

SECTION 6C

FUEL SYSTEM

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6C-2 FUEL SYSTEM

MAIN DATA AND SPECIFICATIONS

Item	Description 4ZD1
Carburettor model	21E304-M82
Manufacturer	Nippon Kikai
Type	Stromberg 2-barrel 2-stage
Fuel pressure	0.24 (3.4/23.5)
Jet orifice diameters	
Main jet	1.16 (0.046)
Main air bleed	1.70 (0.067)
Slow jet	0.60 (0.024)
Slow air bleed	0.60 (0.024)
Slow economizer	0.52 (0.020)
Power jet	0.80 (0.031)
Air jet	0.80 (0.031)
	1.20 (0.047)
	1.65 (0.065)
	1.60 (0.063)
	0.55 (0.022)
	2.40 (0.094)
Fuel pump	
Fuel filter	Mechanical diaphragm Paper (Cartridge type)

NOTES:

(P) = Primary

(S) = Secondary

MAIN DATA AND SPECIFICATIONS

Item	Description 4ZE1
Carburettor model	DCR384-205, DCR384-206
Manufacturer	Hitachi
Type	Stromberg 2-barrel 2-stage
Fuel pressure	0.25 (3.6/24.5)
Jet orifice diameters	
Main jet	#133
	#180
Main air bleed	#85
	#60
Slow jet	#50
	#100
Slow air bleed	#160
Slow economizer	#1.80
Power jet	#50
Fuel pump	Mechanical diaphragm
Fuel filter	Paper (Cartridge type)

NOTES:

(P) = Primary

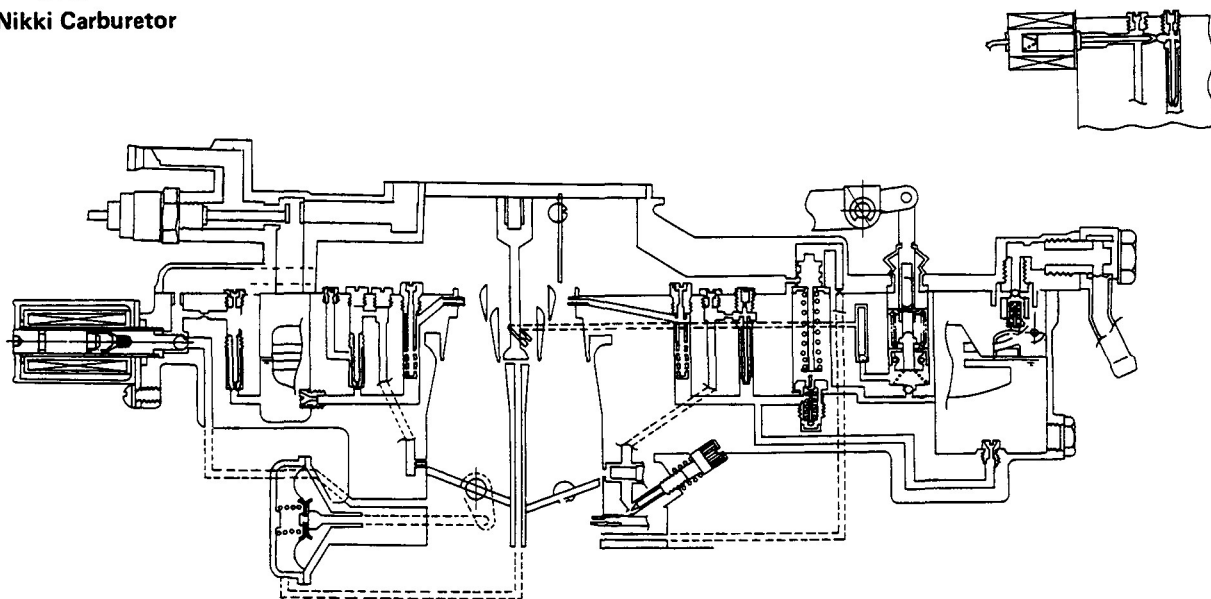
(S) = Secondary

GENERAL DESCRIPTION

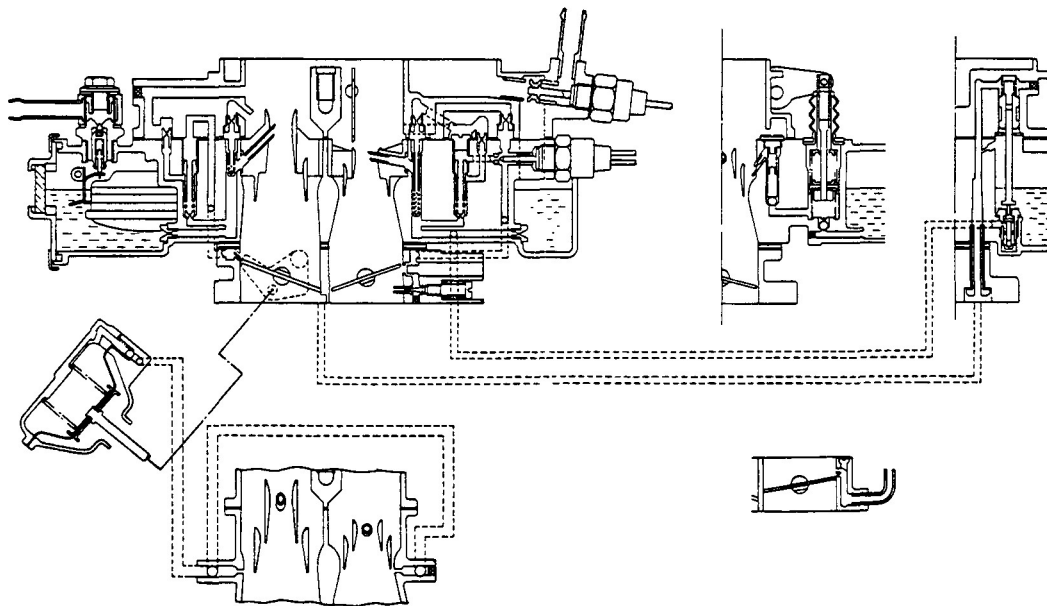
080206

CARBURETOR

Nikki Carburetor



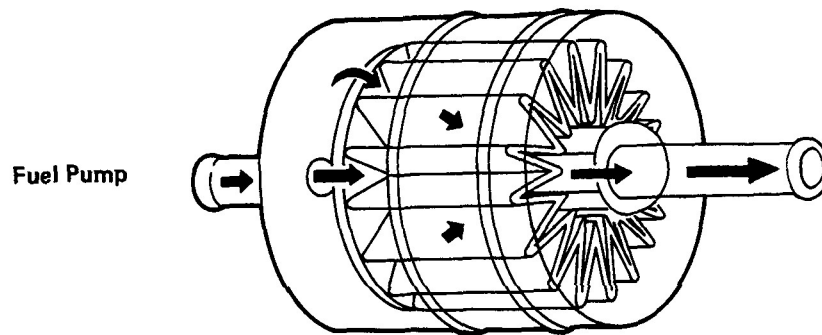
Hitachi Carburetor



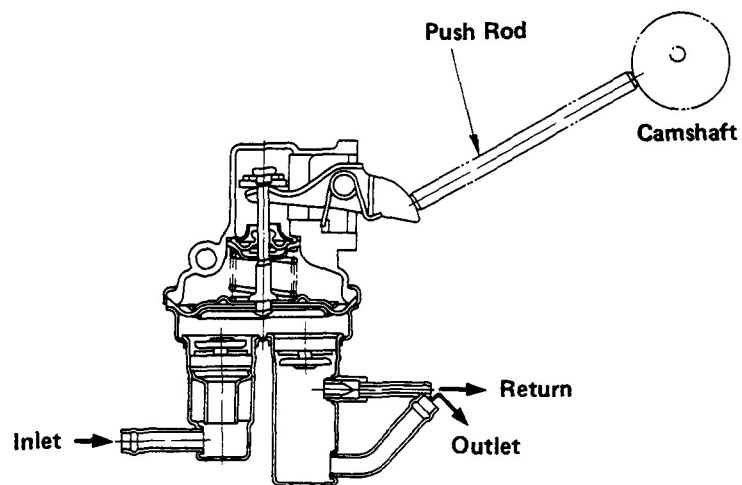
The 4Z Series engine uses a Stromberg 2-barrel, 2-stage carburetor. There are seven circuits.

1. Float chamber circuit
2. Slow speed circuit
3. Main circuit
4. Acceleration circuit
5. Step circuit
6. Power enrichment circuit
7. Choke circuit

The circuits operate either independently or in tandem. The best air-fuel mixture is delivered to the cylinders over a wide range of operating conditions.

FUEL FILTER

The fuel filter uses a large scale disposable cartridge type element.

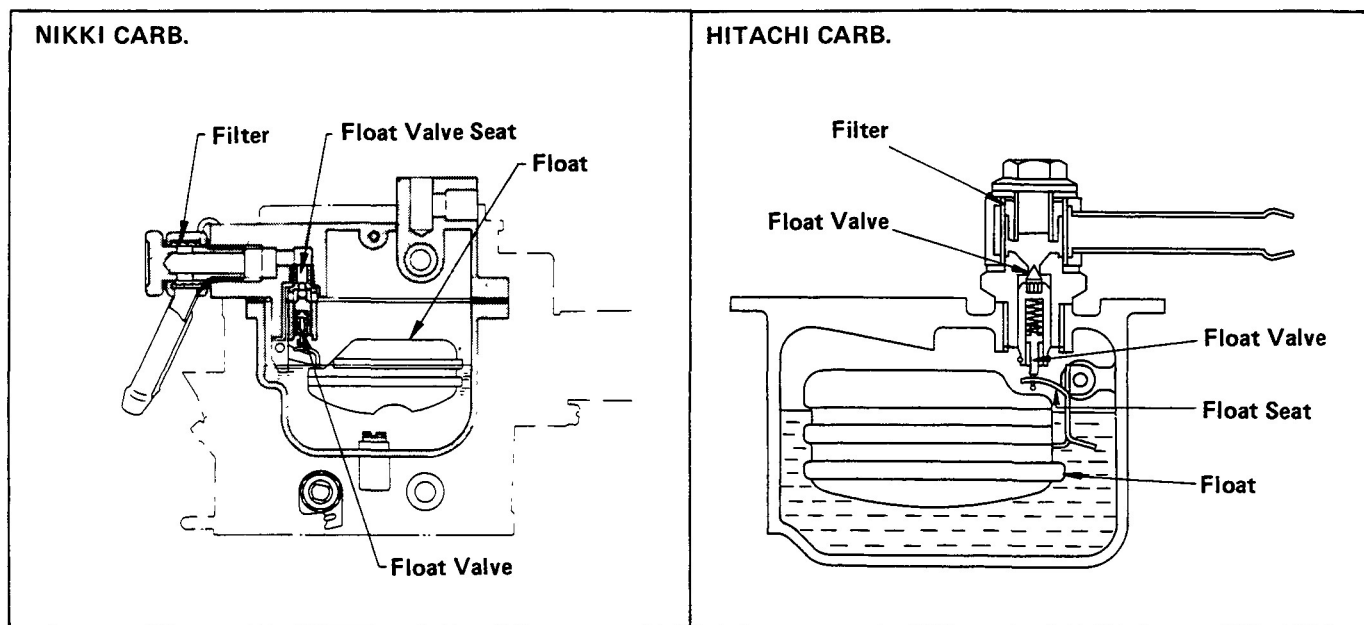
FUEL PUMP

The 4Z Series engine use a mechanical fuel pump.

A push rod from the camshaft eccentric moves the pump lever to operate the pump.

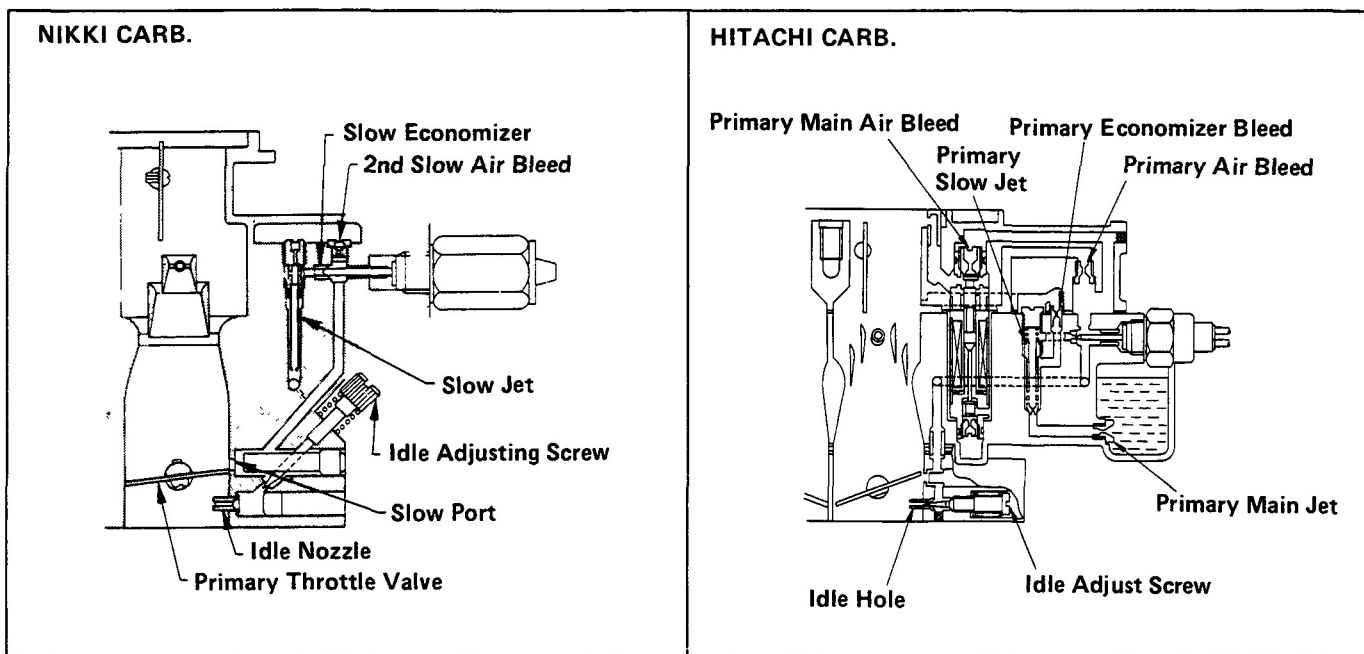
CARBURETOR CONSTRUCTION

FLOAT CHAMBER



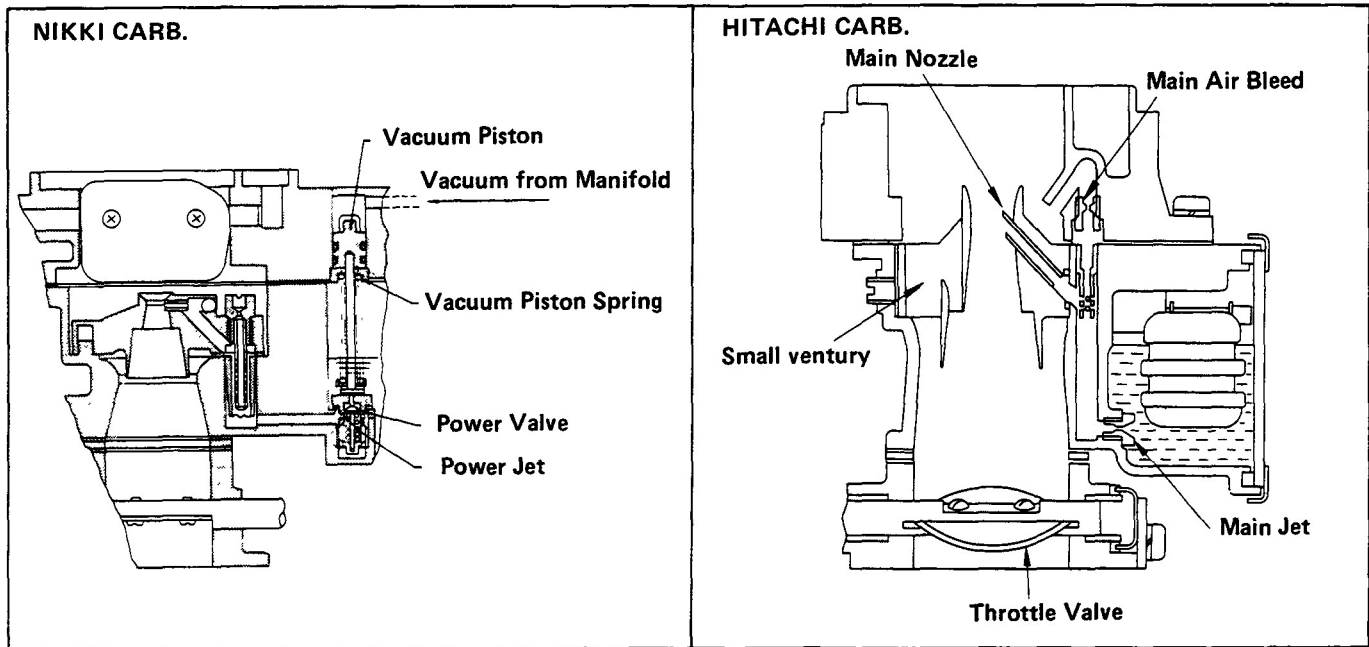
The float chamber maintains the fuel delivered by the fuel pump at a constant level.

SLOW SPEED CIRCUIT



During idling and slow speed operation, the throttle valve is almost completely closed. A minimum amount of air is flowing through the venturi. Negative pressure is very low. The main nozzle tip is above the fuel level in the float chamber. The main nozzle is unable to draw fuel resulting in greater fuel economy at low operating speeds.

