

# Fuel System

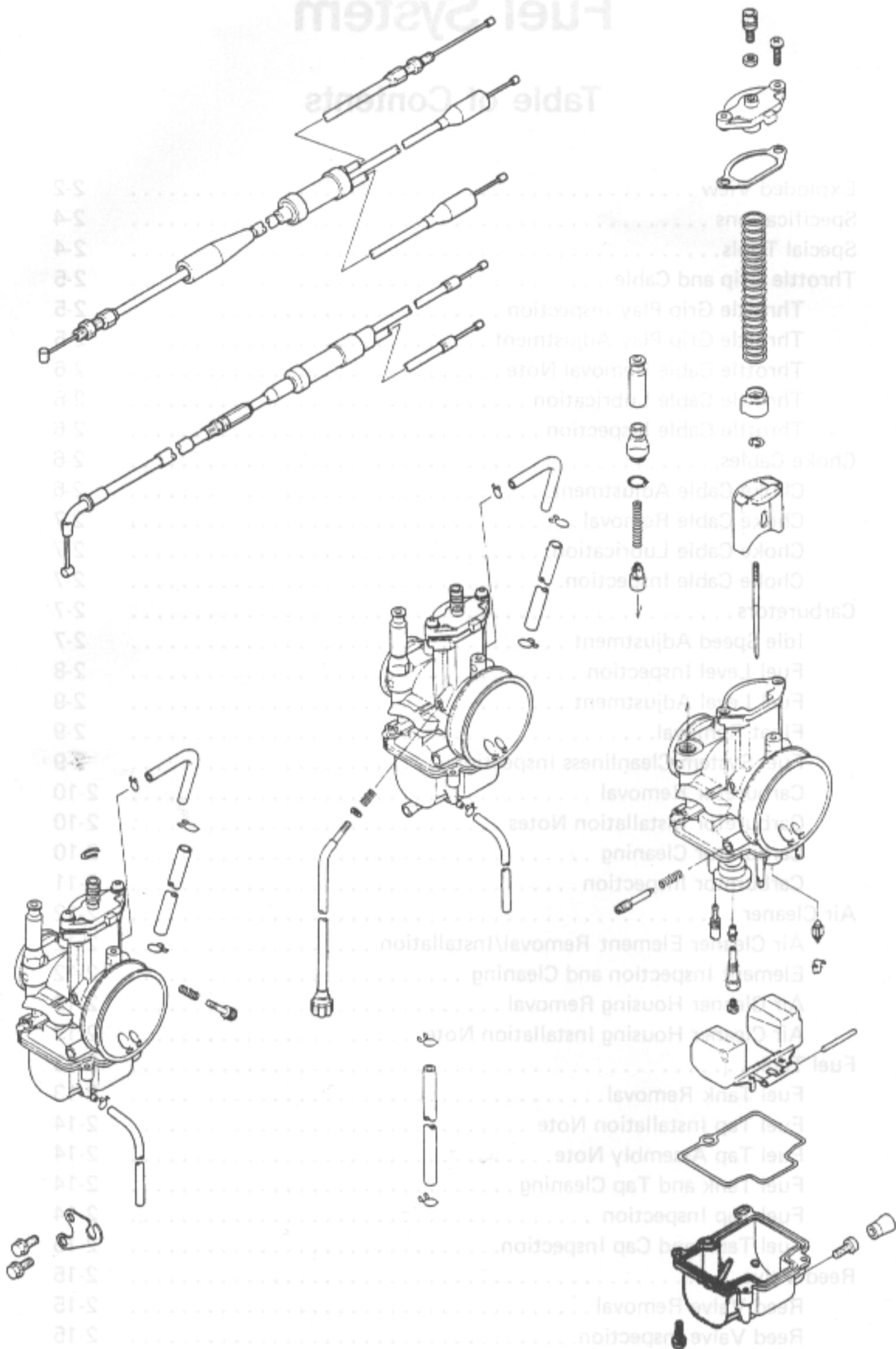
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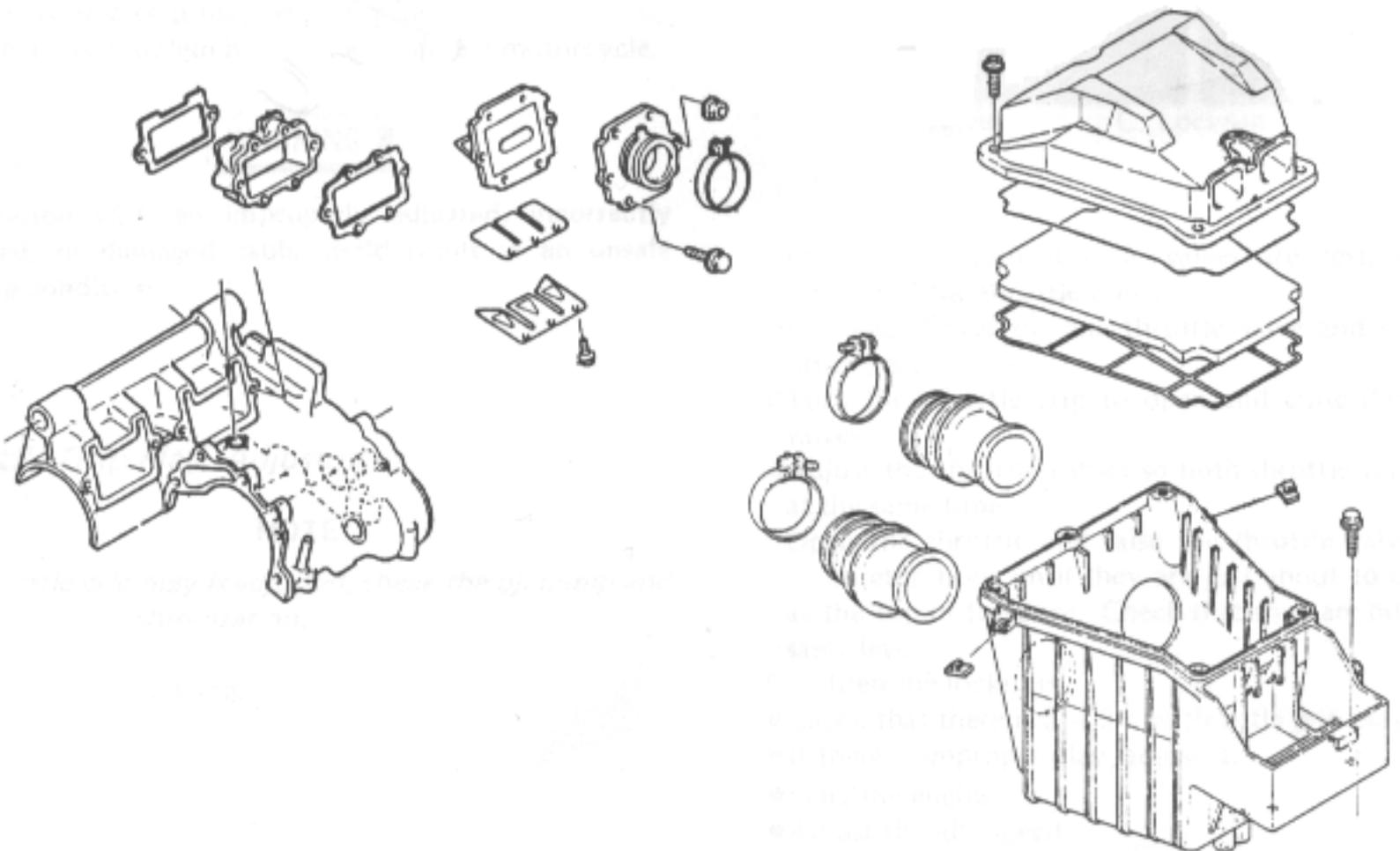
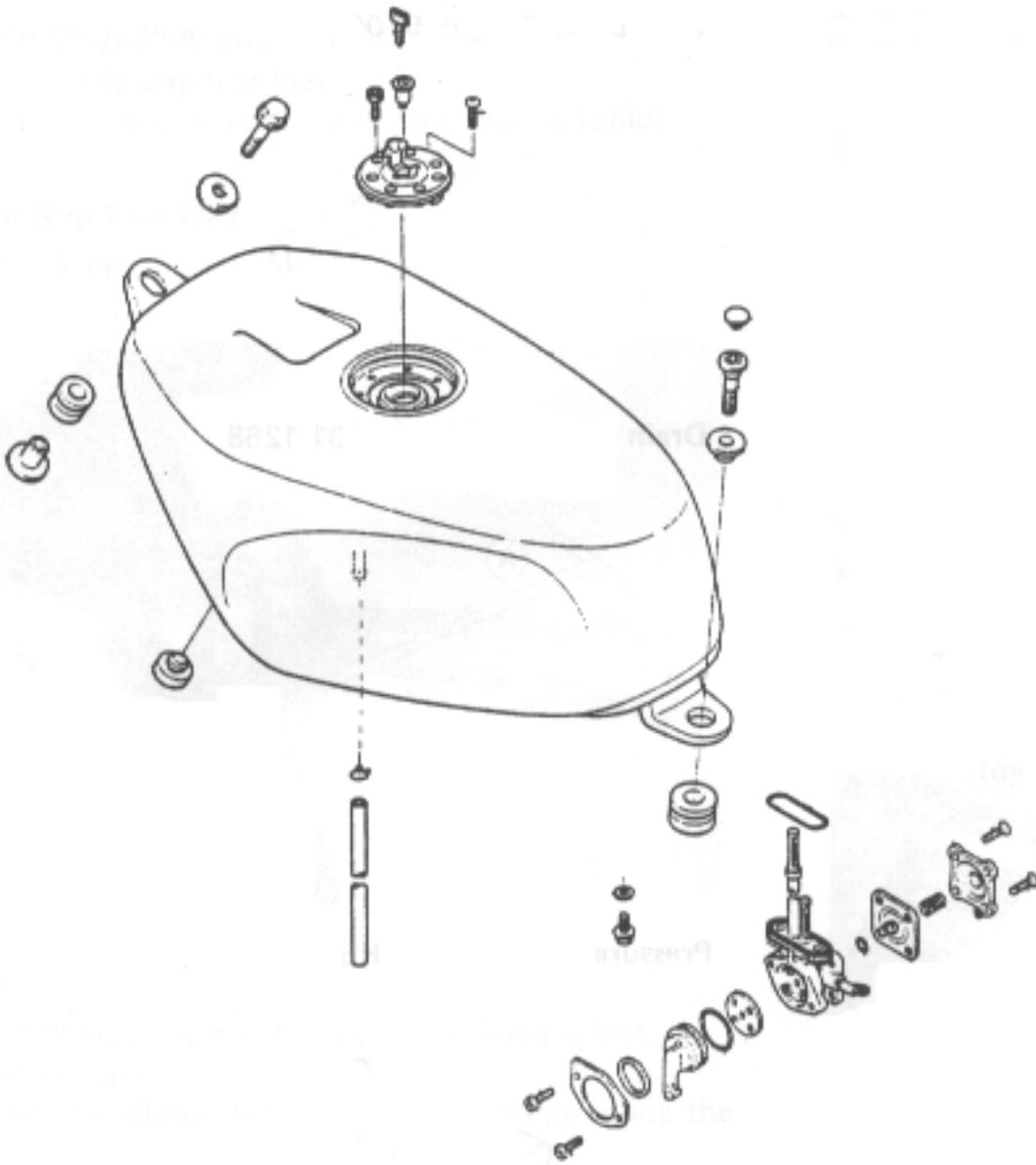
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## 2-2 FUEL SYSTEM

