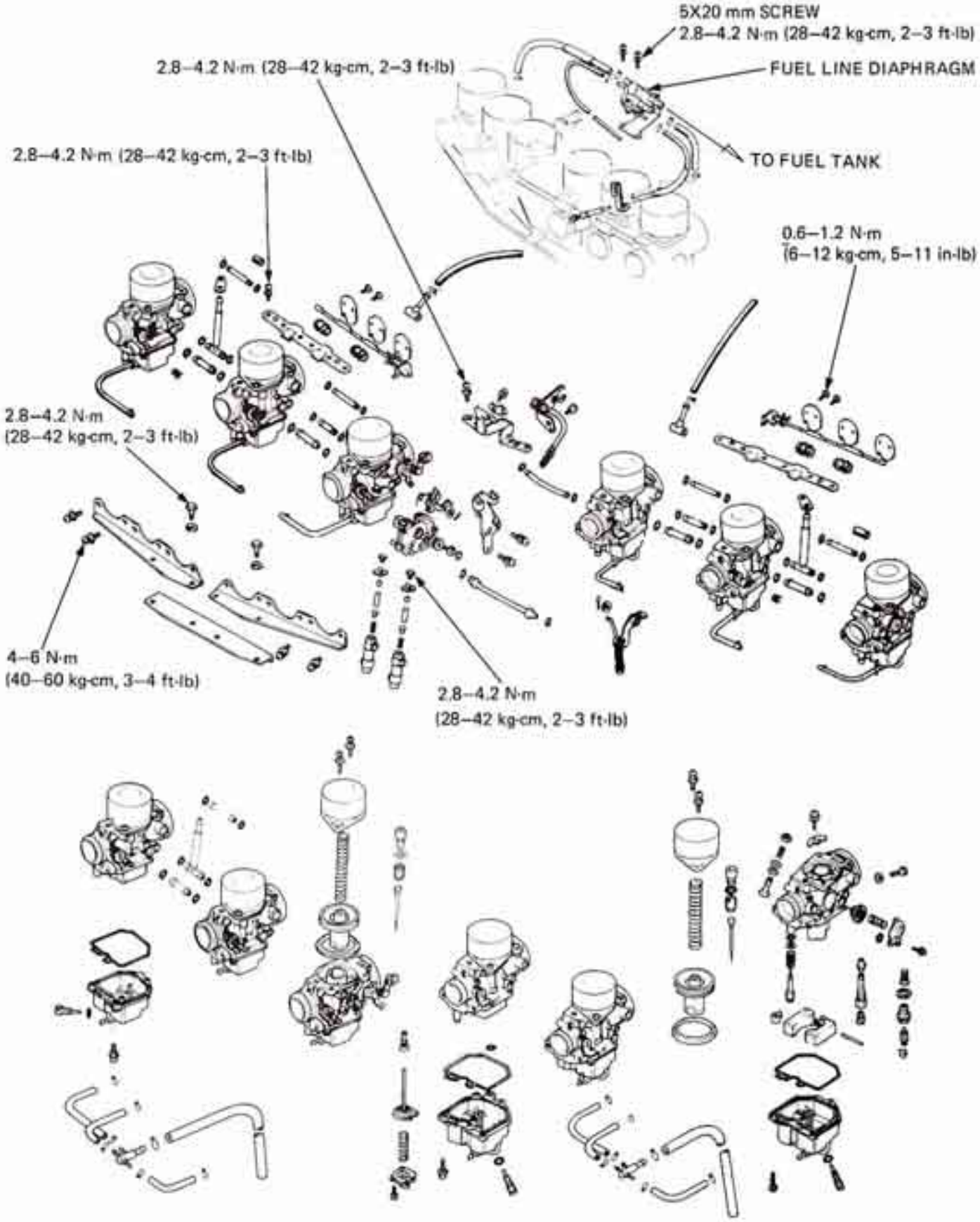


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GENERAL INFORMATION

GENERAL INSTRUCTIONS

- Use caution when working with gasoline. Always work in a well-ventilated area and away from sparks or open flames.
- When disassembling fuel system parts, note the locations of the O-rings. Replace with new ones on re-assembly.
- The float bowls have drain plugs that can be loosened to drain residual gasoline.
- The carburetors are equipped with a fuel line diaphragm. After carburetor overhaul, it is necessary to crank the engine for 2-3 seconds, three times with the throttle fully closed to fill the float chambers.
- The pilot screw is factory pre-set and should not be removed unless the carburetor is overhauled.

TOOLS

Common	
Float level gauge	07401–0010000
Special	
Carburetor Throttle Wrench	07908–4220100 (for No. 1, 2, 3 and 4) 07908–4600000 (for No. 5 and 6)
Carburetor Pilot Screw Wrench	07908–4220200 or 07908–4220201

TORQUE VALUES

Front bracket	4–6 N·m (40–60 kg-cm, 35–52 in-lb)
Rear bracket	2.8–4.2 N·m (28–42 kg-cm, 24–36 in-lb)
Choke valve	0.6–1.2 N·m (6–12 kg-cm, 5–11 in-lb)
Front and rear brackets between three carburetors	2.8–4.2 N·m (28–42 kg-cm, 24–36 in-lb)
Throttle joint holding nut	2.8–4.2 N·m (28–42 kg-cm, 24–36 in-lb)

SPECIFICATIONS

Venturi dia.	28 mm (1.1 in)
Setting mark	V864A
Float level	15.5 mm (0.61 in)
Main jet	#105
Idle speed	900 ± 100 rpm
Throttle grip free play	2–6 mm (0.08–0.24 in)
Fast idle	2,000 ± 500 rpm after break-in
Pilot screw	See page 4-28

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TROUBLESHOOTING

Engine Cranks but Won't Start
1. No fuel in tank
2. No fuel to carburetor
   - Fuel line diaphragm vent tube clogged
   - Fuel line diaphragm vacuum tube clogged
   - Clogged fuel line diaphragm
   - Clogged fuel line diaphragm check valve
3. Engine flooded with fuel
4. No spark at plug (ignition malfunction)
5. Air cleaner clogged
6. Intake air leak
7. Improper choke operation
8. Improper throttle operation

Hard Starting or Stalling after Starting
1. Improper choke operation
2. Ignition malfunction
3. Fast idle speed incorrect
4. Carburetor malfunction
5. Fuel contaminated
6. Intake air leak
7. Idle speed incorrect

Rough Idle
1. Ignition malfunction
2. Idle speed incorrect
3. Incorrect carburetor synchronization
4. Carburetor malfunction
5. Fuel contaminated

Misfiring during Acceleration
1. Ignition malfunction
2. Faulty air cutoff valve or accelerator pump

Backfiring
1. Ignition malfunction
2. Carburetor malfunction
3. Faulty air cutoff valve or accelerator pump

Poor Performance (Driveability) and Poor Fuel Economy
1. Fuel system clogged
2. Ignition malfungtion
3. Faulty accelerator pump

Lean Mixture
1. Clogged fuel jets
2. Piston stuck closed
3. Faulty float valve
4. Float level low
5. Fuel cap vent blocked
6. Fuel strainer clogged
7. Restricted fuel line
8. Air vent tube clogged
9. Intake air leak

Rich Mixture
1. Clogged air jets
2. Faulty float valve
3. Float valve too high
4. Choke stuck closed
5. Stuck closed air cutoff valve
6. Clogged air cleaner

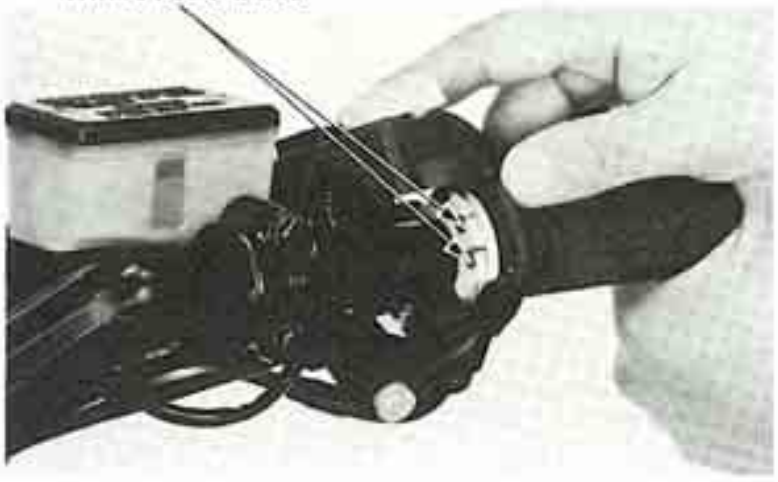
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CARBURETOR REMOVAL

NOTE

To remove the carburetors, the engine must be tilted.
Refer to Section 5 "ENGINE REMOVAL AND INSTALLATION".

Remove the front fairing and leg shields.
Disconnect the throttle cables at the throttle housing before tilting the engine.
Remove the choke cable at the left handlebar switch housing.



Loosen the carburetor manifold bands.
Remove the carburetor assembly with the chamber.

NOTE

For easy removal, loosen the cylinder head side bands.

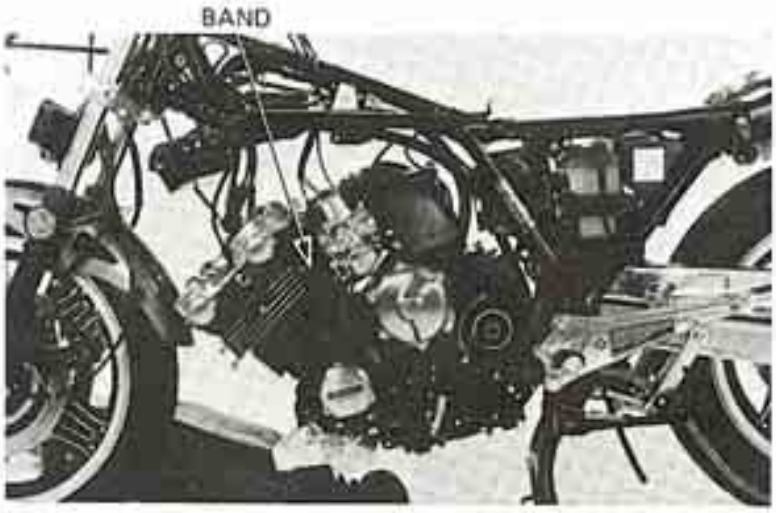
CAUTION

Apply equal force to each carburetor.



Loosen the air cleaner connecting band.
(For more information, refer to Section 5).

Tilt the engine.

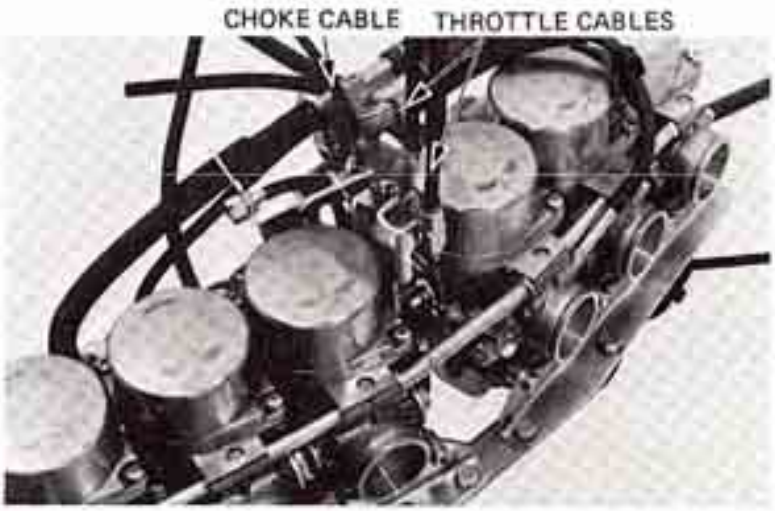


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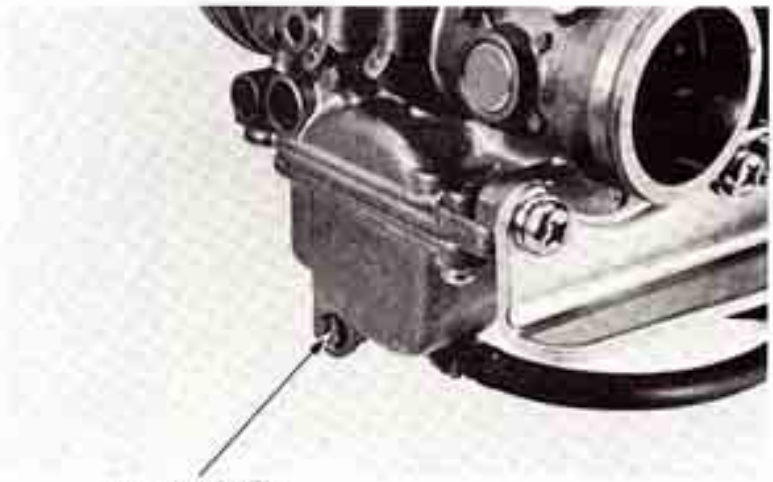
Remove the air chamber from the carburetor.



