

# Fuel System

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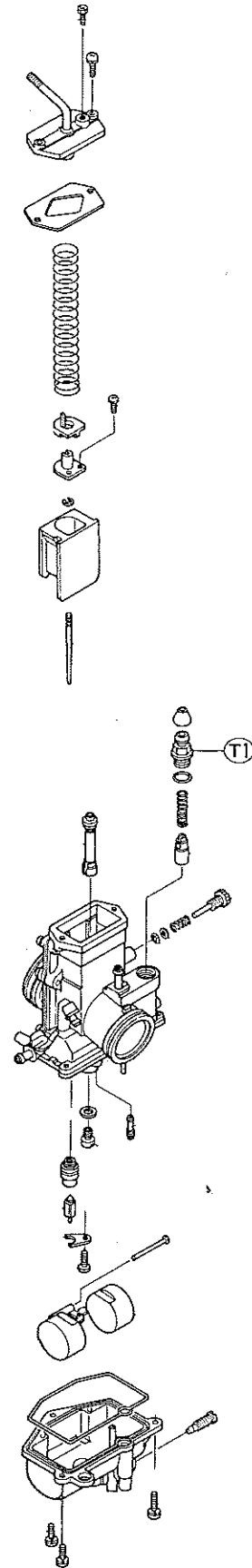
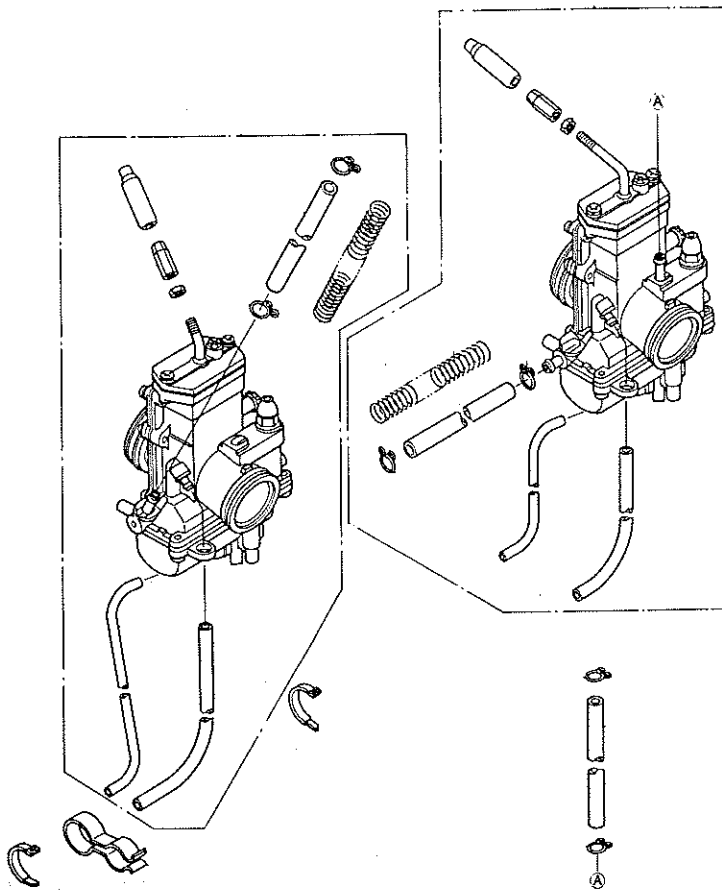
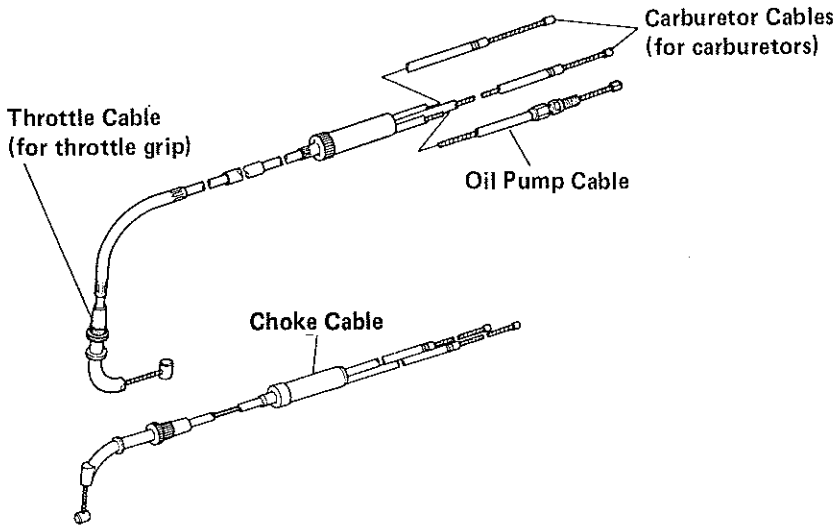
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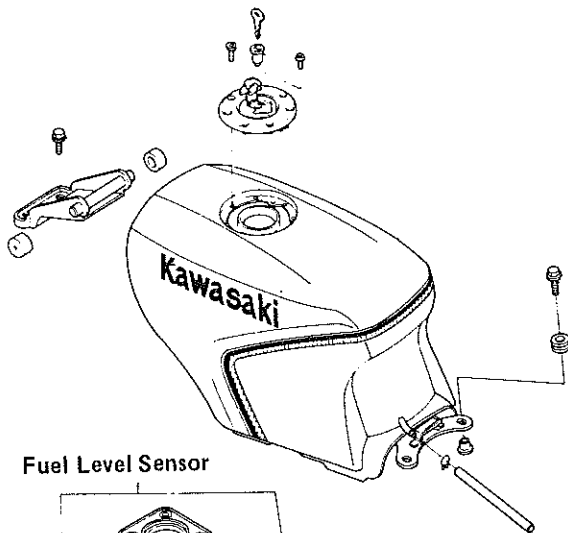
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## 2-2 FUEL SYSTEM

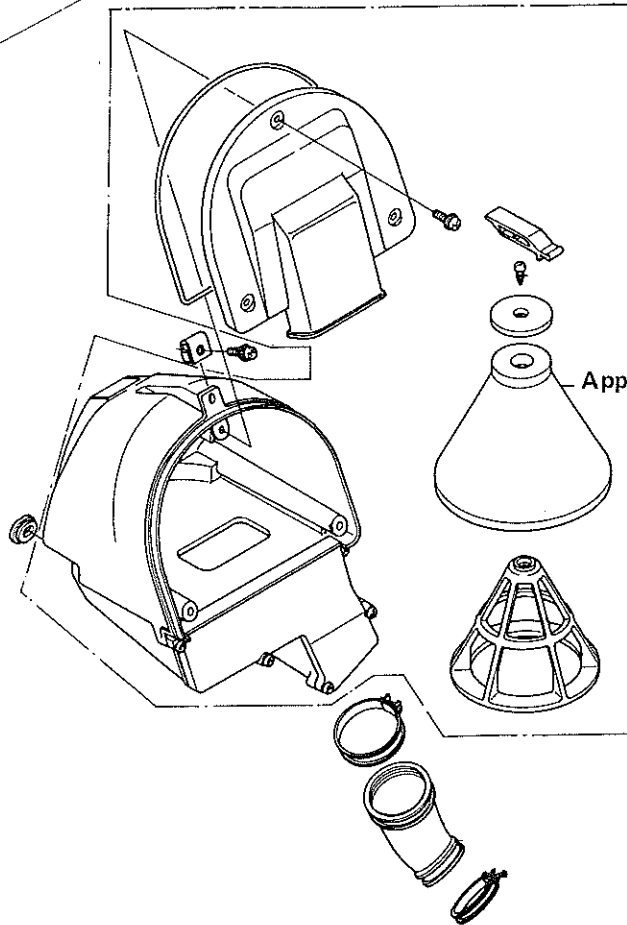
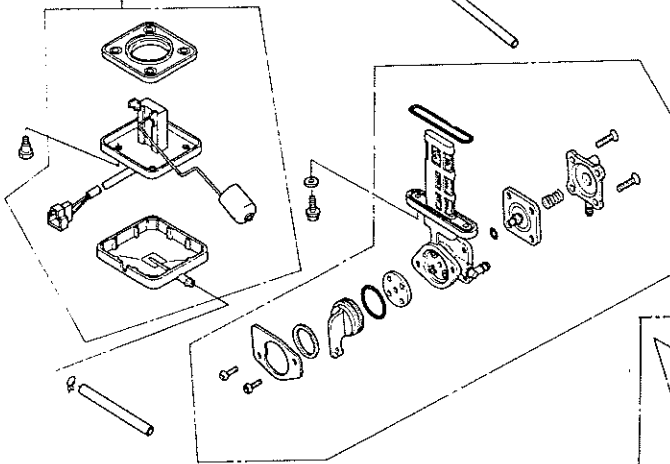
### Exploded View

T1: 2.5 N-m (0.25 kg-m, 22 in-lb)



