6. The stationary pointer should align with the "F" mark on the timing plate (**Figure 67**). If not, remove the alternator cover as described in Chapter Seven, in this section of the manual, and check the pick-up (A, **Figure 68**) and stator (B, **Figure 68**) assembly screws for tightness. If these are tight, refer to Chapter Seven, in this section of the manual, for ignition system troubleshooting. Ignition timing cannot be adjusted on these models.

### Carburetor Synchronization

A vacuum gauge (Chapter One) must be used to synchronize the carburetors.

*NOTE*

*Prior to synchronizing the carburetors, the ignition timing must be checked and the valve clearance properly adjusted.*

1. Place the bike on the sidestand.
2. Start the engine and let it reach normal operating temperature. Then turn it off.
3. Disconnect the small vacuum plug cap from each carburetor joint (**Figure 69**).
4. Connect the vacuum gauge to both carburetor vacuum port joints following the manufacturer's instructions.
5. Start the engine and allow it to idle at 1,140-1,250 rpm.
6. The carburetors are synchronized if they have the same gauge readings. If not, turn the synchronizing screw (**Figure 70**) and balance the rear carburetor to the front carburetor until the gauge readings are the same.
7. Rev the engine several times to make sure the readings remain the same.
8. Turn the engine off and disconnect the vacuum gauge from the carburetors.
9. Install the small vacuum plug cap onto each carburetor joint (**Figure 69**) and make sure it is secured in place.

### Carburetor Idle Speed Adjustment

Before making this adjustment, the air cleaner must be clean, the carburetors must be synchronized and the engine must have adequate compression. Otherwise this procedure cannot be done properly.

1. Attach a portable tachometer following the manufacturer's instructions.
2. Start the engine and let it warm up to normal operating temperature.
3. Set the idle speed by turning the carburetor throttle stop screw (**Figure 71**) *in to increase* or *out to decrease* idle speed.
4. The correct idle speed is listed in **Table 5**.

**Table 1 MAINTENANCE SCHEDULE***

| | |
|---|---|
| **Initial 600 miles (1,000 km) or 1 month** | **Change engine oil and oil filter**<br>**Inspect valve clearance, adjust if necessary**<br>**Check front and rear brake lever and pedal free play; adjust if required**<br>**Check front brake pads and rear brake shoe thickness; replace as required**<br>**Adjust clutch lever free play**<br>**Lubricate speedometer and control cables**<br>**Change final gear oil**<br>**Check sidestand switch operation** |

(continued)

**Table 1 MAINTENANCE SCHEDULE (continued)***

| | |
|---|---|
| Every 4,400 miles (7,000 km) or 7 months | Inspect valve clearance; adjust if necessary<br>Check, clean and regap spark plugs<br>Change engine oil and oil filter<br>Check crankcase breather hose for tightness and damage<br>Inspect fuel lines for deterioration, chafed, cracked or swollen ends; replace if necessary<br>Inspect the exhaust system for leaks; tighten bolts and nuts if necessary<br>Synchronize the carburetors<br>Check idle speed; adjust if necessary<br>Check front brake pads and rear brake shoe thickness; replace as required<br>Adjust clutch lever free play<br>Check oil level in final drive unit<br>Lubricate speedometer and control cables<br>Clean and inspect air filter element with compressed air, replace if necessary<br>Lubricate rear brake pedal, shift lever and sidestand<br>Check front fork oil seal for leakage<br>Check steering stem for looseness<br>Check tire and wheel condition<br>Check wheel bearings for smooth operation<br>Check battery fluid level and specific gravity; add water if necessary<br>Check brake fluid level in master cylinder; add fluid if necessary |
| Every 8,200 miles (13,000 km) or 13 months | Replace the spark plugs<br>Check fluid level in final drive unit; add fluid if necessary |
| Every 15,800 miles (25,000 km) or 25 months | Lubricate steering stem bearings<br>Lubricate swing arm bearings |

* This Yamaha factory maintenance schedule should be considered as a guide to general maintenance and lubrication intervals. Harder than normal use (racing) and exposure to mud, water, sand, high humidity, etc. will naturally dictate more frequent attention to most maintenance items.

**Table 2 TIRE INFLATION PRESSURE (COLD)**

| Load | psi (kg/cm$^2$) |
|---|---|
| Up to 198 lb. (90 kg) | |
| Front | 28 (2.0) |
| Rear | 32 (2.3) |
| 198-max. lb. (90-max kg)* | |
| Front | 28 (2.0) |
| Rear | 36 (2.5) |
| High-speed riding | |
| Front | 28 (2.0) |
| Rear | 36 (2.5) |

* Maximum load: 49-state 507 lb. (230 kg.), Calif. 505 lb. (229 kg.), U.K. 501 lb. (227 kg.)

**Table 3 RECOMMENDED LUBRICANTS**

| Item | Oil Type |
|---|---|
| Engine oil | |
| 40° F (5° C) and above | Yamalube 4 or SAE 20W/40 |
| 60° F (15° C) and below | Yamalube 4 or SAE 10W/30 |
| Brake fluid | DOT 3 |
| Battery refilling | Distilled water |

(continued)

**Table 3 RECOMMENDED LUBRICANTS (continued)**

| Item | Oil Type |
|---|---|
| Fork oil | SAE 10W |
| Control cables and pivot points | SAE 10W/30 motor oil |
| Final drive unit | Hypoid gear oil SAE 80 GL-4 or SAE 80W/90 |

**Table 4 APPROXIMATE REFILL CAPACITIES**

| Item | Quantity |
|---|---|
| Engine oil | |
| With filter change | 3.0 U.S. qt. (2.8 L, 2.5 Imp. qt.) |
| Without filter change | 2.7 U.S. qt. (2.6 L, 2.3 Imp. qt.) |
| Engine rebuild | 3.4 U.S. qt. (3.2 L, 2.8 Imp. qt.) |
| Front forks | 7.71 U.S. oz. (228 cc, 8.03 Imp. oz.) |
| Final gear case | 0.20 U.S. qt. (0.19 L, 0.17 Imp. qt.) |

**Table 5 TUNE UP SPECIFICATIONS**

| | |
|---|---|
| Ignition timing | Fixed |
| Valve clearance (cold) | |
| Intake | 0.003-0.005 in. (0.07-0.12 mm) |
| Exhaust | 0.005-0.007 in. (0.12-0.17 mm) |
| Spark plug | |
| Type | |
| U.S. | NGK BP7ES, ND W22EP-U |
| U.K. | NGK BPR7ES, ND W22EPR-U |
| Gap | 0.028-0.031 in. (0.7-0.8 mm) |
| Idle speed | 1,150-1,250 rpm |
| Compression pressure (cold at sea level) | |
| Standard | 156 psi (11 kg/cm$^2$, 1,100 kPa) |
| Minimum | 142 psi (10 kg/cm$^2$, 1,000 kPa) |
| Maximum | 171 psi (12 kg/cm$^2$, 1,200 kPa) |

Místo pro vaše poznámky :

CHAPTER SIX

# FUEL, EMISSION CONTROL AND EXHAUST SYSTEMS

This chapter describes complete procedures for servicing the fuel, emission control and exhaust systems. Carburetor specifications are listed in **Table 1**. **Table 1** is at the end of the chapter.

*NOTE*

*Where differences occur relating to the United Kingdom (U.K.) models they are identified. If there is no (U.K.) designation relating to a procedure, photo or illustration it is identical to the United States (U.S.) models.*

*NOTE*

*This chapter covers all procedures unique to the XV535 Virago V-twins. If a specific procedure is not included in this chapter, refer to Chapter Six in the front section of this manual for service procedures.*

## CARBURETOR

### Removal/Installation

Remove both carburetors as an assembled unit.

1. Place the motorcycle securely on the sidestand.
2. Remove the seat(s).

3A. On 1987-1989 U.S. models and 1988 U.K. models, remove the rear bolt and front bolt on each side securing the frame top cover and remove the cover (**Figure 1**).

3B. On 1990-on U.S. models and 1989-on U.K. models, remove the sub-fuel tank as described in this chapter.

4. Unhook the battery strap (A, **Figure 2**).
5. Disconnect the battery vent tube (B, **Figure 2**).
6. Pull the battery part way up out of the battery box to gain access to the battery cable attachment screws.
7. Disconnect the negative (–) battery cable (**Figure 3**) from the battery.
8. Remove the right-and left-hand frame and engine side covers.

9A. On models equipped with the air injection system, disconnect the hoses (A, **Figure 4**) from the air injection system and remove the left-hand bracket assembly (B, **Figure 4**) with the system components still attached to it.

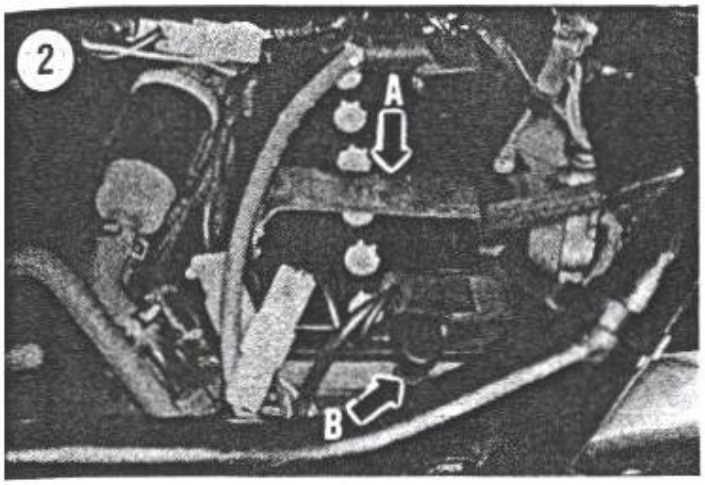
9B. On all other models, remove bolts securing the left-hand side cover (**Figure 5**) and remove the bracket (A, **Figure 6**).

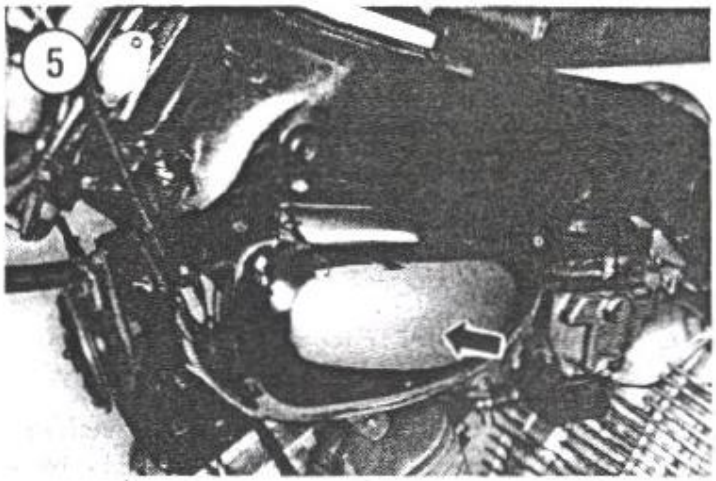

10. Disconnect the vent hose (B, **Figure 6**) from each carburetor.

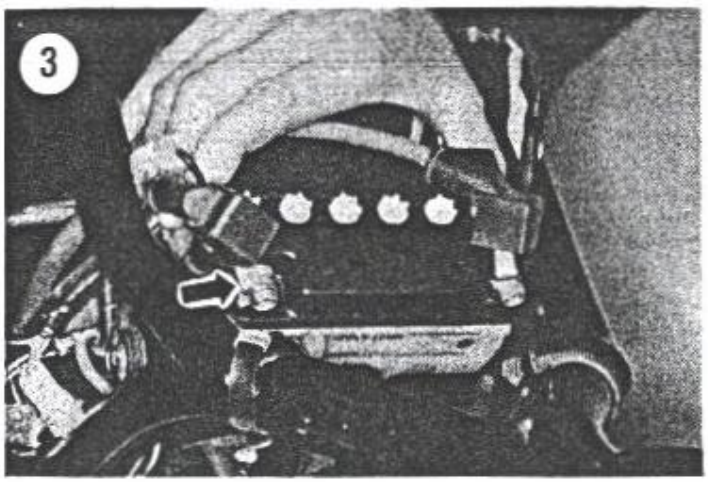
11. Remove bolts securing the right-hand side cover (**Figure 7**) and electrical component bracket (**Figure 8**) and move the bracket assembly out of the way.

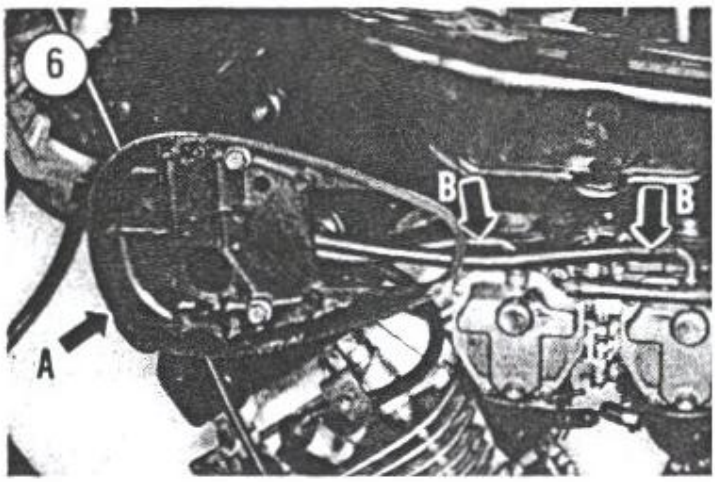
12. Remove the bolts securing the rubber intake tube to each cylinder head (**Figure 9**).

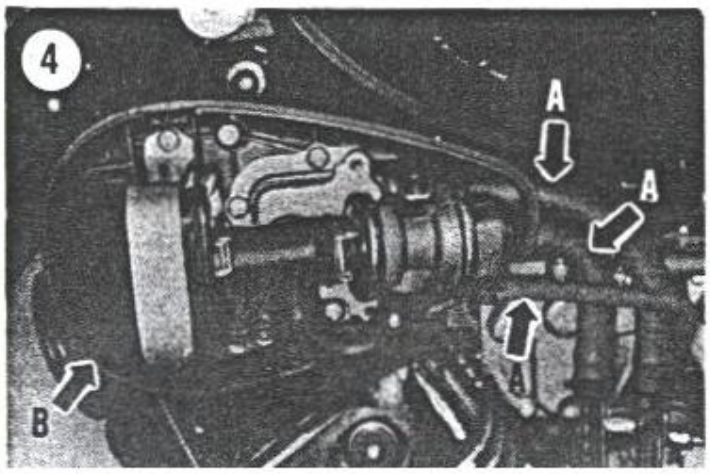
13. At the throttle lever, loosen the cable locknut (A, **Figure 10**) and loosen the adjuster (B, **Figure 10**) to allow maximum amount of slack in the throttle cable.

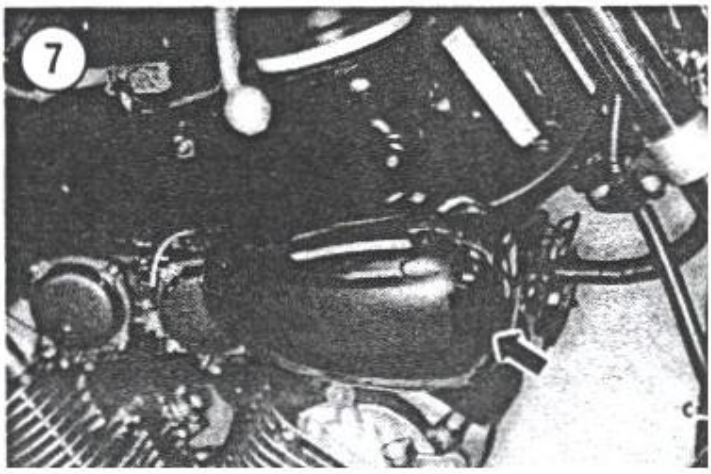


14. Loosen the locknut on the throttle cable (A, **Figure 11**).

15. Open the throttle wheel with your finger and disconnect the throttle cable from the carburetor throttle wheel (B, **Figure 11**).

16. Loosen the hose clamp and disconnect the fuel hose (**Figure 12**) from the carburetor assembly. Insert a golf tee to prevent the dribbling of fuel.

17. Remove the hose clamp screws (**Figure 13**) securing the air filter housing joints to both carburetors. Remove both hose clamps.

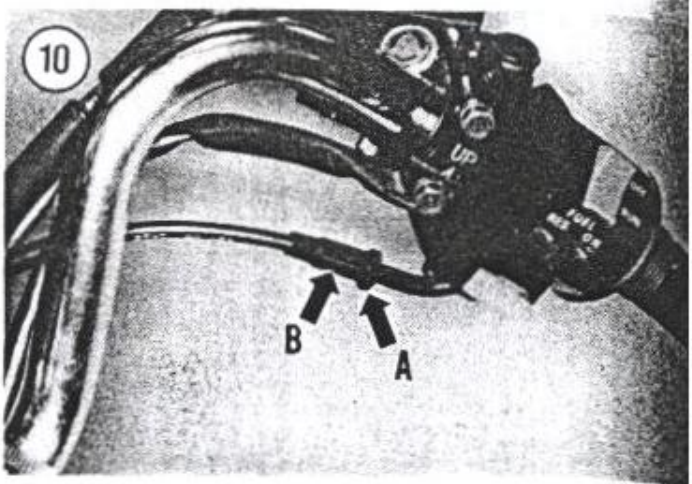
18. Push the air filter housing joints up into the air box.

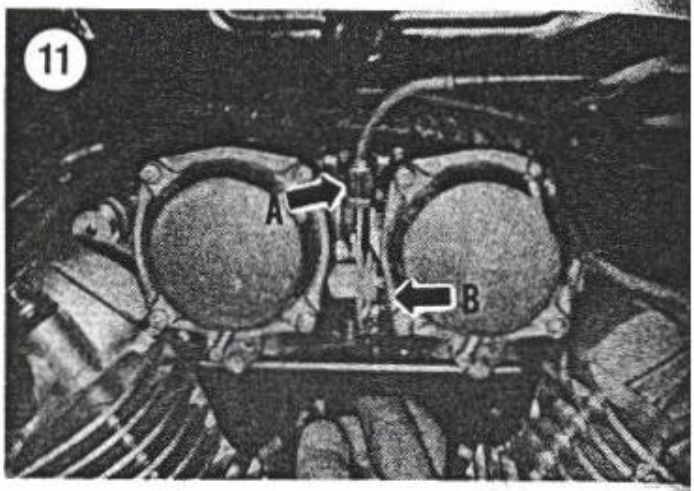
19. Grasp the carburetor assembly and work the assembly out toward the left-hand side. Remove the carburetor assembly from the frame.