Disconnect the throttle and choke cables.



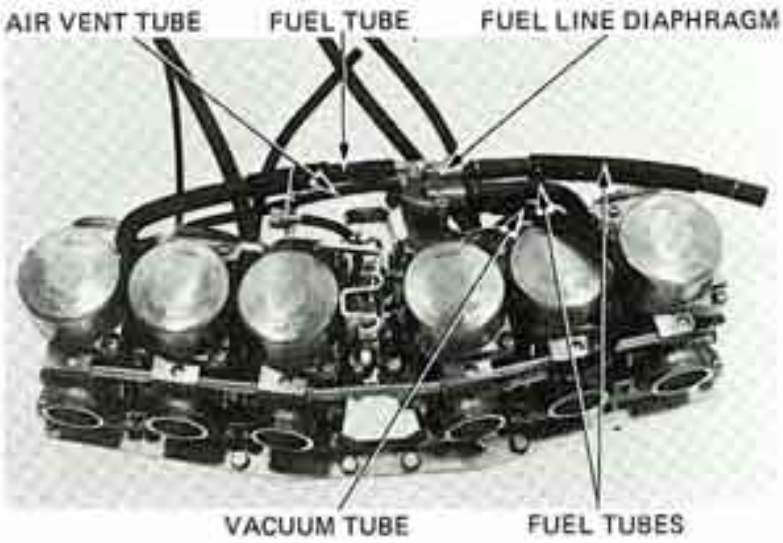
Drain the fuel by loosening each drain screw.



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FUEL LINE DIAPHRAGM

Disconnect the fuel tubes, vacuum tubes and air vent tube.
Unscrew the screws attaching the fuel line diaphragm to the carburetors.
Remove the fuel line diaphragm.



INSPECTION

Remove the fuel line diaphragm (see above).

Disconnect the inlet fuel tube from the diaphragm, and connect a longer tube to the fuel tank.

Place a suitable drainage container under the outlet fuel tubes.

Turn the fuel valve on. Fuel should not flow from the outlet tubes.

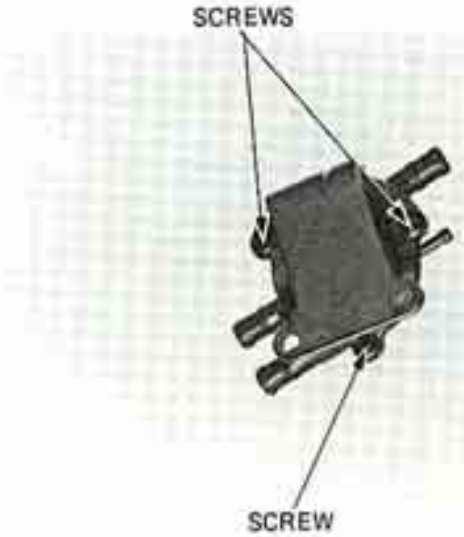
Connect a vacuum gauge to the diaphragm vacuum outlet. Fuel should flow out from the outlet tubes when 10–20 mm Hg (0.4–0.8 in Hg) of vacuum is applied.
If the flow is restricted, check the diaphragm for clogged fuel or air passages and the diaphragm itself for tears.



DISASSEMBLY

Disassemble the upper body, spacer, spring and lower body by removing the screws shown.

Disassemble the spacer, being careful not to damage the diaphragm.



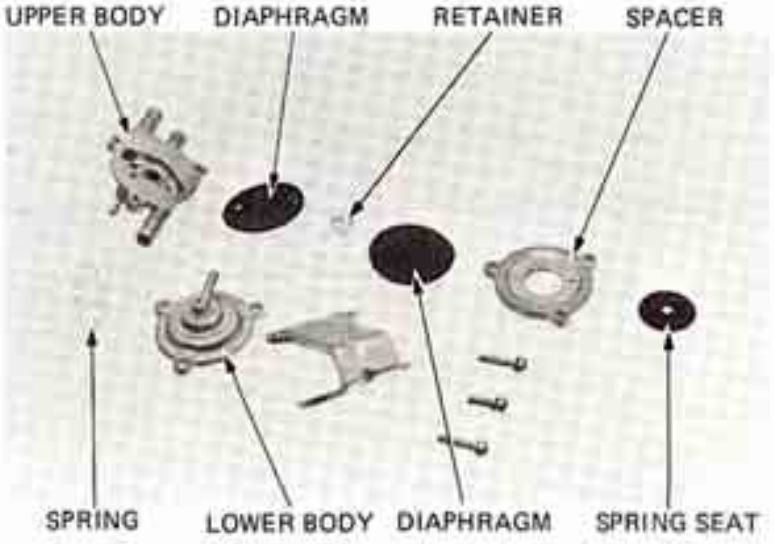
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Check the upper and lower bodies for signs of damage to the diaphragm contacting faces.

Check the diaphragms for damage, cracks or other faults.
Check the bodies and spacer for clogged vent holes.

Check the diaphragm seal for damage.

Check for clogged fuel or air passages.



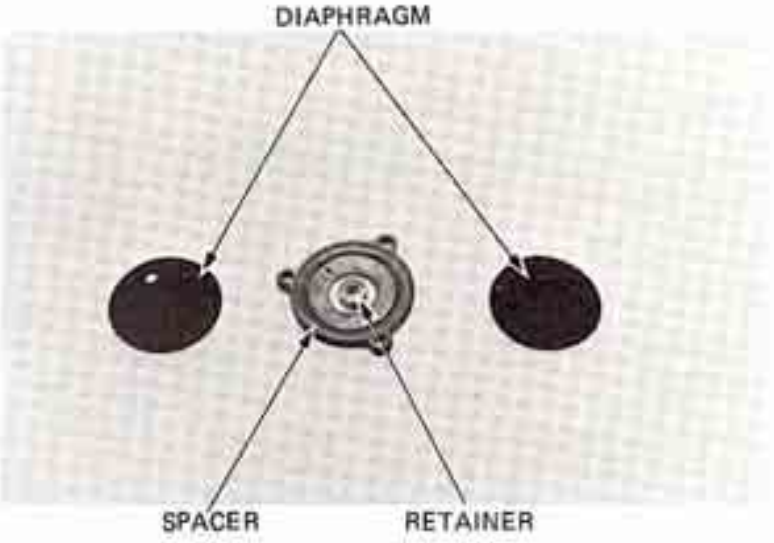
ASSEMBLY

Clean all the disassembled parts in solvent and allow to dry.

Install the spacer and diaphragm retainer.
Install the spring seat.

NOTE

Check that the diaphragm is installed in the retainer properly.

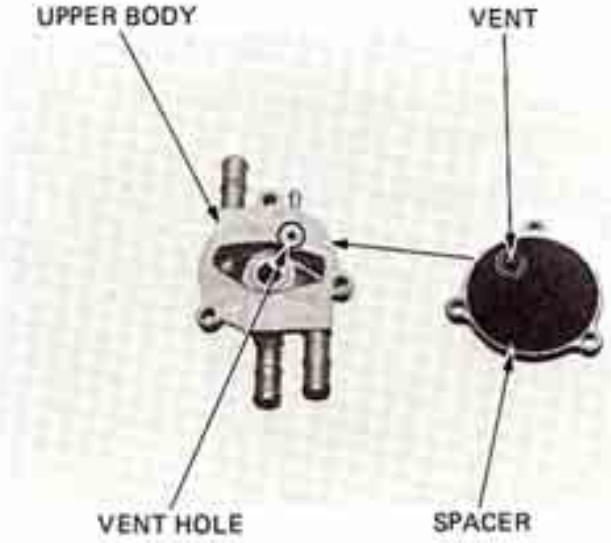


Install the spacer on the upper body.

NOTE

Align the air vent hole in the body with the air passage in the spacer.

Install the diaphragm spring and lower body.
Install the bracket and tighten the screws.



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VACUUM CYLINDER DISASSEMBLY

Remove the vacuum cylinders from the carburetor bodies.
Carefully lift the vacuum piston out with the needle and compression spring.

NOTE

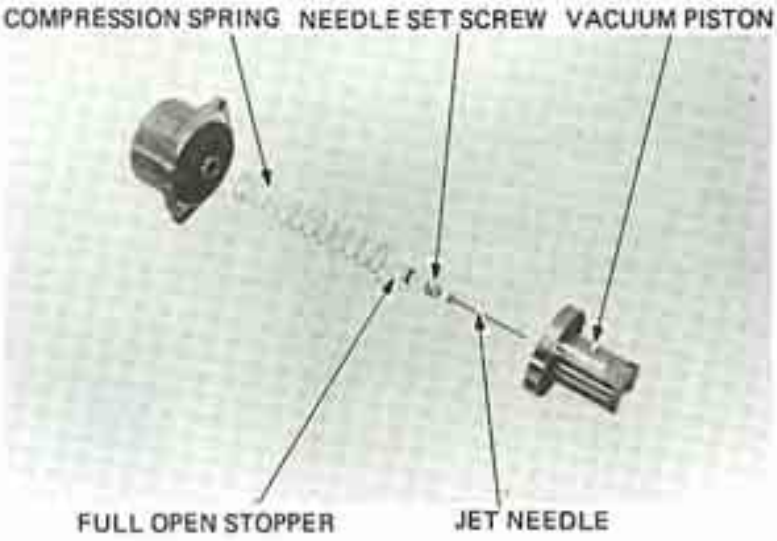
Inspect the vacuum piston and cylinder for wear, nicks, scratches or other damage. Make sure that the piston and jet needle move up and down freely in the cylinder.

Remove the full open stopper.
Remove the needle set screw.
Separate the jet needle from the piston.

NOTE

Inspect the needle and seat for deposits, bending, grooves, or other damage.

Carefully lift the seal ring off the carburetor body.
Remove the air jet cover.





Blow open the primary main air jet, secondary main air jet and slow air jet with compressed air.

NOTE

Never clean carburetor jets with wire or drills. This will enlarge the openings and result in excessive fuel consumption.



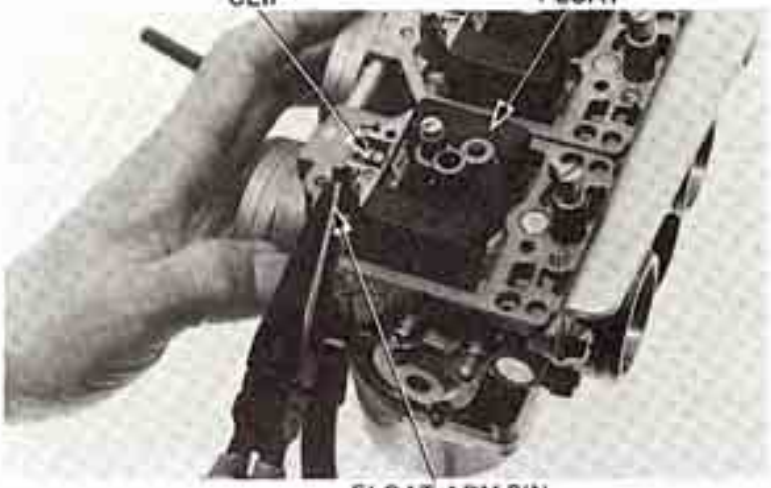
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FLOAT CHAMBER DISASSEMBLY

Remove the float chamber body.
Remove the float arm pin.
Remove the float and float valve.

NOTE

Remember the direction of the clip to ensure correct reassembly.



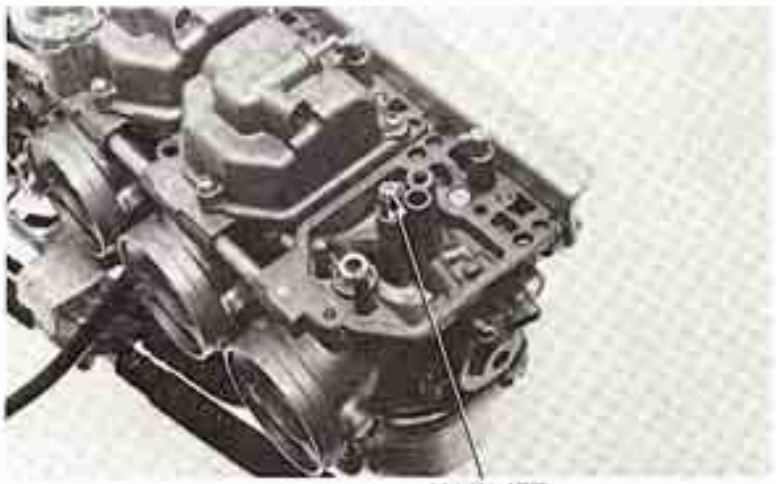
Inspect the float valve and seat for grooves, nicks or deposits.
Inspect the float valve for operation.