08020803

MAIN CIRCUIT

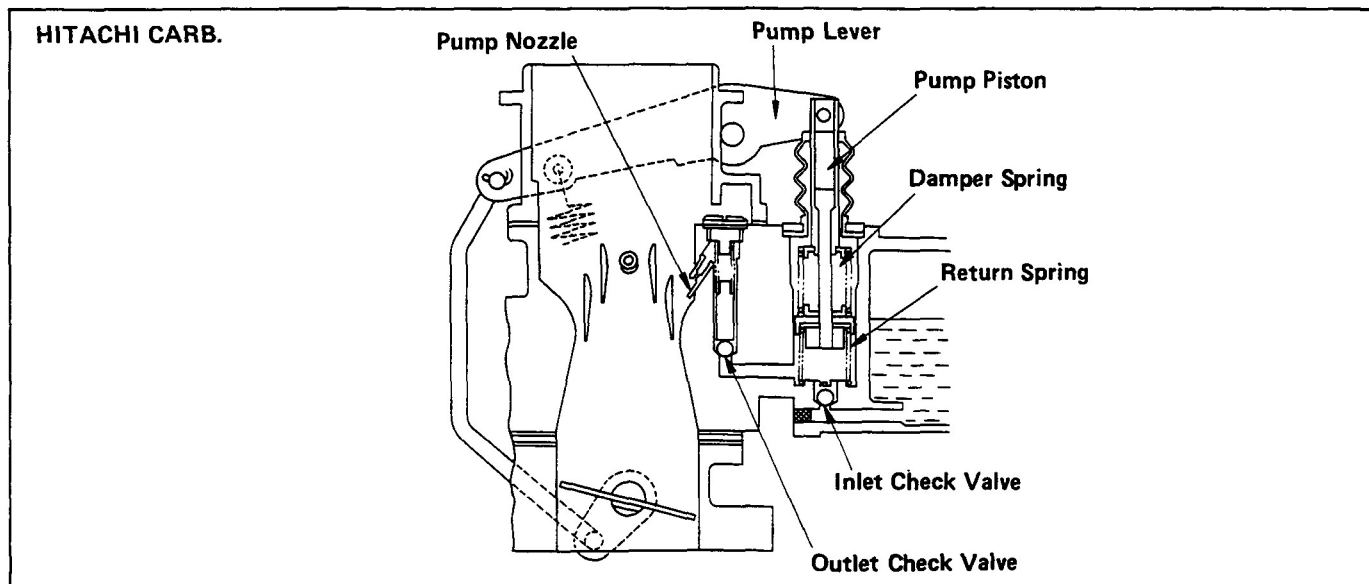
The main circuit is most often used during ordinary vehicle operation.

Opening the throttle valve beyond the specified angle increases the speed and volume of the air passing through the venturi. This results in a greater negative pressure.

The greater negative pressure draws fuel from the float chamber through the main air bleed into the emulsion tube. The emulsion tube mixes the fuel and air.

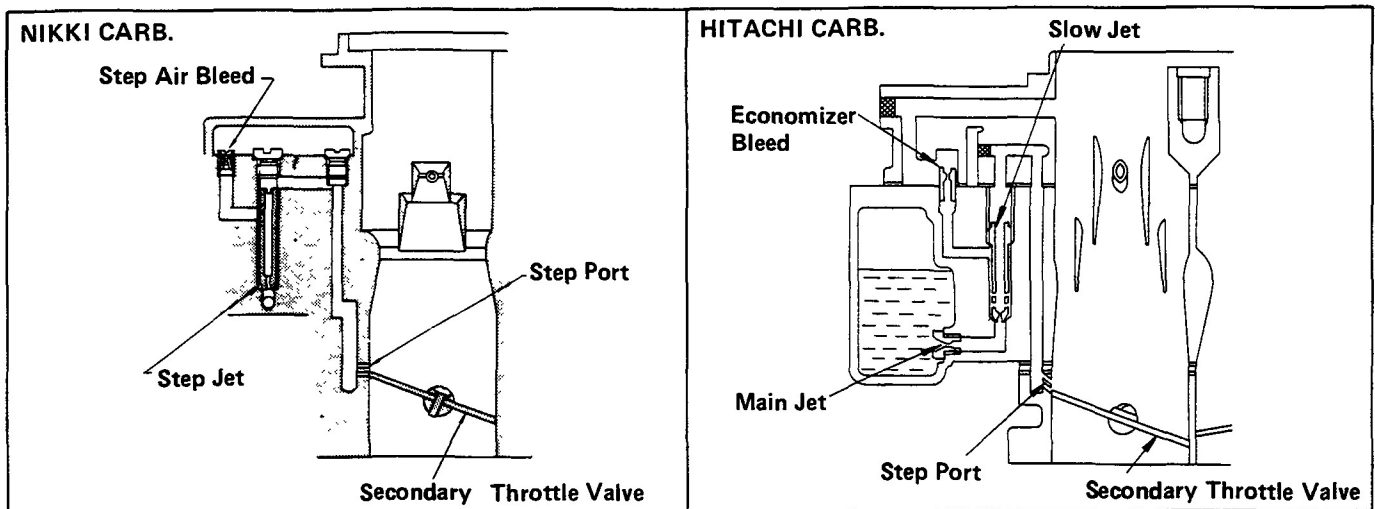
The air-fuel mixture then passes into the venturi through the main nozzle.

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ACCELERATION CIRCUIT

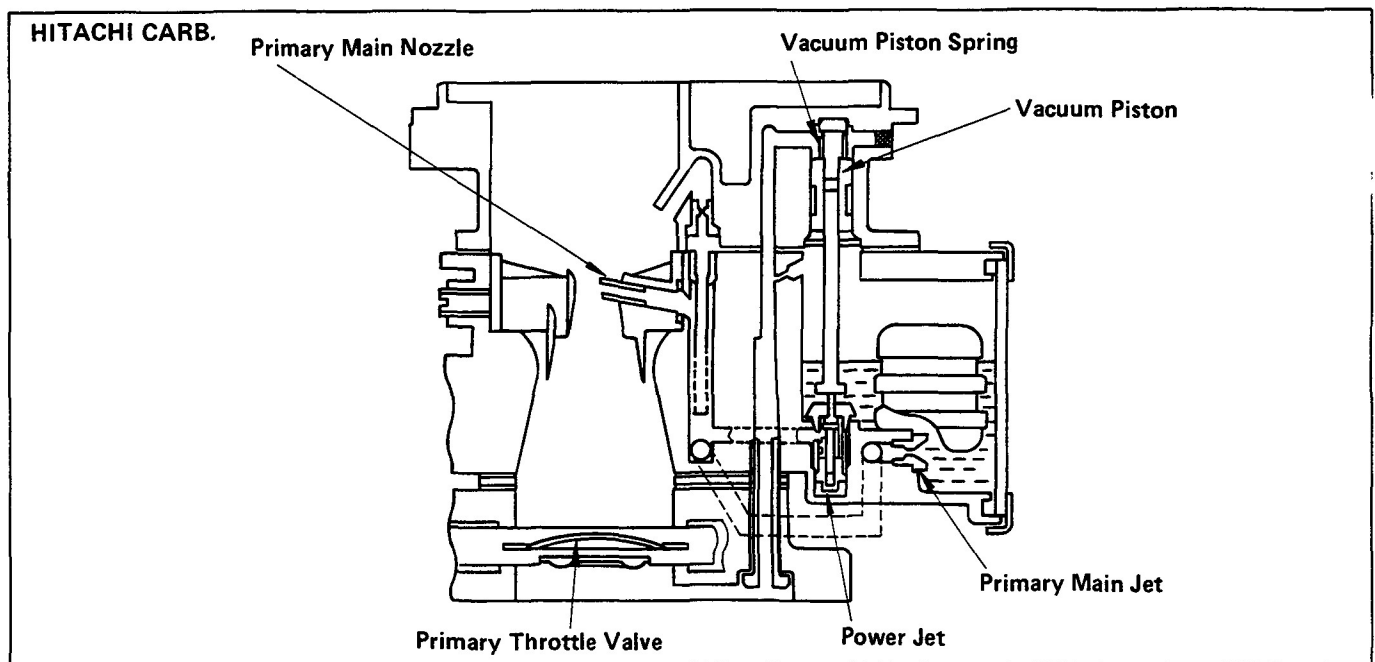
During rapid acceleration, the throttle valve rapidly opens completely to draw in a large volume of air. Because there is insufficient fuel in the air horn, the resulting air-fuel mixture will be too lean. A flat spot will occur.

To prevent this flat spot, the accelerator pump forces fuel into the large venturi to produce a richer air-fuel mixture.

STEP CIRCUIT

When the carburetor secondary side begins operation, there is an insufficient amount of air passing through the secondary side venturi. The resulting vacuum will not be strong enough to draw the required fuel from the secondary main nozzle. A momentary power loss will occur.

The step circuit acts to supplement the fuel mixture and maintain smooth engine performance.

POWER ENRICHMENT CIRCUIT

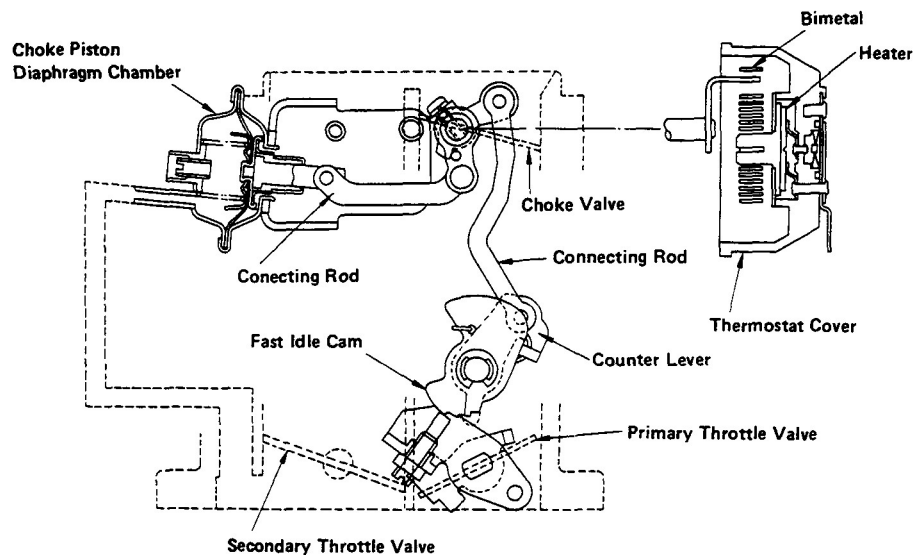
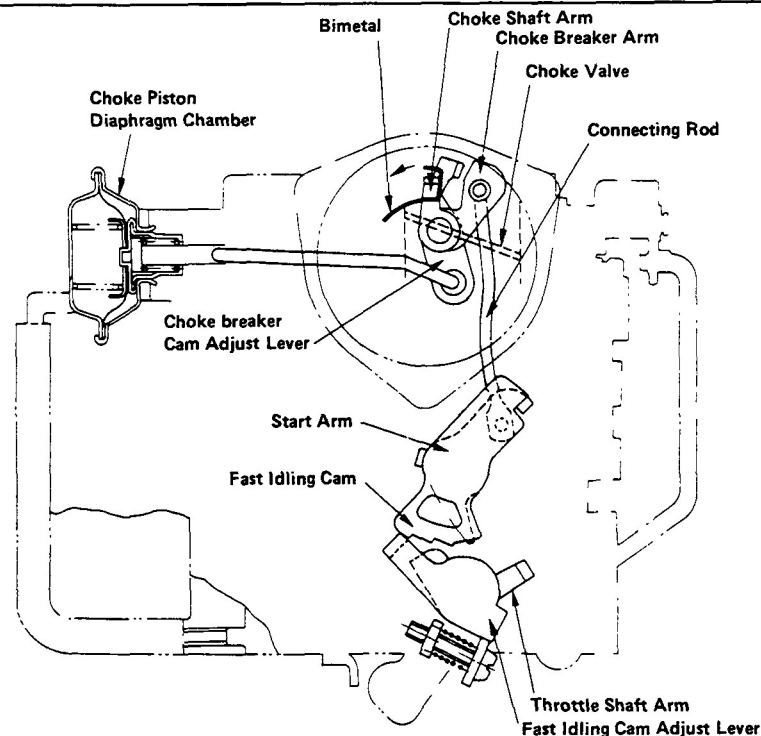
The power enrichment circuit prevents flat spots during rapid acceleration from a low speed.

During light-load running, the throttle valve is only slightly open. This results in a high intake manifold vacuum.

The high manifold vacuum pulls the vacuum piston upward to overcome the force of the vacuum piston spring and hold the power valve closed.

Suddenly opening the throttle valve during rapid acceleration causes the intake manifold vacuum to fall. The vacuum piston spring force is now greater than the force of the intake manifold vacuum. The vacuum piston is pushed down to open the power valve and allow additional fuel to reach the combustion chambers.

08020807

CHOKE CIRCUIT**HITACHI CARB.****NIKKI CARB.**

The auto choke consists of the eccentric choke valve, the spiral bimetal, the choke diaphragm, and the control rods.

The bimetal closes the choke valve.

The bimetal tension is inversely proportional to the surrounding temperatures. When the engine is cold, the bimetal tension forces the choke valve and the choke diaphragm closed. As the engine warms up, the bimetal tension drops and the choke valve opens.

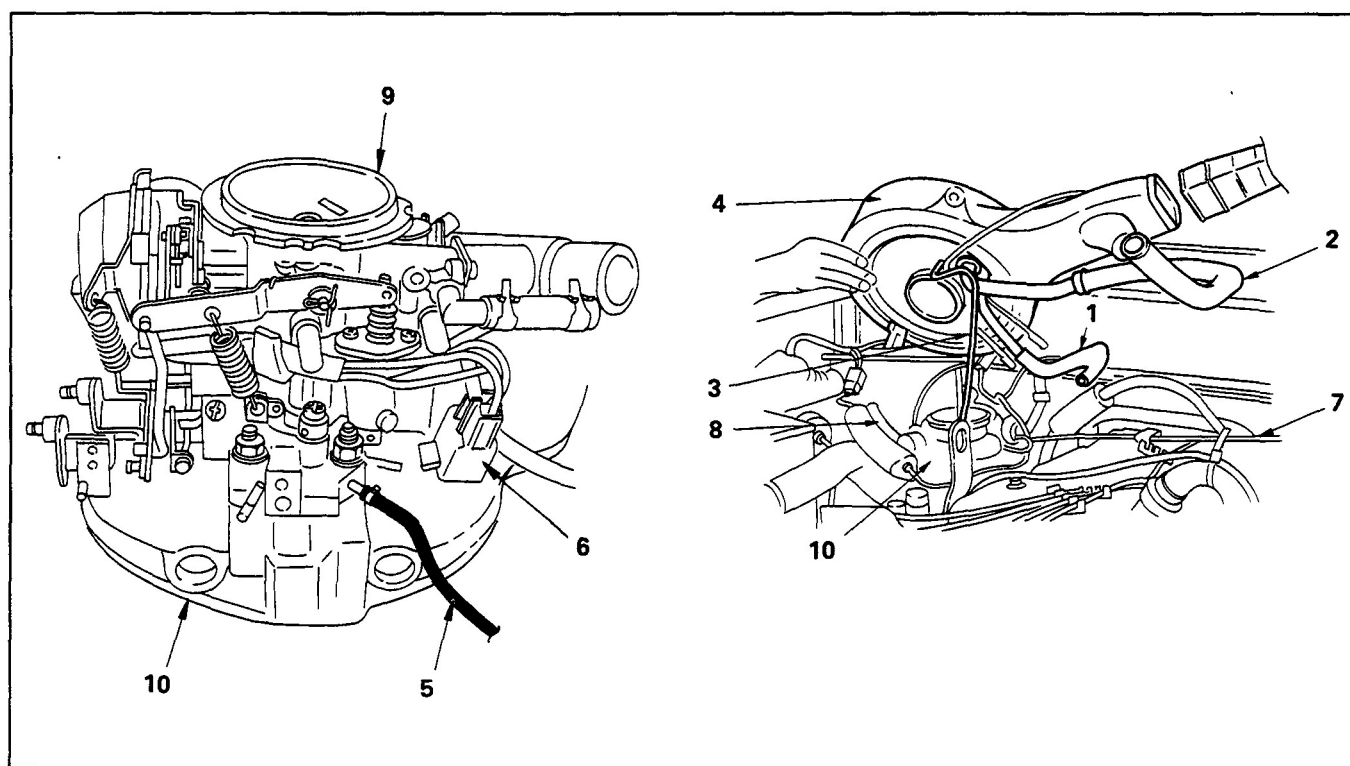
The choke valve maintains the proper balance between the intake manifold negative pressure and the air horn air flow at all times. This assures stable engine operation.

CARBURETOR



REMOVAL AND INSTALLATION

Read this Section carefully before performing any removal and installation procedure. This Section gives you important points as well as the order of operation. Be sure that you understand everything in this Section before you begin.

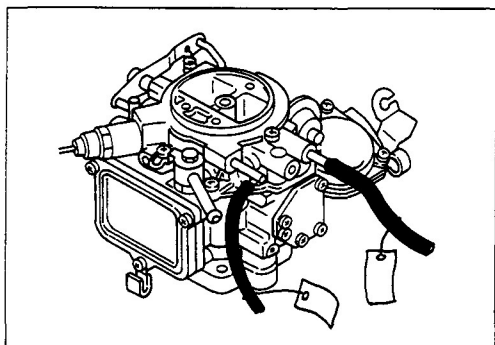


Removal Steps

1. PCV hose
2. Air hose
3. TCA hose
4. Air cleaner
- ▲ 5. Emission control vacuum hose
6. Lead wire connector
7. Engine control cable
8. Fuel hose
- ▲ 9. Carburetor
10. Carburetor gasket

Installation Steps

- ▲ 10. Carburetor gasket
- ▲ 9. Carburetor
8. Fuel hose
- ▲ 7. Engine control cable
6. Lead wire connector
- ▲ 5. Emission control vacuum hose
4. Air cleaner
3. TCA hose
2. Air hose
1. PCV hose

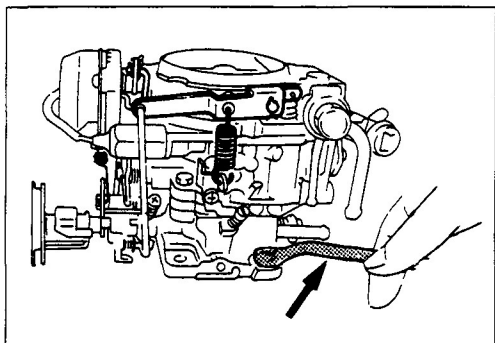


Important Operations – Removal

5. Emission Control Vacuum Hoses

Tag each of the emission control vacuum hoses before disassembly.