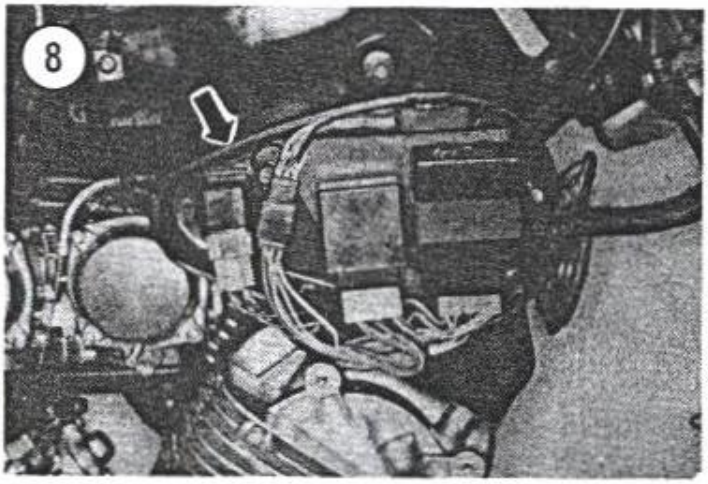
*CAUTION*

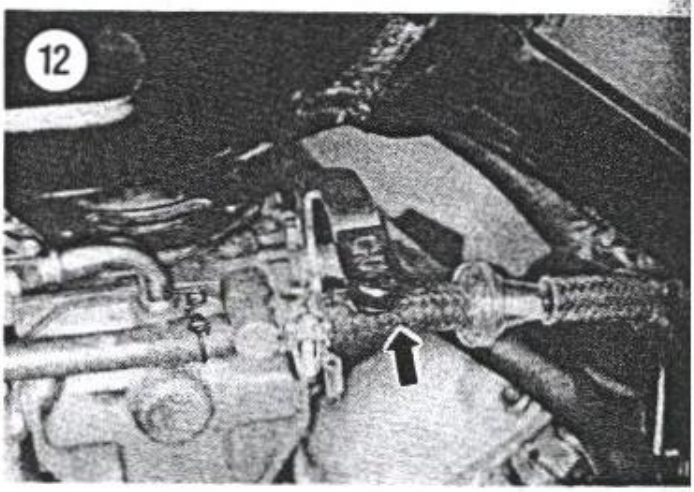
*Stuff clean shops rags into the intake openings in the cylinder heads to prevent foreign objects from falling into the cylinder heads.*

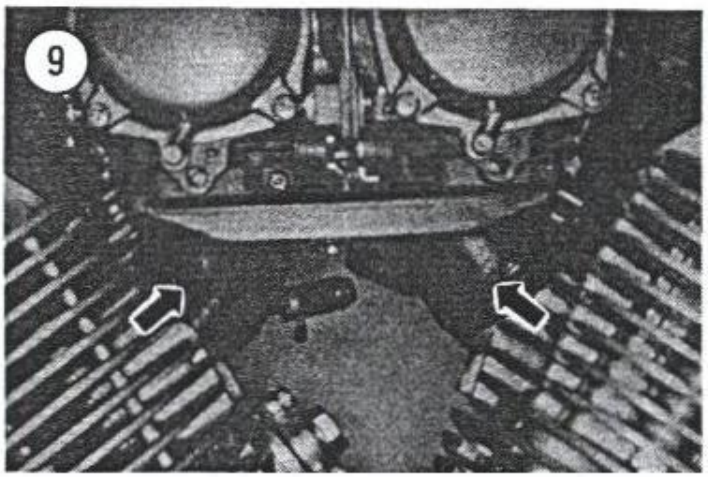
20. While the carburetor assembly is removed, examine the cylinder head intake tubes and the rubber

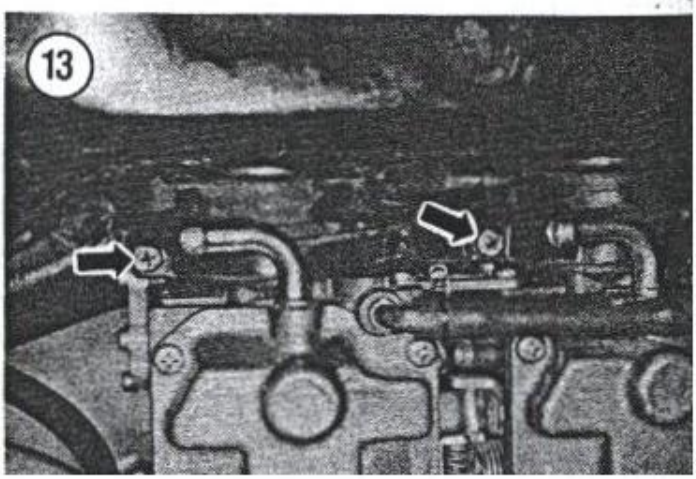


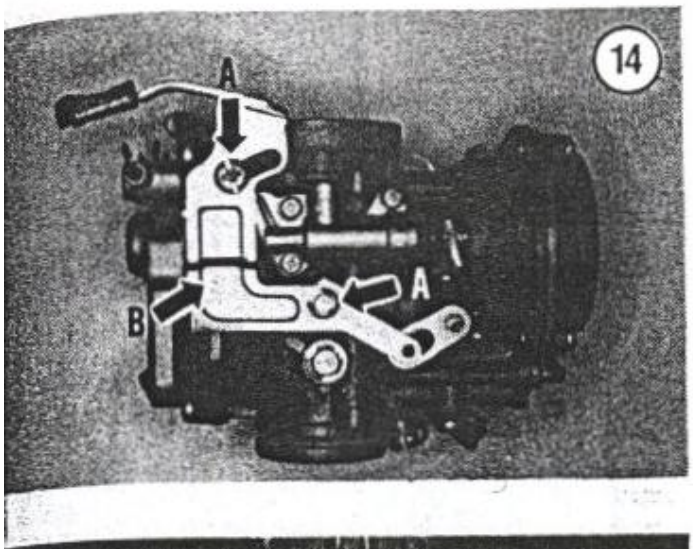



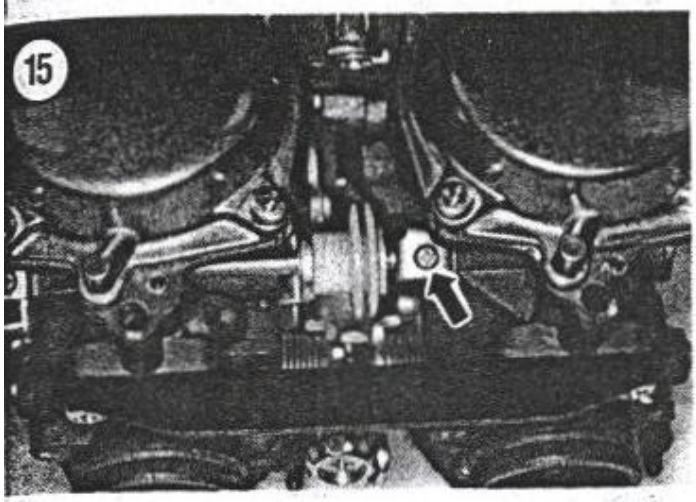



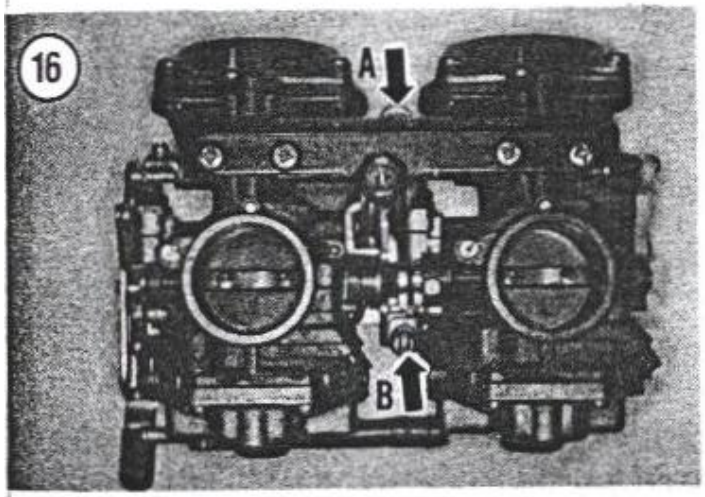



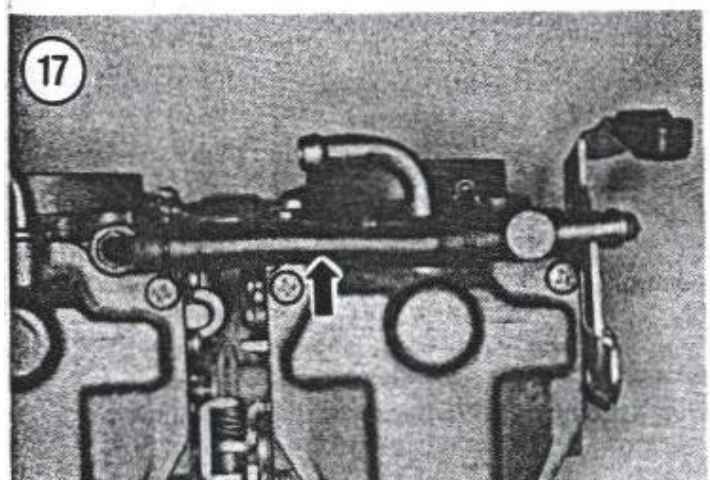






outlet boots on the air filter box for any cracks or damage that would allow unfiltered air to enter the engine. Replace any damaged parts.

21. Install by reverse these removal steps while noting the following:

a. Make sure the O-ring seal is in place in the rubber intake tube prior to installation. During installation of the carburetor assembly, do not snag the O-ring on the cylinder head surface as the O-ring will either be damaged or may be moved out of position resulting in a vacuum leak.

b. Make sure the carburetors are fully seated forward in the filter housing joints on both carburetors. Also make sure the joints are correctly seated in the air filter air box.

*CAUTION*

*Make sure the carburetor intake tubes are air tight. Air leaks can cause severe engine damage because of a lean mixture or the intake of dirt and moisture.*

c. Check the throttle cable for correct routing after installation. The cable must not be twisted, kinked or pinched.

d. Adjust the throttle cable as described in Chapter Three in this section of the manual.

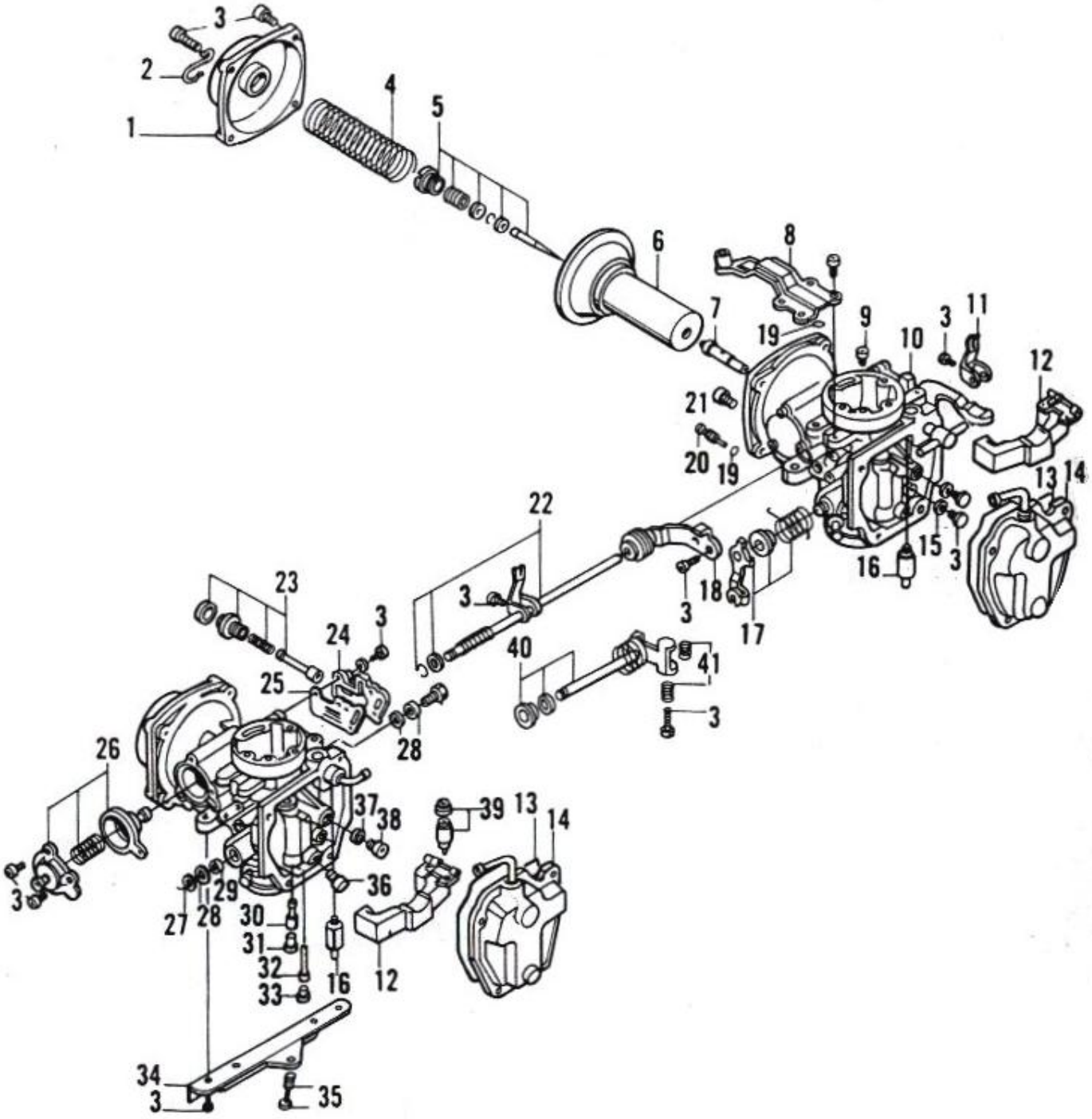
**Carburetor Assembly Separation/Reassembly**

The carburetors can be cleaned without separating the individual body assemblies but if necessary, they can be separated as follows.

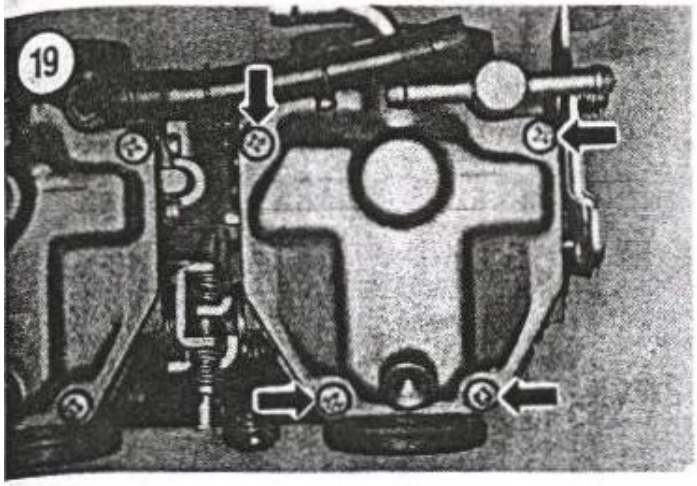
1. Remove the screw and E-clip (A, **Figure 14**) securing the choke lever and remove the choke lever assembly (B, **Figure 14**). Don't lose the plastic washers that will fall out when the lever is removed.
2. Loosen the screws on the choke lever link (**Figure 15**).
3. Remove the E-clip, spring and remove the choke lever from the assembly.
4. Remove the screws securing the upper bracket and remove the bracket.
5. Remove the screws securing the lower bracket (A, **Figure 16**) and remove the bracket.
6. Move the hose clamps on the fuel line assembly (**Figure 17**) away from both carburetor bodies.
7. Place the carburetor assembly on a piece of plate glass with the vacuum chamber covers facing down.

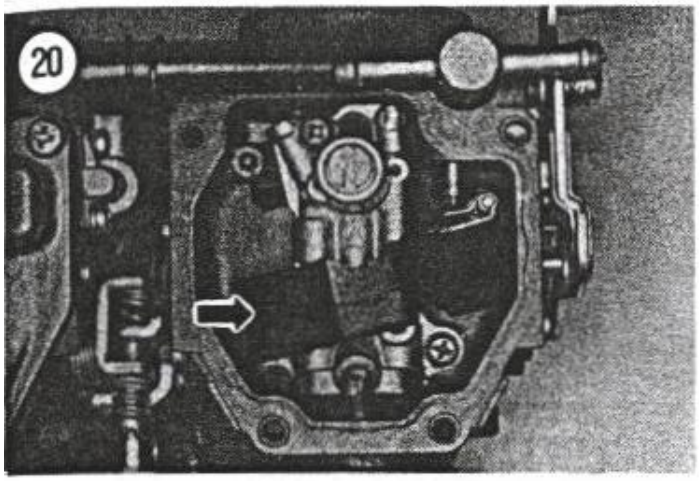
(18)

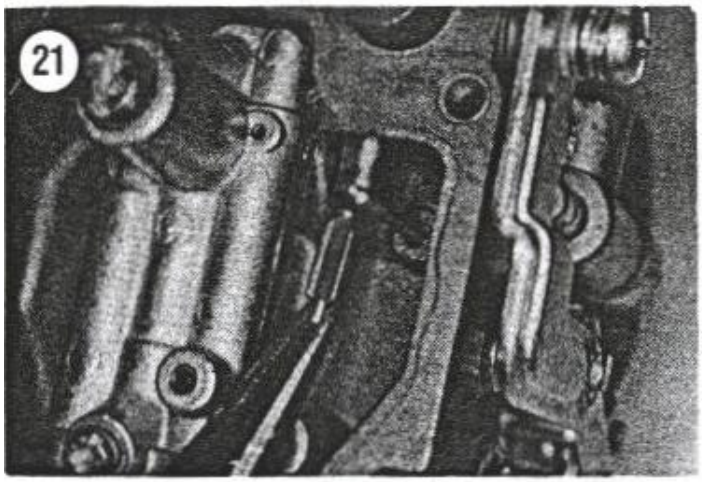
## CARBURETOR

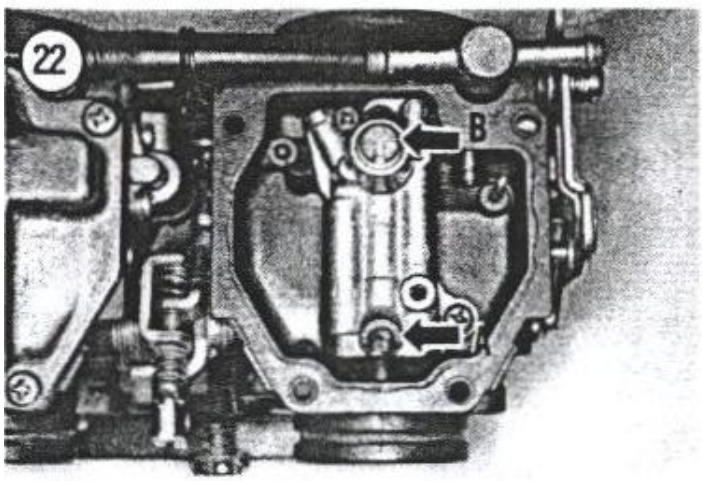



1. Cover
2. Guide
3. Screw
4. Spring
5. Jet needle assembly
6. Diaphragm/slide
7. Main jet nozzle
8. Upper bracket
9. Pilot air jet No. 1
10. Carburetor body
11. Float hanger
12. Float
13. O-ring gasket
14. Float chamber
15. Lockwasher
16. Needle valve
17. Throttle lever and return spring
18. Choke lever
19. O-ring
20. Drain screw
21. Screw
22. Choke lever assembly
23. Choke assembly
24. Choke plate
25. Gasket
26. Coasting enricher assembly
27. E-clip
28. Washer
29. Seal
30. Pilot jet
31. Rubber plug
32. Main jet bleed pipe
33. Rubber plug
34. Lower bracket
35. Throttle adjust knob and spring
36. Main jet
37. Washer
38. Main jet holder
39. Needle valve and seat
40. Sychronizing lever assembly
41. Springs




8. Carefully separate the carburetor bodies from each other. Don't lose the small synchronizing screw (B, **Figure 16**) that will usually fall out.
9. Reassemble by reversing these separation steps while noting the following:
   a. Place the carburetor assembly on a piece of plate glass with the inlet side facing down.
   b. Tighten the upper and lower bracket screws securely while pressing down on both carburetors to maintain proper alignment between the 2 carburetors.
   c. Connect the rubber fuel line onto each carburetor body and reposition the hose clamps. Make sure the clamps are positioned correctly to avoid a fuel leak.