Remove the secondary main jet.
Remove the primary main jet.
Remove the slow jet plug.

NOTE

The slow jet is a press fit. It cannot be removed.

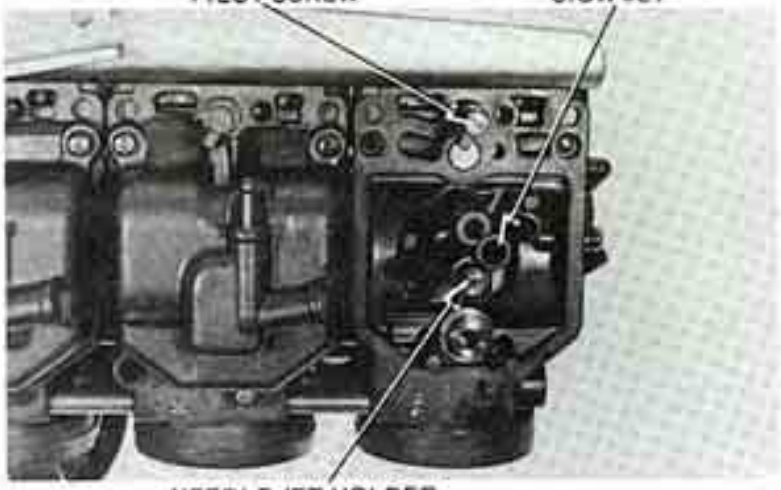


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Remove the needle jet holder.
Tilt the carburetor to remove the needle jet.
Blow all jets and body passages with compressed air.

NOTE

- If the needle jet is difficult to remove, carefully press the needle jet from the cylinder side with a wooden stick.
- Before removing the pilot screw, record the number of turns until it seats. Do not damage the pilot screw threads when removing the plain washer and O-ring.

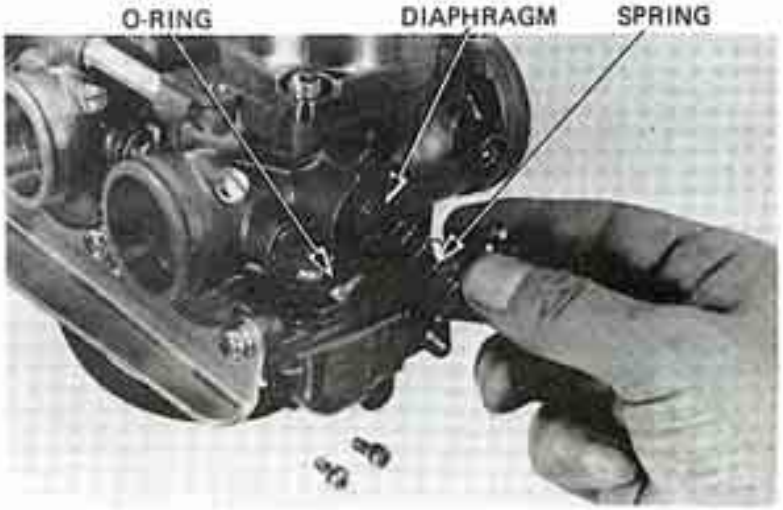


AIR CUTOFF VALVE DISASSEMBLY

Remove the air cutoff valve cover and spring.

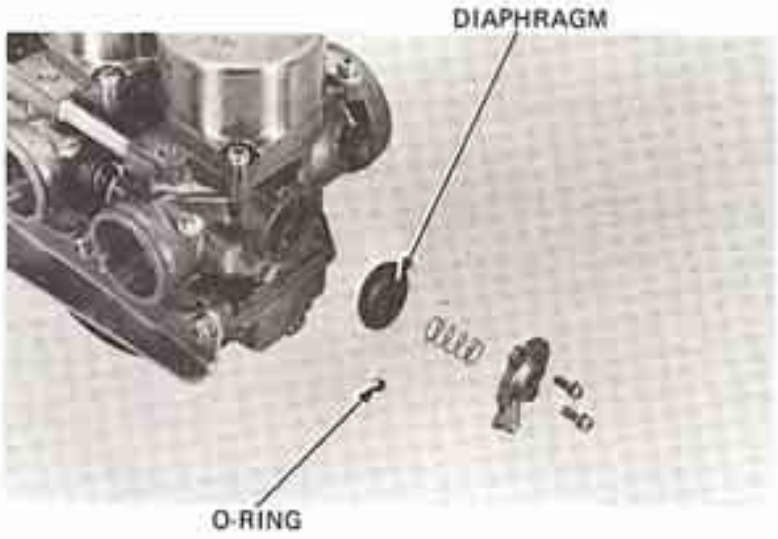


Remove the diaphragm and O-ring.



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Inspect the diaphragm and valve for cracks and brittleness.



ACCELERATOR PUMP DISASSEMBLY

Remove the accelerator pump cover and spring.



Remove the diaphragm.
Inspect the diaphragm for cracks and brittleness.

NOTE

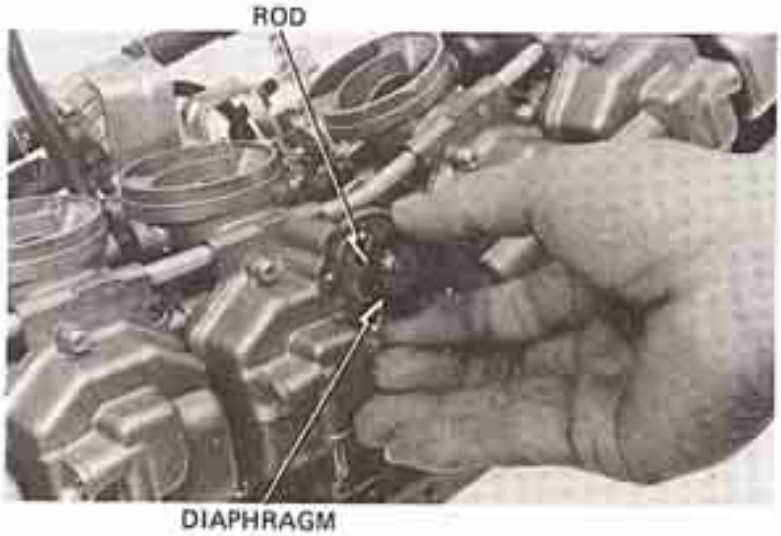
Be sure the rod is not bent.

COMPONENT ASSEMBLY

To assemble the accelerator pump, air cutoff valve, float chamber and vacuum cylinder, reverse the disassembly procedure.

NOTE

When installing the air cutoff valve O-ring, make sure the flat surface is toward the body.



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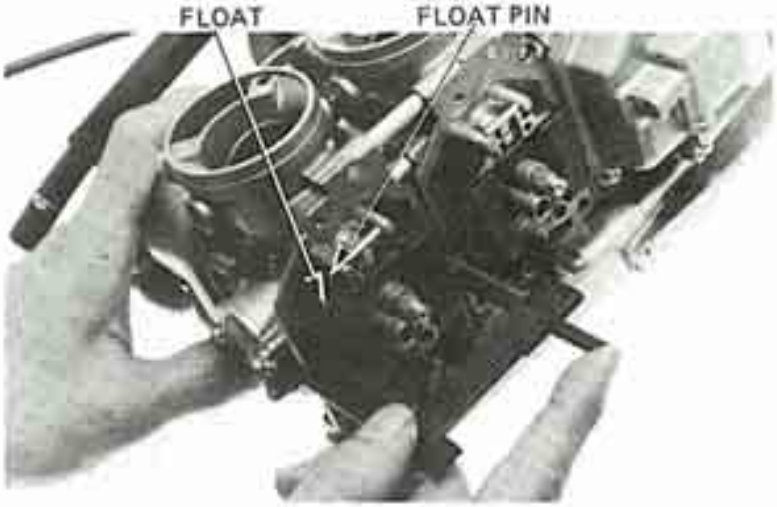
FLOAT LEVEL ADJUSTMENT

Adjust the float level by bending the float arm carefully until the float tip just contacts the float valve.

FLOAT LEVEL: 15.5 mm (0.61 in)

NOTE

Before adjusting, remove the adjacent chambers.

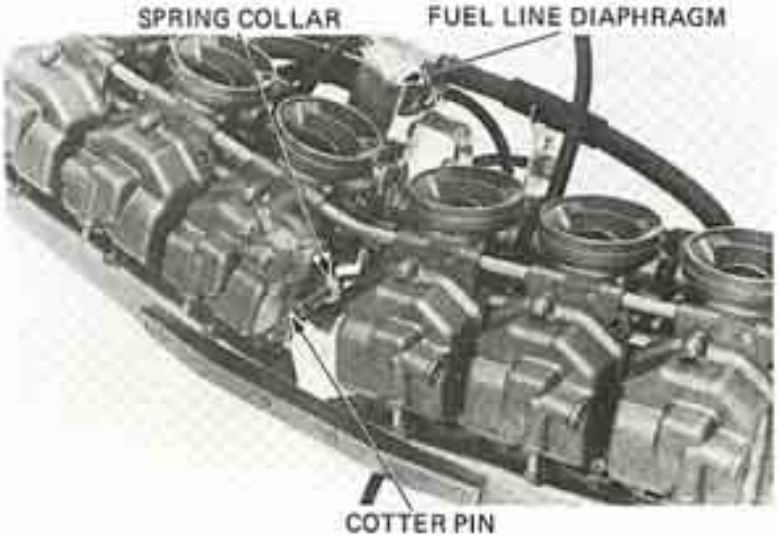


CARBURETOR SEPARATION

Disconnect the overflow tubes from the float chambers.

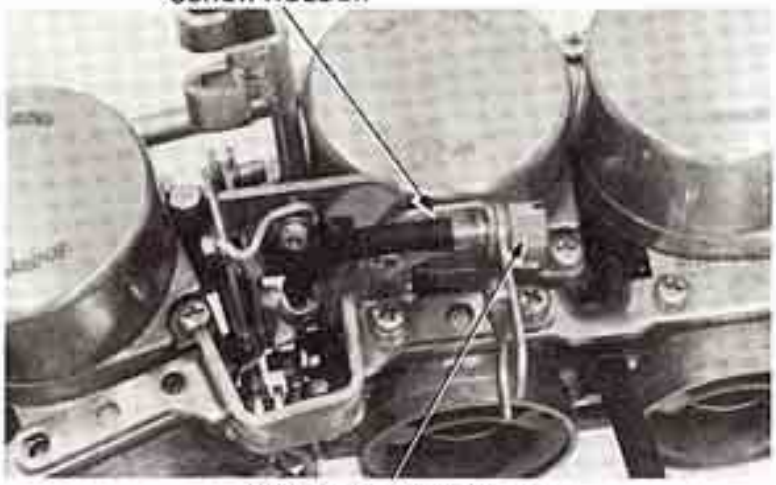


Remove the cotter pin from the accelerator pump rod.
Remove the plain washer, spring and spring collar.
Remove the fuel line diaphragm (page 4-5).

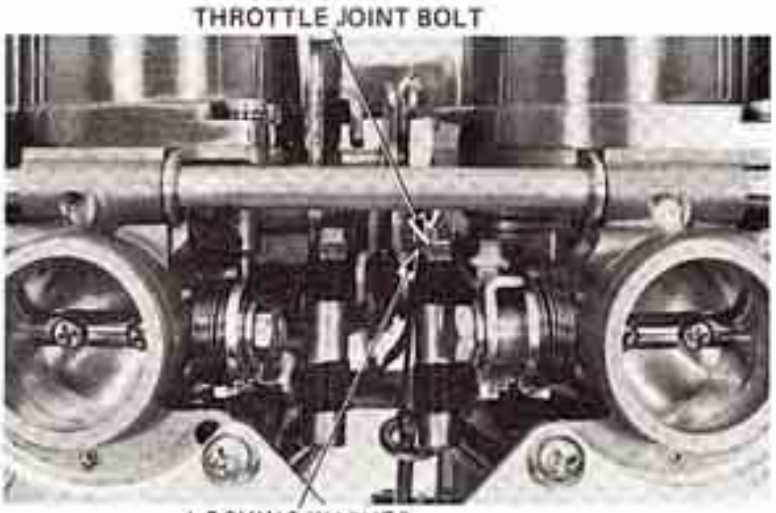


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Remove the throttle stop screw holder.
Turn the throttle stop screw out.



