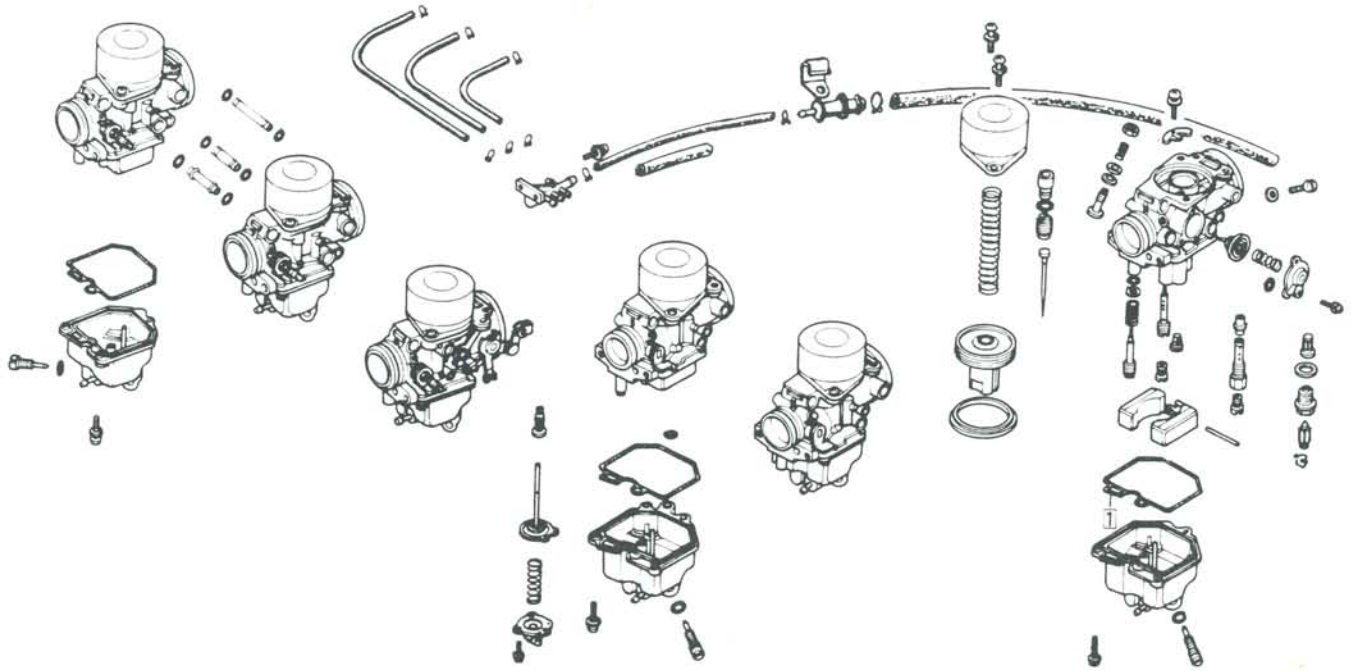
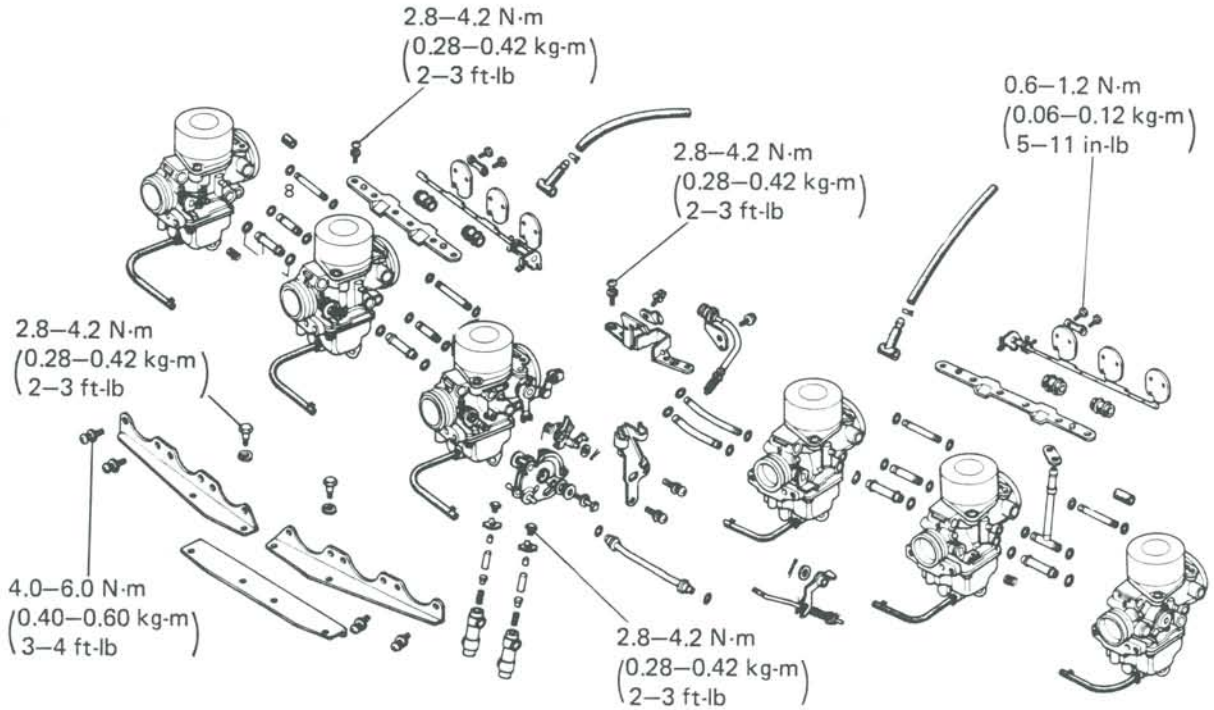
FUEL SYSTEM

CIRCUIT D'ESSENCE

KRAFTSTOFFSYSTEM

SISTEMA DEL COMBUSTIBLE




2.8–4.2 N·m
(0.28–0.42 kg-m
2–3 ft-lb)
2.8–4.2 N·m
(0.28–0.42 kg-m
2–3 ft-lb)
0.6–1.2 N·m
(0.06–0.12 kg-m
5–11 in-lb)
2.8–4.2 N·m
(0.28–0.42 kg-m
2–3 ft-lb)
4.0–6.0 N·m
(0.40–0.60 kg-m
3–4 ft-lb)
2.8–4.2 N·m
(0.28–0.42 kg-m
2–3 ft-lb)

SERVICE INFORMATION	4–1	FLOAT LEVEL ADJUSTMENT	4–9
TROUBLESHOOTING	4–2	CARBURETOR SEPARATION	4–9
CARBURETOR REMOVAL	4–3	LINKAGE DISASSEMBLY	4–14
VACUUM CYLINDER DISASSEMBLY	4–5	CARBURETOR ASSEMBLY	4–15
FLOAT CHAMBER DISASSEMBLY	4–6	ACCELERATOR PUMP ADJUSTMENT	4–25
AIR CUTOFF VALVE DISASSEMBLY	4–7	PILOT SCREW ADJUSTMENT	4–26
ACCELERATOR PUMP DISASSEMBLY	4–8	FUEL TANK	4–27
COMPONENT ASSEMBLY	4–8	AIR CLEANER	4–27

SERVICE INFORMATION

WORKING PRACTICE

Use caution when working with gasoline. Always work in a well-ventilated area and away from sparks or oepn flames. When disassembling fuel system parts, note the locations of the O-rings. Replace them with new ones on re-assembly. The float bowls have drain plugs that can be loosened to drain residual gasoline.

SPECIAL TOOLS

Common Tool	
Float gauge	07401–0010000
Special Tools	
Carburetor Throttle Wrench	07908–4220100
Carburetor Pilot Screw Wrench	07908–4220200

TORQUE VALUES

Front bracket	4–6 N·m	(0.40–0.60 kg-m, 3–4 ft-lb)
Rear bracket	2.8–4.2 N·m	(0.28–0.42 kg-m, 2–3 ft-lb)
Choke valve	0.6–1.2 N·m	(0.06–0.12 kg-m, 5–11 in-lb)
Front and rear brackets between three carburetors	2.8–4.2 N·m	(0.28–0.42 kg-m, 2–3 ft-lb)
Throttle joint holding nut	2.8–4.2 N·m	(0.28–0.42 kg-m, 2–3 ft-lb)

SPECIFICATIONS

Venturi dia.	28 mm (1.1 in)
Setting mark	E, G, F and ED types: VB61A CM, DK, DM, U and SA types: VB60A
Float level	15.5 mm (0.61 in)
Main jet	Pri.: 65 2nd: 98
Idle speed	900 ± 100 min^{-1} (900 ± 100 rpm)
Throttle grip free play	2–6 mm (0.08–0.24 in)
Fast idle	2,000 ± 500 min^{-1} (2,000 ± 500 rpm) <after break-in>
Pilot screw	See page 4–26

TROUBLESHOOTING

Engine Cranks but Won't Start
1. No fuel in tank
2. No fuel to carburetor
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. Incorrect idle air/fuel mixture
8. Idle speed incorrect

Rough Idle
1. Ignition malfunction
2. Idle speed incorrect
3. Incorrect carburetor synchronization
4. Incorrect carburetor air/fuel mixture
5. Carburetor malfunction
6. Fuel contaminated

Misfiring during Acceleration
1. Ignition malfunction
2. Incorrect carburetor air/fuel mixture
3. Faulty air cutoff valve or accelerator pump

Backfiring
1. Ignition malfunction
2. Incorrect carburetor air/fuel mixture
3. Carburetor malfunction
4. Faulty air cutoff valve or accelerator pump

Poor Performance (Driveability) and Poor Fuel Economy
1. Fuel system clogged
2. Ignition malfunction
3. Incorrect carburetor air/fuel mixture
4. 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
10. Pilot screw misadjusted

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

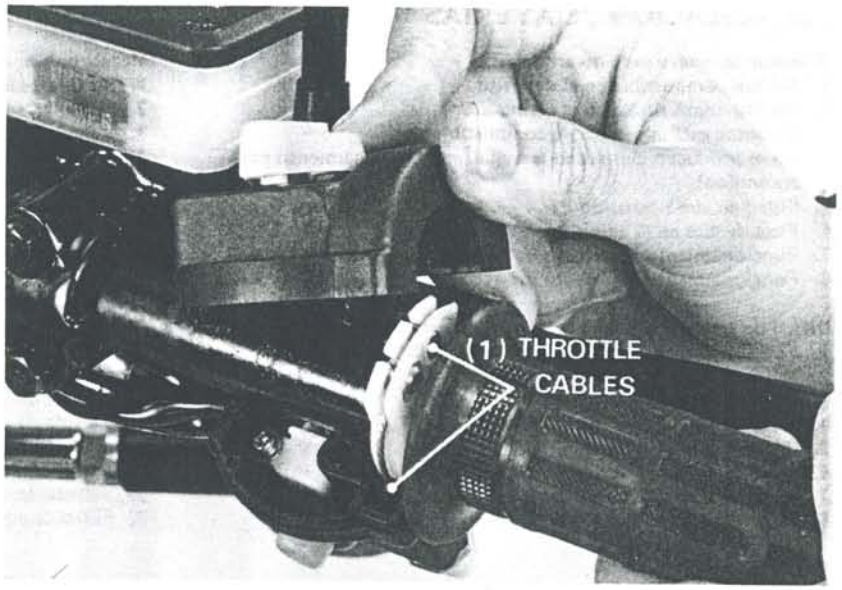
CARBURETOR REMOVAL

NOTE

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

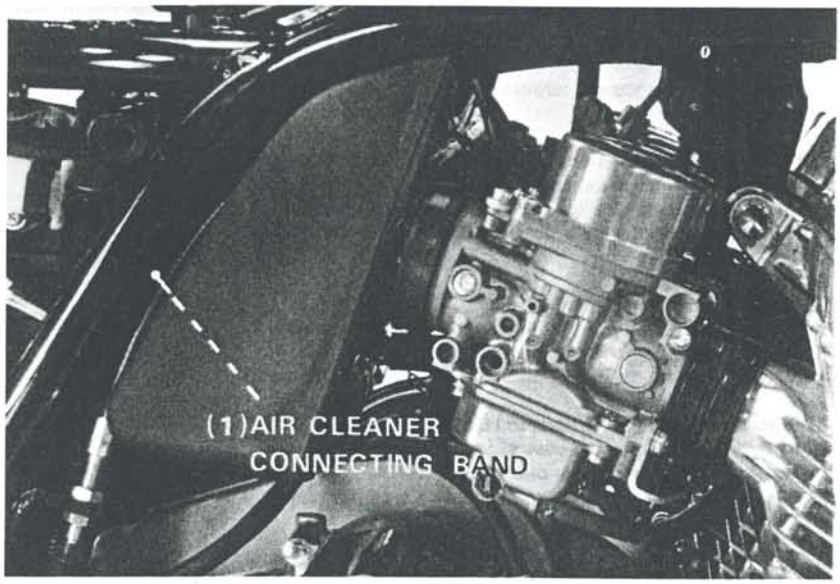
Disconnect the throttle cables at the throttle grip housing before tilting the engine.

Remove the choke cable at left handlebar switch housing.



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

Tilt the engine.



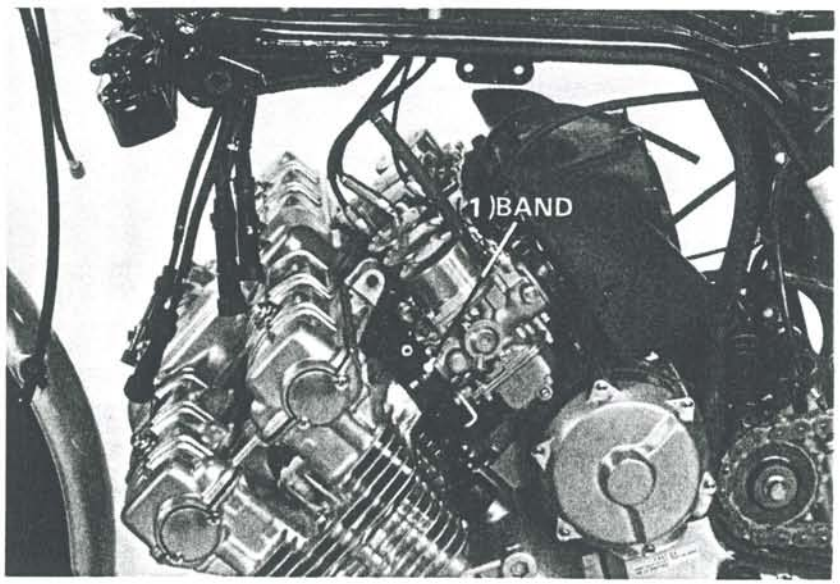
Loosen the carburetor manifold bands.
Remove the carburetor assembly with the chamber.

NOTE

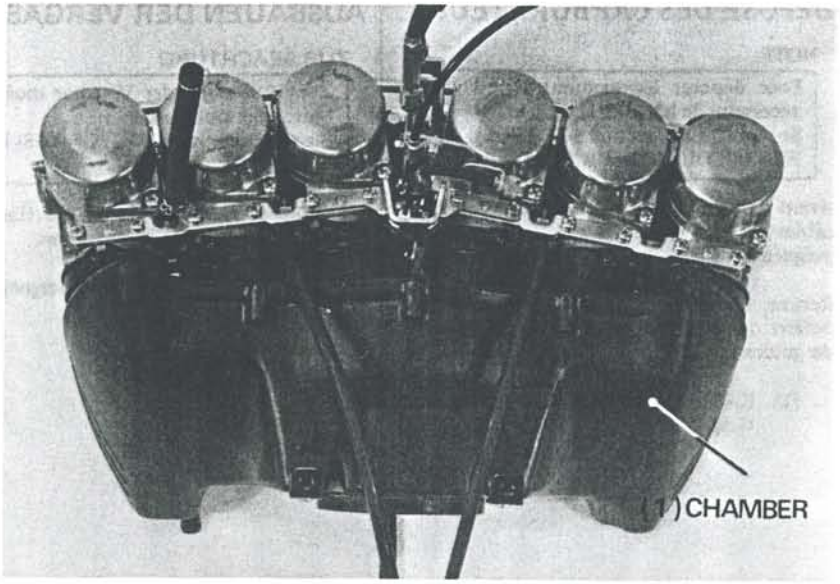
For easy removal, loosen the cylinder head side bands.