This will ensure that the hoses are reconnected correctly.



9. Carburetor

Use the carburetor wrench to remove the carburetor.

Carburetor Wrench: 5-8511-9003-0 (J-26510)



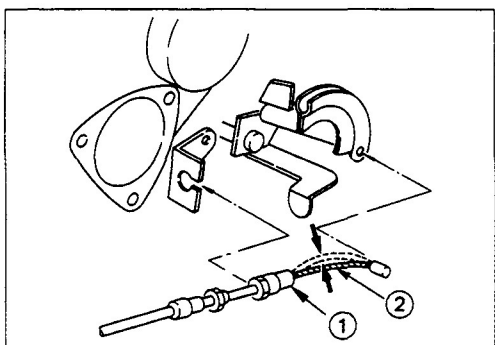
Important Operations – Installation

5. Emission Control Vacuum Hoses

Refer to the tags attached at disassembly to reinstall the emission control vacuum hose.

Follow the external parts installation step order.

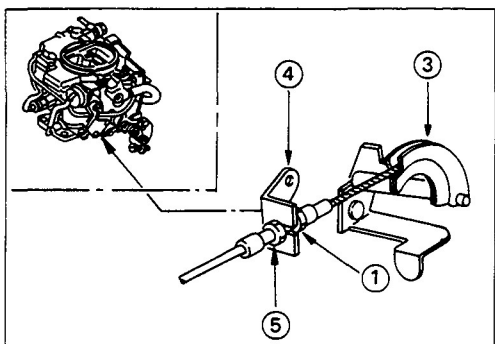
It is very important that the hose be installed correctly.



7. Engine Control Cable

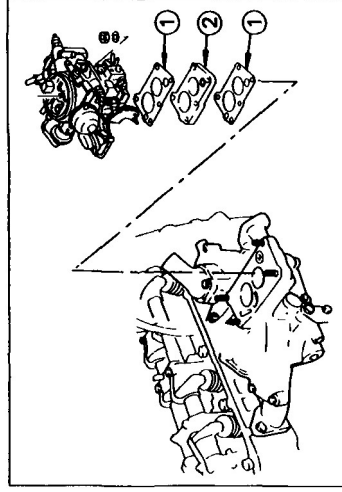
- 1) Fully close the throttle valve.
- 2) Turn the adjusting nut ① to adjust the engine control inner cable ② play.

Engine Control Inner Cable Play	mm(in)
2 – 3 (0.079 – 0.120)	



- 3) Connect the engine control cable to the throttle holder ③.
- 4) Install the engine control cable to the bracket ④.
- 5) Tighten the lock nut ⑤.

6C-12 FUEL SYSTEM



9. Carburetor Gasket

10. Carburetor

- 1) Install the gasket ①, heat insulator ② (if equipped), and the carburetor to the intake manifold.
- 2) Use the carburetor wrench to tighten the carburetor nuts to the specified torque.

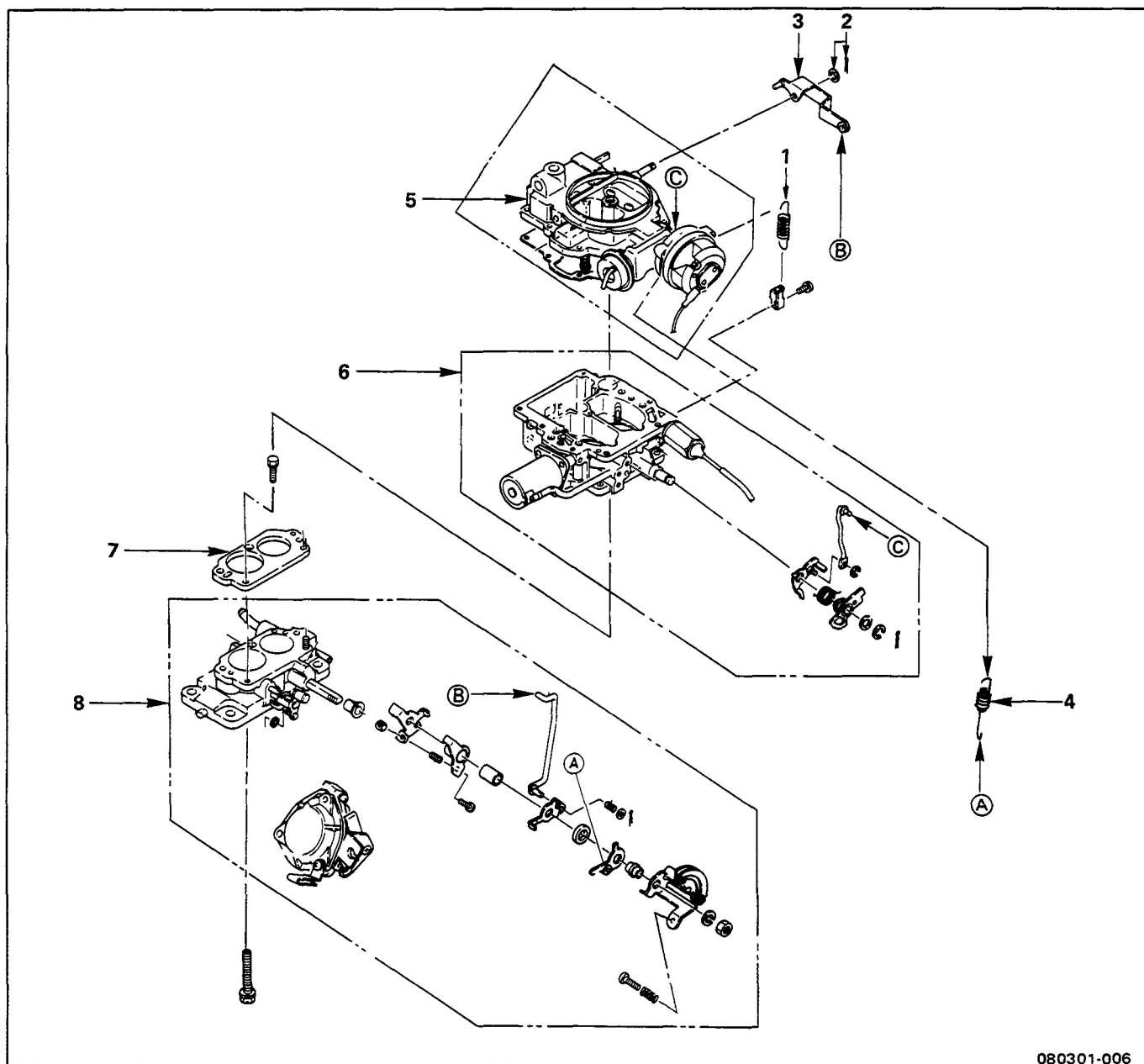
Carburetor Wrench: 5-8511-9003-0 (J-26510)

Carburetor Nut Torque	kg·m(lb.ft/N·m)
	1.3 ± 0.5 (9.4 ± 3.6/12.7 ± 4.9)

0803

**DISASSEMBLY****(Nippon Kikai-Carburetor)**

0803030002A

MAJOR COMPONENTS

080301-006

0803030002B

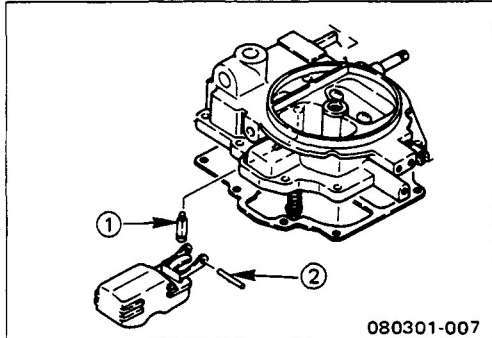
Disassembly Steps

- | | |
|---------------------------------|-------------------------|
| 1. Throttle sub-return spring | ▲ 5. Air horn |
| 2. Split pin and retaining ring | ▲ 6. Carburetor body |
| 3. Accelerator pump arm | 7. Carburetor insulator |
| 4. Primary to secondary spring | ▲ 8. Flange |



Important Operations

0803010103



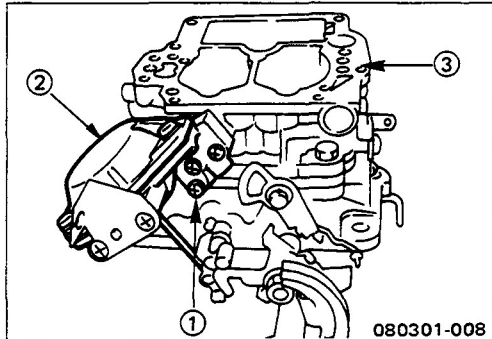
080301-007

5. Air Horn

Do not allow the float valve seat ① and the float pin ② to fall free when separating the air horn from the carburetor flange.

These parts are very small and are easily lost. Handle them with care.

0803010104A



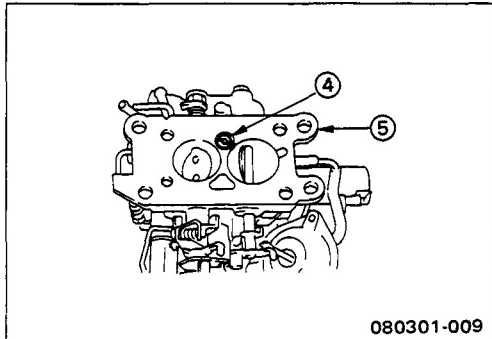
080301-008

6. Carburetor Body

8. Flange

- 1) Loosen the three screws ①.
- 2) Remove the 2nd diaphragm chamber ② from the carburetor body ③.

0803010104B



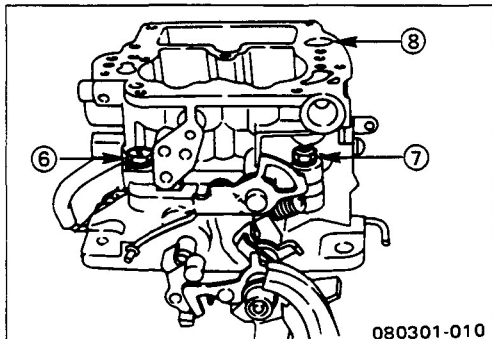
080301-009

- 3) Loosen the flange set screw ④ at the lower part of the flange ⑤.

Note:

The hollow flange set screw also serves as the power valve negative pressure intake. Take care not to damage the screw and intake during the disassembly procedure.

0803010104C



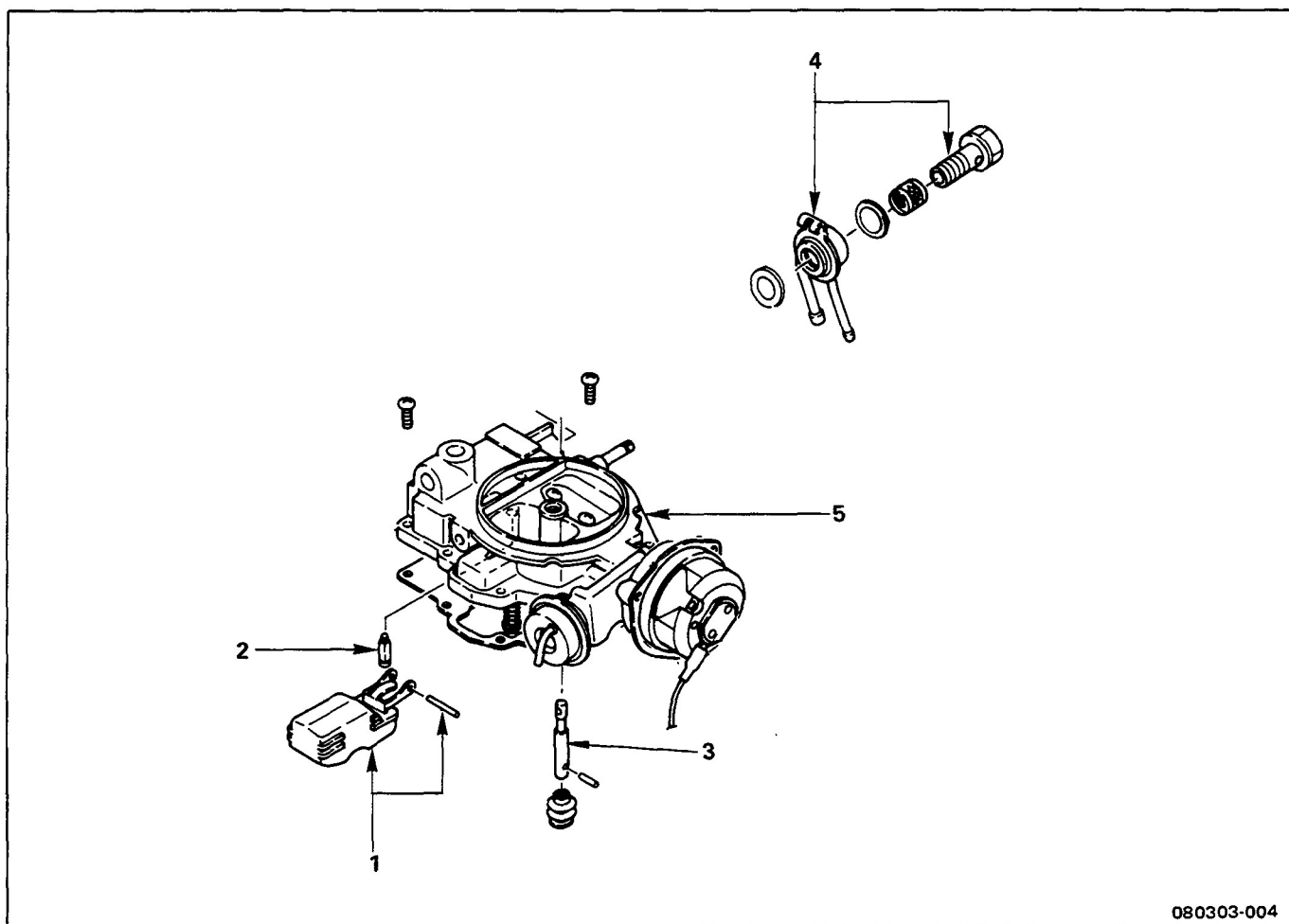
080301-010

- 4) Loosen the bolt ⑥ and the nut ⑦ on the carburetor body ⑧.

0803030003

MINOR COMPONENTS

080303000301A

**AIR HORN**

080303-004

080303000301B

Disassembly Steps

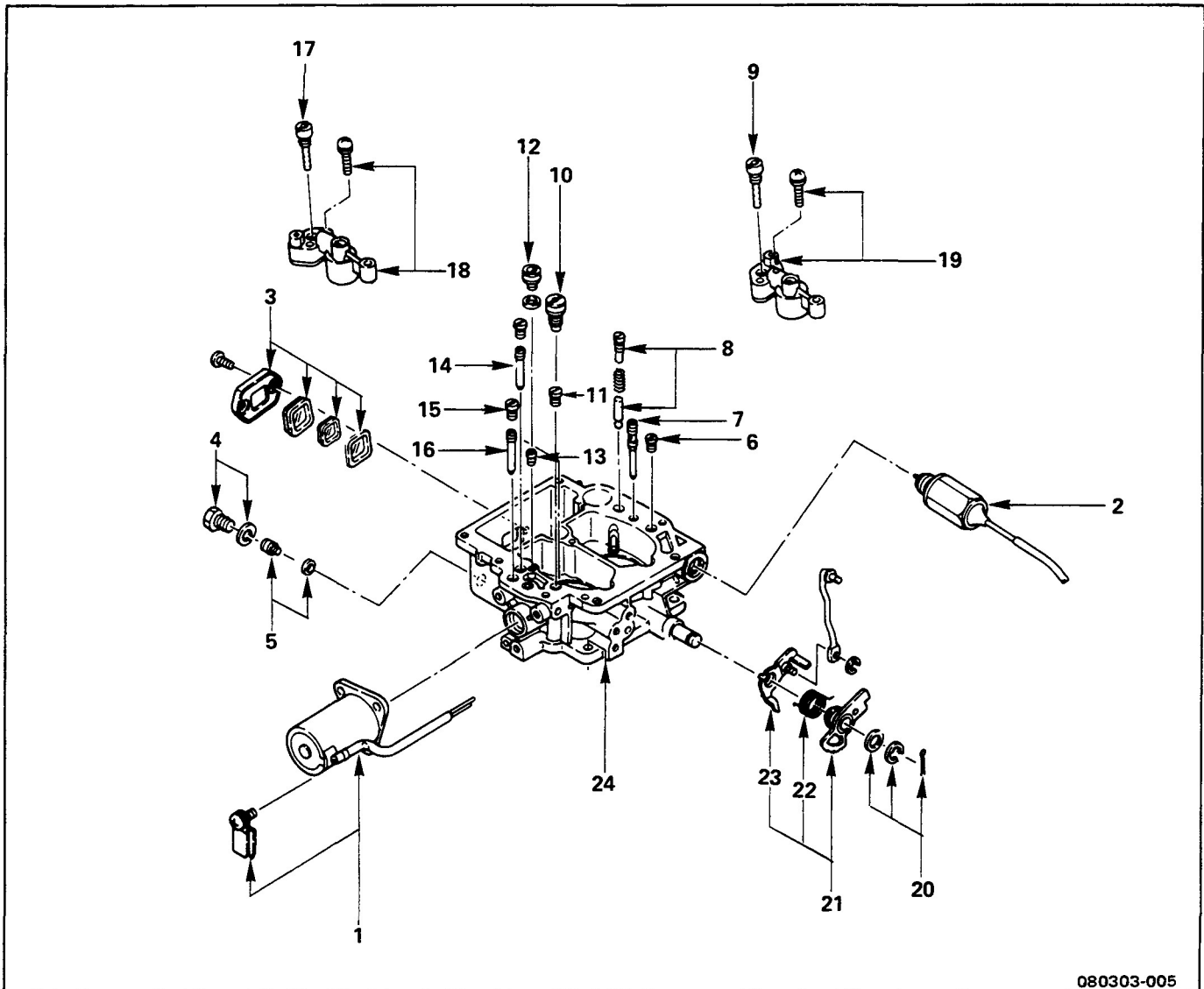
1. Float pin and float
2. Float valve
3. Accelerator plunger
4. Fuel connector
5. Air horn body with coil housing and choke piston

6C-16 FUEL SYSTEM

080303000302A



CARBURETOR BODY



080303-005

080303000302B

Disassembly Steps

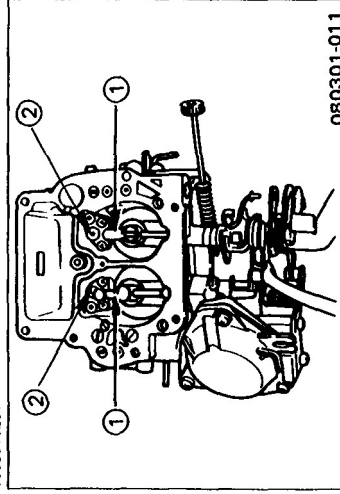
- | | |
|--|----------------------------|
| 1. Coasting solenoid | 13. Step air bleed jet |
| 2. Solenoid valve | 14. Step jet |
| 3. Fuel level gauge cover and glass | 15. 1st idle air bleed jet |
| 4. Main passage plug | 16. Coasting jet |
| 5. 2nd main jet | 17. 2nd main air bleed jet |
| 6. Slow air bleed jet | ▲ 18. 2nd small venturi |
| 7. Slow jet | ▲ 19. 1st small venturi |
| 8. Carburetor pump spring and check valve seat | 20. Split pin and clip |
| 9. 1st main air bleed jet | 21. Fast idling cam |
| 10. Power jet | 22. Fast idling cam spring |
| 11. Slow passage plug | 23. Starting arm |
| 12. 1st main jet | 24. Carburetor body |

08030102



Important Operations

0803010201



080301-011

18. 2nd Small Venturi

19. 1st Small Venturi

Remove the small venturis ① after removing the 2nd and 1st main air bleed jets ②.

