

GENERAL INFORMATION

The fuel system consists of the variable venturi type carburettor and mechanical fuel pump, etc.

Fuel in the fuel tank is filtered and supplied to the carburettor by the fuel pump.

GENERAL SPECIFICATIONS

Items		Vehicles for General Export
Fuel pump	Type	Mechanical diaphragm type
	Driven by	Camshaft
	Discharge pressure kPa	1925
Carburettor	Type	Down-draft, variable venturi, conventional, Aisan
	Body	Aluminium
	Choke type	Automatic (wax type)
	Throttle bore mm	42
	Fuel cut solenoid valve	ON/OFF type solenoid valve
	Dash pot	Equipped* ¹
	No. 2 breaker valve	Equipped
	High altitude compensation nipple	Equipped* ²
	Idle limiter cap	Not equipped

NOTE

*1: A/T only

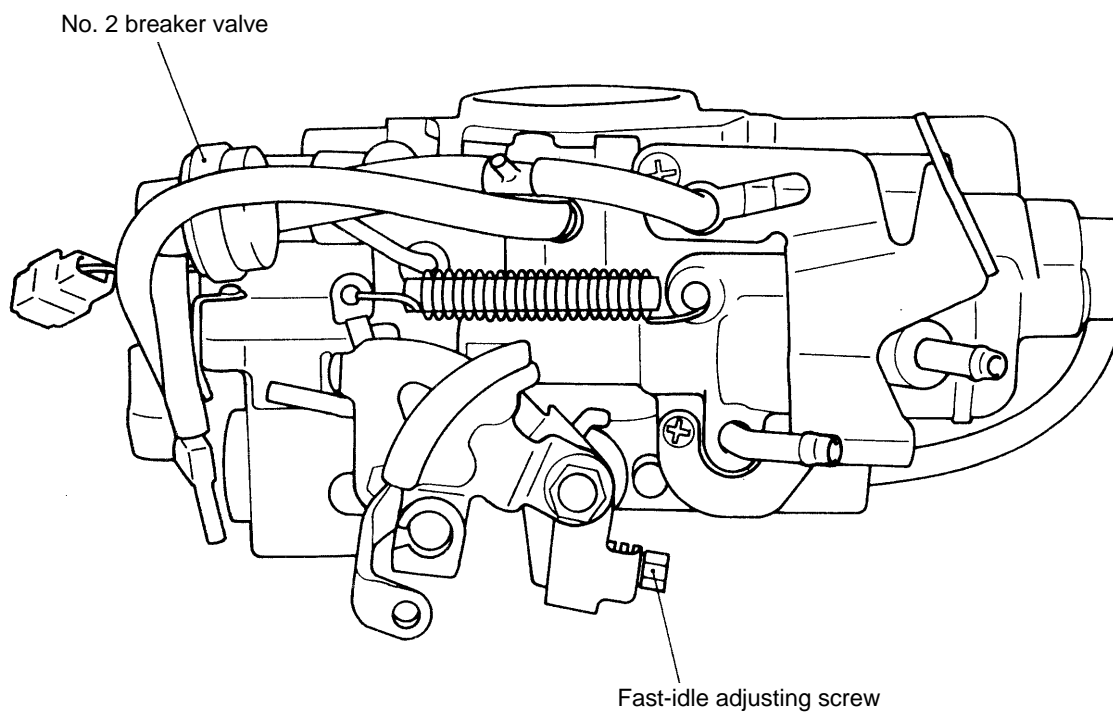
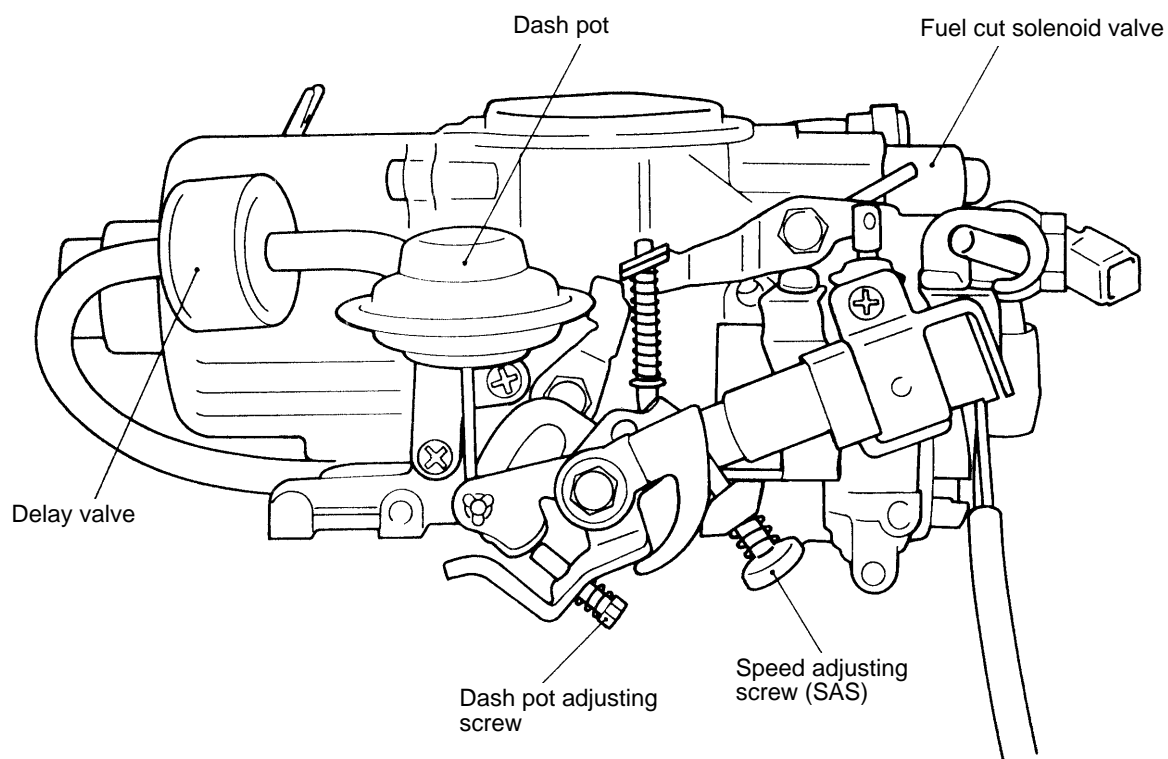
*2: Vehicles for high altitude only