CAUTION

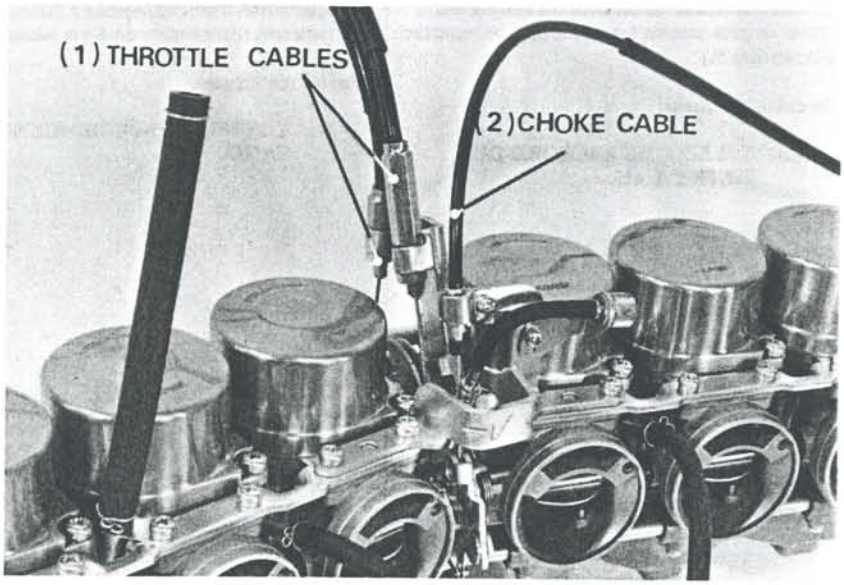
Apply equal force to each carburetor.



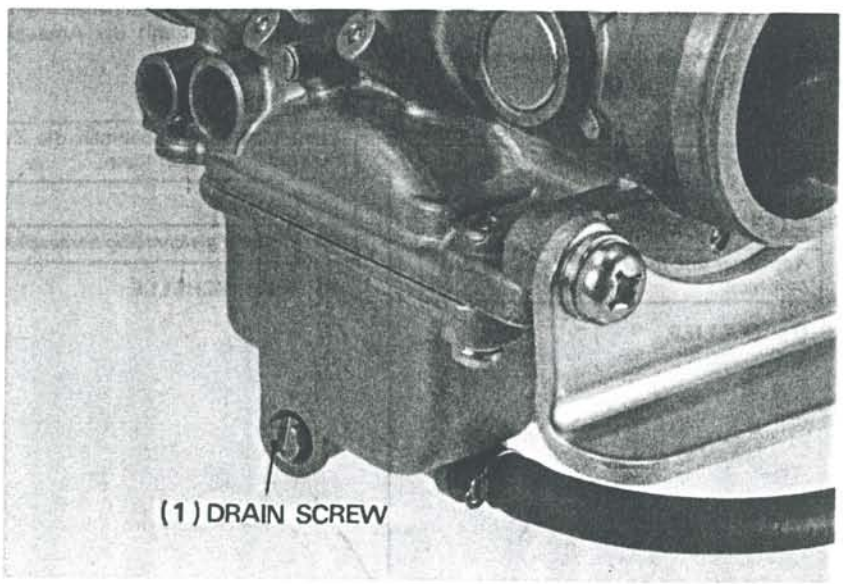
Remove the chamber from the carburetor.



)isconnect the throttle and choke cables.



Drain the fuel by loosening each drain screw.



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.

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

NOTE

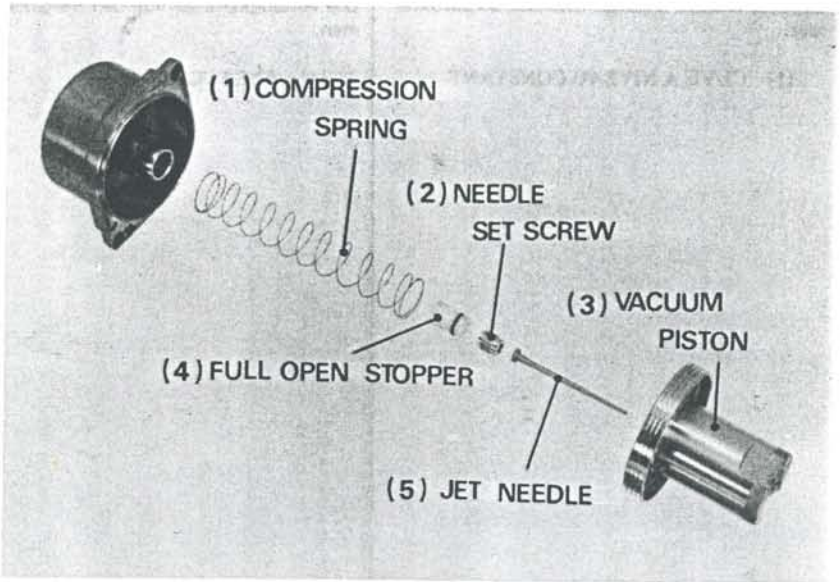
Inspect the needle and seat for deposits, bending, grooves, or other damage.

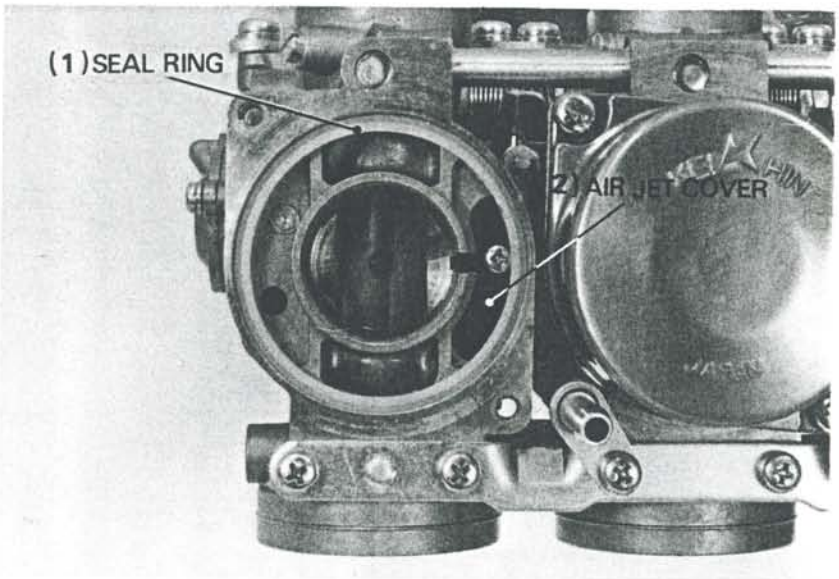
Carefully lift the seal ring off the carburetor body.
Remove the air jet cover.

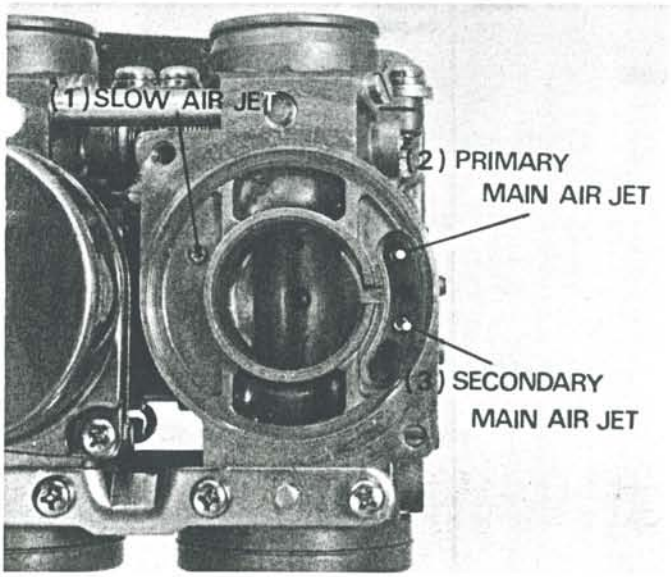
Blow open the primary main air jet, secondary main air jet and slow air jet with compressed air.

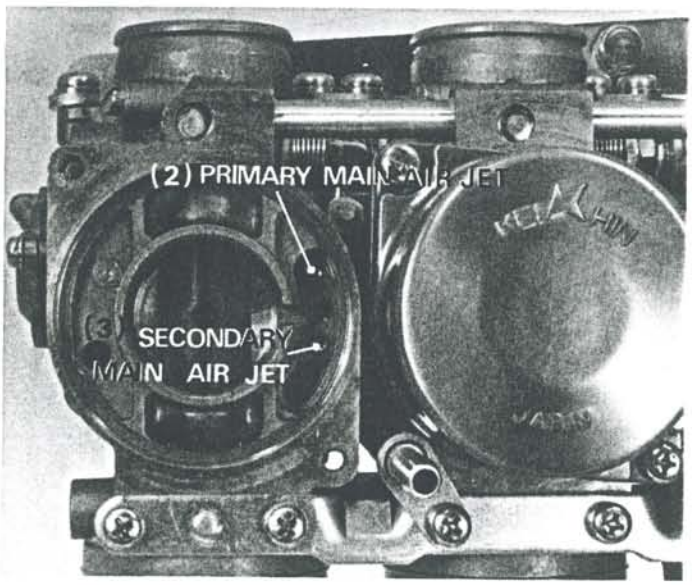
NOTE

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







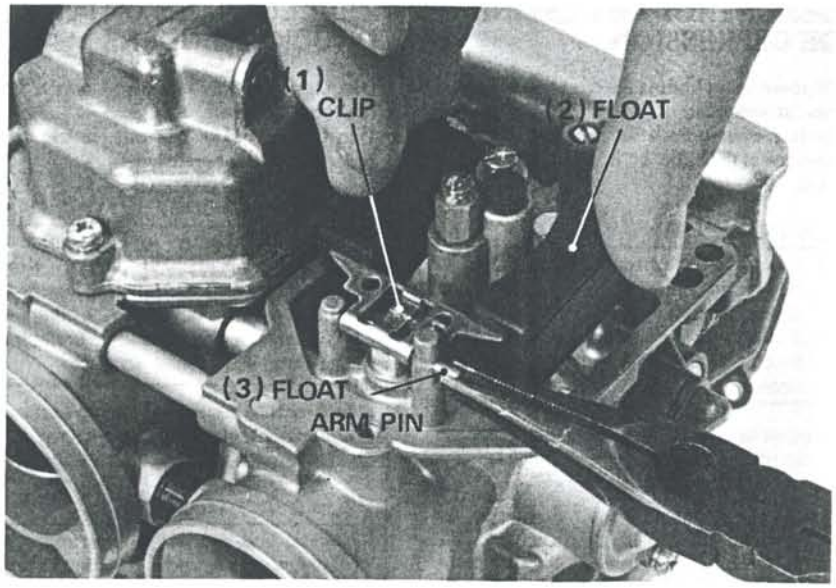


FLOAT CHAMBER DISASSEMBLY

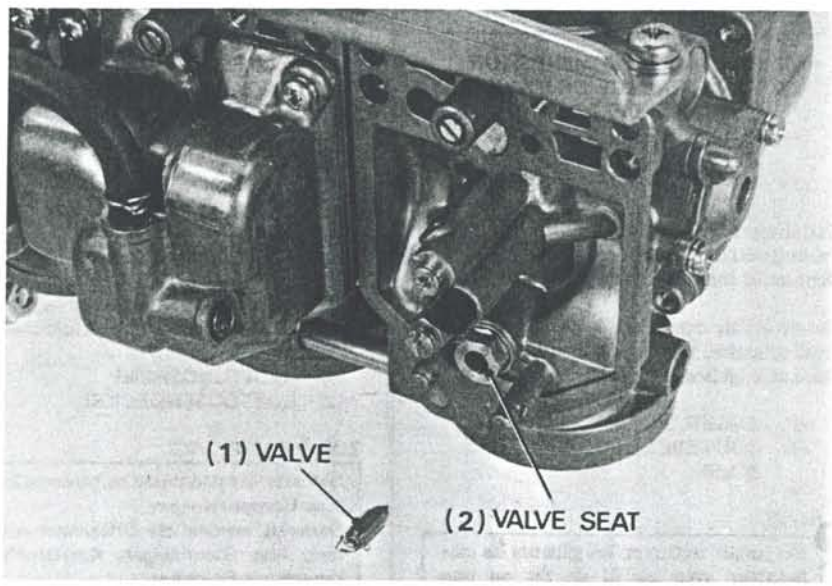
Remove the float chamber body.
Remove the float arm pin.
Remove the float and float valve.

NOTE

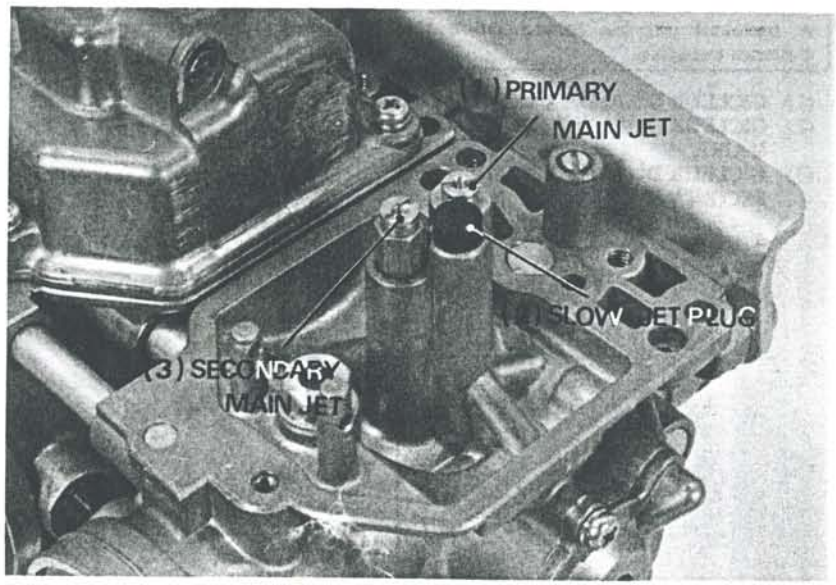
Remember the direction of the clip to ensure original assembly.



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.

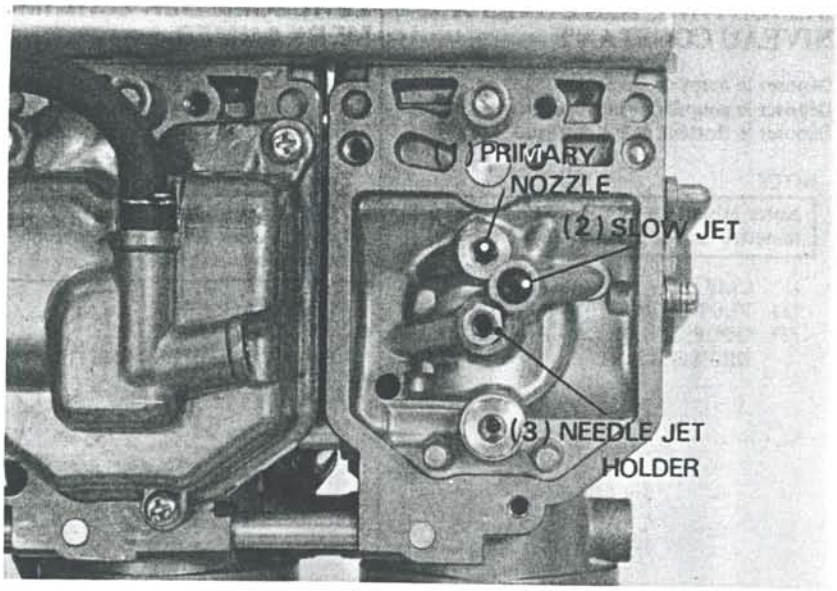


NOTE

The slow jet cannot be removed, it is a press fit.

Remove the primary nozzle.