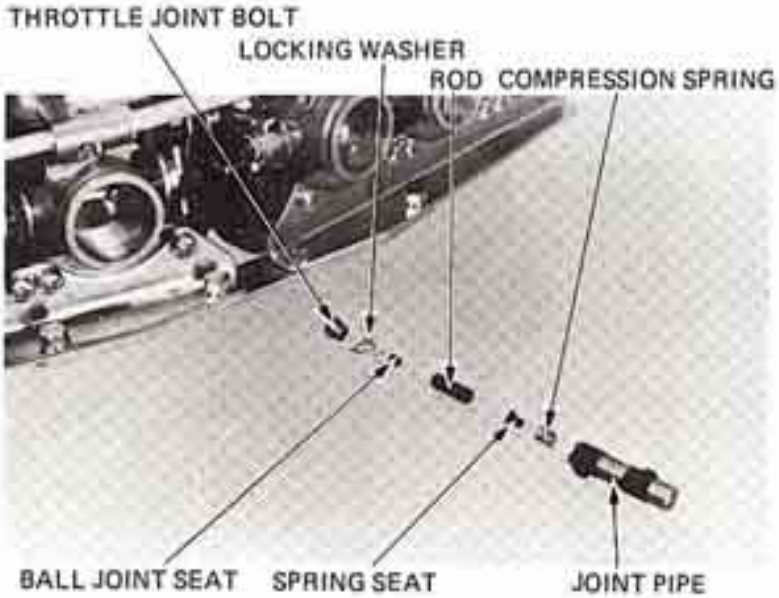
Straighten the throttle joint bolt locking washer tabs.



Loosen the throttle joint bolt.
Remove the locking washer and ball joint seat.
Disconnect the ball joint of the throttle link from the throttle joint pipe.
Remove the rod.
Disconnect the throttle joint pipe from the No. 3 carburetor throttle linkage.
Note each parts location to insure original assembly.

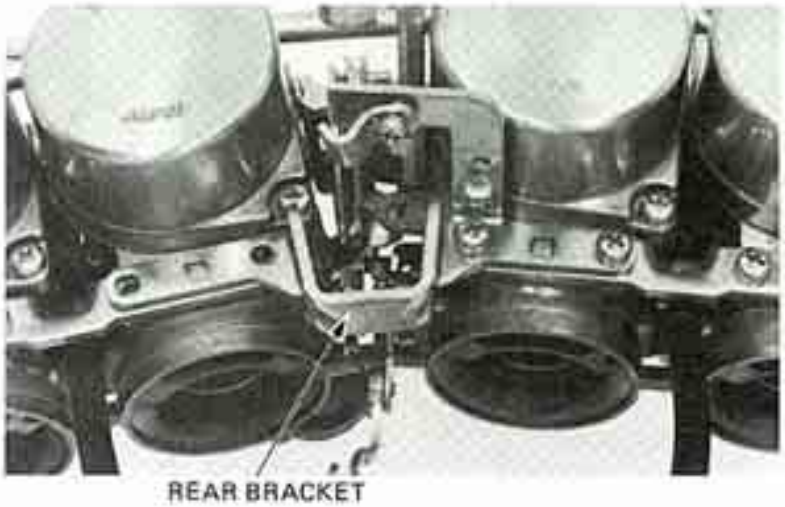
NOTE

For easy removal, hold the joint pipe and turn the throttle link.



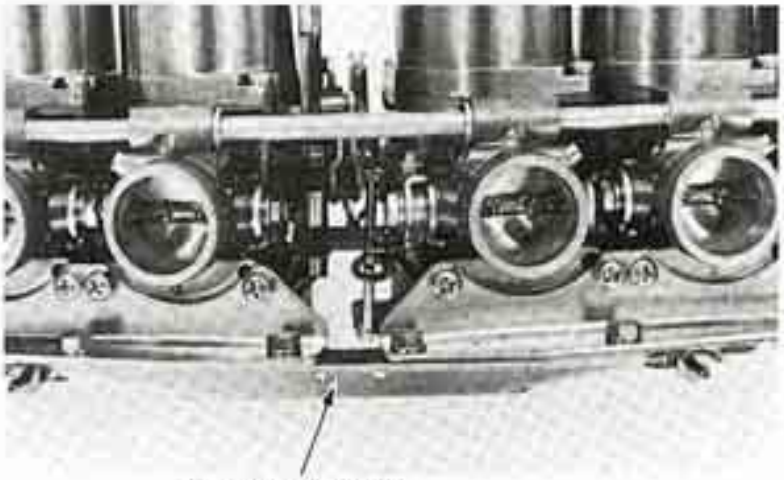
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Remove the rear bracket.



REAR BRACKET

Remove the front bracket.

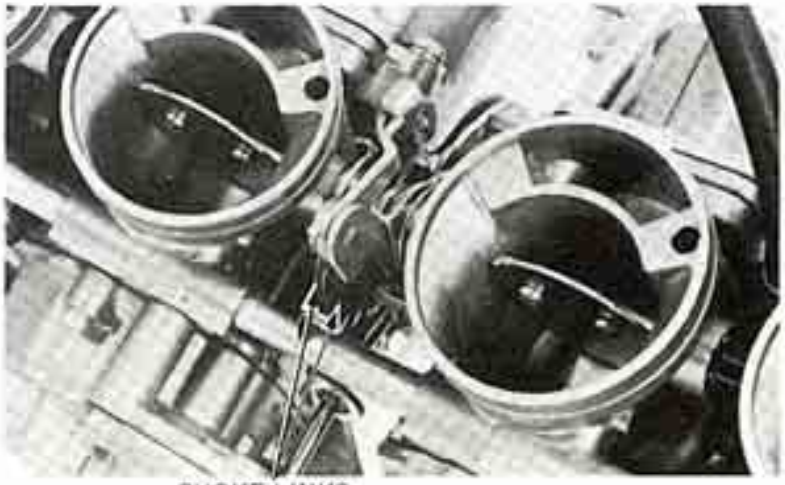


FRONT BRACKET

Carefully separate the carburetors.

CAUTION

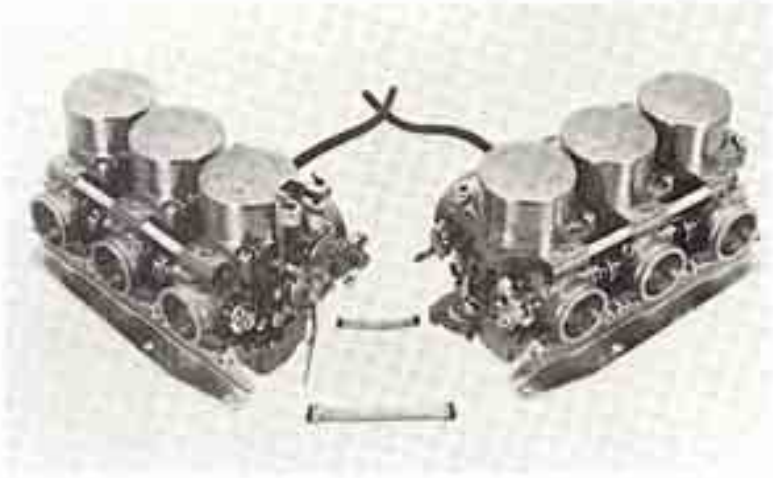
- *Separate the carburetor horizontally to prevent damage to the fuel and air joint pipes and choke link. Then, tilt the right carburetor assembly to clear the accelerator pump rod.*
- *Do not bend the accelerator pump rod.*



CHOKE LINKS

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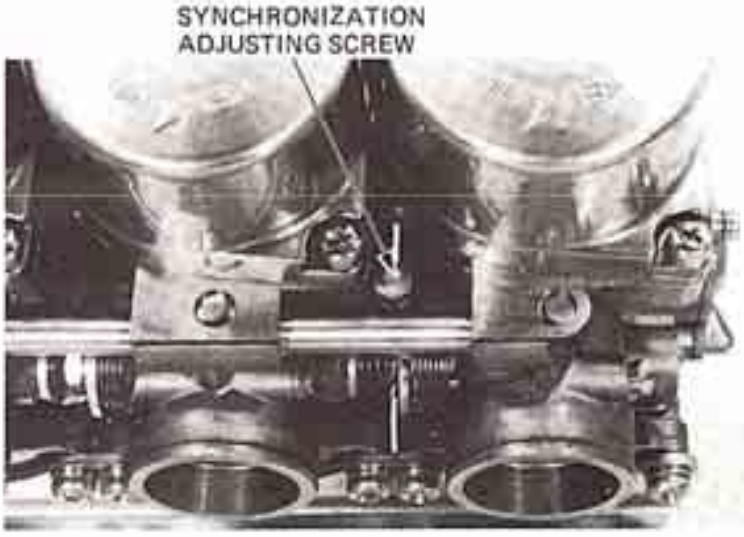
Blow the air and fuel passages with compressed air.



NOTE

The separation of the No. 1, 2 and 3 carburetors is given here. The procedure is similar for No. 4, 5 and 6 carburetors.

Loosen the synchronization adjusting screw lock nuts and adjusting screw with the carburetor throttle wrench until there is no tension.



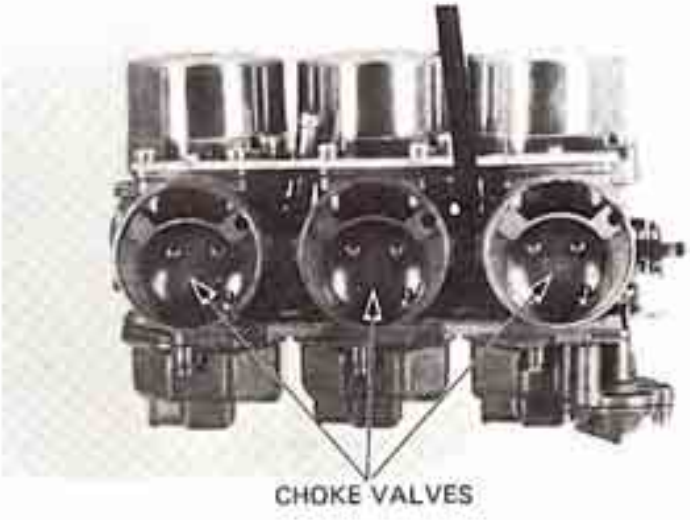
NOTE

Turn the synchronization screws in until they seat and note the number of turns to ensure correct repositioning.

Cut off the staked ends of the choke valve screws. Remove the choke valves.

NOTE

Do not allow filings to enter the carburetors.



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Remove the choke relief spring from the choke link and pull the choke shaft out.

CAUTION

Do not reuse the choke shaft, choke valves and screws.

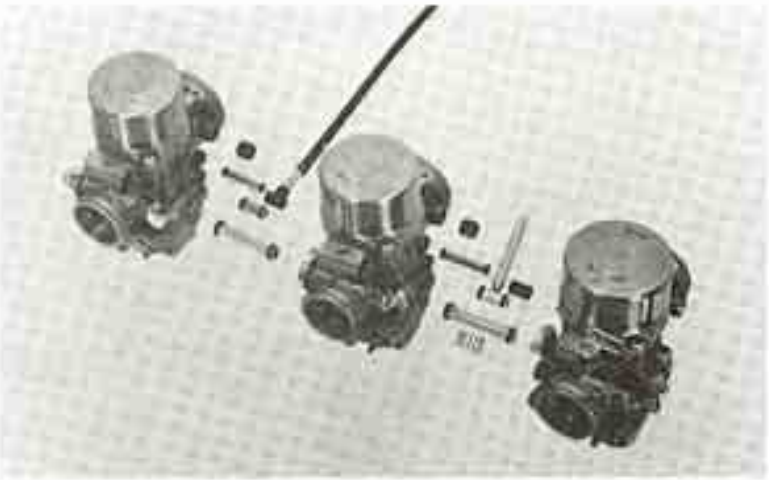


RELIEF SPRING

Remove the rear and front brackets.



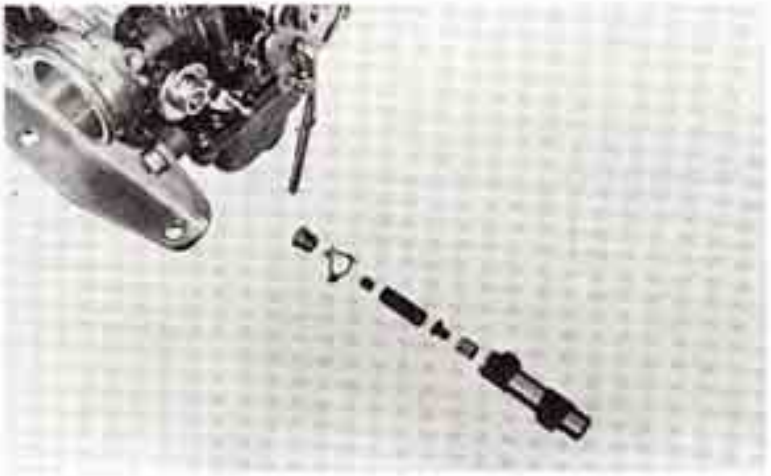
Carefully separate the carburetors.
Blow the air and fuel joint pipes with compressed air.