### Individual Carburetor Disassembly/Assembly

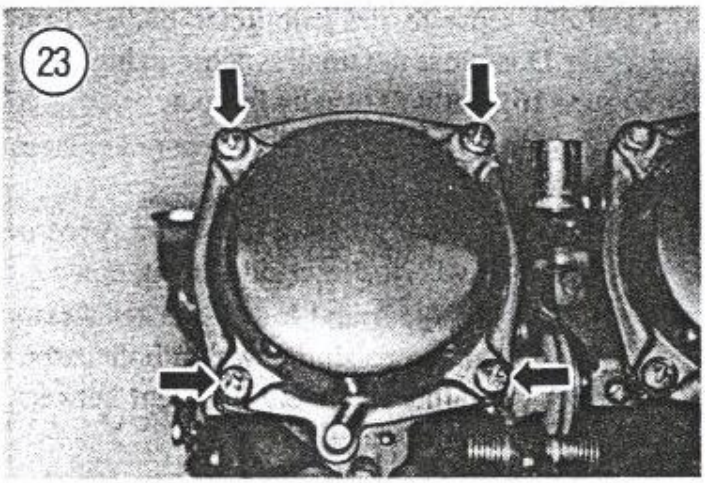
Refer to **Figure 18** for this procedure. It is recommended to disassemble only one carburetor at a time to prevent accidental interchange of parts.

1. Move the hose clamps on the fuel line assembly (**Figure 17**) away from the carburetor to be disassembled.
2. Remove the screws (**Figure 19**) securing the float bowl and remove the float bowl and gasket.
3. Remove the float (**Figure 20**) and the needle valve (**Figure 21**).
4. Remove the main jet (A, **Figure 22**).
5. Remove the main jet nozzle holder screw (B, **Figure 22**) and the washer under it.

*NOTE*

*One of the vacuum covers screws is a Torx head type (size T-27) and a special tool is required to remove it. Use Yamaha special tool U.S. part No. YU-05258, U.K. part No. 90890-05349, or equivalent.*

6. Remove the screws (**Figure 23**) and the vacuum chamber cover.
7. Remove the diaphragm spring (**Figure 24**) from the diaphragm.
8. Lift the diaphragm assembly (A, **Figure 25**) out of the carburetor.
9. Unscrew the pilot air jet No. 2 (**Figure 26**).
10. Remove the screws securing the choke chamber and remove the chamber assembly.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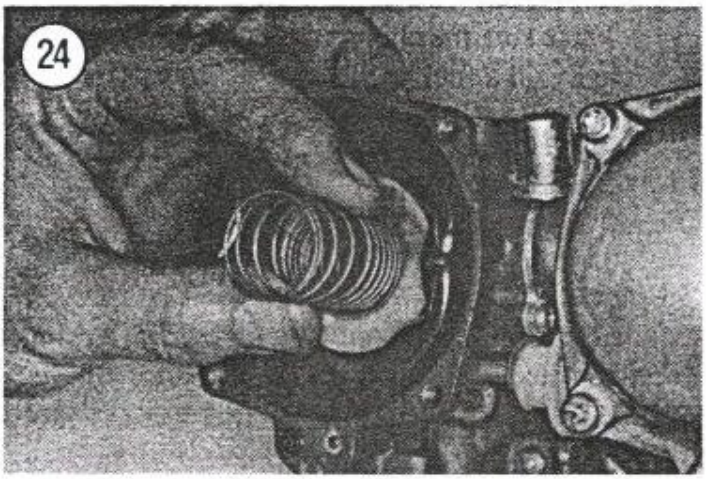
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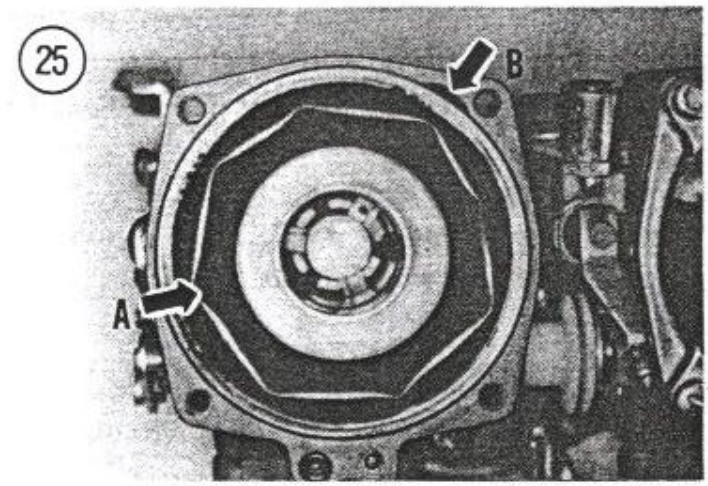
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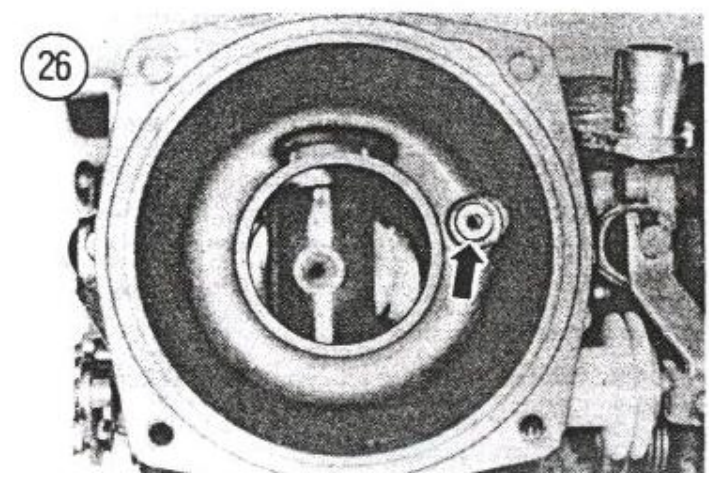
B
A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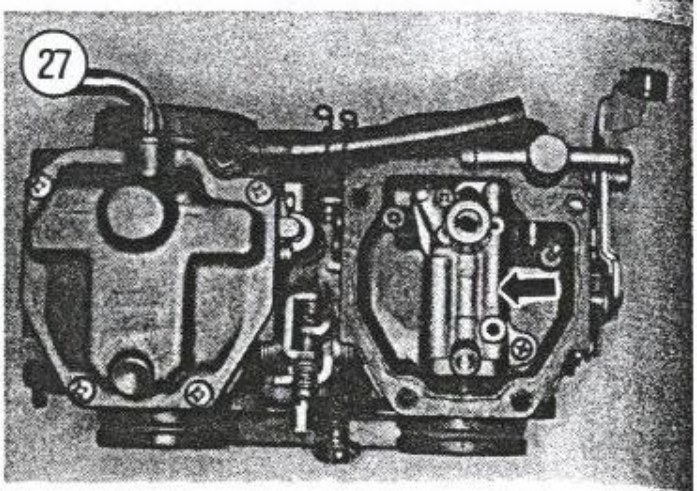
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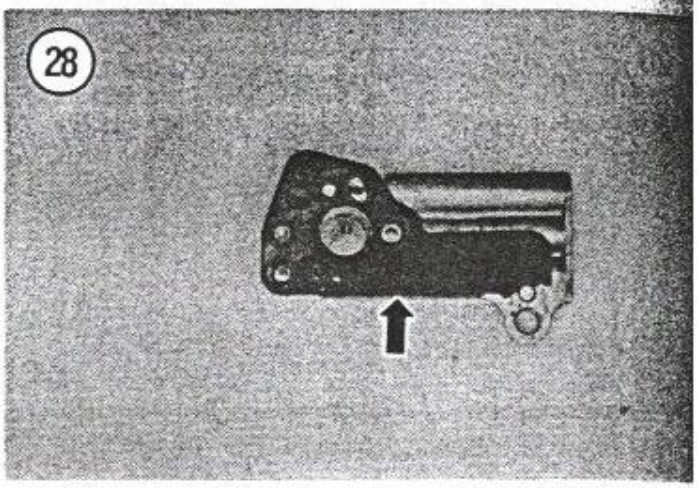
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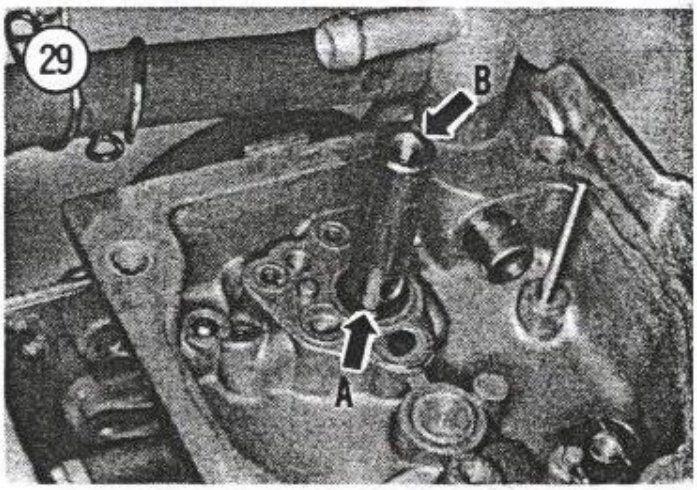
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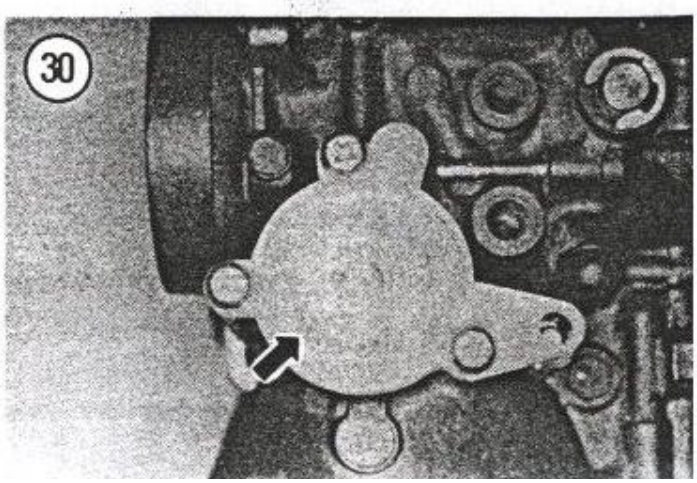
B
A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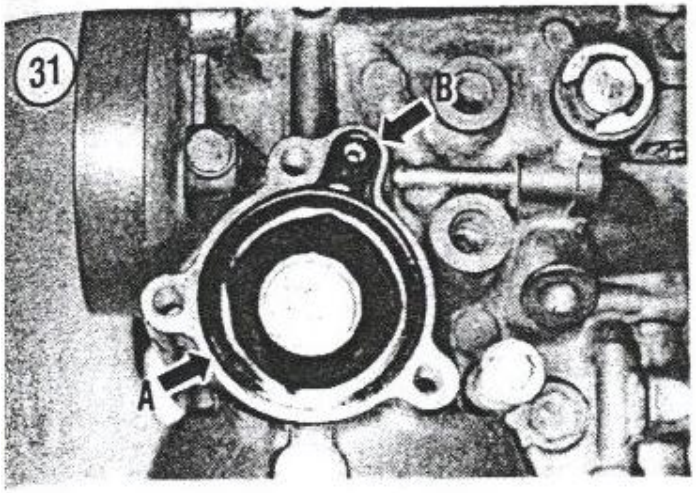
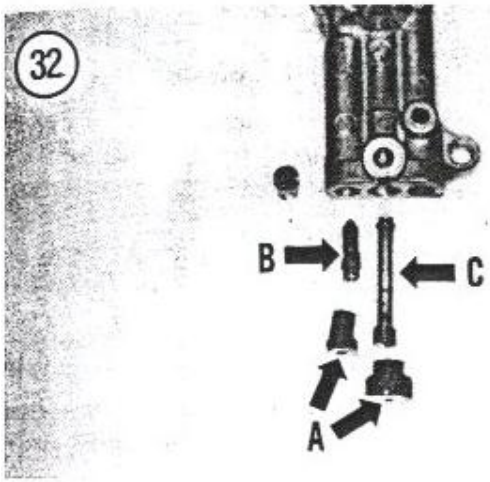
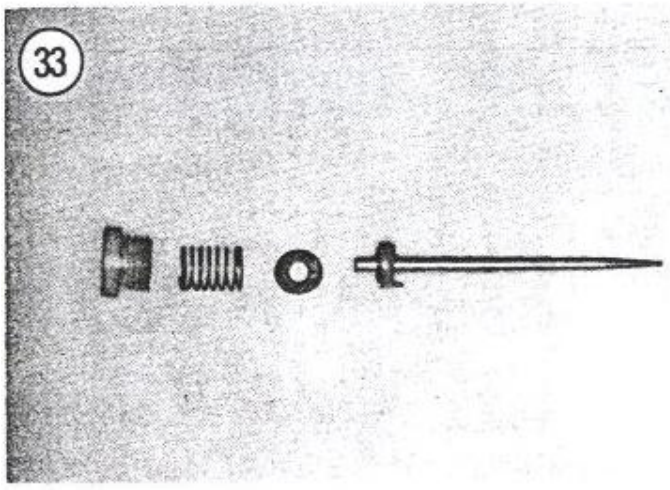
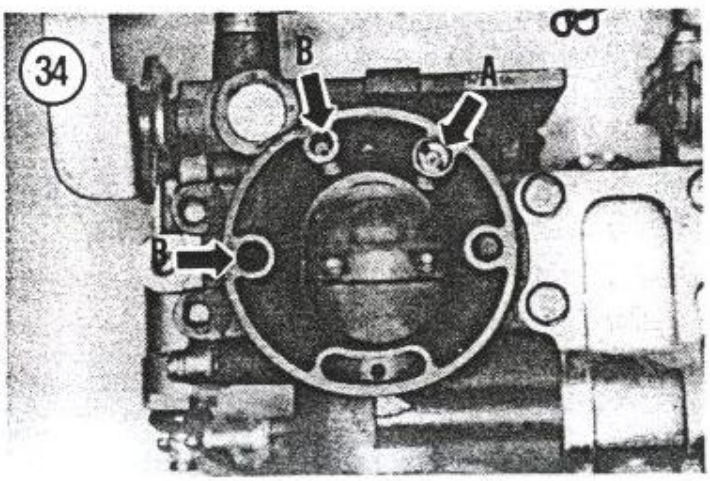


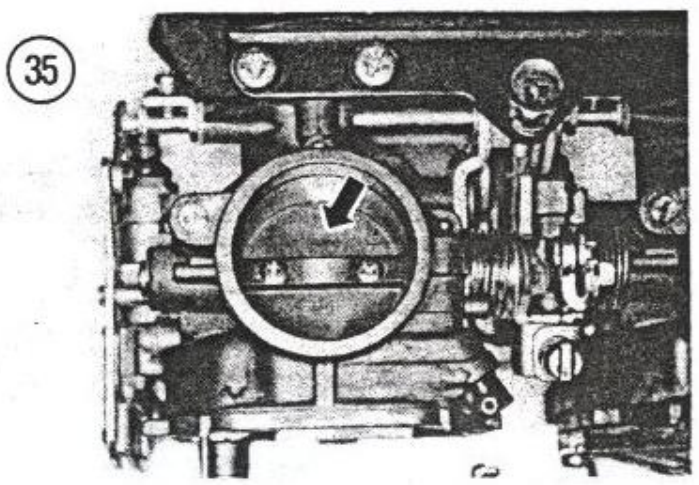




11. Remove the screws securing the jet block assembly (**Figure 27**) and remove it. Remove the gasket (**Figure 28**) and O-ring (A, **Figure 29**).
12. Turn the carburetor over and tap it with your hand. Remove the main jet nozzle (B, **Figure 29**).
13. Remove the screws securing the coasting enricher cover (**Figure 30**) and remove the spring and diaphragm (A, **Figure 31**).
14. Remove the rubber plugs (A, **Figure 32**) from the jet holder assembly.
15. Unscrew the pilot jet (B, **Figure 32**) and the main bleed pipe (C, **Figure 32**).
16. If necessary, remove the screws securing the throttle cable bracket and remove it.
17. Remove the needle valve assembly (**Figure 33**). Don't lose the O-ring seal.
18. Unscrew the pilot air jet No. 1 (A, **Figure 34**).
19. Clean and inspect that carburetor as described in this chapter.
20. Installation is the reverse of these steps while noting the following.

a. Check the throttle shaft and throttle plate (**Figure 35**) for excessive play or damage. Check the throttle plate screws for looseness. If the throttle shaft and/or plate is damaged, that carburetor body must be replaced as an assembly.
b. Make sure the O-ring seal is in place on the needle valve assembly prior to installation.
c. Align the projection (**Figure 36**) on the jet block with the groove (**Figure 37**) on the jet needle and install the jet block. Check to make sure the alignment is correct as shown in **Figure 38**. Tighten the screws securely.
d. Replace the float bowl seal (**Figure 39**) if deformed or starting to deteriorate or if the bowl has leaked.



e. Align the locating tab on the vacuum diaphragm (B, **Figure 25**) with the relief in the carburetor body. Insert your index finger into the venturi and hold the slide up to almost the full open position. This will help eliminate pinching the diaphragm when the top cover is installed.