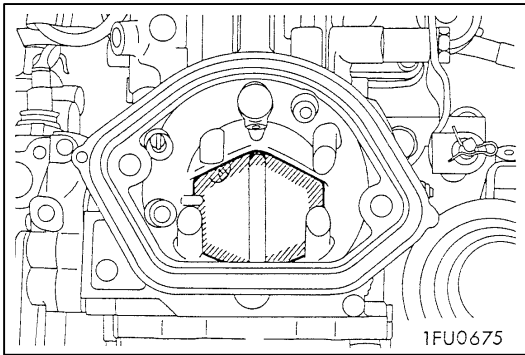
CARBURETTOR APPEARANCE

MAIN

Group
13

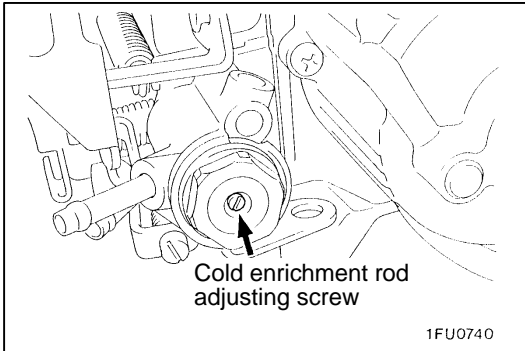
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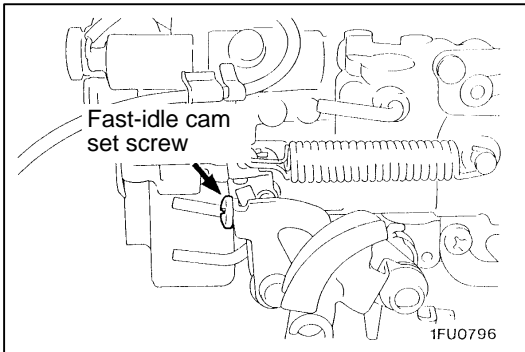


Caution

1. The performance of the variable-venturi carburettor is seriously affected if the suction piston fails to move smoothly. Keep the area between the body and piston free of dust and chips (hatched area).



2. The cold enrichment rod adjusting screw and the fast-idle cam set screw have been adjusted correctly at the factory and their readjustment is very difficult. Never disturb their setting.



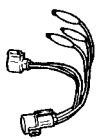
SERVICE SPECIFICATIONS

Items	Standard value
Throttle position sensor adjusting voltage mV	230–270
Throttle position sensor resistance k Ω	3.5 – 6.5
Fast idle speed r/min	2,900 \pm 200
Unloader opening mm	8 or more
Clearance between needle valve and float lever mm	1.0
Clearance between float and carburettor body mm	4.3

LUBRICANT

Items	Specified lubricant	Quantity
Linear ball bearing	3M 4 Way Part No. 051135-08902 or equivalent	As required

SPECIAL TOOL

Tool	Number	Name	Use
	MD998478	Test harness (3-pin, triangle)	Throttle position sensor check

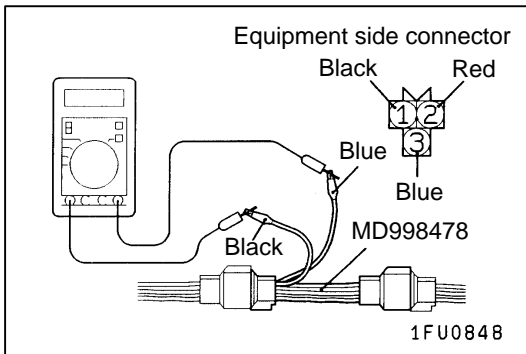
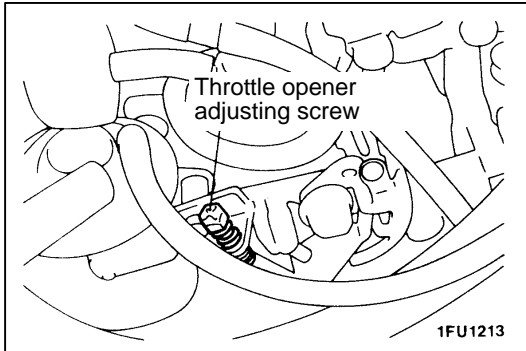
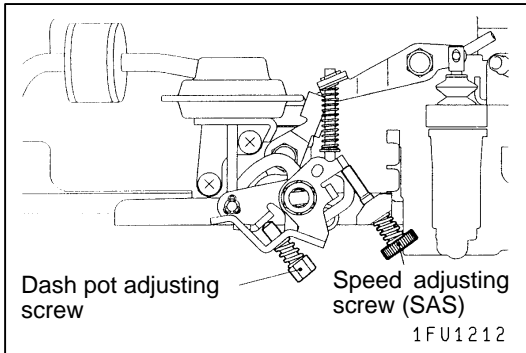
ON-VEHICLE SERVICE

THROTTLE POSITION SENSOR ADJUSTMENT

1. Warm up the engine until the engine coolant temperature increases to 80°C or more to release the fast idle.
2. Remove the air cleaner.
3. Loosen the accelerator cable tension sufficiently.
4. After backing out the speed adjusting screw (SAS) sufficiently, check that the throttle valve is fully closed.
5. If the throttle valve is not fully closed, back out the dash pot adjusting screw and the throttle opener adjusting screw sufficiently to securely set the throttle valve to the fully closed position.

NOTE

At this time, make a note of how many turns the screws were backed out.



6. Disconnect the throttle position sensor connector and connect the special tool (test harness) between the disconnected connectors.
7. Connect a digital type voltmeter between the throttle position sensor terminal 3 (blue clip: sensor output) and terminal 1 (black clip: sensor earth).
8. Turn the ignition switch to "ON." (Do not start the engine.)
9. Check the throttle position sensor output voltage.

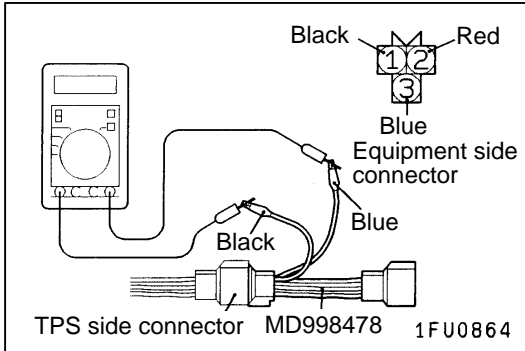
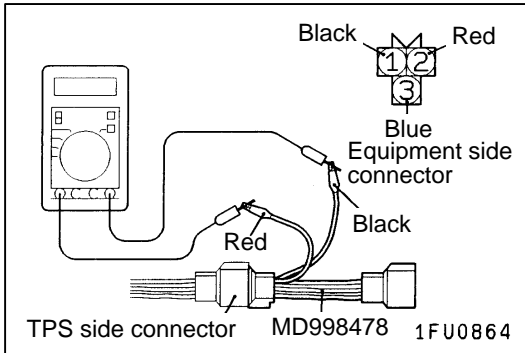
Standard value: 230 – 270 mV

10. If it is not within the standard value, adjust the throttle position sensor by moving it back and forth.
11. Turn the ignition switch to "OFF."
12. Turn in the screws that were backed out in step (5) until they are at their original positions.
13. Adjust the accelerator cable tension.
14. Adjust the idle speed.

THROTTLE POSITION SENSOR CHECK

1. Disconnect the throttle position sensor connector and connect the special tool (test harness) to the connector on the throttle position sensor side.
2. Measure the resistance between the throttle position sensor terminal 1 (black clip) and terminal 2 (red clip).