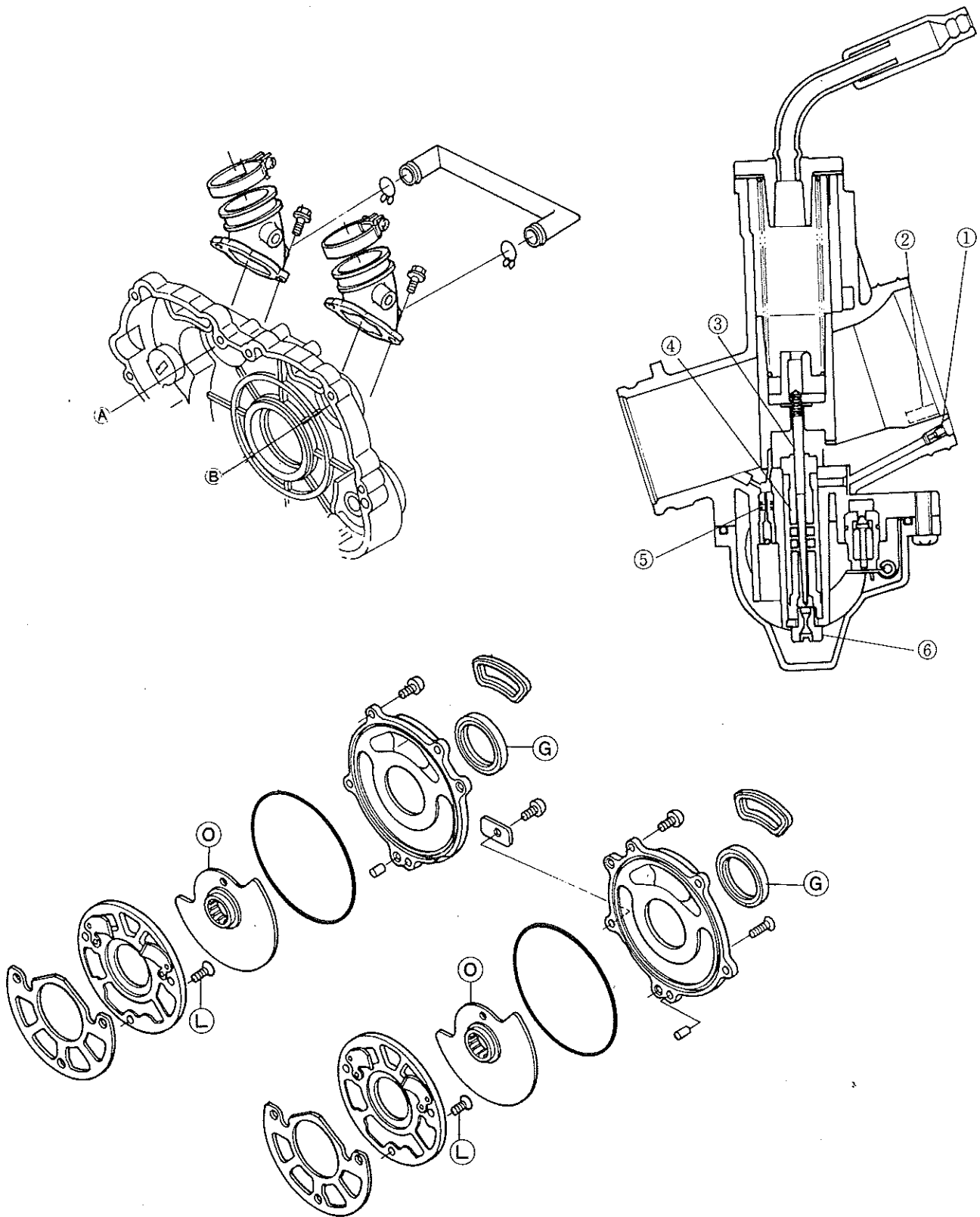


Fuel Level Sensor



Apply engine oil

## 2-4 FUEL SYSTEM



**G** : Apply a high temperature grease to the internal surface.

**L** : Apply a non-permanent locking agent to the threads.

**O** : Apply engine oil to both sides.

1. Main Air Jet
2. Pilot Air Jet
3. Jet Needle
4. Needle Jet
5. Pilot Jet
6. Main Jet

.....  
**Specifications**  
 .....

**Throttle Grip Free Play**

Standard: 2 – 3 mm

**Choke Cable Free Play**

Standard: 2 – 3 mm

**Carburetor Specifications**

Make/Type	Mikuni/VM28SS
Main Jet	137.5
Option Main Jet	132.5, 135, 140, 142.5
Main Air Jet	(1.5)
Needle Jet	0 – 6
Jet Needle	5DH2-4
Jet Needle Clip Position	4
Pilot Jet	35
Starter Jet	70
Service Fuel Level	4 ±1 mm
Float Height	21 ±2 mm

**Idle Speed**

Standard: 1,300 ±100 r/m (rpm)

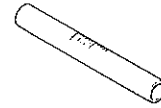
**Air Cleaner Element Oil**

Grade: SE class  
 Viscosity: SAE30

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**Special Tools**  
 .....

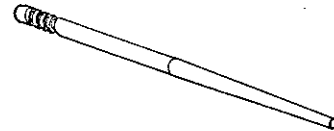
Along with common hand tools, the following more specialized tools are required for complete fuel system servicing.

Fuel Level Gauge: 57001-1017



Needles (2 sets)

Jet needle: 16009-1051  
 Circlip: 16008-010



.....  
**Throttle Grip and Cables**  
 .....

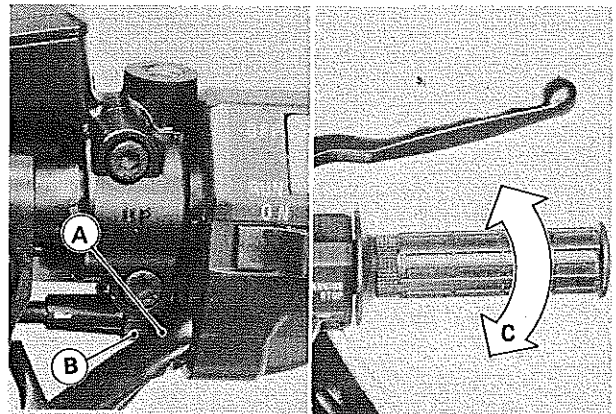
The throttle grip controls the throttle valves and oil pump. If the throttle grip has excessive play due to either cable stretch or maladjustment, it will cause a delay in throttle response, especially at low engine speed and upset the oil pump synchronization. Also, the throttle valve may not open fully at full throttle. On the other hand, the throttle grip has no play, the throttle will be hard to control, and the idle speed will be hard erratic.

*Throttle Grip Play Inspection*

- Check throttle grip free play.
- ★If free play is not correct, adjust the throttle cable.

**Throttle Grip Free Play**

2 – 3 mm



A. Locknut  
 B. Adjusting Nut

C. Throttle Grip Free Play

## 2-6 FUEL SYSTEM

- ★If the free play is correct, make the following test:
  - Start the engine.
  - Turn the handlebar from side to side while idling the engine.
- ★If idle speed varies, the throttle control cable may be poorly routed or it may be damaged.
- Correct any problem before operating the motorcycle.

### WARNING

- Operation with an improperly adjusted, incorrectly routed, or damaged cable could result in an unsafe riding condition.

### Throttle Grip Play Adjustment

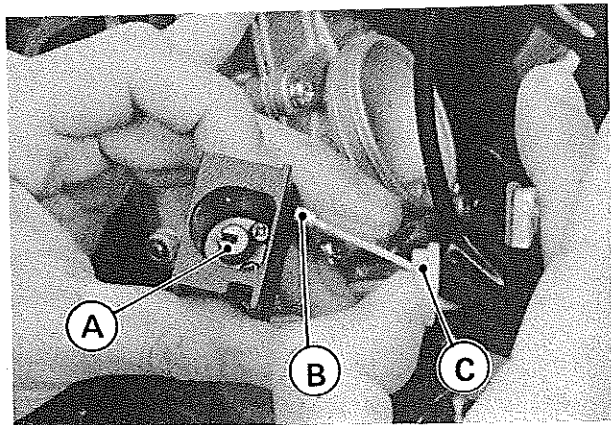
#### NOTE

Off throttle grip play is adjusted, check the oil pump.

- Loosen the locknut at the upper end of the throttle control cable.
- Turn the adjuster until throttle grip free play is correct. Turning the adjusting nut OUT (lengthening the adjusting nut) will reduce play.
- Tighten the locknut.
- Start the engine.
- Turn the handlebar from side to side while idling the engine.
- ★If idle speed varies, the cable may be poorly routed or it may be damaged.
- Correct any problem before operating the motorcycle.

### Throttle Control Cable Removal Note

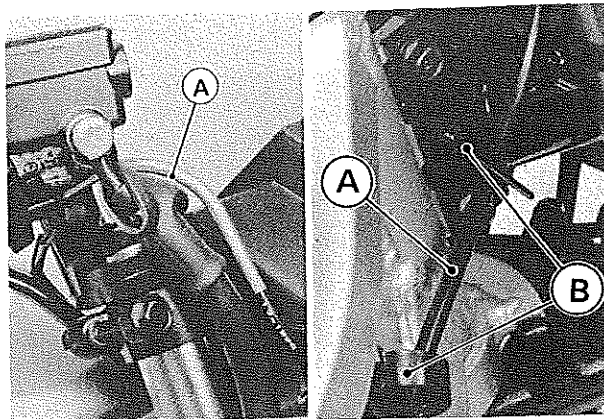
- Remove each carburetor cap.
- Lift up each throttle valve with the needle and spring installed.
- Pull off each plastic cable retainer.
- Slip the carburetor cable ends out of the cable hooks.



A. Cable Hook  
B. Cable End  
C. Retainer

### Throttle Control Cable Installation Note

- Run the cable into the clamps on the headpipe right side.



A. Throttle Cable

B. Clamps

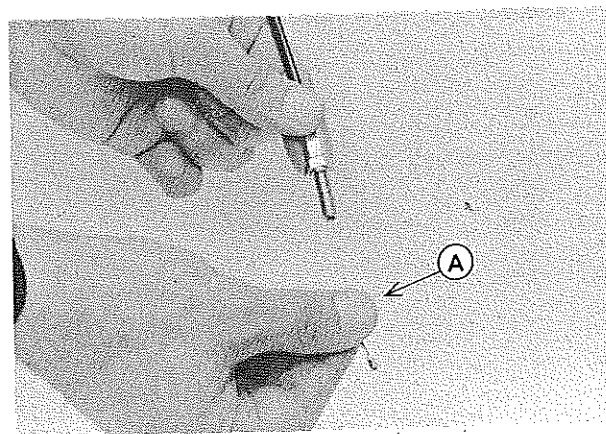
### WARNING

- Operation with an improperly adjusted, incorrectly routed, or damaged cable could result in an unsafe riding condition.

### Throttle Control Cable Lubrication

Whenever the cable is removed, and in accordance with the Periodic Maintenance Chart (see General Information chapter), perform the following.

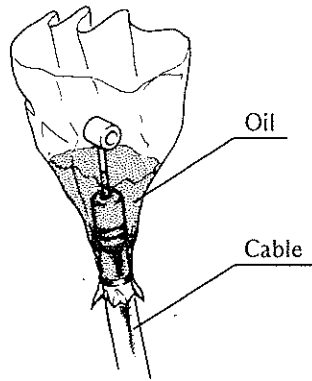
- Apply a thin coating of grease to the cable lower end.



A. Apply grease.

- Lubricate the cable by seeping the oil between the cable and cable housing.

**Cable Lubrication**



★If free play is not correct, adjust the choke cable.

**Choke Cable Free Play**

2 – 3 mm

**Choke Cable Adjustment**

- Loosen the locknut at the adjusting nut of the choke cable, and turn the adjusting nut until the cable has the proper amount of play.
- Tighten the locknut after adjustment.

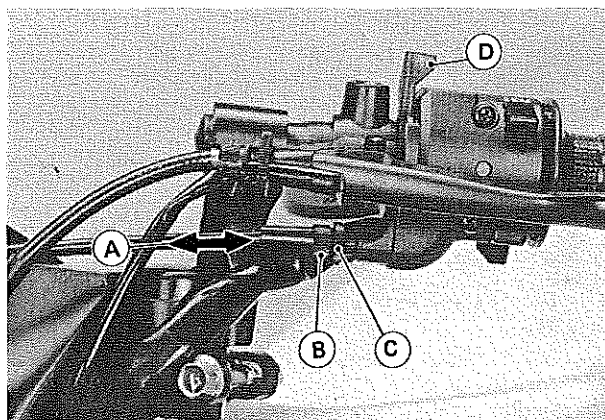
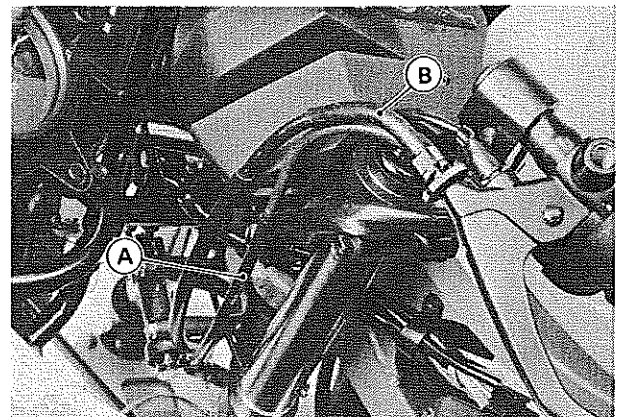
**Throttle Control Cable Inspection**

- With the throttle cable disconnected at both ends, the cable should move freely within the cable housing.