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LINKAGE DISASSEMBLY

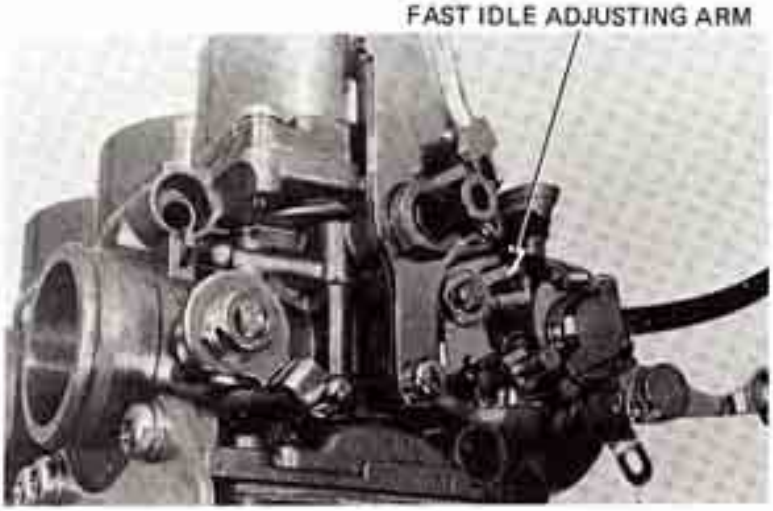
Remove the right throttle joint, using the same procedure as for the left throttle joint.



Remove the throttle link bolt.
Remove the throttle link.



Remove the fast idle adjusting arm cotter pin.
Remove the fast idle adjusting arm.



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CARBURETOR ASSEMBLY

NOTE

- Assemble one set of three carburetors at a time.
- No. 1, 2 and 3 carburetor assembly is shown here. The procedure is similar for the No. 4, 5 and 6 carburetors.

Install new O-rings on the air and fuel joint pipes securely.
Install the air cutoff valve joint, fuel joint, accelerator pump joint and air vent pipes on the No. 3 carburetor.
Install the choke dust tube.



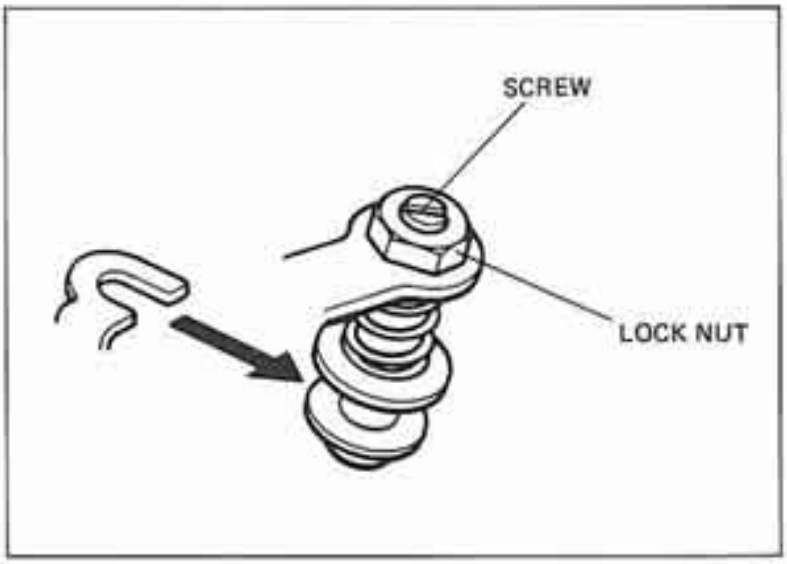
NOTE

Apply a thin coating of oil to the O-rings.

Loosen the synchronization adjusting screw until there is no tension.
Insert the No. 3 carburetor throttle link between the plain washers.
Assemble the No. 2 and No. 3 carburetors, pressing them together carefully.

NOTE

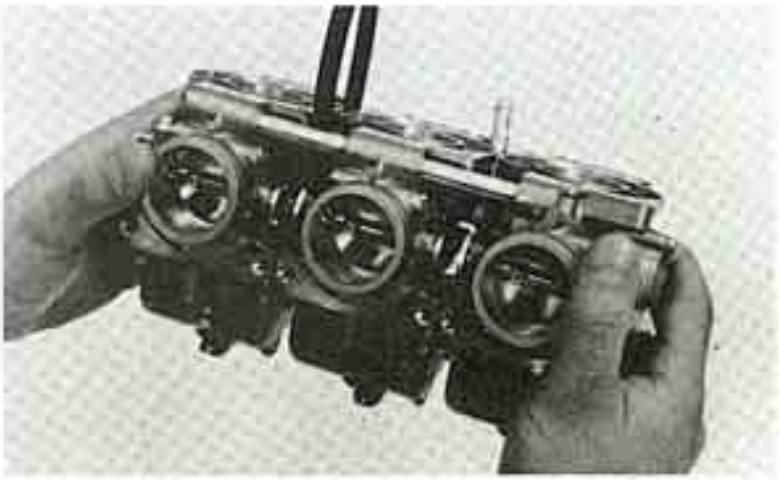
The large washer should be positioned on the spring side.



Attach the No. 1 carburetor to the No. 2 carburetor, pressing them together carefully.

NOTE

Check the condition of the O-rings and choke dust tubes.



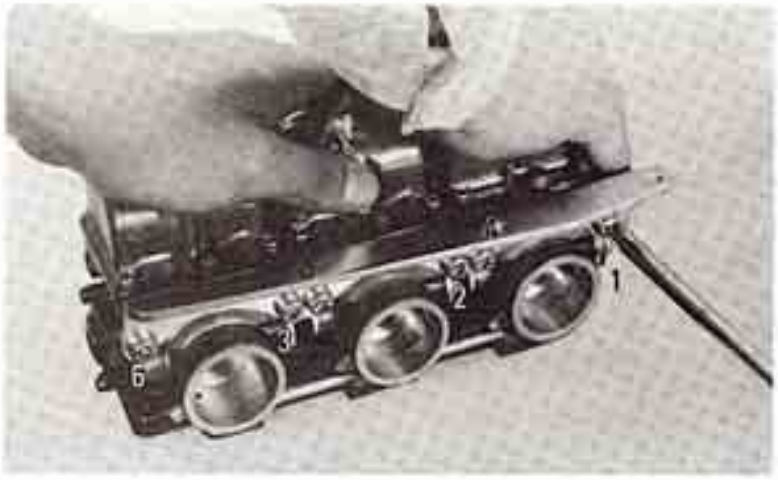
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Install the front bracket loosely.
Place the carburetors on a flat surface with the float chamber up.
Press the carburetors together equally and tighten the screws in the sequence shown in two or more steps to prevent carburetor misalignment.

TORQUE: 4–6 N·m (40–60 kg-cm, 35–52 in-lb)

NOTE

Insert the choke shaft to ensure correct carburetor alignment before tightening screws. Check that the choke shaft operation is smooth. If it is not, recheck the carburetor alignment.

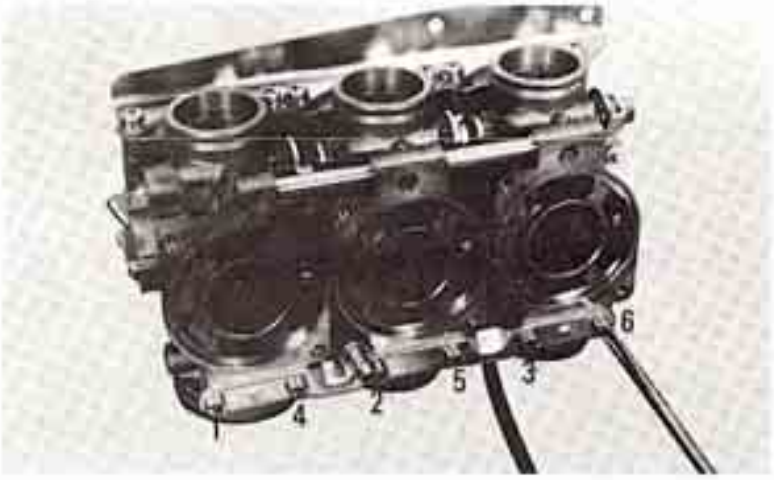


Install the rear bracket using the same procedure as for the front bracket.

TORQUE: 2.8–4.2 N·m (28–42 kg-cm, 24–36 in-lb)

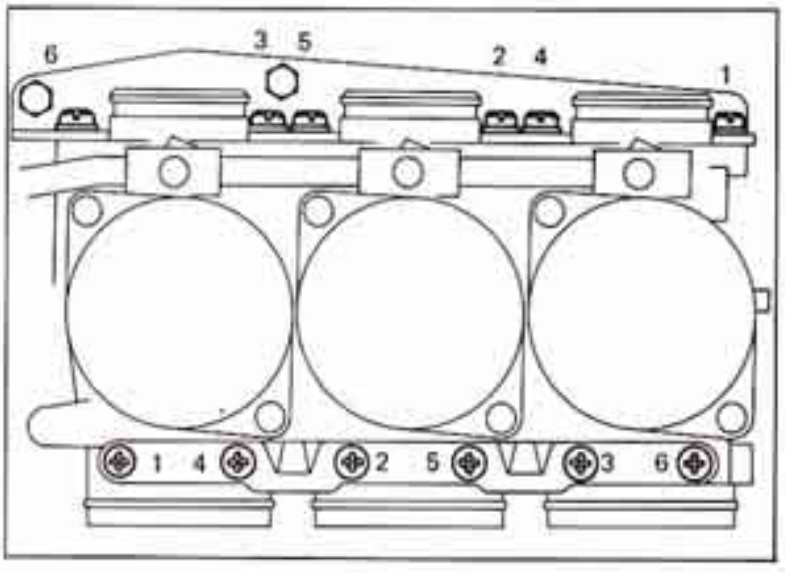
NOTE

No. 3 and No. 4 carburetors require 5 x 16 mm screws. The other carburetors require 5 x 12 mm screws.



NOTE

Right carburetor screw tightening sequence is shown here.



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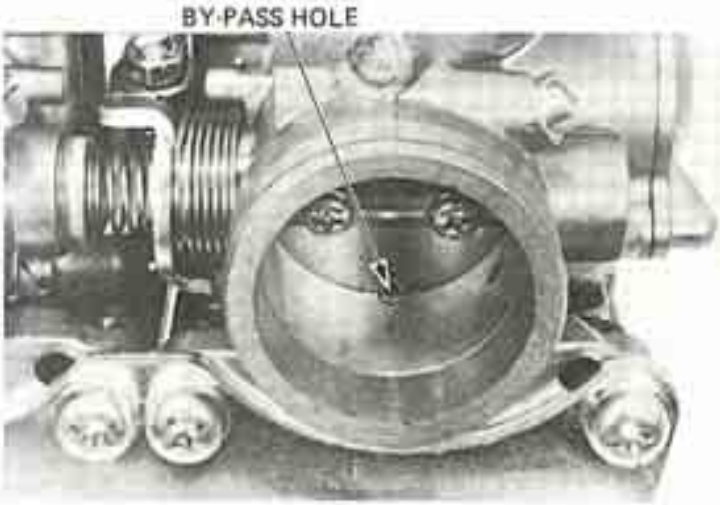
Install the thrust spring between the No. 1 and No. 2 carburetor throttle valve links.



Turn each synchronization adjusting screw to its original position as noted during disassembly.

NOTE

Make each distance between the by-pass hole in the carburetor body and throttle valve equal when assembling new carburetors.



Inspect throttle operation as described below:

- Open the throttle slightly by pressing the No. 3 carburetor ball joint. Then release the throttle.
- Make sure that it returns smoothly.
- Make sure that there is no drag when opening and closing the throttle.

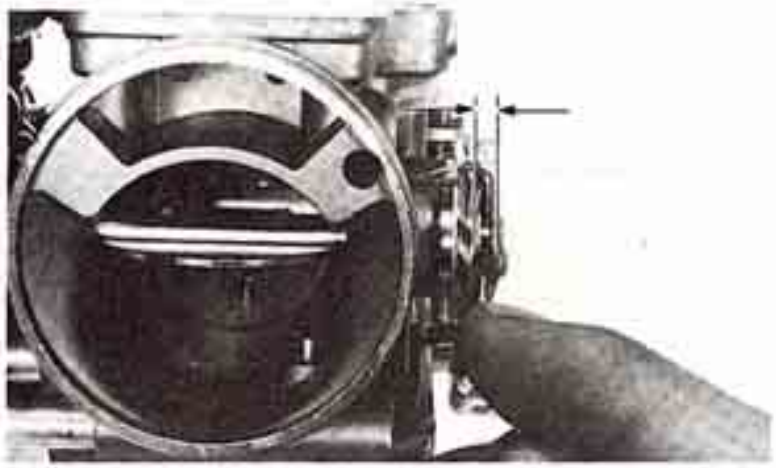
Install a new choke shaft.

