 : ON means compressor clutch engaged

FBC checker setting		Check item	ECU	Condition	Test specification
Select switch	Check switch		Terminal # checked		
	1				
	2	Feed back solenoid valve (FBSV)	1 (C60-1)	Ignition switch "LOCK" "ON"	11V-13V
				Idling (warm engine)	2V-12V
	3				
	4	Ignition pulse	5 (C60-1)	Ignition switch "LOCK" "START"	2V-8V
	5				
	6				
	7	Slow cut solenoid valve	9 (C60-1)	Idling	0V-0.6V
				Quick deceleration from above 4,000 rpm to idle with transaxle in position	Momentarily 13V-15V
	8	Oxygen sensor	6 (C60-2)	Hold speed constant above 1,300 rpm, 70 seconds after start of warm engine	0V-1V (Pulsates) 2V-3V
	9				
	10				
	11				
	12				

## SERVICE ADJUSTMENT PROCEDURES

### IDLE SPEED CHECK AND ADJUSTMENT

#### Checking Conditions:

- o Engine coolant temperature is 80 to 95°C (176 to 205°F).
- o Engine lubricant temperature is over 80°C (176°F).
- o Lights, electric cooling fan and all accessories are off.
- o Transaxle is in neutral.
- 1. Set timing light and tachometer.
- 2. Start the engine and let it idle.
- 3. Check the basic ignition timing and adjust if necessary.

Ignition timing . . . . . BTDC  $5^{\circ} \pm 1^{\circ}$

#### NOTE

When the basic ignition timing is to be adjusted at a high altitude, disconnect the vacuum hose (yellow stripe hose) from the distributor sub-vacuum chamber and temporarily close the disconnected hose end with an appropriate plug.

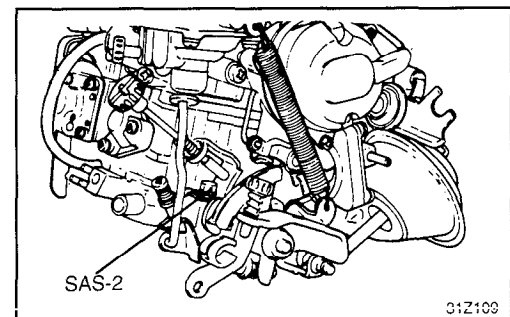
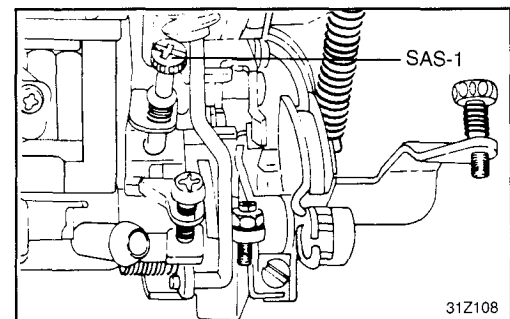
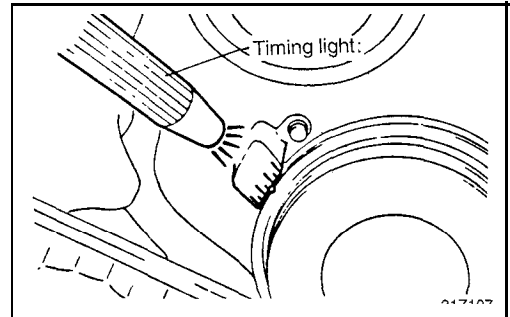
- 4. Run the engine for more than 5 seconds at an engine speed of 2,000 to 3,000 rpm.
- 5. Run the engine at idle for 2 minutes.

- 6. Set the engine speed to the specified valve body adjusting the idle speed adjusting screw No. 1 (SAS-1).

Curb idle rpm . . . . .  $700 \pm 50$  rpm

#### CAUTION

Do not touch SAS-2. The idle speed adjusting screw (SAS-2) is the preset screw that determines the relationship between the throttle valve and free lever, and has been accurately set at the factory. If this setting is disturbed, throttle opener adjustment and dash pot adjustment cannot be done accurately.



**THROTTLE OPENER ADJUSTMENT****For Operation Under Electrical Load**

The procedure that follows is to check and adjust the idle speed control operation of the throttle opener when electric load is applied.

1. Make sure curb idle speed is within the specified speed. If outside the specified limits, readjust the speed to the nominal specification.
2. By using the auxiliary lead wire, activate the idle-up control solenoid valve, apply the intake manifold vacuum to the idle-up actuator and activate the idle-up actuator.
3. Open the throttle slightly (to an engine speed of about 2,000 rpm), and then slowly close it.
4. Adjust the engine speed to the specified speed with the idle-up adjusting screw.

---

Throttle opener adjusting rpm (For electrical load)

..... 800  $\pm$  50 rpm

---

5. After repeating step 3, check the engine speed.
6. Remove the auxiliary lead wire used in step 2, and reconnect the idle-up solenoid valve wiring.

**For Operation Under Air Conditioner Load**

The procedure that follows is to check and adjust the idle speed control operation of the throttle opener when air conditioning load is applied.

1. Start the engine.
2. Set the tachometer
3. Turn on the air conditioner switch.

**NOTE**

**The solenoid valve with open and the intake manifold vacuum will act on the throttle opener to fully actuate it.**

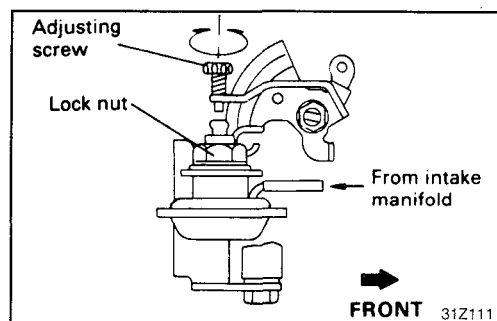
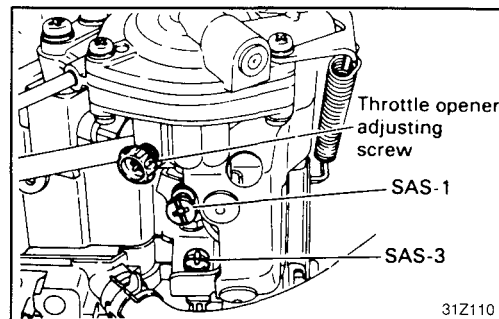
4. Check the engine speed during this operation.

---

Throttle opener adjusting rpm (For A/CON) .....  
 900  $\pm$  25 rpm

---

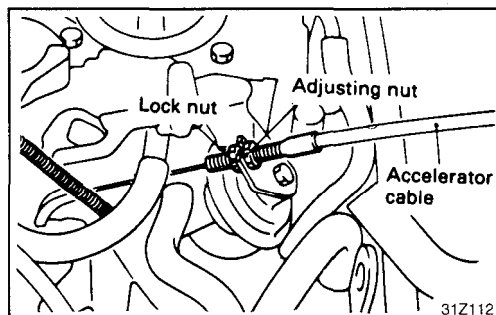
5. If the engine speed is out of specification, adjust using the throttle (for air conditioner) adjusting screw.





## THROTTLE POSITION SENSOR (TPS) ADJUSTMENT

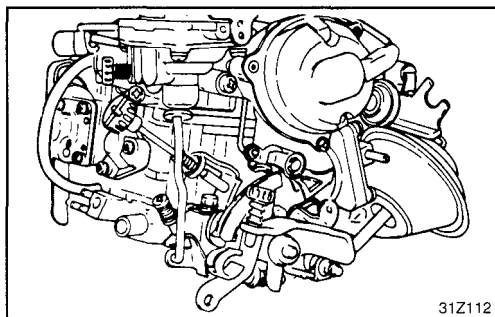
1. Loosen the accelerator cable enough.



2. Loosen the speed adjusting screw No. 1 (SAS 1) and No. 2 (SAS 2) sufficiently to close the throttle valve completely. Record the number of turns loosened.

### NOTE

Turning the screw counterclockwise closes the valve.  
At this time, the fast idle control should have been released (the lever not resting on the fast idle cam).



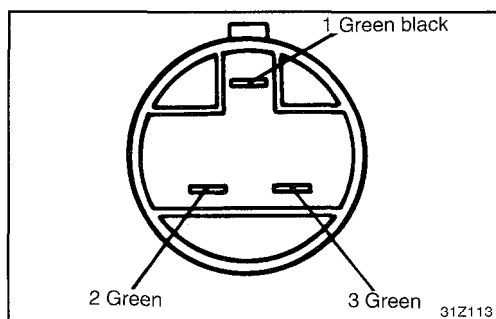
3. Connect voltmeter (digital type) between 2 and 3 of TPS connector pins.

### NOTE

Do not disconnect the TPS connector from the chassis harness.

4. Turn the ignition switch to ON. (Engine will not start.)
5. Measure the TPS output voltage.

Standard value : 250 mV

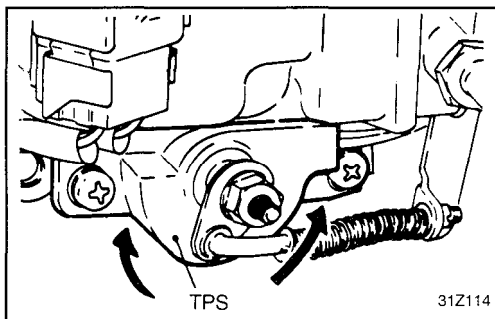


6. If the output voltage is not correct turn the TPS body to adjust to specification.

### NOTE

Turning the TPS body clockwise increases the output voltage.

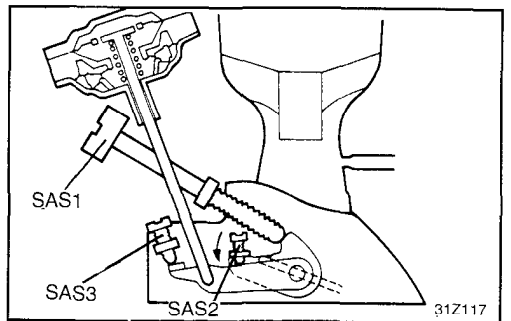
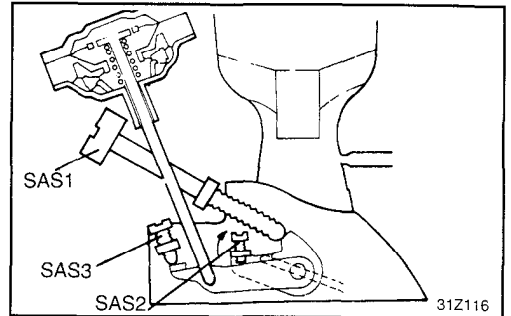
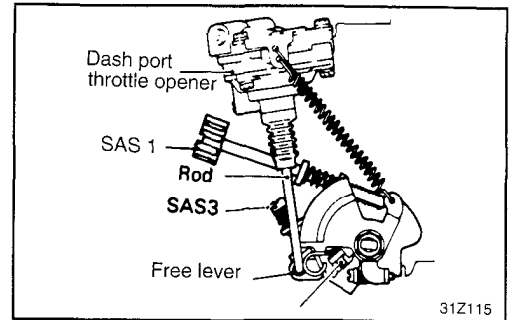
7. Turn the ignition switch to OFF.
8. Tighten SAS 1 and SAS 2 by the same number of turns as loosened in step (2) to return them to initial state.
9. Adjust free play of the accelerator cable.
10. Start the engine and check that the idle speed as specified.



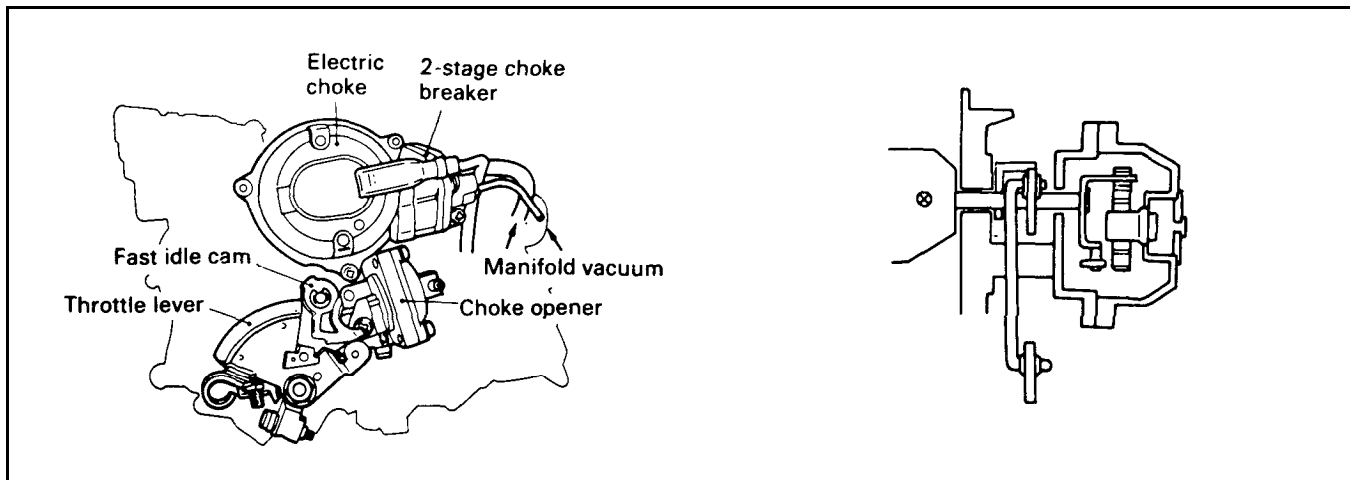
**DASH POT CHECK AND ADJUSTMENT****Checking Conditions:**

- o Engine coolant temperature : 80 to 95°C (176 to 205°F).
- o Lights, electric cooling fan and accessories : Set to OFF
- o Transaxle : Neutral.

1. Start the engine and run at idle.
2. Open the throttle valve for full stroke of the rod until the free lever contacts SAS3.
3. Close the throttle valve until SAS2 contacts the free lever and check the engine speed at that moment.
4. If engine is not as specified, adjust dash pot setting by turning SAS3.
5. Release the free lever and verify that the engine returns to idle speed slowly.



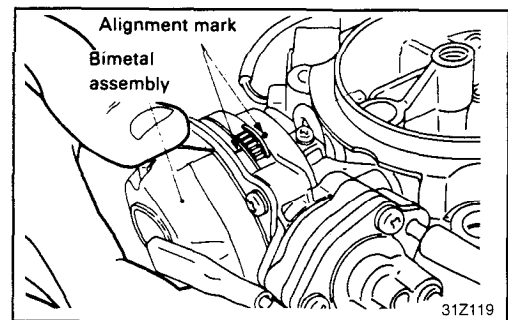
## ELECTRIC CHOKE SYSTEM CHECK AND INSPECTION

**CAUTION**

All carburetors have a tamper-proof choke. The choke-related parts are factory adjusted. The choke adjustment is not required during service, except when major carburetor overhaul or choke calibration related parts adjustments are needed by state or local inspections.