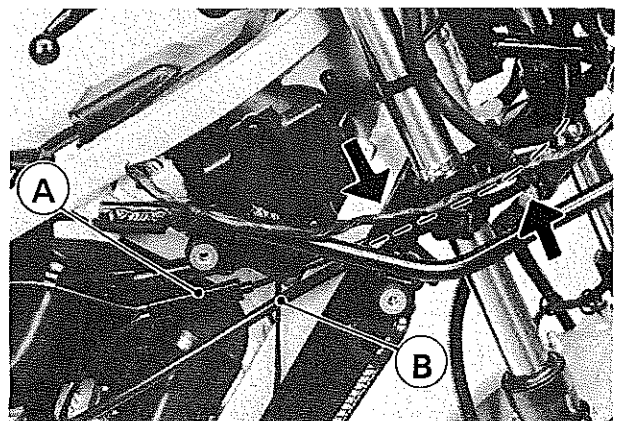
.....  
**Choke Cable**  
.....

**Choke Cable Free Play Inspection**

- Check that the choke lever returns properly and that the inner cable slides smoothly.
- ★If there is any irregularity, check the choke cable as following:
  - Push the choke lever back all the way to its released position.
  - Determine the amount of choke cable play at the adjusting nut of the choke cable. Pull out and push in the cable housing; the amount of cable travel is the amount of cable free play.



A. Play                                      C. Locknut  
B. Adjusting Nut                          D. Choke Lever



A. Choke Cable                              B. Clutch Cable

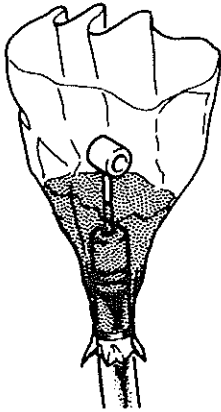
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### Choke Cable Lubrication

Whenever the choke cable is removed, lubricate the choke cable as follows.

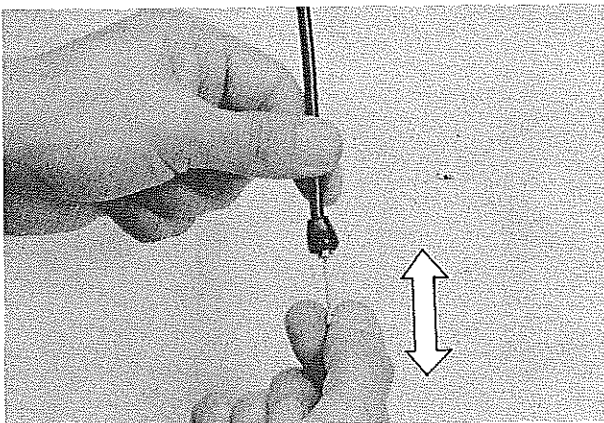
- Lubricate the choke cable by seeping the oil between the cable and cable housing.

### Cable Lubrication



### Choke Cable Inspection

- With the choke cable disconnected at the both ends, the cable should move freely within the cable housing.

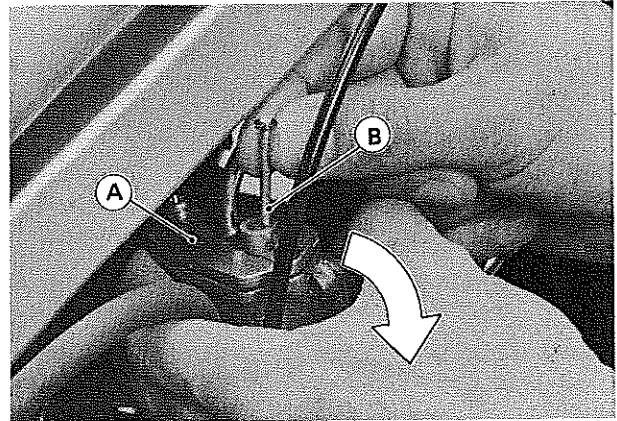


★If cable movement is not free after lubricating (see Choke Cable Lubrication), if the cable is frayed, or if the housing is kinked, replace the cable.

## Carburetors

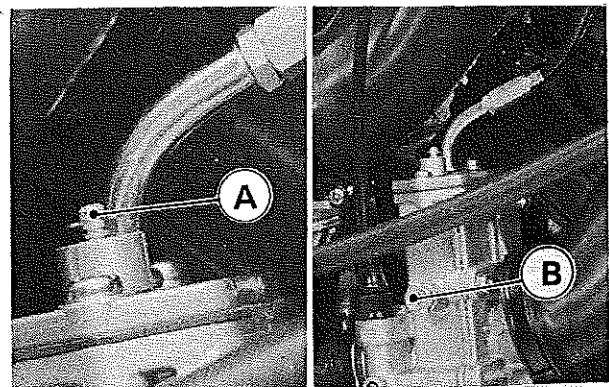
### Throttle Valve Idle Opening Adjustment

- Adjust the throttle stop screw with the engine stopped in the following manner
- Remove the carburetor cap plugs and insert a needle (special tool) into each cap hole.
- With the rear carburetor installed, the needle may be inserted by twisting the carburetor a little outward.



A. Rear Carburetor      B. Needle

- Loosen the locknut at the upper end of the throttle cable.
- Screw in the adjusting nut to give the throttle grip ample play.
- With the throttle grip fully closed, turn each throttle stop screw in until each throttle valve bottoms out.

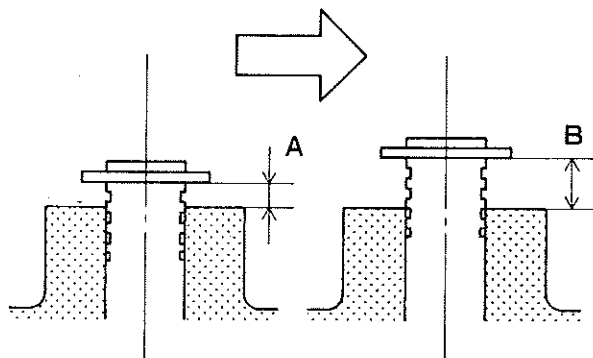


A. Needle:  
Jet Needle : 16009-1051  
Circlip : 16008-010  
B. Throttle Stop Screw



- Measure each needle circlip height from the cap by inserting the thickness gauge.
- Turn each throttle stop screw in until each needle sticks 1.2 mm further out from the valve closed position as shown. This presets the throttle valve opening at idle.

**Throttle Valve Idle Opening**



A : Valve Closed Position  
 B : Adjusted Position  
 B - A = 1.2 mm

**NOTE**

- When measuring the needle height with a thickness gauge, hold the needle lightly to suppress needle movement.
- When the engine is broken in completely, reduce the throttle valve idle-opening.

**Throttle Valve Idle Opening**

1.2 mm for new engine  
 1.1 mm for engine broken in

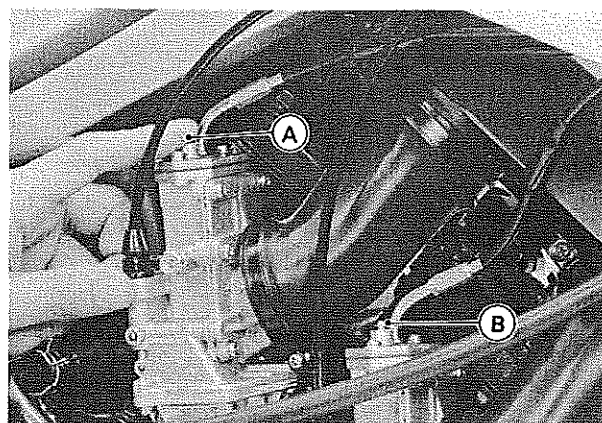
**Carburetor Synchronization**

Carburetor synchronization is an important part of idle adjustment.

- Check to see that both needles start rising together with a slight motion of the throttle grip.

**NOTE**

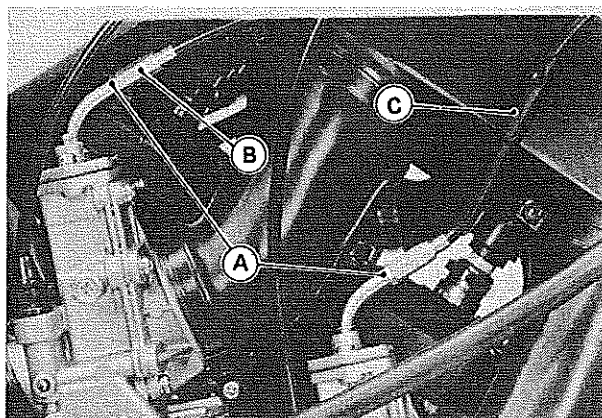
- Hold one of the needle top with finger pressure, and watch the other while turning the throttle grip gradually. This makes it easy to check the synchronization.



- A. Hold the needle top with finger pressure.
- B. Watch the needle movement

★ If the carburetor cables are maladjusted, adjust the cables as follows.

- (1) Screw in the rear cable adjuster fully after loosening the locknut. The adjuster cover is easily slipped off by applying a soap and water solution.



- A. Locknuts
- B. Rear Cable Adjuster
- C. Covers

- (2) Adjust the front cable adjuster so that both needles start moving together.
- (3) Tighten the locknut after adjustment.

- Adjust the throttle grip play.

**NOTE**

- If the throttle grip play cannot be adjusted with the adjusting nut at the grip, turn in the front and rear carburetor adjusters evenly. Then, check the carburetor synchronization and adjust them if necessary.

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- Check the oil pump (see Carburetor and Oil Pump Synchronization in Engine Lubrication chapter).
- Pull out the needles and tighten the cap plugs.

### Idle Speed Inspection

- Start the engine and warm it up thoroughly.
- With the engine idling, turn the handlebar to both sides.
- ★ If handlebar movement changes the idle speed, the throttle cable may be improperly adjusted or incorrectly routed, or it may be damaged. Be sure to correct any of these conditions before riding.

### WARNING

○ Operation with improperly adjusted, incorrectly routed, or a damaged cable could result in an unsafe riding condition.

- Check idle speed.
- ★ If the idle speed is correct, slide back the dust covers.