Check that choke shaft operation is smooth and it does not bind during installation. If it binds, the carburetors may not be properly aligned or the shaft may be bent.



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Slide the choke relief spring over the choke shaft.
Install the choke shaft.
Install the choke valve, but do not tighten the bolts.
Make sure that the clearance between the choke shaft lever and carburetor body is approximately 1 mm (0.04 in).

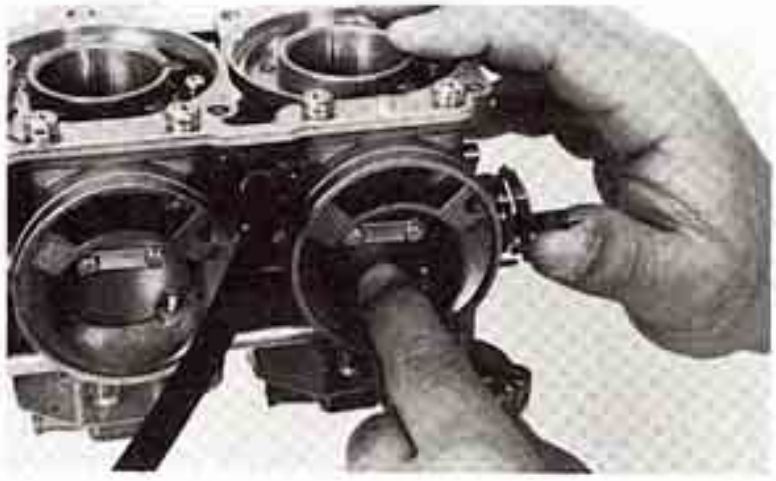


Attach the choke relief spring to the choke link and choke shaft lever.



Make sure that choke valve operation is smooth by moving the choke link.

Close the choke valve by turning the choke link.
Hold the choke link.
Press the choke valve end to the fully opened position.
Release the choke valve, then make sure that it returns smoothly.



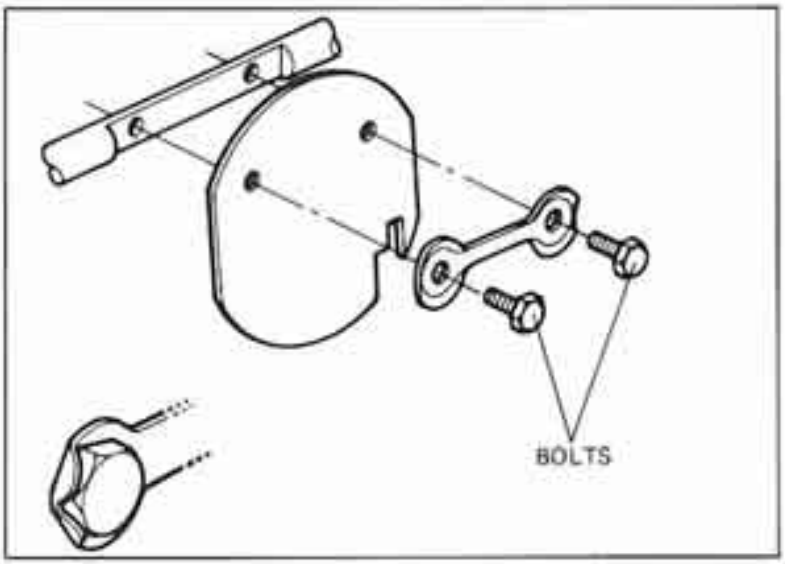
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Tighten the choke valve bolts.
TROUBLE: 0.6–1.2 N·m (6–12 kg-cm, 5–11 in-lb)

Fold the tabs of the lock washer up.
Recheck the throttle and choke operation.

NOTE

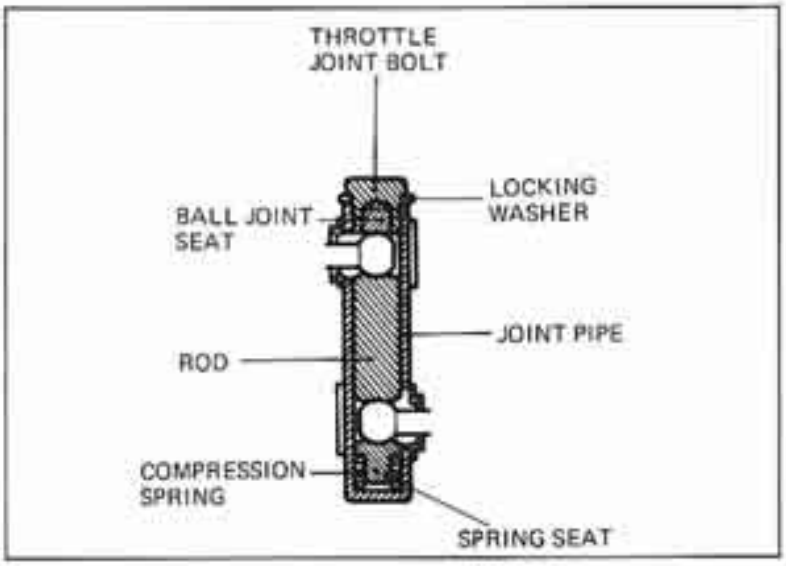
The choke valve bolts and lock washer are for rebuilding assembly only. The original assembly uses staked screws.



Loosen the No. 3 and No. 4 carburetor rear bracket screws.
Connect the throttle joint to the throttle link.

CAUTION

- *Do not damage the ball joints and rubber grommets.*
- *Do not allow dust in the throttle joint pipe.*
- *Use a new locking washer.*

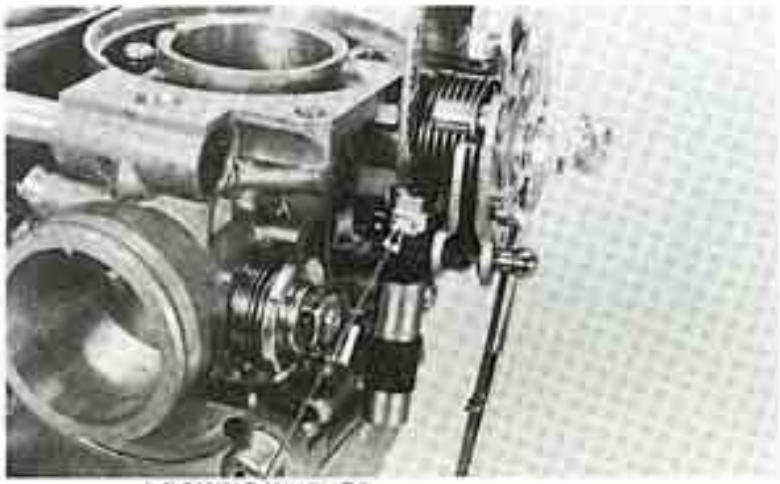


Tighten the throttle joint bolt.
TORQUE: 2.8–4.2 N·m (28–42 kg-cm, 24–36 in-lb)

Secure the bolt by bending the tabs of the locking washer.

NOTE

- Bend the two small tabs up against the bolt head.
- Bend the center tab over the throttle joint flat.



LOCKING WASHER

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FAST IDLE ADJUSTMENT

FAST IDLE: 2000 ± 500 rpm (after break-in)

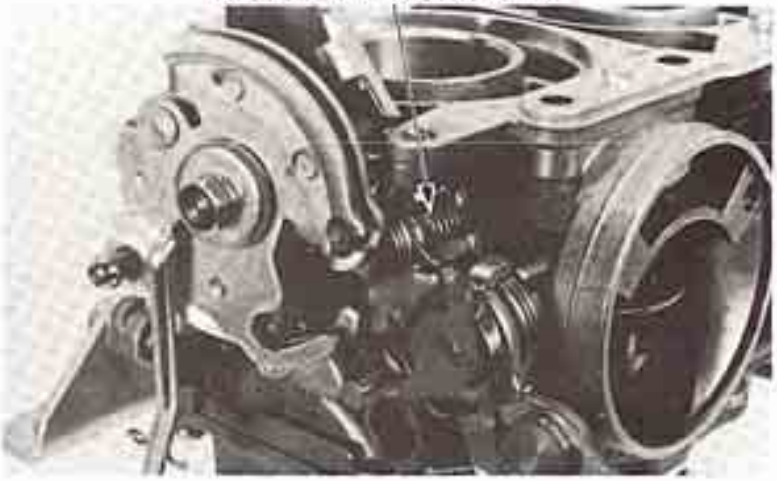
Close the throttle valve and open the choke valve. Measure the clearance between the throttle link and fast idle adjusting arm pin.

SPECIFIED CLEARANCE:
0.7–1.0 mm (0.003–0.04 in)



Adjust by opening and closing the fork end of the fast idle adjusting arm.

FAST IDLE ADJUSTING ARM



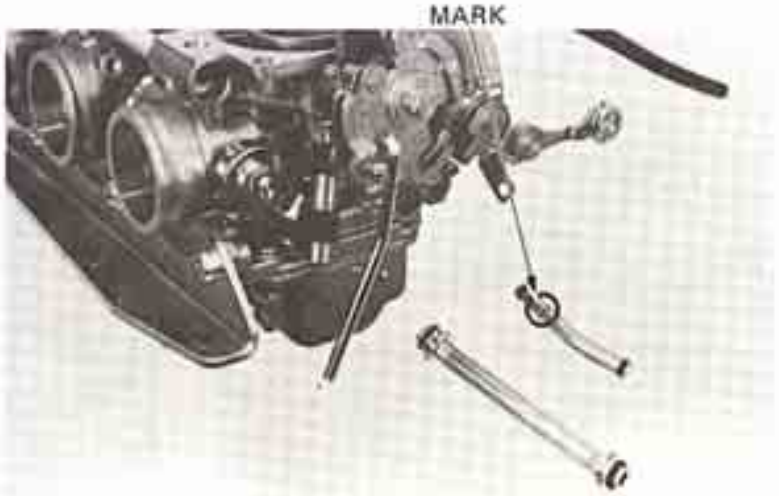
INSTALLATION

Install new O-rings on the air and fuel joint pipes. Install the air cutoff valve joint pipe and accelerator pump joint pipe on the No. 4 carburetor.

NOTE

- Apply a thin coating of oil to the O-rings.
- Install the accelerator pump joint pipe with the mark toward the No. 4 carburetor.

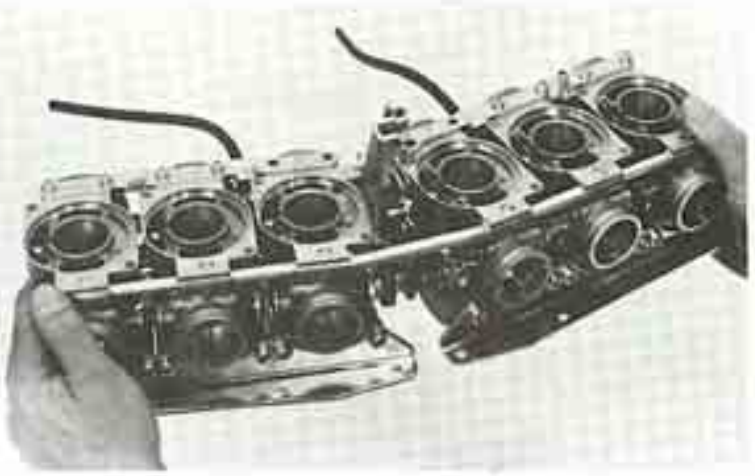
MARK



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Insert the accelerator pump rod.
Position the right and left carburetor assemblies properly, aligning the pipes and choke link.

Press the assemblies together carefully.

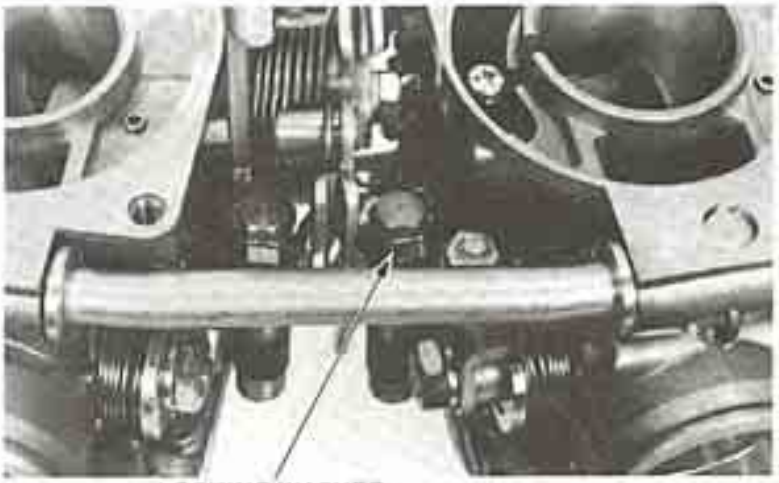


Install the diaphragm bracket, front and rear brackets loosely.