### Exploded View





## 2-4 FUEL SYSTEM

### Specifications

#### Throttle Grip Free Play

Standard: 2 – 3 mm

#### Carburetor Specifications

Make/Type	Keihin/PWK28
Main Jet	135
Main Air Jet	60
Jet Needle	N68A
Jet Needle Clip Position	4
Pilot Jet	38
Pilot Air Screw	1½ turns out
Cutaway	3.5
Service Fuel Level	1 ±1 mm
Float Height	19 ±2 mm

#### Idle Speed

Standard: 900 – 1100 r/min (rpm)

#### Air Cleaner Element Oil

Grade: SE class

Viscosity: SAE30

#### Reed Valve

##### Reed Warp

Service Limit: 0.2 mm

### Special Tools

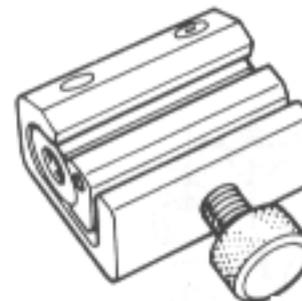
Fuel Level Gauge: 57001-1017



Drain Plug Wrench: 57001-1268



Pressure Cable Luber: K59019-021



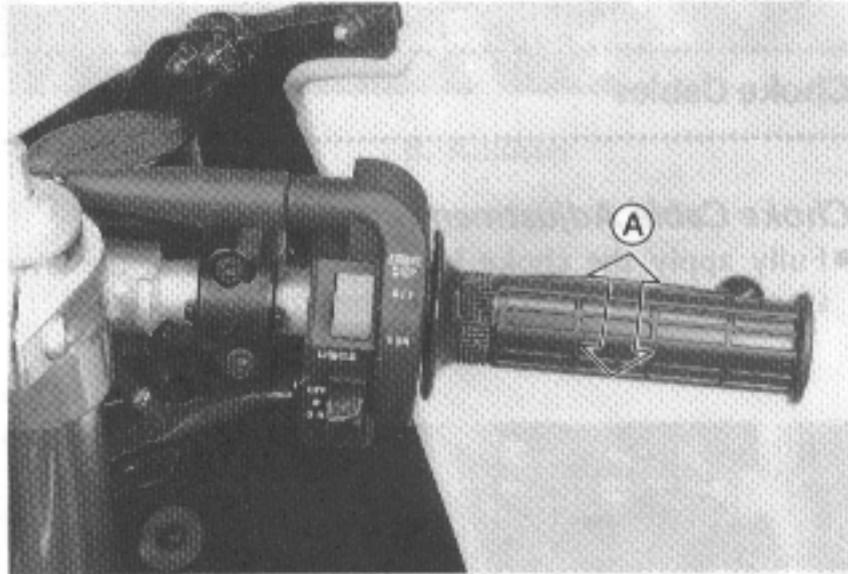
**Throttle Grip and Cables**

**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. Free Play

- ★ 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**

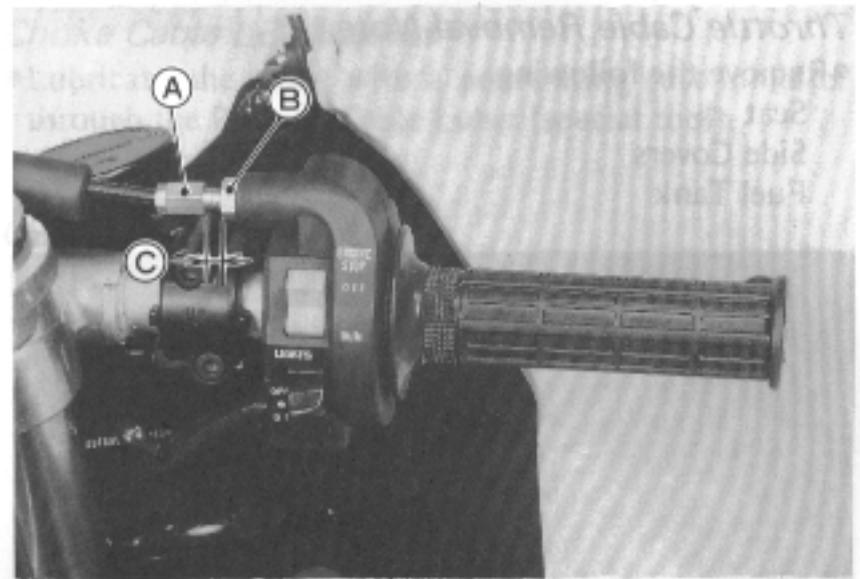
- Operation with an improperly adjusted, incorrectly routed, or damaged cable could result in an unsafe riding condition.

**Throttle Grip Play Adjustment**

**NOTE**

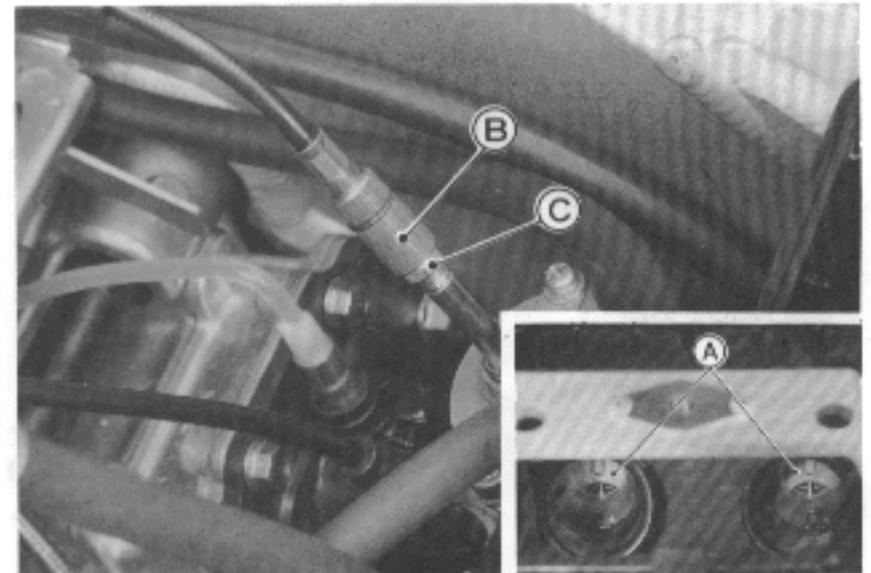
- If throttle grip play is adjusted, check the oil pump and carburetor synchronization.

- Remove the following.
  - Seat
  - Side Covers
  - Fuel Tank
  - Air Cleaner Housing Cover
  - Air Cleaner Element
  - Air Cleaner Element Frame
- Loosen the locknut at the throttle grip.
- Turn in the adjuster so that 5 – 6 mm of threads are visible. And tighten the locknut.



A. Adjuster  
B. Locknut  
C. 5 – 6 mm

- Adjust the throttle cables so that both throttle valves operate together and at the same level.
- Back out the idle adjust screws and loosen the locknuts and adjusters on the top of the carburetors.