1. Check that the alignment marks on the electric choke and bimetal assembly are lined up.  
If not, align the marks,

Misalignment	Symptom
Clockwise deviation	Better startability but plugs more likely to be sooty
Counterclockwise deviation	Poorer startability and more likely to stall

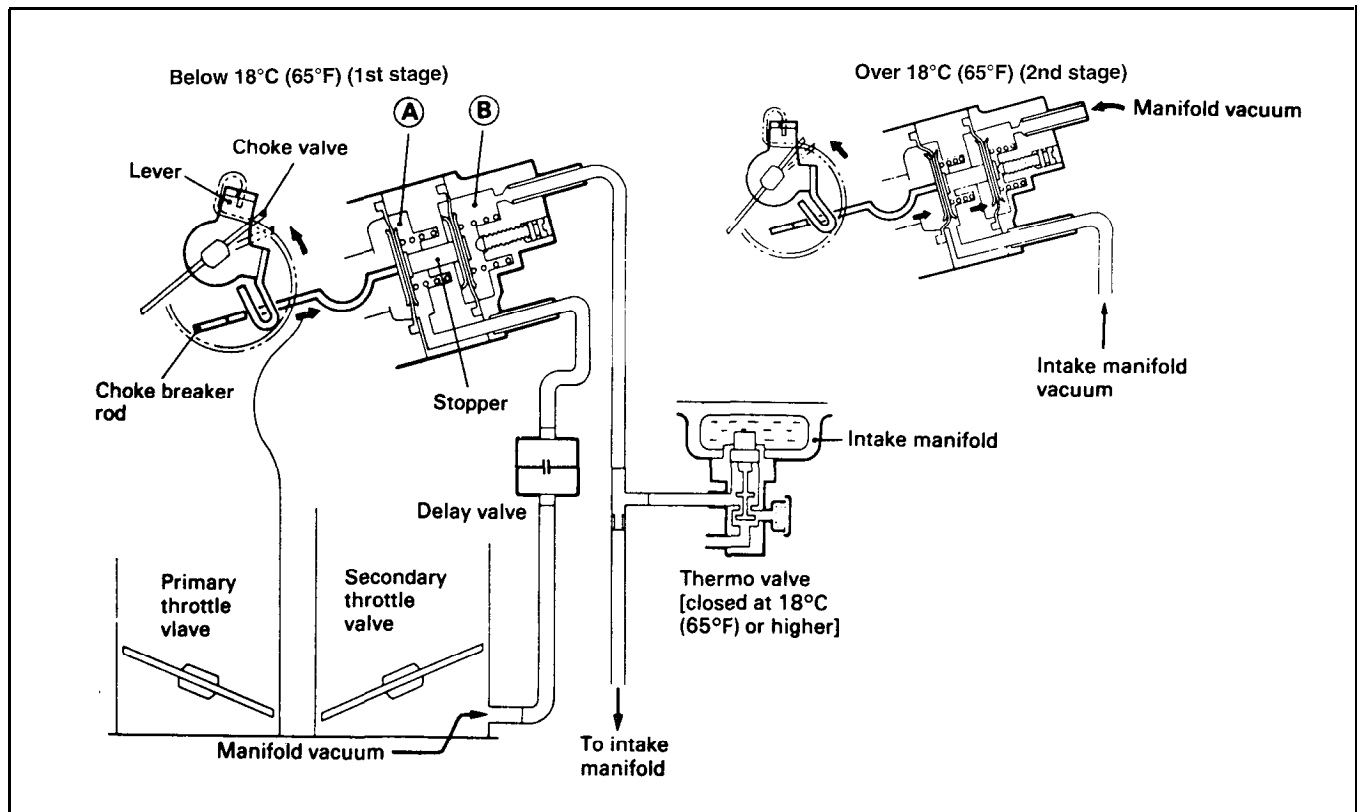


2. Check that the engine coolant temperature is below 10°C (50°F).
3. Start the engine and check operation of the choke valve and fast idle cam, with hand on the electric choke body.

Electric choke body	Gets gradually hotter after engine start
Choke valve	Opens as bimetal temperature rises
Fast idle cam	Fast idle control is released as engine coolant temperature rises and fast idle breaker operates

4. If the electric choke body remains cool even after the engine is started, check the electric choke.

## INSPECTION OF CHOKE BREAKER SYSTEM

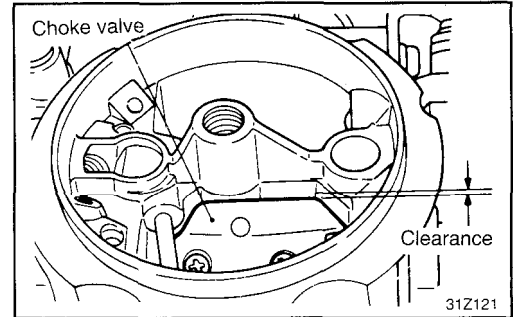


o Check conditions of the choke valve according to procedures given in the table below.

Step	Engine coolant temperature	Checking condition	Normal choke valve operation	Probable cause of trouble
1	Lower than 10°C (50°F)	Before engine start	Closes fully	Faulty bimetal assembly of linkage operation
2	Lower than 10°C (50°F)	Start engine and run idle (fully depress accelerator pedal and then start)	Opens slowly and slightly (immediately after starting) [gap approx. 1.5 mm (0.059)]	o Clogged delay valve o Broken diaphragm (chamber A)
3	Lower than 10°C (50°F)	Disconnect vacuum hose (yellow stripe) from choke breaker during idling	Stationary	o Faulty thermo valve
4	Higher than 25°C (77°F)	Connect vacuum hose (yellow stripe) and run engine idle	When closed lightly with finger, stops at larger opening than step 2 [gap approx. 3 mm (0.118 in.)]	o Faulty thermo valve o Broken diaphragm (chamber B)

1. After inspection of the choke breaker system, disconnect the vacuum hose from the choke breaker and make the following check.
2. With the engine idling, close the choke valve lightly with a finger until the choke valve stops. Then, measure the choke valve to choke bore clearance.

**Standard value : 1.4-1.6 mm (0.055-0.063 in.)**



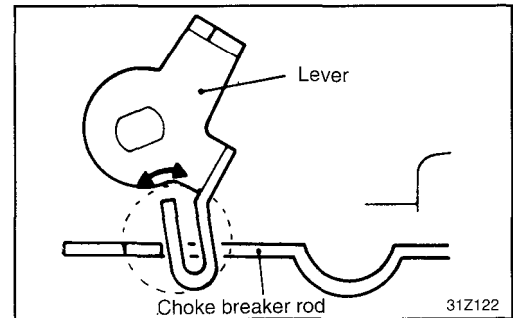
3. If the clearance is not as specified, stop the engine, remove the bimetal assembly and adjust the rod end opening for standard clearance.

**NOTE**

**When removing the bimetal assembly, put a mark on the electric choke body.**

Information

Rod end opening	Valve clearance	Expected result
Large	Large	Poorer startability and stall more likely
Small	Small	Plug likely to get sooty



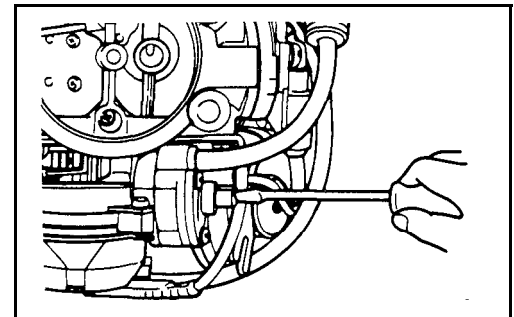
4. Reconnect the removed yellow stripe vacuum hose and measure the choke valve to choke bore clearance as in step (2).

**Standard value : 2.0-3.1 mm (0.114-0.122 in.)**

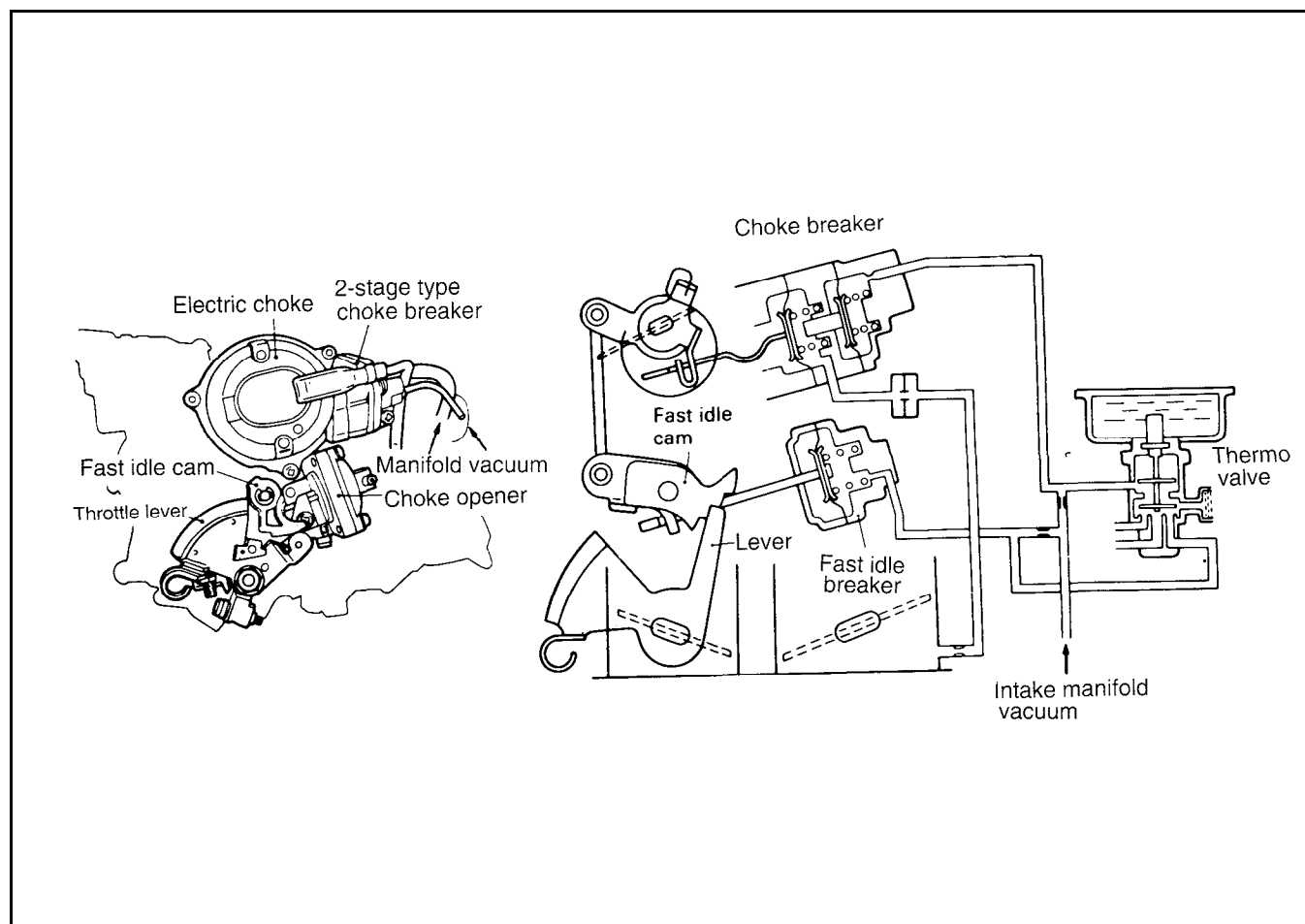
5. If the clearance is out of specification, adjust by the adjusting screw.

Information

Adjusting screw turning direction	Valve clearance	Expected result
Clockwise	Small	Better startability but plug more likely to get sooty
Counterclockwise	Large	Poor startability and stall more likely



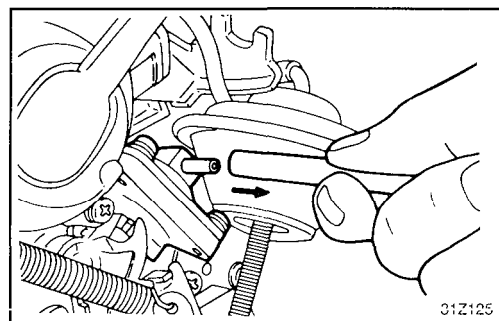
## Fast Idle And Adjustment



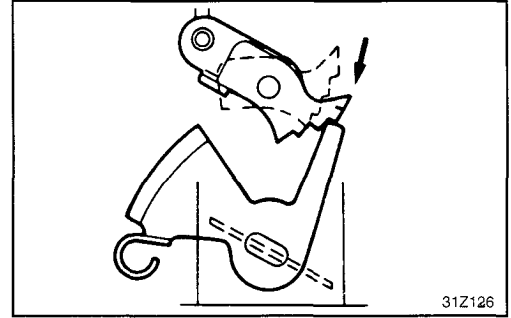
## Inspection Conditions

- o Engine coolant temperature : 80 to 95°C (176 to 205°F).
- o Lights, electric cooling fan and accessories : Set to OFF.
- o Transaxle : Neutral
- o Air cleaner : Removed
- o Tachometer installed

1. Disconnect the vacuum hose (white stripe) from the choke opener.



- Set the lever on the second highest step of fast idle cam.



- Start the engine and check the fast idle speed.

**Standard value:**

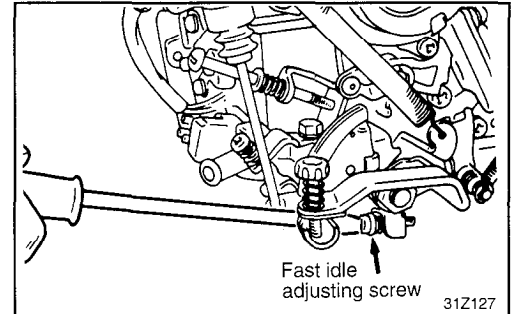
**Vehicles with a manual transaxle 2,800 rpm**

**Vehicles with an automatic transaxle 2,700 rpm**

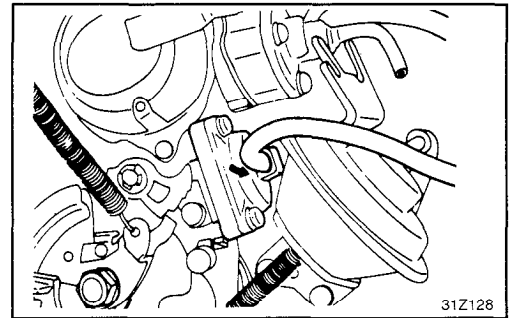
- If the fast idle speed is out of specification, adjust with the fast idle adjusting screw.

**Information**

Adjusting direction	Valve	Fast idle speed
Clockwise	Large	Increases
Counterclockwise	Small	Decreases



- Connect the vacuum hose removed in step 1 to the choke opener and check that the choke opener cancels fast idle.



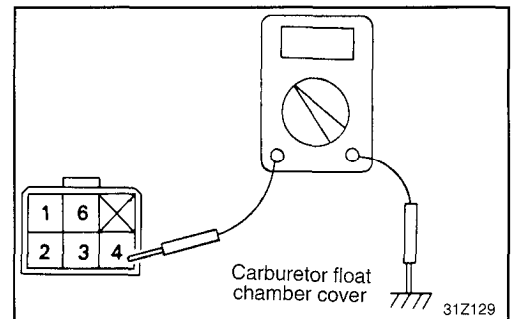
**Choke Heater Inspection**

- Disconnect the electric choke heater connector and check continuity of the heater.