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

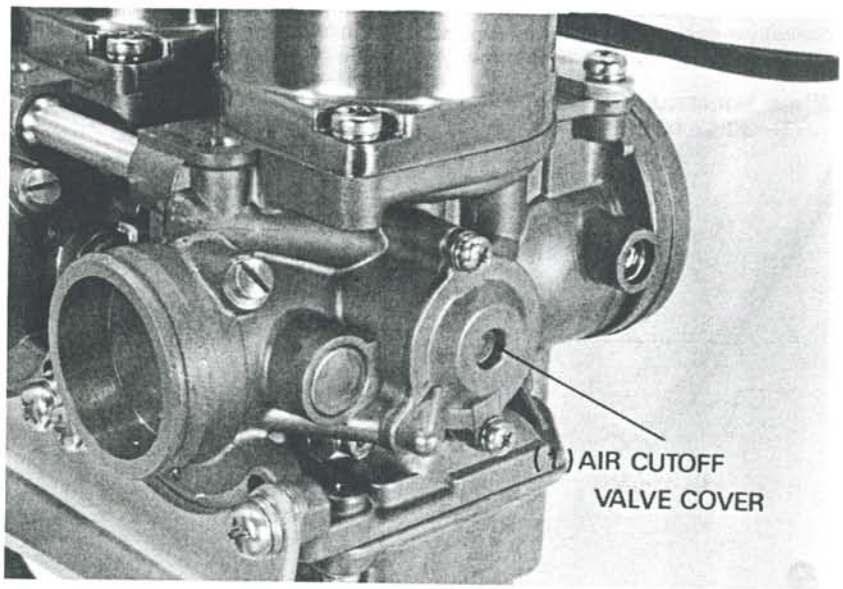


NOTE

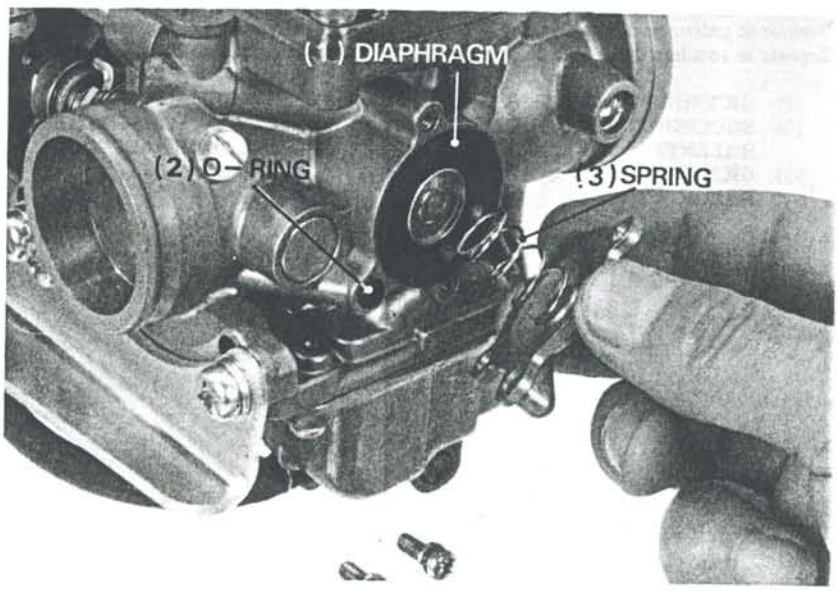
- If the needle jet is difficult to remove, carefully press the needle jet from the cylinder side with a soft material stick.
- Before removing the pilot screw, record the number of turns until it seats. Do not damage the pilot screw threads when removing the plain washer and O-ring.

AIR CUTOFF VALVE DISASSEMBLY

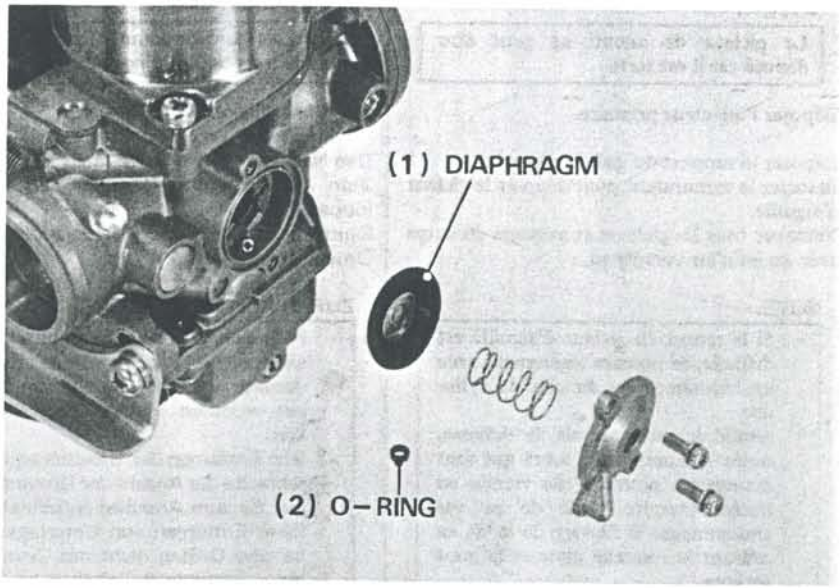
Remove the air cutoff valve cover and spring.



Remove the diaphragm and O-ring.

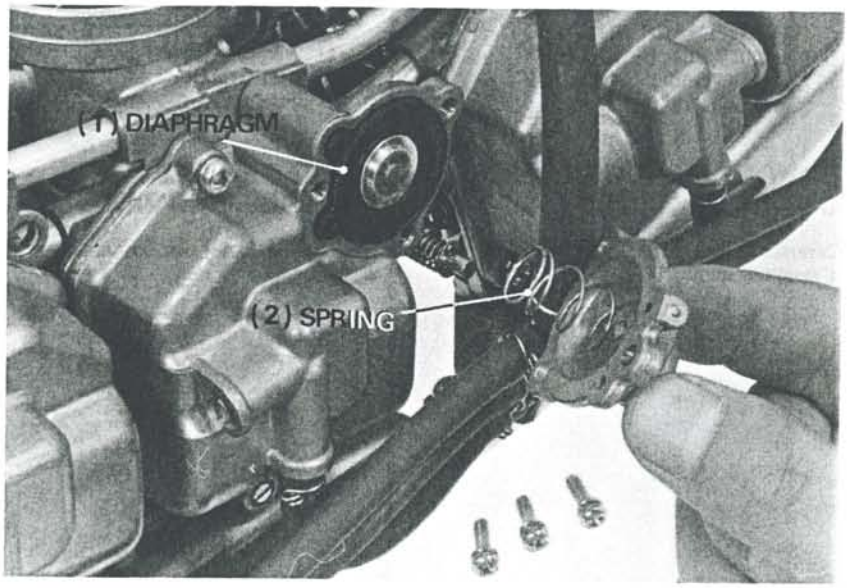


Inspect the diaphragm and valve for cracks and brittleness.



ACCELERATOR PUMP DISASSEMBLY

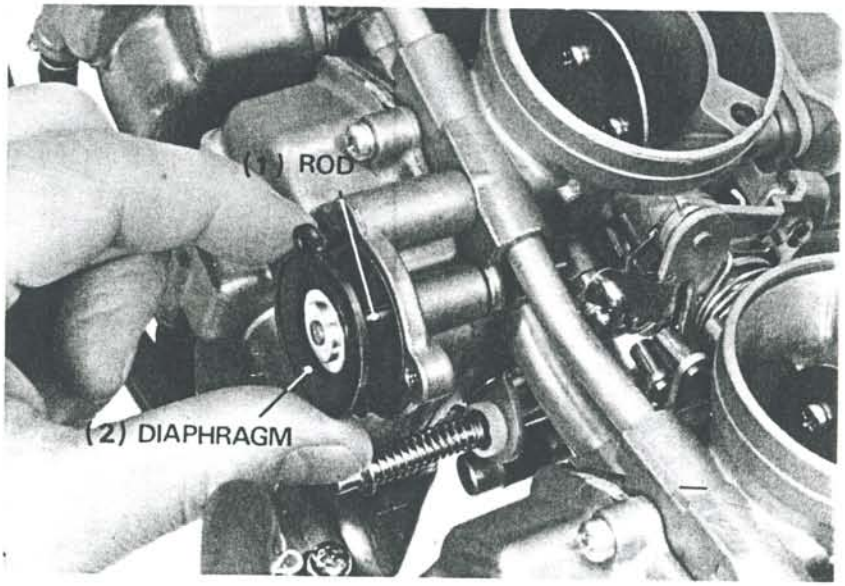
Remove the accelerator pump cover and spring.



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.

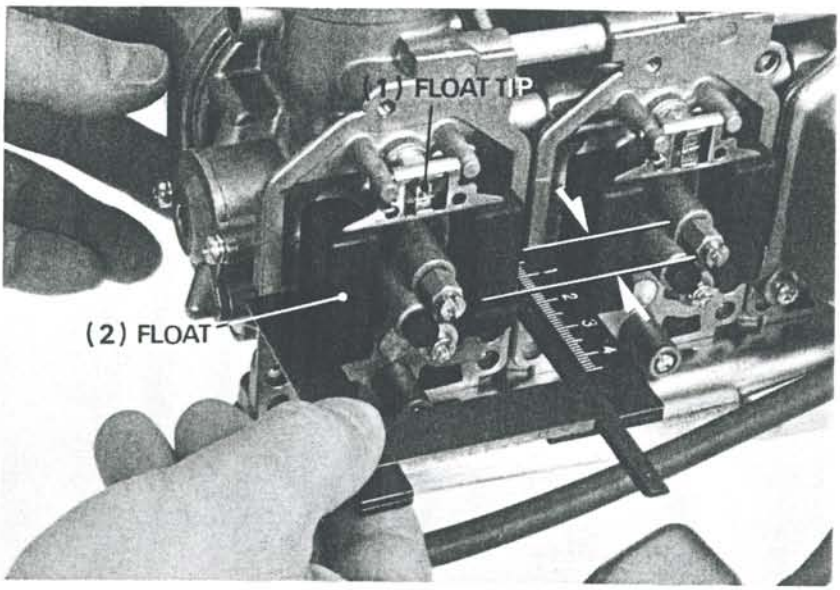
FLOAT LEVEL ADJUSTMENT

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)

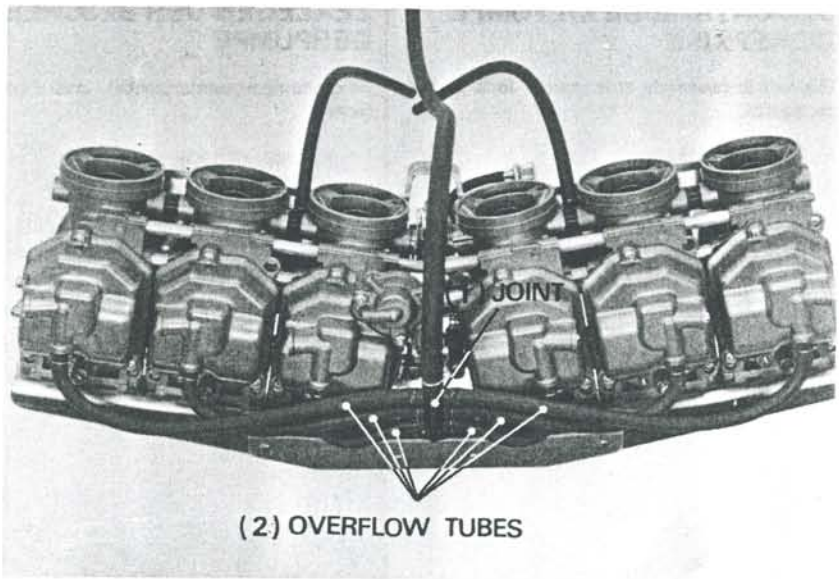
NOTE

Before adjusting, remove the adjacent chambers.



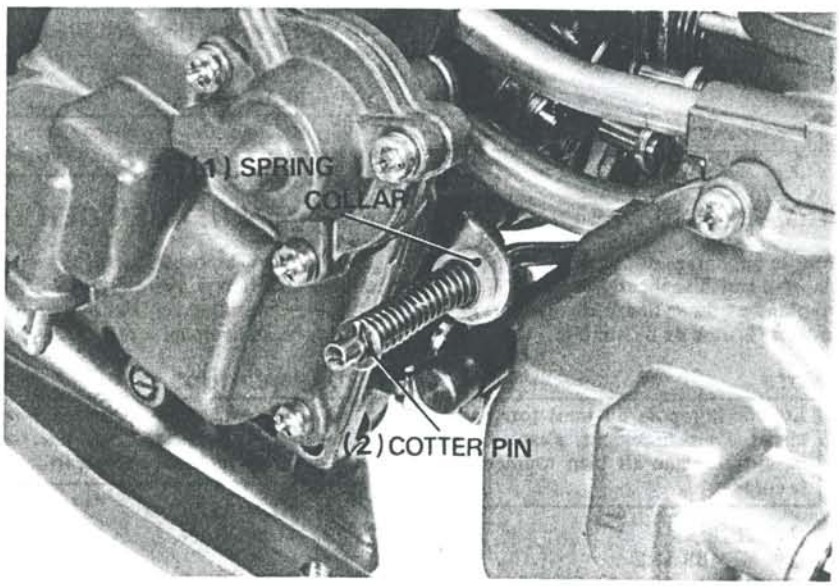
ARBURETOR SEPARATION

Disconnect the overflow tubes from the float chambers.

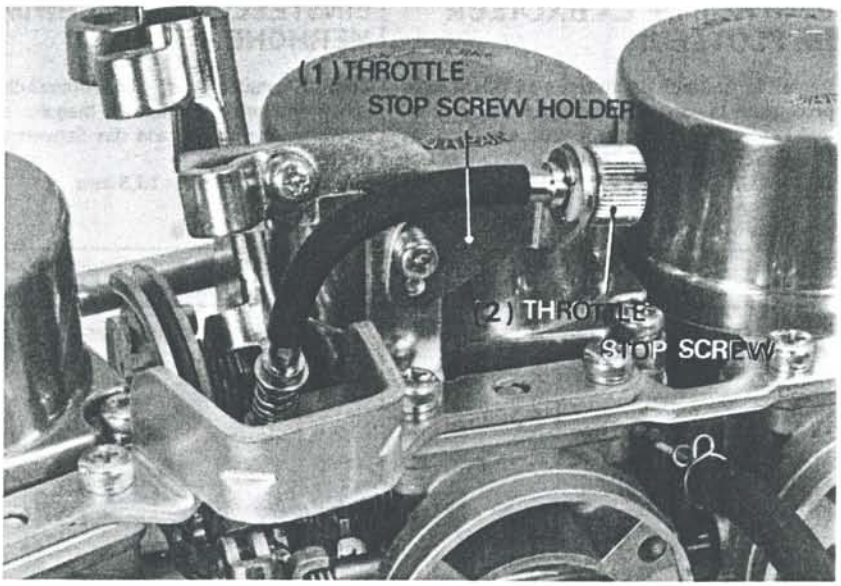


Remove the cotter pin from the accelerator pump rod.

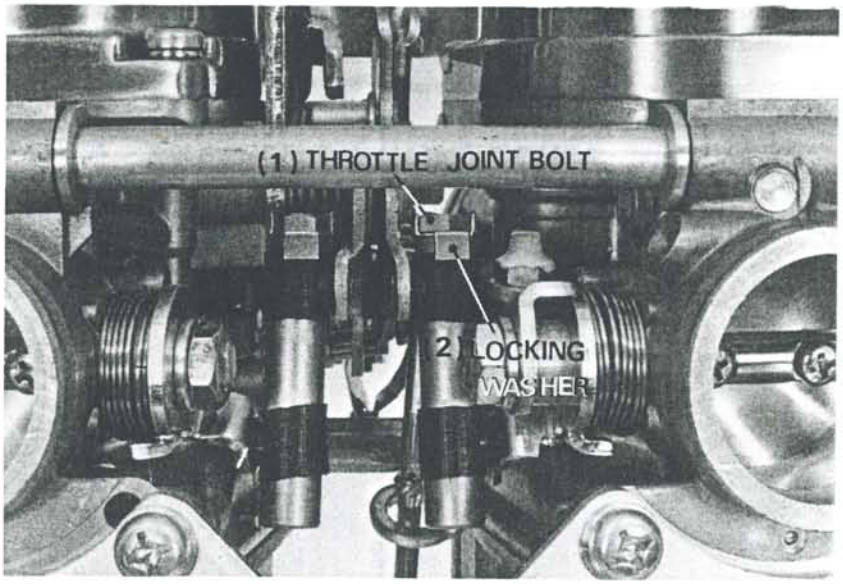
Remove the plain washer, spring and spring collar.



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



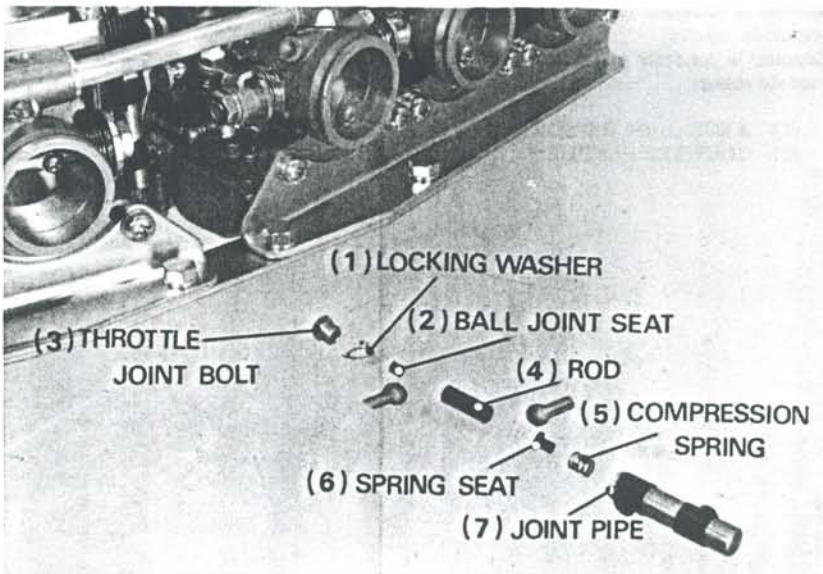
Fold the throttle joint bolt locking washer tabs down.