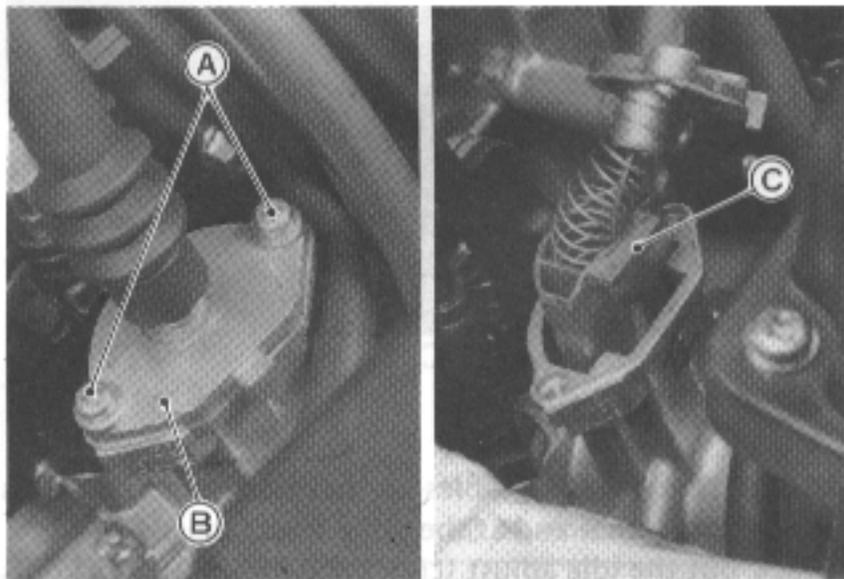
A. Throttle Valves  
B. Adjuster  
C. Locknut

- Check that both throttle valves are resting at the bottom of the throttle bores.
- Put your finger on one throttle valve and watch the other one.
- Turn the throttle grip to open and close the throttle valves.
- Adjust the throttle cables so both throttle valves move at the same time.
- Open the throttle and raise the throttle valves in the carburetor bore until they are just about to disappear at the top of the bore. Check that they are both at the same level.
- Tighten the locknuts.
- Check that there is 2 – 3 mm throttle grip play.
- ★ If there is improper play, adjust it.
- Start the engine.
- Adjust the idle speed.
- 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.

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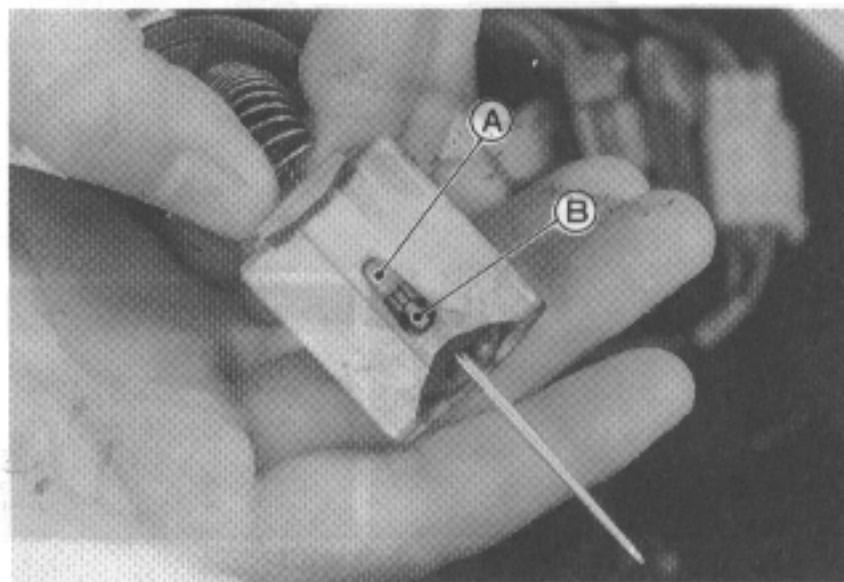
### Throttle Cable Removal Note

- Remove the following.
  - Seat
  - Side Covers
  - Fuel Tank



A. Screws  
B. Cap

C. Throttle Valve



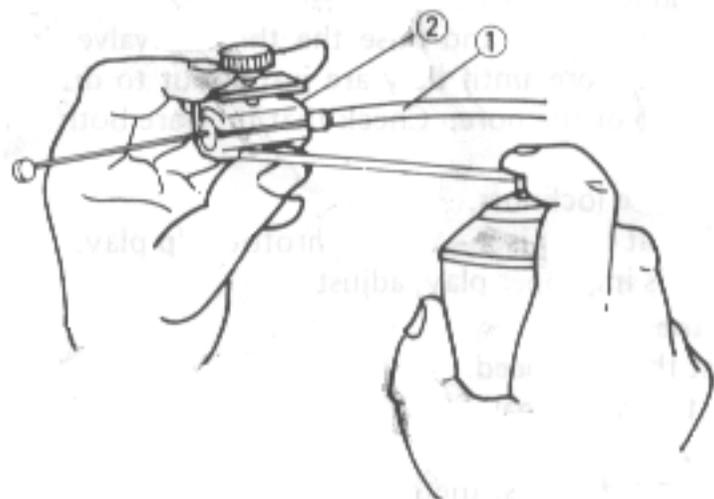
A. Retainer

B. Throttle Cable Lower End

### Throttle Cable Lubrication

- Lubricate the cable with a penetrating rust inhibitor through the Pressure Cable Luber (special tool).

### Cable Lubrication



1. Cable  
2. Pressure Cable Luber: K56019-021

### Throttle Cable Inspection

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

### Choke Cables

### Choke Cable Adjustment

- Fully apply the choke lever and check that the lever stops 2 mm before it touches the stopper.



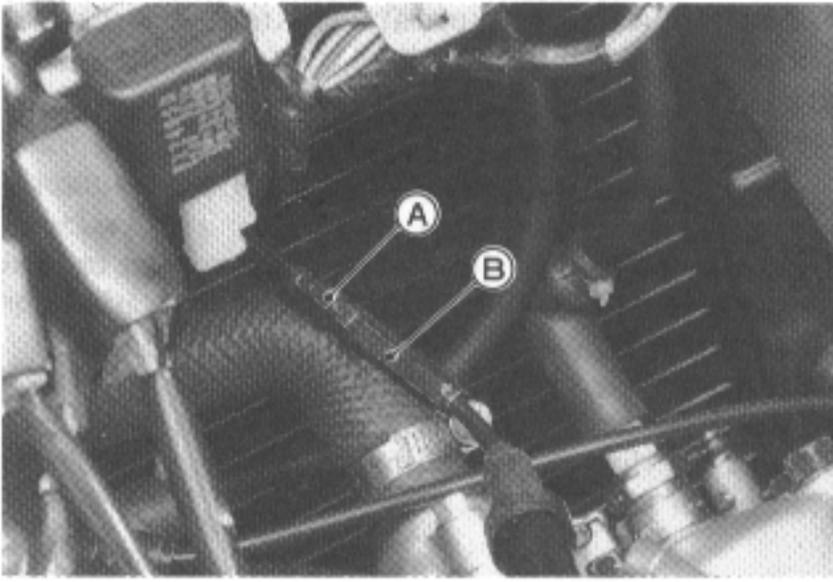
A. 2 mm

- Turn the handlebar from side to side.
- ★ If the choke lever position shifts, the cables 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.

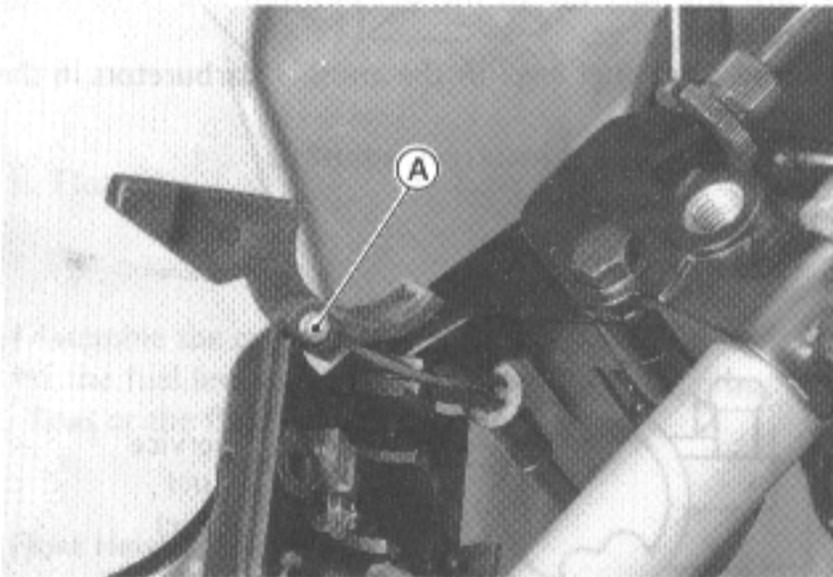
- Adjust the choke cable as follows.
  - Remove the fuel tank.
  - Loosen the locknut.
  - Turn the adjuster as required.
  - Tighten the locknut.
  - Install the fuel tank.