Standard value: 3.5 – 6.5 kΩ



3. Measure the resistance between the throttle position sensor terminal 1 (black clip) and terminal 3 (blue clip).

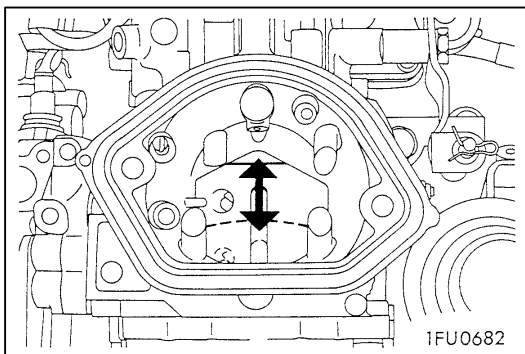
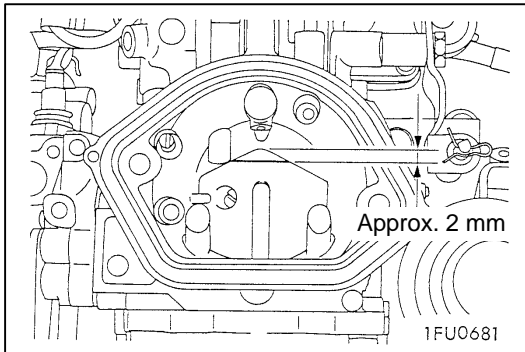
Throttle valve slowly opens until fully open from the idle position

Changes smoothly in proportion to the opening angle of the throttle valve

4. If the resistance is not within the standard value, or if it does not change smoothly, replace the throttle position sensor.

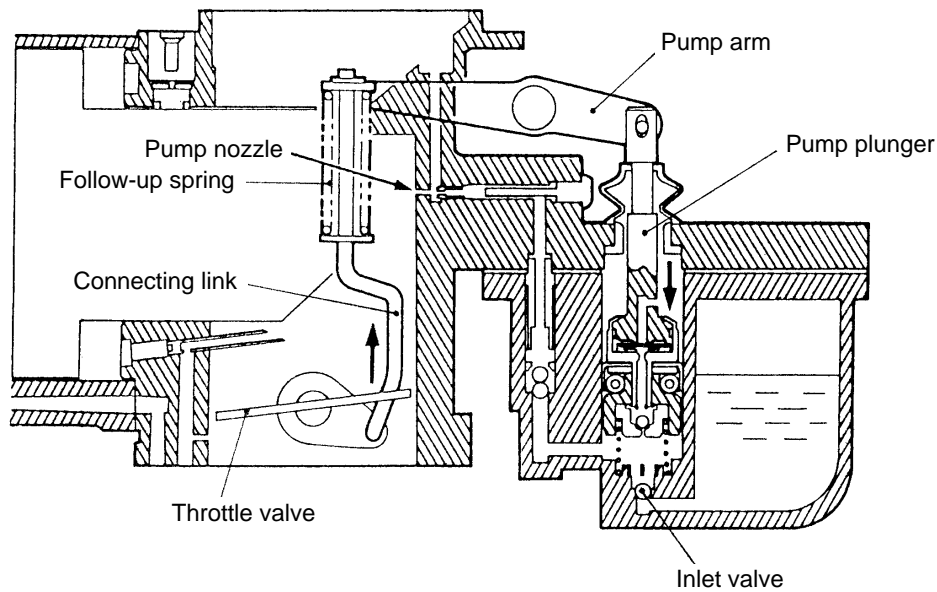
SUCTION PISTON CHECK

1. Check that the suction piston is totally closed when the engine is stopped.
2. Check that the suction piston moves smoothly when sliding manually.
3. Start the engine and warm it up.
4. Check that the suction piston is slightly open (about 2 mm) during idle operation.

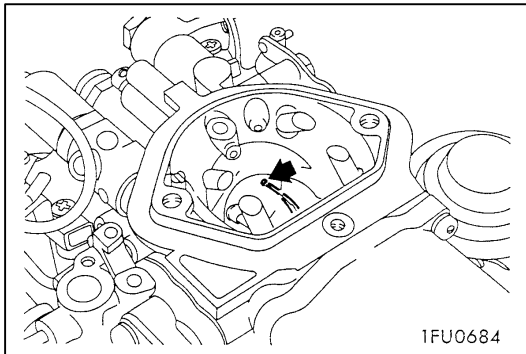


5. Check that the suction piston operates sensitively and smoothly when the engine is raced.

CARBURETTOR ACCELERATION PUMP CHECK



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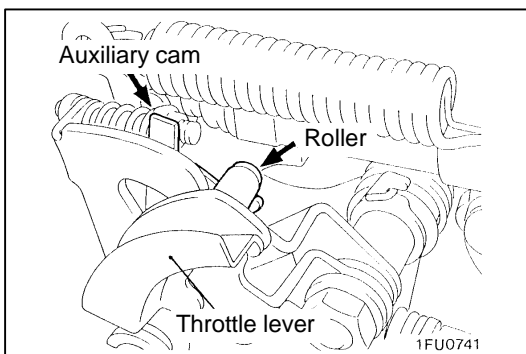
1. Check that fuel is injected strongly from the pump nozzle when the throttle valve is opened quickly with the suction piston fully opened.
2. If fuel is injected only weakly, clean the carburettor fuel passages.

NOTE

Faulty accelerator pump causes poor acceleration.

FAST IDLE ADJUSTMENT

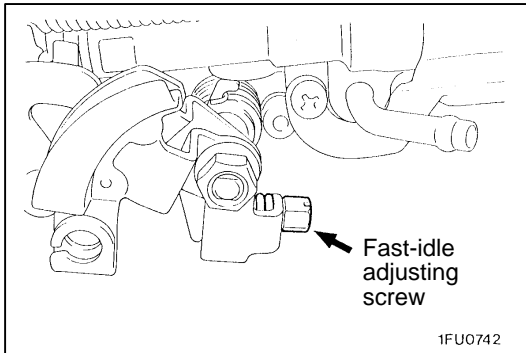
1. Start the engine and warm it up until the coolant temperature rises to 80°C or higher.
2. Stop the engine.
3. Set the tachometer.



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4. Pull the throttle lever and let its roller rest on the auxiliary cam.
5. Start the engine and check if the fast-idle speed is as specified.

Standard value: 2,900 ± 200 r/min

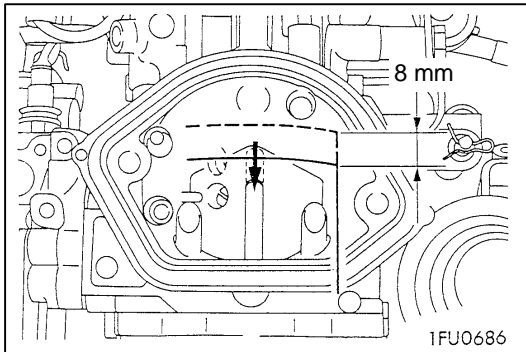


6. If not within the standard value, adjust with the fast-idle adjusting screw.

Turning direction of adjusting screw	Fast-idle speed
Clockwise	High
Anticlockwise	Low

NOTE

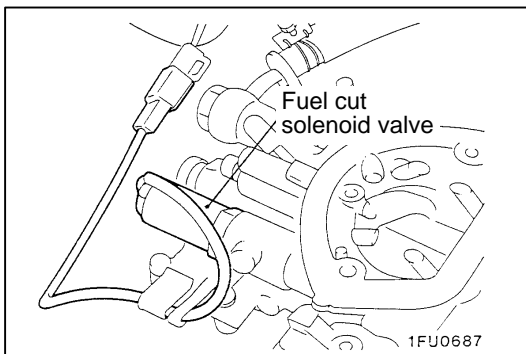
After inspection and adjustment, racing the engine releases the throttle lever from the auxiliary cam and sets the idle speed.