**Normal state:**

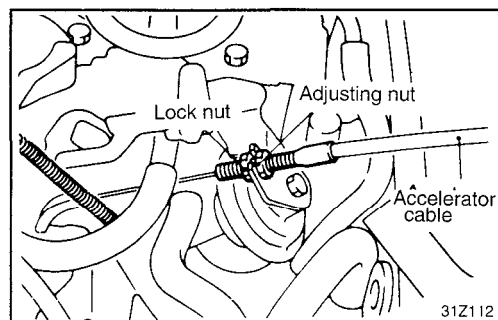
Should be conductive [approx.  $6\Omega$  resistance at 20°C 68°F]

- If the heater is not conductive, replace the electric choke body (Bimetal assembly).



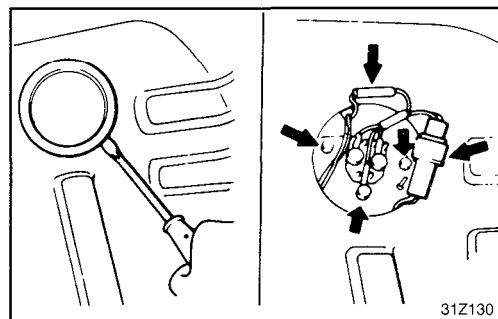
## INSPECTION AND ADJUSTMENT OF ACCELERATOR CABLE FREE PLAY

1. Run the engine until it reaches the specified idle speed.
2. Confirm that the accelerator inner cable has no slack.
3. If it shows slack, adjust it as follows:
  - 1) Loosen the adjusting nut so that the throttle lever is free.
  - 2) Turn the accelerator adjusting nut to the point where the throttle lever just starts moving, then back off one turn and secure the lock nut.



## FUEL GAUGE UNIT REPLACEMENT

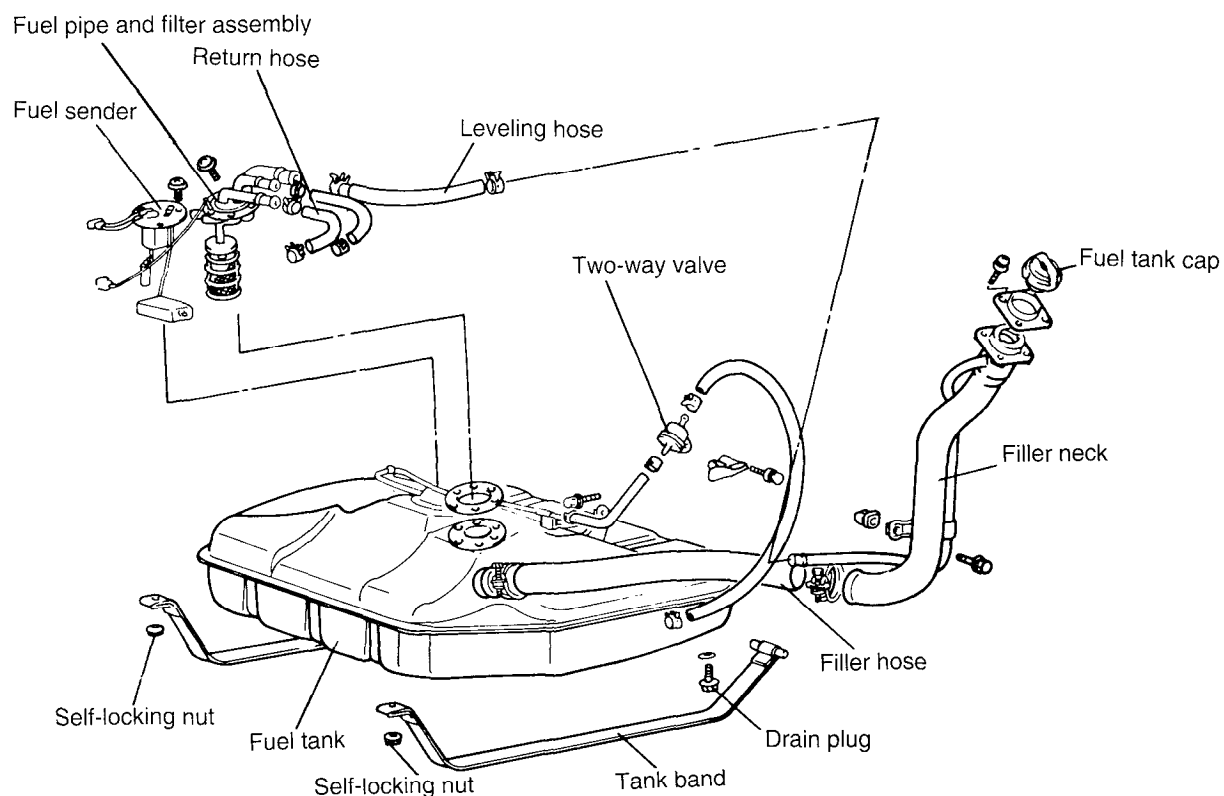
1. Remove the plug located on the trunk floor.
2. Disconnect the fuel gauge unit connectors.
3. Remove the fuel gauge unit.
4. After installing the fuel gauge unit, confirm that the unit is grounded.
5. When installing the plug on trunk floor, apply a specified sealant around the plug mounting surface.





## FUEL TANK

### COMPONENTS



### REMOVAL

#### CAUTION

When removing parts such as a fuel tank, rear suspension, etc., use a garage jack at the front of vehicle (Refer to GENERAL GROUP), to prevent the vehicle from tilting.

When working on fuel tank, be sure the ignition is switched off. Avoid any source of heat or sparks, such as lights, smoking, etc.

Prior to working on the fuel tank or lines, remove the fuel filler cap to release any pressure in the tank.

1. Remove the drain plug to drain the fuel tank.

**NOTE**

**Do not disconnect the in-tank filter except when the filter is replaced.**

2. Loosen the fuel hose (main and return) clamps and disconnect the fuel hoses.
3. Disconnect the filler hose and breather hose from the filler neck.
4. After removing the protector (if so equipped) and fuel tank mounting band, drop the fuel tank slightly and disconnect the fuel gauge unit harness.
5. Remove the fuel tank.
6. Remove the fuel gauge unit as necessary.

**INSPECTION**

Check the following and replace defective parts as necessary.

1. Leaky fuel tank  
If leaks are evident, clean the fuel tank interior and exterior and check for rust formation, corrosion, damage and cracks. A badly corroded or damaged fuel tank should be replaced.
2. Clogged, cracked, damaged or rusty fuel pipe.

**NOTE**

**When cleaning the fuel tank, avoid using cleaners which may affect the terne-coated inside surface of the tank. Use trichloroethylene, neutral emulsion type cleaner, etc.**

3. Peeled or damaged pad on top of tank  
If the pad is to be rebonded, clean the top surface of the tank, apply adhesive to the entire pad bonding area, and bond the pad securely.
4. Test two-way valve for proper operation.  
To check the two-way valve, lightly breathe into the inlet and outlet. If the air passes through after slight resistance, then the valve is good.

**INSTALLATION**

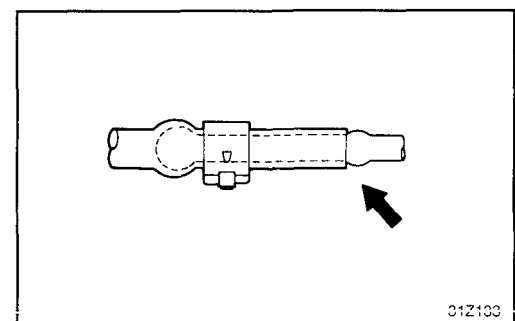
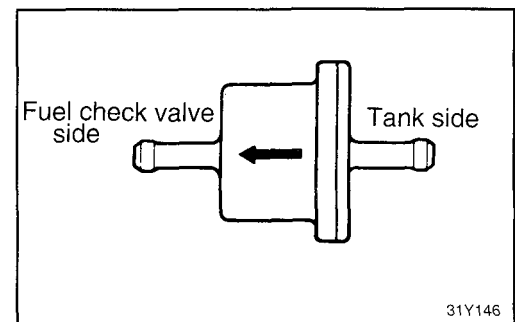
1. Confirm that the pad is fully bonded to the fuel tank, then install the fuel tank by tightening the tank band until its end touches the floor.
2. Connect all hoses and tubes correctly.

**CAUTION**

**When installing the hoses. Be sure not to mix up the hoses.**

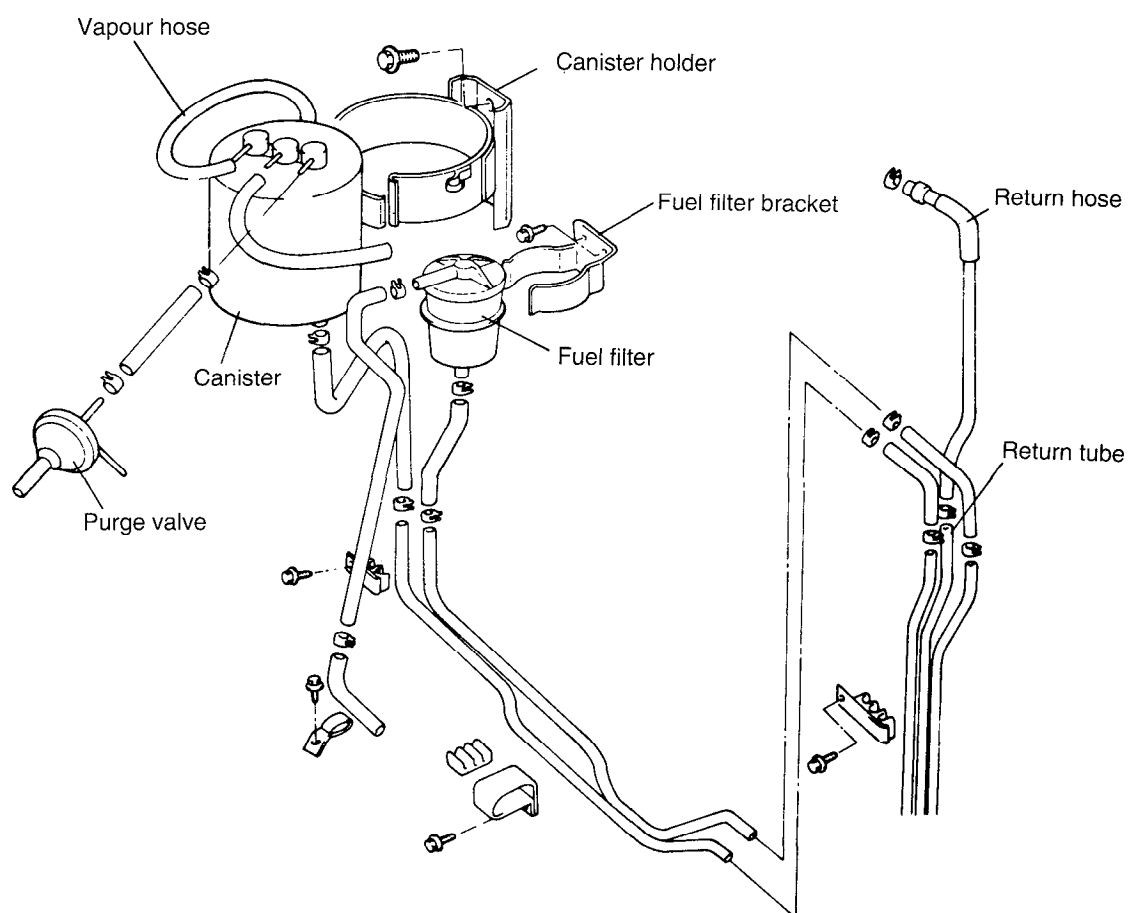
**Improper installation can cause fuel leakage.**

3. Slowly slide the in-tank filter over the in-tank outlet pipe and tighten the drain plug to the specified torque.



## FUEL LINE

## COMPONENTS



## REMOVAL AND INSTALLATION

1. Pipes should be secured firmly with clips and clamps to prevent looseness.
2. With the hoses and pipes are installed, make sure that they are not distorted or loose.
3. Route the hoses and tubes correctly and fit their ends securely.
4. Install clips and clamps in correct direction to make sure that they do not interfere with neighboring objects.

## INSPECTION

1. Check the hoses and pipes for cracks, bend, deformation, deterioration or clogging.
2. Check the fuel filter for clogging or damage.
3. Check the canister for clogging.
4. Check the overfill limiter (two-way valve) and the fuel check valve for malfunction.,

### Overfill Limiter Simple Test

A simple way of inspecting the overfill limiter is to remove, and then air is lightly blown into either the inlet or outlet by mouth. If the air passes after a slight resistance, overfill limiter is in good condition.

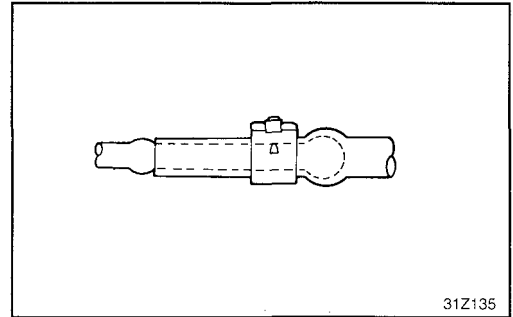
5. Check purge control valve as follows:
  - 1) Make sure that the engine coolant is between 80 and 95°C (176 and 205°F).
  - 2) Disconnect the purge control hose from the carburetor and blow into the purge hose. The valve should not allow airflow. Then start the engine and increase the engine speed to 1,500 to 2,000 rpm and blow into the purge hose. If the valve is not open, check for clogged or broken vacuum hose, or malfunctioning thermo valve.

## FUEL FILTER REPLACEMENT

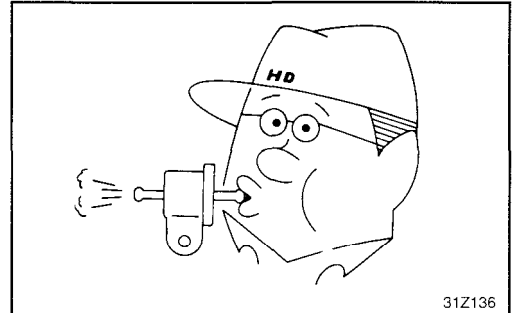
1. Remove the fuel tank cap to release the fuel tank pressure.
2. Disconnect the fuel hoses from the fuel filter, and then remove the fuel filter.

### CAUTION

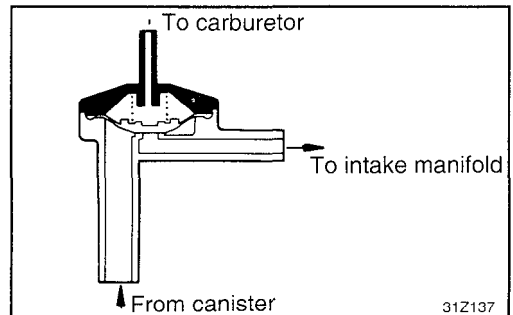
- 1) Whenever the fuel filter is replaced, always inspect the flex hoses for deterioration and cracking, and replace as necessary.
- 2) Ensure the installation is secure and the fuel line routing is in the original configuration.