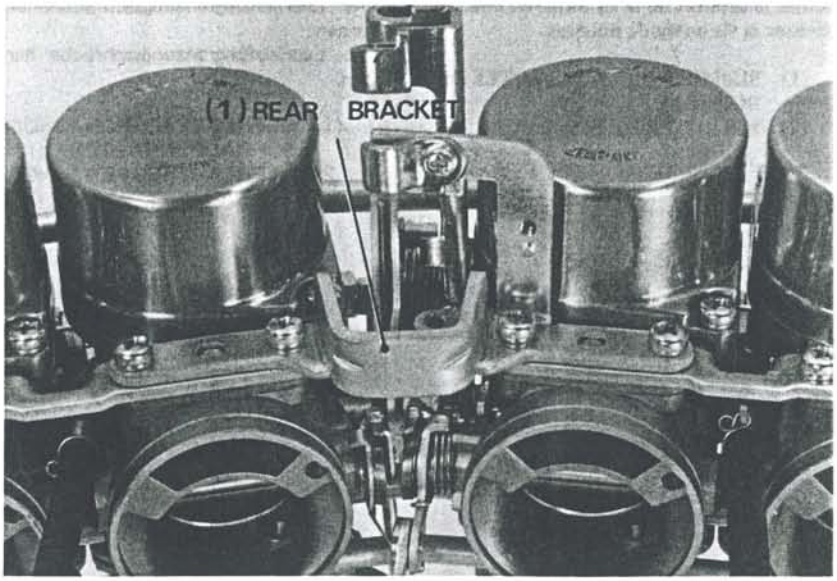
Loosen the throttle joint bolt.
Remove the locking washer and ball joint seat.
Disconnect the ball joint of the throttle link from the throttle joint pipe.
Remove the rod.
Disconnect the throttle joint pipe from the No. 3 carburetor throttle linkage.
Note each parts location to insure original assembly.

NOTE

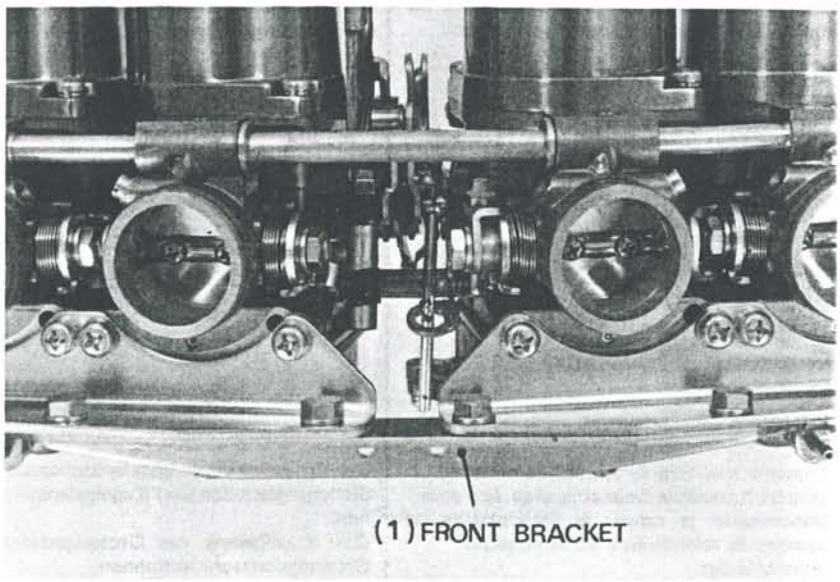
For easy removal, hold the joint pipe and turn the throttle link.



Remove the rear bracket.



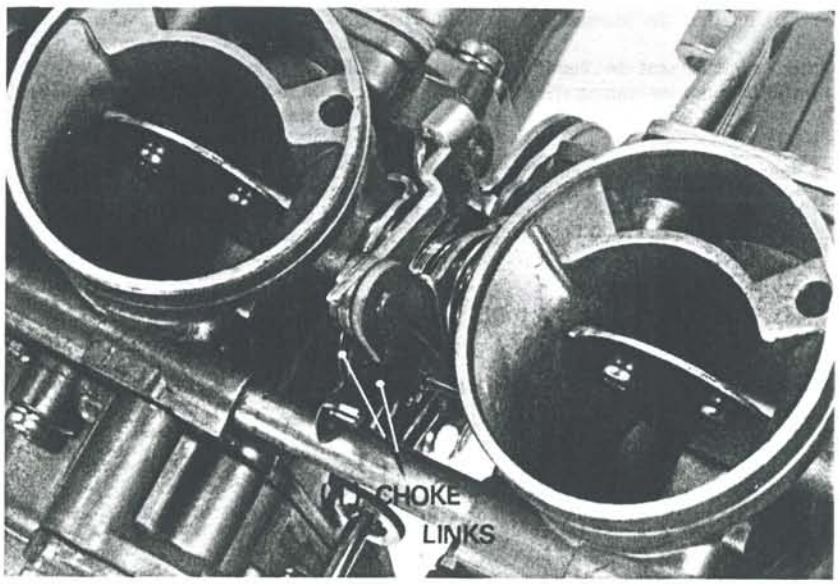
Remove the front bracket.



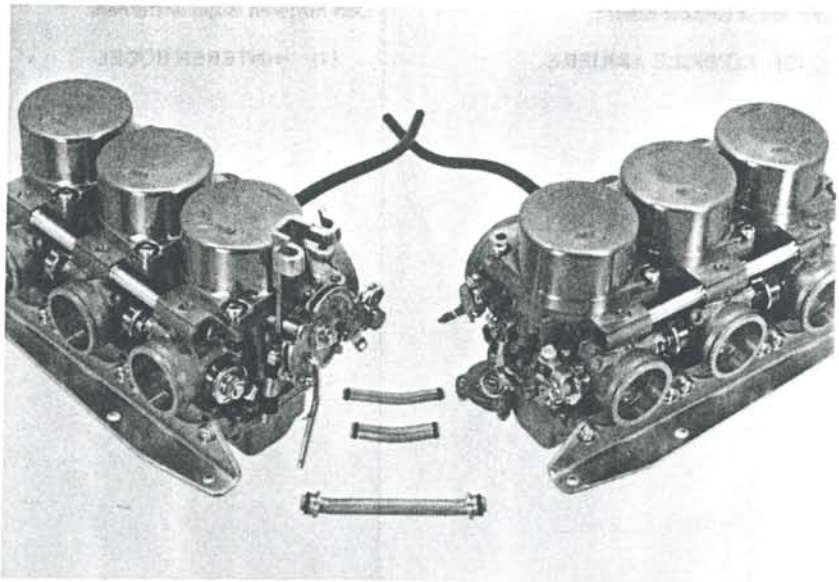
Carefully separate the carburetors.

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.*



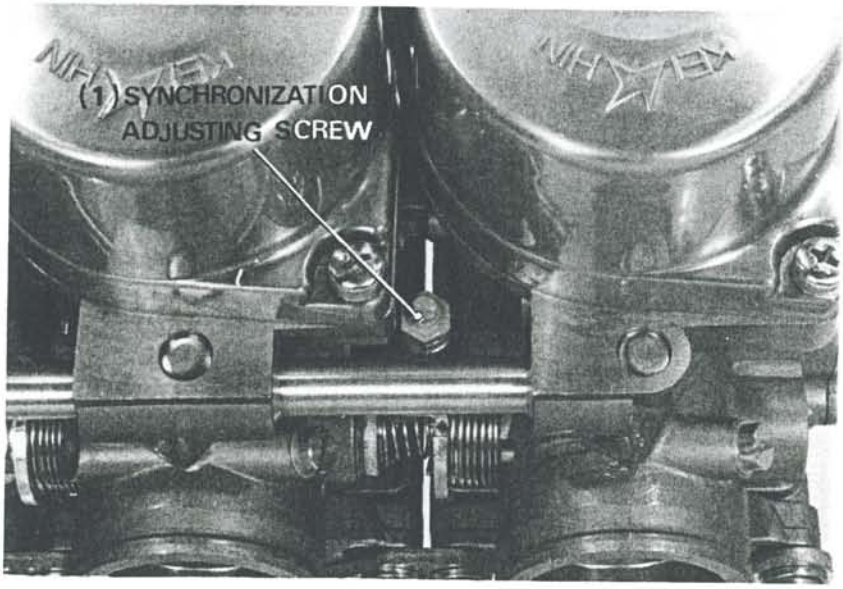
Blow the air and fuel passages with compressed air.



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.



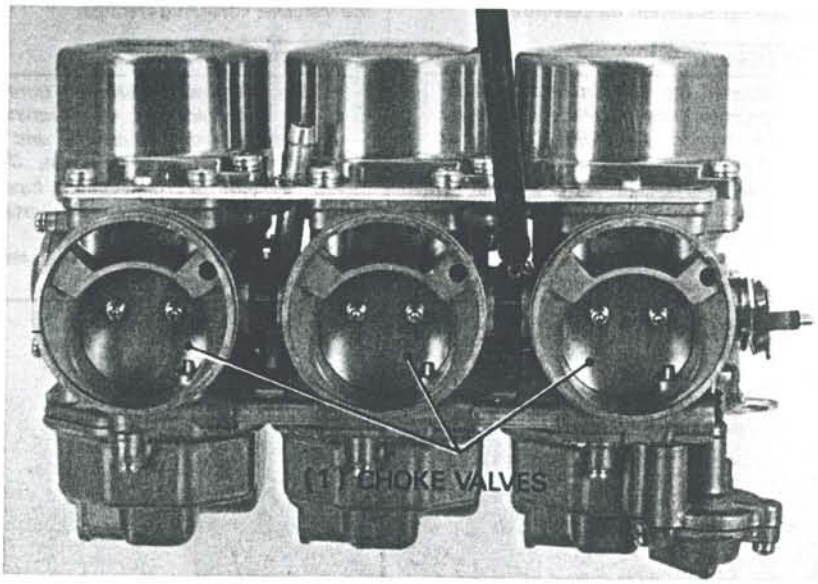
NOTE

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

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

NOTE

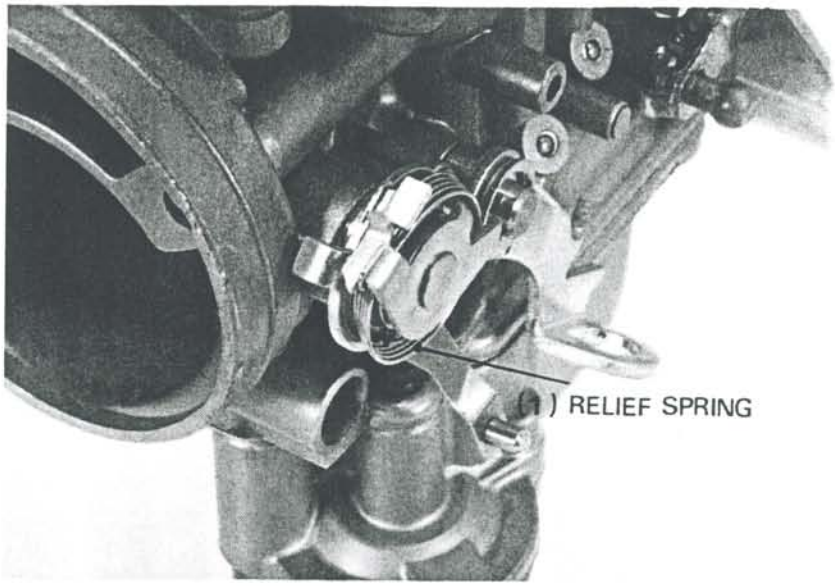
Do not allow filings to enter the carburetors.



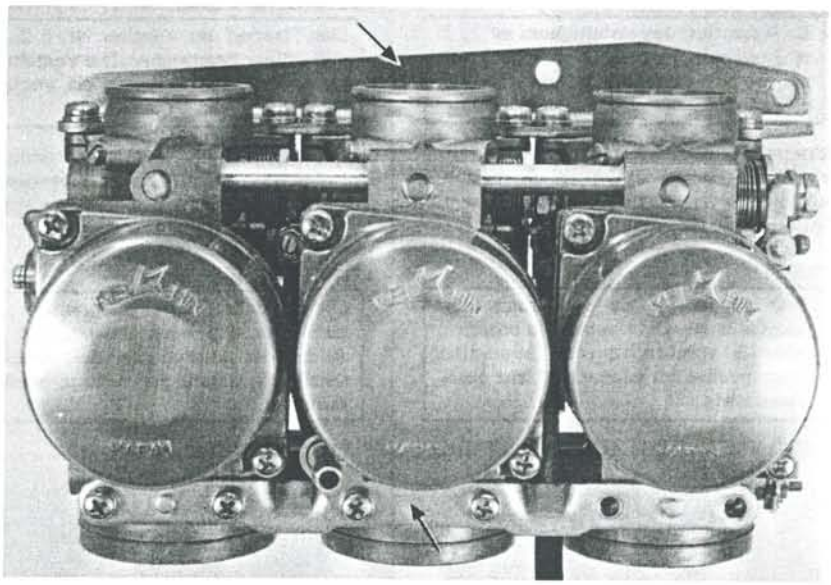
Remove the choke relief spring from the choke link and pull the choke shaft out.

CAUTION

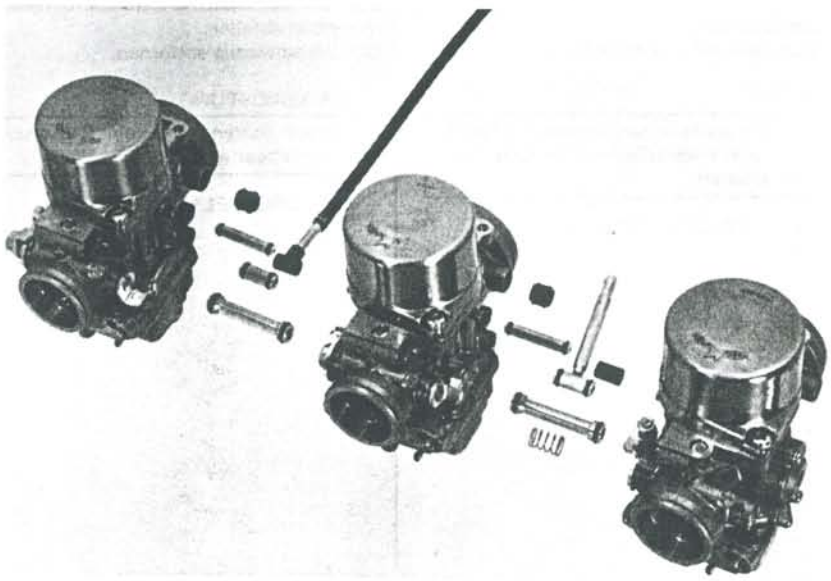
Do not reuse the choke shaft, choke valves and screws.



'emove the rear and front brackets.

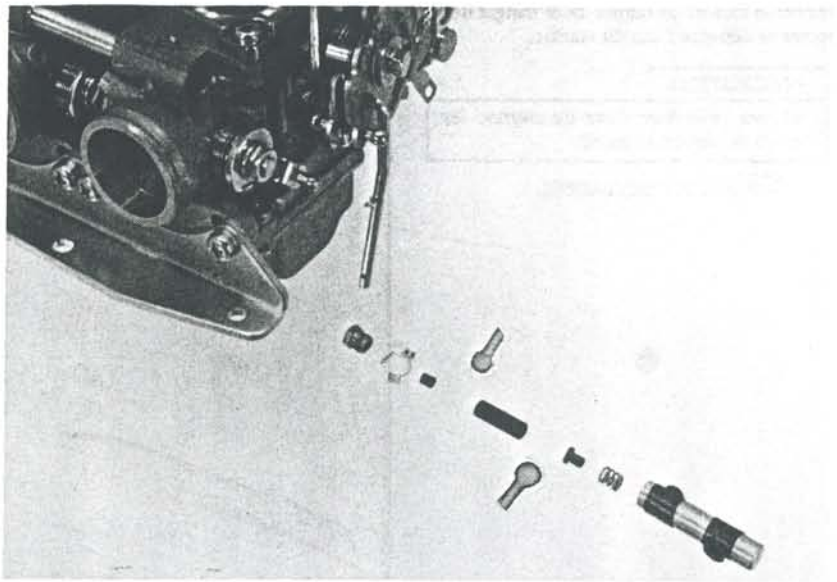


Carefully separate the carburetors.
Blow the air and fuel joint pipes with compressed air.