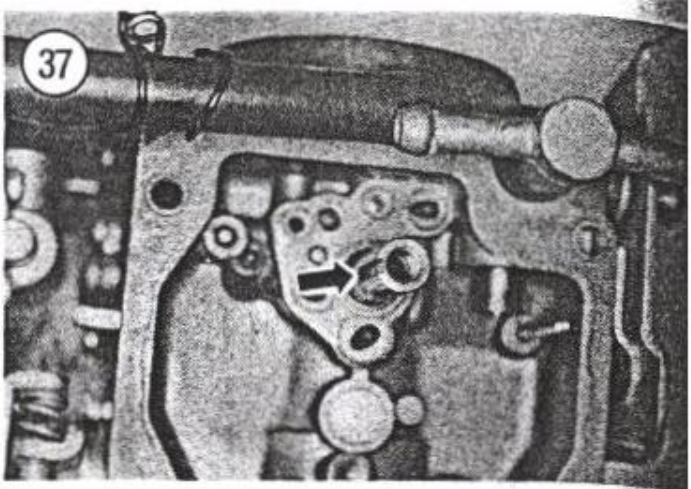
f. Install the cover and tighten the cover screws securely.

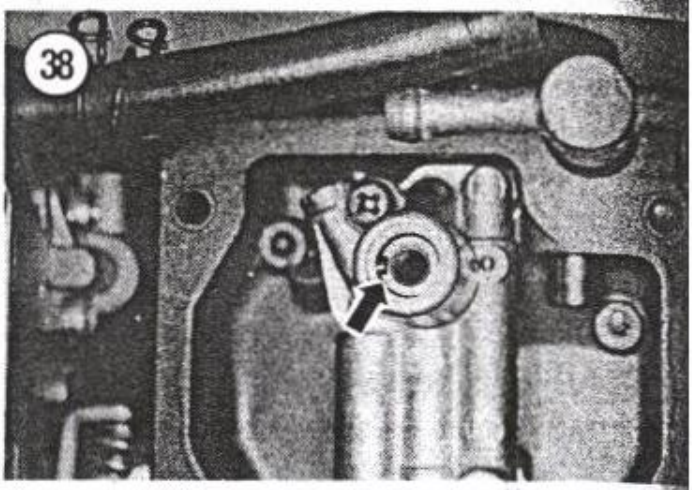
g. Align the locating tab on the coasting enricher diaphragm (B, **Figure 31**) with the relief in the carburetor body. Install the spring and cover and tighten the screws securely.

h. If removed, apply blue Loctite (No. 242) to the throttle cable bracket screws prior to installation. Tighten the screws securely.

21. Repeat Steps 1-17 for the other carburetor. Do not interchange parts—keep them separate.

22. After the carburetors have been disassembled the idle speed should be adjusted and the carburetors synchronized as described in Chapter Three in this section of the manual.



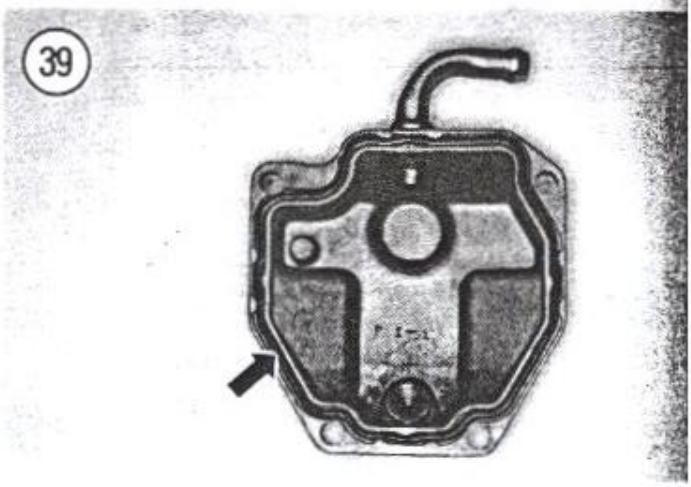

### Cleaning and Inspection

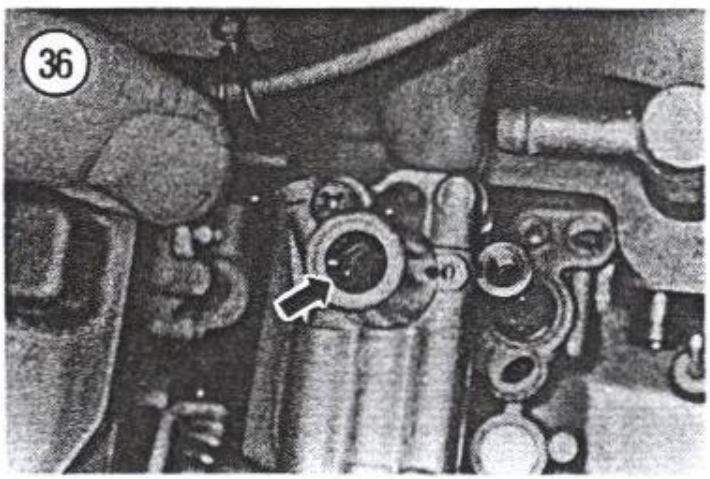
1. Thoroughly clean and dry all parts. Yamaha does not recommend the use of a caustic carburetor cleaning solvent. Instead, clean carburetor parts in a petroleum based solvent. Then rinse in clean water.

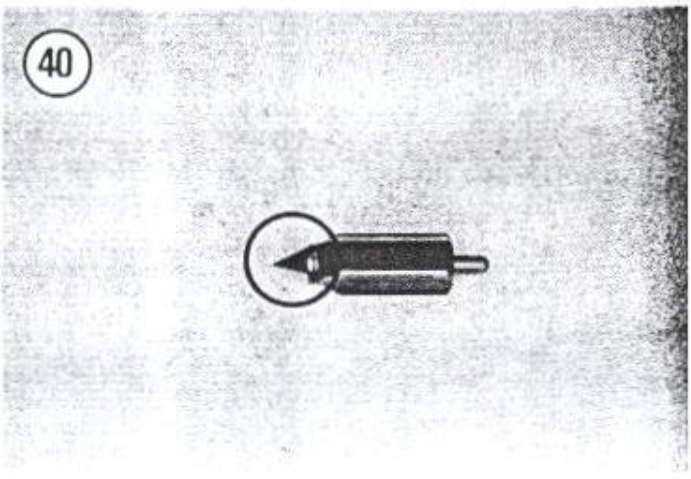
2. Allow the carburetor to dry thoroughly before assembly and blow dry with compressed air. Blow out the jets and needle jet holder with compressed air.

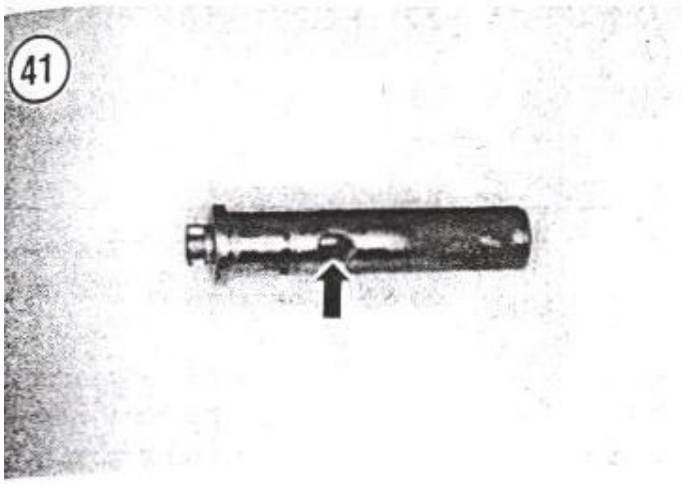
*CAUTION*

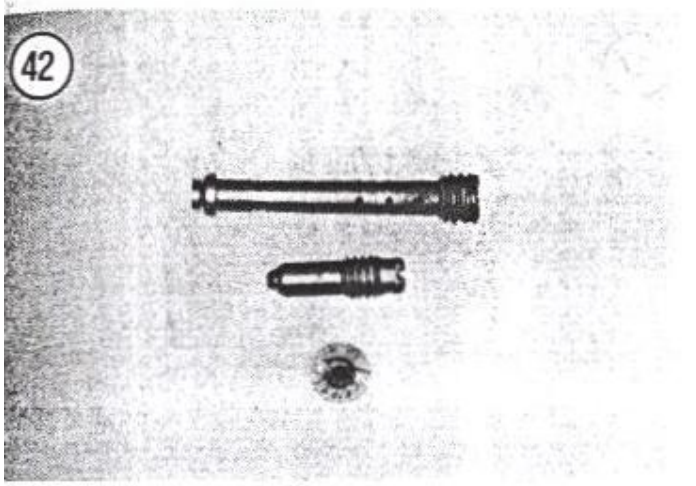
*If compressed air is not available, allow the parts to air dry or use a clean lint-*

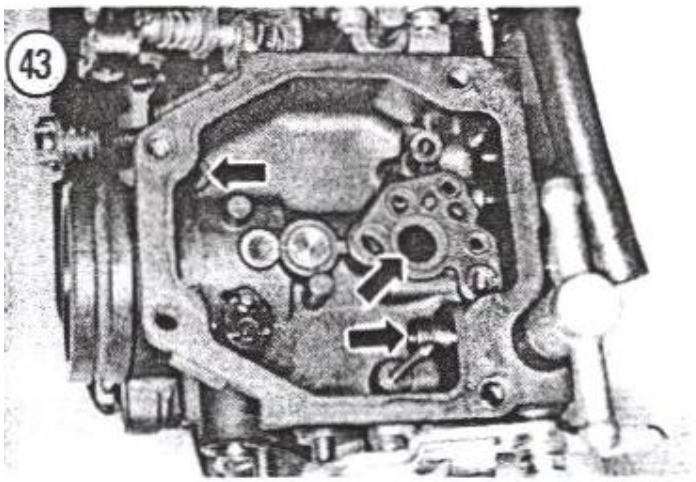


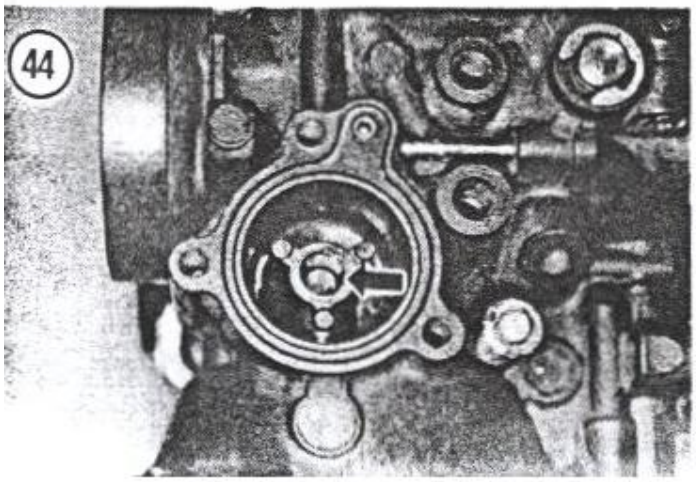



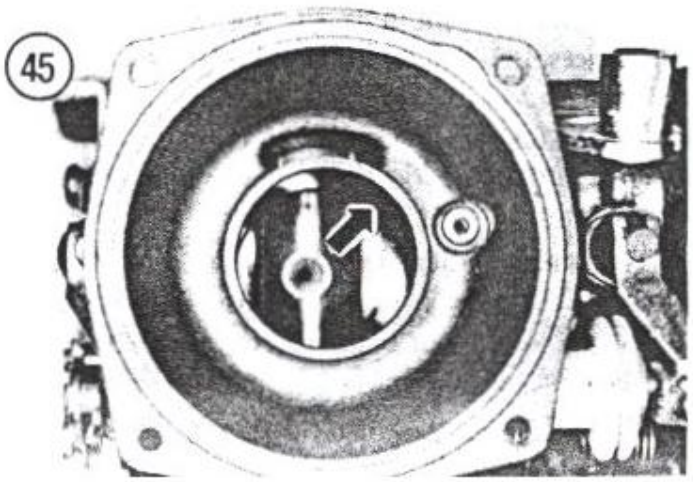






*free cloth. Do **not** use a paper towel to dry carburetor parts, as small paper particles may plug openings in the carburetor body or jets.*

*CAUTION*

*Do **not** use a piece of wire to clean the jets as minor gouges in the jet can alter flow rate and upset the fuel/air mixture.*

3. Inspect the end of the float valve needle (**Figure 40**) for wear or damage. Also check the inside of the needle valve in the needle valve body. If either part is damaged, replace as a set. A damaged needle valve or a particle of dirt or grit in the needle valve assembly will cause the carburetor to flood and overflow fuel.

4. Inspect all O-ring seals on the needle valve assembly prior to installation. O-ring seals tend to become hardened after prolonged use and heat and therefore lose their ability to seal properly. Replace if necessary.

5. Make sure the holes in the main jet nozzle (**Figure 41**) and all jets are clear (**Figure 42**). Clean out if they are plugged in any way. Replace the main jet nozzle if you cannot unplug the holes.

6. Make sure all openings in the carburetor body are clear. Refer to **Figure 43**, **Figure 44** and B, **Figure 34**. Clean out if they are plugged in any way.

7. Inspect the slide area (**Figure 45**) in the carburetor body. Make sure it is clean and free of any burrs or obstructions that may cause the diaphragm assembly to hang up on during normal operation.

8. Inspect the diaphragm slide (A, **Figure 46**) for scoring and wear. Replace if necessary.

9. Inspect the diaphragm (B, **Figure 46**) for tears, cracks or other damage. Replace the throttle slide assembly if the diaphragm is damaged.

10. Inspect the float (**Figure 47**) for deterioration or damage. If the float is suspected of leakage, place it in a container of non-caustic solution and push it down. If the float sinks or if bubbles appear (indicating a leak), the float must be replaced.

## CARBURETOR ADJUSTMENTS

*Idle Speed, Idle Mixture Adjustment* and *Carburetor Synchronization* are covered in Chapter Three in this section of the manual.

## COASTING ENRICHER SYSTEM

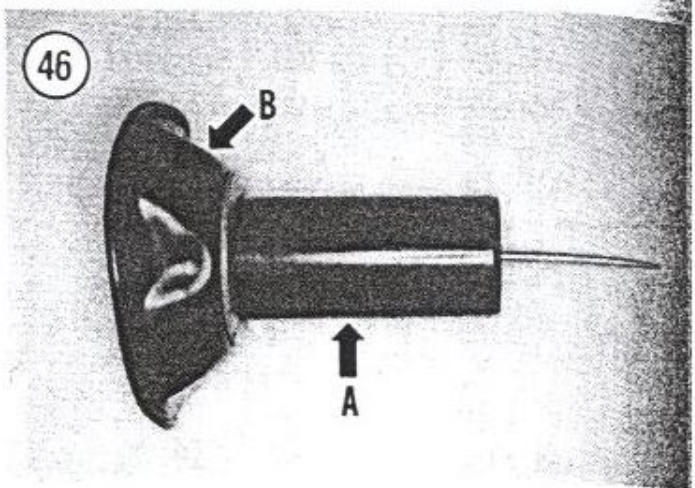
The carburetors on these models are equipped with a coasting enricher system. When the throttle is opened, air is forced to the pilot air jet through two passageways in the carburetor body. When the throttle is off, vacuum at the carburetor joint increases and actuates the enricher diaphragm which shuts off the air through one of the passages. This action increases the fuel mixture at the pilot jet outlet and reduces afterburning.

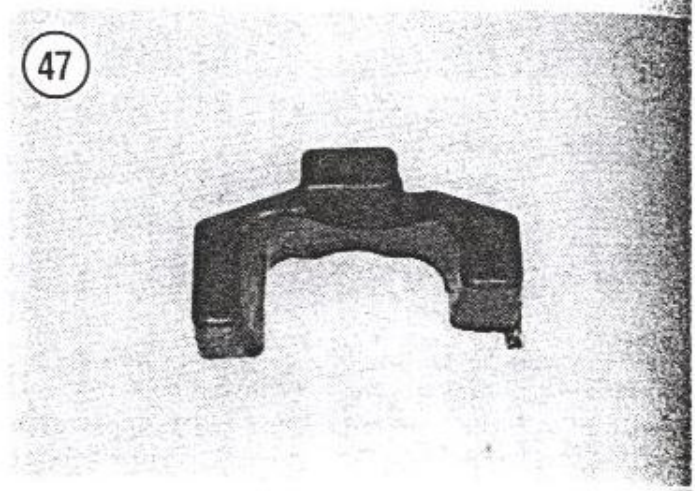
1. Remove the carburetor assembly as described in this chapter.
2. Remove the screws securing the coasting enricher cover and remove the spring and diaphragm (**Figure 48**).
3. Inspect the enricher diaphragm for tears or other damage. Replace the diaphragm if necessary.
4. Install by reversing these removal steps.