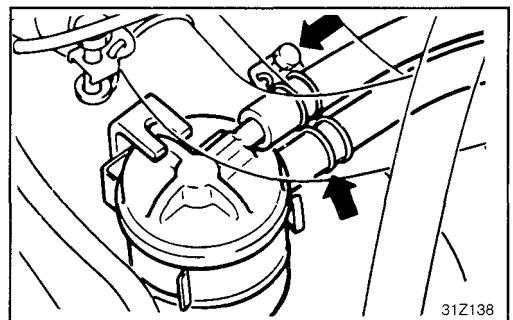
31Z135



31Z136



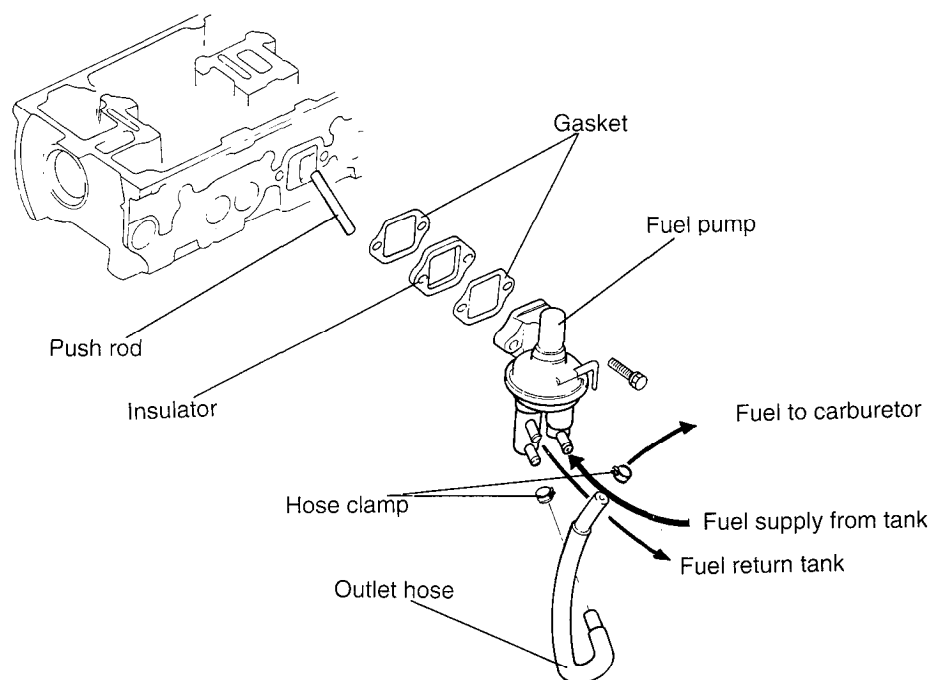
31Z137



31Z138

## FUEL PUMP

### COMPONENTS



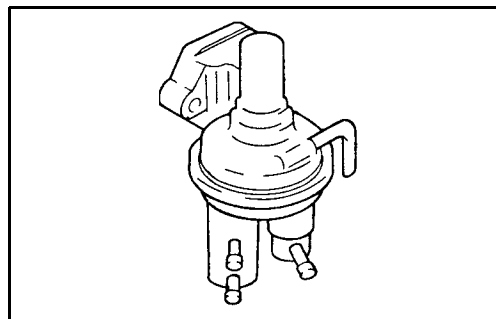
### REMOVAL

1. Disconnect the battery ground cable.
2. Disconnect the fuel inlet, outlet and return hoses at fuel pump.
3. Remove the two fuel pump mounting bolts, and remove the fuel pump and push rod.
4. Remove the fuel pump gaskets and insulator.

### INSPECTION

#### Checking Leakage

If there is oil or fuel leaks from breather hole, oil seal or diaphragm in fuel pump is defective. Replace fuel pump assembly.



**Inlet Valve Test**

To test the inlet valve, connect a vacuum gauge on the inlet fitting while the line is disconnected.

1. Start engine or turn over with starting motor.
2. There should be a noticeable vacuum present.
3. If blow-back is present, inlet valve is not seating properly and a new pump should be installed.
4. If fuel pump does not perform to above test requirements, a new fuel pump should be installed.

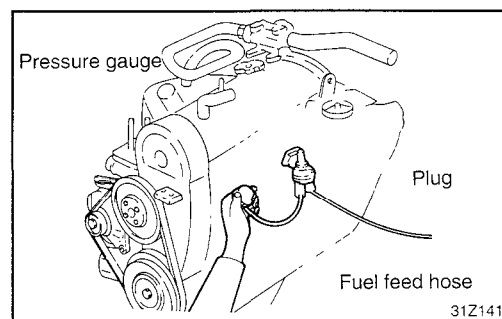
**Pressure Test**

1. Disconnect the hose at the carburetor and connect a fuel pressure gauge.
2. Disconnect the fuel return hose from the pump and plug the fuel pump return pipe as shown in illustration.
3. Check pressure while the engine is idling. Replace the pump, if required.

---

Standard pressure (at camshaft rpm 2,500) . . . . .  
 19-25 kPa (0.19-0.26 kg/cm<sup>2</sup>, 2.76-3.63 psi)

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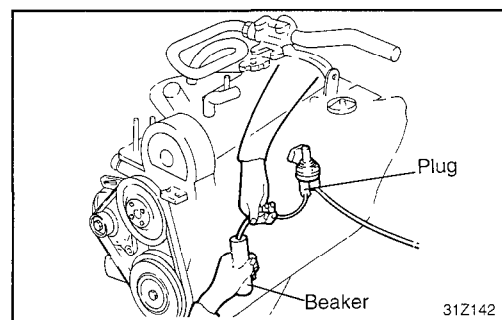
**Fuel Flow Rate Test (Volume)**

1. Disconnect the carburetor fuel hose and insert the end into a beaker.
2. Disconnect the fuel return hose from the fuel pump and plug the fuel pump return pipe.
3. Start the engine and measure the amount of fuel pumped within one minute.

---

Volume (at camshaft rpm 2,500) . . . . .  
 0.6 lit/min. (0.85 U.S.qt, 0.72 Imp.qt.)

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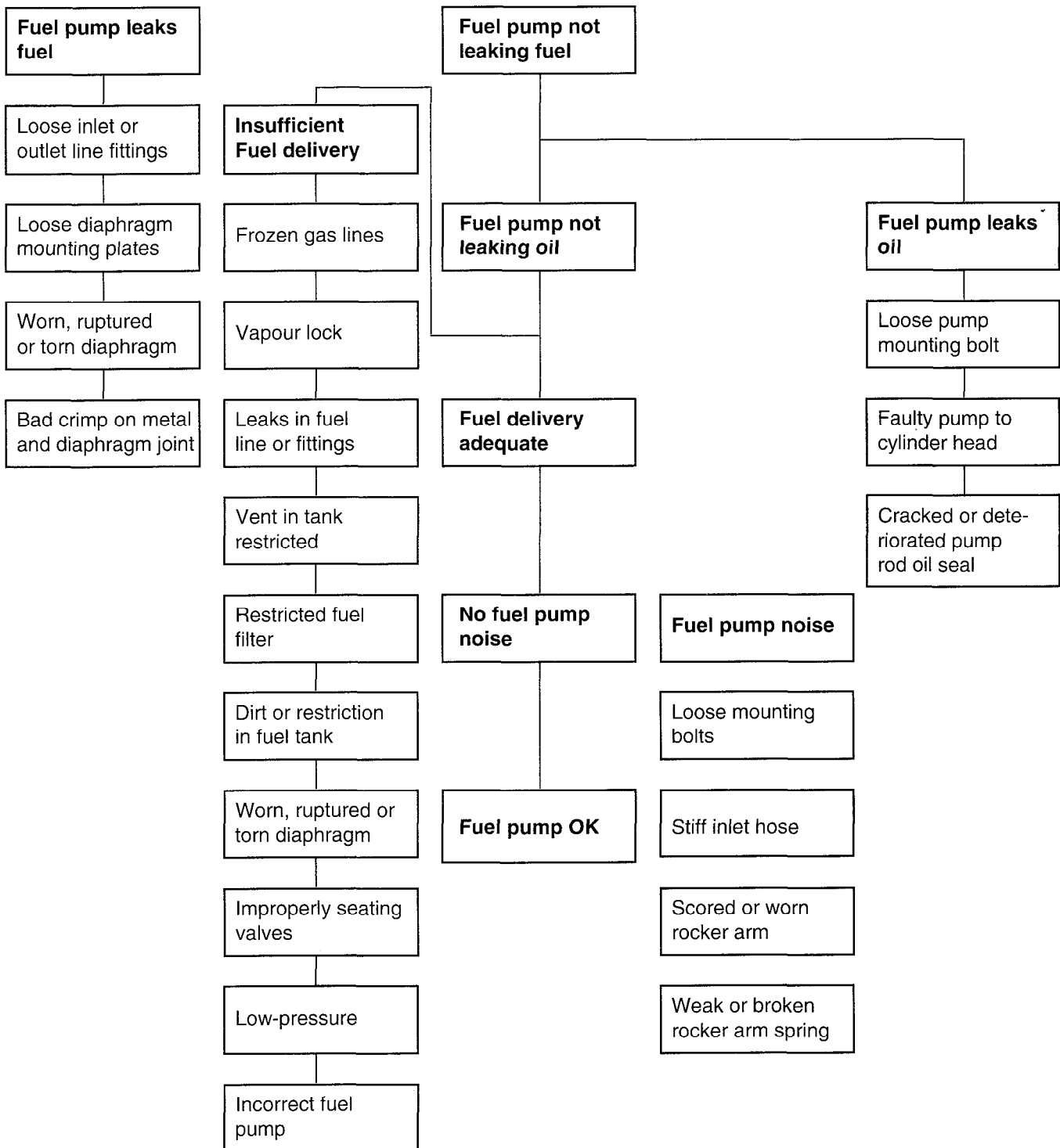
**INSTALLATION**

1. Turn crankshaft to place piston in No. 1 cylinder at top dead center on compression stroke.

**NOTE**

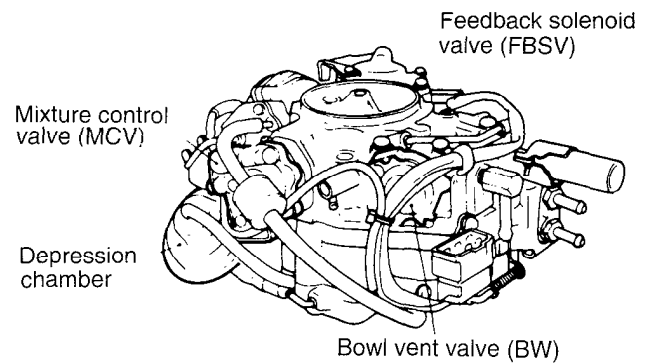
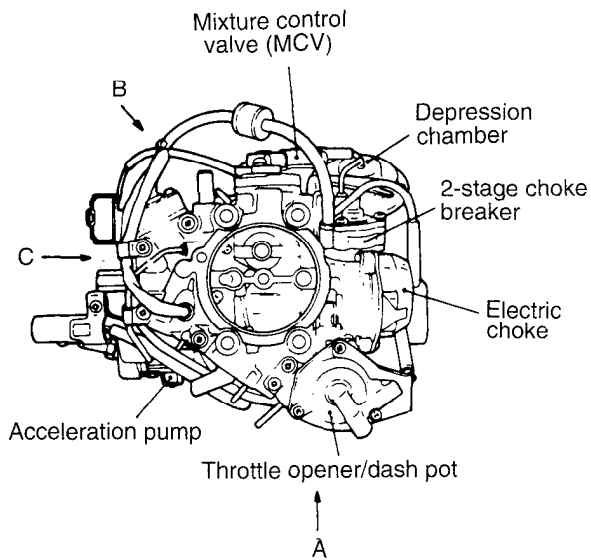
**This is to minimize cam lift for ease of installation.**

2. Insert the push rod into the cylinder head.
3. Install the new gasket and insulator, and then install the fuel pump. Tighten the bolts firmly.
4. Reconnect the fuel hoses to the fuel pump nipples and install the hose clamps.
5. Start and run the engine. Check for fuel or oil leak.