080302



INSPECTION AND REPAIR (NIKKI)

Make the necessary adjustments, repairs, and part replacements if excessive wear or damage is discovered during inspection.

08030204



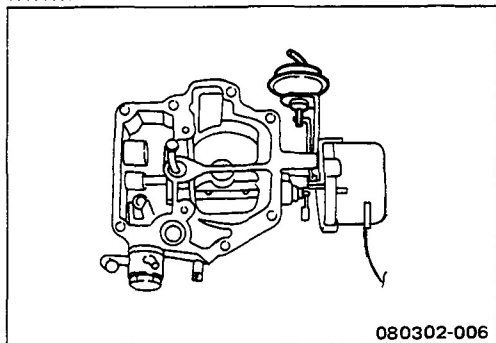
Cleaning

1. Carefully clean all of the disassembled parts (excluding the O-rings, the packing, the gaskets, and the electrical parts) with carburetor cleaner.

The parts are very delicate. Handle them with care.

2. Use dry air to blow each of the carburetor passages free of foreign material.

08030205



080302-006

Air Horn, Carburetor Body, and Flange

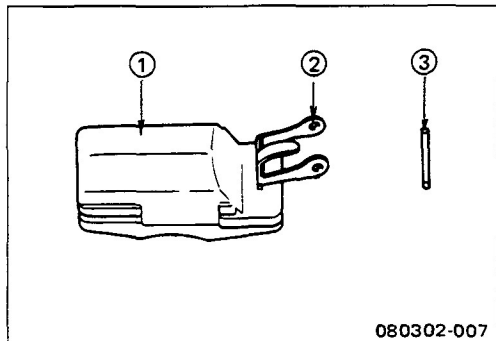
1. Inspect the air horn, carburetor body, and flange fitting surfaces for cracks and other flaws.

If there are cracks or other flaws, the parts must be replaced.

2. Inspect the shafts, the links, and the bushings for deformation and excessive wear.

If there is deformation or excessive wear, the parts must be replaced.

08030206

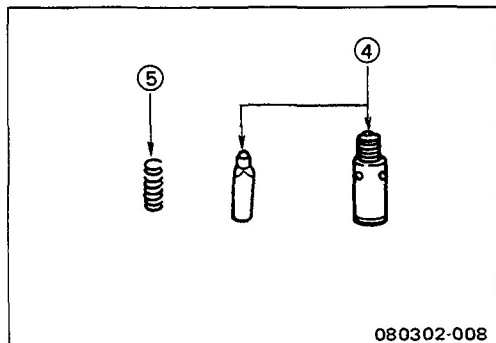


080302-007

Float and Float Valve

1. Immerse the float in gasoline to clean it.
2. Check the following parts for excessive wear and other damage.

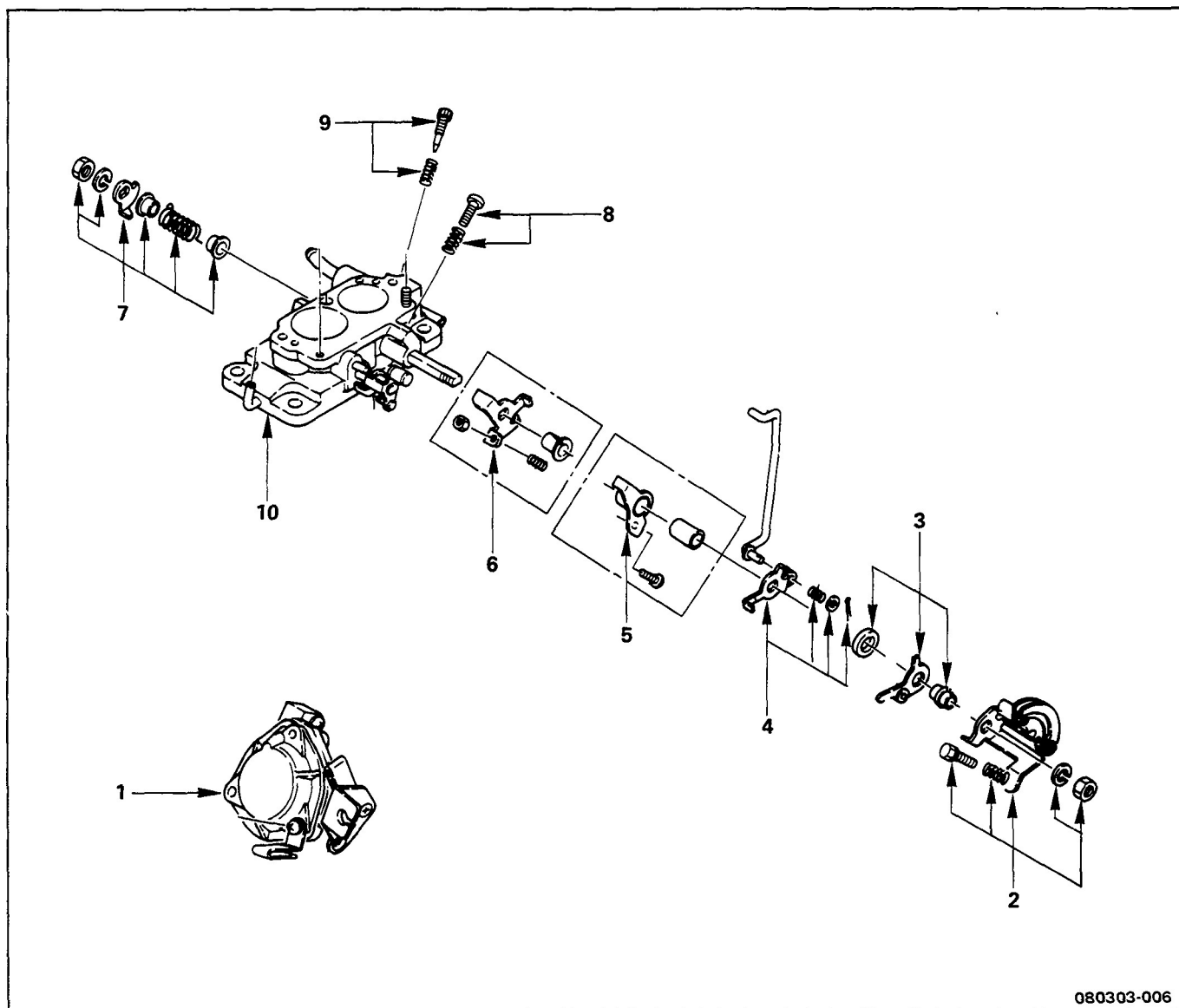
- ① Float
- ② Float pin hole
- ③ Float pin



080302-008

- ④ Float valve seat and strainer
- ⑤ Spring (Resilience)

080303000303A

**FLANGE**

080303-006

080303000303B

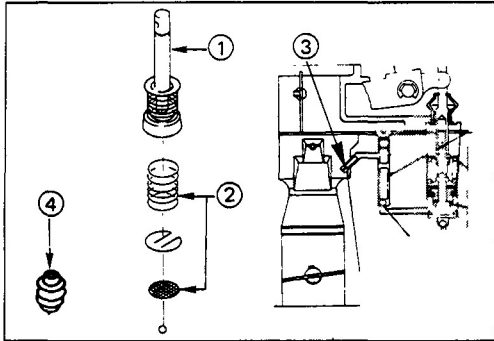
Disassembly Steps

1. 2nd diaphragm chamber
2. Throttle lever
3. Primary to secondary arm
4. Pump connector arm
5. Fast idling cam adjusting arm

6. Throttle shaft arm
7. Throttle return spring arm
8. Throttle adjusting screw
9. Idling adjusting screw
10. Flange

6C-20 FUEL SYSTEM

08030207

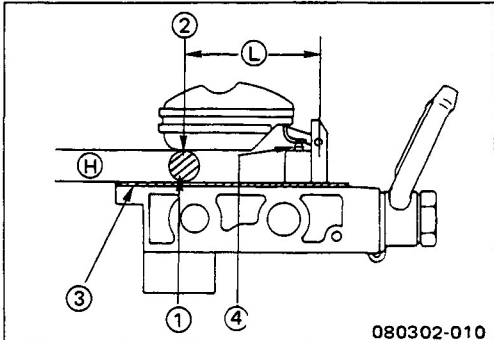


Accelerator Pump Plunger

Check the following accelerator pump plunger parts for excessive wear and other damage.

- ① Plunger
- ② Springs and strainer
- ③ Pump nozzle
- ④ Plunger boots

08030208



Float Level Adjustment

Place the test bar ① between the float tip ② and the air horn gasket ③ as shown in the illustration.

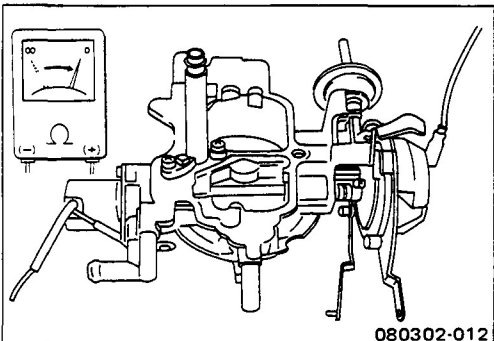
The test bar should just fit into the space ④ between the float and the air horn gasket.

If the float level height is outside the specified range, adjust it by carefully bending the float arm ④ with your hands.

Float Arm Height ④	mm(in)
8.5 – 9.5 (0.33 – 0.37)	

Float Pin Center to Float Tip ⑤ (Reference)	mm(in)
57 (2.24)	

08030210



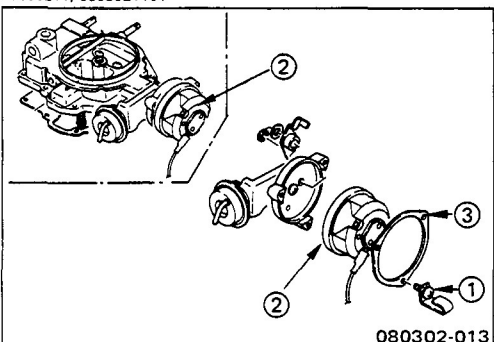
Auto Choke Coil Housing

Use an ohmmeter to measure the resistance between the choke coil wire and the coil housing.

If the measured value is outside the specified value, the coil housing must be replaced.

Auto Choke Coil Housing Resistance	Ohms
6 ± 5 at 25°C (77°F)	

08030211, 0803021101



Auto Choke Coil Housing Replacement

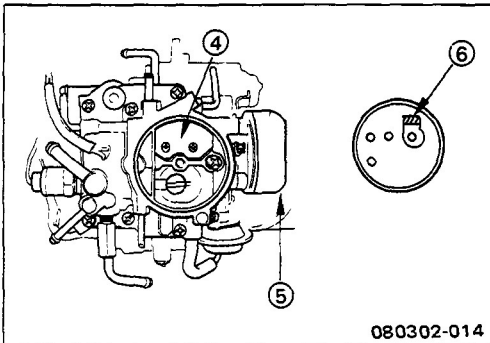
Coil Housing Removal

1. Loosen the three coil housing installation screws ①.
2. Remove the coil housing ② together with the bimetal set case plate ③.

Note:

Do not remove the auto choke coil housing unless it is to be replaced.

0803021102A



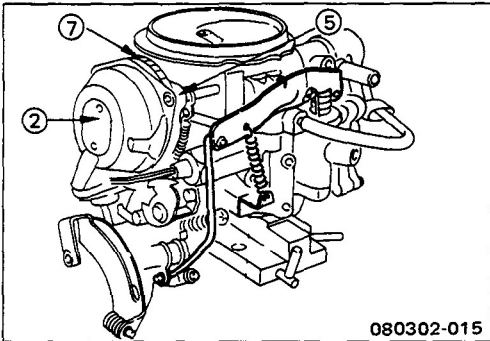
080302-014



Coil Housing Installation

1. Fully close the choke valve ④.
2. Set the coil housing plate ⑤ choke shaft arm catch ⑥ perfectly horizontal.

0803021102B



080302-015

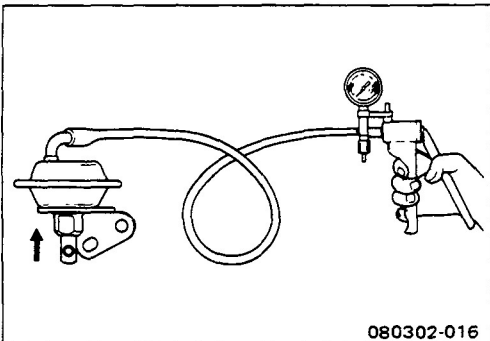


3. Set the bimetal with coil housing ② to the choke shaft arm.

Refer to the illustration.

4. Align the setting marks ⑦ on the coil housing plate ⑤ and the coil housing ②.
5. Install the coil housing together with the bimetal set case plate.

08030212



080302-016



Choke Piston

Apply a vacuum to the choke piston diaphragm.

The diaphragm should hold the vacuum for several seconds.

If it does not, the choke piston diaphragm must be replaced.

08030213, 0803021301A



Choke Piston Replacement

Choke Piston Removal

1. Remove the coil housing.
2. Remove the coil housing plate.
3. Disconnect the choke piston rod clip from the choke shaft.

Note:

Do not remove the choke piston unless it is to be replaced.

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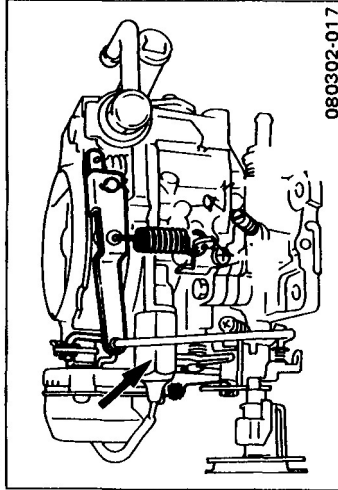


Choke Piston Installation

Follow the removal procedure in the reverse order to install the choke piston.

6C-22 FUEL SYSTEM

08030214



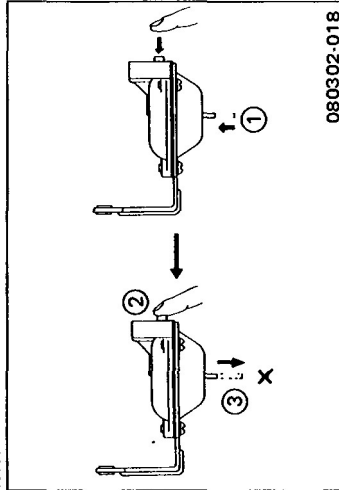
080302-017



Slow Cut Solenoid Valve

1. Check the slow cut solenoid valve body and spring spool for excessive wear and other damage.
2. Install the solenoid valve to the carburetor body.
3. Apply 12 Volts to the solenoid valve.
Check that the valve operates smoothly.
If the valve does not operate smoothly, it must be replaced.

08030215



080302-018

2nd Diaphragm Chamber

1. Use your hand to push in the diaphragm chamber rod ①.
Block the diaphragm chamber hole ② with a finger at the same time.
2. Remove your finger from the hole.
The rod should not move.
If the rod moves, the diaphragm is damaged and must be replaced.