### Idle Speed

1,300 ± 100 r/min (rpm)

- ★ If the idle speed is out of the specified range, adjust it as following.

### Idle Speed Adjustment

- Stop the engine.
- Readjust the throttle valve idle opening.
- ★ If the idle speed is lower than the specified range, set the valve opening larger than the specification. In the opposite case, set the opening smaller.
- Be sure to equalize the front and rear valve idle-openings.
- Check the carburetor synchronization.
- Check the oil pump synchronization.
- Open and close the throttles a few times to make sure that the idle speed is within the specified range. Readjust if necessary.

### Fuel Level Inspection

### WARNING

○ Gasoline is extremely flammable and can be explosive under certain conditions. Turn the ignition switch OFF. Do not smoke. Make sure the area is well ventilated and free from any source of flame or sparks; this includes any appliance with a pilot light.

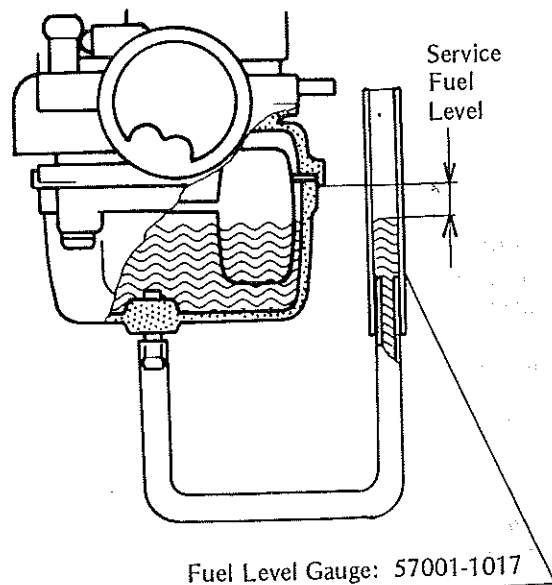
- Remove the carburetors, and hold them in true vertical position on a stand.
- Put the fuel tank on a bench, and connect the fuel tap to the carburetors using a suitable hose.
- Prepare a rubber hose (6 mm in diameter and about 300 mm long).
- Connect fuel level gauge 57001-1017 to the carburetor float bowl with the rubber hose.
- Hold the gauge vertically against the side of the carburetor body so that the "zero" line is several millimeters higher than the bottom edge of the carburetor body.
- Turn the fuel tap to the PRI position to feed fuel to the carburetor, then turn out the carburetor drain plug a few turns.
- Wait until the fuel level in the gauge settles.
- Keeping the gauge vertical, slowly lower the gauge until the "zero" line is even with the bottom edge of the carburetor body.

### NOTE

○ Do not lower the "zero" line below the bottom edge of the carburetor body. If the gauge is lowered and then raised again, the fuel level measure shows somewhat higher than the actual fuel level. If the gauge is lowered too far, dump the fuel out of it into suitable container and start the procedure over again.

- Read the fuel level in the gauge and compare it to the specification.
- Screw in the carburetor drain plug.
- Turn the fuel tap to the ON position and remove the fuel level gauge.
- Inspect the fuel level in the another carburetors in the same manner.
- ★ If the fuel level is incorrect, adjust it (see Fuel Level Adjustment).

### Service Fuel Level



**Fuel level**

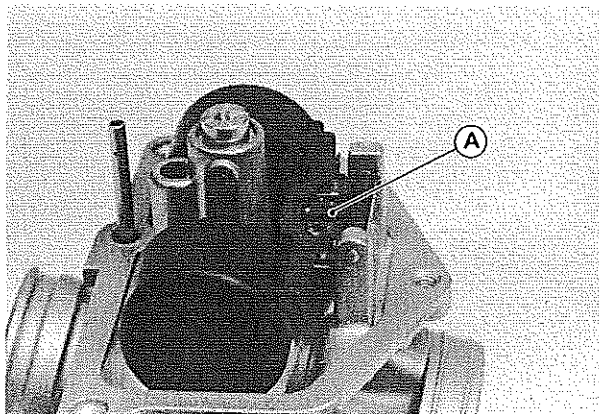
4.0 ±1 mm below the bottom edge of carburetor body

*Fuel Level Adjustment*

- Read the WARNING in the Fuel Level Inspection.
- Drain fuel from the carburetors into a suitable container.
- Remove the float bowl by taking out the screws with lockwashers.
- Bend the tang on the float arm very slightly to change the float height. Increasing the float height lowers the fuel level and decreasing the float height raises the fuel level.

**Float Height**

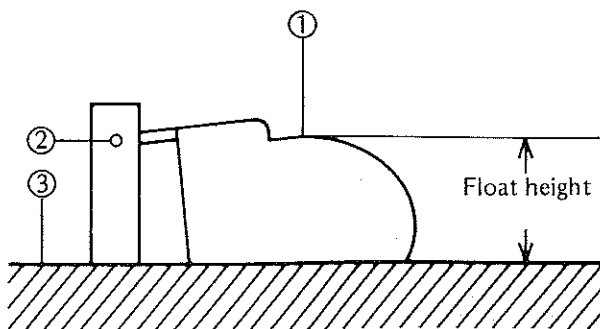
21.0 ±2.0 mm



A. Tang

- Assemble the carburetor, and recheck the fuel level.
- ★If the fuel level cannot be adjusted by this method, the float or the float valve is damaged.

**Float Height Measurement**



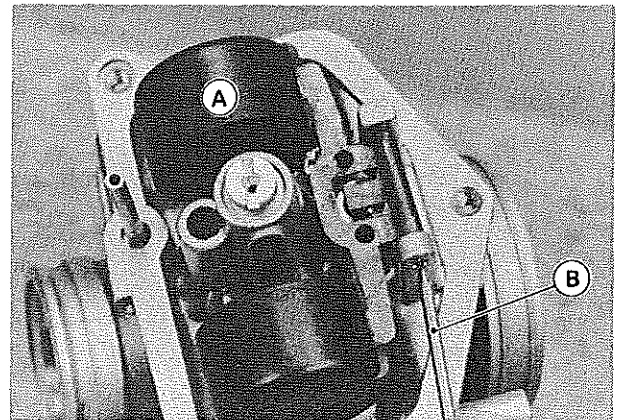
1. Float
2. Pivot pin
3. Float bowl mating surface

**NOTE**

○Float height is the distance from the float bowl mating surface of the carburetor body (with the gasket removed) to the top of the float. Measure the height with the carburetor upside down.

*Float Removal*

- Drive out the pivot pin and remove the float.



A. Pivot Pin

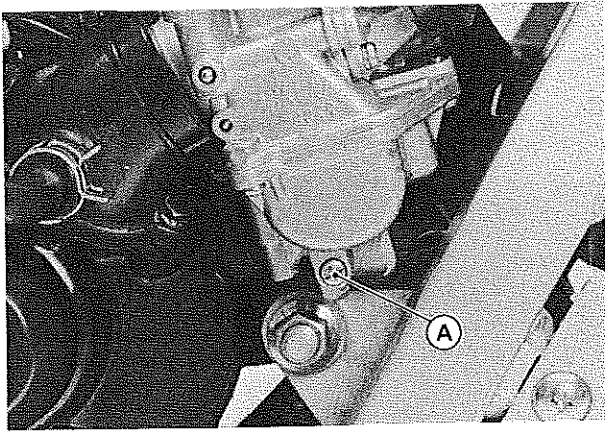
B. Drive out the pin

*Fuel System Cleanliness Inspection*

**WARNING**

- Gasoline is extremely flammable and can be explosive under certain conditions. Turn the ignition switch OFF. Do not smoke. Make sure the area is well ventilated and free from any source of flame or sparks; this includes any appliance with a pilot light.
- Make sure the engine is cold before working. Wipe any fuel off the engine before starting it.
- Turn the fuel tap to the PRI to drain the fuel into the suitable container.
- Turn out each drain plug a few turns and drain the carburetors, and check to see if water or dirt comes out.
- ★If any water or dirt comes out, clean the carburetors and the fuel tank.
- Tighten the drain plugs securely.

## 2-12 FUEL SYSTEM



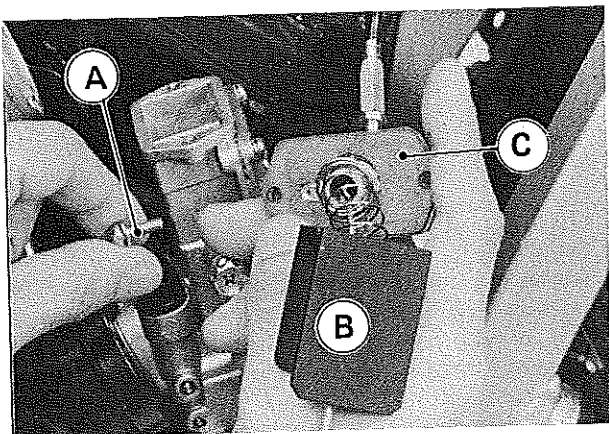
A. Drain Plugs

### Carburetor Removal

#### WARNING

Gasoline is extremely flammable and can be explosive under certain conditions. Turn the ignition switch OFF. Do not smoke. Make sure the area is well ventilated and free from any source of flame or sparks; this includes any appliance with a pilot light.

- Remove the carburetor cap.
- Lift up the throttle valve with the needle and spring installed.



A. Cap Mounting Screws      C. Cap  
B. Throttle Valves

- Turn the fuel tap to the ON or RES position to stop fuel flow and pull the fuel hoses off the tap.
- Loosen the clamps and remove the ducts.
- Remove the carburetors.

- After removing the carburetors, stuff pieces of lint-free, clean cloths into the carburetor holders and the intake ducts to keep the dirt out of the engine and air cleaner.

#### WARNING

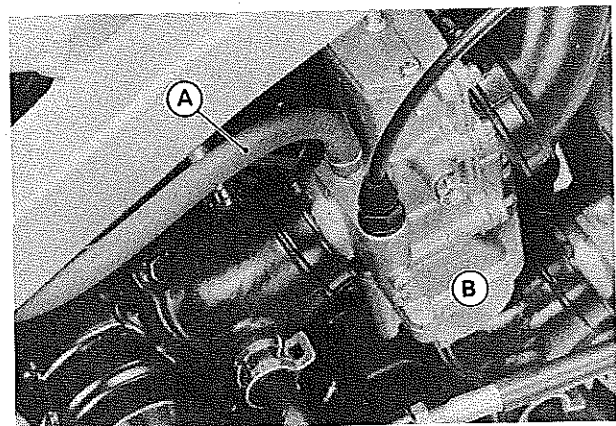
- If dirt or dust is allowed to pass through into the carburetors, the throttle may become stuck, possibly causing an accident.

#### CAUTION

- If dirt gets through into the engine, excessive engine wear and possibly engine damage will occur.
- If the throttle valves are not removed from the cables, wrap clean cloths around the throttle valves to avoid damaging to them.