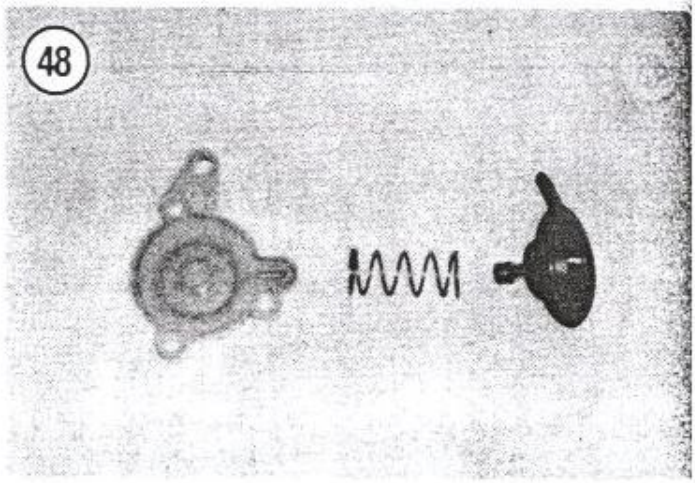
## FUEL LEVEL MEASUREMENT

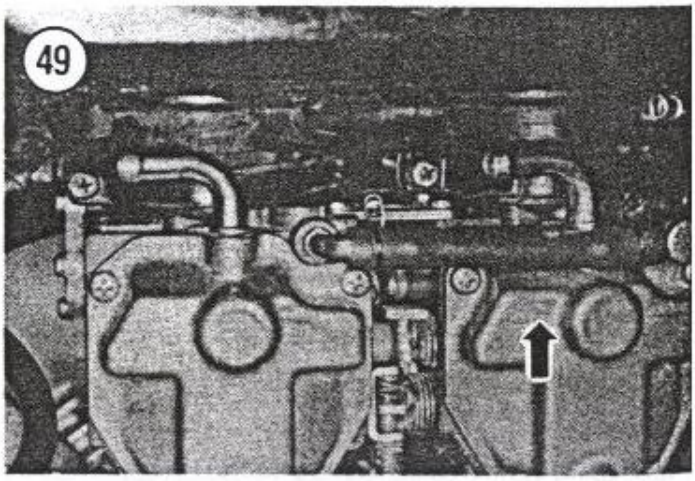
The fuel level in the carburetor float bowls is critical to proper performance. The fuel flow rate from the bowl up to the carburetor bore depends not only on the vacuum in the throttle bore and the size of the jets, but also on the fuel level. Yamaha gives a specification of actual fuel level, measured from below the piston valve center mark on the float bowl (**Figure 49**) with the carburetors mounted on the motorcycle.

This measurement is more useful than a simple float height measurement because the actual fuel level can vary from bike to bike, even when their floats are set at the same height. Fuel level inspection requires a special Yamaha Fuel Level Gauge (U.S. part No. YM-01312, U.K. part No. 90890-01312) or



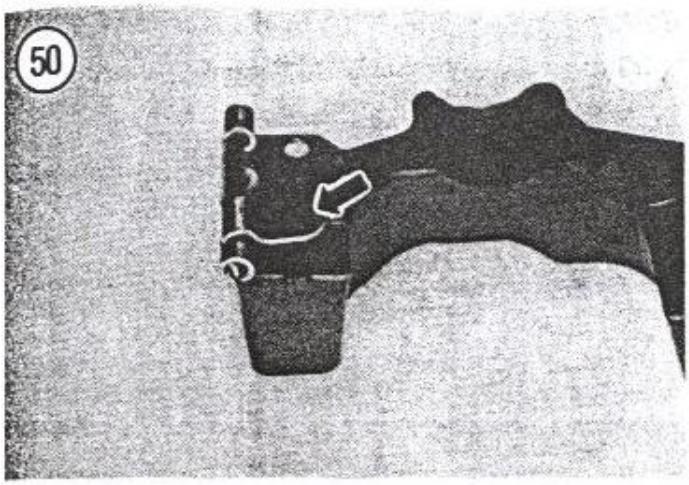



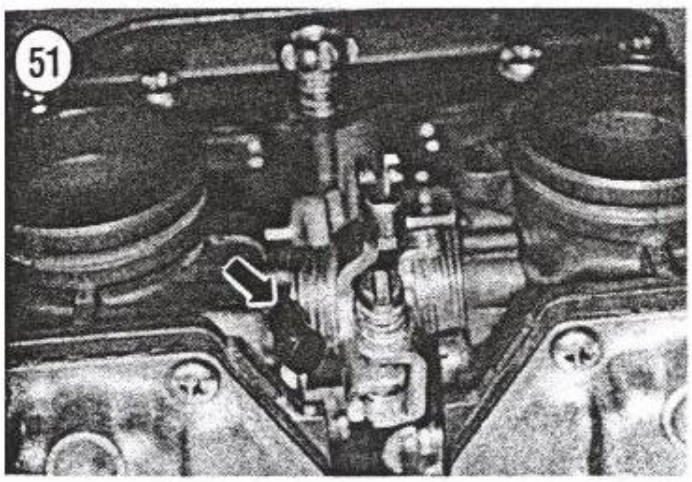
a vinyl tube with an inside diameter of 6 mm (0.24 in.).

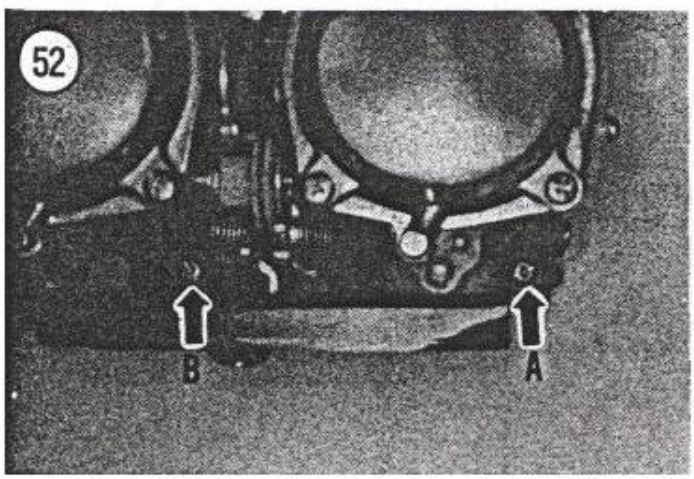
The fuel level is adjusted by bending the float arm tang (**Figure 50**).

***Inspection/adjustment***

Carburetors leave the factory with float levels properly adjusted. Rough riding, a worn needle valve or bent float arm can cause the float level to change. To adjust the float level on these carburetors, perform the following.








*WARNING*

*Some gasoline will drain from the carburetors during this procedure. Work in a well-ventilated area, at least 50 feet from any open flame. Do not allow anyone to smoke. Wipe up spills immediately.*

1. Place the motorcycle securely on the sidestand. Make sure the bike and carburetor assembly are in a true vertical position. If necessary, place shims under the sidestand to achieve a true vertical position for the carburetor assembly.

*NOTE*

***Figure 51** and **Figure 52** are shown with the carburetor assembly removed for clarity. Do not remove the assembly for this procedure.*

2. Connect the fuel level gauge (U.S. part No. YM-01312, U.K. part No. 90890-01312) or a vinyl tube (with a 0.24 in./6 mm inner diameter) to the drain nozzle on the float chamber (**Figure 51**) on the front carburetor. Secure the gauge so that it is vertical against the float bowl.
3. Loosen the carburetor drain screw. Refer to A, **Figure 52** for the front cylinder or B, **Figure 52** for the rear cylinder.
4. Start the engine and allow it to idle for a few minutes. Turn the engine off.
5. Wait until the fuel in the gauge settles.
6. The fuel level should be 0.53-0.57 in. (13.5-14.5 mm) below the piston valve center mark on the float bowl. Note the reading for the front carburetor.
7. If the fuel level is incorrect, note the dimension for the front carburetor, tighten the drain screw and then repeat this procedure for the rear carburetor. Note the fuel level in the rear carburetor.
8. If the fuel level is incorrect, adjust the float height as follows:
   a. Remove the carburetor assembly as described in this chapter.
   b. Remove the screws (**Figure 53**) securing the float bowl and remove the float bowl and gasket.
   c. Remove the float (**Figure 54**) and the needle valve.

d. Carefully adjust the tang (**Figure 50**) on the float. Bending the float upward very slightly to lower the fuel level; bend the tang downward to raise the fuel level. If the fuel level is set too high, the result with be a rich air-fuel mixture. If it is set too low, the mixture will be too lean.

e. Install the needle valve, float and float bowl.

9. Install the carburetor assembly and repeat this procedure until both fuel levels are correct.

*CAUTION*

*The floats on both carburetors must be adjusted to the correct position to maintain the same air-fuel mixture to each cylinder.*

## THROTTLE CABLE REPLACEMENT

1. Place the bike securely on the sidestand.
2. Remove the seat.

3A. On 1987-1989 U.S. models and 1988 U.K. models, remove the rear bolt and front bolt on each side securing the frame top cover and remove the cover.

3B. On 1990-on U.S. models and 1989-on U.K. models, remove the sub-fuel tank as described in this chapter.

4. At the throttle lever, loosen the cable locknut (A, **Figure 55**) and loosen the adjuster (B, **Figure 55**) to allow maximum amount of slack in the throttle cable.

5. Remove the screws securing the right-hand switch/throttle housing halves together (C, **Figure 55**).

6. Remove the housing from the handlebar and disengage the throttle cable (D, **Figure 55**) from the throttle grip.

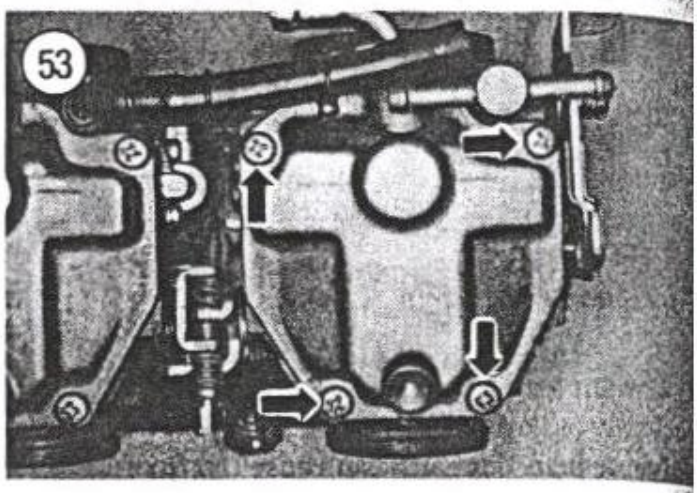
7. Loosen the locknut on the throttle cable (A, **Figure 56**) at the carburetor assembly.

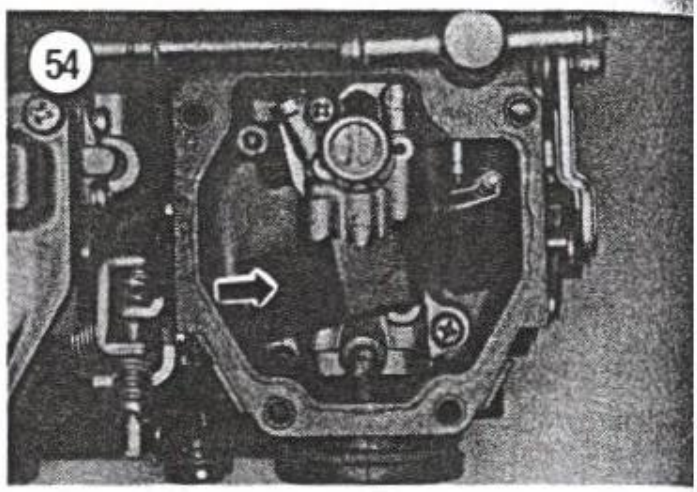
8. Open the throttle wheel with your finger and disconnect the throttle cable from the carburetor throttle wheel (B, **Figure 56**).

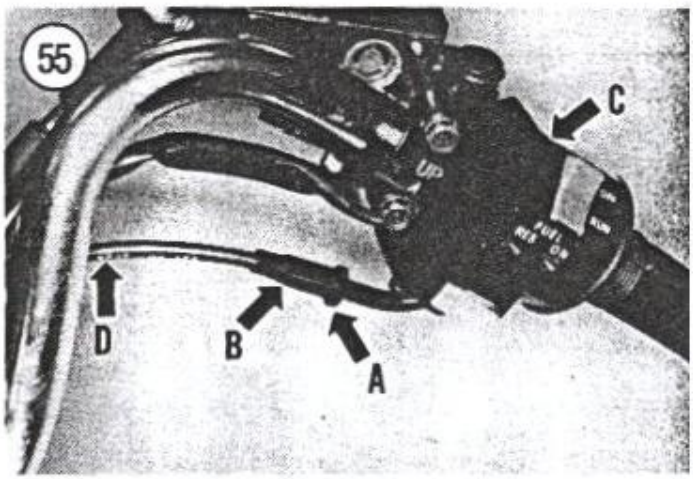
9. Disconnect the throttle cable from any clips holding the cable to the frame.

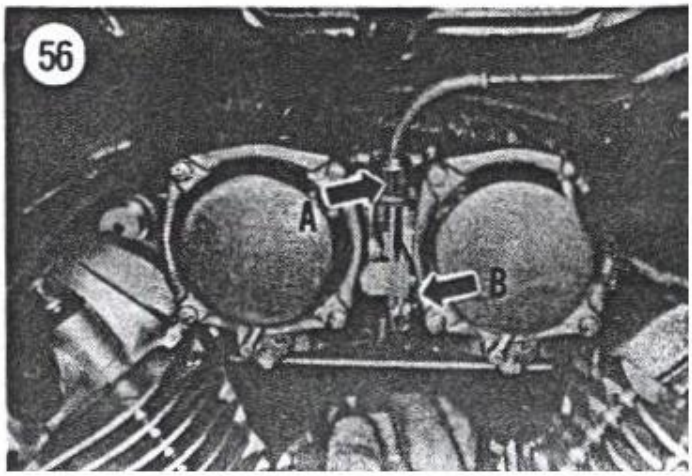
*NOTE*

*The piece of string attached in the next step will be used to pull the new throttle cable back through the frame so it will*



*be routed in the exact same position as the old one.*

10. Tie a piece of heavy string or cord (approximately 7 ft./2 m) to the carburetor end of the throttle cable. Wrap this end with masking or duct tape. Do not use an excessive amount of tape as it will be pulled through the frame. Tie the other end of the string to the frame.
11. At the throttle lever end of the cable, carefully pull the cable (and attached string) out through the frame. Make sure the attached string follows the same path of the cable through the frame.
12. Remove the tape and untie the string from the old cable.

### Installation

1. Lubricate the new cable as described in Chapter Three in the front section of the manual.
2. Tie the string (used during removal) to the new throttle cable assembly and wrap it with tape.
3. Carefully pull the string back through the frame routing the new cable through the same path as the old cable.
4. Remove the tape and untie the string from the cable and the frame.
5. Reverse Steps 1-9 of *Removal*, while noting the following:
   a. Operate the throttle grip and make sure the carburetor throttle linkage is operating correctly and with no binding. If operation is incorrect or there is binding, carefully check that the cable is attached correctly and there are no tight bends in the cable.
   b. Adjust the throttle cable as described in Chapter Three in this section of the manual.
   c. Test ride the bike and make sure the throttle is operating correctly.

## FUEL SHUTOFF VALVE (1990-ON U.S. MODELS, 1989-ON U.K. MODELS)

### Troubleshooting

1. Remove the main fuel tank as described in this chapter.
2. Connect a suitable size piece of tubing to the fuel port.
3. Turn the lever to the ON position.
4. Blow through the tubing and observe the following:
   a. The air goes through the tubing and valve—the valve is operating correctly.
   b. The air *does not* go through the tubing and valve—the valve is faulty and must be replaced.
5. Leave the hose attached and attach a 12 volt battery to the solenoid's electrical connector as follows:
   a. Battery positive (+) to the yellow/blue terminal.
   b. Battery negative (–) to the blue terminal.
6. Blow through the tubing and observe the following:
   a. The air goes through the tubing and valve—the valve is faulty and must be replaced.
   b. The air *does not* go through the tubing and valve—the valve is operating correctly.

### Removal/Installation

Refer to **Figure 57** for this procedure.

*NOTE*

*On prior models the main fuel tank was not equipped with a fuel shutoff valve.*

*WARNING*

*Some fuel may spill in the following procedure. Work in a well-ventilated area at least 50 feet from any sparks or flames, including gas appliance pilot lights. Do not allow anyone to smoke in the area. Keep a B:C rated fire extinguisher handy.*

1. Remove the fuel tank as described in this chapter.
2. If still attached, disconnect the fuel line and vacuum line from shutoff valve.
3. Remove the bolts and washers (A, **Figure 58**) securing the shutoff valve to the fuel tank and remove the valve (B, **Figure 58**).
4. Inspect the shutoff valve mounting O-ring; replace if necessary.
5. Install by reversing these removal steps. Pour a small amount of gasoline in the tank after installing the valve and check for leaks. If a leak is present, solve the problem prior to installing the fuel tank.

## FUEL FILTER

All models are equipped with a separate fuel filter that cannot be cleaned. If dirty or clogged, a new filter must be installed. The filter must be periodically replaced (no replacement intervals are specified by Yamaha).

### Removal/Installation

1. Remove the seat.
2. Disconnect the inlet (A, **Figure 59**) and outlet (B, **Figure 59**) fuel lines from the fuel filter. Plug the end of the fuel line with golf tees.
3. Remove the fuel filter from the rubber mount and remove the filter (C, **Figure 59**).
4. Install by reversing these removal steps while noting the following:
   a. Install the fuel filter so that the flange end and arrow mark (D, **Figure 59**) face toward the fuel pump.
   b. Check the fuel line clamps for damage; replace if necessary.
   c. After installation is complete, thoroughly check for leaks.