0804



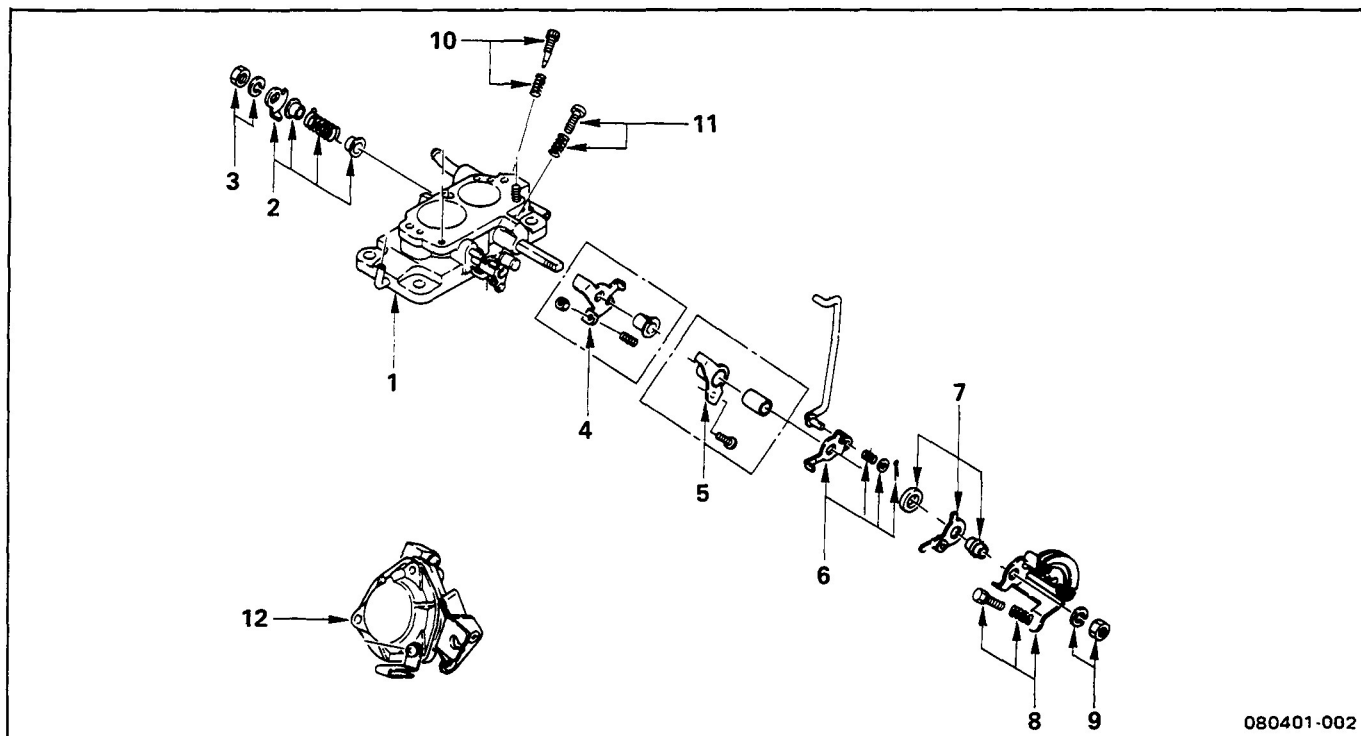
REASSEMBLY

080401A

MINOR COMPONENTS



FLANGE



080401-002

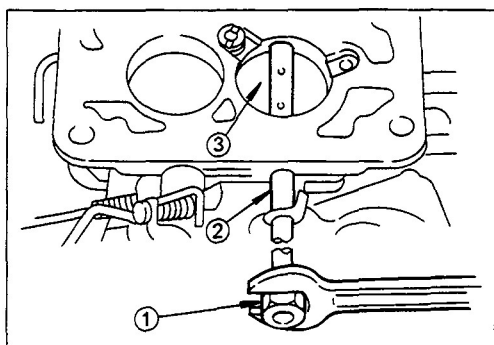
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Reassembly Steps

- | | |
|----------------------------------|------------------------------|
| 1. Flange | 7. Primary to secondary arm |
| ▲ 2. Spring arm nut | 8. Throttle lever |
| 3. Throttle return spring arm | ▲ 9. Throttle lever nut |
| 4. Throttle shaft arm | 10. Idling adjusting screw |
| 5. Fast idling cam adjusting arm | 11. Throttle adjusting screw |
| 6. Pump connector arm | 12. 2nd diaphragm chamber |



Important Operations



2. Spring Arm Nut

9. Throttle Lever Nut

- 1) Install the throttle lever nut ① to the throttle valve shaft ②.
- 2) Tighten the throttle lever nut to the related parts.
Prevent the throttle valve shaft ② from turning.

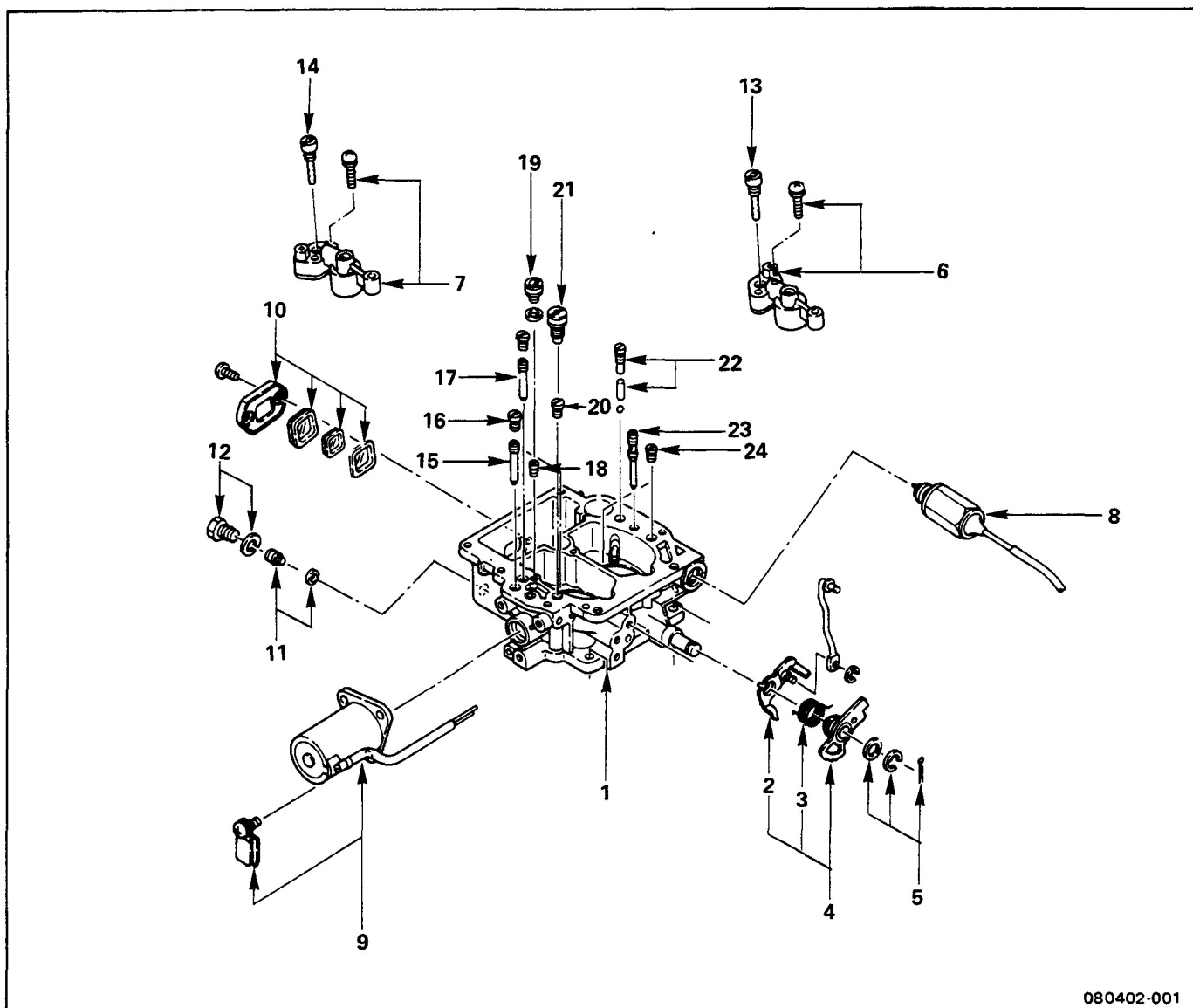
Note:

Failure to hold the throttle valve shaft stationary while tightening the throttle valve nut will result in damage to the throttle valve ③.

080402A



CARBURETOR BODY



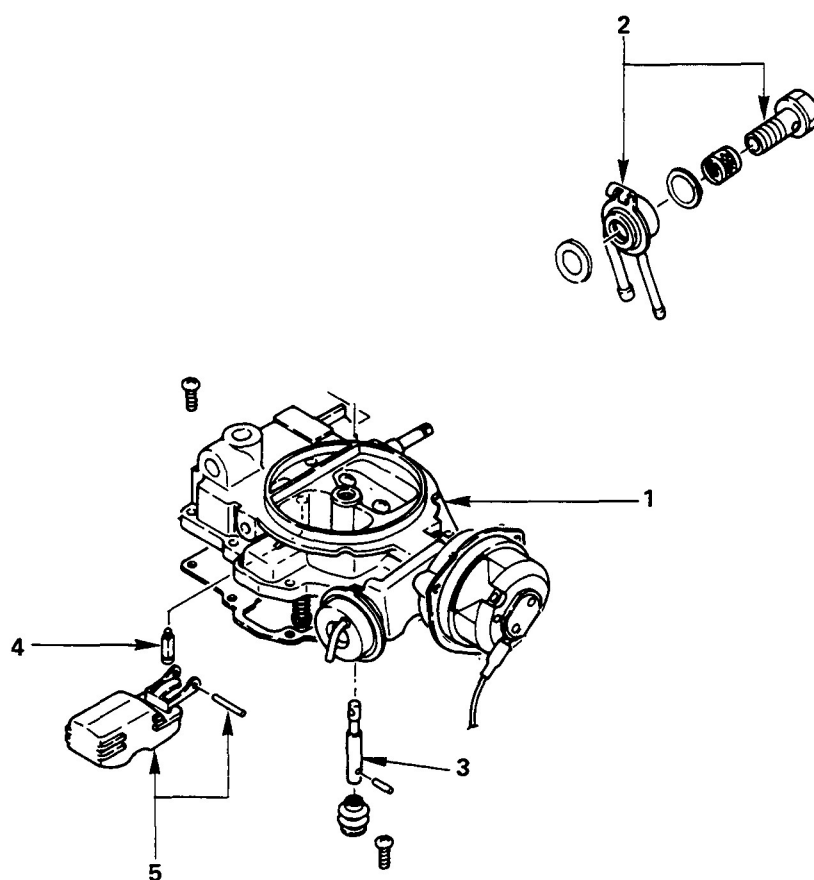
080402-001

080402B

Reassembly Steps

1. Carburetor body
2. Starting arm
3. Fast idling cam spring
4. Fast idling cam
5. Split pin and clip
6. 1st small venturi
7. 2nd small venturi
8. Solenoid valve
9. Coasting solenoid
10. Fuel level gauge cover and glass
11. 2nd main jet
12. Main passage plug
13. 1st main air bleed jet
14. 2nd main air bleed jet
15. Coasting jet
16. 1st idle air bleed jet
17. Step jet
18. Step air bleed jet
19. 1st main jet
20. Slow passage plug
21. Power jet
22. Carburetor pump spring and check valve
23. Slow jet
24. Slow air bleed jet

080403A

**AIR HORN**

080403-001

080402B

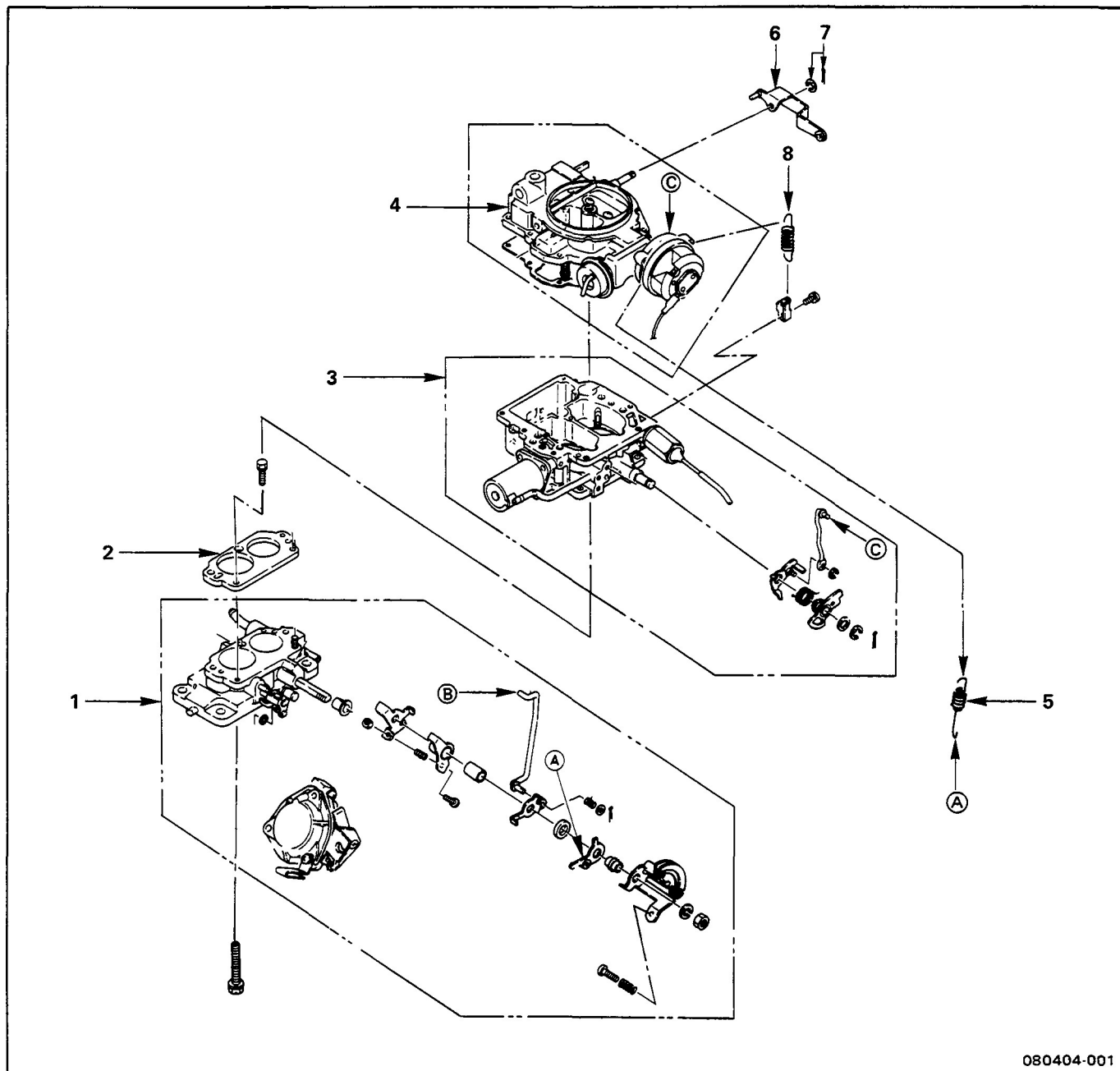
Reassembly Steps

- | | |
|---|------------------------|
| 1. Air horn body with coil housing and choke piston | 3. Accelerator plunger |
| 2. Fuel connector | 4. Float valve |
| | 5. Float pin and float |

080404A



MAJOR COMPONENTS



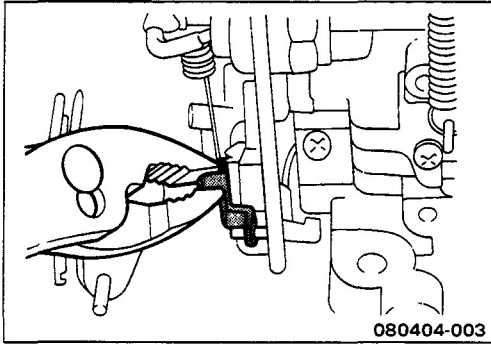
080404-001

080402B

Reassembly Steps

1. Flange
2. Carburetor insulator
3. Carburetor body
4. Air horn
5. Primary to secondary spring
6. Accelerator pump arm
7. Split pin and retaining ring
8. Throttle sub-return spring

08040401, 0804040101



CARBURETOR ADJUSTMENT



Secondary Throttle Valve Touch Angle

Inspect the primary throttle valve full opening when the secondary throttle valve is starting to open.

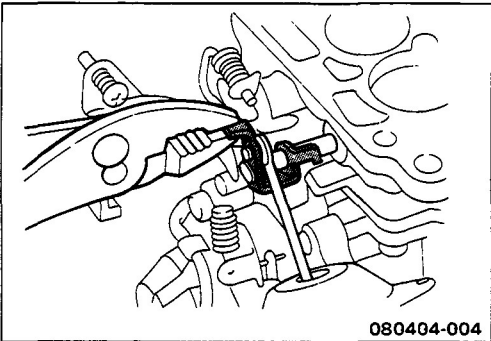
Use the throttle valve angle set gauge to check the primary throttle valve angle.

Valve Angle Set Gauge: 5-8840-2133-0

The throttle valve angle must match the gauge angle.

If the throttle valve angle does not match the gauge angle, adjust it by carefully bending the connecting pump arm.

0804040102

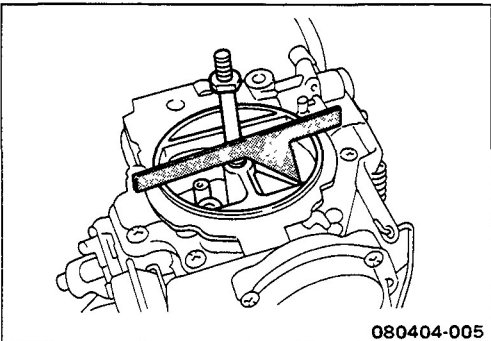


Kick-Up Angle

Check that the secondary valve opens just slightly ($0^\circ - 2^\circ$) when the primary valve is fully open.

If the secondary valve opens too little or too much, adjust it by carefully bending the connecting pump arm.

0804040103



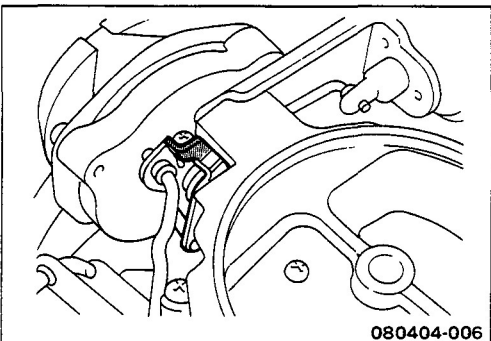
Choke Valve Angle

1. Fully open the primary throttle valve.
2. Use the choke valve angle set gauge to check the choke valve angle.

Choke Valve Angle Set Gauge: 5-8840-2132-0

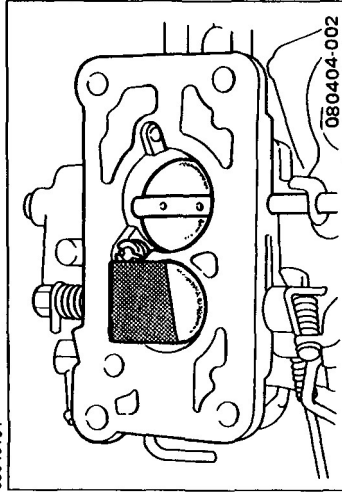
The choke valve angle must match the gauge angle.