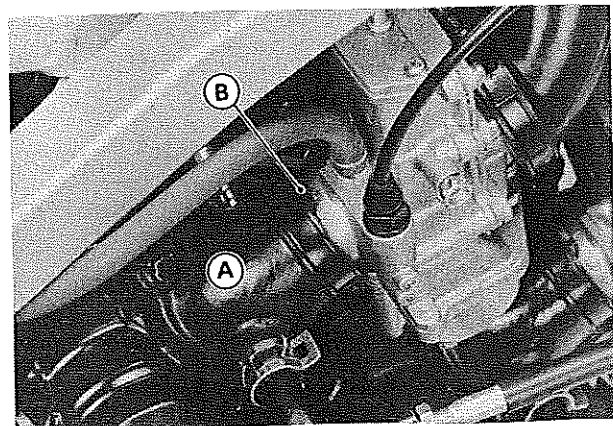
### Carburetor Installation Notes

- The rear carburetor has a vacuum hose to the fuel tap.



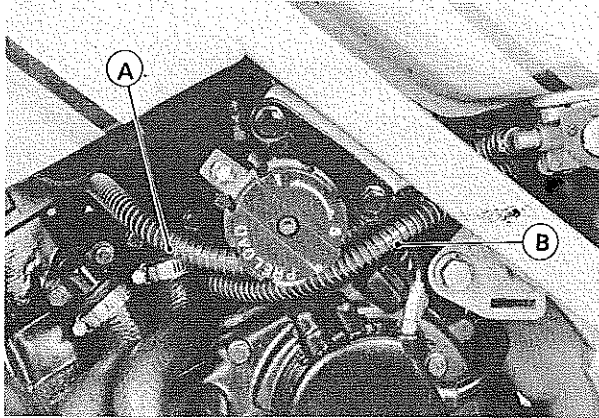
A. Vacuum Hose      B. Rear Carburetor

- Fit the ridge into the notch on the carburetor holders.



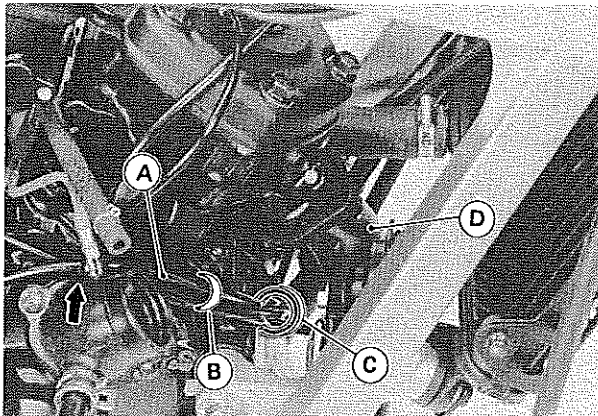
A. Holder      B. Ridge

- Route the fuel hoses between the cylinders.

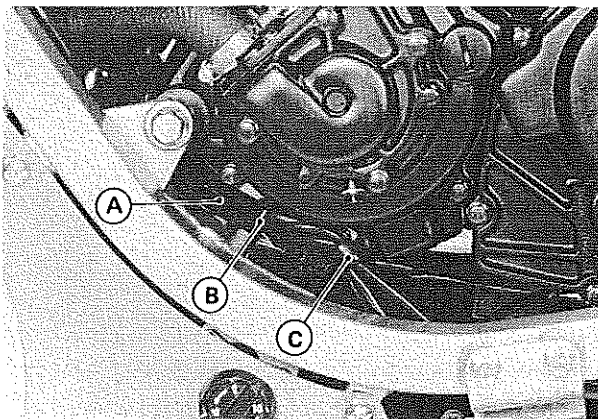


A. Upper Fuel Hose for front  
B. Lower Fuel Hose for rear

- Route the carburetor vent tubes, overflow tubes, and the crankcase breather tube into the clamps, then bind them with the bands.



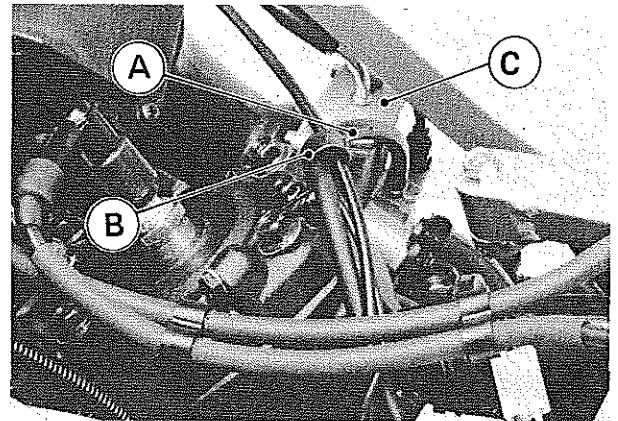
A. Tubes  
B. Bands  
C. Clamp  
D. Muffler



**CAUTION**

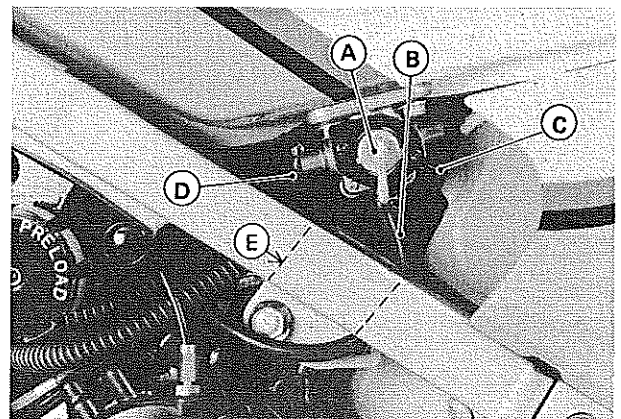
- Be sure to route and bind the tubes as shown to avoid their being burned by the muffler.
- Keep the tubes free of obstruction, and make sure they do not get pinched by the bands or clamps.

- Run the vacuum hose and the oil pump cable into the cylinder head clamp. After running it under the frame crosspipe, put the hose onto the fuel tap.



A. Vacuum Hose  
B. Clamp  
C. Rear Carburetor

- Install each hose to the fuel tap as shown.

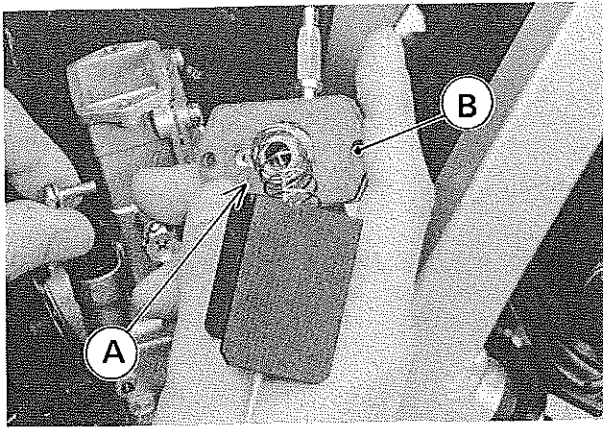


A. Fuel Tap  
B. Vacuum Hose  
C. Fuel Hose for rear  
D. Fuel Hose for front  
E. Crosspipe

- Install each cap gasket so that it meets with the cap hole.



## 2-14 FUEL SYSTEM



A. Hole

B. Gasket

- Install the ducts.
- After installing the carburetors, perform the following.
- Check fuel leakage from the carburetors.

### WARNING

- Fuel spilled from the carburetors is hazardous.
- Adjust the following item.
  - Idle speed
  - Throttle cable
  - Choke cable
  - Oil pump cable

### Carburetor Cleaning

#### WARNING

- Clean the carburetors in a well-ventilated area, and take care that there is no spark or flame anywhere near the working area; this includes any appliance with a pilot light. Because of the danger of highly flammable liquids, do not use gasoline or low flash-point solvents to clean the carburetors.

#### CAUTION

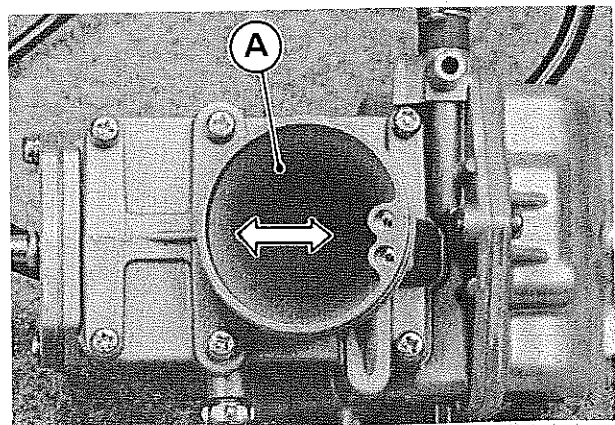
- Do not use compressed air on an assembled carburetor, the float lever may be deformed by the pressure
- Remove as many rubber or plastic parts from the carburetor as possible before cleaning the carburetor with a cleaning solution. This will prevent damage or deterioration of the parts.
- DO NOT use a strong carburetor cleaning solution which could attack the plastic parts; instead, use a mild high flash-point cleaning solution safe for plastic parts.
- Do not use wire or any other hard instrument to clean carburetor parts, especially jets, as they may be damaged.

- Disassemble the carburetor.
- Immerse all the metal parts in a carburetor cleaning solution.
- Rinse the parts in water.
- When the parts are clean, dry them with compressed air.
- Blow through the air and fuel passages with compressed air.
- Assemble the carburetor.

### Carburetor Inspection

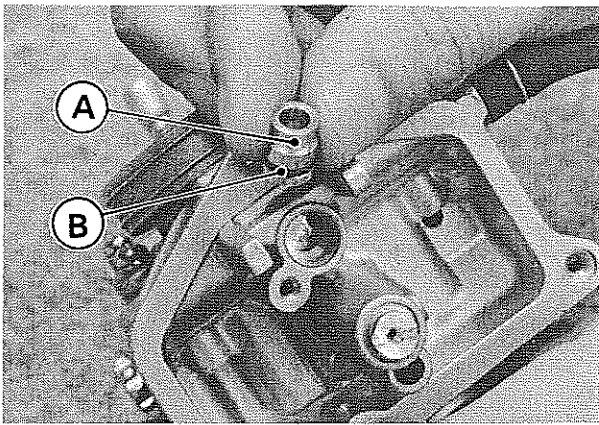
#### WARNING

- Gasoline is extremely flammable and can be explosive under certain conditions. Turn the ignition switch OFF. Do not smoke. Make sure the area is well ventilated and free from any source of flame or sparks; this includes any appliance with a pilot light.
- Remove the carburetor.
- Before disassembling the carburetor, check the fuel level (see Fuel Level Inspection).
- ★ If the fuel level is incorrect, inspect the rest of the carburetor before correcting it.
- Pull the carburetor cable to check that the throttle valve moves smoothly and return back with the spring tension.
- ★ If the throttle valve does not move smoothly. Replace the carburetor.