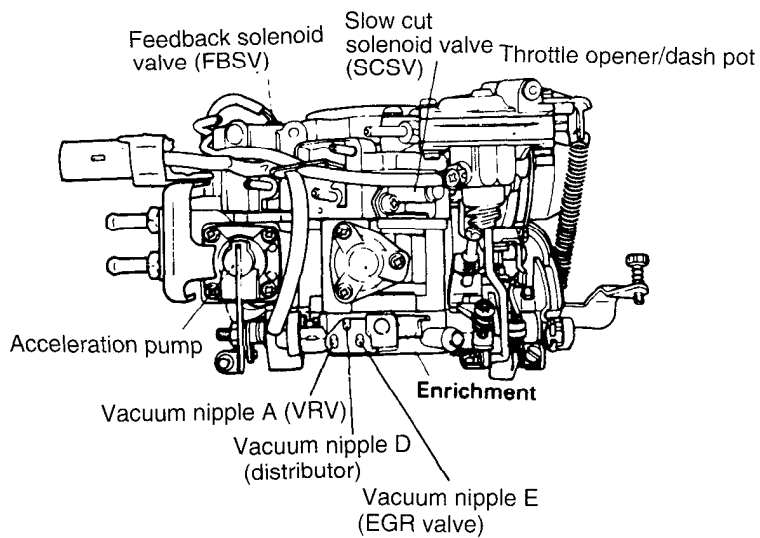
**FUEL PUMP TROUBLESHOOTING**

## CARBURETOR

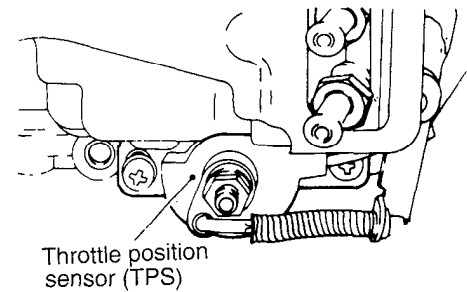
## CONSTRUCTION



View B



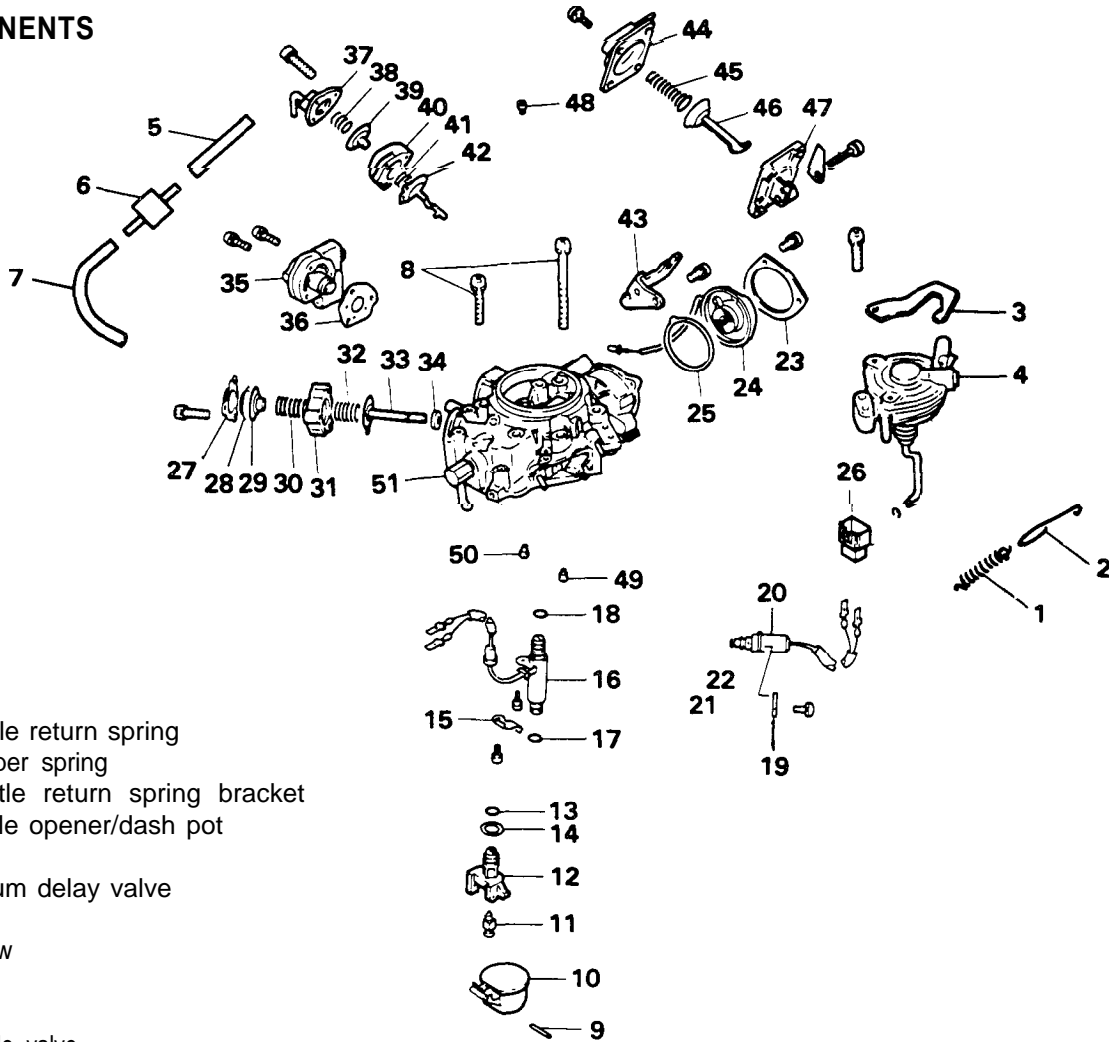
View A



View C

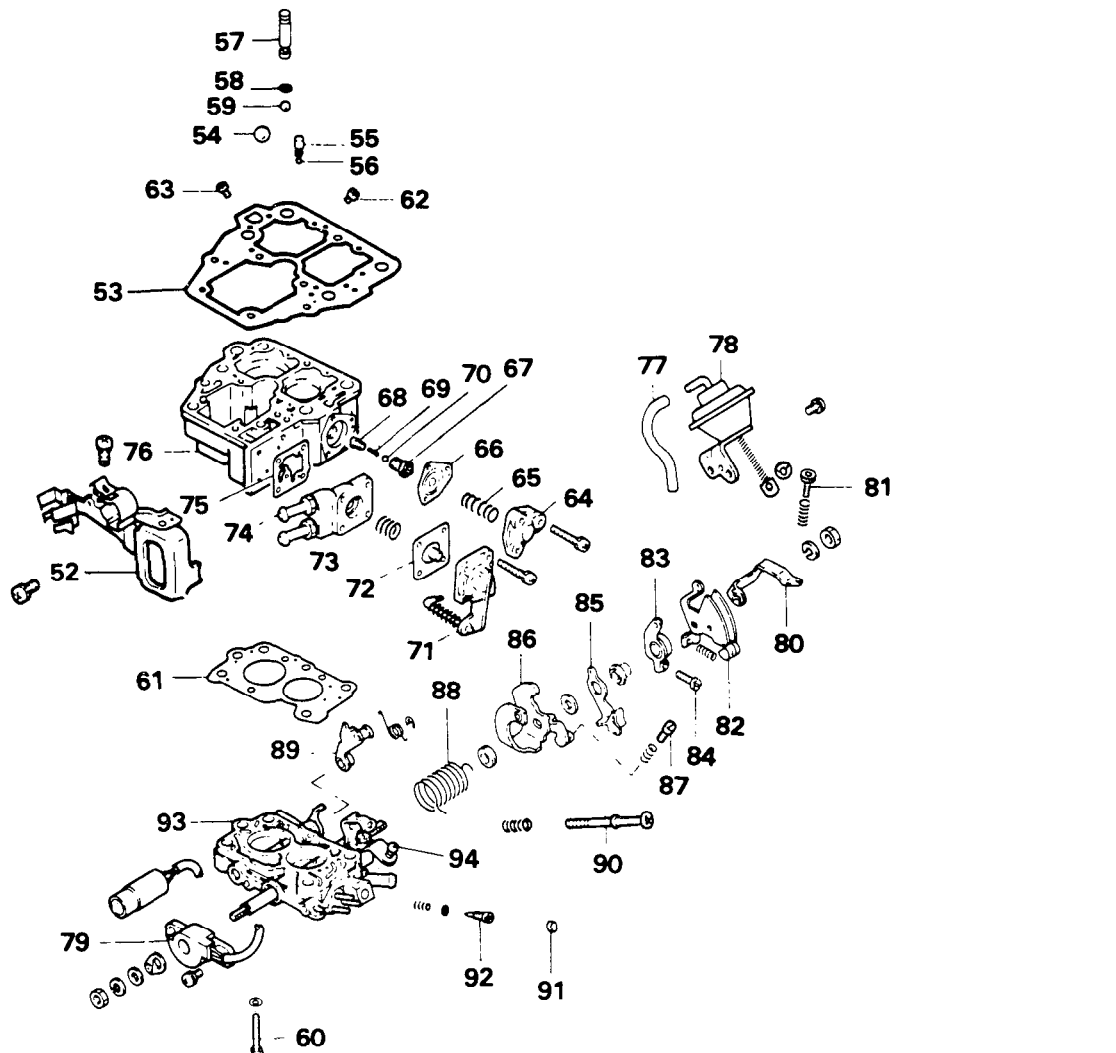


## COMPONENTS



- |                                    |  |
|------------------------------------|--|
| 1. Throttle return spring          | 32. Spring                               |
| 2. Damper spring                   | 33. Diaphragm                            |
| 3. Throttle return spring bracket  | 34. Valve                                |
| 4. Throttle opener/dash pot        | 35. Mixture control valve (MCV) assembly |
| 5. Hose                            | 36. Gasket                               |
| 6. Vacuum delay valve              | 37. Cover                                |
| 7. Hose                            | 38. Spring                               |
| 8. Screw                           | 39. Diaphragm                            |
| 9. Pin                             | 40. Body                                 |
| 10. Float                          | 41. Spring                               |
| 11. Needle valve                   | 42. Diaphragm                            |
| 12. Needle valve seat              | 43. Bracket                              |
| 13. O-ring                         | 44. Cover                                |
| 14. Packing                        | 45. Spring                               |
| 15. Retainer                       | 46. Diaphragm                            |
| 16. Feedback solenoid valve (FBSV) | 47. Body                                 |
| 17. O-ring                         | 48. Main air jet (primary)               |
| 18. O-ring                         | 49. Pilot jet (primary)                  |
| 19. Retainer                       | 50. Pilot jet (secondary)                |
| 20. Slow cut solenoid valve (SCSV) | 51. Float chamber cover                  |
| 21. O-ring                         |  |
| 22. O-ring                         |  |
| 23. Plate                          |  |
| 24. Bimetal assembly               |  |
| 25. Packing                        |  |
| 26. Connector                      |  |
| 27. Cover                          |  |
| 28. Diaphragm                      |  |
| 29. Spring seat                    |  |
| 30. Spring                         |  |
| 31. Housing                        |  |

## COMPONENTS



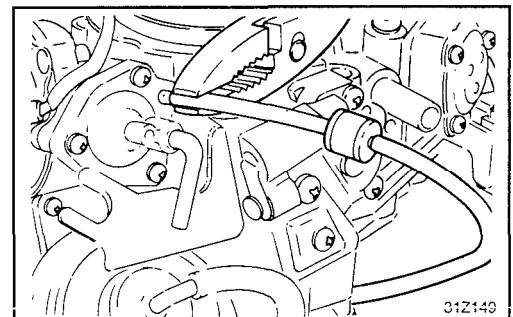
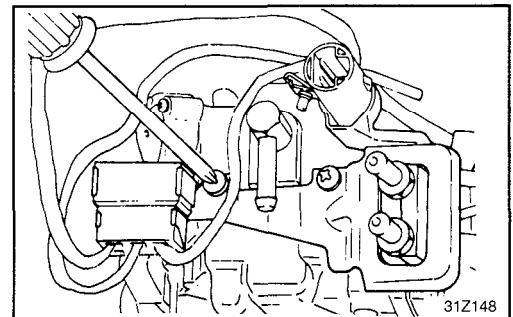
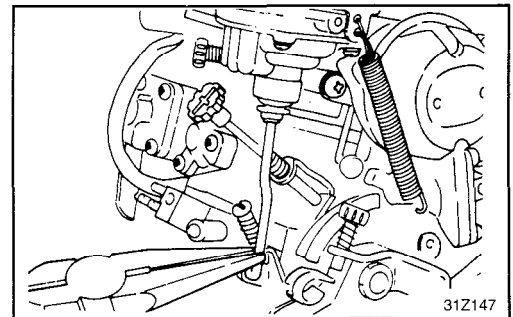
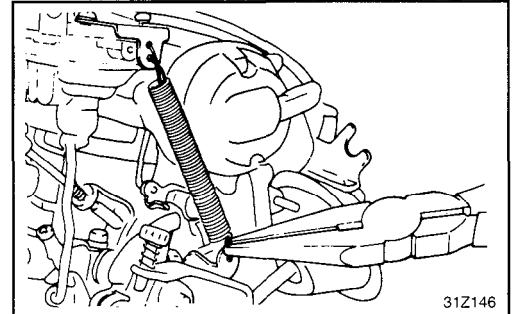
- |                                |                                    |  |
|--------------------------------|------------------------------------|--|
| 52. Bracket                    | 67. Enrichment jet valve           | 82. Throttle lever                     |
| 53. Float chamber cover gasket | 68. Enrichment jet                 | 83. Cam follower                       |
| 54. Steel ball                 | 69. Spring                         | 84. Fast idle adjusting screw          |
| 55. Weight                     | 70. Ball                           | 85. Free lever                         |
| 56. Ball                       | 71. Pump cover assembly            | 86. Abutment plate                     |
| 57. Plug                       | 72. Diaphragm                      | 87. Idle speed adjusting screw (SAS-2) |
| 58. O-ring                     | 73. Spring                         | 88. Spring                             |
| 59. Ball                       | 74. Pump body                      | 89. Secondary lever                    |
| 60. Screw                      | 75. Gasket                         | 90. Idle speed adjusting screw (SAS-1) |
| 61. Gasket                     | 76. Mixing body                    | 91. Plug                               |
| 62. Main jet (primary)         | 77. Vacuum hose                    | 92. Mixture adjusting screw (MAS)      |
| 63. Main jet (secondary)       | 78. Depression chamber             | 93. Throttle body                      |
| 64. Cover                      | 79. Throttle position sensor (TPS) | 94. Idle speed adjusting screw (SAS-3) |
| 65. Spring                     | 80. Lever                          |  |
| 66. Diaphragm                  | 81. Adjusting screw                |  |

## REMOVAL

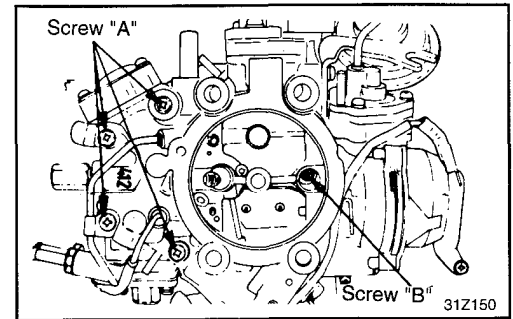
1. Disconnect battery ground cable.
2. Remove air cleaner.
3. Disconnect the throttle cable from carburetor.
4. Disconnect the vacuum hoses from carburetor.
5. Disconnect connectors for solenoid valves and TPS.
6. Place a container under fuel fittings of carburetor to catch any fuel that may be trapped in fuel line and disconnect the fuel hoses from the carburetor inlet nipples.
7. Remove carburetor mounting bolts and carefully remove the carburetor from engine. Hold carburetor level to avoid spilling fuel from fuel bowl.

## DISASSEMBLY

1. Remove the throttle return spring from the throttle lever and throttle return spring bracket unscrewing two screws.
2. Remove the dash pot rod from the free lever.
3. Unscrewing two screws, remove the bracket with two connectors and off the connectors.
4. Pull the hose with delay valve off the nipple of choke breaker.



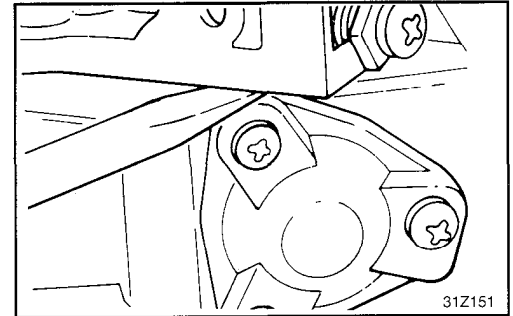
5. Remove the float chamber cover screws "B" to remove the throttle body.
6. Remove the screws "A" to remove the float chamber cover from main body.



7. To remove the float chamber cover assembly, insert a screw driver blade between the enrichment cover and the float chamber cover as illustrated and lightly pry and lift up slowly.

**CAUTION**

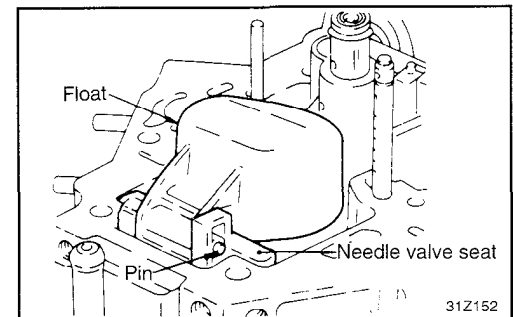
Do not apply excessive force.