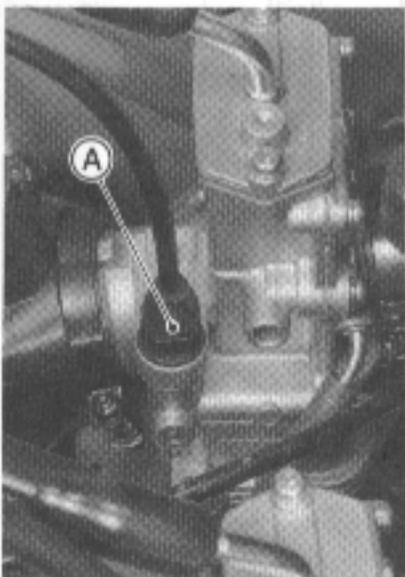
A. Locknut      B. Adjuster

**Choke Cable Removal**

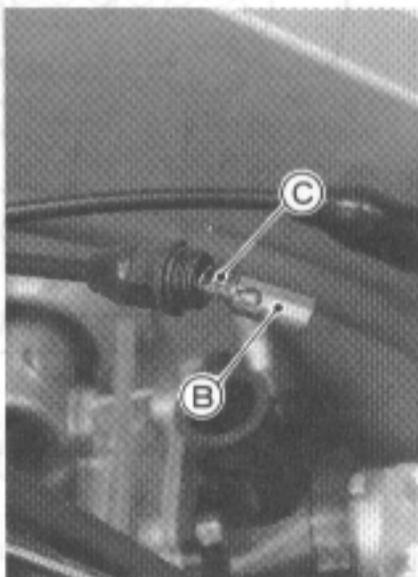
- Remove the following.
  - Seat
  - Side Covers
  - Fuel Tank



A. Choke Cable Upper End



A. Choke Cable Lower End  
B. Plunger

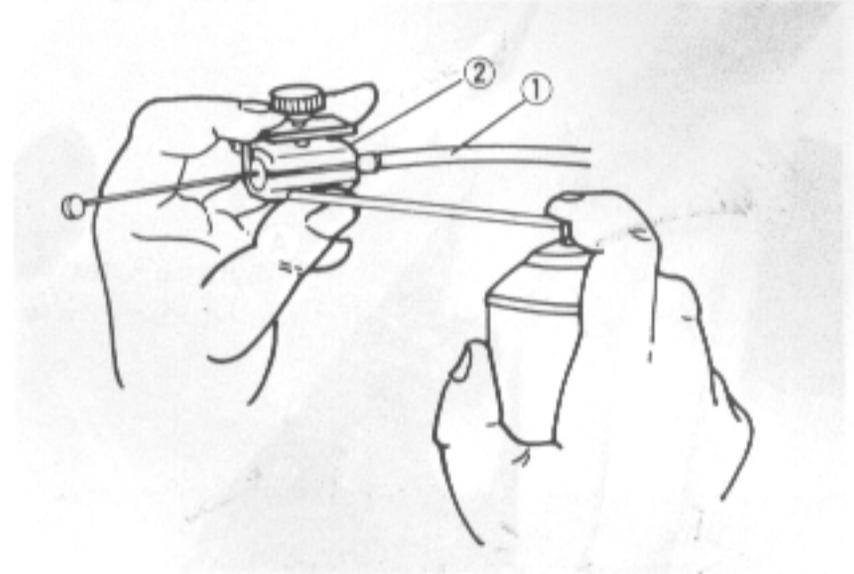


C. Spring

**Choke Cable Lubrication**

- Lubricate the cable with a penetrating rust inhibitor through the Pressure Cable Luber (special tool).

**Cable Lubrication**



1. Cable
2. Pressure Cable Luber: K56019-021

**Choke Cable Inspection**

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

**Carburetors**

**Idle Speed Adjustment**

- Adjust the throttle cable.
- Start the engine and warm it up thoroughly.
- Turn the handlebar from side to side while idling the engine.
- ★ If idle speed varies, the throttle cables may be poorly routed or they 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.

- Check idle speed.

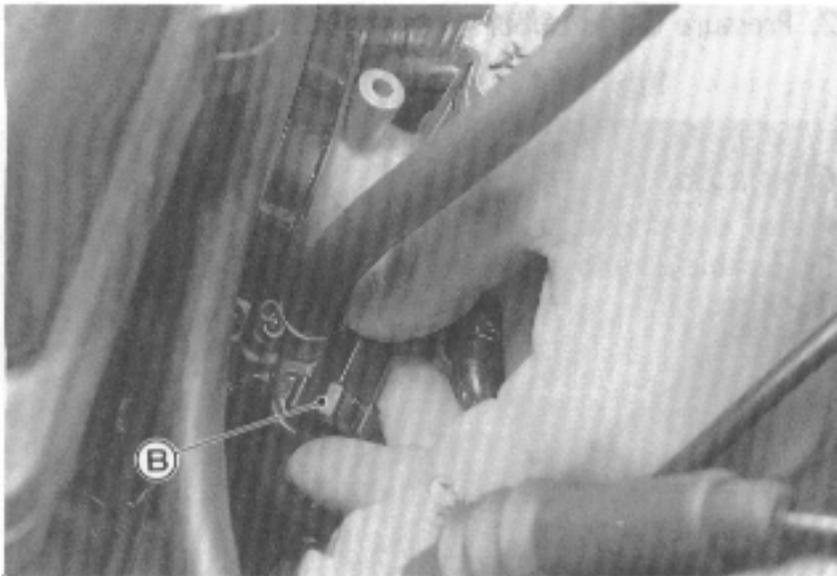
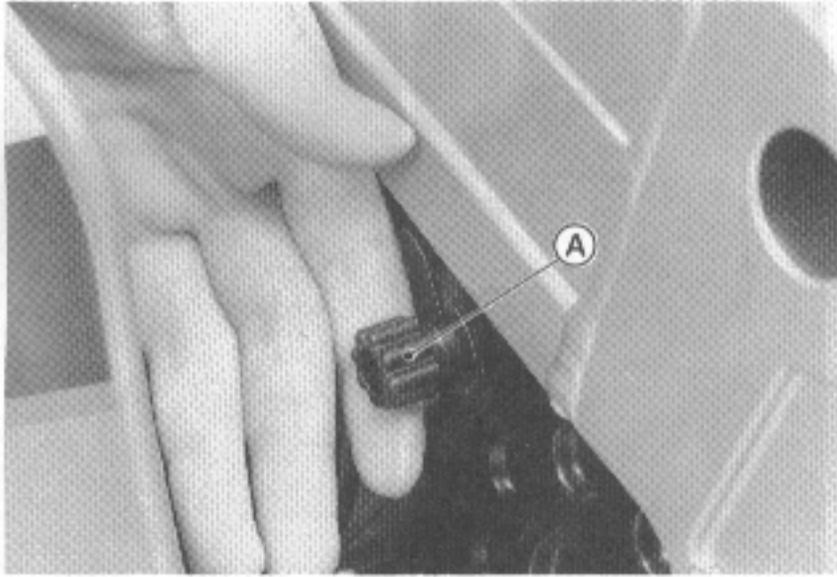
**Idle Speed**

**Standard:                      900 – 1 100 r/min (rpm)**

- ★ If the idle speed exceeds the standard range, adjust the idle speed.
- Stop the engine.

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- Screw in the idle adjusting screws until they stop.
- Start the engine and check idle speed.
- Screw in or out adjusting screw to adjust the idle speed.



A. Idle Adjusting Screw on RH Carburetor  
B. Idle Adjusting Screw on LH Carburetor

- Hold your hands in back of the mufflers to check that both exhaust pressures are equal.  
Refer to page 2-16 for more detailed information.

### 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).

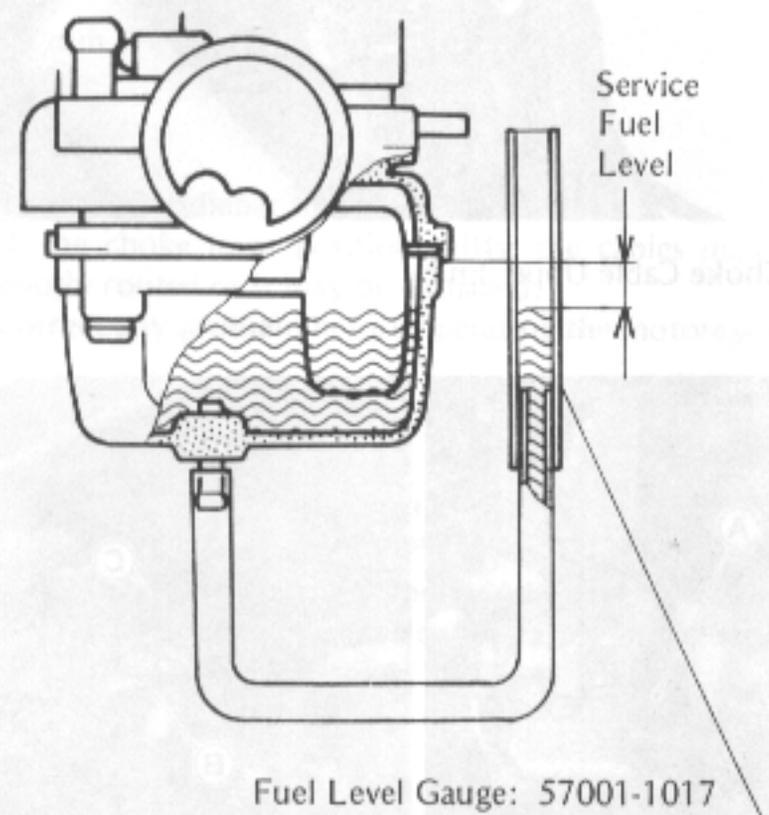
- Connect fuel gauge (special tool) to the carburetor float bowl with the rubber hose.
- Hold the gauge vertically against the side of the carburetor body so that the "zero" line is several millimeters higher than the bottom edge of the carburetor body.
- Turn the fuel tap to the PRI or RES position 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.