A. Throttle Valve

- Disassemble the carburetors.
- Clean the carburetor and check the parts as follows.
- Remove the float valve needle.
- Pull out the float valve seat.

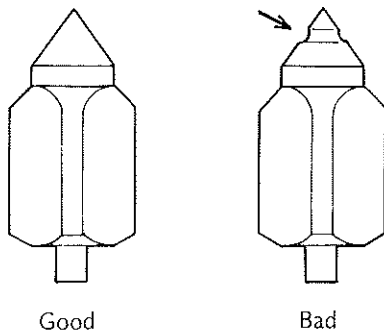


A. Valve Seat

B. O-Ring

- Check the float valve needle and valve seat for wear.
- ★ If the needle is worn as shown in the figure or the seat is worn, replace the valve needle and valve seat as a set.

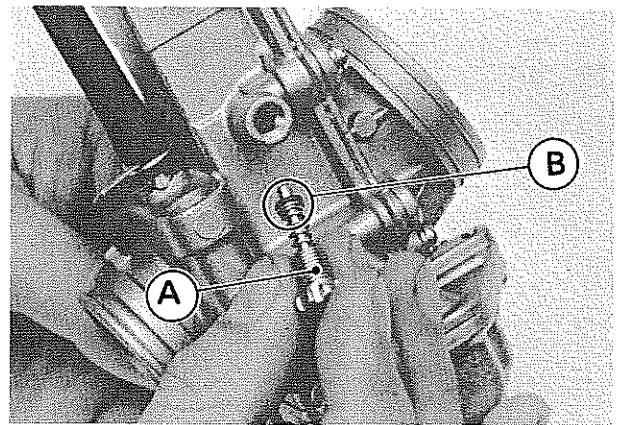
**Valve Needle Wear**



Good

Bad

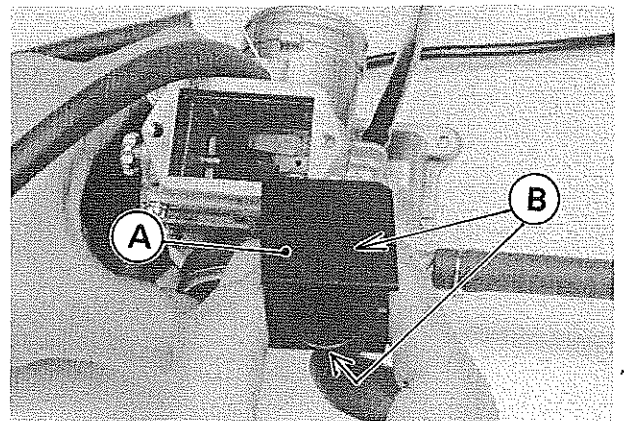
- Push the rod in the valve needle, then release it.
- ★ If the rod does not spring out, replace the valve needle and valve seat as a set.
- Check the O-ring on the float valve seat for damage.
- ★ If the O-ring is damaged, replace the O-ring and the float valve as a set.
- Check the throttle stop screw O-ring for damage.
- ★ If the O-ring is damaged, replace it.



A. Throttle Stop Screw

B. O-Ring

- Check the pilot jet for any damage.
- ★ If the pilot jet is damaged, replace it with new one.
- Remove the throttle valve and jet needle.
- Inspect the outside of the throttle valve for scratches and abnormal wear.
- ★ If the valve is badly scratched or worn, replace it.
- Inspect the inside of the carburetor body for these same faults.
- If it is badly scratched or worn, replace the entire carburetor.

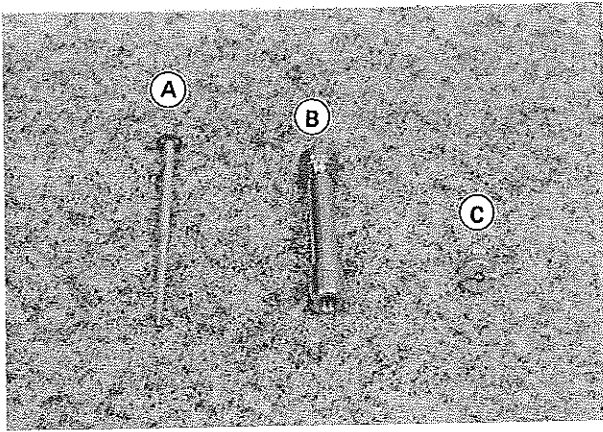


A. Throttle Valve

B. Sliding Surface

- Remove the main jet, and then press out the needle jet using a suitable bar ( $\phi 8$  mm).
- Check the jet needle and needle jet for wear.
- ★ A worn needle jet or jet needle should be replaced.

## 2-16 FUEL SYSTEM



A. Jet Needle  
B. Needle Jet

C. Main Jet

- Disassemble the carburetor, and clean the fuel and air passages with a high flash-point solvent and compressed air.

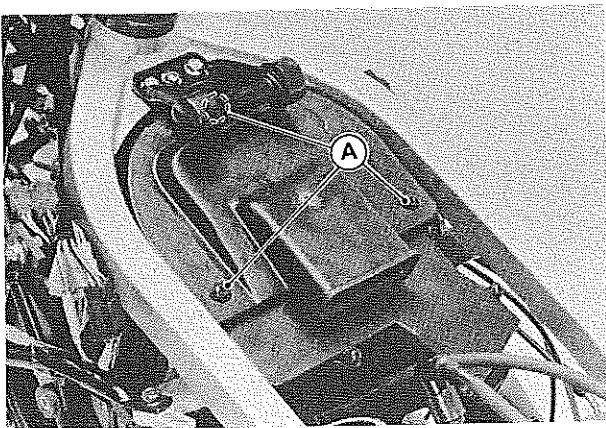
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### Air Cleaner

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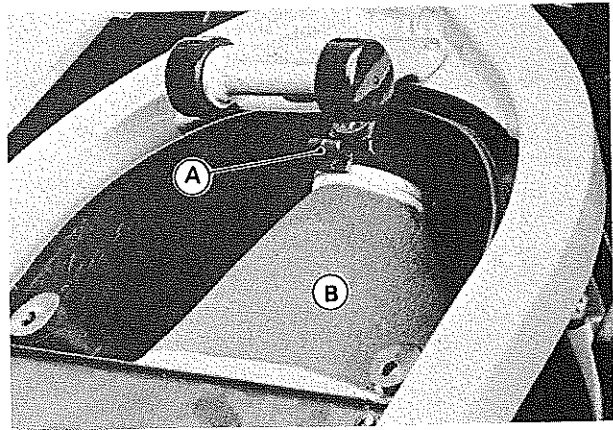
#### *Air Cleaner Element Removal*

- Remove the fuel tank.
- Remove the air cleaner cover by taking out the screws.



A. Screws

- Pull out the air cleaner element holder, and take off the element.



A. Element Holder

B. Element

- Push a clean, lint-free towel into the air cleaner housing to keep dirt or other foreign material from entering.

#### WARNING

- If dirt or dust is allowed to pass through into the carburetors, the throttle valves may become stuck, possibly causing an accident.

#### CAUTION

- If dirt gets through into the engine, excessive engine wear and possibly engine damage will occur.

#### *Air Cleaner Element Installation*

- Element installation is the reverse of removal. Note the following.
- While pushing down the element against the opening to the ducts, insert the element holder completely with the chamfer facing downward.
- The element holder should be easily installed.



A. Chamfer

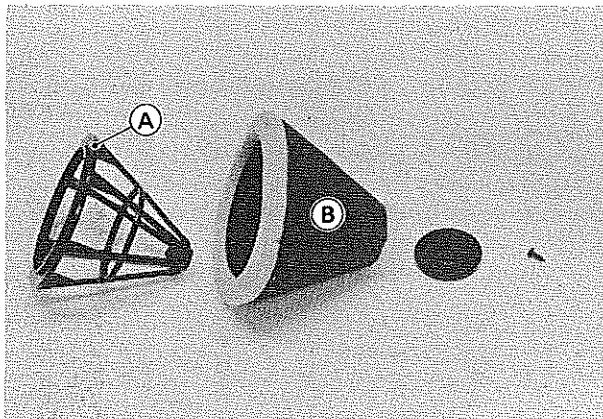


*Element Inspection and Cleaning*

**NOTE**

- In dusty areas, the element should be cleaned more frequently than the recommended interval.
- After riding through rain or on muddy roads, the element should be cleaned immediately.

- Remove the air cleaner.
- Disassemble the element and inspect the element parts for damage.
- The damaged part must be replaced or it will allow dirt into the carburetors.



A. Frame

B. Filter

**WARNING**

- Clean the element in a well-ventilated area, and take care that there is no spark or flame near the working area. Because of the danger of highly flammable liquids, do not use gasoline or low flashpoint solvents to clean the element.

- Clean the element in a bath of a high flash-point solvent, and then dry it with compressed air or by shaking it.
- After cleaning, saturate the sponge filter with SE class SAE 30 oil, squeeze out the excess, then wrap it in a clean rag and squeeze it dry as possible. Be careful not to tear the sponge filter.

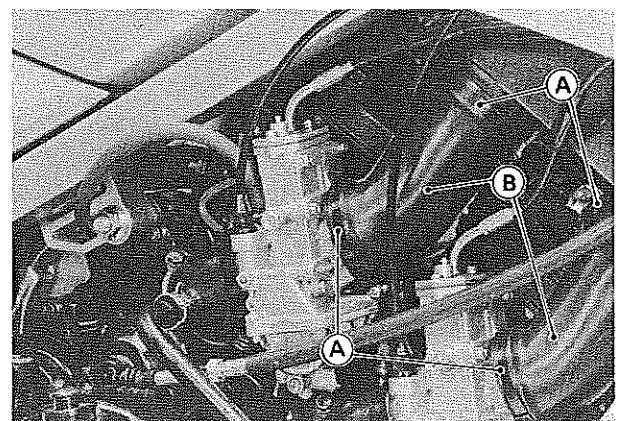


A. Filter

- Assemble the element.
- Install the element.

*Air Cleaner Housing Removal*

- Remove the fuel tank.
- Remove the air cleaner ducts by loosening the lower and upper clamps.

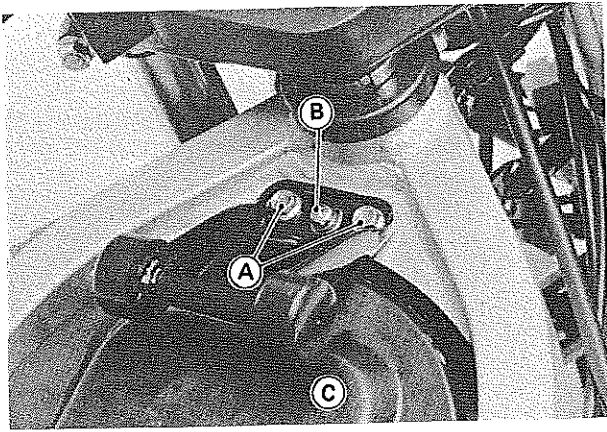


A. Clamps

B. Ducts

- Remove the bracket bolts, tank bracket, and then the housing mount screws.