Connect the other throttle joint to the throttle link.
Tighten the throttle joint bolt.
Secure the bolt by bending the tabs of the locking washer as for the previous throttle joint.

TORQUE
2.8–4.2 N·m (28–42 kg-cm, 24–36 in-lb)



LOCKING WASHER

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Tighten the front and rear brackets in the sequence shown.

TORQUE:
2.8–4.2 N·m (28–42 kg-cm, 24–36 in-lb)



SYNCHRONIZATION ADJUSTING SCREW

Turn the synchronization adjusting screw on the No. 3 carburetor so that all throttle valve positions are equal.

Move the throttle link to check throttle operation.

Move the choke link to check choke operation and synchronization.

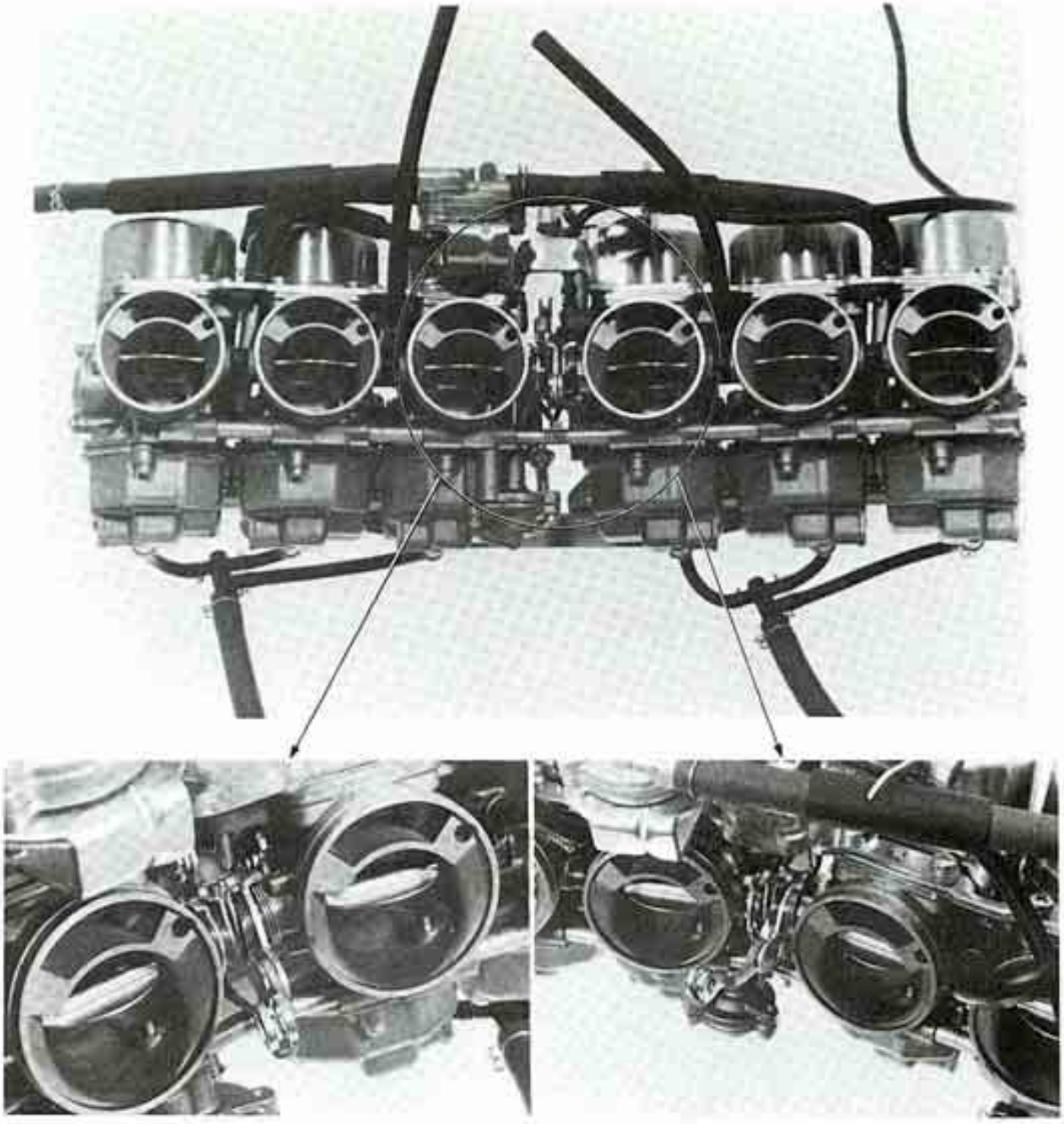


THROTTLE STOP SCREW

Install the accelerator pump rod spring, washer, collar and cotter pin.
Install the throttle stop screw.
Install the vacuum cylinder components.
Install the overflow tubes.
Remove the diaphragm bracket and assemble the fuel line diaphragm.
Reinstall the fuel line diaphragm.

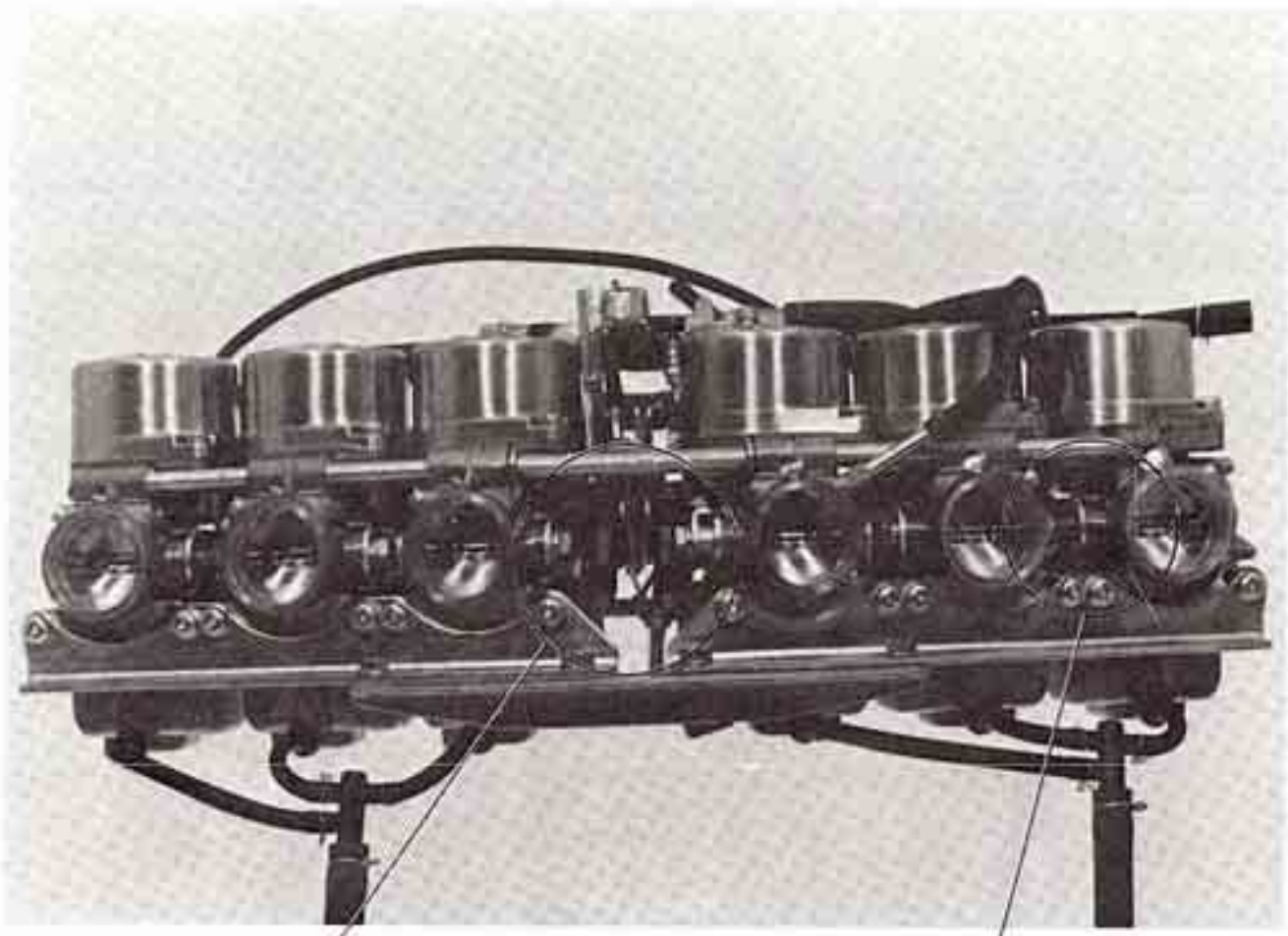


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These photographs here and on the nex page show the details of the carburetor linkage.

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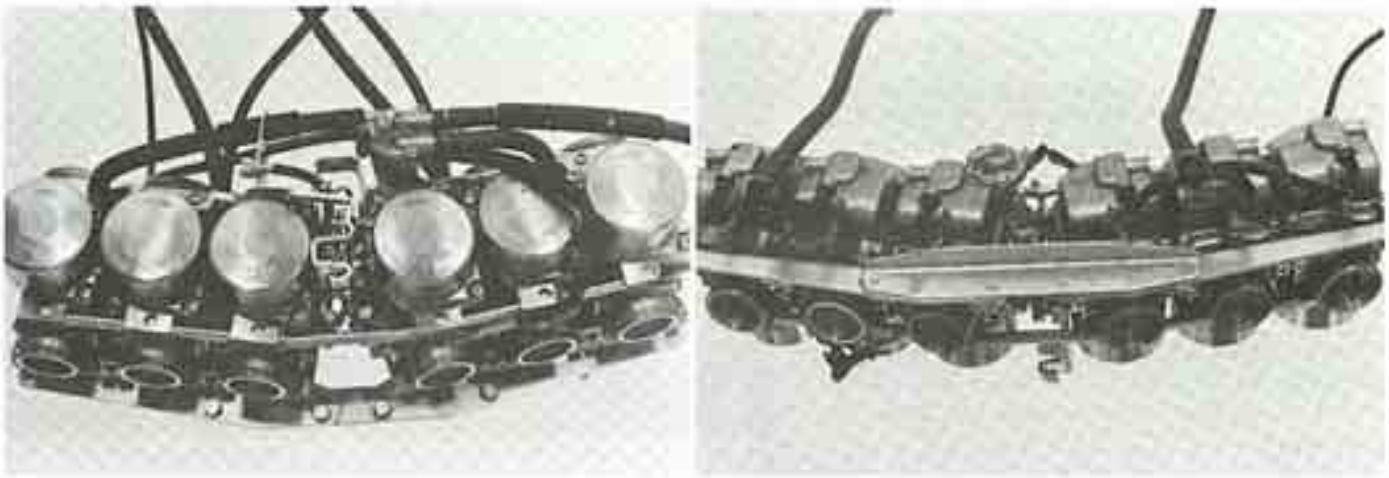




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TUBE ROUTING

Route the carburetor tubes as shown.



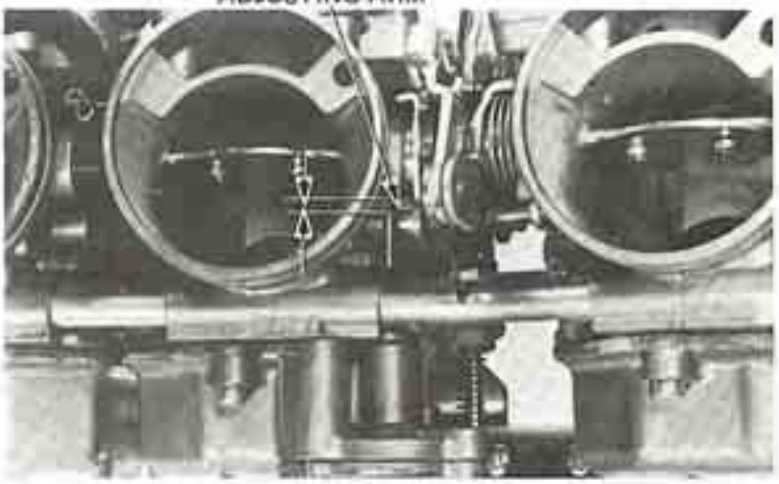
ACCELERATOR PUMP ADJUSTMENT

Measure the clearance between the accelerator pump rod and adjusting arm with the throttle valve close.

CLEARANCE: 0–0.04 mm (0–0.0016 in)

Adjust by bending the adjusting arm.

ADJUSTING ARM



Measure the clearance between the adjusting arm and stopper on the carburetor body.