UNLOADER LIFT (SUCTION PISTON LIFT) CHECK

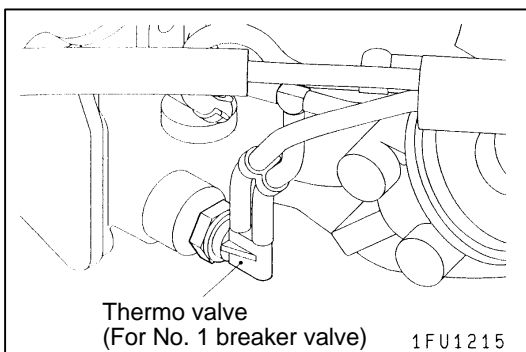
1. Measure the suction piston stroke when the throttle valve is opened fully from the idle position.

Standard value: 8 mm or more



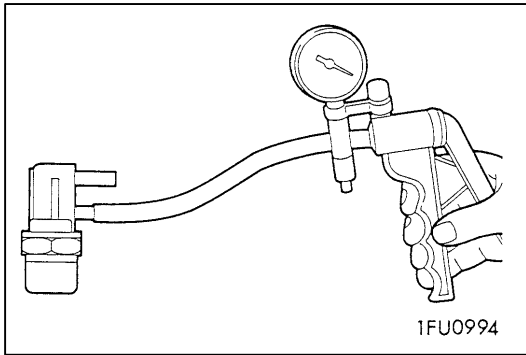
FUEL CUT SOLENOID VALVE CHECK

1. Place a sound scope against the fuel cut solenoid valve and check that a click is heard when the ignition switch is turned ON.
2. Start the engine and check that the engine stops when the fuel cut solenoid valve connector is disconnected while the engine is running at idle.



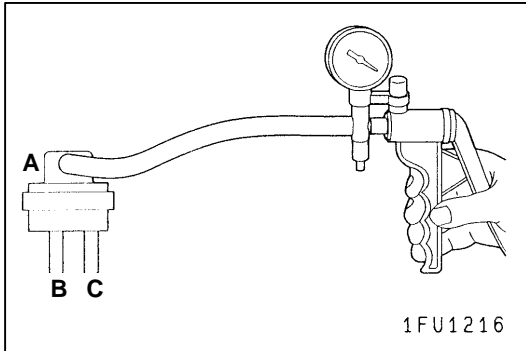
THERMO VALVE (FOR NO. 1 BREAKER VALVE) CHECK

1. Disconnect the vacuum hoses (yellow striped, red striped) and connect a hand vacuum pump to the nipple of thermo valve.



2. Apply a vacuum to check the thermo valve.

Engine coolant temperature	Normal state
10°C or less	Vacuum leaks
30°C or more	Vacuum is maintained



NO. 2 BREAKER VALVE CHECK

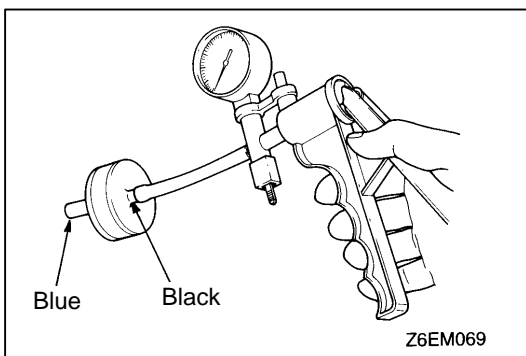
1. Remove the No. 2 breaker valve.

NOTE

When disconnecting the vacuum hose, always place an identification mark so that it can be reconnected at original position.

2. Connect a hand vacuum pump to the nipple A of No. 2 breaker valve.
3. Apply a vacuum of 53 kPa, and check that vacuum is maintained.
4. Apply a vacuum to the nipple A, and check that air flows through the B and C nipples.

Vacuum	Ventilation between B and C nipples.
0	No
40 kPa	Yes



DELAY VALVE CHECK

1. Remove the delay valve.

NOTE

When disconnecting the vacuum hose, always place an identification mark so that it can be reconnected at original position.

2. Connect a hand vacuum pump to the black nipple. Block the other nipple with a finger to produce a vacuum (67 kPa). Release the finger and confirm that the vacuum leaks gradually.
3. Connect a hand vacuum pump to the nipple opposite to the black nipple. Produce a vacuum and confirm that the vacuum leaks.

CARBURETTOR ASSEMBLY

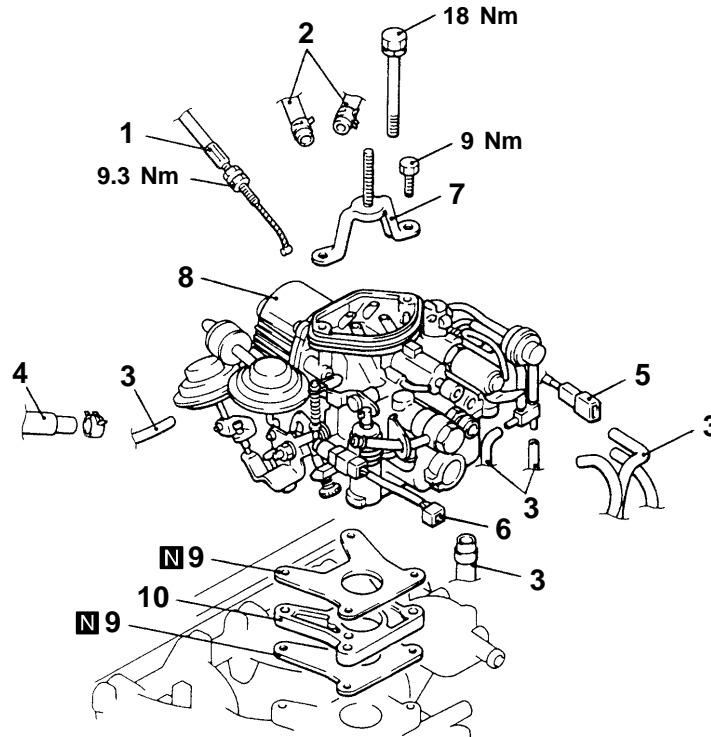
REMOVAL AND INSTALLATION

Pre-removal Operation

- Engine Coolant Draining
- Air Cleaner Removal

Post-installation Operation

- Air Cleaner Installation
- Engine Coolant Supplying
- Accelerator Cable Adjustment

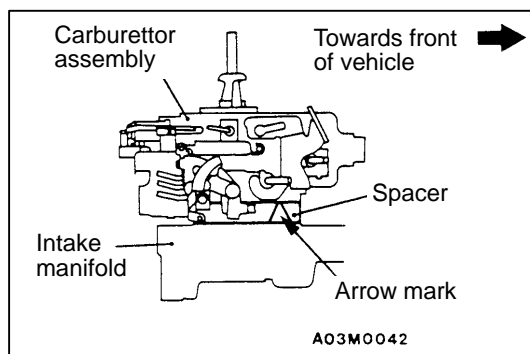


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Removal steps

1. Accelerator cable connection
 2. Water hose connection
 3. Vacuum hose connection
 4. Fuel hose connection
 5. Fuel cut solenoid valve connector
 6. Throttle position sensor connector
- <A/T>