If the choke valve angle does not match the gauge angle, adjust it by carefully bending the choke valve adjusting lever.



6C-28 FUEL SYSTEM

08040104



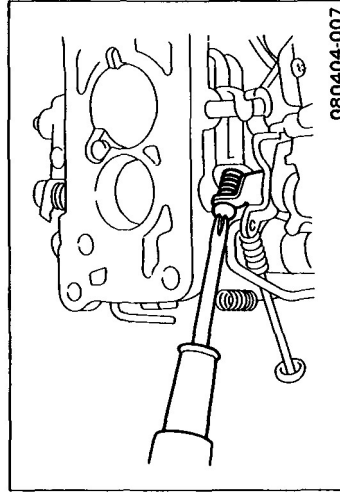
Fast Idling Setting

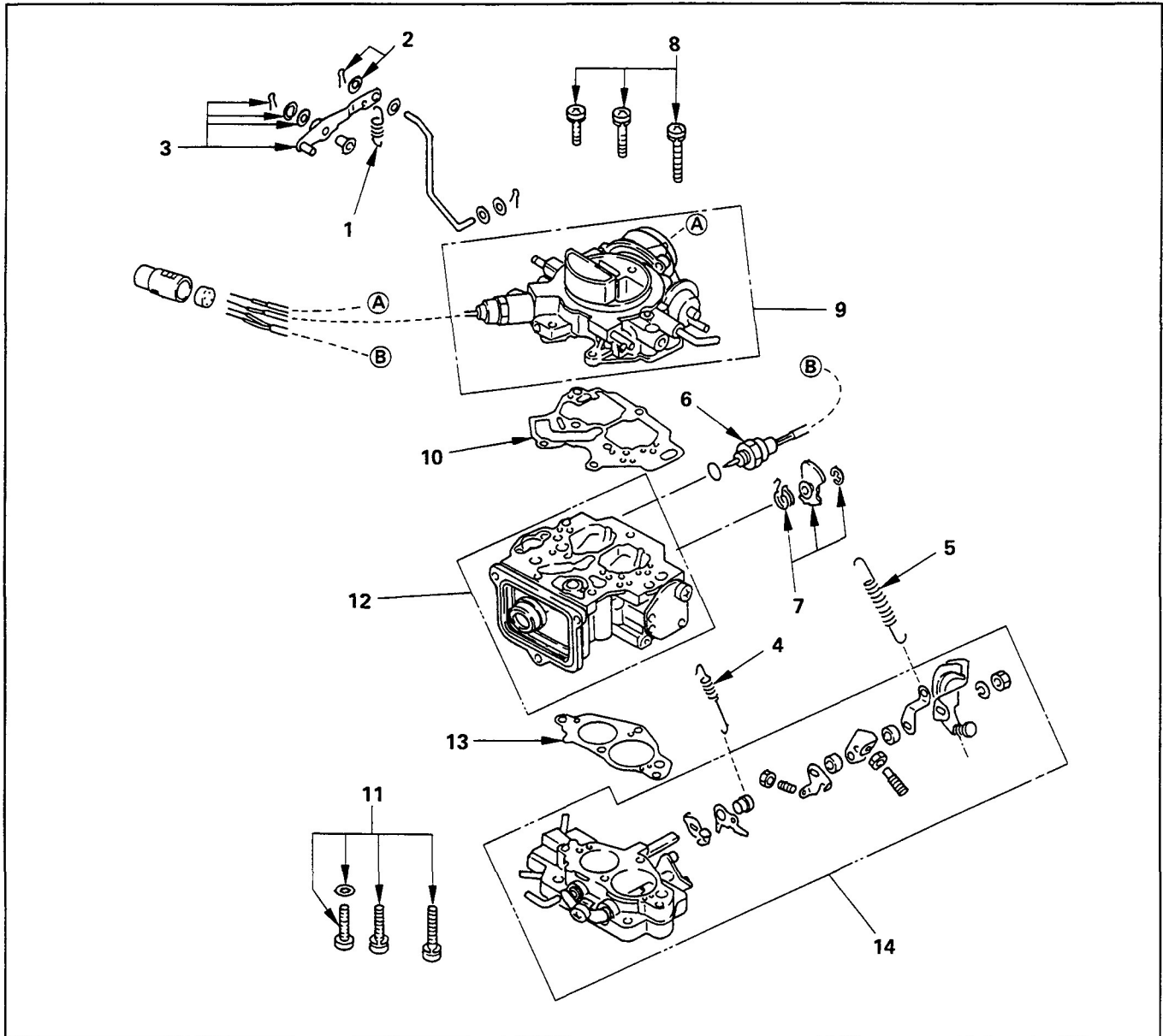
1. Set the throttle shaft lever to the first step of the fast idle cam.
2. Fully close the choke valve.
3. Use the fast idling set gauge to check the primary throttle valve angle.

Fast Idling Set Gauge: 5-8840-2131-0

The primary throttle valve angle must match the gauge angle.

If the primary throttle valve angle does not match the gauge angle, adjust it with the fast idling adjusting screw.

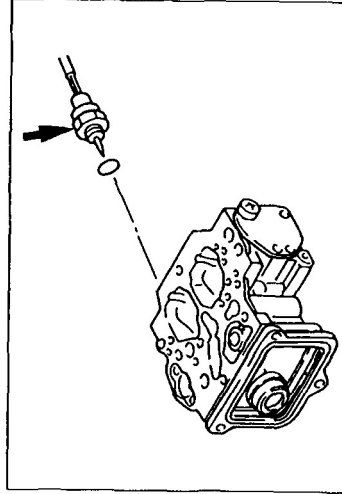


**DISASSEMBLY****(Hitachi-Carburettor, 4ZE1 Engine)****MAJOR COMPONENTS****Disassembly Steps**

- | | |
|---|---------------------------------------|
| 1. Assist spring | 8. Choke chamber screw and washer |
| 2. Pump rod split pin with washer | ▲ 9. Choke chamber assembly |
| 3. Pump lever and split pin with washer | 10. Choke and float chamber gasket |
| 4. Return spring | 11. Throttle chamber screw and washer |
| 5. Main spring | 12. Float chamber assembly |
| ▲ 6. Slow cut solenoid valve | 13. Float and throttle chamber gasket |
| ▲ 7. Fast idler cam and spring | 14. Throttle chamber assembly |



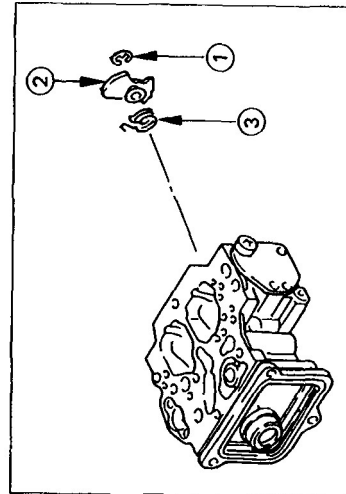
Important Operations



6. Slow Cut Solenoid Valve

Disconnect the slow cut solenoid valve before disassembling the choke chamber.

Take care not to damage the solenoid valve tip.



7. Fast Idler Cam and Spring

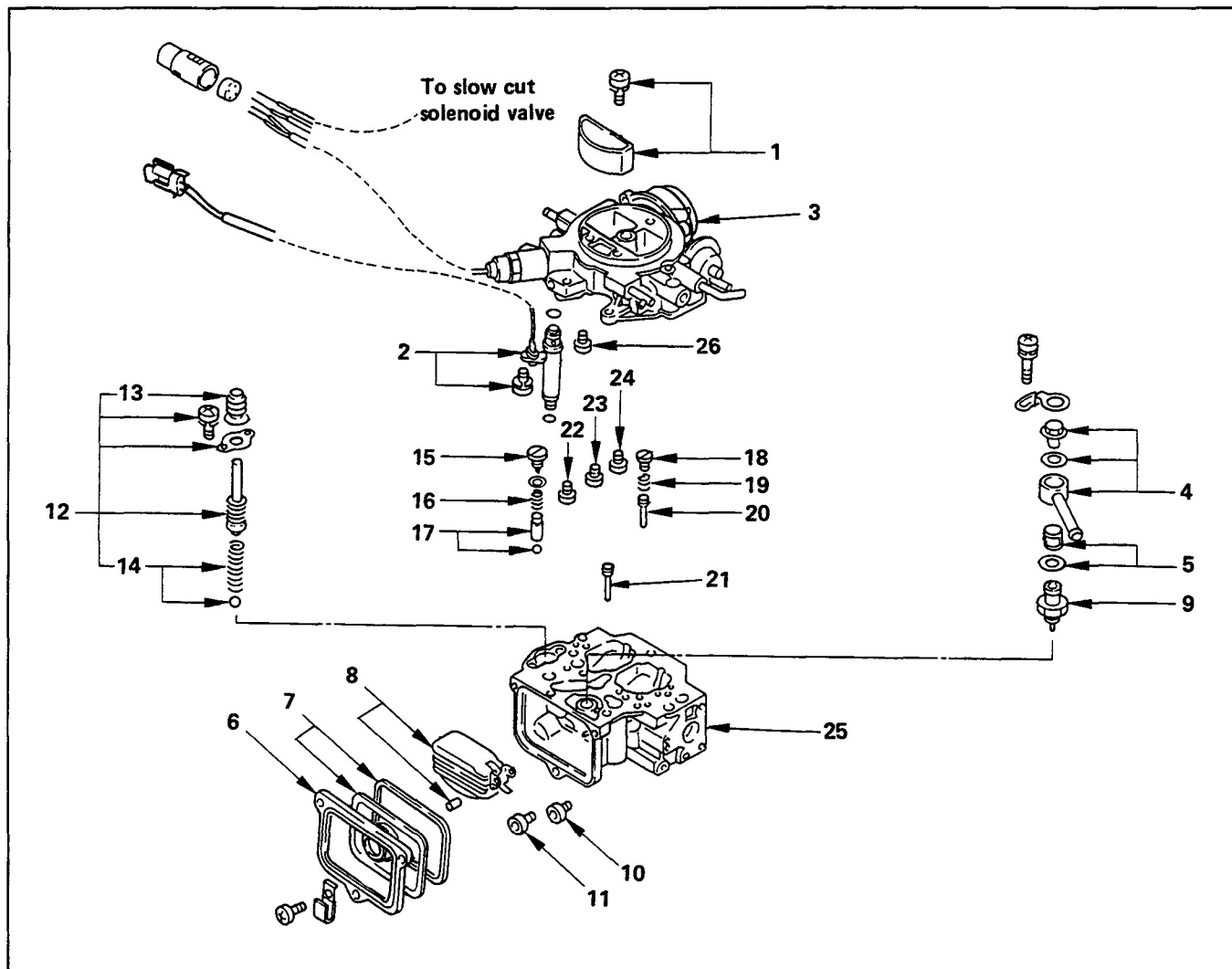
9. Choke Chamber Assembly

Remove the split pin (1), the fast idler cam (2), and the cam spring (3) from the float chamber shaft.

MINOR COMPONENTS

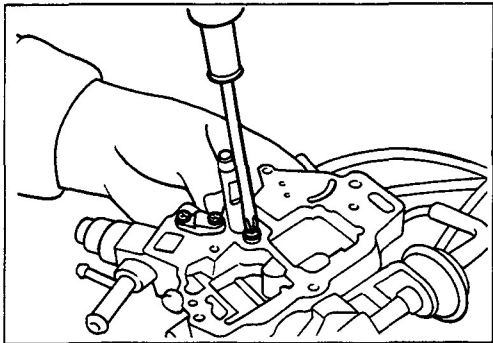


CHOKE CHAMBER AND FLOAT CHAMBER ASSEMBLY



Disassembly Steps

- | | |
|--------------------------------|------------------------------|
| 1. Vent cover | 14. Piston return spring |
| ▲ 2. Duty solenoid valve | 15. Pump set screw |
| 3. Choke chamber | 16. Injector spring |
| 4. Fuel nipple | 17. Injector weight |
| 5. Fuel filter | 18. Taper plug |
| 6. Level gauge cover | 19. Slow jet spring |
| 7. Level gauge and rubber seal | 20. Primary slow jet |
| ▲ 8. Float and collar | 21. Secondary slow jet |
| ▲ 9. Needle valve | 22. Primary main air bleed |
| 10. Secondary main jet | 23. Secondary main air bleed |
| 11. Primary main jet | 24. Primary slow air bleed |
| ▲ 12. Piston | 25. Float chamber |
| 13. Pump cover | ▲ 26. Power jet |



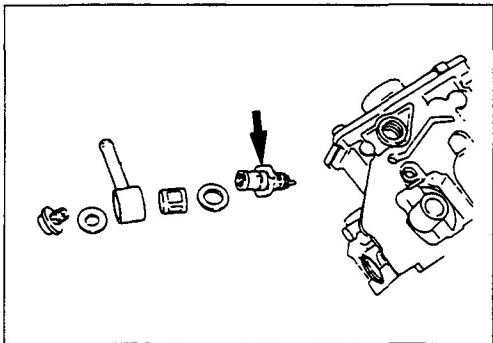
Important Operations

2. Duty Solenoid Valve ('91 Swiss, Sweden & '92 Germany models)

- 1) Cut the solenoid valve cord.
- 2) Loosen the three screws holding the valve in place.
- 3) Pull the valve from the choke chamber.

Note:

Do not remove the duty solenoid valve unless repair or replacement is required.



8. Float and Collar

9. Needle Valve

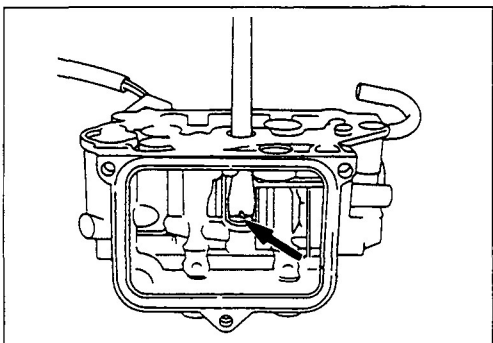
Take care not to lose the collar.

Do not allow the needle valves to fall free.

Take care not to damage the needle valve.

12. Piston

Take care not to lose the check ball.

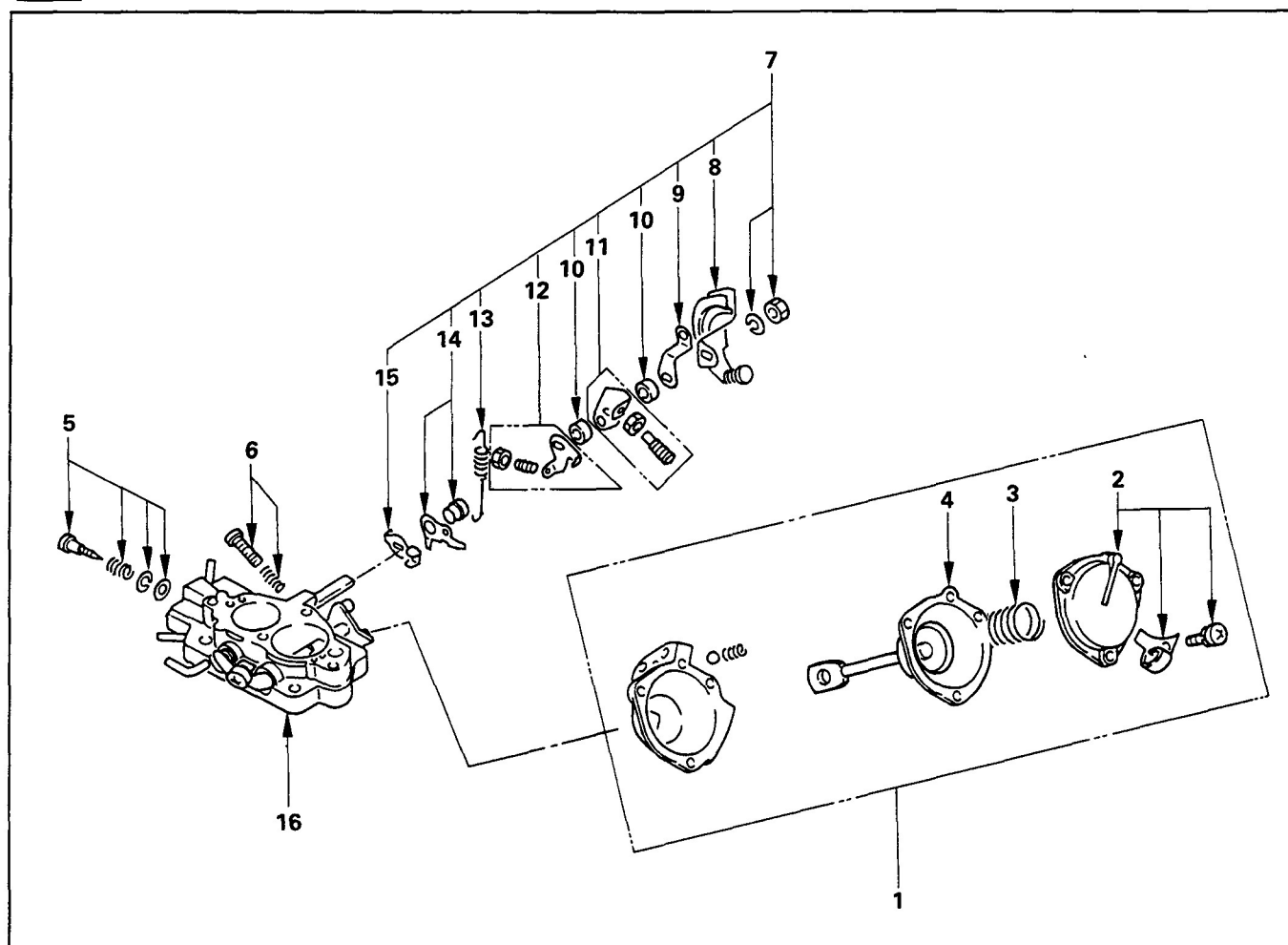


26. Power Jet (Except '91 model, Swiss & Sweden, '92 model, Germany)

Be sure to place a screwdriver properly into the slot to prevent valve rod damage.