## 2-18 FUEL SYSTEM

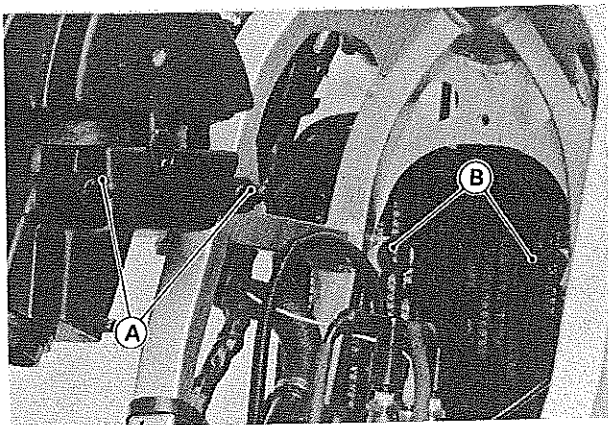


A. Bracket and Bolt  
B. Screw  
C. Air Cleaner Housing

- Take the housing off.

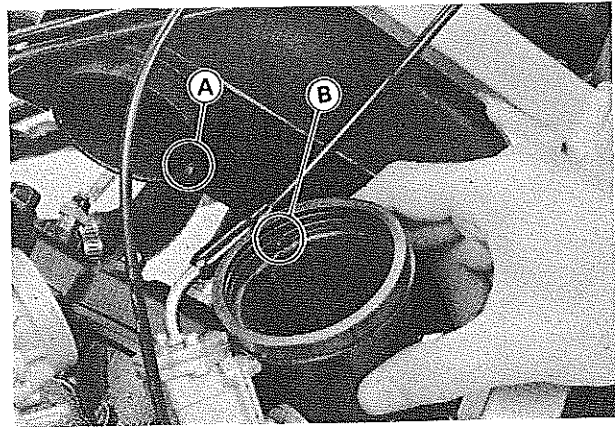
### *Air Cleaner Housing Installation*

- While fitting the housing projections into the dampers, mount the air cleaner housing on the frame.



A. Projection  
B. Damper

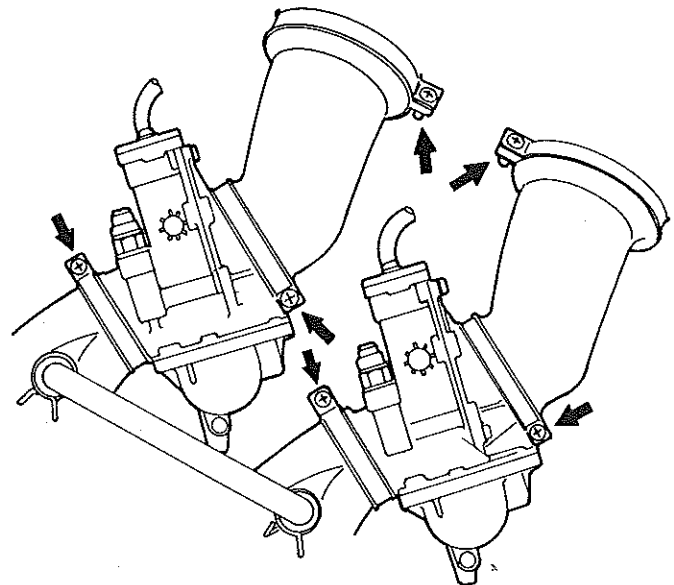
- Install the tank bracket and tighten the bolts and the screw.
- Fit the duct projection onto the housing outlet recess.
- These two ducts are identical.



A. Housing Outlet Recess B. Duct Projection

- Insert the ducts onto the carburetor outlets being careful of the clamp screw positions.
- Tighten the clamp screws.

### Clamp Screw Position



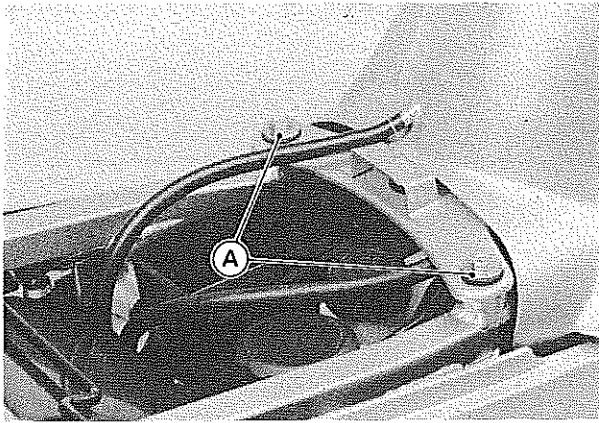

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### Fuel Tank

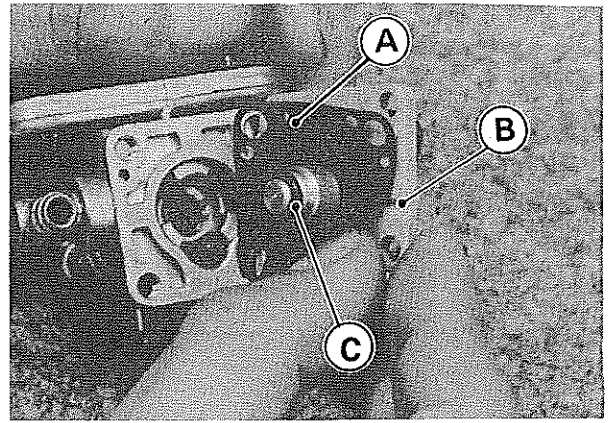
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#### *Fuel Tank Removal*

- Remove the seat and both side covers.
- Remove the bolts from the rear end of the tank.



A. Bolts



A. Diaphragm Plate B. Groove C. O-ring

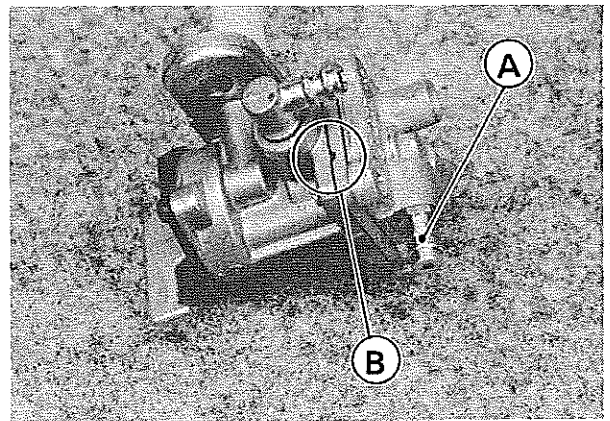
- Turn the fuel tap to the ON position to stop the fuel flow.
- Pull the hoses off the tank and tap.

**WARNING**

○ Gasoline is extremely flammable and can be explosive under certain conditions. Turn the engine stop switch OFF. Do not smoke. Make sure the area is well ventilated and free from any source of flame or sparks; this includes any appliance with a pilot light.

- Tilt the tank out the rear of the frame.
- Disconnect the fuel level sensor leads.
- Drain the fuel tank.
- Arrange a suitable container under the fuel tank.
- Turn the fuel tap PRI to drain the fuel into the container.

- Orient the diaphragm plate and cover so that the groove and vacuum hose fitting come to the positions.



A. Vacuum hose fitting B. Groove

*Fuel Tap Installation Note*

- Be sure the O-ring is in good condition to prevent leaks.
- Be sure to clamp the fuel hose to the tap to prevent leaks.
- Be sure the nylon washers are in good condition to prevent leaks.
- Do not use steel washers in place of the nylon washers, because they will not seal the bolts properly and fuel will leak.

*Fuel Tank and Tap Cleaning*

- Remove the fuel tank and drain it (see Fuel Tank Removal).
- Pour some high flash-point solvent into the fuel tank and shake the tank to remove dirt and fuel deposits.

**WARNING**

○ Clean the tank in a well-ventilated area, and take care that there is no spark or flame anywhere near the working area. Because of the danger of highly flammable liquids, do not use gasoline or low flash-point solvents to clean the tank.

*Fuel Tap Assembly Note*

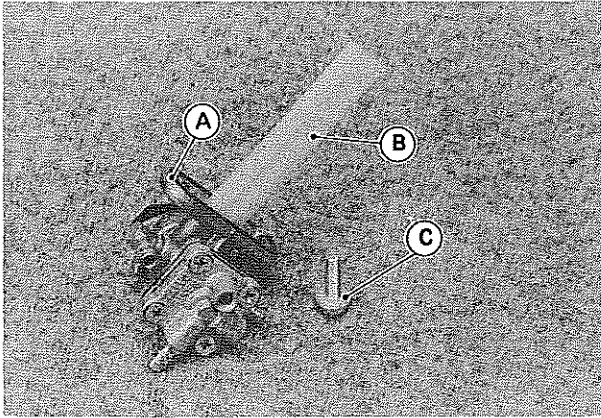
- Install the diaphragm plate so that the groove in the plate faces toward the O-ring side.

## 2-20 FUEL SYSTEM

- Pour the solvent out of the tank.
- Remove the fuel tap from the tank by taking out the bolts with nylon washers.
- Clean the fuel tap filter screens in a high flash-point solvent.
- Pour high flash-point solvent through the tap in all lever positions.
- Dry the tank and tap with compressed air.
- Install the tap in the tank.
- Install the fuel tank.

### Fuel Tap Inspection

- Remove the fuel tap.
- Check the fuel tap filter screens for any breaks or deterioration.

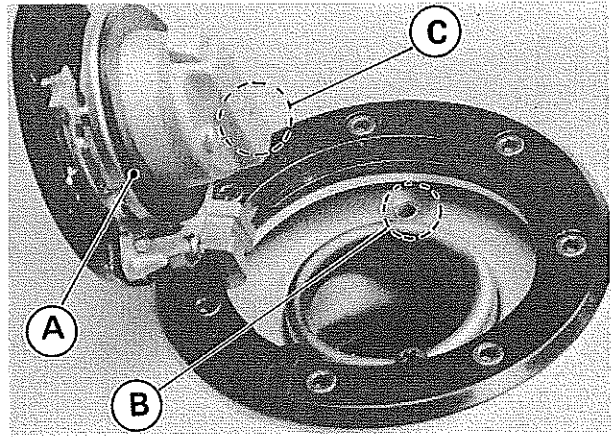


A. O-ring  
B. Filter Screens  
C. Gasket

- ★ If the fuel tap screens have any breaks or are deteriorated, it may allow dirt to reach the carburetor, causing poor running. Replace the fuel tap.
- ★ If the fuel tap leaks, or allows fuel to flow when it is ON or RES without engine running, replace the damaged gasket or O-ring.