### Service Fuel Level



### Fuel Level

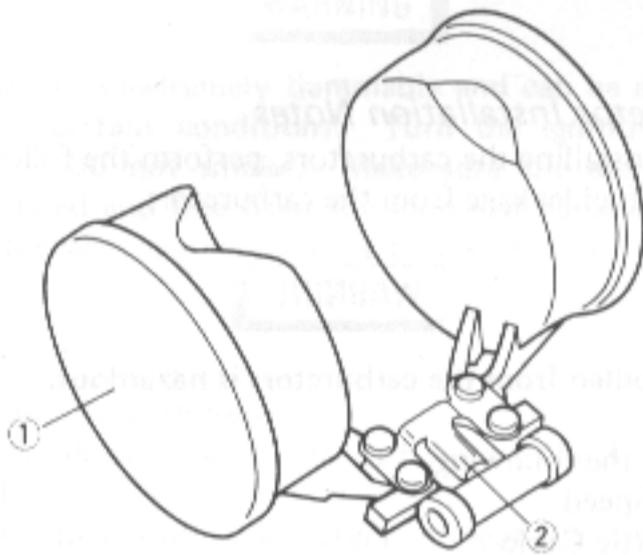
**1 ± 1 mm below the bottom edge of carburetor body**

**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**

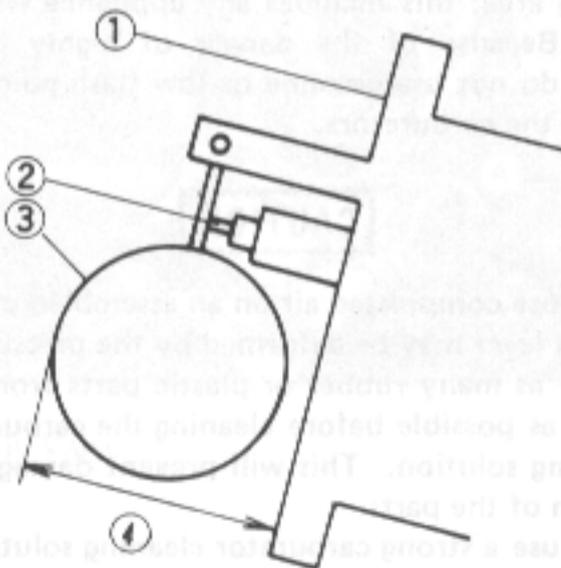
19 ±2 mm



1. Float                      2. 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**



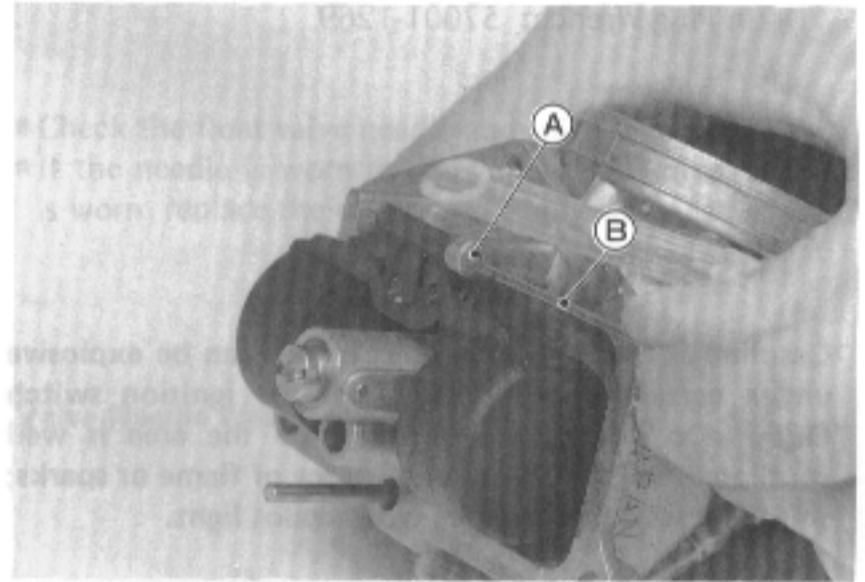
1. Float Bowl Mating Surface  
 2. Float Valve Needle Rod (Contacted but unloaded)  
 3. Float  
 4. Float Height

**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**

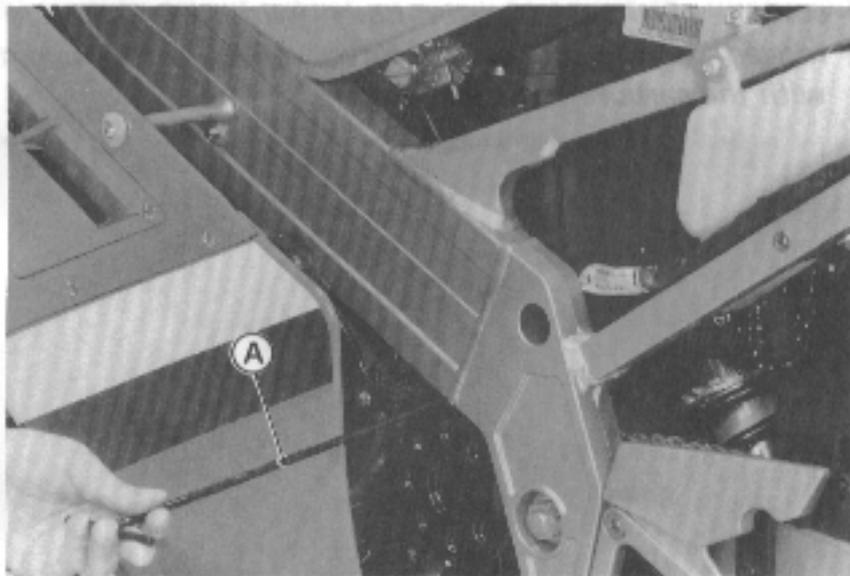
**WARNING**

- 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.

- Remove the following.
  - Seat
  - Side Covers
  - Fuel Tank
- Using the drain plug wrench (special tool), 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.

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- Tighten the drain plug securely.



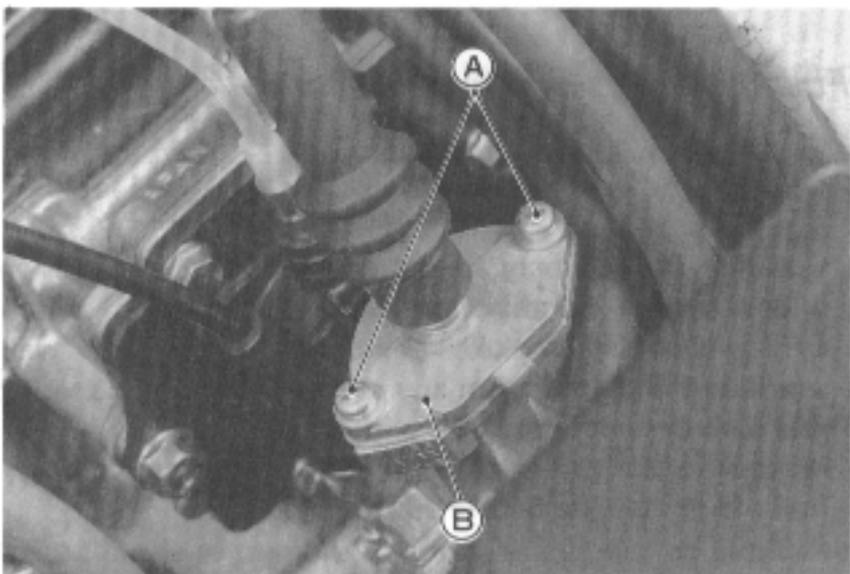
A. Drain Plug Wrench: 57001-1269

### 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 following.
  - Side Covers
  - Seat
  - Fuel Tank



A. Mounting Screws      B. Cap

- Choke Cable Lower End
- 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 them in a clean cloth to avoid damage.

### Carburetor Installation Notes

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

#### WARNING

- Fuel spilled from the carburetors is hazardous.
- Adjust the following.
  - 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.

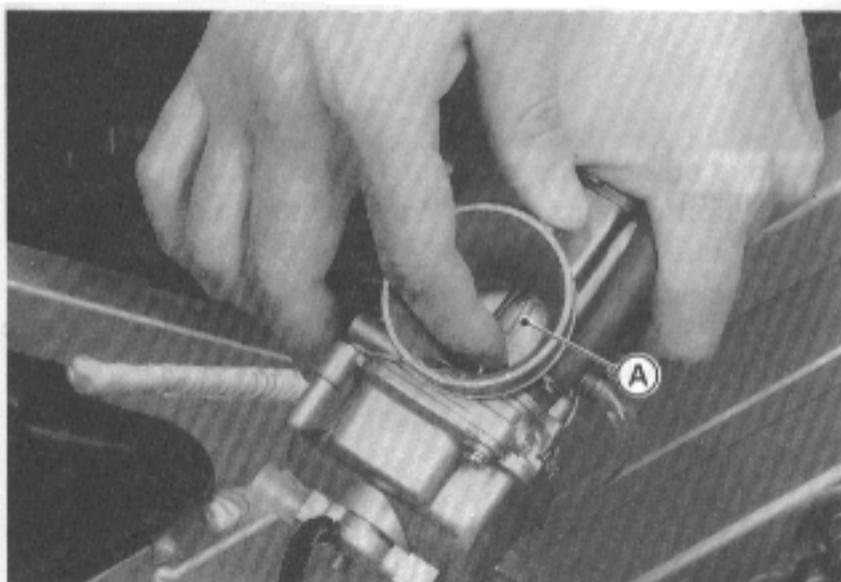
- Disassemble the carburetor.
- Immerse all the metal parts in a carburetor cleaning solution.
- Rinse the parts in water.
- When the parts are clean, dry them with compressed air.
- Blow through the air and fuel passages with compressed air.
- Assemble the carburetor.