THROTTLE CHAMBER ASSEMBLY



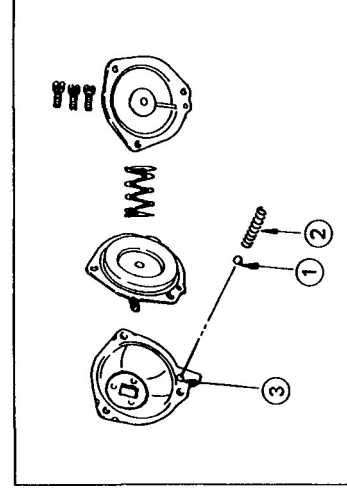
080303000302B

Disassembly Steps

- | | |
|------------------------------------|--|
| 1. Diaphragm chamber assembly | ▲ 9. Spring hanger |
| ▲ 2. Diaphragm chamber cover | ▲ 10. Shaft collar |
| ▲ 3. Diaphragm spring | ▲ 11. Fast idler adjusting lever and screw |
| ▲ 4. Diaphragm | ▲ 12. Kick lever |
| ▲ 5. Idler adjusting screw | ▲ 13. Return spring |
| 6. Throttle adjusting screw | ▲ 14. Return plate and sleeve |
| ▲ 7. Throttle shaft nut and washer | ▲ 15. Adjusting lever |
| ▲ 8. Throttle lever | 16. Throttle chamber |



Important Operations



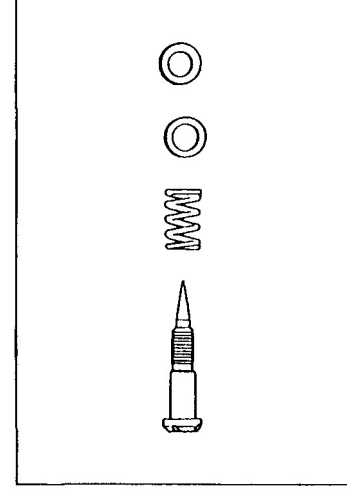
2. Diaphragm Chamber Cover

3. Diaphragm Spring

4. Diaphragm

Do not allow the ball ① and the spring ② to fall from the diaphragm chamber vacuum hole ③ during the disassembly procedure.

Take care not to lose or misplace the disassembled parts.



5. Idler Adjusting Screw

Take care not to damage the adjusting screw tip after disassembly.

7. Throttle Shaft Nut and Washer

Remove the steps number 7 to 15 parts only if repair or replacement is required.



INSPECTION AND REPAIR (HITACHI)

Make the necessary adjustments, repairs, and part replacements if excessive wear or damage is discovered during inspection.

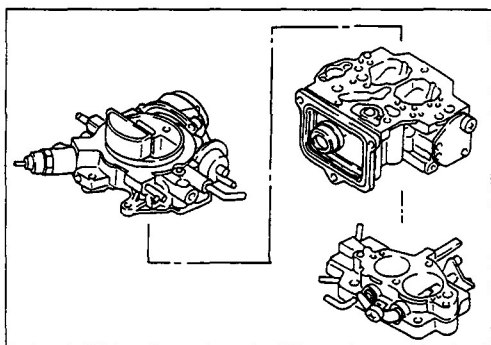


Cleaning

1. Carefully clean the disassembled parts (excluding the O-rings, the gaskets, and the electrical parts) with carburetor cleaner.

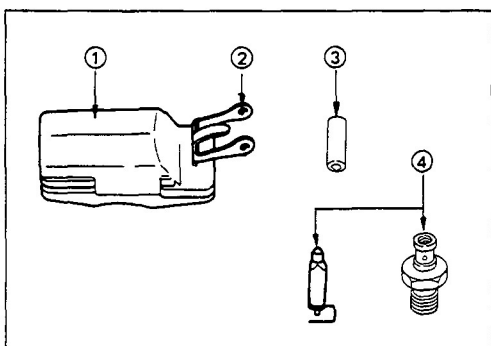
Carburetor parts are extremely delicate. Handle them carefully to avoid damage.

2. Use dry air to blow each of the carburetor passages free of foreign material.



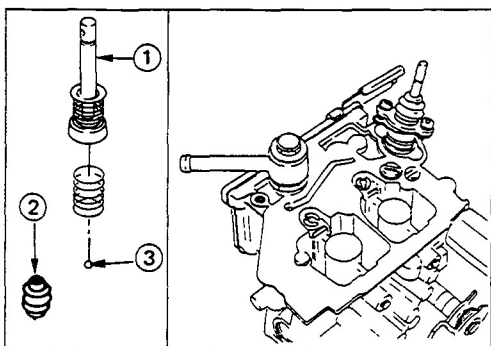
Choke Chamber, Float Chamber, and Throttle Chamber

1. Insert the choke chamber, the float chamber, and the throttle chamber fitting surfaces for cracks or other flaws.
If there are cracks or other flaws, the parts must be replaced.
2. Inspect the shafts and the links for deformation and excessive wear.
If there is deformation and excessive wear, the parts must be replaced.



Float and Needle Valve

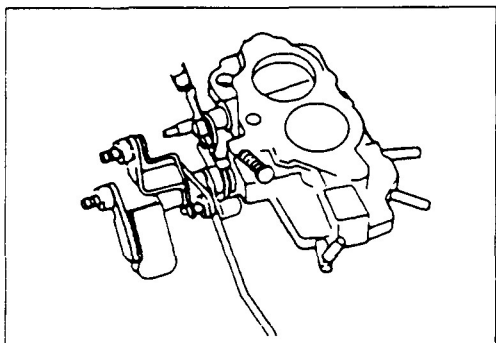
1. Immerse the float and needle valve in gasoline to clean them.
2. Check the following parts for excessive wear and damage.
 - ① Float
 - ② Float pin hole
 - ③ Float pin dollar
 - ④ Needle valve and seat



Piston

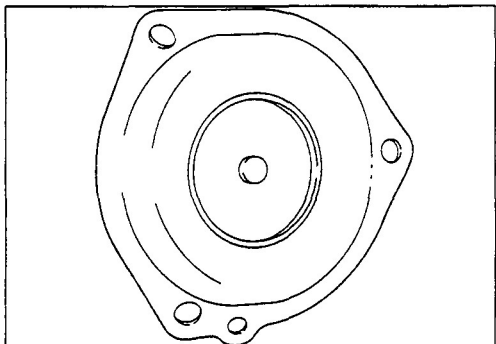
Inspect the piston ① and the piston boot ② for excessive wear and damage.

Take care not to lose the check ball ③.



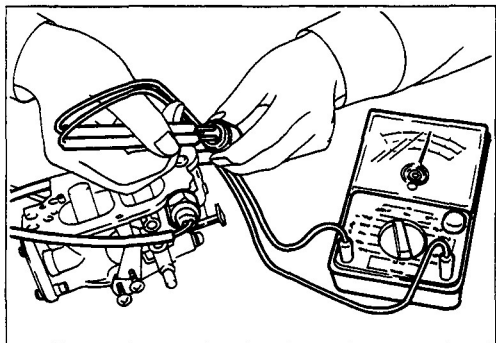
Throttle Chamber

1. Inspect the slow port, the idle port, and the other throttle chamber openings for restrictions.
2. Inspect the primary throttle valve and the secondary throttle valve for carbon deposits and excessive wear.
3. Inspect the throttle valve shaft for wear.
4. Inspect the idler adjusting screw seating faces for step wear.
Inspect the threads for damage.



Diaphragm

Inspect the diaphragm for deterioration and damage.

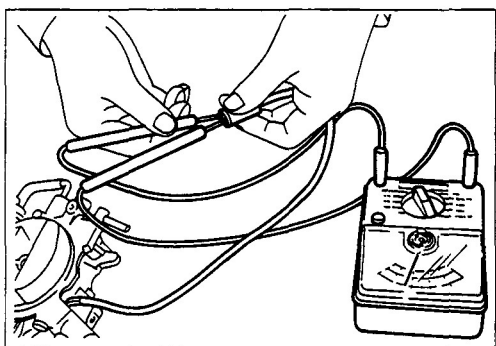


Slow Cut Solenoid Valve

1. Inspect the slow cut solenoid valve body and spring spool for excessive wear and damage.
2. Use an ohmmeter to measure the resistance between the solenoid valve positive terminal and negative terminal.

If the measured resistance is outside the specified range, the slow cut solenoid valve must be replaced.

Slow Cut Solenoid Valve Resistance	Ohms
31.9 – 43.3 at 20°C (68°F)	

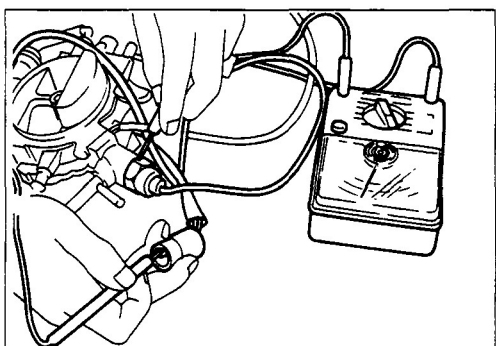


Duty Solenoid Valve (From '91 Swiss & Sweden, '92 Germany models)

Use an ohmmeter to measure the resistance between the solenoid valve positive terminal and negative terminal.

If the measured resistance is outside the specified range, the rear holder and the connectors) must be replaced.

Duty Solenoid Valve Resistance	Ohms
34.7 – 46.9 at 20°C (68°F)	

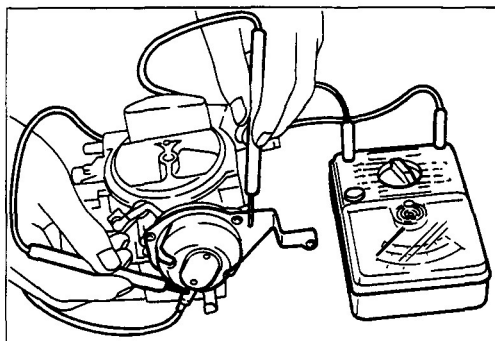


Switch Vent Solenoid Valve (If equipped)

Use an ohmmeter to measure the resistance between the solenoid valve positive terminal and ground (valve body).

If the measured resistance is outside the specified range, the switch vent solenoid valve must be replaced.

Switch Vent Solenoid Valve Resistance	Ohms
25.1 – 34.1 at 20°C (68°F)	

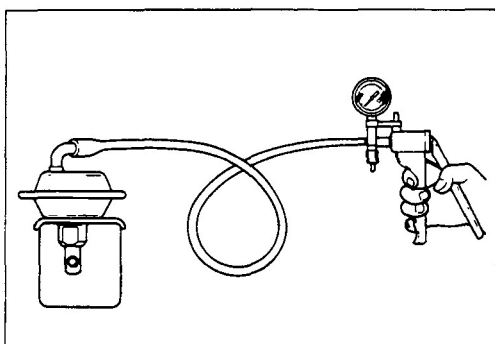


Thermostat

Use an ohmmeter to measure the resistance between the thermostat positive terminal and ground (thermostat body).

If the measured resistance is outside the specified range, the thermostat must be replaced.

Thermostat Resistance	Ohms
1.1 – 3.1 at 20°C (68°F)	

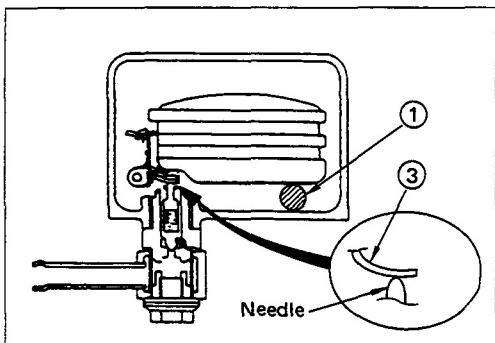


Choke Piston

Apply a vacuum to the choke piston diaphragm.

The diaphragm must maintain the vacuum for several seconds.

If it does not, the choke chamber assembly must be replaced.



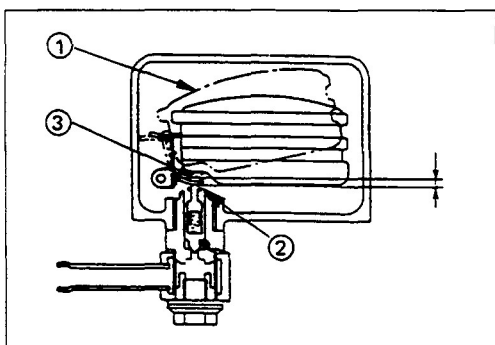
MEASUREMENT AND ADJUSTMENT

1. Float Level Adjustment

Place the test bar ① between the float tip and the upper face of float chamber as shown in the illustration.

If the float level height is outside the specified range, adjust it by carefully bending the float seat ③ with your hands.

Float Level Height	mm (in)
7.2 (0.28)	

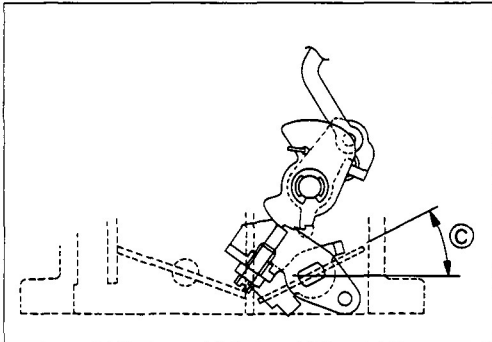
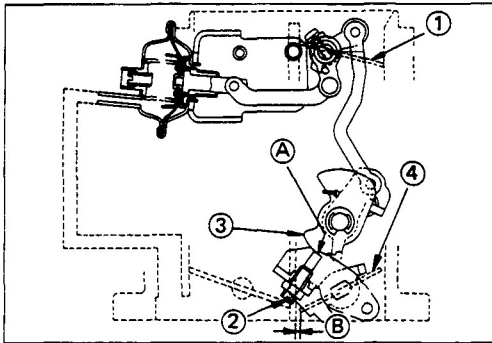


2. Needle Valve Stroke Adjustment

- 1) Hold the carburetor upside down.
- 2) Fully raise the float ①.
- 3) Measure the clearance between the valve stem ② (resting at the bottom position) and the float seat ③.

If the needle valve stroke is outside the specified value, adjust the needle valve stroke by carefully bending the float stopper.

Valve Stem and Float Seat Clearance	mm (in)
1.5 (0.059)	

**Fast Idling**

1. Fully close the choke valve ①.
2. Align the fast idling screw ② with the fast idling cam ③ first step A.
3. Measure the clearance B between the primary throttle valve ④ and the throttle valve chamber wall.

If the measured clearance is outside the specified range, adjust it with the idling adjusting screw ②.

Throttle Valve and Throttle Valve Chamber

Wall Clearance mm(in)

1.23 – 1.48 (0.048 – 0.058)

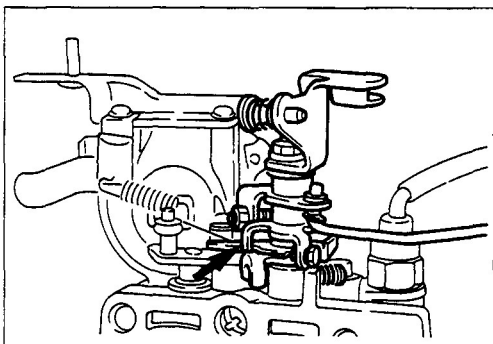
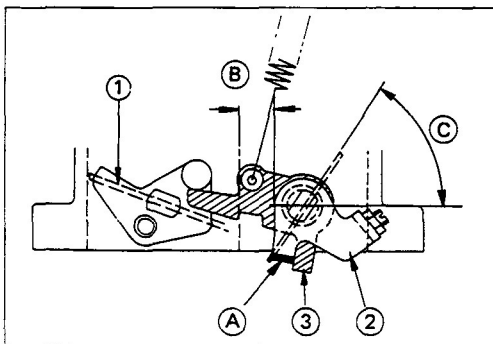
(Reference)

Primary Throttle Valve Angle C

Deg.

25

* When the clearance between the throttle valve and the throttle valve chamber wall is within the specified range.

**Primary Throttle Valve and Secondary Throttle Valve Interlock**

1. Slowly open the primary throttle valve ① until the kick lever ② tang A contacts the return plate ③.
2. Measure the clearance B between the throttle valve and the throttle valve chamber wall.

If the measured clearance is outside the specified range, adjust it by carefully bending the kick lever tang.

Throttle Valve and Throttle Valve Chamber

Wall Clearance B mm(in)

6.9 – 8.4 (0.27 – 0.33)

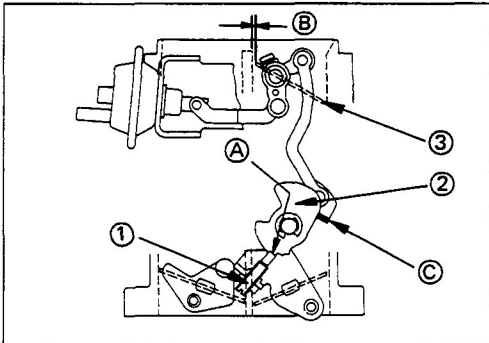
(Reference)

Primary Throttle Valve Angle C

Deg.

57

* When the clearance between the primary throttle valve and the throttle valve chamber wall is within the specified range.



Choke Valve Opening

1. Move the fast idling screw ① tip against the fast idling cam ② second step A.
2. Measure the clearance ③ between the choke valve ③ and the choke valve chamber wall.

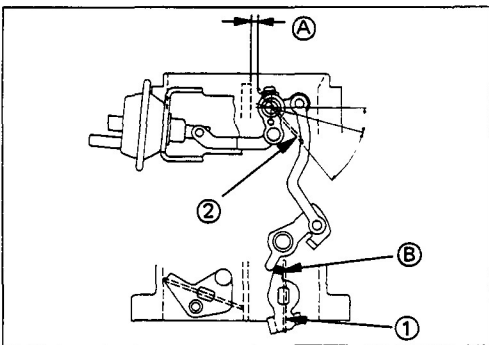
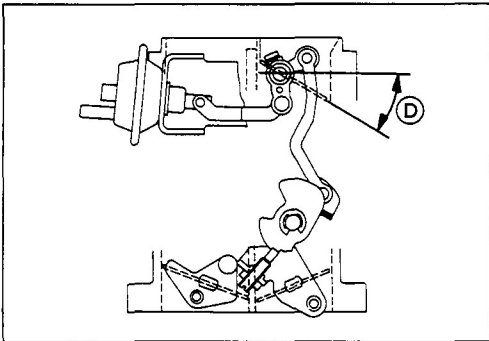
If the measured clearance is outside the specified range, adjust it by carefully bending the counter lever tang ④.