7. Air cleaner stud
8. Carburettor assembly
9. Gasket
10. Spacer



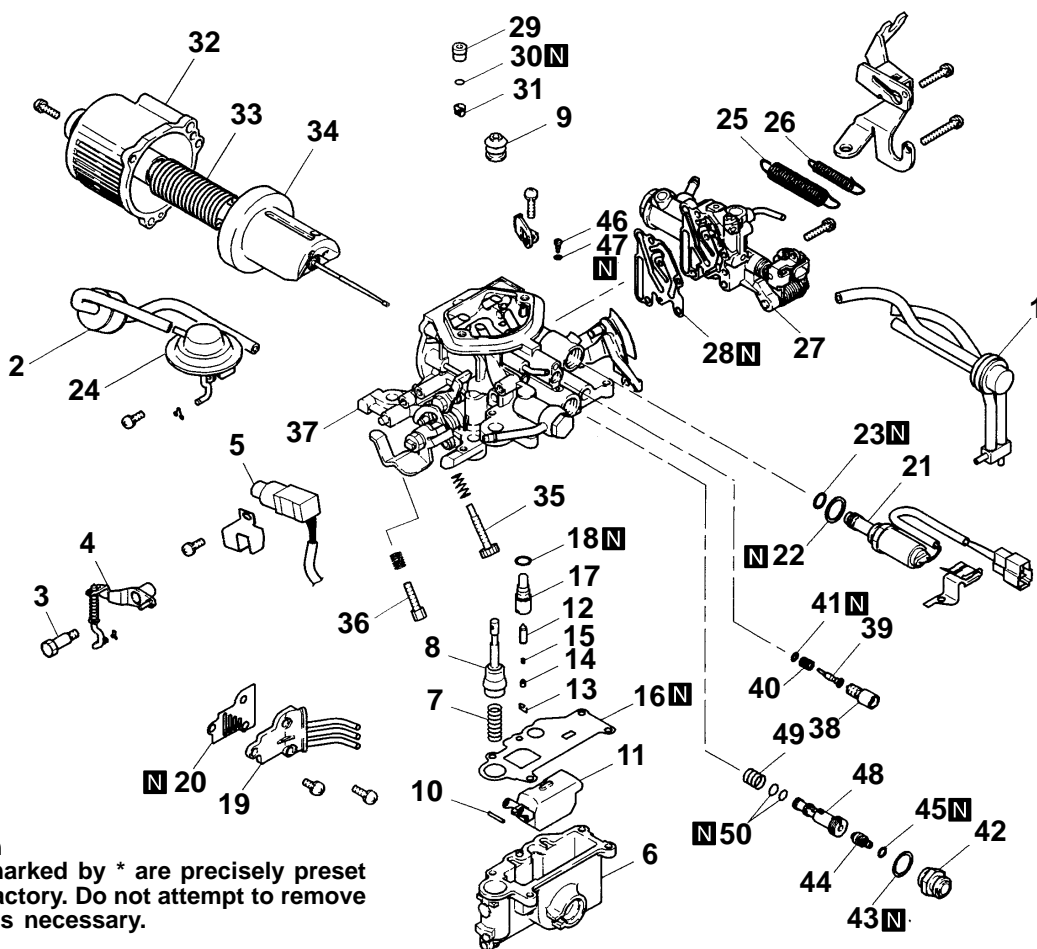
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INSTALLATION SERVICE POINT

►A◄ SPACER INSTALLATION

Install the spacer so that its arrow mark should face upwards.

DISASSEMBLY AND REASSEMBLY



Caution
Parts marked by * are precisely preset
at the factory. Do not attempt to remove
it unless necessary.

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Disassembly steps

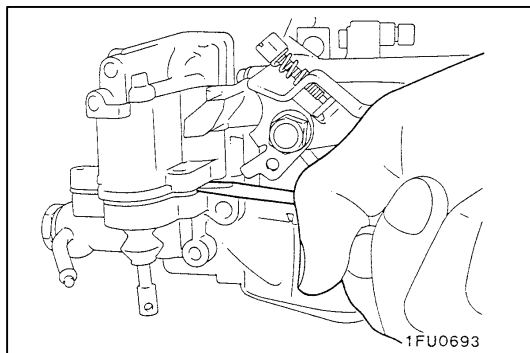
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|-----------------------------------|------------------------------------|
| 1. No. 2 breaker valve | 26. Wax back spring (inner) |
| 2. Delay valve | 27. Compensator |
| 3. Special screw | 28. Gasket |
| 4. Pump lever sub assembly | 29. Plug plate |
| 5. Throttle position sensor <A/T> | 30. O-ring |
| 6. Float bowl | 31. Pin |
| 7. Spring | 32. Suction chamber |
| 8. Pump plunger | 33. Suction spring |
| 9. Boot | 34. Suction piston |
| 10. Pin | 35. Speed adjusting screw (SAS) |
| 11. Float | 36. Dash pot adjusting screw <A/T> |
| 12. Needle valve | 37. Carburettor body sub assembly |
| 13. Hook | 38. Mixture adjusting screw (MAS)* |
| 14. Push pin | 39. Needle* |
| 15. Spring | 40. Spring* |
| 16. Gasket | 41. Plate* |
| 17. Needle valve seat | 42. Main jet plug* |
| 18. Gasket | 43. Gasket* |
| 19. Adaptor | 44. Main jet adjusting screw* |
| 20. Gasket | 45. O-ring* |
| 21. Fuel cut solenoid valve | 46. Pin* |
| 22. Gasket | 47. Gasket* |
| 23. O-ring | 48. Main jet* |
| 24. Dash pot <A/T> | 49. Spring* |
| 25. Wax back spring (outer) | 50. O-ring* |

DISASSEMBLY SERVICE POINTS

The following parts must not be disassembled at the time of disassembly.

1. Throttle valve and throttle shaft.
2. Painted adjusting screw.
3. Carburettor body sub assembly.

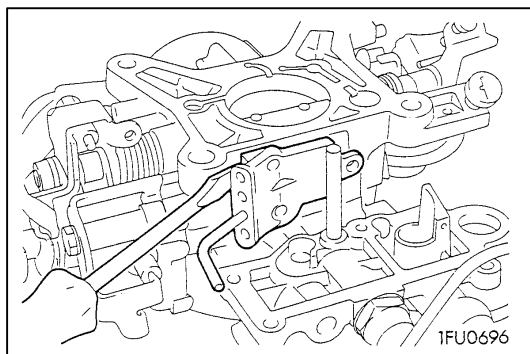
When loosening a cross recessed head screw, use a Phillips screwdriver which is an exact fit, as the screw has been tightened securely.

**◀A▶ FLOAT BOWL REMOVAL**

Do not attempt to remove the float bowl at once as it is held in position by the gasket. Insert a screwdriver blade between the carburettor body and the float bowl as illustrated and lightly pry it up and lift up gently.