8. Remove the pin and then remove the float and needle valve.

**CAUTION**

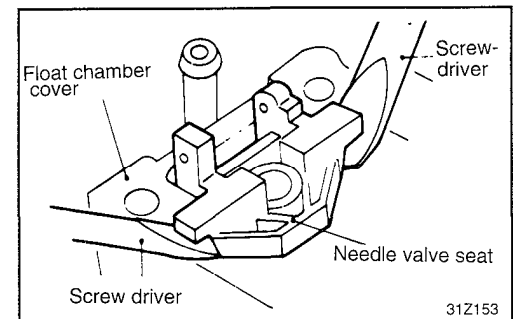
- 1) Do not let the float drop or supply collapsing load.
- 2) Use care not to damage the end of the needle valve.



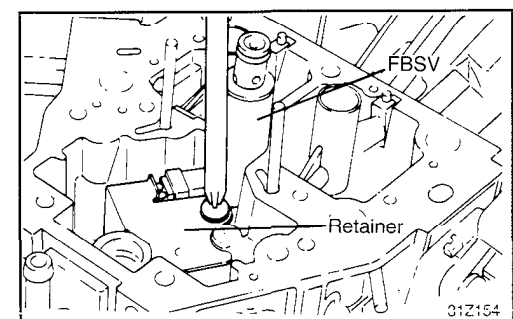
9. Using flat blade screwdrivers, pry up the needle valve seat at both edges to remove.

**CAUTION**

Use care not to damage the float chamber cover when pushing up the needle valve seat.



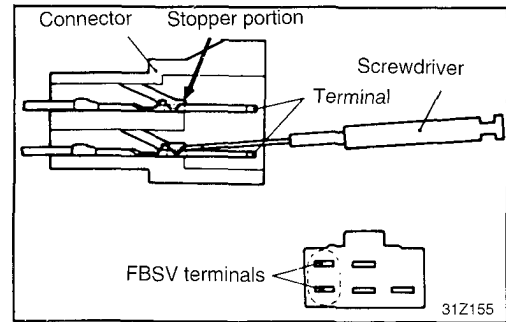
10. Remove the retainer of the feedback solenoid valve (FBSV).



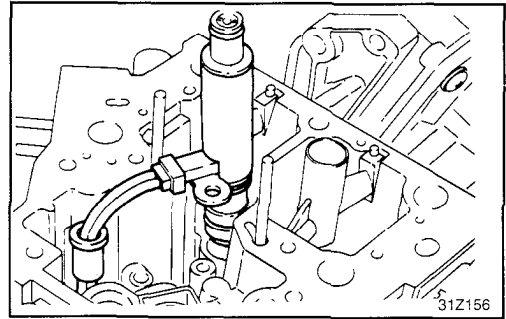
11. Using a screwdriver or other tool with a thin flat end, push the stopper portion and remove the two terminals from behind the connector.

**NOTE**

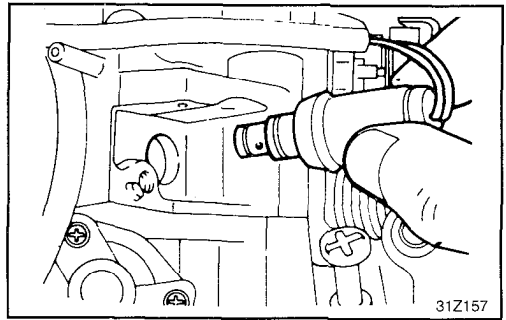
Unless the terminals are removed from the connector, the feedback solenoid valve cannot be removed from the float chamber cover.



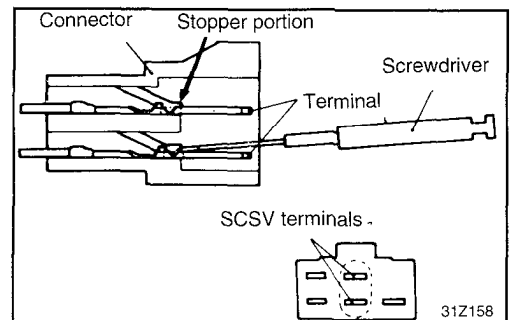
12. Pull out the FBSV from the float chamber cover



13. Remove the retainer and pull out the slow cut solenoid valve

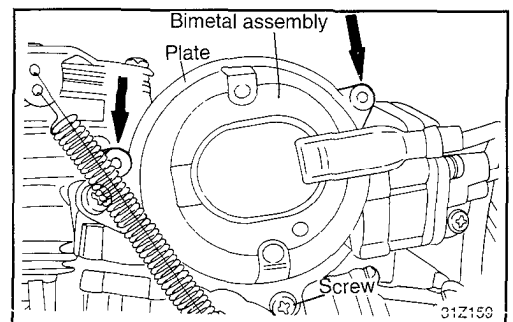


14. Using a screwdriver or other tool with a thin flat end, push the stopper section and remove the two terminals from behind the connector.

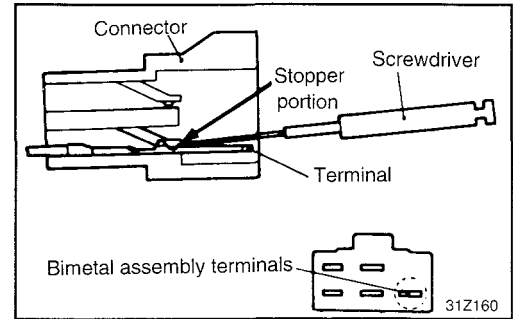


15. To remove the bimetal assembly, grind away the head of the two rivets of the bimetal assembly using a hand grinder or other tool and remove the screw.

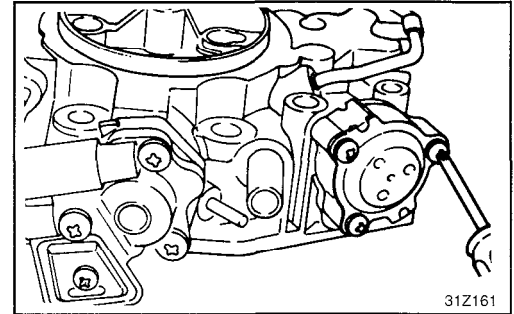
16. Remove the plate and the bimetal assembly.



17. Using a screwdriver or other tool with a thin flat end, push the stopper section and remove the terminal from behind the connector.



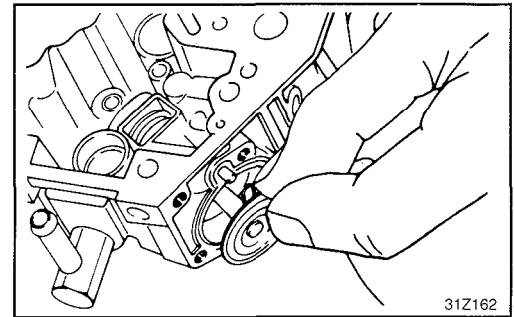
18. Remove the three screws attaching the Bowl Vent Valve (BVV) cover to the float chamber.  
19. Remove the plastic vent hosing, housing cover and the two springs.



20. Remove the bowl vent valve diaphragm shaft.

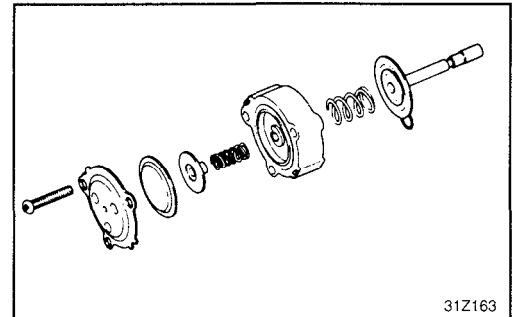
#### CAUTION

Carefully pull the diaphragm out of the float chamber cover so that rubber vent seal slides off the diaphragm shaft.

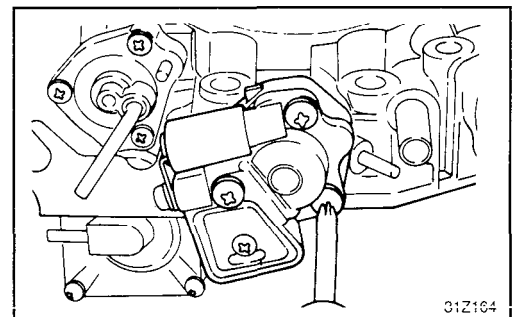


#### NOTE

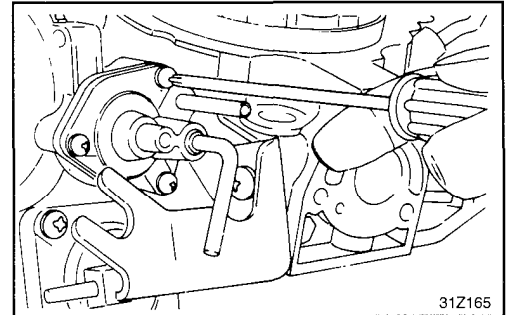
Be careful not to misplace the two small springs positioned on either side of the plastic vent housing.



21. Unscrewing the three screws attaching the Mixture Control Valve (MCV) assembly, remove the MCV assembly.

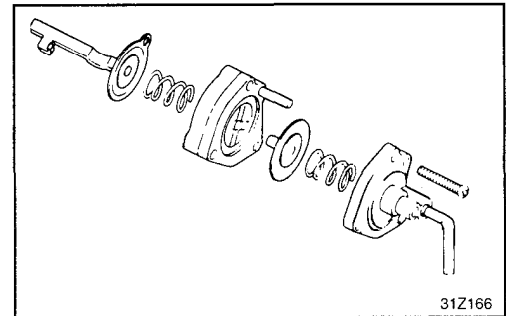


22. Remove the three screws attaching the choke vacuum breaker cover, then remove the choke break cover, springs, diaphragm and linkage assembly.

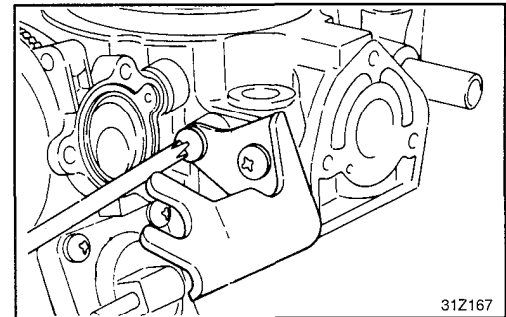


**NOTE**

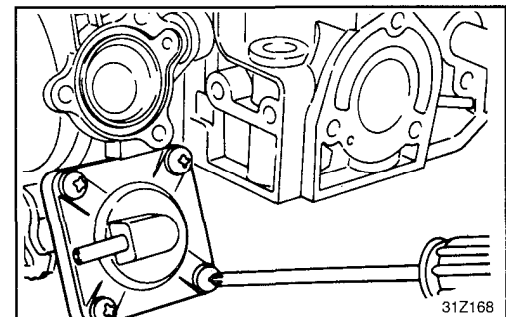
Of the two diaphragm springs, the outer one is longer.



23. Remove the choke bracket.



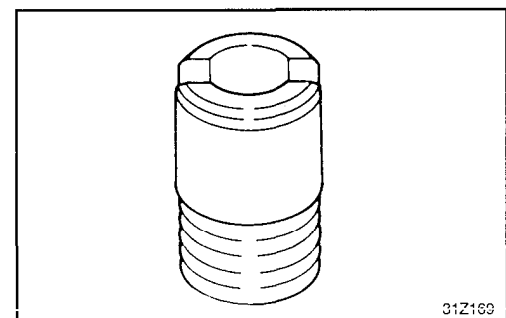
24. Unscrewing the four screws, remove the choke opener.



25. Remove the pilot jets and main air jet.

**NOTE**

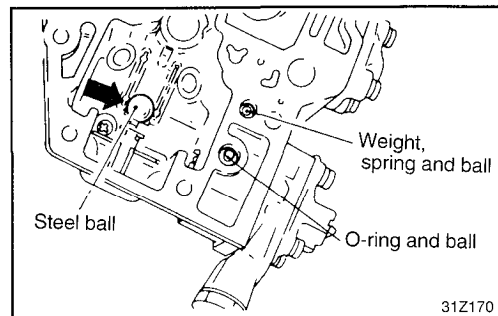
When removing the jets, use a screwdriver that is an exact fit for their slot and work carefully to prevent damage.



26. Carefully lift and swing up the roll-over device weight from the bottom of the float chamber, then use a magnet to remove the roll-over steel ball.

**NOTE**

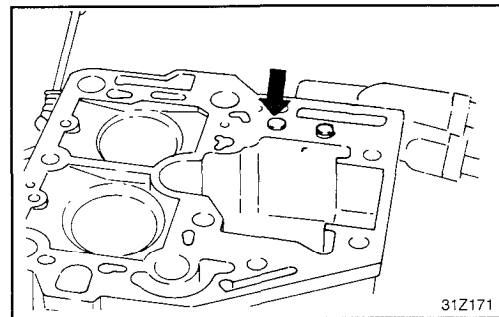
Remove the float chamber gasket and pour the remaining fuel contained in the float chamber into a container.



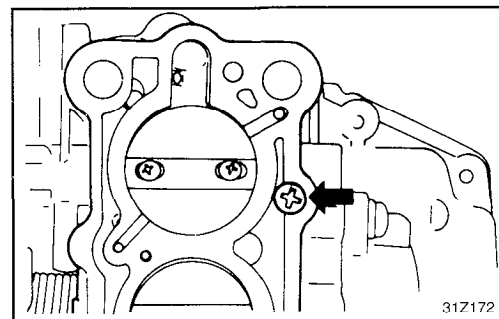
27. Remove the accelerator pump outlet check ball and weight.

**NOTE**

Invert the chamber to remove the accelerator pump outlet check ball and weight located at the gasket surface.



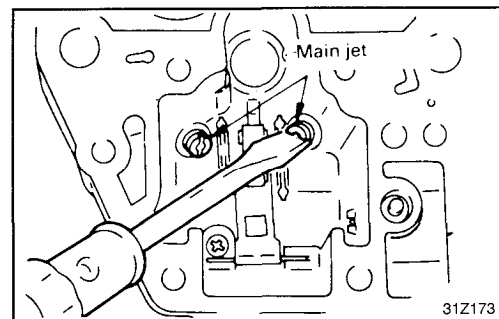
28. Separate the float chamber from the throttle body.



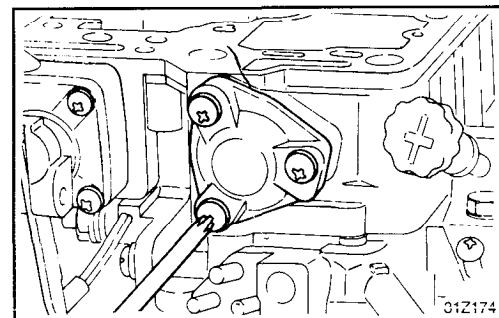
29. Remove the main jets.

**NOTE**

When removing the main jets, use a screwdriver that is an exact fit and work carefully to prevent damage.



30. Remove the three screws attaching the enrichment valve cover to the enrichment housing on the float chamber.  
 31. Remove the cover, spring and diaphragm.  
 32. Unscrew the enrichment valve from the housing.