### Fuel Tank and Cap Inspection

- Visually inspect the gaskets on the tank and cap for any damage.
- ★ Replace the gaskets if they are damaged.
- Check to see if the breather and water drain pipes in the tank is not clogged up.
- Check the tank cap breather too.



A. Gasket  
B. Drain Pipe  
C. Breather

- ★ If they are clogged, remove the tank and drain it, and then blow the breather free with compressed air.

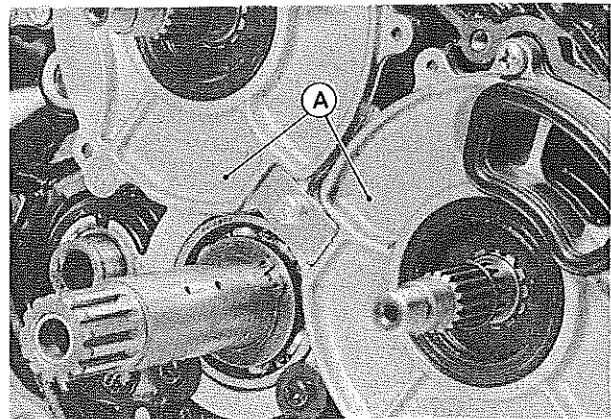
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## RRIS (Rotary & Reed Valve Intake System)

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### RRIS Removal.

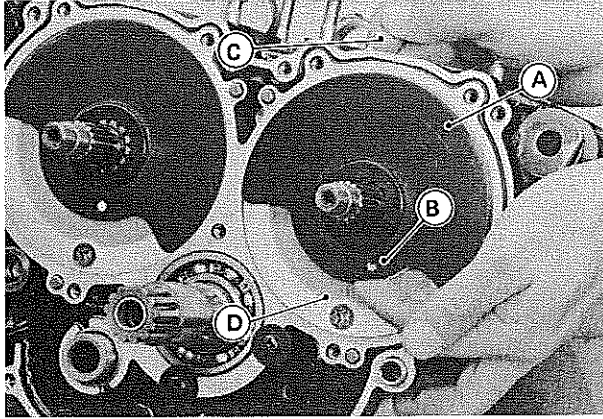
- Remove the primary gears (see Primary Gear Removal in Clutch).
- Remove the rotary valve covers.



A. Valve Cover



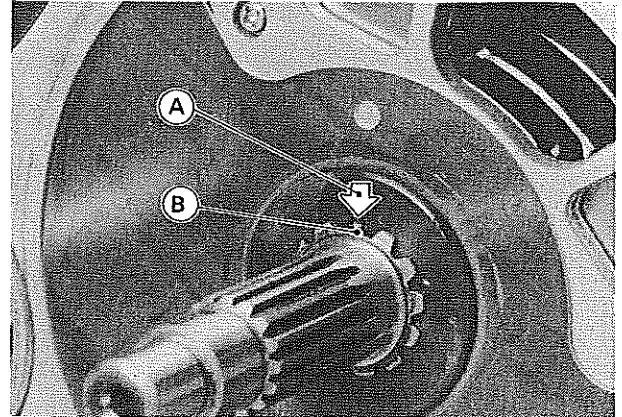
- Remove the cylinder head and cylinders (see Cylinder Head, Cylinder Removal in Engine Top End).
- Turn the rotary valves so that the valve web is on top as shown.
- Push and pry each rotary valve little by little with your thumbs to remove it.



A. Rotary Valve  
 B. Pry here  
 C. Web (Push here)  
 D. Valve Assembly Screws

*RRIS Installation Notes*

- Apply a non-permanent locking agent to the threads of the reed valve assembly screws.
- Apply a thin coat of two-stroke engine oil to both sides of the rotary valve.
- Fit the valve in place so that the indication mark aligns with the notch on the crankshaft spline.



A. Indication Mark  
 B. Notch

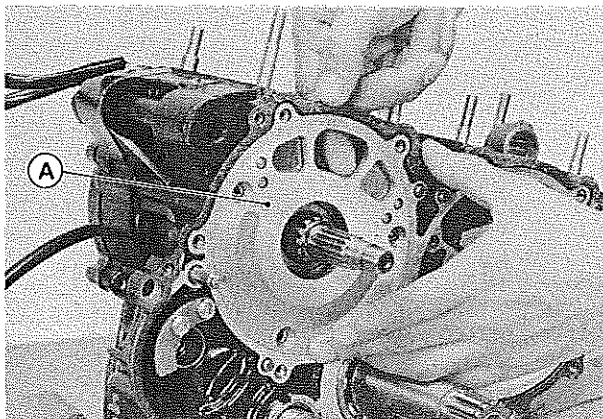
- Remove the reed valve assembly screws(6).
- Push the valve assembly out evenly with your thumbs to remove it.

**CAUTION**

- Be careful not to damage or deform the rotary valves and the reed valve assemblies during removal or installation.

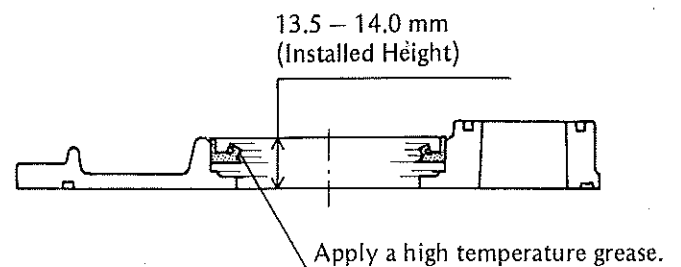
*Rotary Valve Cover Assembly Notes*

- Press in the oil seal being careful of the installation direction and position as shown.
- Apply a high temperature grease to the oil seal lips.



A. Reed Valve Assembly

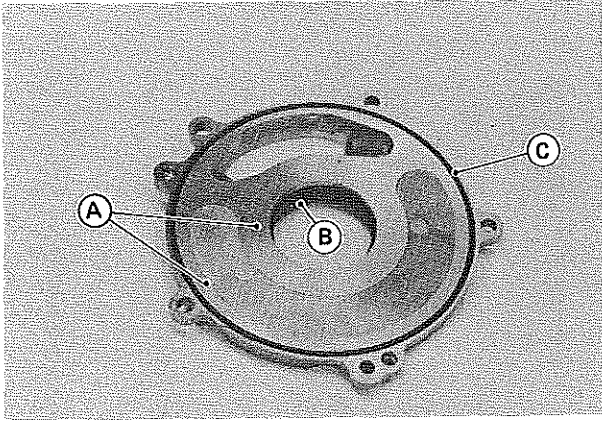
**Oil Seal Installation**



## 2-22 FUEL SYSTEM

### Rotary Valve Cover Inspection

- Visually inspect the oil seal and the O-ring.
- ★If the lips of the oil seal is deformed, hardened, discolored, or otherwise damaged, replace the oil seal.
- ★The O-ring should be replaced if damaged.
- Visually inspect the friction surface of each valve cover.
- ★If it has abrasions or scratches, it should be replaced.

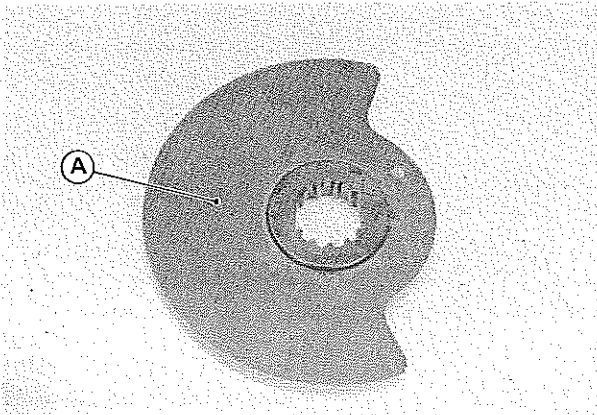


A. Friction Surface  
B. Oil Seal

C. O-ring

### Rotary Valve Inspection

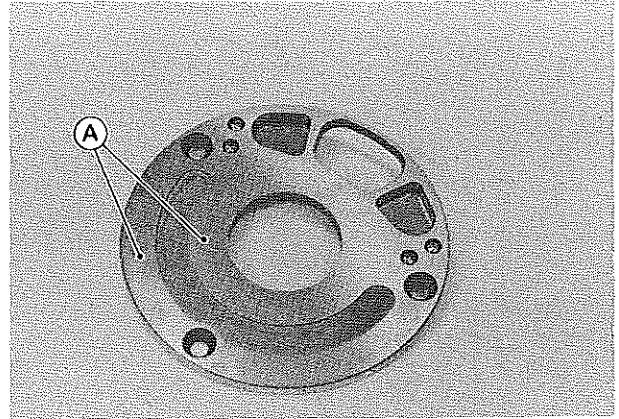
- Visually inspect each rotary valve.
- ★If the rotary valve is deformed, or excessively worn, replace it.



A. Friction Surface

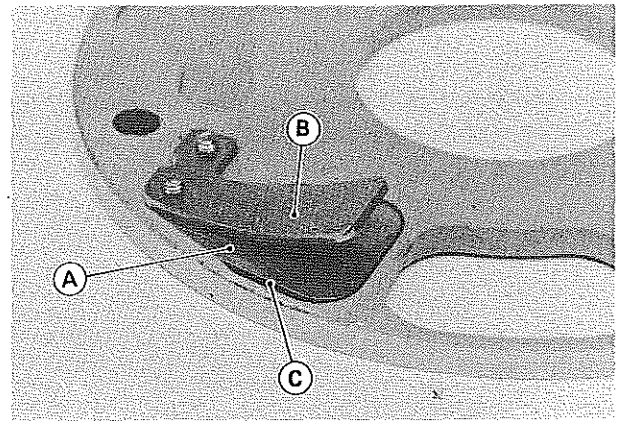
### Reed Valve Assembly Inspection

- Visually inspect the friction surface and the reed valves as follows.
- ★If any of them are damaged, replace the reed valve assembly.
- Abnormal wear of the friction surface.



A. Friction Surface

- Abnormal wear of the reed contact areas: Grooves, scratches, or any signs of rubber coating separation
- Valve stops deformation or cracks



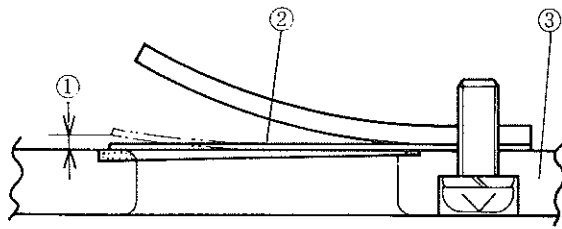
A. Reed  
B. Valve Stop

C. Rubber Coating

- Reed cracks, folds, or any other damage
- Excessive reed warp

Reed Warp  
Service Limit: 0.2 mm

Reed Warp (exaggerated for illustration)



- 1. Warp
- 2. Reed

- 3. Reed Valve Holder

○Wavy reed

★If a reed become wavy, replace the valve assembly even if its warp is less than the service limit.