NOTE

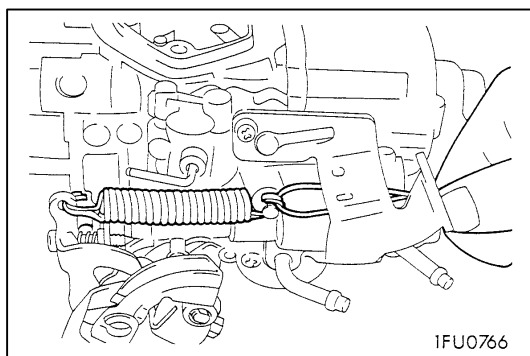
1. Do not apply excessive force.
2. The gasket cannot be removed unless the float has been removed. Do not attempt to remove the gasket simultaneously with the float bowl.

**◀B▶ ADAPTOR REMOVAL**

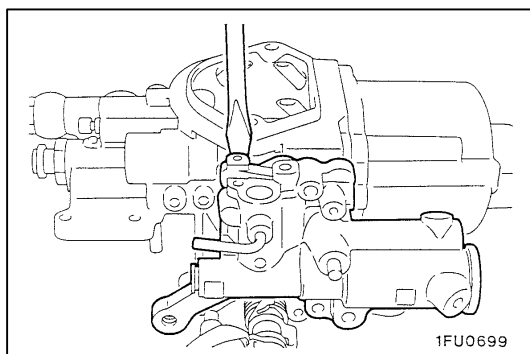
Do not attempt to remove the adaptor at once as it is held in position by the gasket. Insert a screwdriver blade between the carburettor body and the adaptor as illustrated and lightly pry it up and lift up gently.

NOTE

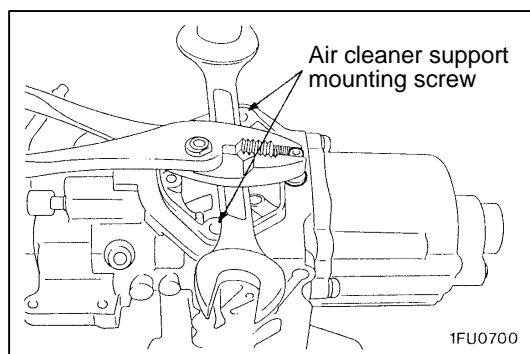
Do not apply excessive force.

**◀C▶ WAX BACK SPRING REMOVAL**

Hook a metal wire to the wax back spring as illustrated and remove the spring.

**◀D▶ COMPENSATOR REMOVAL**

The gasket will have adhered in position. Don't apply undue force but remove it prying lightly with a screwdriver as illustrated.

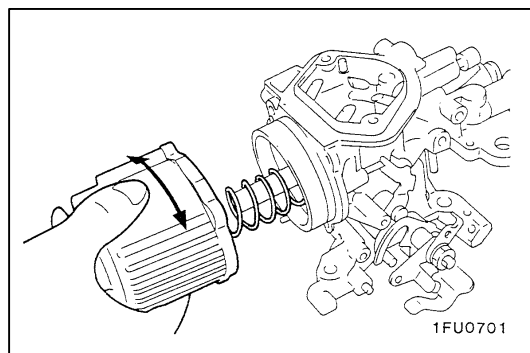


◀E▶ PLUG PLATE REMOVAL

Screw a bolt (thread diameter 4 mm, length 20 mm or more) into the plug plate and remove the plate using pliers and a wrench.

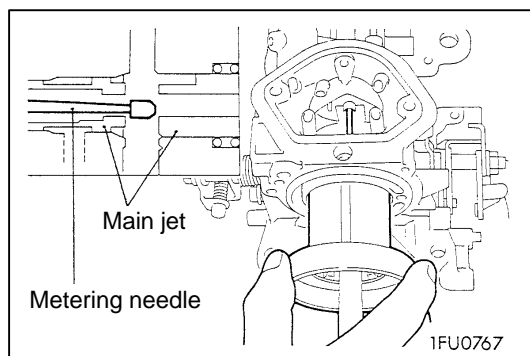
NOTE

Set the wrench across the air cleaner support mounting screw holes as illustrated.



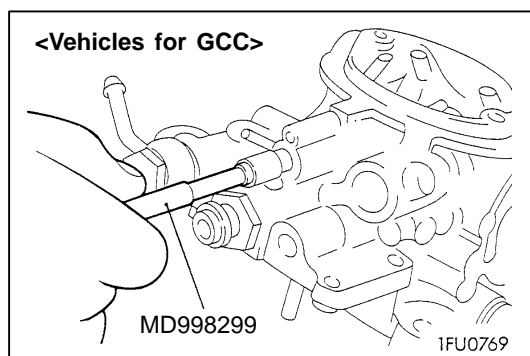
◀F▶ SUCTION CHAMBER SUB-ASSEMBLY REMOVAL

1. When removing the suction chamber from the carburettor body, do not pry or apply undue force. It can be easily removed by turning the suction chamber clockwise and anticlockwise.
2. Lifting up the metering needle a little with a finger to prevent it from interfering with the main jet, pull out the suction piston squarely.



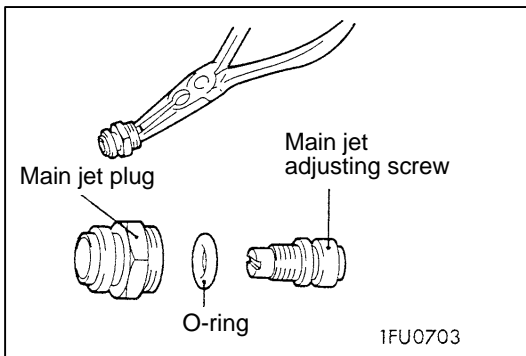
Caution

1. A smooth sliding motion of the suction piston is important for carburettor performance. Do not change the combination of the suction piston and suction chamber. Do not damage the inside surface of the suction piston or suction chamber either.
2. Once the metering needle is removed from the suction piston, the needle is likely to come loose. Do not, therefore, remove it from the suction piston.
3. The metering needle is easily deformed. Handle carefully after removal.



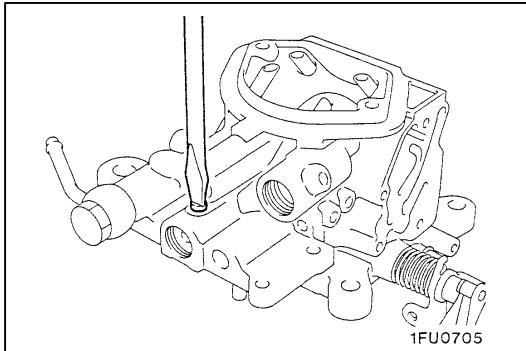
◀G▶ MIXTURE ADJUSTING SCREW (MAS) REMOVAL

Using the special tool (MAS Driver), remove the idle limiter cap and the MAS.



◀H▶ MAIN JET ADJUSTING SCREW REMOVAL

Holding the main jet adjusting screw with pliers, turn it anticlockwise to remove it from the main jet plug.



◀I▶ PIN/GASKET REMOVAL

1. Using care not to allow paint fragments to fall into the carburettor, remove the yellow paint from around the pin.
2. Remove the pin and gasket while paying attention to the main jet jumping out of place.