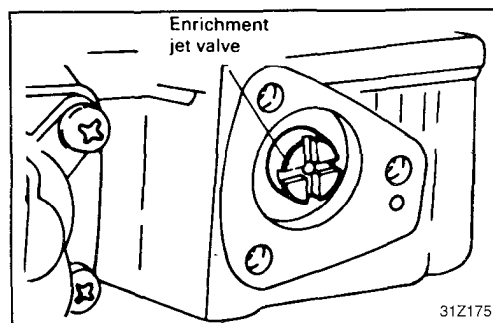




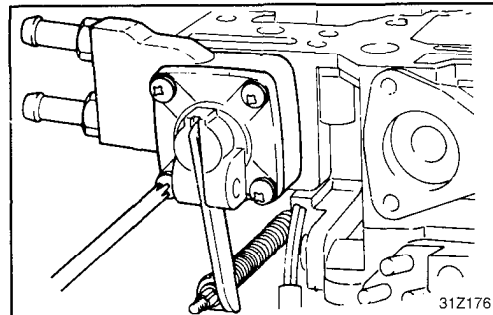
33. Using a screwdriver, loosen the enrichment jet and take out the spring and ball from the enrichment jet valve.

**CAUTION**

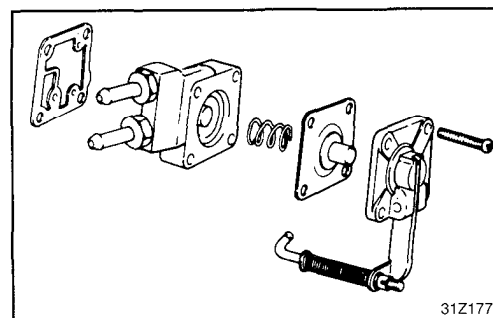
The valve has many small parts. Do not lose them.



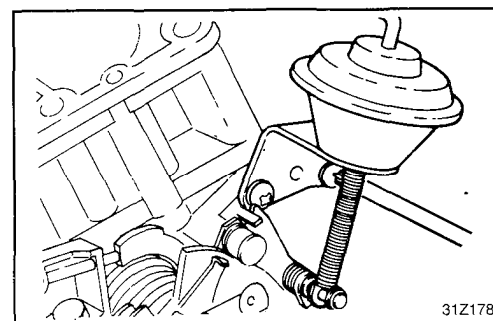
34. Remove the four screws (thread sealant supplied) attaching the accelerator pump cover to the float chamber.  
35. Remove the accelerator pump cover, diaphragm, spring, pump body and gaskets.

**NOTE**

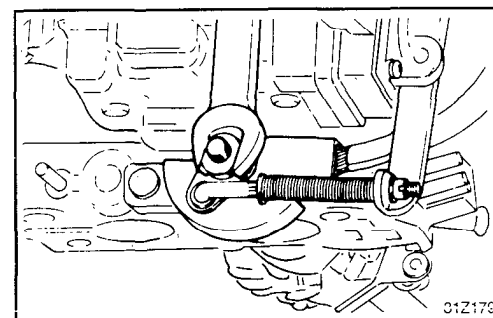
When reinstalling, apply thread sealant to the screws and be sure the pump body, gasket and cover are properly positioned.



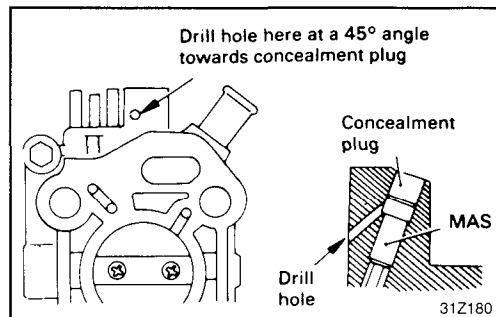
36. Remove the E-clip and outside washer on the secondary throttle shaft and slide the diaphragm spring link off the throttle shaft.  
37. Remove the two screws attaching the diaphragm bracket to throttle body and remove the secondary throttle diaphragm.



38. Using a 10 mm wrench, remove the nut attaching the accelerator pump lever to the throttle shaft.  
With the impact driver, remove two screws attaching the throttle position sensor to the throttle body.  
39. Remove the E-clip holding the throttle position sensor onto the throttle shaft.



40. For removal of plug, clamp carburetor in a vice and drill a 2mm (5/64 in.) pilot hole in the casting surrounding the idle mixture adjusting screw (MAS) then redrill the hole to 3mm (1/8 in.)
41. Insert a blunt punch into the hole and drive out plug.



## REASSEMBLY

Perform reassembly in reverse of disassembly procedure, paying special attention to the following items:

1. Clean all parts before assembly.
2. Check to be sure that no clogging is in the air passages and fuel passages.
3. Check for smooth operation of throttle and choke linkage. If the operation is not smooth, clean them up. Then may be replaced at this time to ensure proper carburetor performance.
4. When replacing a main or a pilot jet, the old jet and the new jet must be of the same size, because the jet is selected after exact flow measurement by factory.
5. Do not reuse the O-rings and gasket. Replace them with new ones at every reassembly.

### Service Point of Reassembly

1. Make sure that correct jets are installed at correct positions. Note the size symbol stamped on each jet for identification.

#### Identification mark

##### Main jet

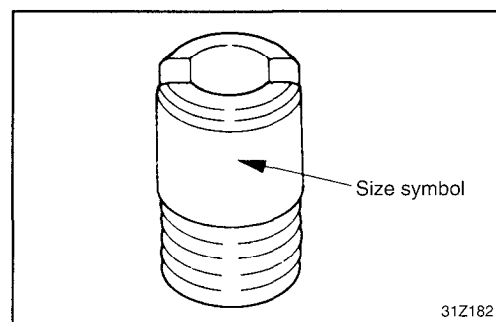
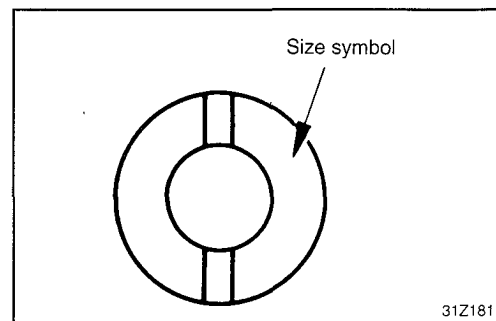
Primary . . . . . # 83.8

Secondary . . . . . # 145

##### Pilot jet

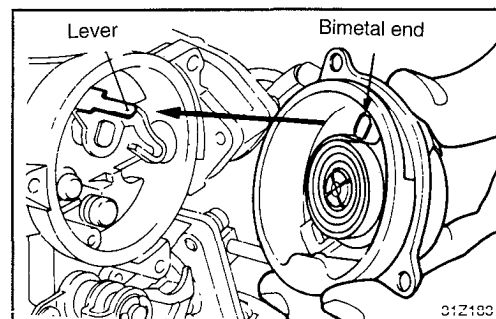
Primary . . . . . # 46.3

Secondary . . . . . # 70

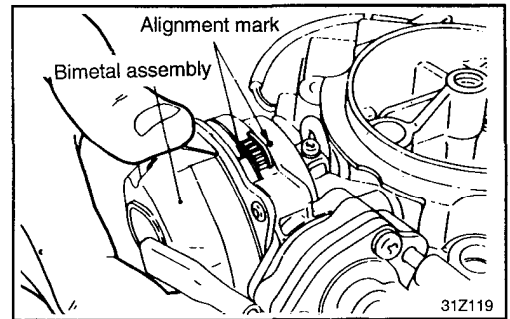


## 2. Bimetal assembly

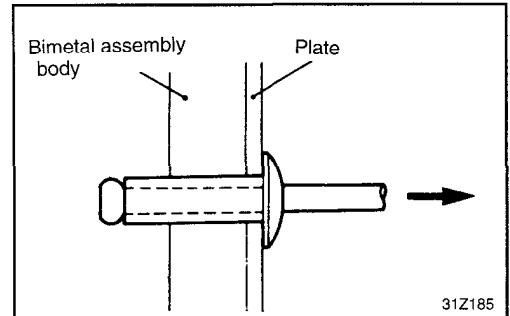
- 1) Fit the bimetal end over the choke valve lever.



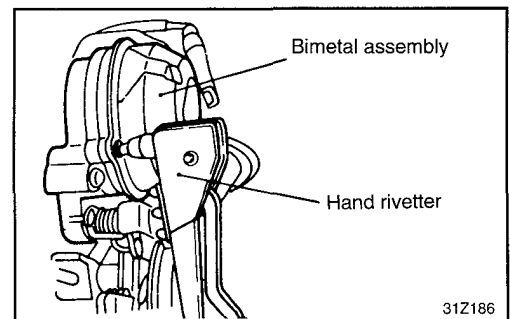
- 2) Install the plate and temporarily tighten the screw.
- 3) Align the mating marks.



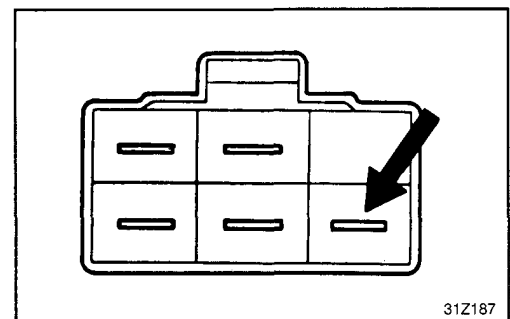
- 4) Set the rivet as illustrated.



- 5) While keeping the mating marks aligned, install the bimetal assembly with a hand riveter or similar tool.
- 6) Tighten the screw.



- 7) Install terminal to the connector at correct position.



## INSPECTION

### General Description

Check the following and repair or replace parts if necessary.

1. Check the fuel paths (jets) and air paths (jets or orifices) for clogging. If clogged, wash thoroughly with cleaning solvent or detergent and blow by compressed air. Do not use metal wire or other metal pieces.
2. Check the diaphragms for damage and cracks.
3. Check that the needle valve operates lightly. If the valve is hard to slide or is binding, repair or replace. If there is overflow, poor valve to seat contact is suspected. Check thoroughly.
4. Check the fuel inlet filter (located above the needle valve) for clogging and damage.
5. Check the float operation. Check the float and lever for deformation and damage and replace if necessary.
6. Check operation of the throttle valve, choke valve and link. If they do not operate lightly, wash well and apply engine oil sparingly to their shaft.
7. Check the float chamber cover and main body for damage and cracks.

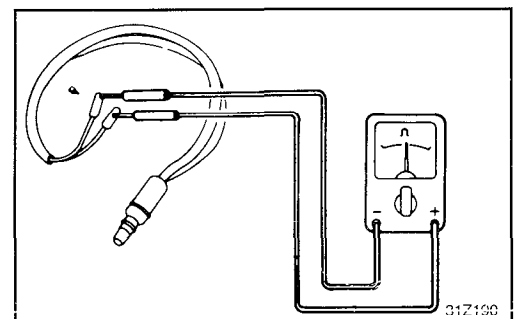
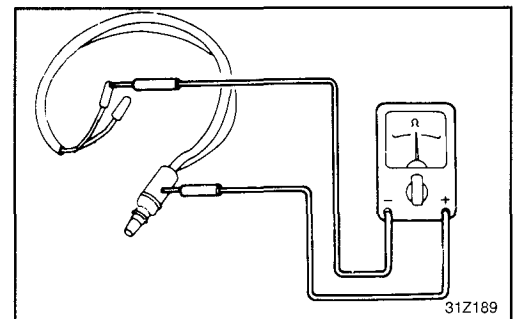
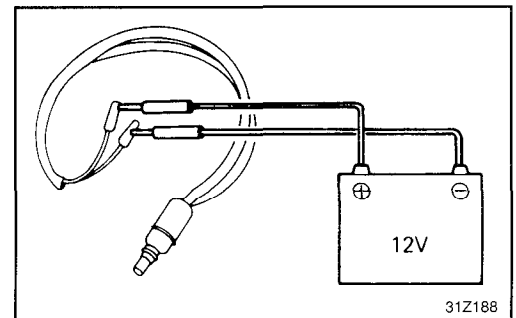
### Slow Cut Solenoid Valve (SCSV)

1. Apply battery voltage directly to the slow cut solenoid valve terminals.
2. Check that the valve operates with a click.
3. Using a circuit tester, check that there is no continuity between the solenoid valve body and terminals.
4. Measure resistance between the terminals.

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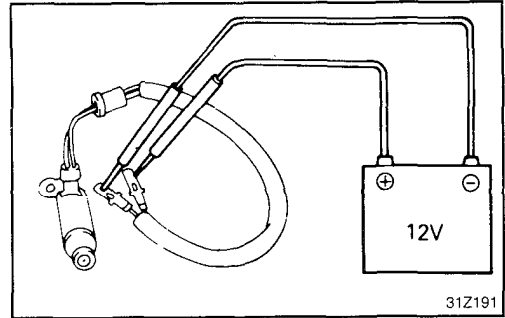
SCSV coil resistance.. . . . . 48-60  $\Omega$  [at 20°C (68°F)]

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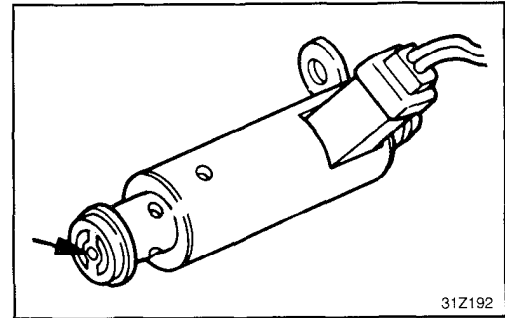


### Feedback Solenoid Valve (FBSV)

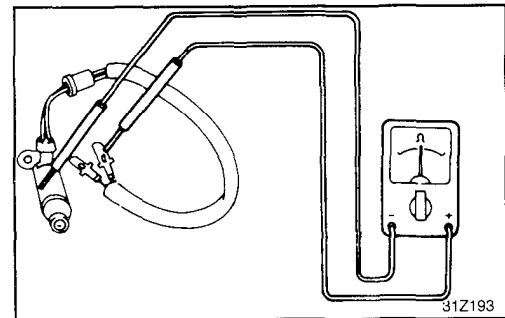
1. Apply battery voltage directly to the feedback solenoid valve terminals.
2. Check that the valve operates with a click.