## FUEL PUMP

### Removal/Installation

1. Remove the seat.
2. Disconnect the battery negative cable.

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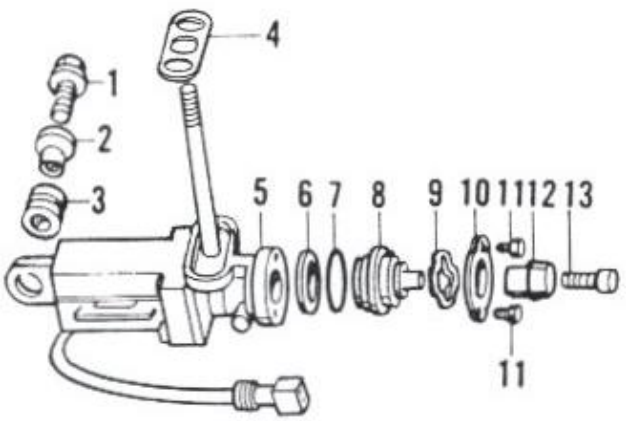
**SHUTOFF VALVE (1990-ON U.S. 1989-ON U.K.)**




1. Bolt
2. Collar
3. Rubber bushing
4. Gasket
5. Valve body
6. Valve disc
7. O-ring
8. Valve
9. Spring
10. Plate
11. Screw
12. Knob
13. Screw

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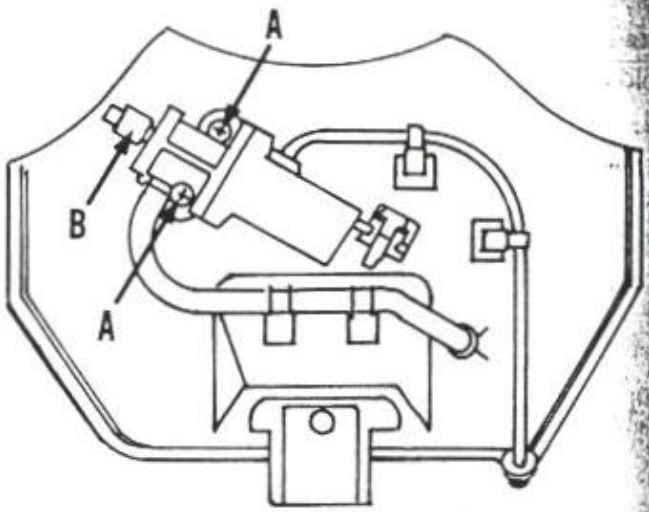


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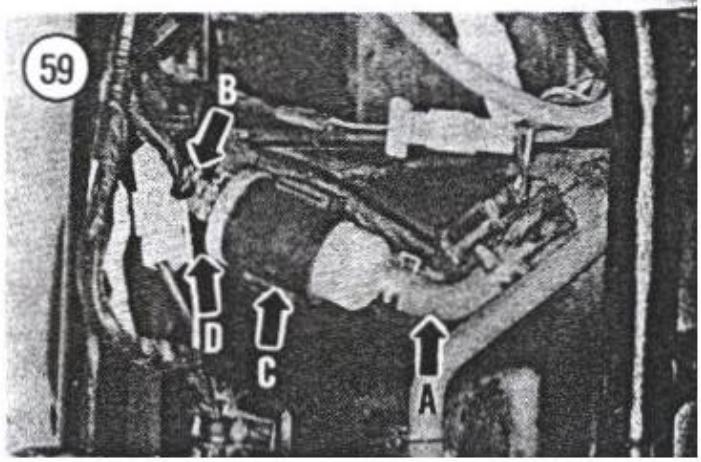
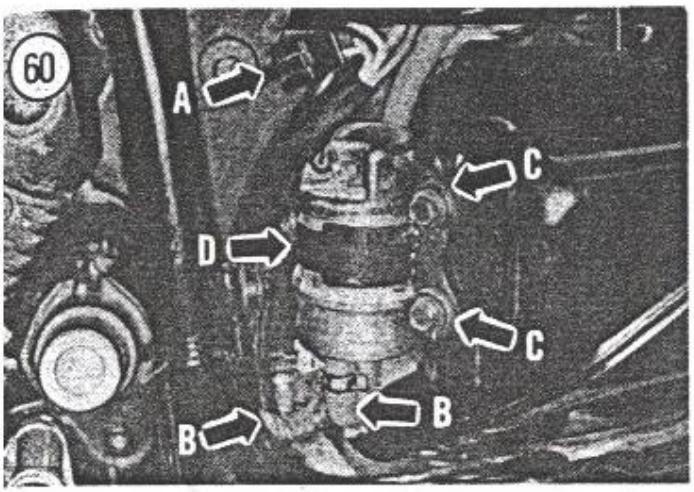


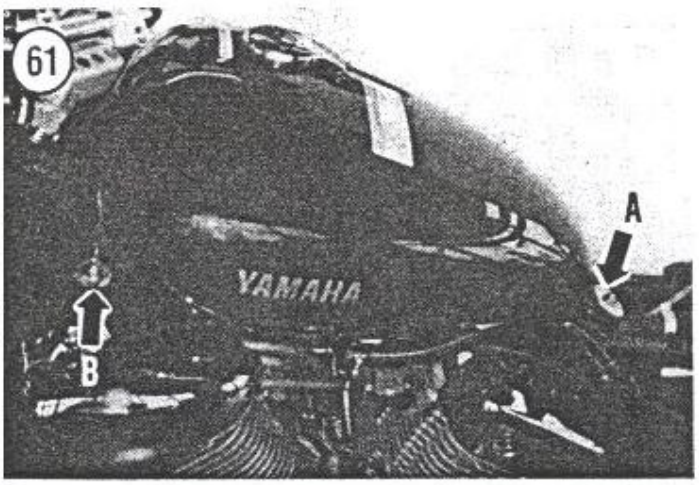
3. Disconnect the fuel pump electrical connector (A, **Figure 60**)

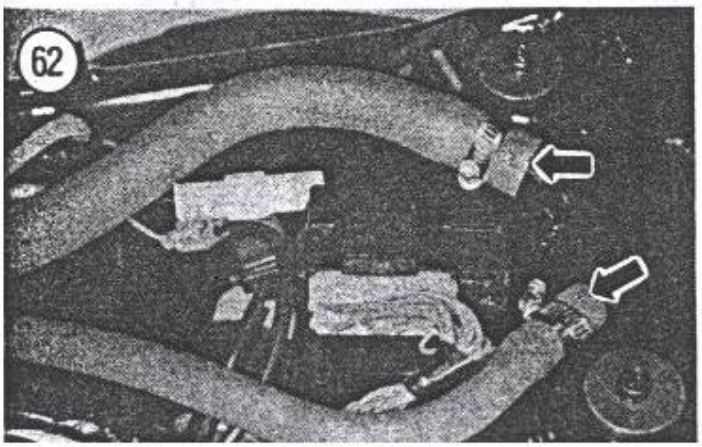
4. Disconnect the fuel inlet and outlet (B, **Figure 60**) lines from the fuel pump. Plug the end of the fuel lines with a golf tee to prevent fuel leakage.

5. Remove the clamping bolts (C, **Figure 60**) securing the fuel pump to the mounting bracket on the fuel tank.

6. Carefully pull the fuel pump (D, **Figure 60**) from the mounting bracket.




7. Install by reversing these removal steps while noting the following.
   a. Check the fuel line clamps for damage; replace if necessary.
   b. After installation is complete, thoroughly check for fuel leaks.

## FUEL TANK(S)

On 1987-1989 U.S. models and 1988 U.K. models, there is one main fuel tank that is mounted within the frame assembly beneath the seat and behind the battery. On 1990-on U.S. models and 1989-on U.K. models, there are two fuel tanks, the main fuel tank that is the same as on prior models as well as an additional sub-fuel tank that is mounted on top of the frame in place of the top cover used on prior years.

*WARNING*

*Some fuel may spill in the following procedures. Work in a well-ventilated area at least 50 feet from any sparks or flames, including gas appliance pilot lights. Do not allow anyone to smoke in the area. Keep a B:C rated fire extinguisher handy.*

### Sub-Fuel Tank (1990-on U.S. Models and 1989-on U.K. Models)

1. Place the bike securely on the sidestand.
2. Remove the seat.
3. Disconnect the battery negative cable.
4. Remove the rear bolt, washer and rubber cushion (A, **Figure 61**) and front bolt and washer (B, **Figure 61**) on each side securing the sub-tank to the frame. Don't lose the metal collar within the rubber cushions on the front mounting areas.

*NOTE*

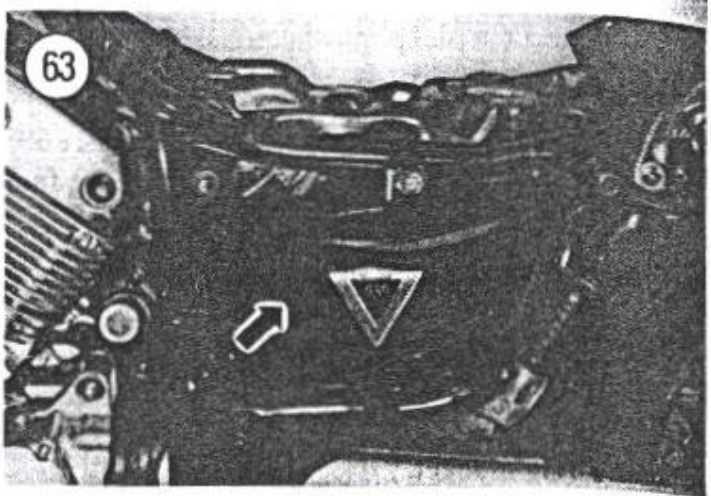
*In the following step, leave the fuel lines attached to the sub-fuel tank.*

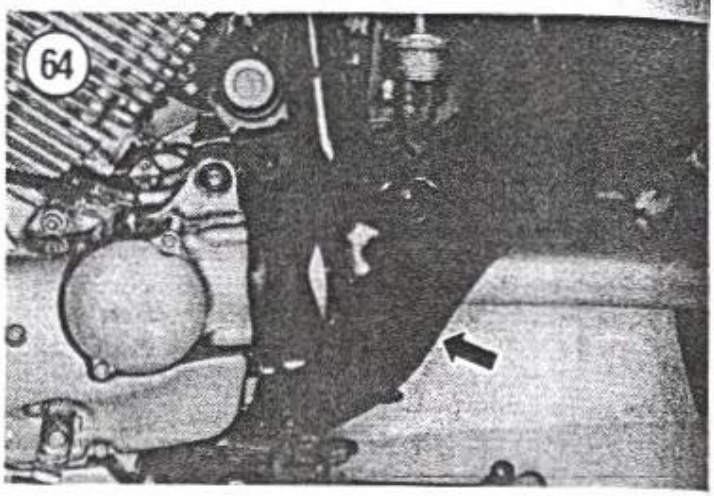
5. Disconnect both fuel lines (**Figure 62**) from the main fuel tank. Plug the end of both fuel lines with a golf tee to prevent the entry of foreign matter and the loss of fuel.
6. Unhook both fuel lines from the clamps on top of the battery cover.
7. Check to make sure everything is disconnected

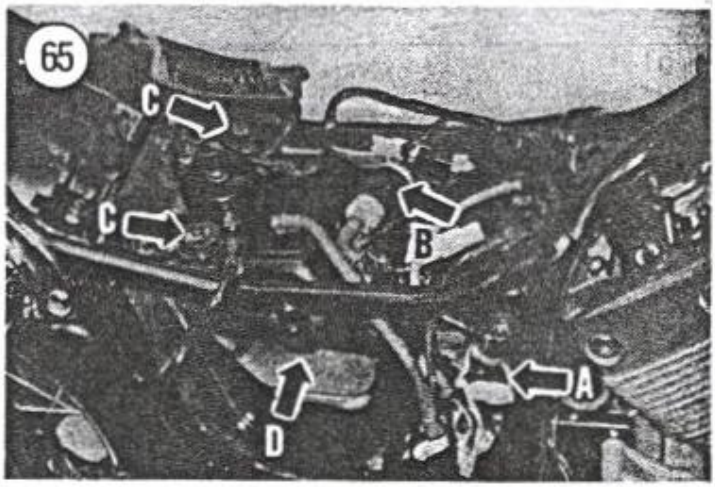
8. If necessary, pour the fuel out of the fuel tank into a container approved for gasoline storage.
9. Check the rubber dampers for wear and damage; replace if necessary.

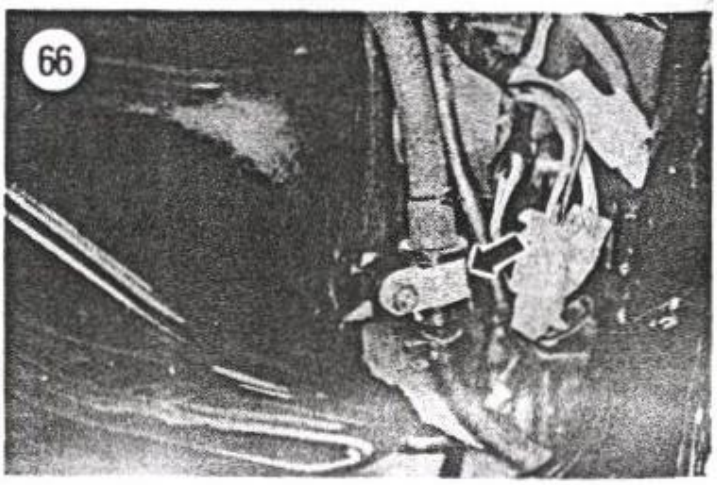
### Main Fuel Tank
### Removal/Installation

1. Place the bike securely on the sidestand.
2. Remove both seats(s).
3. Disconnect the battery negative cable.
4. Remove both frame side covers (**Figure 63**).
5. Remove the bolts securing the left-hand rear side cover (**Figure 64**) and remove the cover.
6. On the left-hand side, remove the bolts securing the rear bracket and remove the bracket.
7. On 1990-on U.S. models and 1989-on U.K. models, perform the following:
   a. Disconnect both fuel lines (**Figure 62**) from the main fuel tank. Plug the end of both fuel lines with a golf tee to prevent the entry of foreign matter and the loss of fuel.
   b. Unhook both fuel lines from the clamps on top of the battery cover.
8. Unhook the starter relay (A, **Figure 65**) from the frame mounting bracket and move the relay out of the way.
9. On models so equipped, remove the battery cover.
10. Remove the battery as described in Chapter Three in this section of the manual.
11. Remove the bolts, washers and lockwashers securing the battery box and remove the box from the frame.
12. Disconnect the electrical connectors from the fuse panel and remove the panel.
13. Remove the fuel pump and fuel filter (B, **Figure 65**) from the top and side of the fuel tank as described in this chapter.
14. Remove the bolts securing the fuel tank front mounting bracket and remove the bracket.
15. Remove the bolts, washers and lockwashers (C, **Figure 65**) securing the rear of the fuel tank to the frame.
16. Check to make sure everything is disconnected from the fuel tank and that all mounting bolts are removed.
17A. On 1987-1989 U.S. models and 1988 U.K. models, remove the fuel tank and filler cover (D, **Figure 65**).



17B. On all other models, remove the fuel tank from the frame.

18. Install by reversing these removal steps while noting the following:

a. Don't pinch any electrical wires during installation.

b. Reconnect all hoses and connectors. Make sure all hose clamps are in place and are on tight.

## CRANKCASE BREATHER SYSTEM

To comply with air pollution standards, all models are equipped with a closed crankcase breather system. The system routes the engine combustion gases into the air filter air box where they are burned in the engine.

Make sure the hose clamps at each end of the hose are tight. Check the hose for deterioration and replace as necessary.

## EVAPORATIVE EMISSION CONTROL (1990-ON CALIFORNIA MODELS)

All models sold in California since 1990 are equipped with an evaporative emission control system to reduce the amount of fuel vapors released into the atmosphere. The system consists of a charcoal canister, a roll-over valve, assorted vacuum lines and modified carburetors and fuel tank.

During engine operation, fuel vapors formed in the fuel tank exit the tank though a roll-over valve and enter the charcoal canister through a connecting hose. The vapors are stored in the charcoal canisters until the bike is ridden at high speed, when the vapors are then passed through a hose to the carburetor and mixed and burned with the incoming fresh air. During low-speed engine operation or when the bike is parked, the fuel vapors are stored in the charcoal canister.

The roll-over valve (**Figure 66**) is installed in line with the fuel tank and charcoal canister. Air and fuel vapor passing through the valve is controlled by an internal weight. During normal riding (or when the fuel tank is properly positioned), the weight is at the bottom of the valve. In this position, the breather passage is open to allow the fuel vapors to flow to the charcoal canister. When the bike is rolled or turned over, the weight moves to block off the passage. In this position it is impossible for stored fuel vapors to flow to the charcoal canister.

Service to the emission control system is limited to replacement of damaged parts. No attempt should be made to modify or remove the emission control system.

### Parts Replacement

When purchasing replacement parts (carburetor and fuel tank), be sure to specify that the parts are for a 1990-on California emission control bike. Parts sold for non-emission control bikes are not compatible with this emission control system.

### Inspection/Replacement

Maintenance to the evaporative emission control system consists of periodic inspection of the hoses for proper routing and a check of the canister mounting bracket. Refer to **Figure 67**.

*WARNING*

*Because the evaporative emission control system stores fuel vapors, make sure the work area is free of all flame or sparks before working on the emission system.*

1. Whenever servicing the evaporative emission control system, make sure the ignition switch is turned OFF.

2. Make sure all hoses are attached and that they are not damaged or pinched.

3. Replace any worn or damaged parts immediately.

4. The canister is capable of working through the motorcycle's life without maintenance, provided that it is not damaged or contaminated.

### Roll-Over Valve Replacement

1. Remove the seat and the frame right-hand side cover.

2. Remove the bolt and washer securing the roll-over valve to the side of the main fuel tank (**Figure 66**).

3. Disconnect the vacuum lines from each end of the roll-over valve and remove the valve.

4. Install by reversing these removal steps. Make sure the roll-over valve is tight.

### Canister and Hose Replacement

1. Label the hoses and fittings prior to disconnecting them.
2. Move the hose clamps off the hoses, then disconnect the hoses from the canister.
3. Remove the bolt, lockwasher and washer securing the canister to the frame.
4. Remove the canister from the frame.
5. To remove the hoses, perform the following:
   a. Remove the tie wraps securing the hoses to the frame and throttle cables.
   b. Disconnect the hoses from the carburetor assembly, fuel tank and canister.
6. Install by reversing these removal steps while noting the following:
   a. Make sure all hoses are connected to the correct fitting.
   b. Make sure the hose clamps and bolts are tight.

## AIR INJECTION SYSTEM (1990-ON U.S. AND 1989-ON U.K. MODELS)

All 1990-on U.S. and 1989-on U.K. models are equipped with an air injection emission control system to reduce the amount of hydrocarbons released into the atmosphere. The system consists of an air cut valve, a reed valve assembly and air and vacuum hoses (**Figure 68**). This system does not pressurize air, but uses the momentary pressure differentials generated by the exhaust gas pulses to introduce fresh air into the exhaust ports. Make sure all air and vacuum hoses are correctly routed and attached as shown in **Figure 69**. Inspect the hoses and replace any if necessary.