NOTE

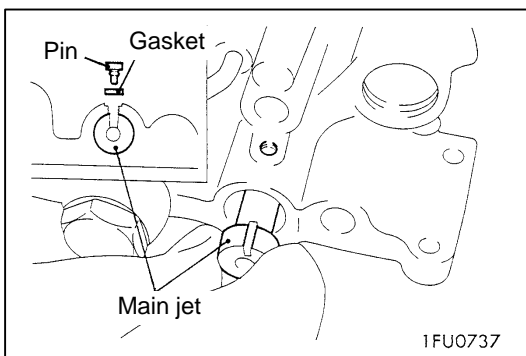
Gasket may have been adhered to by the yellow paint.

REASSEMBLY SERVICE POINTS

Caution

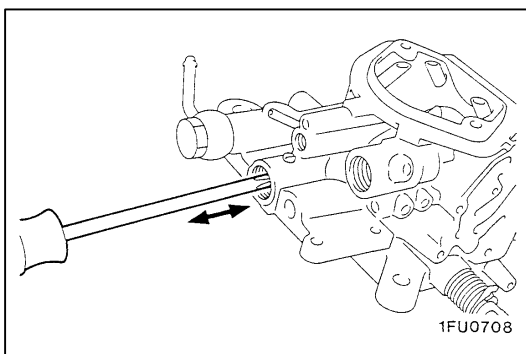
When washing and cleaning the parts, pay attention to the following.

1. Do not damage the suction piston, suction chamber surface, carburettor body bore or main jet path by using a brush, etc.
2. Do not attempt to wash the compensator. Do not allow dust to enter the bleed path.
3. Do not bend or damage the main jet or metering needle.

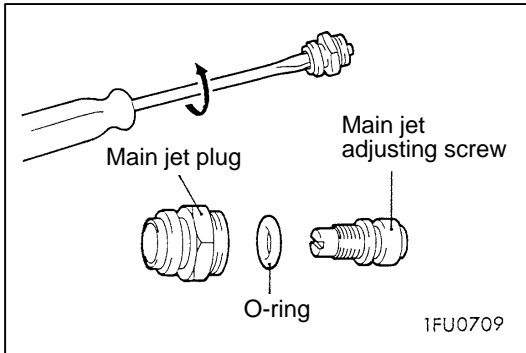


▶A◀ MAIN JET INSTALLATION

1. Install two O-rings onto the main jet and install them together with the spring into the carburettor body.
2. Pushing the main jet into the carburettor body using a Phillips screwdriver, align the main jet groove with the carburettor body pin hole and fit the pin with the gasket.

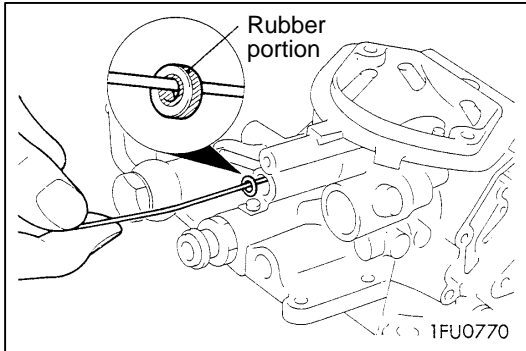


3. Press the main jet with a Phillips screwdriver to make sure that the main jet slides smoothly.



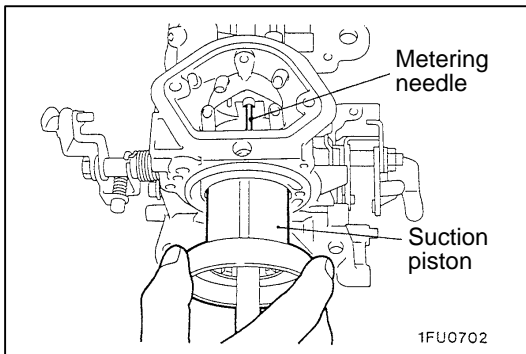
►B◄ MAIN JET ADJUSTMENT SCREW INSTALLATION

1. Tighten the main jet adjusting screw in the main jet plug with fingers.
2. Using a screwdriver, tighten the main jet adjusting screw plug, turning it anticlockwise. Do not damage the threads by overtightening the screw.
3. Install the main jet plug into the carburettor body through the gasket.



►C◄ MIXTURE ADJUSTING SCREW INSTALLATION

While using a wire to guide the plate, install the plate with its rubber portion directed toward the innermost side. Then, install the spring, needle and mixture adjusting screw in that order.

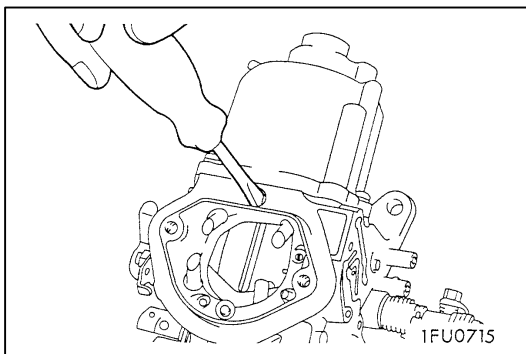


►D◄ SUCTION CHAMBER SUB-ASSEMBLY INSTALLATION

Using care not to bend the metering needle, insert the suction piston into the carburettor body. Do not force the piston to turn or push it hard when inserting.

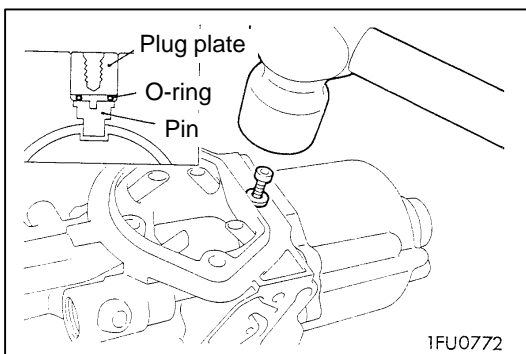
NOTE

If the metering needle tip interferes with the main jet and is hard to insert, lift the needle up a little with your fingers.



►E◄ PIN/O-RING/PLUG PLATE INSTALLATION

1. Align the suction piston groove with the carburettor body hole and, using a screwdriver, install the pin so that its protrusion is seated in the piston groove.
2. Make sure that the suction piston does not rotate.

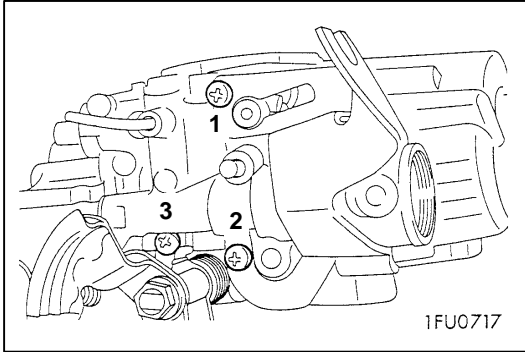


3. Install the O-ring.
4. Tighten a 4-mm thread diameter bolt into the plug plate and strike until the plug plate is flush with the carburettor body surface.

Caution

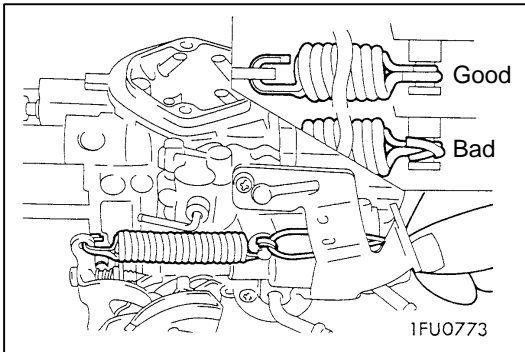
1. Place wood block, etc. under the carburettor to isolate the carburettor link mechanism from the work bench so that the link mechanism will be protected from weight and shock.