3. Check that the jet is free from clogging.

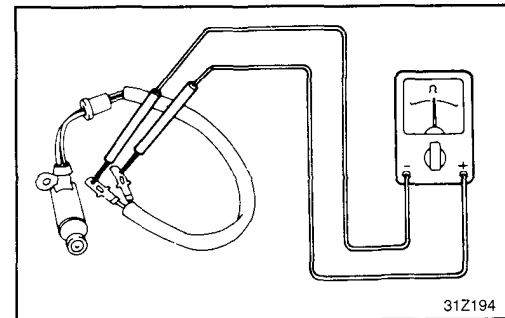


4. Using a circuit tester, check that there is not continuity between the solenoid valve body and terminals.



5. Measure resistance between the terminals.

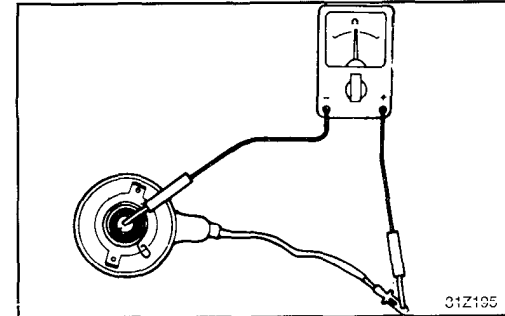
FBSV coil resistance . . . . . 54-66  $\Omega$  [at 20°C (68°F)]



### Bimetal Assembly

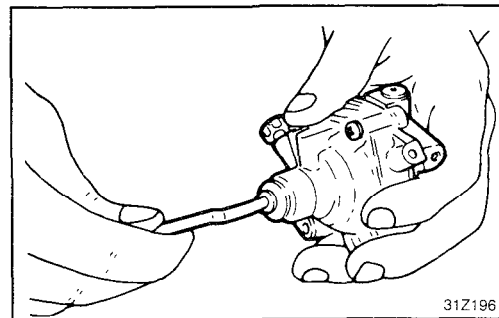
Using a circuit tester, measure resistance between the terminal and body.

Bimetal resistance . . . . . Approx. 6 $\Omega$  [at 20°C (68°F)]



**Dash Pot**

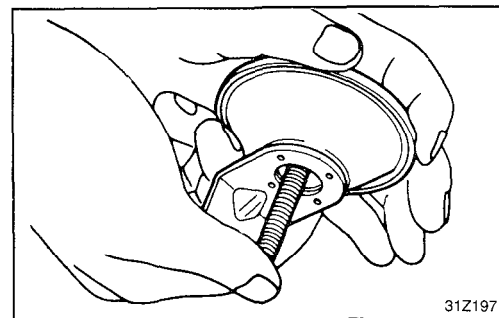
Check that the dash pot operates normally. Resistance must be felt when the dash pot is pulled. When the rod is released it must return quickly to the original position. If no resistance is felt when it is pulled, the diaphragm or the check valve is broken. If the rod returns slowly, the check valve is binding. In either case, replace the dash pot.



31Z196

**Secondary Throttle Chamber (Depression Chamber)**

Check the secondary throttle chamber diaphragm for damage. First, push up fully and closing tightly the nipple with a finger, release the rod. The diaphragm is intact if the rod does not return to the initial position while the nipple is held closed with a finger. If the rod returns, the diaphragm is broken. Replace the secondary throttle chamber.



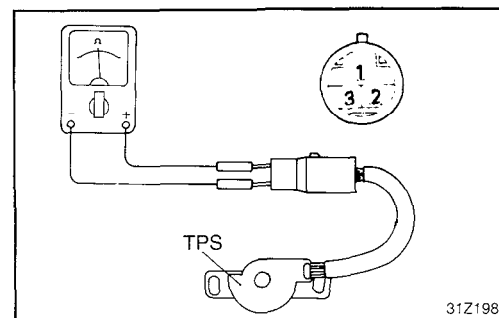
31Z197

**Throttle Position Sensor (TPS)**

1. Measure resistance between terminals 1 and 2 of the throttle position sensor.

TPS resistance . . . . .	3.5-6.5 K $\Omega$
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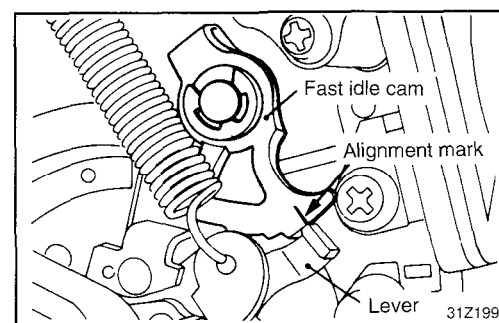
2. Check the body for crack and damage.



31Z198

**Fast Idle Opening**

1. Set the lever on the mark (scribed line) of fast idle cam.

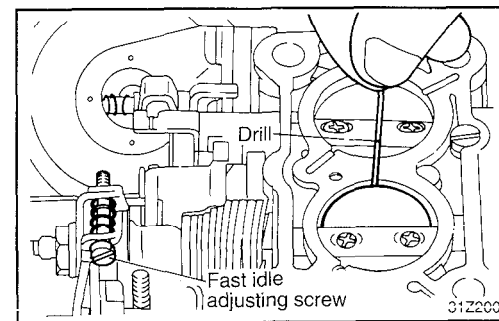


31Z199

2. Measure the primary valve to throttle bore clearance.

**Fast opening (drill diameter)**

M/T . . . . .	0.93 mm (0.037 in.)
A/T . . . . .	1.02 mm (0.040 in.)



31Z200

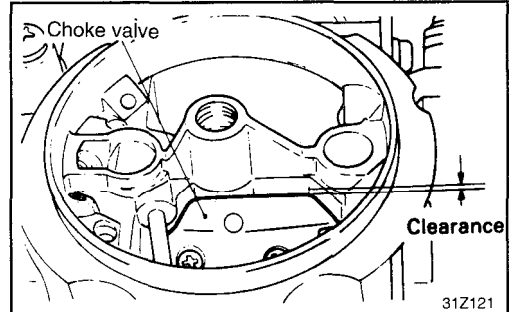
3. If the clearance is out of specification, adjust using the fast idle adjusting screw for the standard value.

Adjusting screw	Valve opening	Fast idle rpm
Clockwise	Larger	Increases
Counterclockwise	Smaller	Decreases

### Unloader Opening

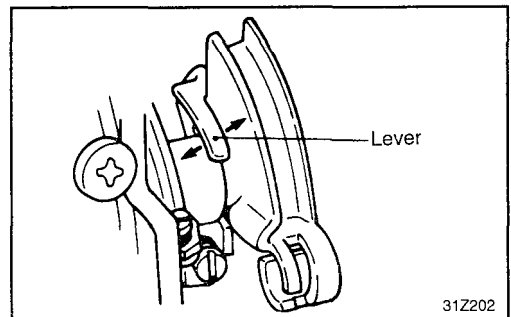
1. Lightly press the choke valve with a finger to fully close it.
2. In this state, fully open the throttle valve and measure the choke valve to choke bore clearance.

Standard value . . . . . 1.9-2.1 mm (0.075-0.083 in.)



3. If the clearance is out of specification, bend the throttle lever at illustrated portion to adjust the clearance to the standard value.

Direction	Clearance	Remarks
Up	Larger	Power response
Down	Smaller	Lower output (Plug likely to get sooty)



### Choke Breaker

#### CAUTION

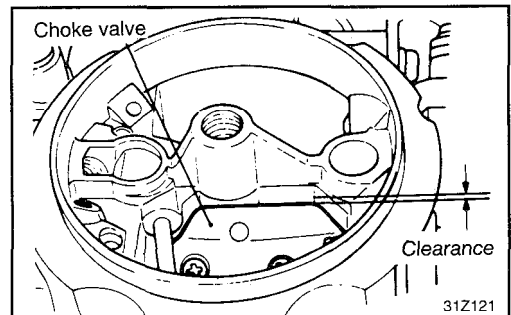
Check and adjust with the bimetal assembly removed.

1. Lightly press the choke valve with a finger to fully close it.
2. Push the choke breaker rod toward the diaphragm and measure the choke valve to choke bore clearance.

Standard value

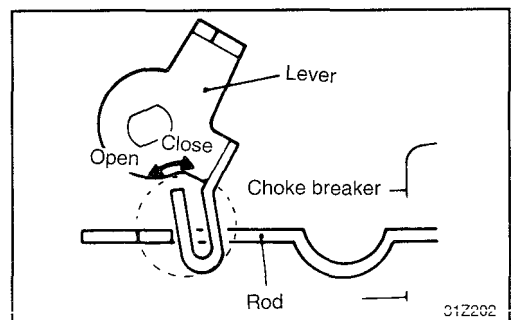
1st stage . . . . . 1.4-1.6 mm (0.055-0.063 in.)

2nd stage . . . . . 2.9-3.1 mm (0.14-0.122 in.)



3. If the clearance is out of specification, adjust by bending the throttle lever at illustrated portion.

Bending	Clearance	Remarks
Open	Larger	Poor startability, more likely to stall
Close	Smaller	Plug likely to get sooty



**INSTALLATION**

1. Inspect the mating surfaces of carburetor and intake manifold. Be sure both surfaces are clean and free of nicks, burrs or other damage.
2. Place a new carburetor gasket on intake manifold surface.
3. Carefully place the carburetor on intake manifold.
4. Install carburetor mounting bolts and tighten alternately, a little at time, to compress carburetor gasket evenly. The bolts must be drawn down tightly to prevent vacuum leakage between the carburetor and intake manifold.
5. Connect the throttle cable, vacuum hoses and fuel hoses.
6. Check carefully for worn or loose vacuum hose connections.
7. Check to be sure the choke valve opens and closes fully when operated.
8. Check to see that full throttle travel is obtained.
9. Install air cleaner. The air cleaner should be cleaned or replaced at this time to ensure proper carburetor performance.
10. Connect battery cable.

**CAUTION**

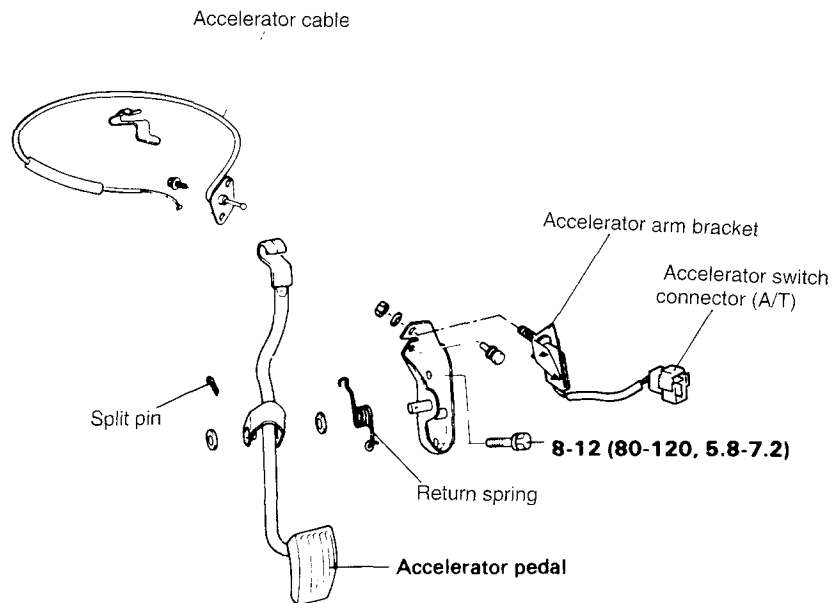
**The practice of priming an engine by pouring gasoline into the carburetor air horn for starting after servicing the fuel system should be strictly avoided. Cranking the engine and priming by depressing the accelerator pedal several times should be adequate.**

11. Set carburetor idle speed and mixture adjustment.



## ENGINE CONTROL

## COMPONENTS

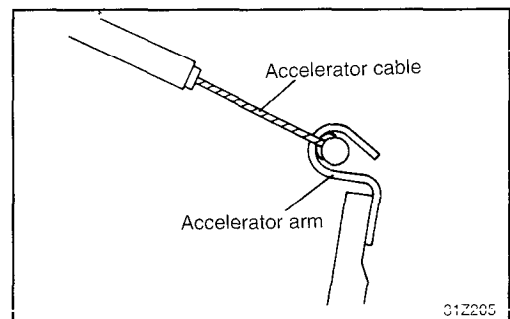
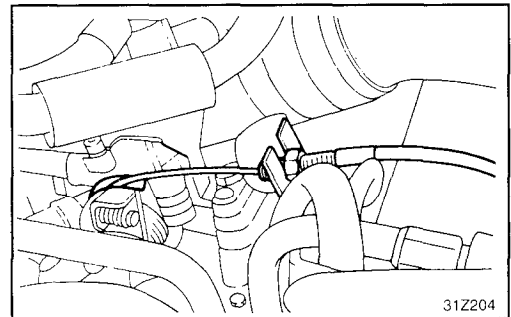


TORQUE : Nm (kg.cm, lb.ft)

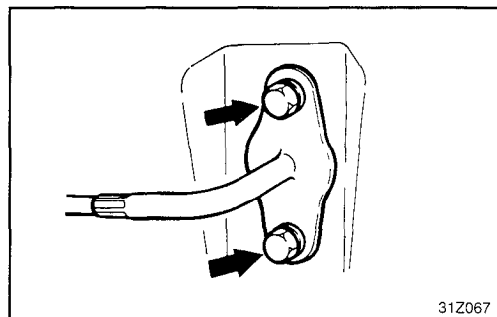
## REMOVAL

## Accelerator Cable

1. Loosen the accelerator cable adjusting nut.
2. Disconnect the accelerator cable from either the throttle lever.
3. Disconnect the accelerator cable from the accelerator arm.

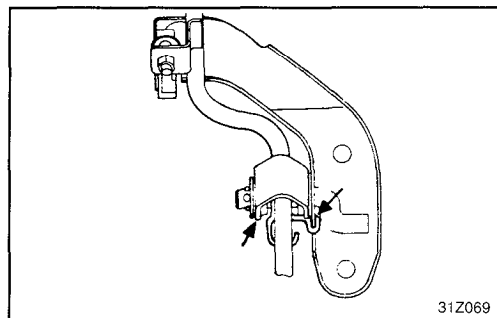


4. Disconnect the accelerator cable guide from the fire wall, and then remove the accelerator cable.



### Accelerator Pedal

1. Loosen the accelerator cable adjusting nut, and disconnect the accelerator cable from the accelerator arm and remove the accelerator pedal.
2. Remove the return spring from the accelerator arm.
3. Remove the cotter pin from the accelerator arm shaft, and then remove the accelerator arm from the accelerator arm bracket.



### INSPECTION

1. Check the inner and outer cables for damage.
2. Check the cable for smooth movement.
3. Check the accelerator arm for bending.
4. Check the return spring for deterioration.
5. Check for connection of accelerator cable to end fitting

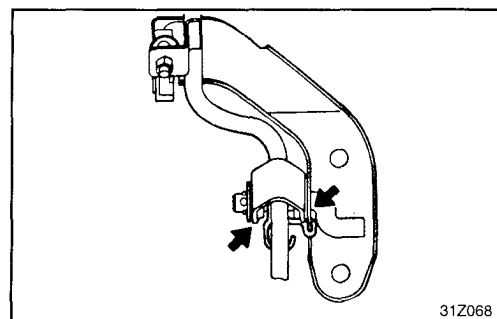
### INSTALLATION

1. Apply the specified multipurpose grease around the each moving point of the pedal.

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Recommended multipurpose grease . . . . .  
 Multipurpose grease SAE J310a, NLGI  
 grade #2 or equivalent

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2. To prevent entry of exhaust fumes, apply semi-drying type sealant to the bolt mounting hole, and then tighten the accelerator arm bracket.
3. Make sure that the accelerator cable is laid without sharp bends.
4. inspect the play of accelerator cable.
5. Install parts and torque to specification.