**Carburetor Inspection**

**WARNING**

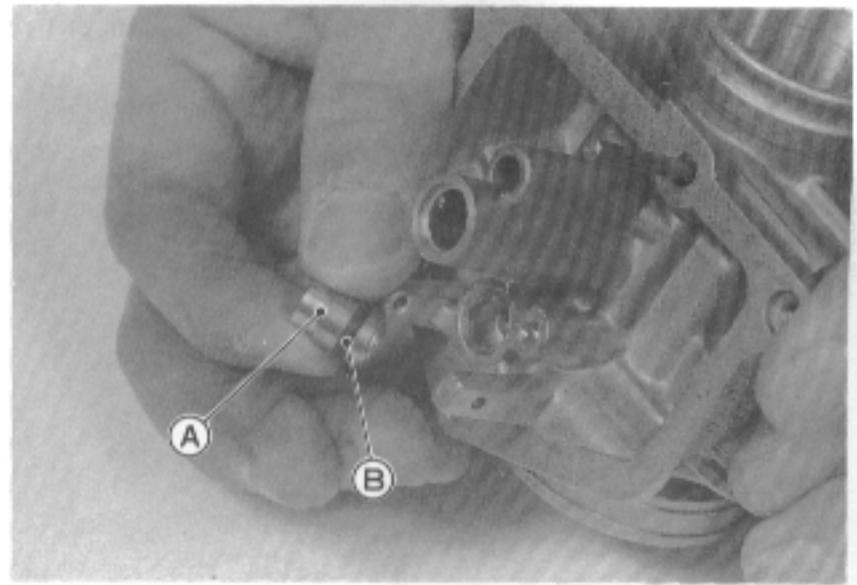
○ Gasoline is extremely flammable and can be explosive under certain conditions. Turn the ignition switch OFF. Do not smoke. Make sure the area is well ventilated and free from any source of flame or sparks; this includes any appliance with a pilot light.

- Remove the carburetor.
- Before disassembling the carburetor, check the fuel level.
- ★ 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.

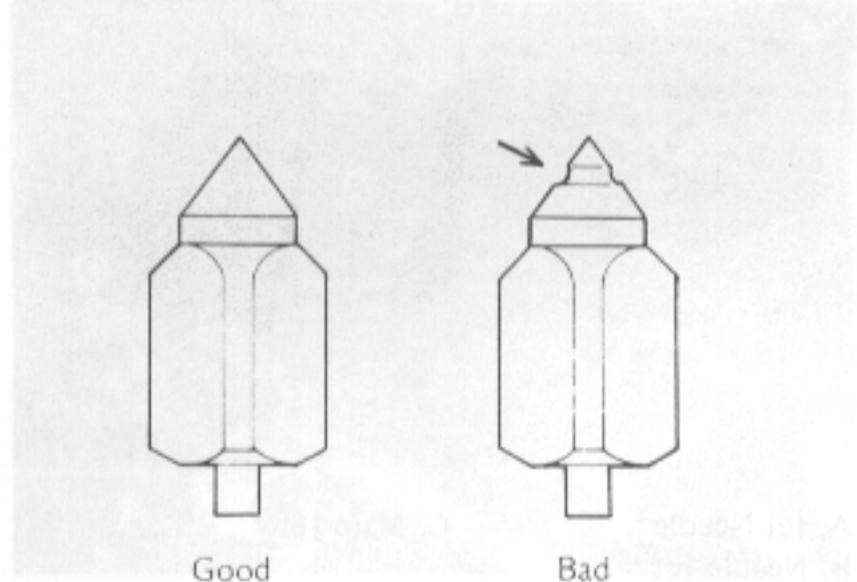


A. Valve Seat

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.

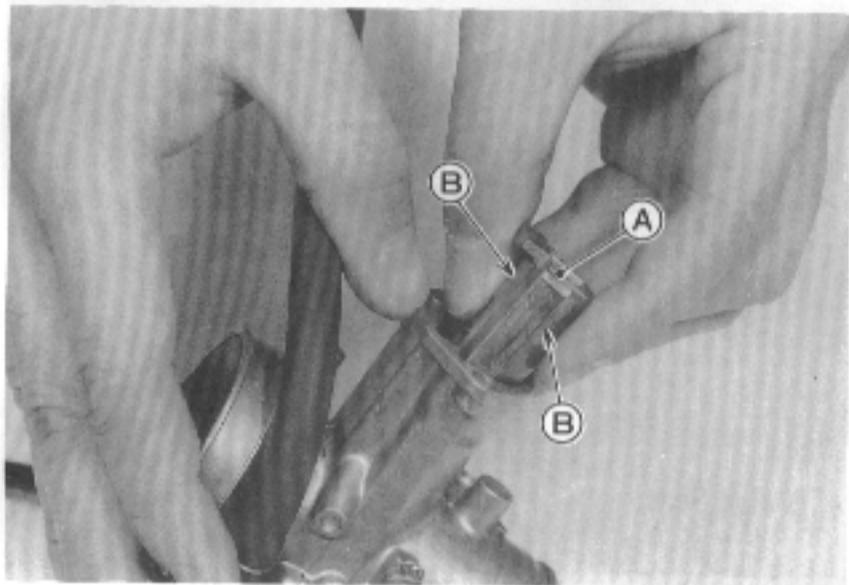
**Valve Needle Wear**



- Push the rod in the valve needle, then replace 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 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.

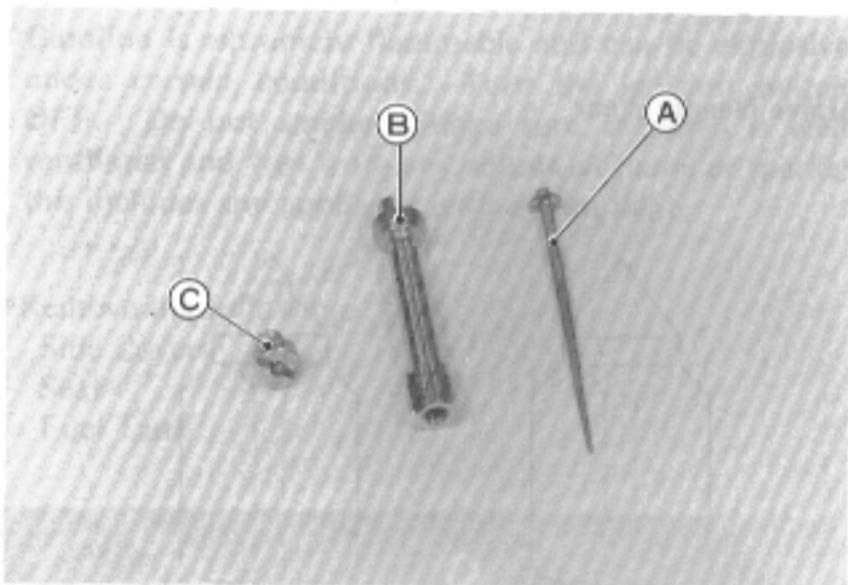
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- If it is badly scratched or worn, replace the entire carburetor.



A. Throttle Valve      B. Sliding Surface

- Remove the main jet, and then press out the needle jet using a suitable bar.
- Check the jet needle and needle jet for wear.
- ★ A worn needle jet or jet needle should be replaced.



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.
- 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.