2. Make sure that O-ring is not caught between the plug plate and the carburettor body.



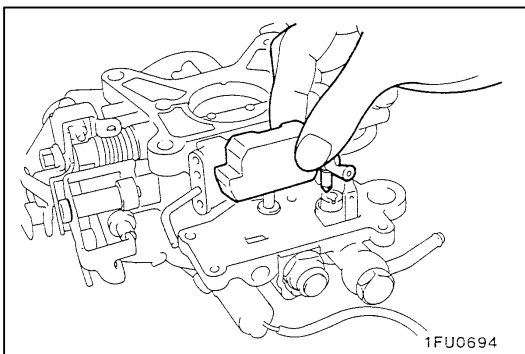
►F◄ COMPENSATOR INSTALLATION

Tighten the three screws lightly and then tighten them in the order shown in the figure.



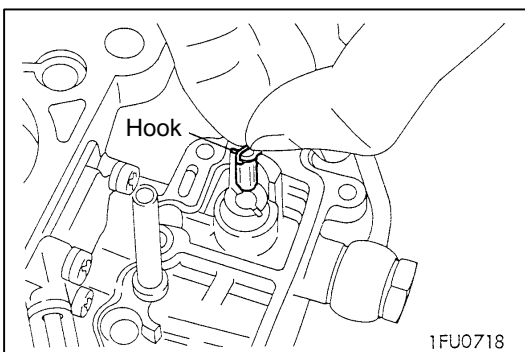
►G◄ WAX BACK SPRING INSTALLATION

1. Hook the wax back spring (inner) to the wax back spring (outer).
2. Using a metal wire, fit the wax back spring correctly as illustrated.



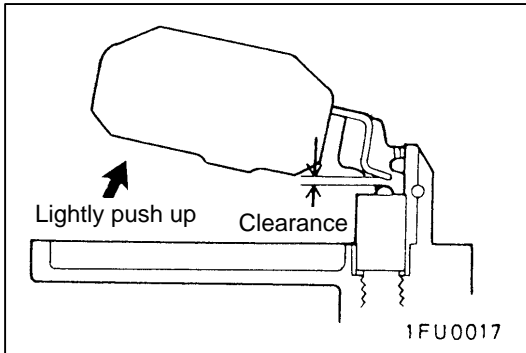
►H◄ FLOAT/PIN INSTALLATION

1. When assembling these parts, make the float level adjustment.
2. For adjustment of the float level, see the following.



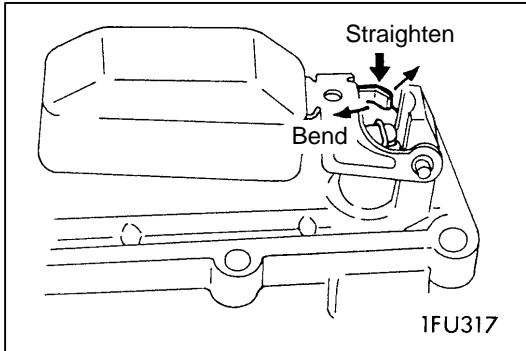
FLOAT LEVEL ADJUSTMENT

1. With the carburettor body turned upside down, remove the hook attached to the needle valve.
2. Attach the float and pin.



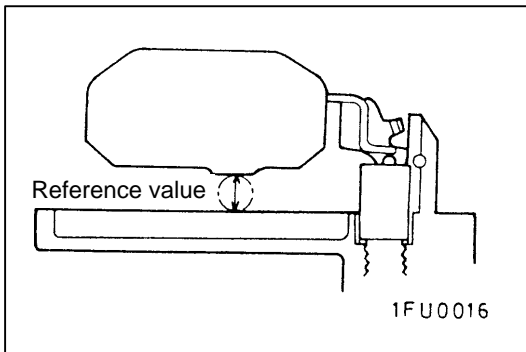
3. Lightly push up the float until it stops and measure the clearance between the needle valve and float lever.

Standard value: 1.0 mm



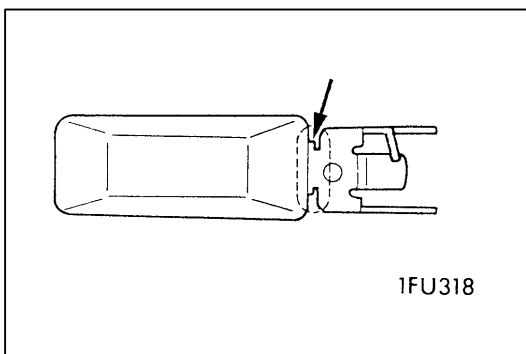
4. If the clearance is out of specification, adjust by bending or straightening the stopper indicated in illustration.

Stopper	Clearance
When stopper is bent	Greater
When stopper is straightened	Smaller



5. With the float at the position, to which it is lowered by its own weight, check for float to carburettor body clearance.

Standard value: 4.3 mm



6. If the clearance is not up to the specified reference value adjust by bending the portion indicated in illustration.
7. Remove the float and attach the hook to the needle valve.
8. Install the float, while hooking the float claw to the hook.

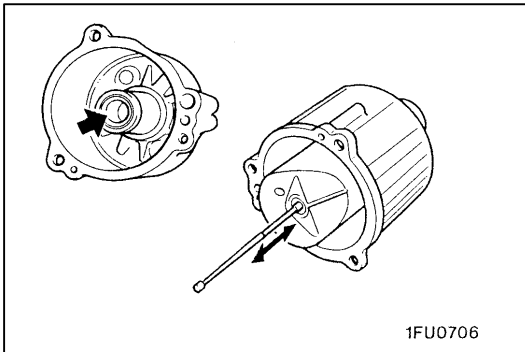
INSPECTION

GENERAL INSPECTION

Check the following and repair or replace parts if faulty.

1. Check fuel passages (jets) and air passages (jets or orifices) for clogging. If clogged, wash thoroughly with cleaning solvent or detergent and remove dirt by, compressed air.
Do not use wire or other metal pieces.
2. Check diaphragms, O-rings and springs for damage and cracks.

3. Check that needle valve operates lightly. If the valve is hard to operate 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 float and lever for deformation and damage and replace if necessary.
6. Check operation of the throttle valve, enrichment rod and link. If they do not operate lightly, wash well and apply engine oil sparingly to their shaft.
7. Check the float bowl and carburettor body for damage and cracks.



LINEAR BALL BEARING INSPECTION

1. Insert the suction piston in the suction chamber and check that it moves smoothly.
2. If the suction piston does not move smoothly, apply lubricant to the linear ball bearing.

Specified lubricant:

3M 4way part No. 051135-08902 or equivalent.

3. If the suction piston still fails to move smoothly after lubrication, replace the suction piston, metering needle, suction chamber and spring as a set.

DASH POT INSPECTION

Check the dash pot diaphragm for damage.

Apply a negative pressure of 500 mmHg using a hand vacuum pump and check if the pressure is held. Also check that the dash pot rod is pulled up when the negative pressure is applied. If the pressure is not held, the diaphragm is damaged. Replace the dash pot.