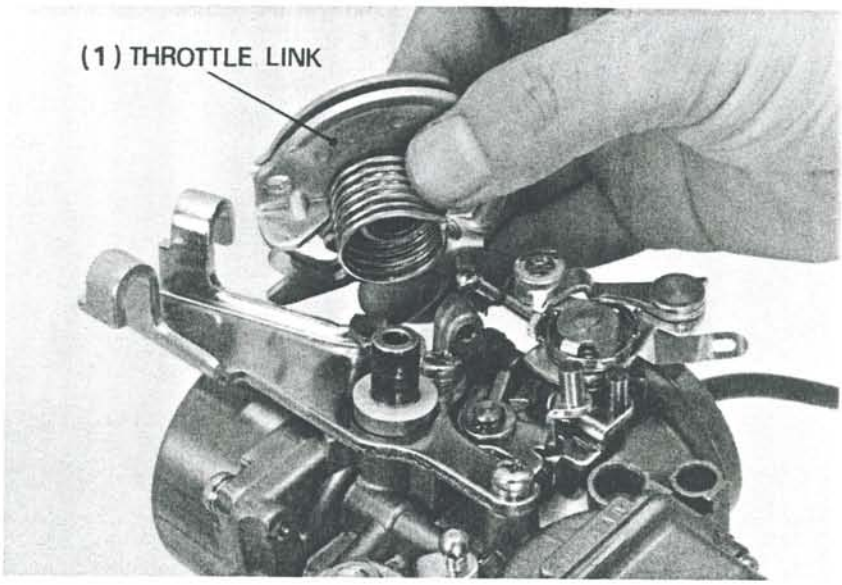


LINKAGE DISASSEMBLY

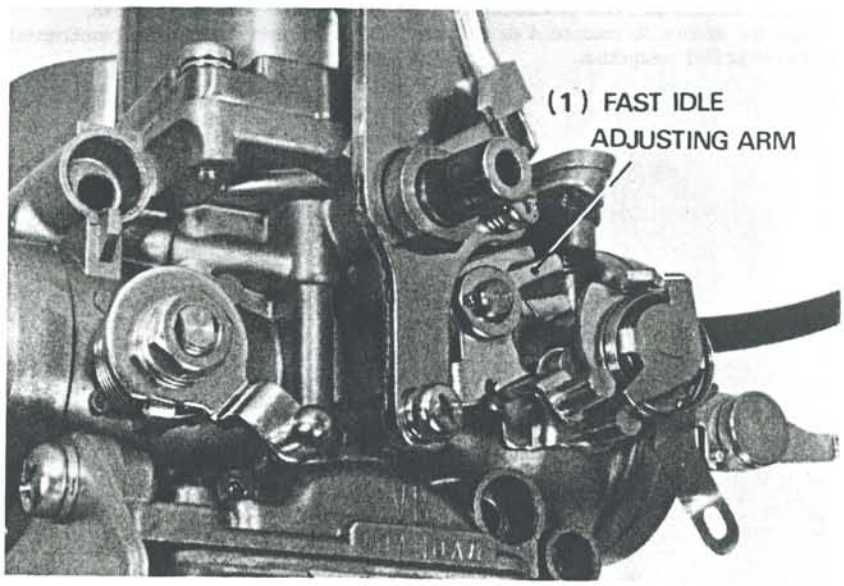
Remove the right throttle joint, using the same procedure as for the left throttle joint.



Remove the throttle link bolt.
Remove the throttle link.



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



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.

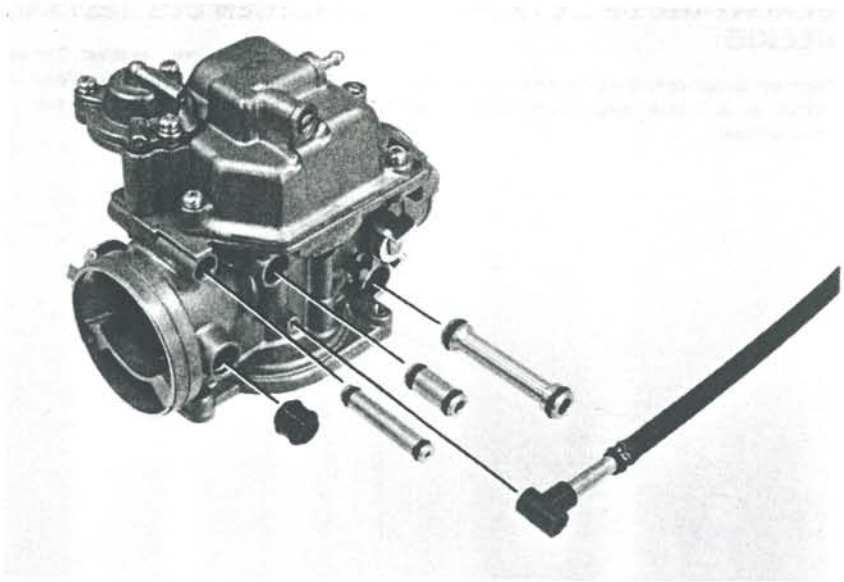
NOTE

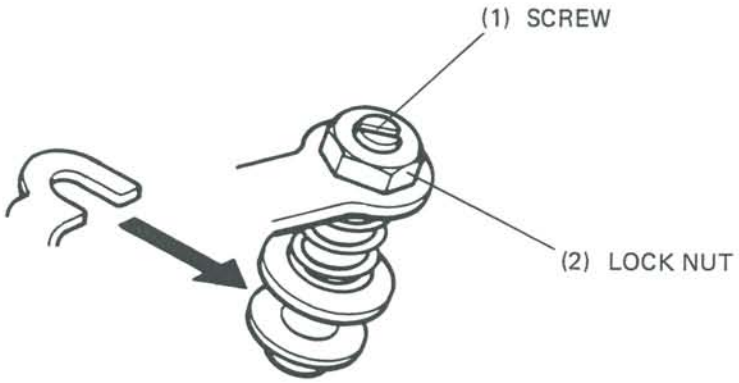
Apply a thin coating of oil to the O-rings.

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

NOTE

The large washer should be positioned on the spring side.

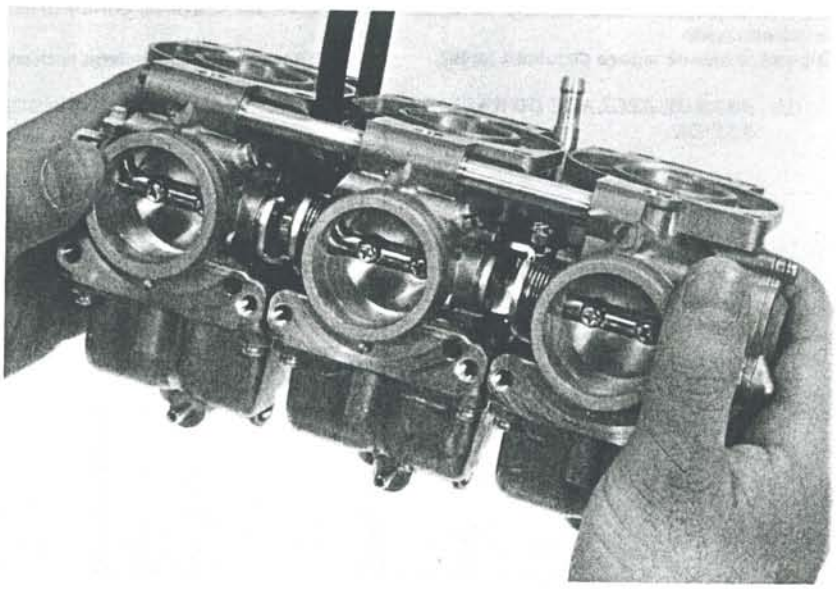




Attach the No. 1 carburetor to the No. 2 carburetor, pressing them together carefully.

NOTE

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

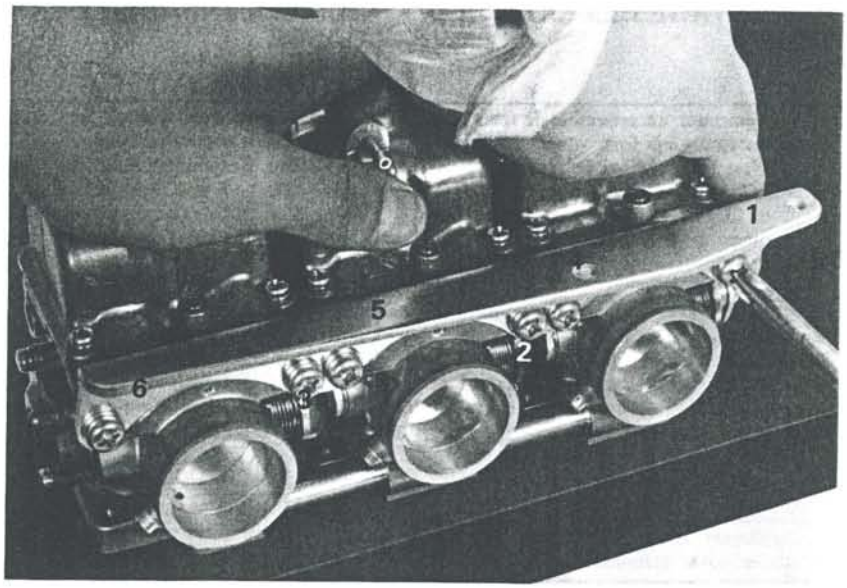


Install the front bracket loosely.
Place the carburetors on a flat surface with the float chamber up.
Press the carburetors together equally and tighten the screws in the sequence shown in two or more steps to prevent carburetor misalignment.

TORQUE: 4–6 N·m (0.4–0.6 kg-m, 3–4 ft-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.

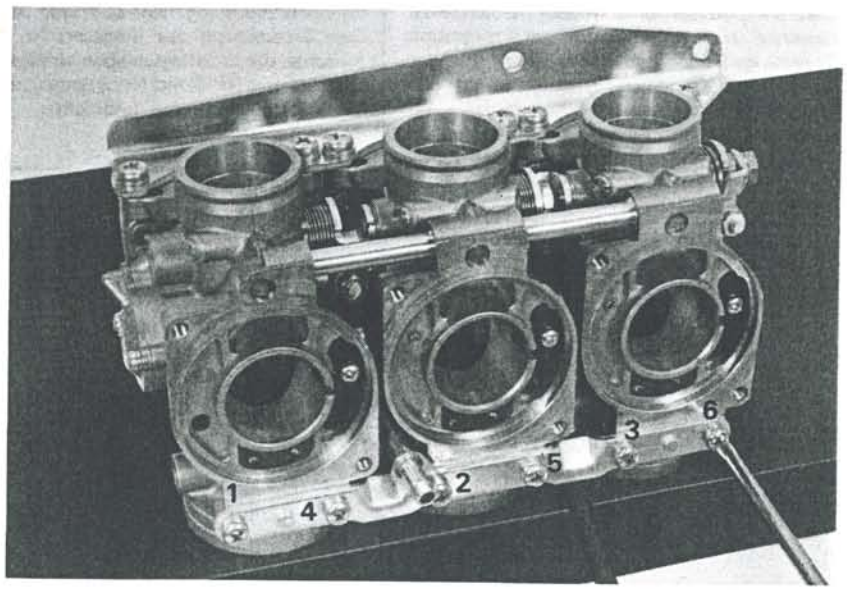


Install the rear bracket using the same procedure as for the front bracket.

TORQUE: 2.8–4.2 N·m (0.28–0.42 kg-m, 2–3 ft-lb)

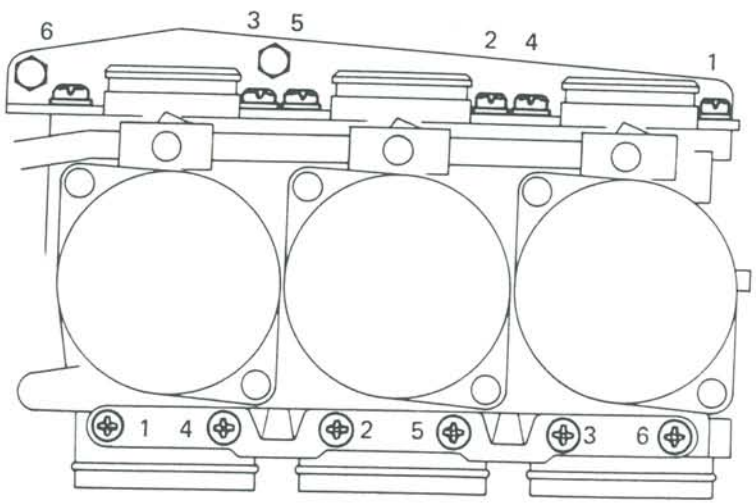
NOTE

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

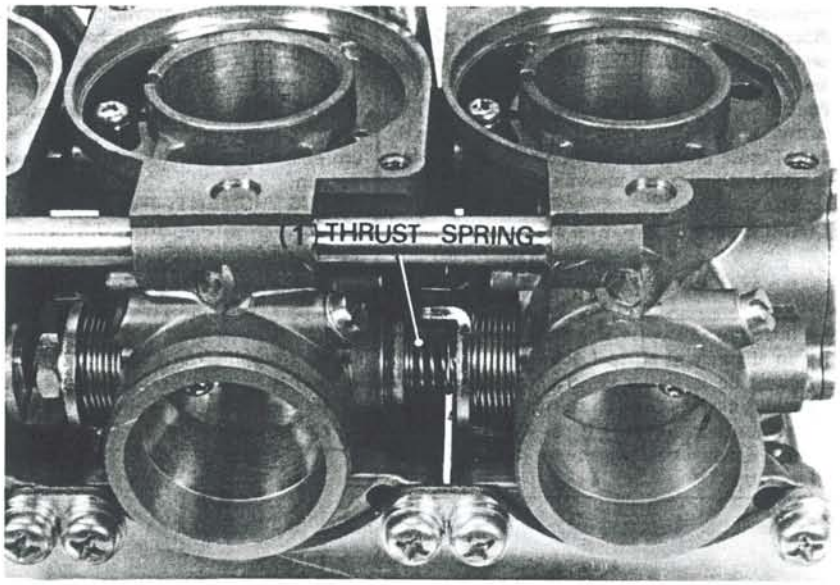


NOTE

Right carburetor screw tightening sequence is shown here.



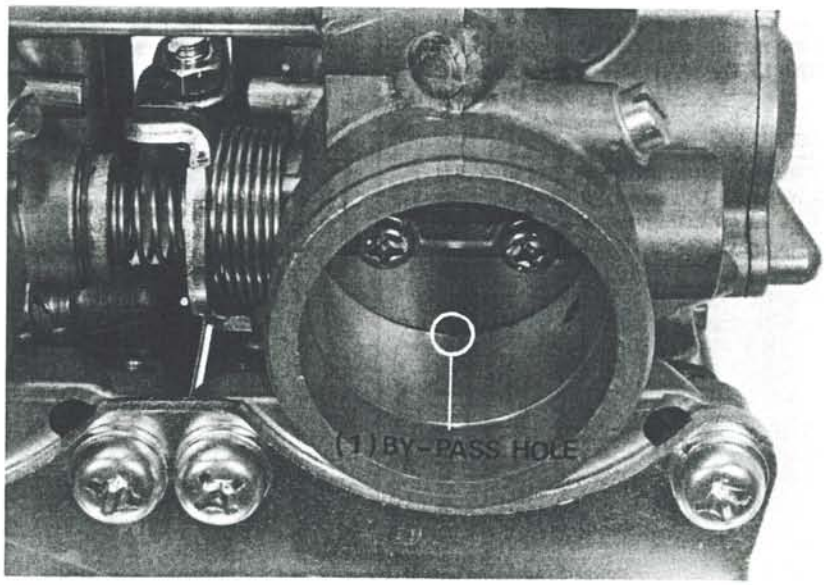
Install the thrust spring between the No. 1 and No. 2 carburetor throttle valve links.



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.

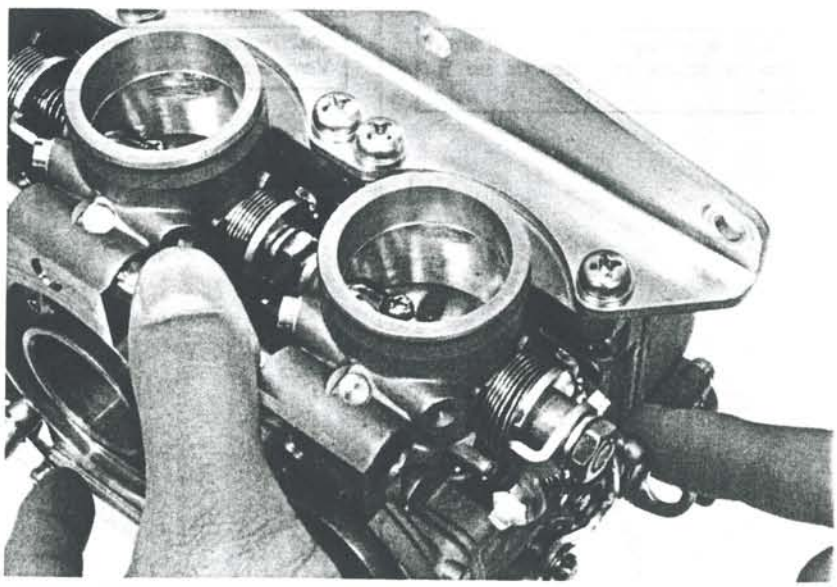


Inspect throttle operation as described below:

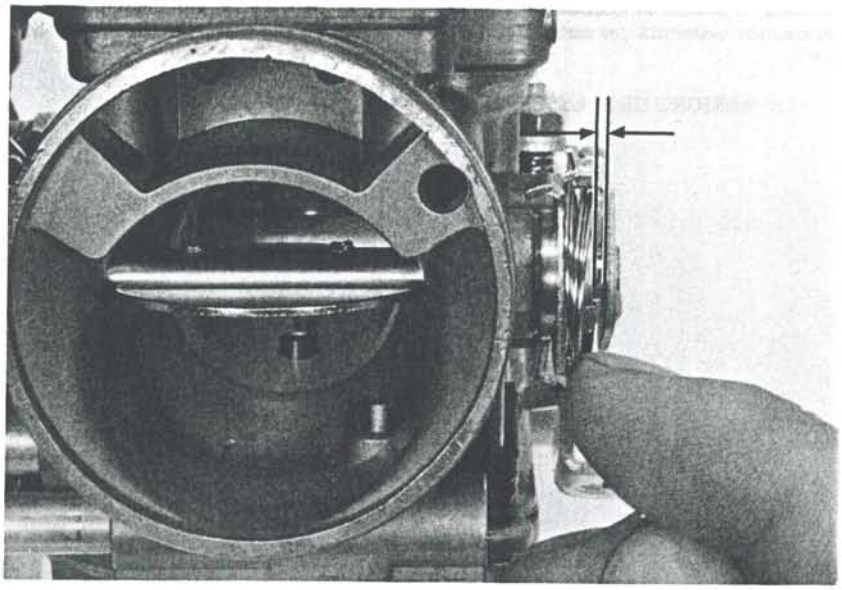
- Open the throttle slightly by pressing the No. 3 carburetor ball joint. Then release the throttle.
- Make sure that it returns smoothly.
- Make sure that there is no drag when opening and closing the throttle.