### Removal/Installation

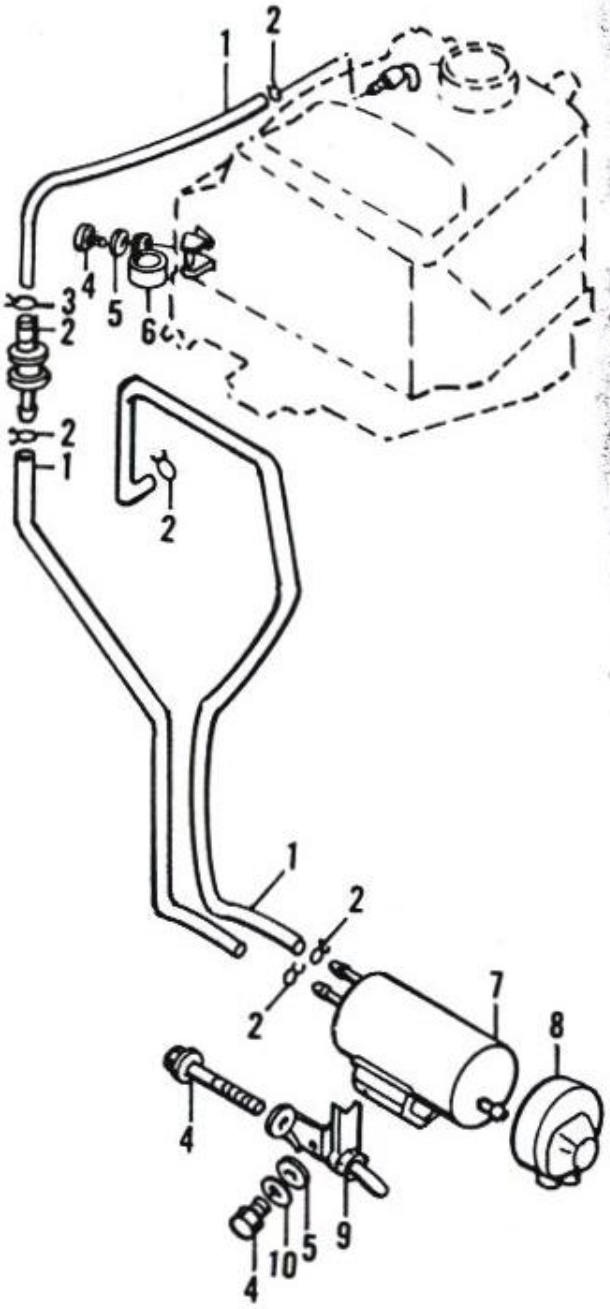
Refer to **Figure 68**, **Figure 69** and **Figure 70** for this procedure.

*NOTE*

*Prior to removing any hoses, mark the hose and the fitting with a piece of masking tape and identify where the hose goes during installation.*

1. Place the bike securely on the sidestand.
2. Remove the seat.

(67) **EVAPORATIVE EMISSION CONTROL (1990-ON CALIFORNIA MODELS)**




1. Hose
2. Hose clamp
3. Rollover valve
4. Bolt
5. Washer
6. Clamp
7. Canister
8. Cover
9. Bracket
10. Lockwasher

3. Remove the left-hand cover (**Figure 71**).
4. To remove the air cleaner (**Figure 72**), perform the following:
   a. Remove the bracket screws and remove the bracket and cover.
   b. Disconnect hose No. 2 from the air cleaner and remove the air cleaner.
5. To remove the air cut valve (**Figure 73**), perform the following:
   a. Disconnect hose No. 2 and No. 3 from the air cut valve.
   b. Disconnect the vacuum hose from the air cut valve.
   c. Remove the air cut valve.
6. To remove the reed valve assembly (**Figure 74**), perform the following:
   a. Disconnect hose No. 3, No. 4 and No. 5 from the reed valve assembly.
   b. Remove the mounting screws and remove the reed valve assembly.
7. To remove air pipe No. 1 and No. 2, perform the following:
   a. Disconnect the air pipes from hose No. 4 and No. 5 (**Figure 75**).
   b. Remove the bolt securing the air pipe No. 5 to the rear cylinder (**Figure 76**).
   c. Remove the bolts securing the air pipes to the right-hand crankcase cover (**Figure 77**).

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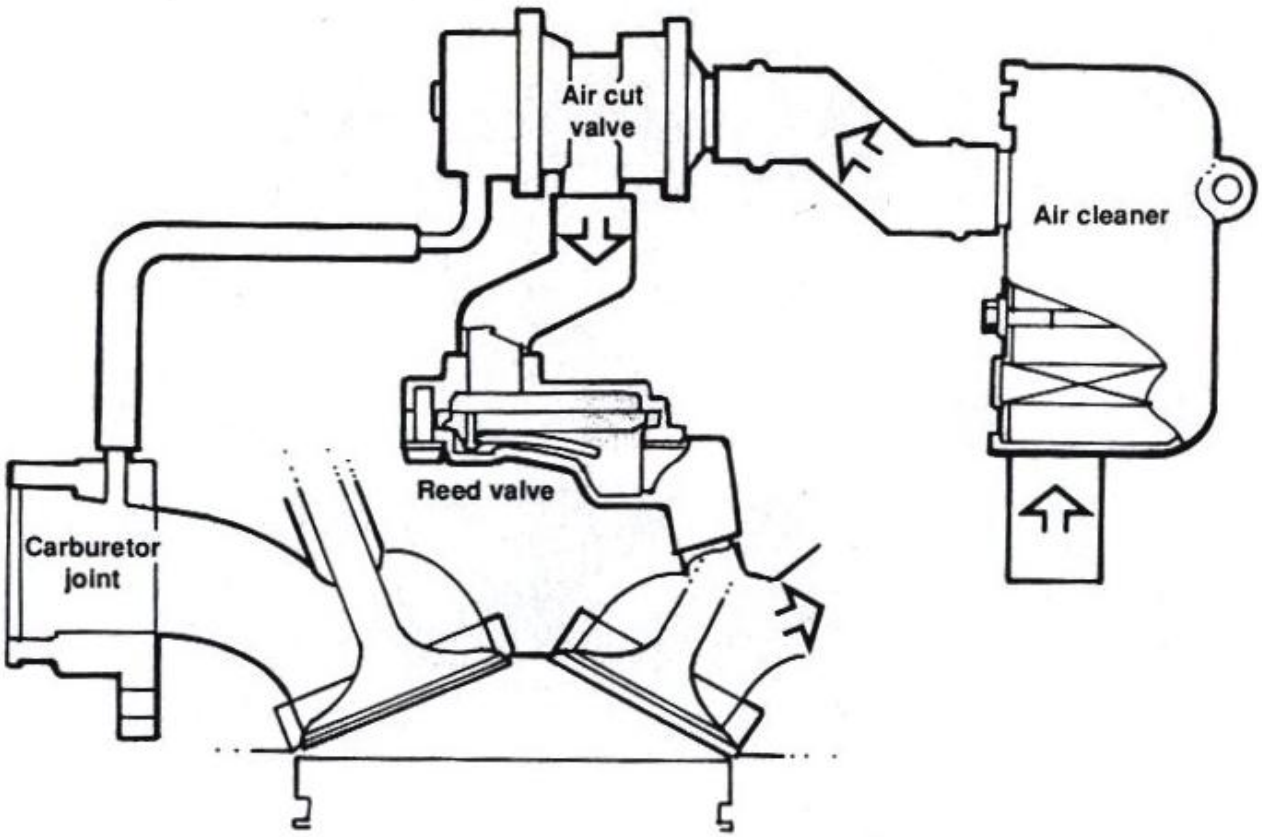
**AIR INJECTION SYSTEM**
**(1990-ON U.S. AND 1989-ON U.K. MODELS)**



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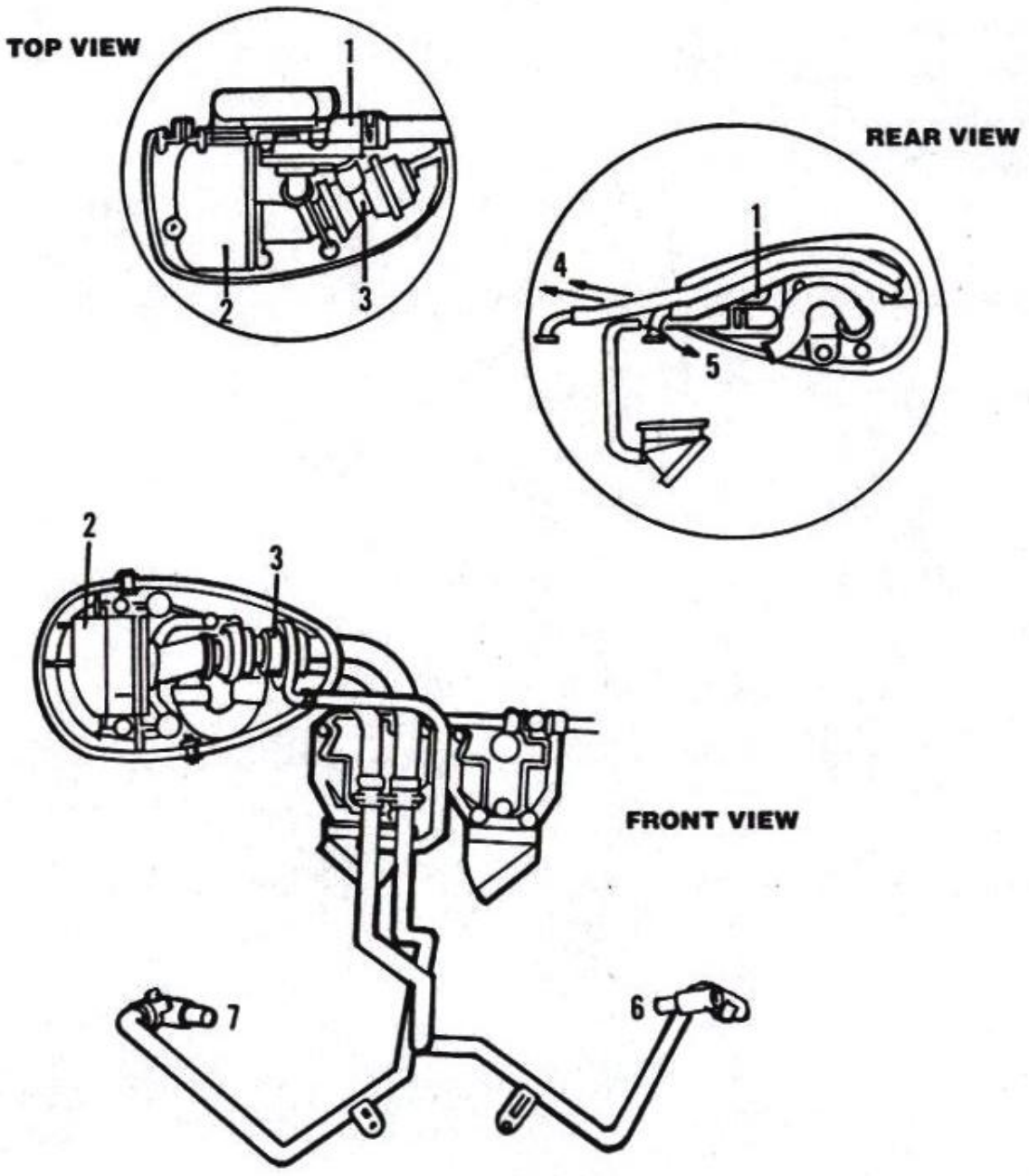
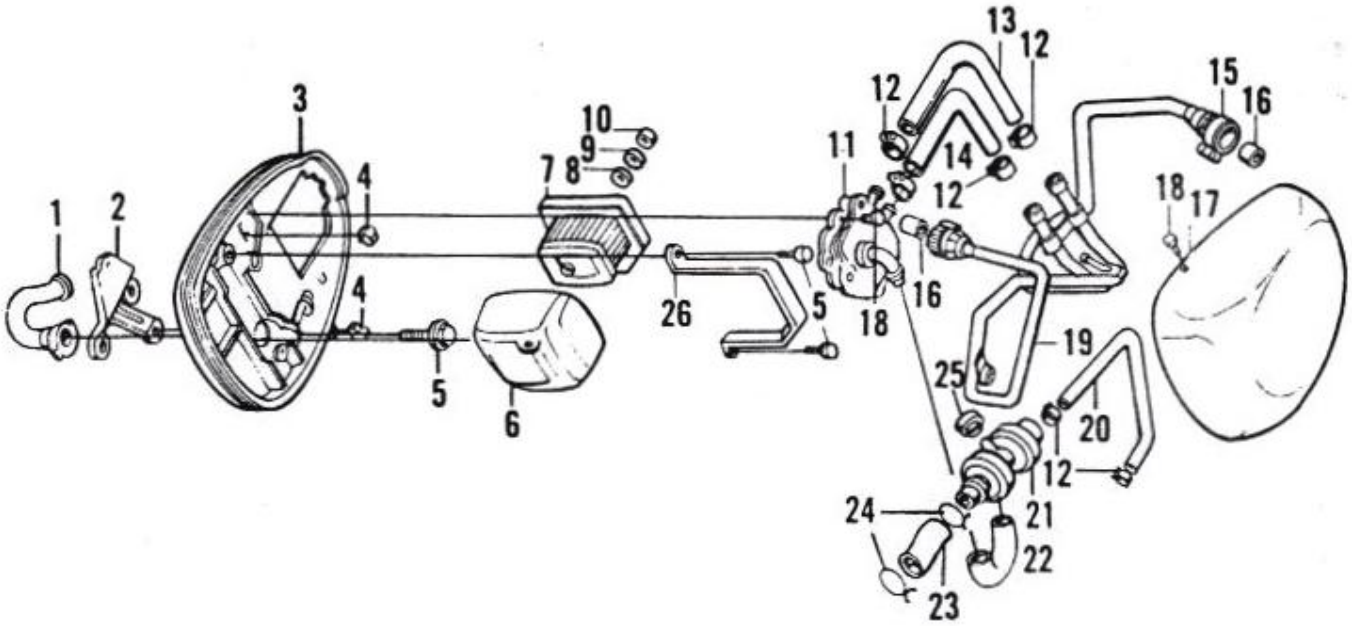
## AIR INJECTION SYSTEM LAYOUT (1990-ON U.S. AND 1989-ON U.K. MODELS)



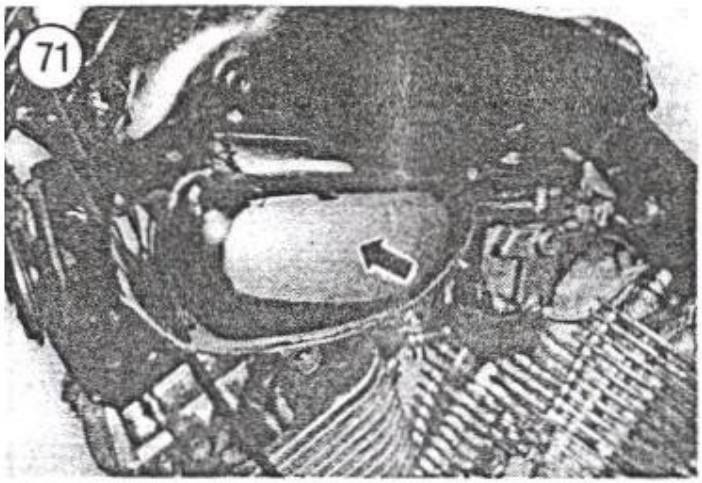

1. Reed valve
2. Air cleaner
3. Air cut valve
4. To cylinders
5. To air cut valve
6. To front cylinder
7. To rear cylinder

(70)