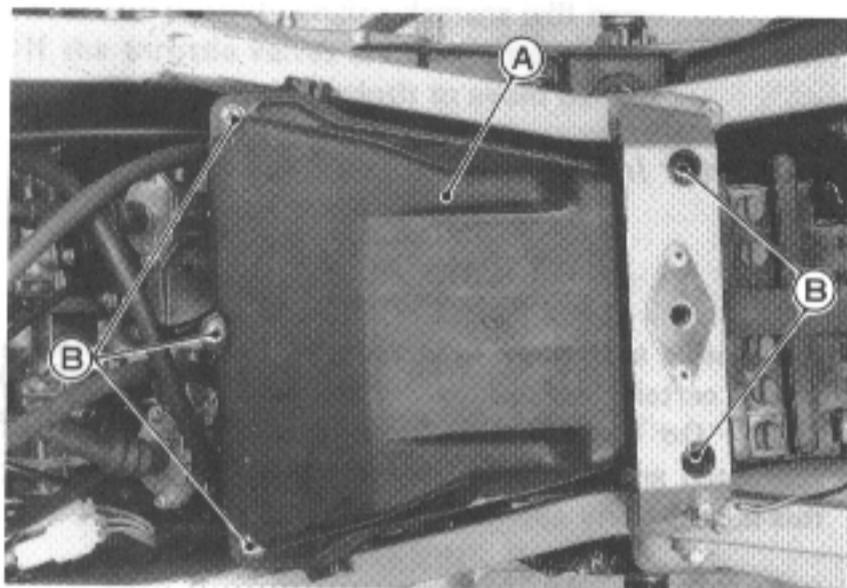
### CAUTION

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

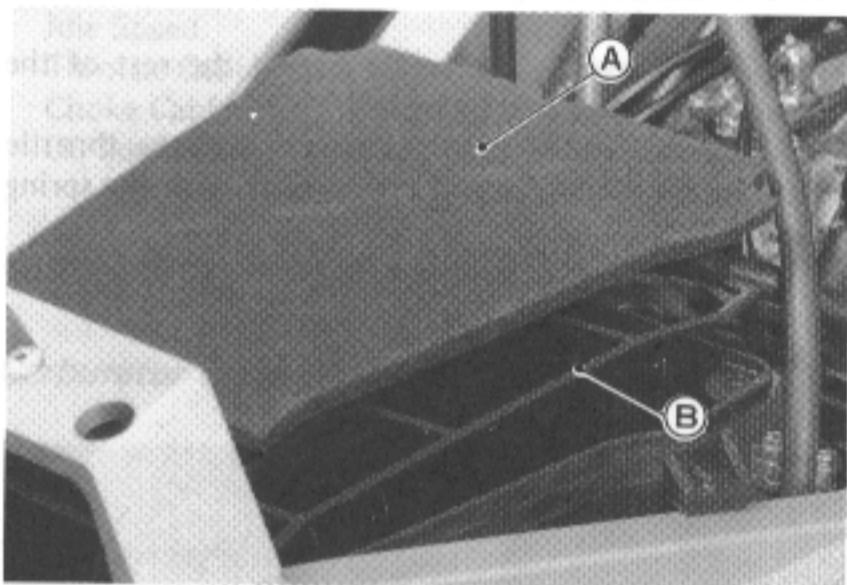
## Air Cleaner

### Air Cleaner Element Removal/Installation

- Remove the following.
  - Seat
  - Side Covers
  - Fuel Tank



A. Cover      B. Mounting Screws



A. Element      B. Frame

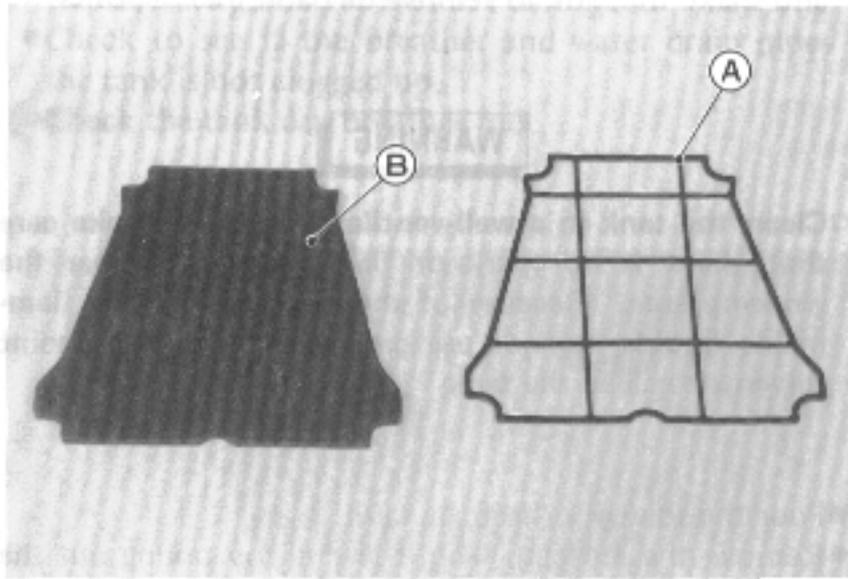
- When installing the air cleaner housing cover, take care not to overtighten the mounting bolts.

### 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.

- 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 flash point solvents to clean the element.

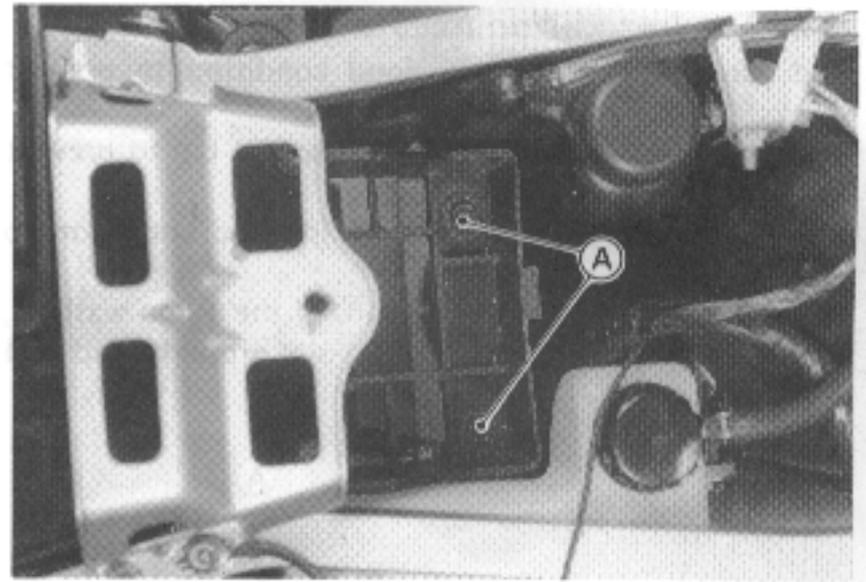
- Clean the element in a bath of a high flash point solvent, and then dry it with compressed air or by shaking it.
- After cleaning, saturate the sponge filter with SE class SAE30 oil, squeeze out the excess, then wrap it in a clean rag and squeeze it dry as possible. Be careful not to tear the sponge filter.

**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.

**Air Cleaner Housing Removal**

- Remove the following
  - Seat
  - Side Covers
  - Fuel Tank
  - Air Cleaner Housing Cover
  - Air Cleaner Element
  - Air Cleaner Element Frame
  - Carburetor
  - Battery

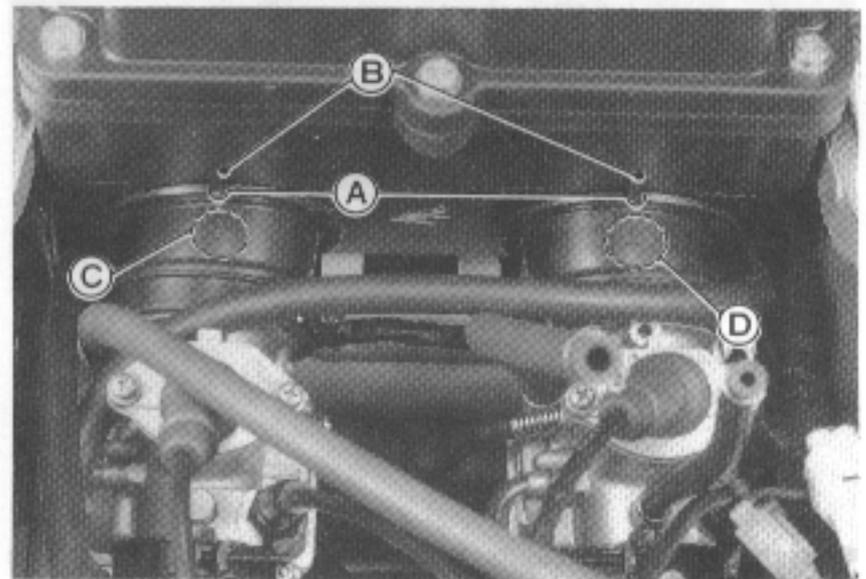


A. Mounting Bolts

- Take the air cleaner housing toward to front.

**Air Cleaner Housing Installation Note**

- Install the air cleaner housing ducts as shown.



A. Notches                      C. R Mark  
B. Projections                D. L Mark

**Fuel Tank**

**Fuel Tank Removal**

- Remove the following.
  - Seat
  - Side Covers
- Turn the fuel tap to the ON position and pull the hose off the tank and tap.
- Unscrew the mounting bolt and remove the fuel tank.

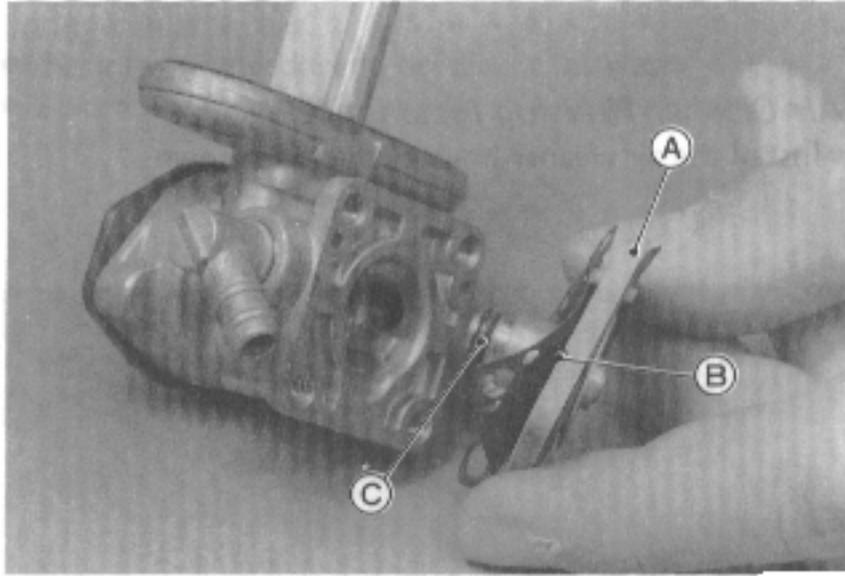
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### Fuel Tap Installation Note

- 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.