Install a new choke shaft.

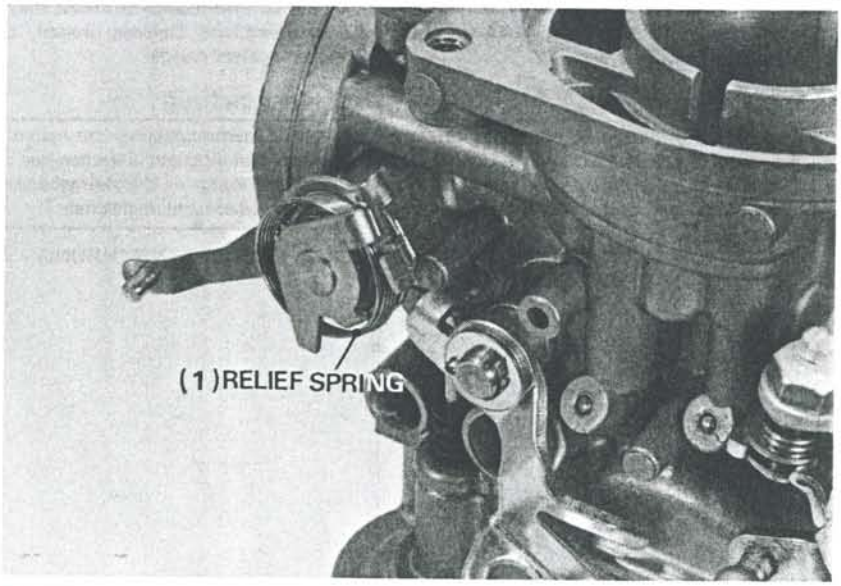
Check that choke shaft operation is smooth and it does not bind during installation. If it binds, the carburetors may not be properly aligned or the shaft may be bent.



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).

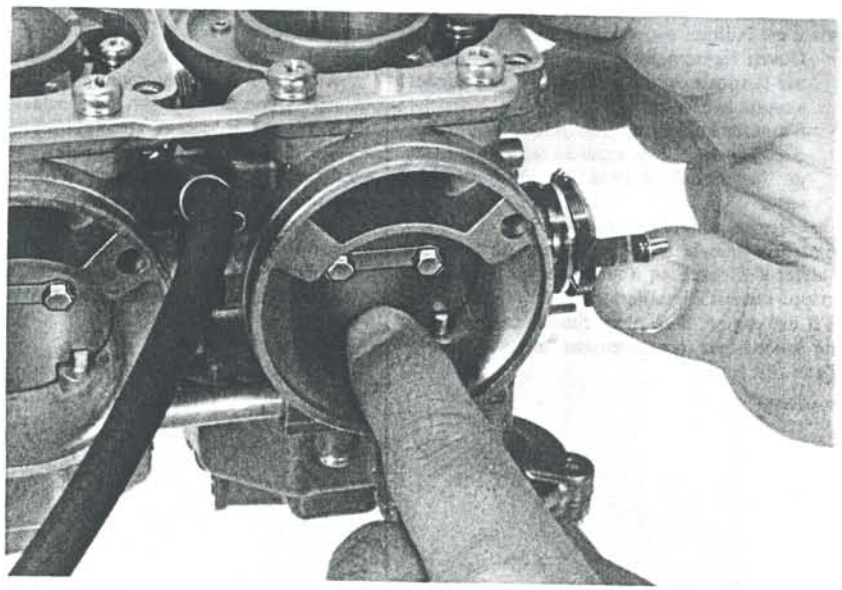


ttach the choke relief spring to the choke link and choke shaft lever.



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

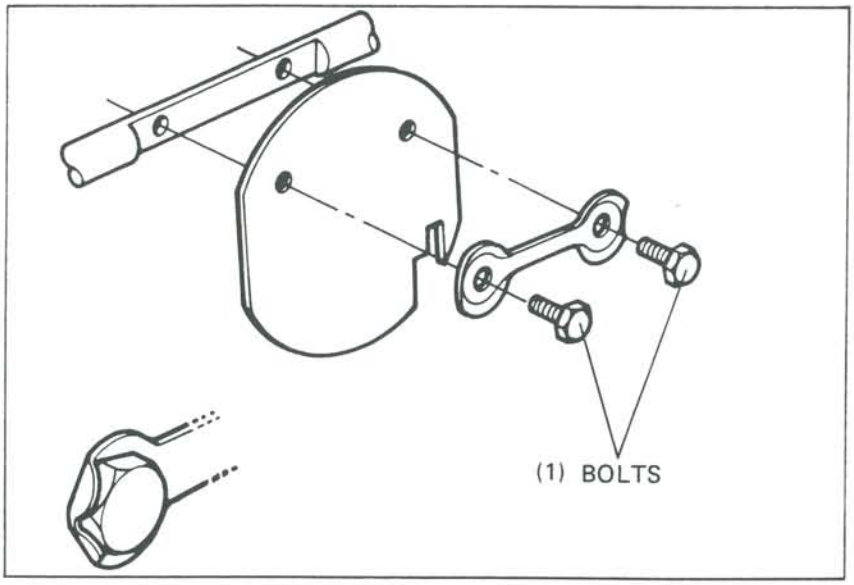
Close the choke valve by turning the choke link.
Hold the choke link.
Press the choke valve end to the fully opened position.
Release the choke valve, then make sure that it returns smoothly.



Tighten the choke valve bolts.

TORQUE: 0.6–1.2 N·m (0.06–0.12 kg-m) (5–11 in-lb, 0.4–0.9 ft-lb)

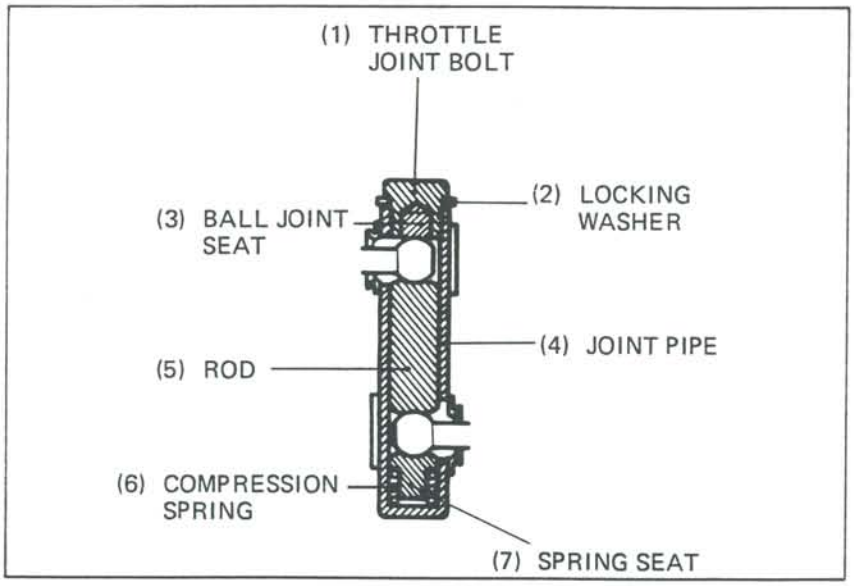
Fold the tabs of the lock washer up.
Recheck the throttle and choke operation.



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.*



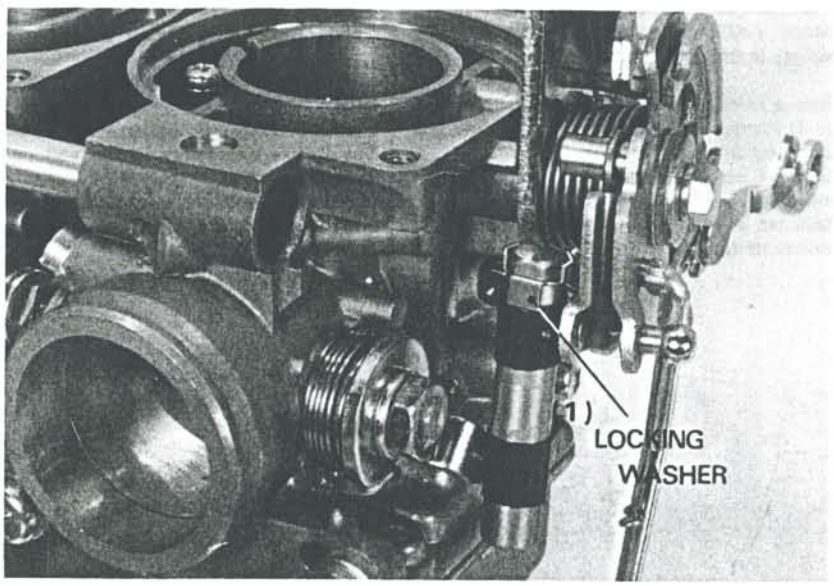
Tighten the throttle joint bolt.

TORQUE: 2.8–4.2 N·m (0.28–0.42 kg-m, 2–3 ft-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.

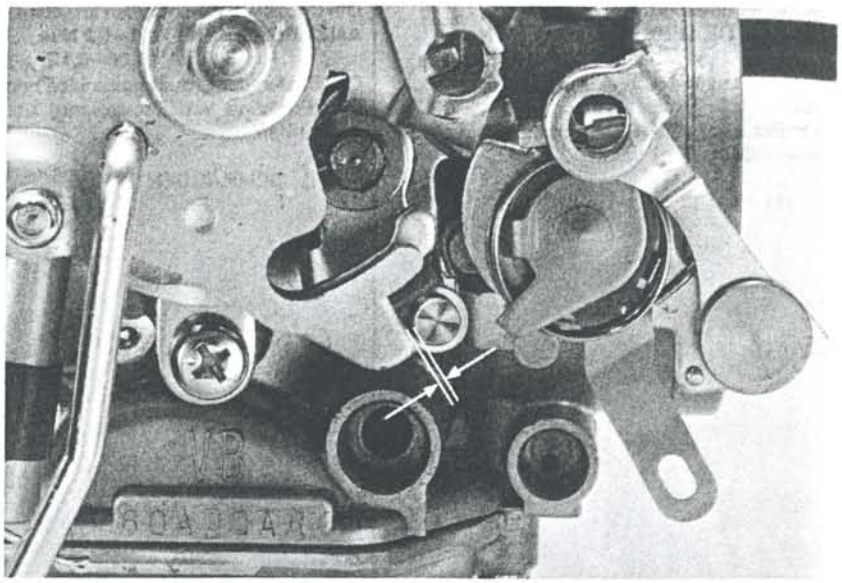


FAST IDLE ADJUSTMENT

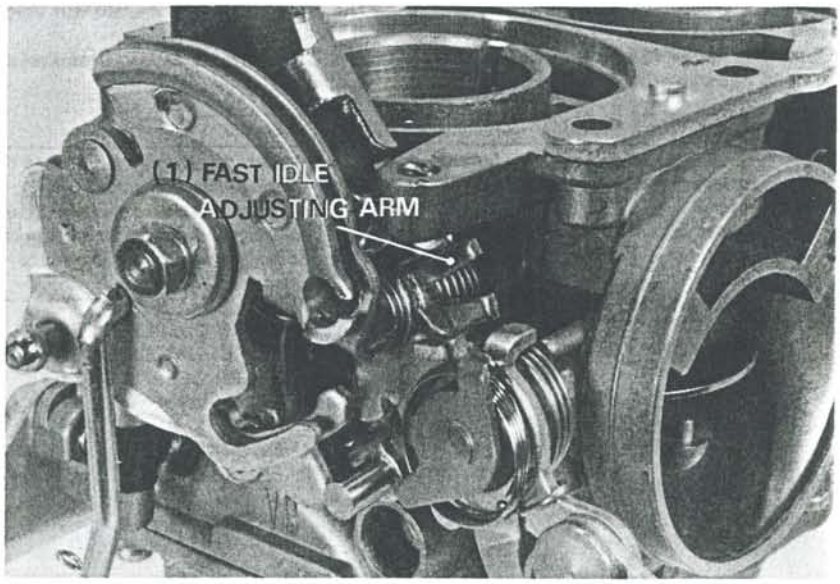
FAST IDLE: 2,000 ± 500 min^{-1} (2,000 ± 500 rpm) <after break-in>

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 (0.03–0.04 in)



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

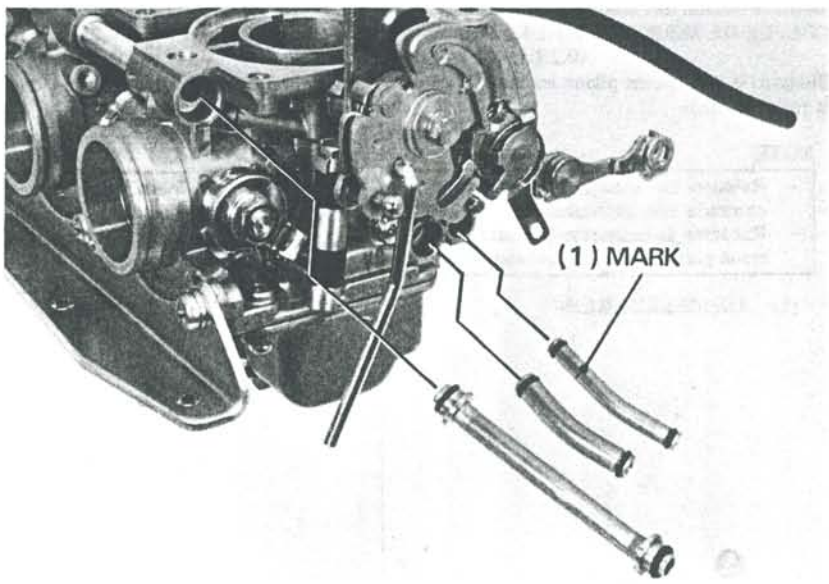


INSTALLATION

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

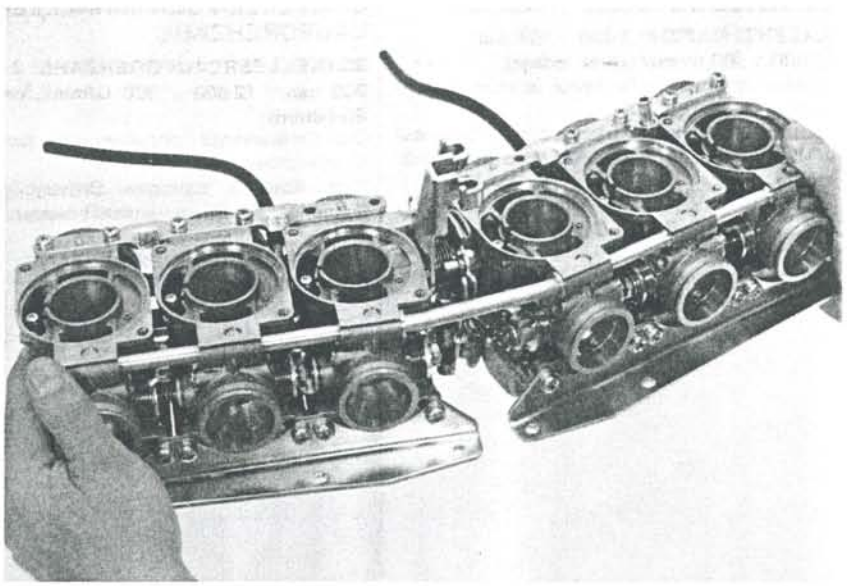
NOTE

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

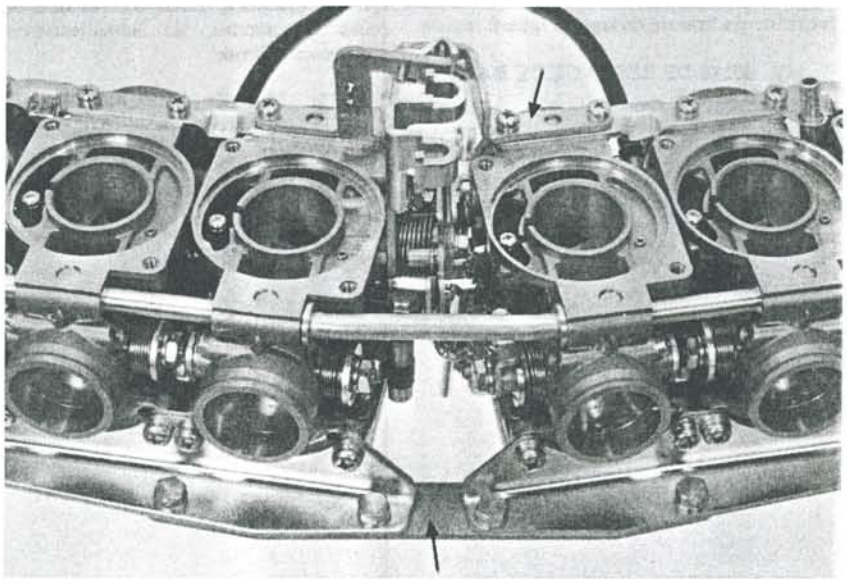


Insert the accelerator pump rod.
Position the right and left carburetor assemblies properly, aligning the pipes and choke link.