## AIR INJECTION SYSTEM COMPONENTS (1990-ON U.S. AND 1989-ON U.K. MODELS)




1. Hose No. 1
2. Mounting bracket
3. Bracket
4. Rubber bumper
5. Bolt
6. Cap
7. Air cleaner
8. Washer
9. Washer
10. Nut
11. Reed valve assembly
12. Hose clamp
13. Hose No. 5
14. Hose No. 4
15. Air pipe No. 1
16. Muffler
17. Cover
18. Screw
19. Air pipe No. 2
20. Vacuum hose
21. Air cut valve
22. Air hose No. 3
23. Air hose No. 2
24. Hose clamp
25. Plug
26. Bracket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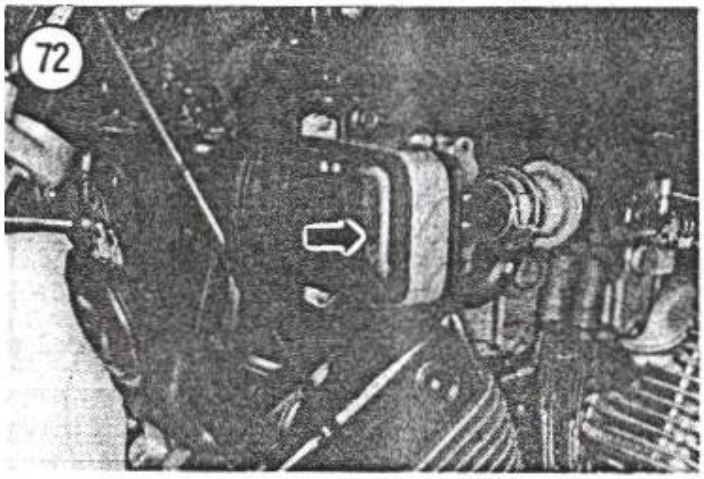
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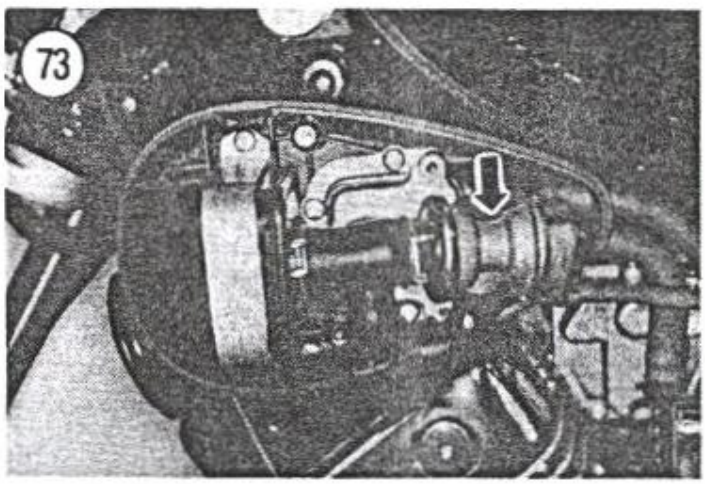
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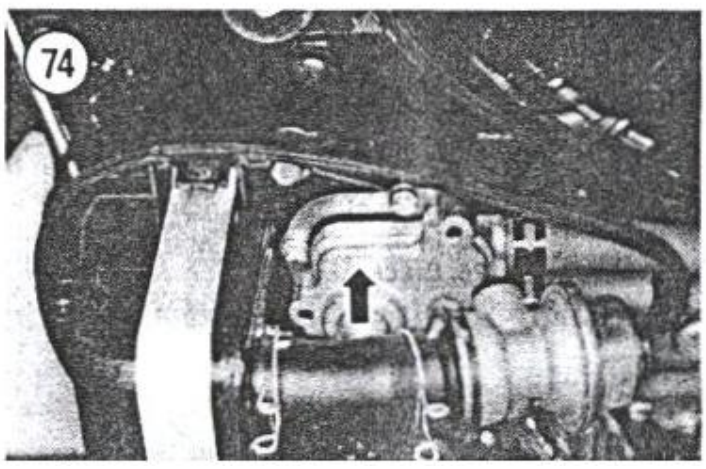
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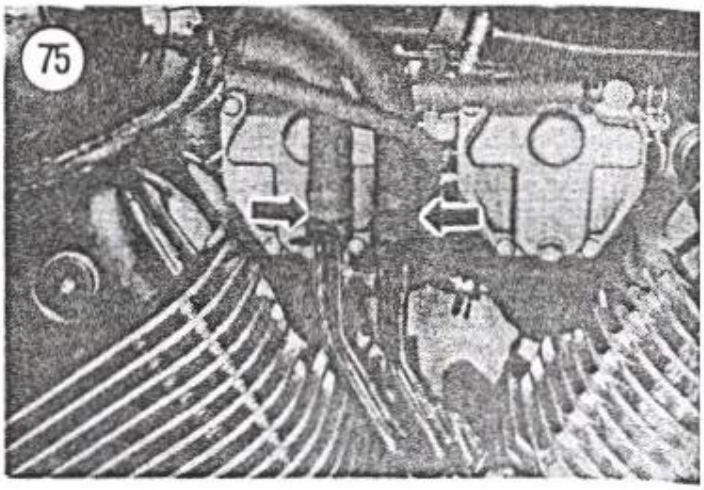
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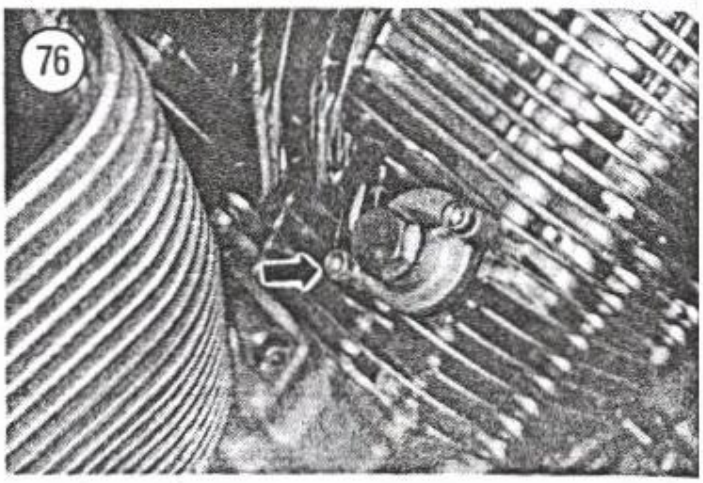
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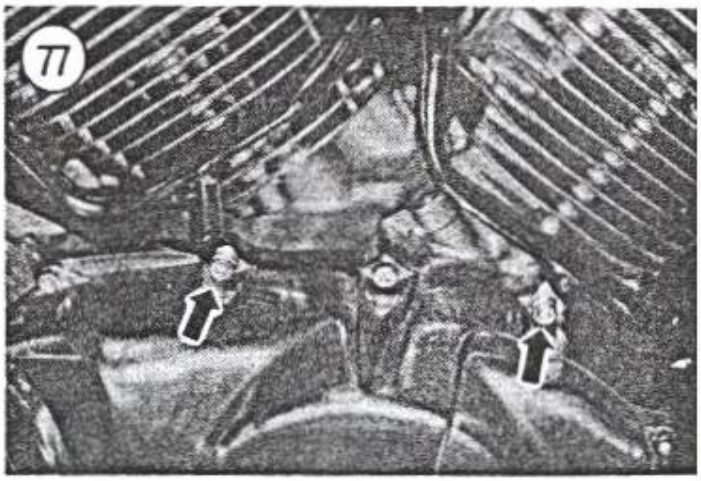
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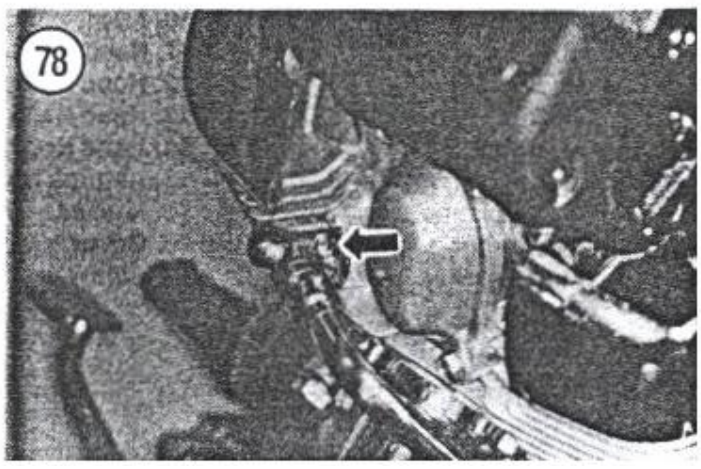
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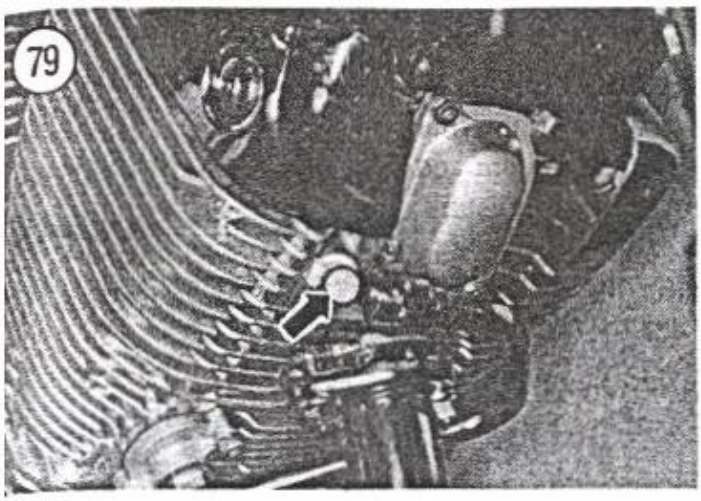


*NOTE*

***Figure 78** and **Figure 79** are shown on the front cylinder. Air pipe attachment to the rear cylinder is identical.*

d. Remove the bolts securing the air pipes to the cylinders. Refer to **Figure 78** and **Figure 79**.
e. Disconnect the air pipes from the cylinders and remove both air pipes from the engine. Don't lose the small muffler in the fitting where they attach to the cylinders.

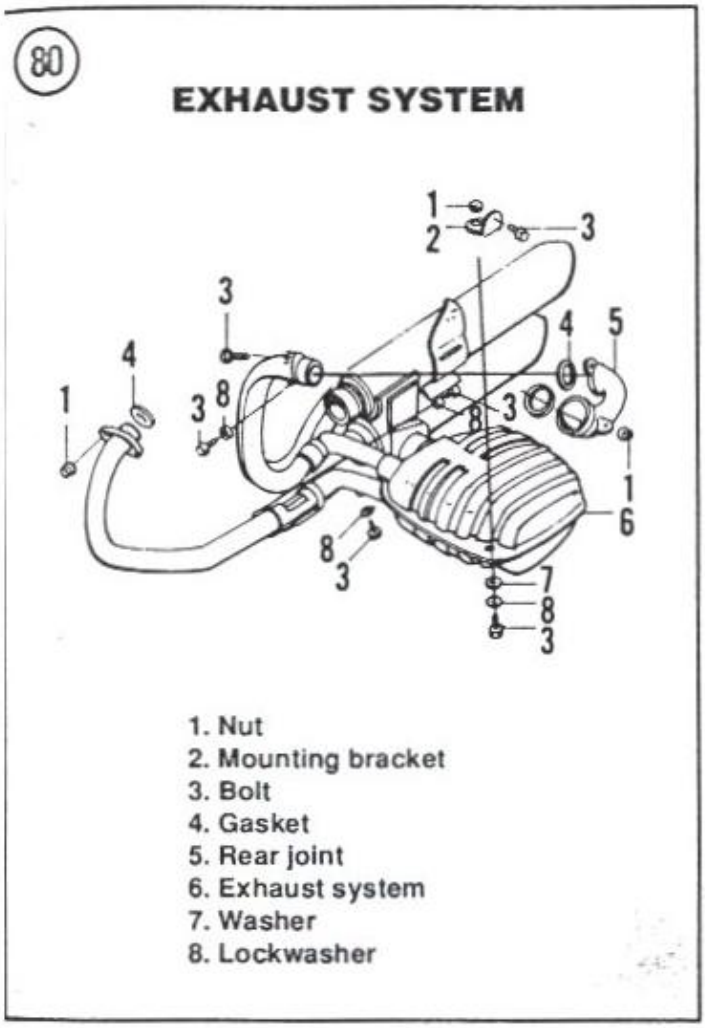
8. Install by reversing these removal steps. Be sure to install each hose and pipe onto the correct fitting and tighten the bolts securely.

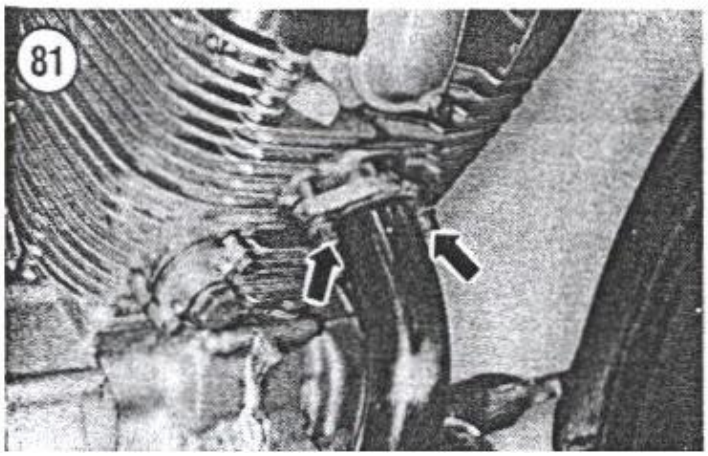
## EXHAUST SYSTEM

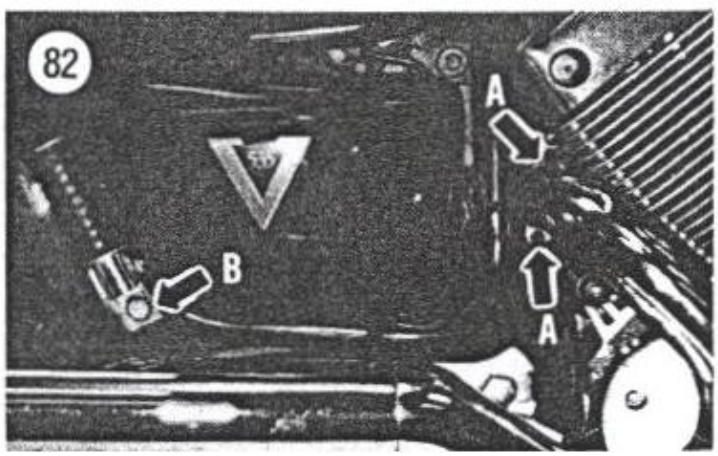
### Removal/Installation

Refer to **Figure 80** for this procedure.

1. Place the bike on the sidestand.
2. Remove the nuts (**Figure 81**) securing the front exhaust pipe flange to the front cylinder head.
3. Remove the bolts (A, **Figure 82**) securing the rear exhaust pipe to the rear joint. Leave the rear joint attached to the rear cylinder.
4. Remove the bolt (B, **Figure 82**) securing the right-hand foot peg and muffler to the frame.
5. Remove the bolt, lockwasher and washer (**Figure 83**) securing the muffler chamber to the frame.
6. Carefully move the exhaust system forward to clear the threaded studs on the front cylinder head exhaust port. Pull the exhaust system out of the right-hand side of the frame and remove it from the frame and engine.
7. If replacement of the rear joint is necessary, the rear cylinder head must be removed as described in Chapter Four in this section of the manual. After the





cylinder head is removed, remove the self-locking nuts (**Figure 84**) and remove the rear joint. Install new self-locking nuts and tighten securely.

*NOTE*

*Don't lose the gasket at the front exhaust port and at the rear joint when the exhaust pipe is removed from the engine.*

8. Inspect the system as described in this chapter.
9. Be sure to install a new gasket in the front exhaust port in the cylinder head and at the rear joint (**Figure 85**).
10. Install all of the exhaust system components and tighten the fasteners only finger-tight at this time. Make sure the exhaust pipe inlets are correctly seated in the cylinder head exhaust port and at the rear joint.
11. Securely tighten the bolts and nuts securing the front exhaust pipe flange to the cylinder head and to the rear joint, then tighten the bolts and nuts securing the muffler to the frame. This will minimize exhaust leakage at the cylinder head.
12. After installation is complete, start the engine and make sure there are no exhaust leaks. Correct any leak prior to riding the bike.

### Inspection

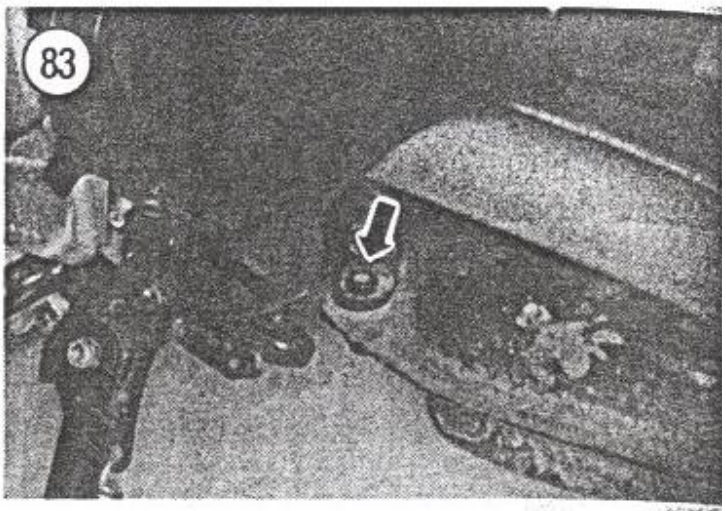
1. Check for leakage where the exhaust pipes attach to the muffler chamber.
2. Inspect the muffler chamber mounting bracket for wear or damage. Replace if necessary.

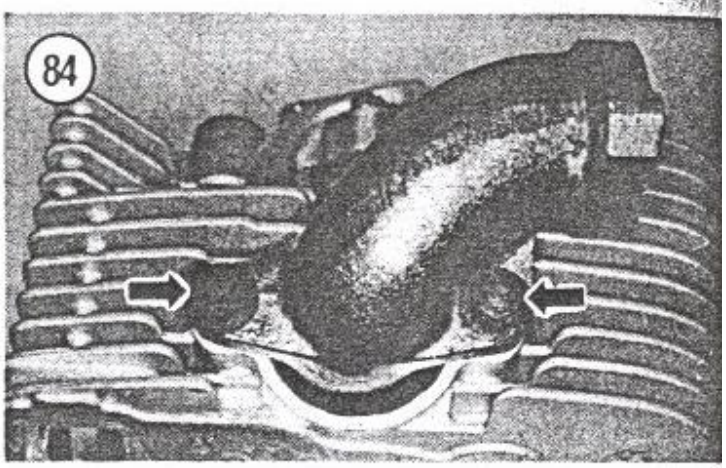
### Maintenance

The exhaust system is a vital key to the motorcycles operation and performance, You should periodically inspect, clean and polish (if required) the exhaust system. Special chemical cleaners and preservatives compounded for exhaust systems are available at most motorcycle shops.

Severe dents which cause flow restrictions require replacement of the damaged part.

To prevent internal rust buildup, periodically remove the system and turn it upside down to drain any trapped moisture.



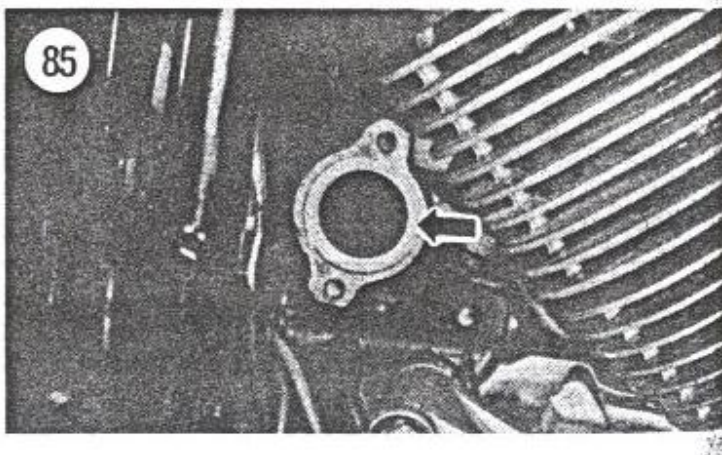



**Table 1 CARBURETOR SPECIFICATIONS**

| Item | U.S. 1987-1989 | U.S. 1990-on |
|---|---|---|
| Manufacturer | Mikuni | Mikuni |
| Model | BDS34 | BDS34 |
| I.D. mark | | |
| 49-state | 2GV00 | 3JC10 |
| California | 2JU00 | 3JC00 |
| Main jet | | |
| Both | 137.5 | — |
| Front | — | 137.5 |
| Rear | — | 135 |
| Main air jet | 140 | 140 |
| Jet needle | | |
| Both | — | Y-0 |
| Cylinder 1 | 5DZ7-1 | — |
| Cylinder 2 | 5DZ8-1 | — |
| Pilot jet | 32.5 | 35 |
| Pilot air jet | | |
| No. 1 | 60 | 70 |
| No. 2 | 160 | 170 |
| Pilot screw | Preset | Preset |
| Starter jet | 40 | 40 |
| Fuel level | 0.53-0.57 in. (13.5-14.5 mm) | 0.53-0.57 in. (13.5-14.5 mm) |
| Idle speed | 1,150-1,250 rpm | 1,150-1,250 rpm |

| Item | U.K. 1988 | U.K. 1989-on |
|---|---|---|
| Manufacturer | Mikuni | Mikuni |
| Model | BDS34 | BDS34 |
| I.D. mark | 2JV00 | 3BT00 |
| Main jet | 135 | 135 |
| Main air jet | 140 | 140 |
| Jet needle | | |
| Cylinder 1 | 5DZ10-3 | 5DZ10-3 |
| Cylinder 2 | 5DZ9-3 | 5DZ9-3 |
| Pilot jet | 35 | 35 |
| Pilot air jet | | |
| No. 1 | 70 | 70 |
| No. 2 | 170 | 170 |
| Pilot screw | 2 turns out | 2 turns out |
| Starter jet | 40 | 40 |
| Fuel level | 0.53-0.57 in. (13.5-14.5 mm) | 0.53-0.57 in. (13.5-14.5 mm) |
| Idle speed | 1,150-1,250 rpm | 1,150-1,250 rpm |

Místo pro vaše poznámky :