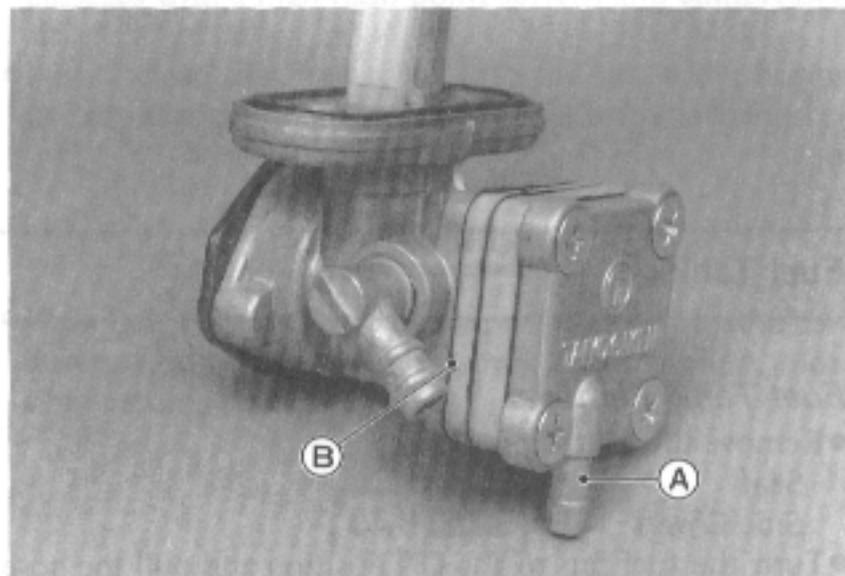
### Fuel Tap Assembly Note

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



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

- 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 Tank and Tap Cleaning

- Remove the fuel tank and drain it.
- Pour some high flash point solvent into the fuel tank and shake the tank to remove dirt and fuel deposits.

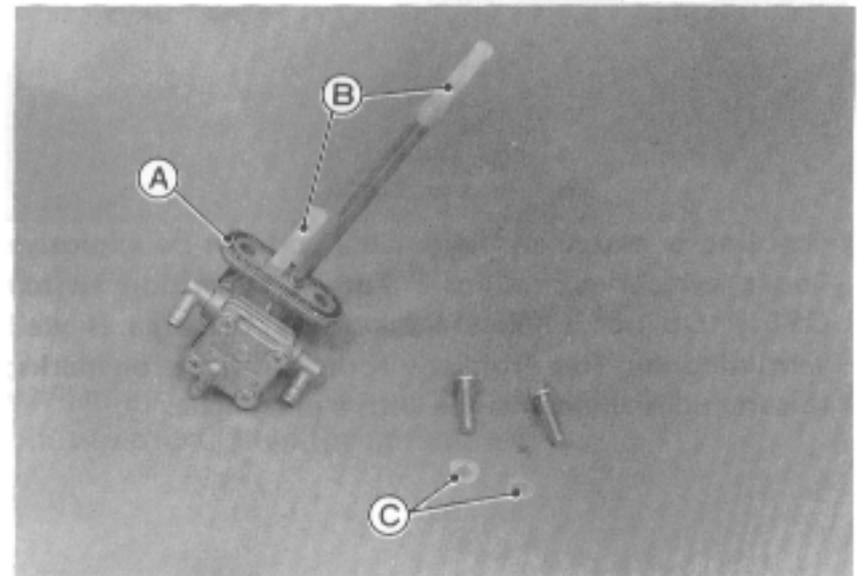
#### WARNING

- 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 or highly flammable liquids, do not use gasoline or low flash point solvents to clean the tank.

- 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

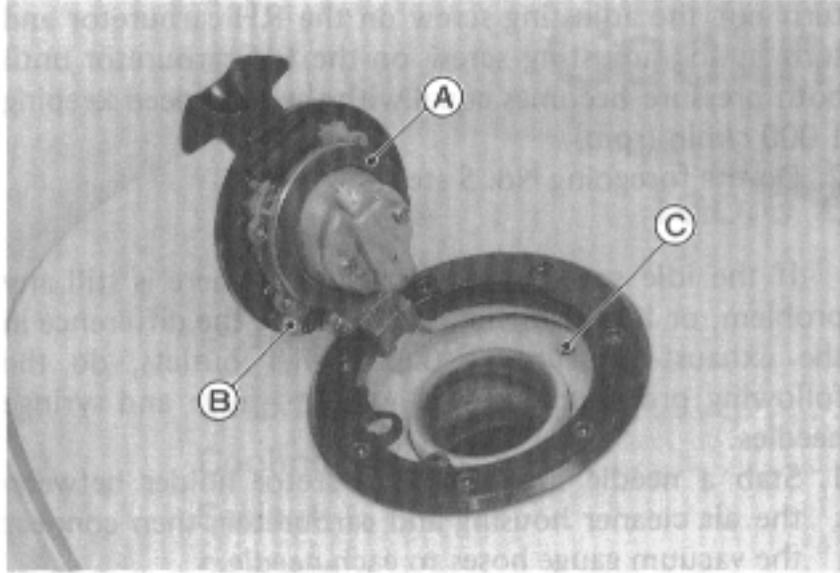
C. Gasket

### Fuel Tap Inspection and Cleaning

- ★ 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. Breather Pipe  
C. Breather

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

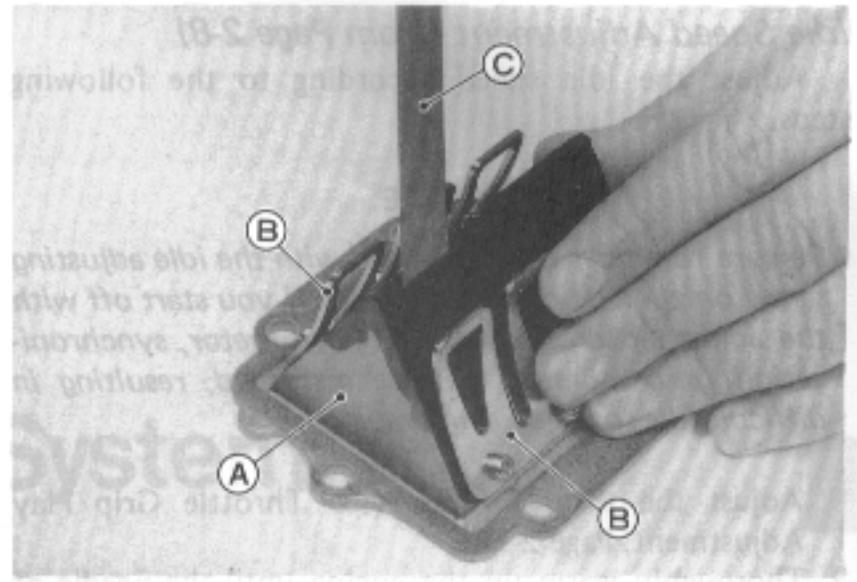
.....  
**Reed Valve**  
.....

**Reed Valve Removal**

- Remove the carburetor from the carburetor holder.
- Remove the carburetor holder mounting bolts, and move the holder rearward.
- Take the reed valve out of the crankcase.

**Reed Valve Inspection**

- Inspect the reeds for cracks, folds or other visible damage.
- ★ If there is any doubt as to the condition of a reed, replace the reed valve assembly.
- ★ If a reed becomes wavy, replace the valve assembly even if its warp is less than the service limit.
- Measure the clearance between the reed and holder, and check the reed warp as shown.



A. Reed  
B. Reed Valve Holder  
C. Thickness Gauge

- ★ If any one of the clearance measurements exceeds the service limit, replace the valve assembly.

**Reed Warp**

**Service Limit: 0.2 mm**

## 2-16 FUEL SYSTEM

### Idle Speed Adjustment (from Page 2-8)

Adjust the idle speed according to the following steps.

#### NOTE

- Be sure to adjust the idle speed with the idle adjusting screw on the RH carburetor first. If you start off with the adjusting screw on the LH carburetor, synchronization of carburetors will be disturbed, resulting in difficult idle speed adjustment.

1. Adjust the throttle cable (see Throttle Grip Play Adjustment, Page 2-5).
2. Thoroughly warm up the engine until the needle of the coolant temperature gauge indicates as shown.



#### CAUTION

- Do not run the engine over 6 000 r/min (rpm).

3. Adjust the idle speed to 1 000 r/min (rpm) by turning in or out the idle adjusting screw on the RH carburetor.
4. 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 an improperly adjusted, incorrectly routed, or damaged cable could result in an unsafe riding condition.

5. Turn the throttle grip back and forth to vary the engine revolution. Check that the idle speed comes back to 1 000 r/min (rpm) smoothly when releasing the throttle grip.

If the idle speed is not stable or there is any problem, proceed to the next steps.

1. With the engine idling, hold your hands behind each muffler outlet to feel the exhaust pressure. If the LH exhaust pressure is higher than the RH one, turn out the idle adjusting screw on the LH carburetor and turn in the idle adjusting screw on the RH carburetor until both pressure becomes equal with the idle speed keeping 1 000 r/min (rpm).

#### NOTE

- Turn the idle adjusting screw  $\frac{1}{4}$  turn maximum at a time.
- If more than  $\frac{1}{2}$  turn is needed to adjust the idle speed, check the throttle cables for correct routing, carburetors for foreign material, starter plunger for sticking open, etc.

If the RH exhaust pressure is higher than the LH one, turn out the adjusting screw on the RH carburetor and turn in the adjusting screw on the LH carburetor until both pressure becomes equal with the idle speed keeping 1 000 r/min (rpm).

2. Do the foregoing No. 5 step.

If the idle speed is still unstable or there is still any problem, or if it is difficult to perceive the difference in the exhaust pressure at the muffler outlets, do the following procedure using a vacuum gauge and syringe needles.

1. Stab a needle into each carburetor holder between the air cleaner housing and carburetor, then connect the vacuum gauge hoses to each needle.
2. Screw in or out both adjusting screws until intake vacuum difference between the two cylinders becomes less than 5.4 kPa (4 mmHg) with the idle speed keeping 1 000 r/min (rpm).