Choke Valve and Choke Valve Chamber Wall Clearance	mm(in)
0.8 — 1.3 (0.03 — 0.05)	

(Reference)

Choke Valve Angle ⑤	Deg.
30	

* When the clearance between the choke valve and the choke valve chamber wall is within the specified range.



Unloader

1. Fully open the primary throttle valve ①.
2. Measure the clearance ② between the choke valve ② and the choke valve chamber wall.

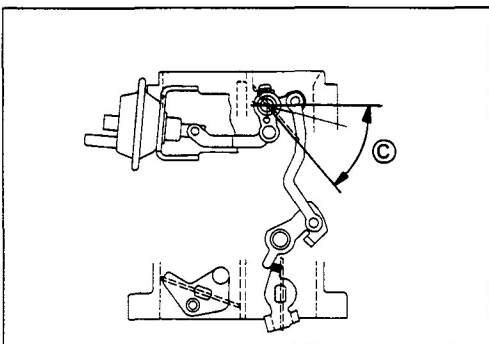
If the measured clearance is outside the specified range, adjust it by carefully bending the adjusting lever tang ③.

Choke Valve and Choke Valve Chamber Wall Clearance	mm(in)
2.7 — 3.3 (0.11 — 0.13)	

(Reference)

Choke Valve Angle ④	Deg.
50	

* When the clearance between the choke valve and the choke valve chamber wall is within the specified range.



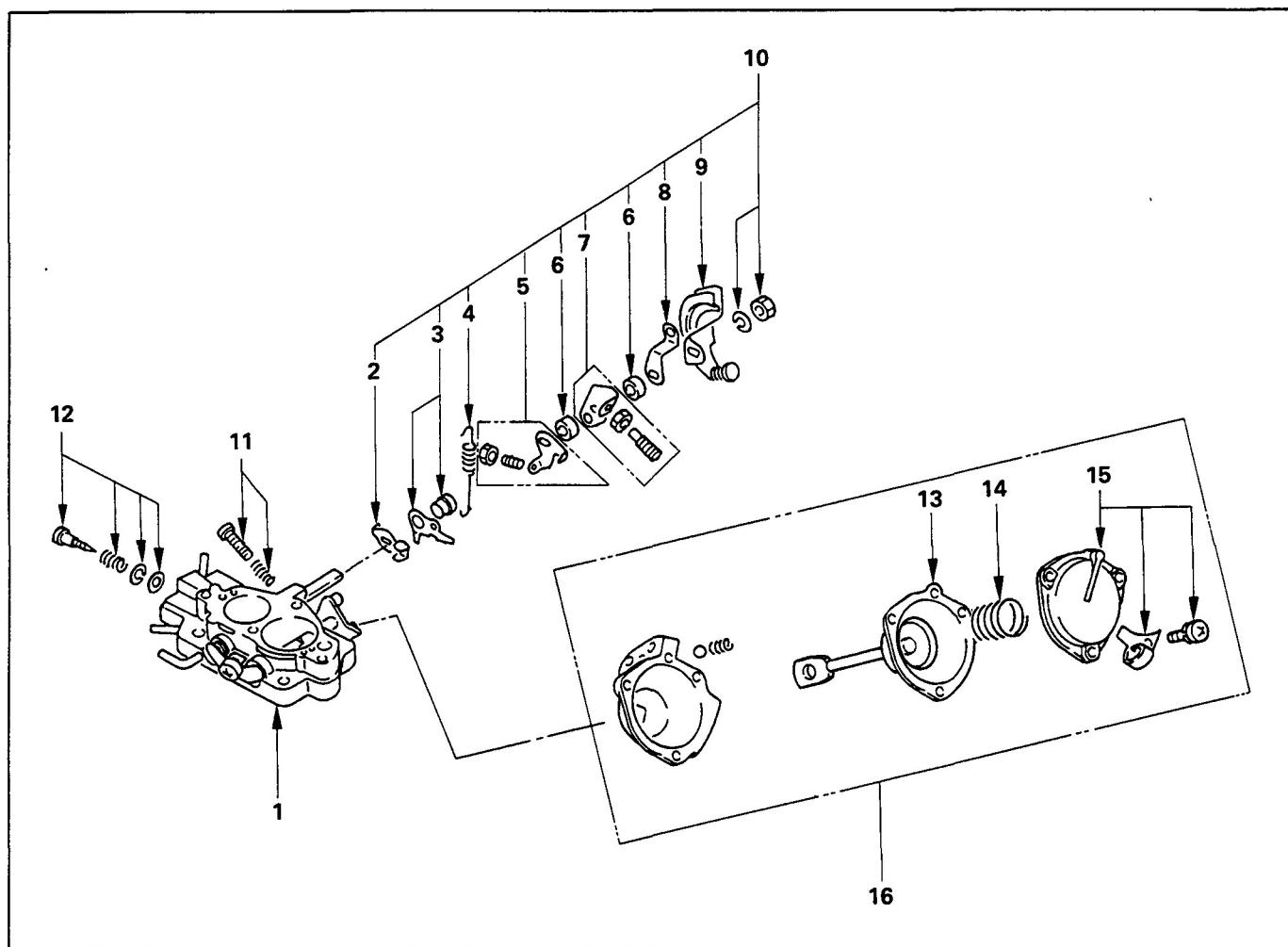


REASSEMBLY

MINOR COMPONENTS



THROTTLE CHAMBER ASSEMBLY

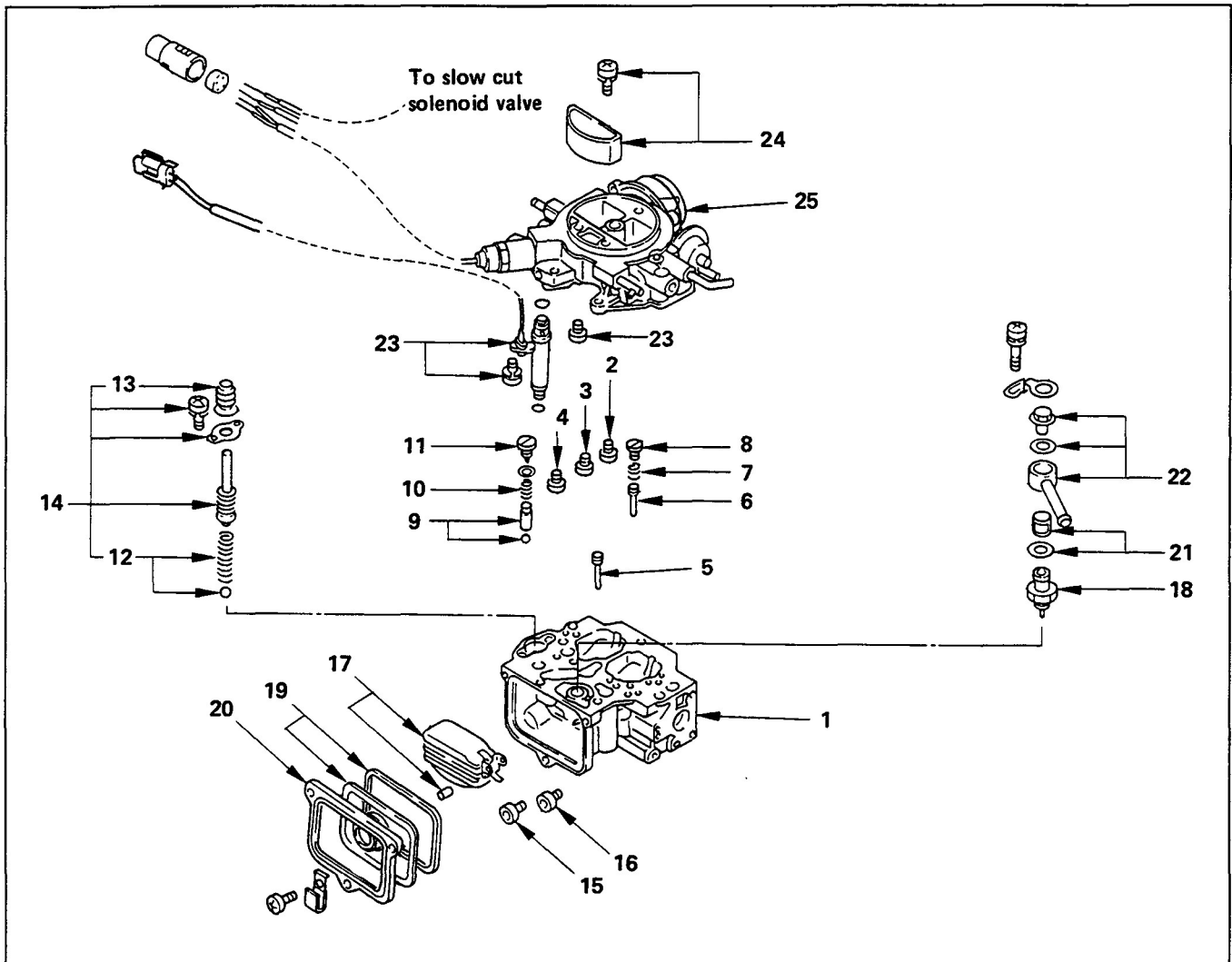


Reassembly Steps

- | | |
|---|-----------------------------------|
| 1. Throttle chamber | 9. Throttle lever |
| 2. Adjusting lever | 10. Throttle shaft nut and washer |
| 3. Return plate and sleeve | 11. Throttle adjusting screw |
| 4. Return spring | 12. Idler adjusting screw |
| 5. Kick lever | 13. Diaphragm |
| 6. Shaft collar | 14. Diaphragm spring |
| 7. Fast idler adjusting lever and screw | 15. Diaphragm chamber cover |
| 8. Spring hanger | 16. Diaphragm chamber assembly |



CHOKE CHAMBER AND FLOAT CHAMBER ASSEMBLY

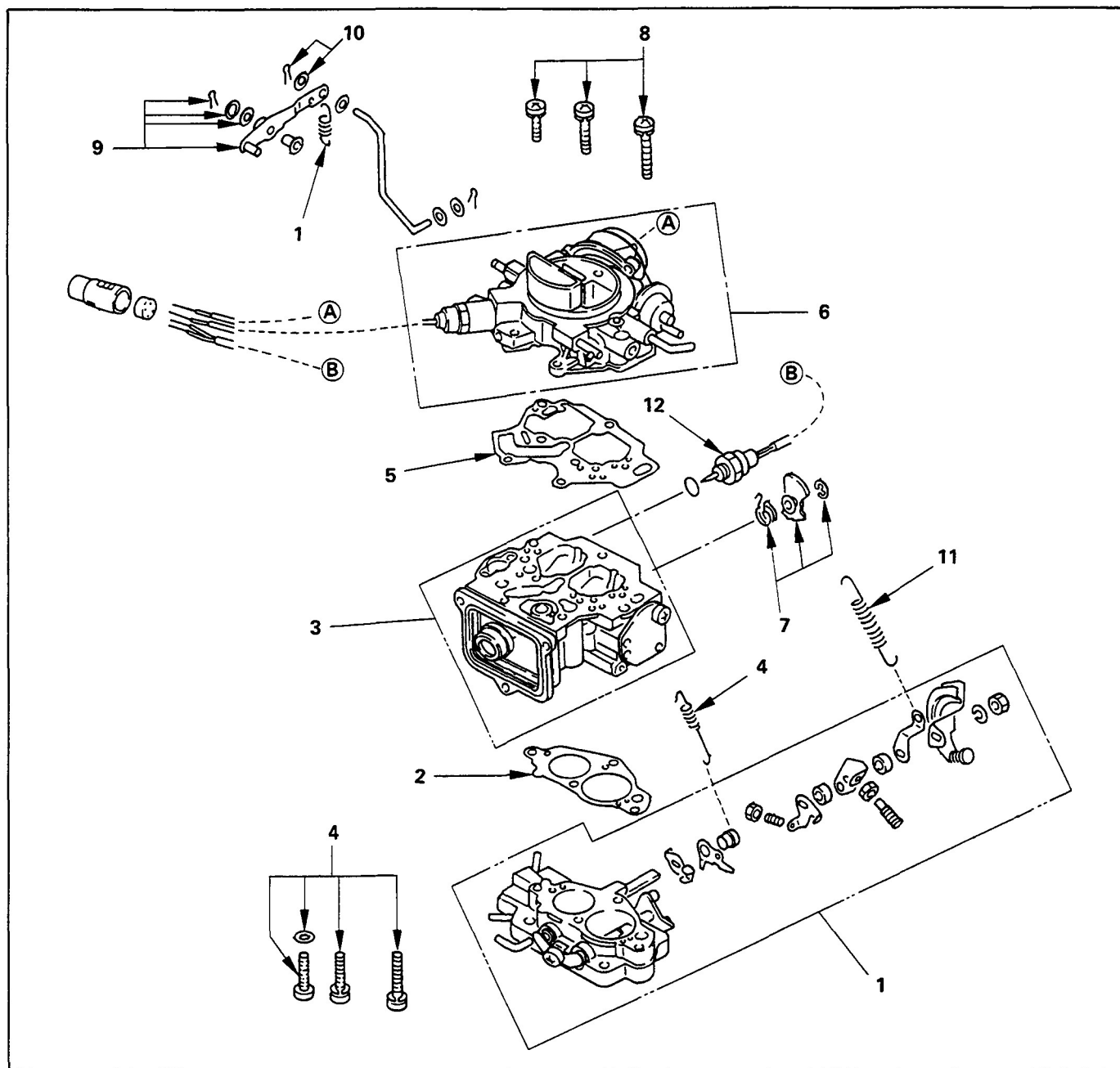


Reassembly Steps

- | | |
|-----------------------------|--------------------------------------|
| 1. Float chamber | 14. Piston |
| 2. Primary slow air bleed | 15. Primary main jet |
| 3. Secondary main air bleed | 16. Secondary main jet |
| 4. Primary main air bleed | 17. Float and collar |
| 5. Secondary slow jet | 18. Needle valve |
| 6. Primary slow jet | 19. Level gauge and rubber seal |
| 7. Slow jet spring | 20. Level gauge cover |
| 8. Taper plug | 21. Fuel filter |
| 9. Injector weight | 22. Fuel nipple |
| 10. Injector spring | 23. Duty solenoid valve or power jet |
| 11. Pump set screw | 24. Vent cover |
| 12. Piston return spring | 25. Choke chamber |
| 13. Pump cover | |

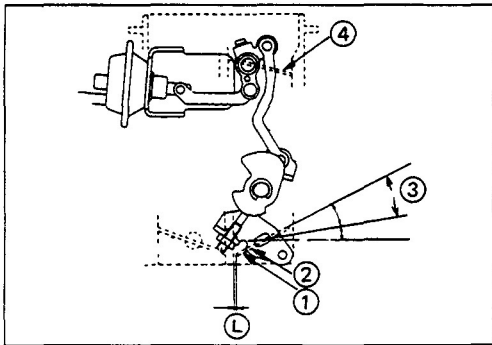


MAJOR COMPONENTS



Reassembly Steps

1. Throttle chamber assembly
2. Float and throttle chamber gasket
3. Float chamber assembly
4. Throttle chamber screw and washer
5. Choke and float chamber gasket
6. Choke chamber assembly
7. Fast idler cam and spring
8. Choke chamber screw and washer
9. Pump lever and split pin with washer
10. Pump rod split pin with washer
11. Main spring
12. Slow cut solenoid valve



CARBURETOR ADJUSTMENT (Hitachi-Carburetor)

Primary Throttle Valve

The fast idling adjusting screw ① should open the primary throttle valve ② to an angle of 15° ③ when the choke valve ④ is completely closed.

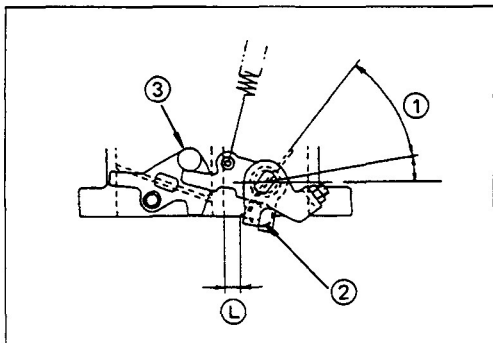
Check and adjust the primary throttle valve opening angle as follows:

- 1) Close the choke valve ④ completely.
- 2) Turn the throttle stop screw all the way in.
- 3) Measure the clearance between the primary throttle valve and the throttle valve chamber wall at the center of the throttle valve.

Throttle Valve and Throttle Valve Chamber

Wall Clearance ①	mm(in)
1.28 — 1.51 (0.05 — 0.06)	

- 4) If required, use the fast idling adjusting screw to adjust the clearance.



Linkage

When the primary throttle valve is opened to an angle of 47° ①, the adjusting plate (interlocked with the primary throttle valve) makes contact with the kick lever at point ②.

Further opening the primary throttle valve pulls the return plate away from the stopper ③, allowing the secondary throttle valve to open.

Check and adjust the secondary throttle valve opening point as follows:

- 1) Measure the clearance between the primary throttle valve and the throttle valve chamber wall at the center of the throttle valve.
The adjusting plate must be contacting the kick lever at point ②.

Throttle Valve and Throttle Valve Chamber

Wall Clearance ①	mm(in)
6.1 — 7.6 (0.24 — 0.30)	

- 2) If required, adjust the clearance by carefully bending the kick lever at point ②.

Kick Lever

- 1) Turn out the throttle adjusting screw until the primary throttle valve ① is completely closed.
- 2) Loosen the lock nut on the kick lever screw ②.
- 3) Turn the kick lever screw until it makes contact with the return plate ③.
- 4) Tighten the lock nut ④.