Press the assemblies together carefully.

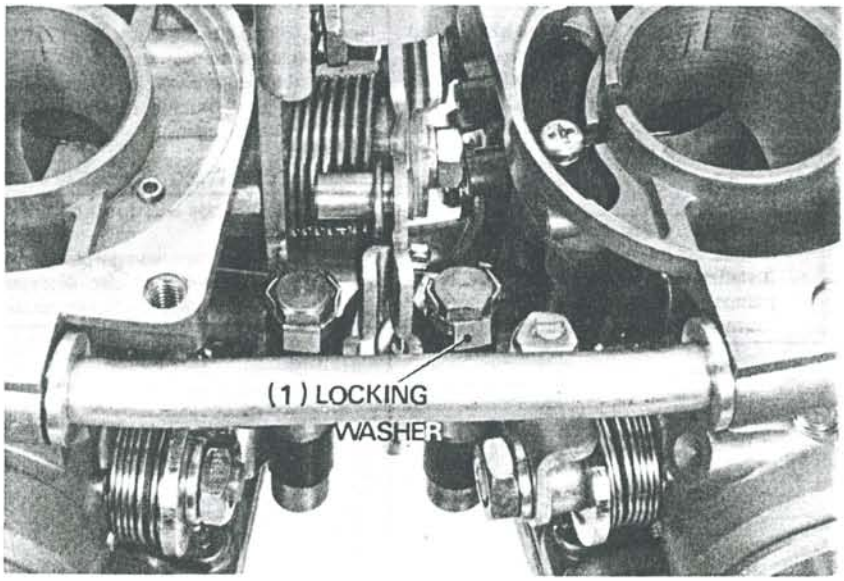


nstall the front and rear brackets loosely.



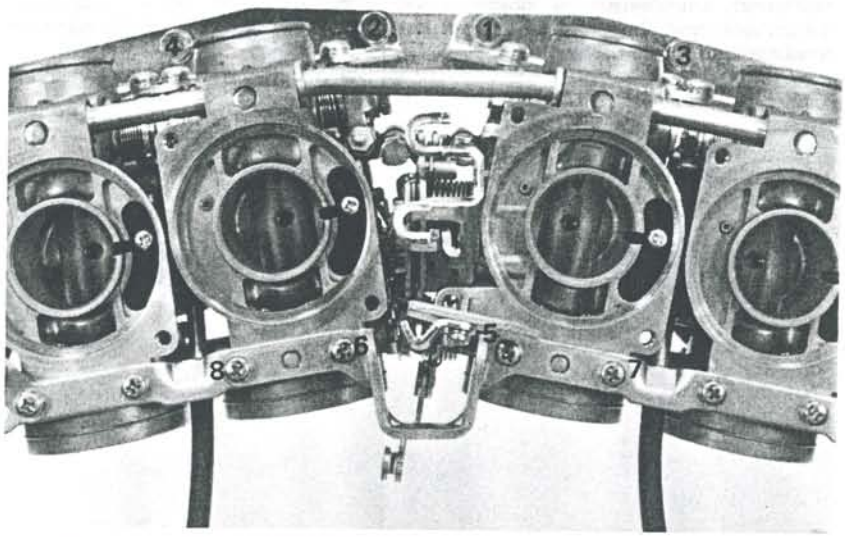
Connect the other throttle joint to the throttle link.
Tighten the throttle joint bolt.
Secure the bolt by bending the tabs of the locking washer as for the previous throttle joint.

TORQUE: 2.8–4.2 N·m (0.28–0.42 kg-m, 2–3 ft-lb)



Tighten the front and rear brackets in the sequence shown.

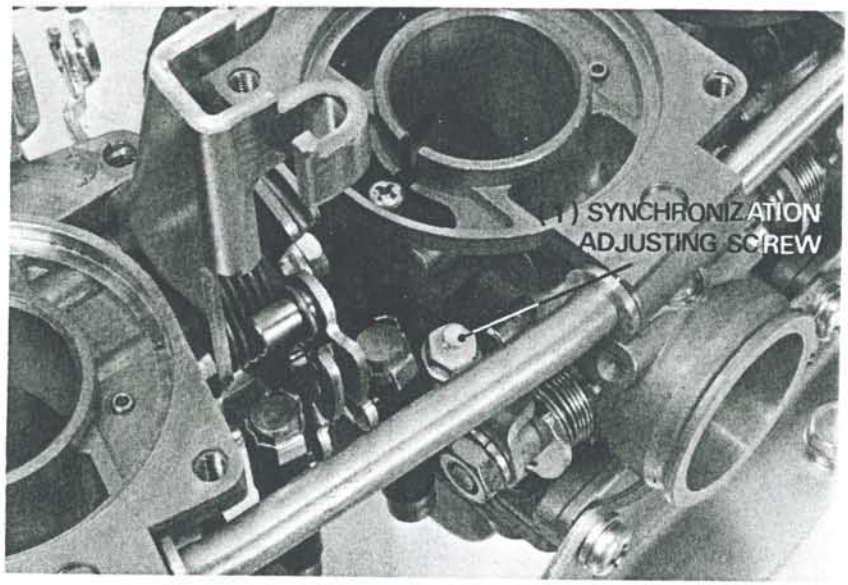
TORQUE: 2.8–4.2 N·m (0.28–0.42 kg-m, 2–3 ft-lb)



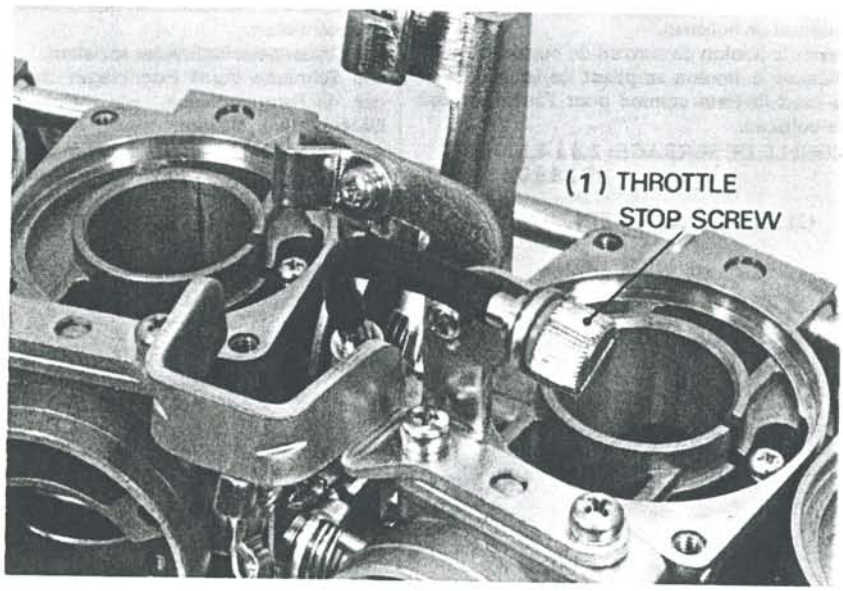
Turn the synchronization adjusting screw on the No. 3 carburetor so that all throttle valve positions are equal.

Move the throttle link to check throttle operation.

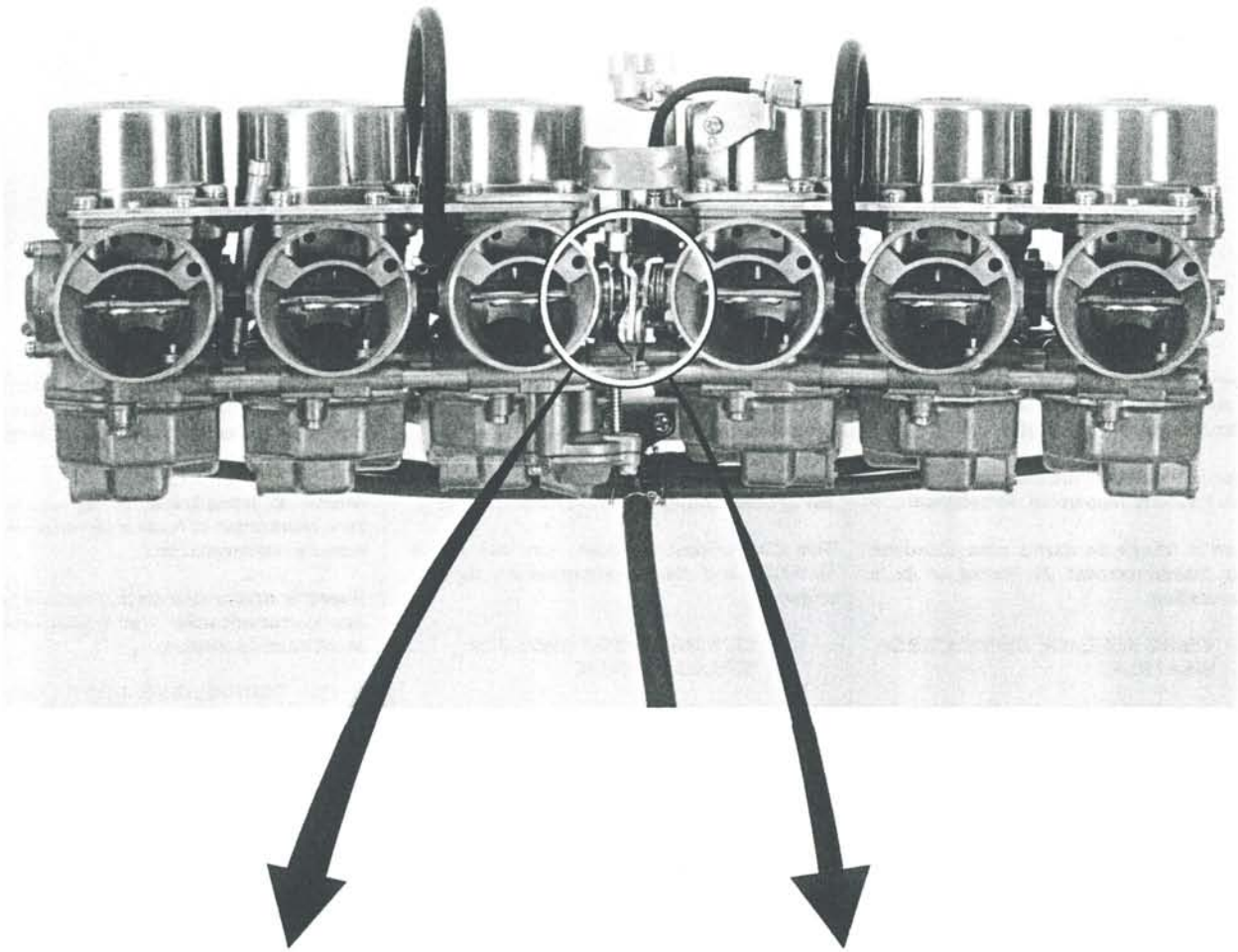
Move the choke link to check choke operation and synchronization.

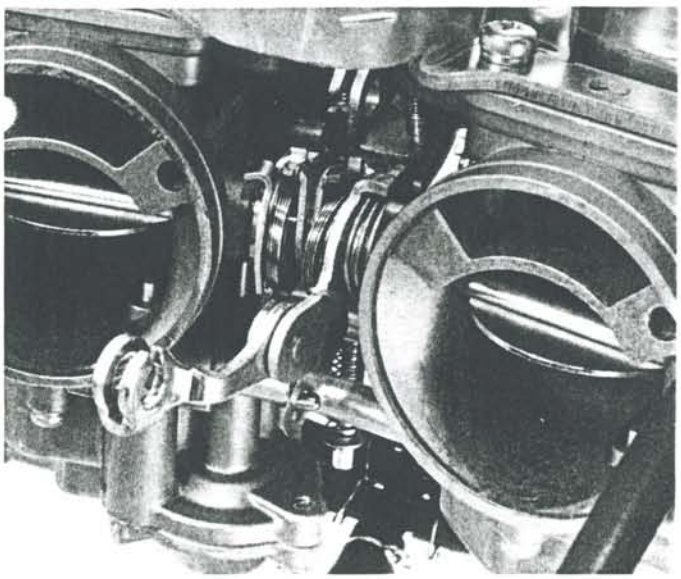


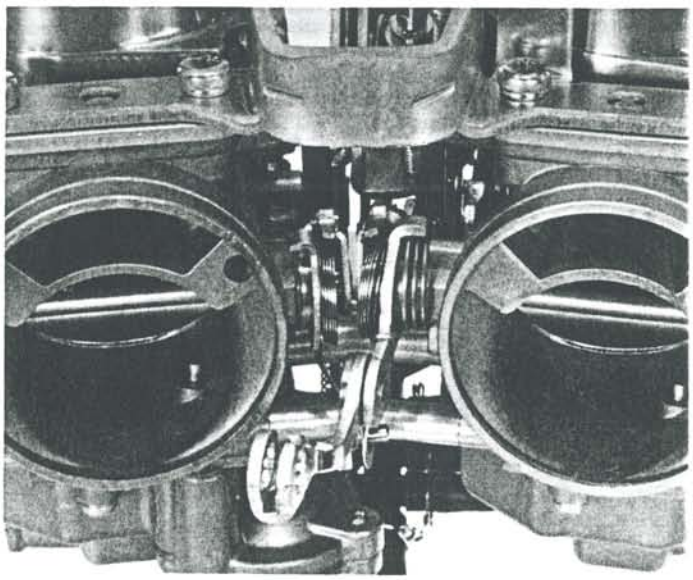
Install the accelerator pump rod spring, washer, collar and cotter pin.
Install the throttle stop screw.
Install the vacuum cylinder components.
Install the overflow tubes.