CLEARANCE: 3.1–3.3 mm (0.12–0.13 in)

Adjust by bending the adjusting arm.

ADJUSTING ARM



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PILOT SCREW ADJUSTMENT

PILOT SCREW REMOVAL

NOTE

The pilot screws are factory pre-set and should not be removed unless the carburetor is overhauled.

Remove the carburetors. (Page 4-3).

Remove the float chambers (Page 4-6).

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

CAUTION

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

Remove the pilot screw.

Inspect the pilot screw and replace if worn or damaged.

Install the pilot screw and return it to its original position as noted during removal. Perform pilot screw adjustment if a new pilot screw is installed (below).

NOTE

Do not install limiter caps on new pilot screws until after adjustment has been made (below).

PILOT SCREW WITH LIMITER CAP



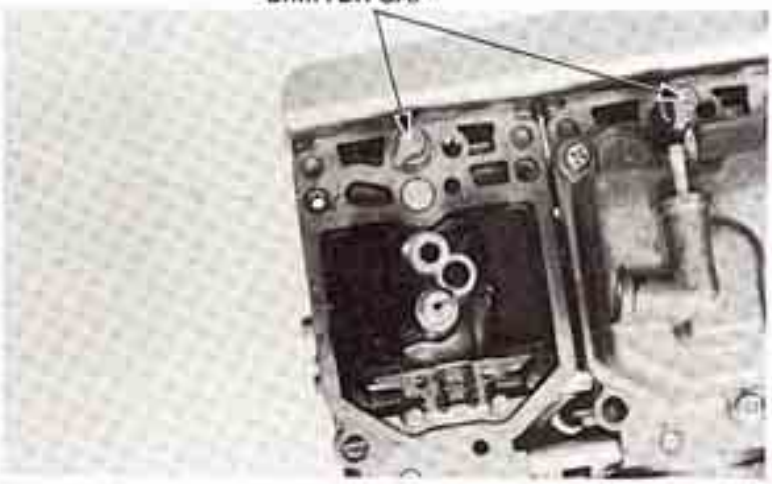
PILOT SCREW ADJUSTMENT

NOTE

- The pilot screws are factory pre-set and no adjustment is necessary unless the pilot screw is replaced (See removal above).
- Use a tachometer with graduations of 50 rpm or smaller and that will accurately indicate a 50 rpm change.

1. Turn each pilot screw clockwise until it seats lightly and back it out to the specification given. This is an initial setting prior to the final pilot screw adjustment.
   INITIAL OPENING: 1-1/4 turns out

PILOT SCREW WITH LIMITER CAP

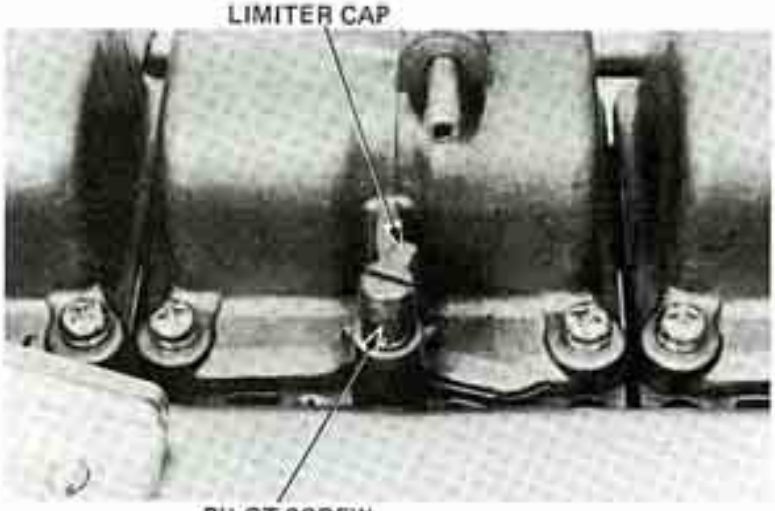


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CAUTION

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

2. Warm up the engine to operating temperature. Stop and go driving for 10 minutes is sufficient.
3. Attach a tachometer.
4. Adjust the idle speed with the throttle stop screw.
   IDLE SPEED: 900 rpm
5. Turn each pilot screw in or out to obtain the highest engine speed with a carburetor pilot screw wrench.
6. Adjust the idle speed with the throttle stop screw.
7. Turn the No. 1 carburetor pilot screw in until it seats lightly and record the number of turns.
8. Turn the No. 2 carburetor pilot screw in until the engine speed drops 50 rpm.
9. Turn the No. 2 carburetor pilot screw 1/2 turn out from the position obtained in Step 8.
10. Perform Steps 8 and 9 for the No. 3, 4, 5 and 6 carburetor pilot screws.
11. Turn the No. 1 pilot screw the number of turns recorded in step 7.
12. Turn the No. 6 pilot screw in until it seats lightly, recording the number of turns.
13. Perform Steps 8 and 9 for the No. 1 carburetor pilot screw.
14. Turn the No. 6 pilot screw out the number of turns recorded in Step 12.
15. Adjust the idle speed with the throttle stop screw.



LIMITER CAP INSTALLATION

If the pilot screw is replaced, a new limiter cap must be installed after pilot screw adjustment is completed.

After adjustment, cement the limiter cap over the pilot screw, using LOCTITE ® 601 or equivalent. The limiter cap should be placed against its stop, preventing further adjustment that would enrich the fuel mixture (limiter cap position permits clockwise rotation and prevents counterclockwise rotation).

NOTE

A pilot screw limiter cap must be installed. It prevents misadjustment that could cause poor performance and increase exhaust emissions.

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HIGH ALTITUDE ADJUSTMENT (USA only)

When the vehicle is to be operated continuously above 2,000 m (6,500 feet) the carburetor must be readjusted as follows to improve driveability.

Warm up the engine to operating temperature. Stop and go driving for 10 minutes is sufficient.
Turn each pilot screw clockwise 1/2 turn.
Adjust the idle speed to 900 ± 100 rpm with the throttle stop screw.

NOTE

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

Attach the Vehicle Emission Control Information Update label onto the left frame as shown (see Service Letter No. 132).

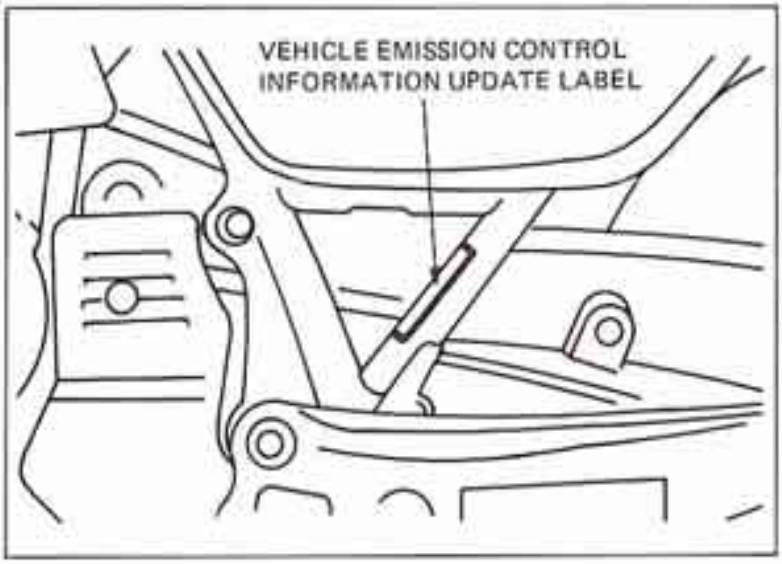
NOTE

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

WARNING

Operation at an altitude lower than 1,500 m (5,000 feet) with the carburetors adjusted for high altitudes may cause the engine to idle roughly and stall.
When the vehicle is to be operated continuously below 1,500 m (5,000 feet), turn each pilot screw counterclockwise to its stop and adjust the idle speed to 900 ± 100 rpm. Be sure to do these adjustments at low altitude.





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FUEL TANK

WARNING

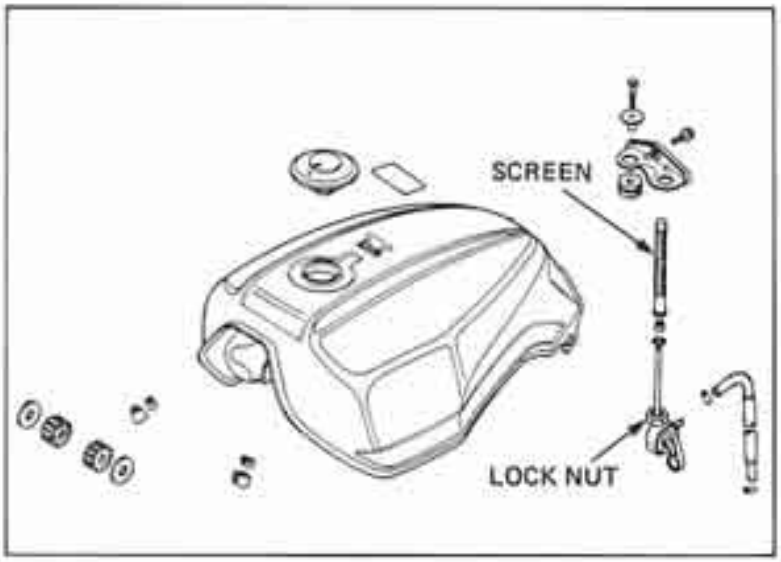
Do not allow flames or sparks near gasoline. Wipe up spilled gasoline at once.

Check the vent hole of the filler cap for blockage. Check that fuel is flowing out of the fuel valve freely.
If the fuel flow is restricted, clean the fuel strainer.

NOTE

Do not overtighten the fuel valve lock nut.

Make sure there are no fuel leaks.



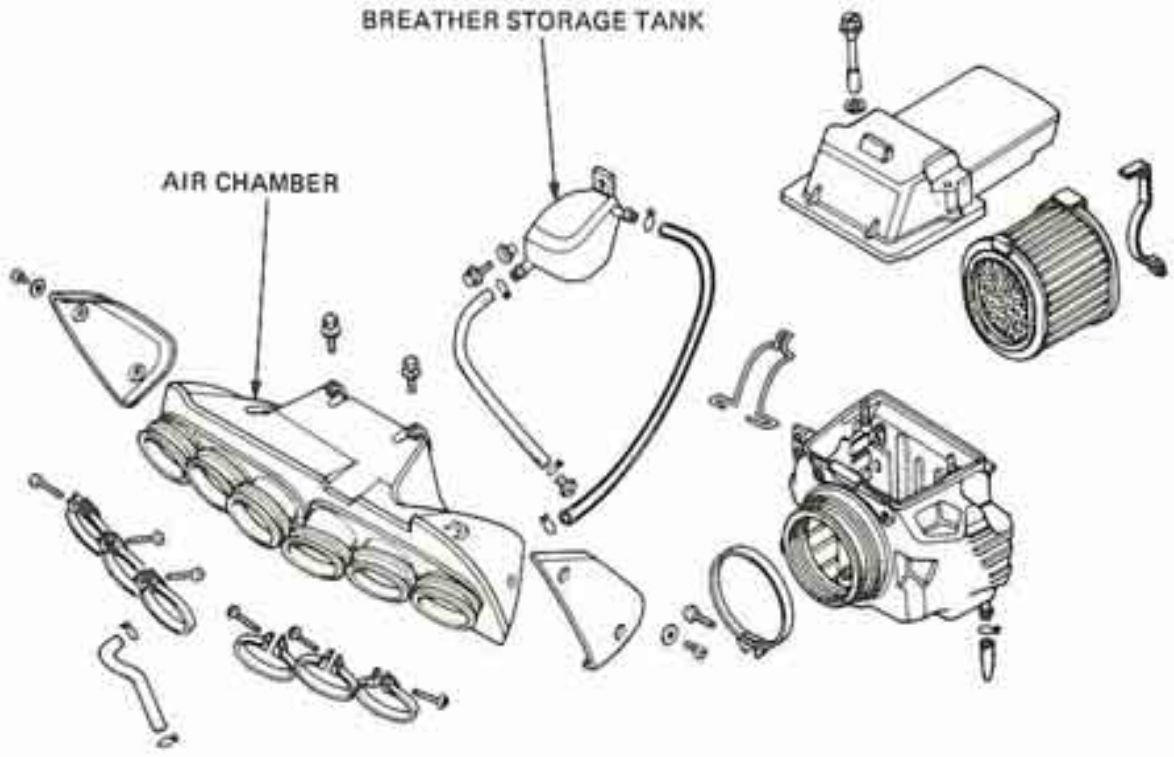
AIR CLEANER CASE

AIR CLEANER CASE/CHAMBER

Check the air cleaner case and chamber for cracking or deterioration.

CRANKCASE VENTILATION SYSTEM

Check that the breather tube is not restricted.



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