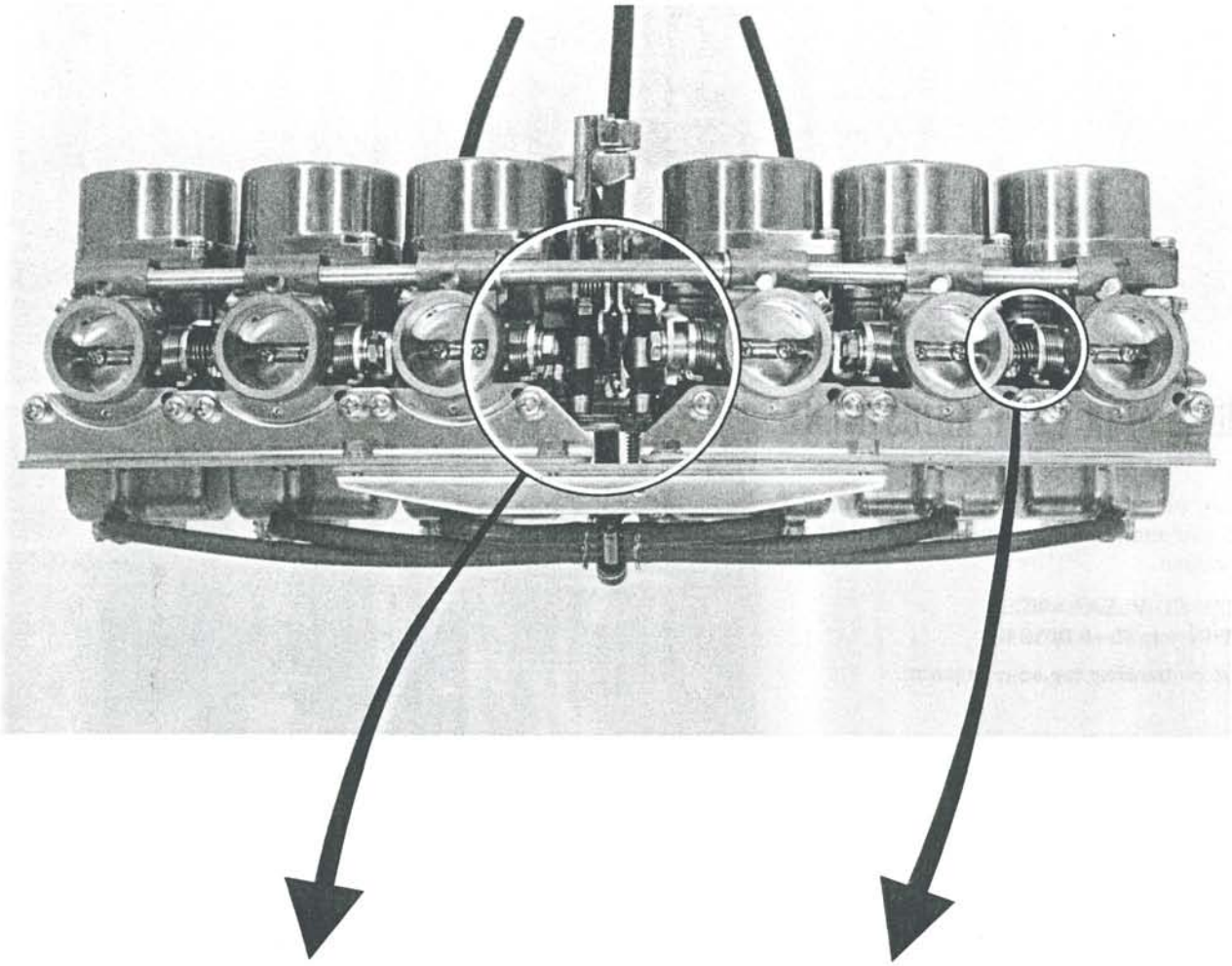
SPRING INSTALLATION

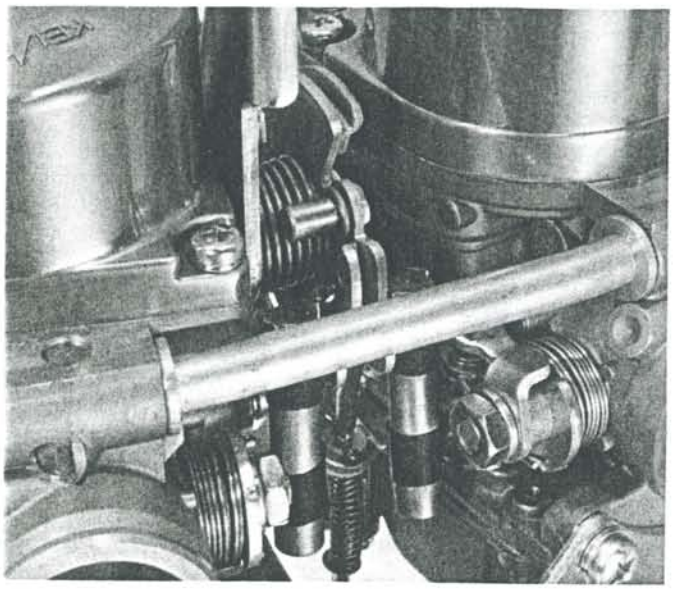


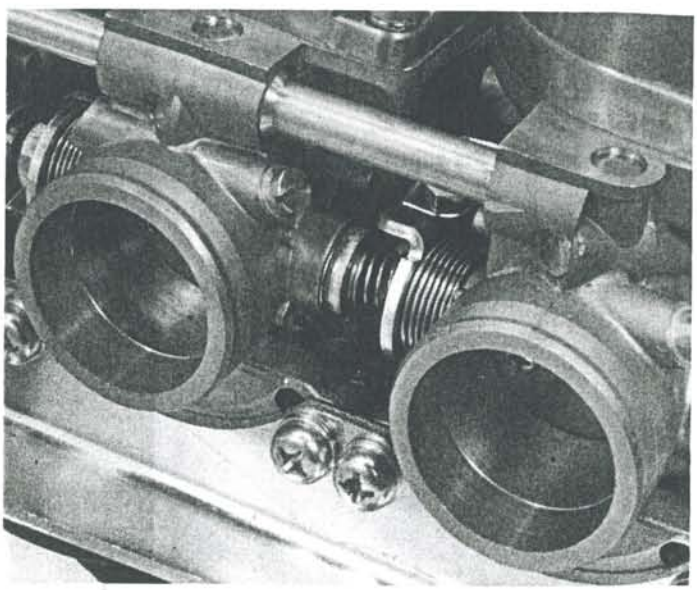




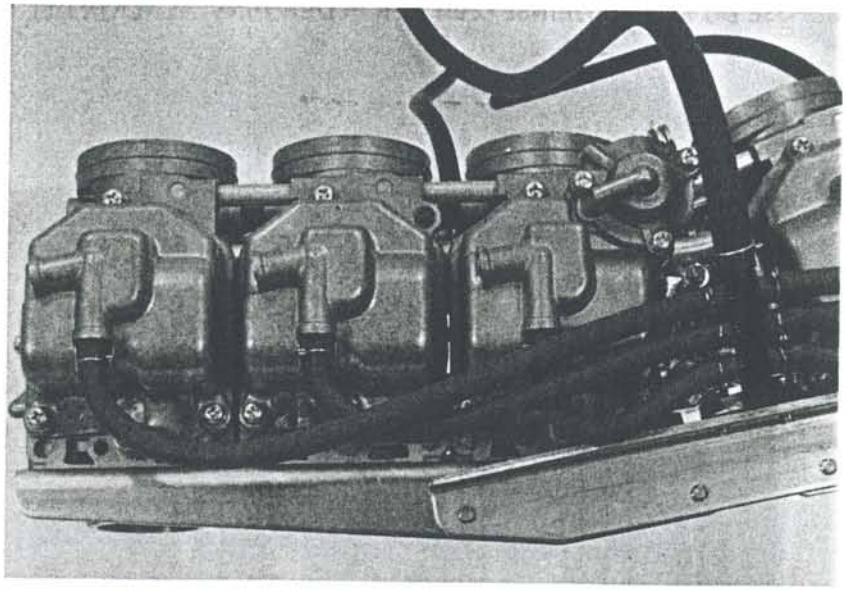
REPOSE DU RESSORT/EINSETZEN DER FEDERN/INSTALACION DEL MUELLE







TUBE ROUTING

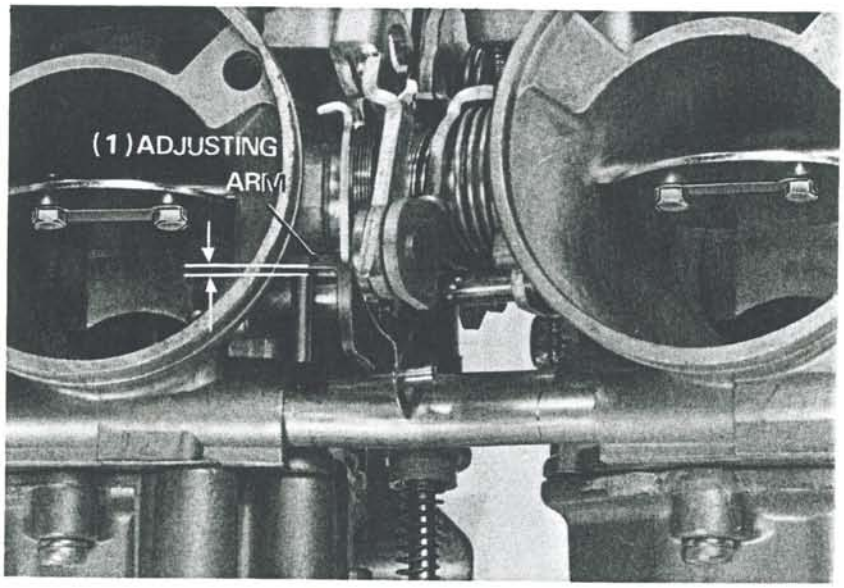


ACCELERATOR PUMP ADJUSTMENT

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

SPECIFIED CLEARANCE:
0–0.04 mm (0–0.0016 in)

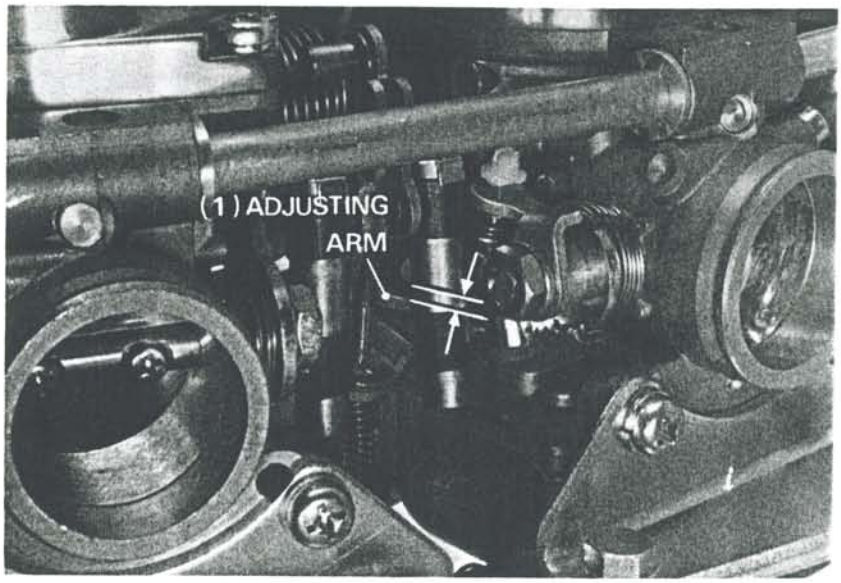
Adjust by bending the adjusting arm.



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

SPECIFIED CLEARANCE:
3.1–3.3 mm (0.12–0.13 in)

Adjust by bending the adjusting arm.



PILOT SCREW ADJUSTMENT

PILOT SCREW INITIAL SETTING

NOTE

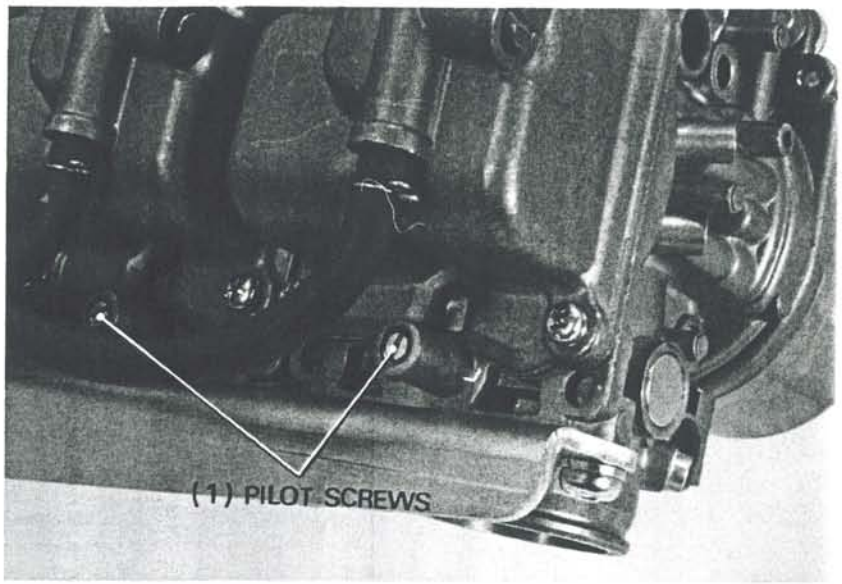
The pilot screw is factory pre-set and no adjustment is necessary unless the carburetor is overhauled.

Turn the pilot screw clockwise until it seats lightly and back it out to the specification. This is a preliminary setting prior to the final pilot screw adjustment.

PILOT SCREW OPENING: 1-1/4

CAUTION

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



PILOT SCREW ADJUSTMENT

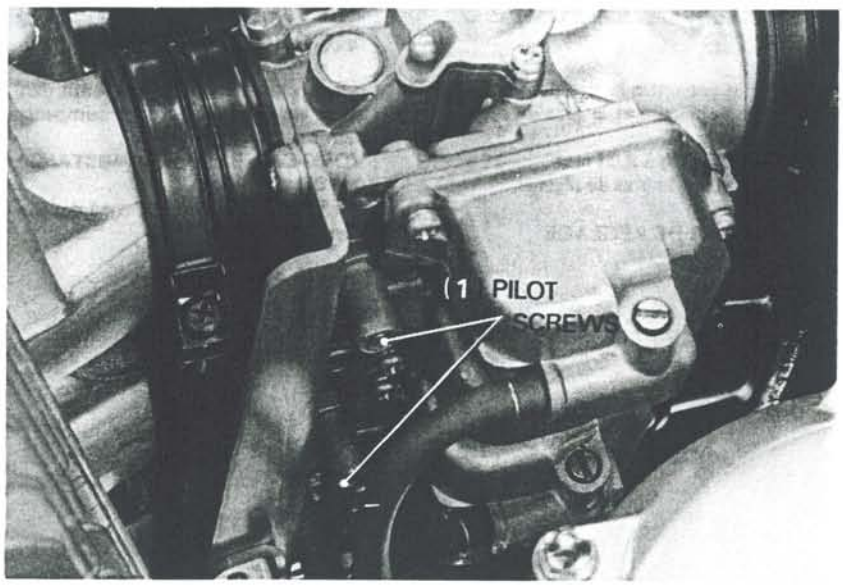
NOTE

Use a tachometer with graduations of 50 min^{-1} (50 rpm).

1. Warm up the engine to operating temperature. Stop and go driving for 10 minutes is sufficient.
2. Attach a tachometer.
3. Adjust the idle speed with the throttle stop screw.

   IDLE SPEED: 900 ± 100 min^{-1} (900 ± 1,000 rpm)

4. Turn each pilot screw in or out to obtain the highest engine speed.
5. Adjust the idle speed with the throttle stop screw.
6. Turn the No. 1 carburetor pilot screw in until it seats lightly, recording the number of turns.
7. Turn the No. 2 carburetor pilot screw in until the engine speed drops 50 min^{-1} (50 rpm).
3. Turn the No. 2 carburetor pilot screw 1/2 turn out from the position obtained in Step 7.
9. Perform Steps 7 and 8 for the No. 3, 4, 5 and 6 carburetor pilot screws.
10. Turn the No. 1 pilot screw out to its original opening.
11. Turn the No. 6 pilot screw in until it seats lightly, recording the number of turns.
12. Perform Steps 7 and 8 for the No. 5, 4, 3, 2 and 1 carburetor pilot screws.
13. Turn the No. 6 pilot screw out to its original opening.
14. Adjust the idle speed with the throttle stop screw.



FUEL TANK

WARNING

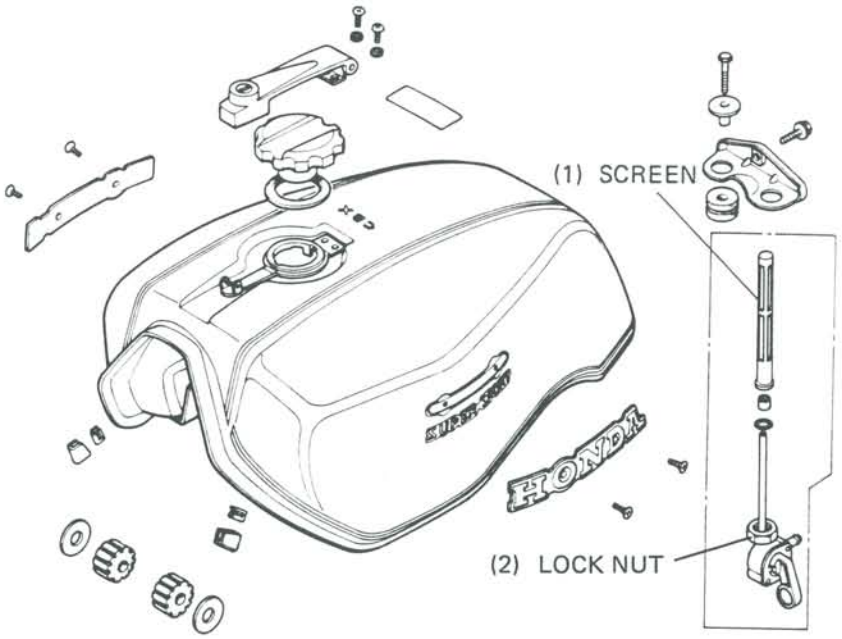
Do not allow flames or sparks near gasoline. Wipe up spilled gasoline at once.

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.

