Chapter 4
Fuel and exhaust systems

Contents

Specifications

Carburetors

VT600 models (1988 through 1998)

Type	
Except California	VDFDA
California	VDFEA
Float level	7.0 mm (0.28 inch)
Main jet	115
Slow jet	40
Pilot screw adjustment	
Initial opening	1-1/4 turns out
Final opening	1 turn out
High altitude adjustment	1/2 turn in (from low altitude setting)

VT600 models (1999 on)

Type	
Except California	VE5AC
California	VE5AB
Float level	18.5 mm (0.73 inch)
Main jet	125
Slow jet	45
Pilot screw adjustment	
Initial opening	
Except California	3 turns out
California	2-3/4 turns out
Final opening	3/4 turn out

VT750C/CD models

Type	
1998	
49 states	VDFFG
California	VDFEB
Canada (VT750C/CD/CD2)	VDFFG
Canada (VT750C3/CD3)	VDFFJ
1999 on	
Except California	VDFFJ
California	VDFEC
Float level	7.0 mm (0.28 inch)
Main jet	
Front carburetor	105
Rear carburetor	110

Carburetors (continued)

VT750C/CD models (continued)

Slow jet	40
Pilot screw adjustment	
Initial opening	2-1/4 turns out
Final opening	1 turn out

VT750DC models

Type	
Except California	VDF2D
California	VDF2C
Float level	7.0 mm (0.28 inch)
Main jet	
Front carburetor	05
Rear carburetor	108
Slow jet	40
Pilot screw adjustment	
Initial opening	2-3/8 turns out
Final opening	1/2 turn out
High altitude setting	1/2 turn in (from low altitude setting)

Fuel pump

Discharge volume (minimum)	
VT600	800 cc (27.1 fl oz) per minute
VT750	900 cc (30.4 fl oz) per minute

Torque specifications

Fuel tank mounting bolt	19 Nm (14 ft-lbs)
Fuel valve nut	
VT600	
1988 through 1998	23 Nm (17 ft-lbs)
1999 on	35 Nm (26 ft-lbs)
VT750	34 Nm (25 ft-lbs)

1 General information

The fuel system consists of the fuel tank, the fuel valve, the fuel pump, the fuel filter, the carburetors, the hoses connecting these components, and the accelerator cables.

The carburetors used on these motorcycles are Keihins with butterfly-type throttle valves. All except 1999 and later VT600 models use twin carburetors. VT600 models from 1999 on use a single carburetor equipped with an accelerator pump. For cold starting, an enrichment circuit is actuated by a choke knob mounted on the left side of the bike.

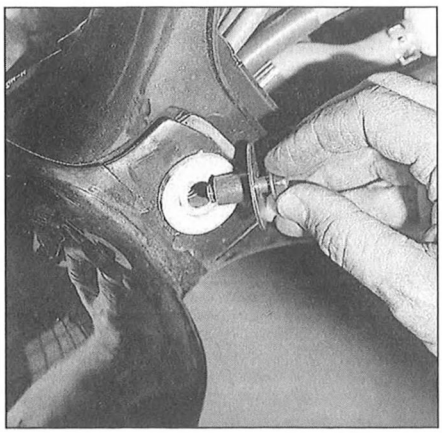
The exhaust system routes the exhaust gases through a pair of exhaust pipes and mufflers on the right side of the bike.

Some of the fuel system service procedures are included in Chapter 1 as routine maintenance items.

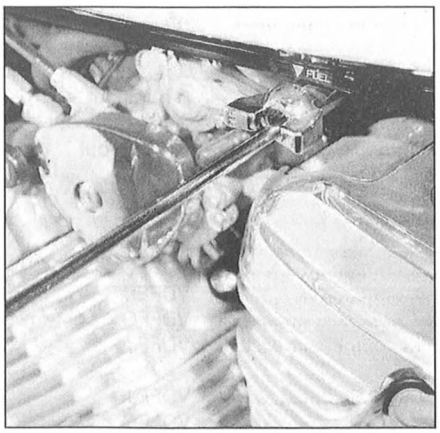
2 Fuel tank - removal and installation

Refer to illustrations 2.3, 2.4, 2.5, 2.10, 2.11 and 2.12

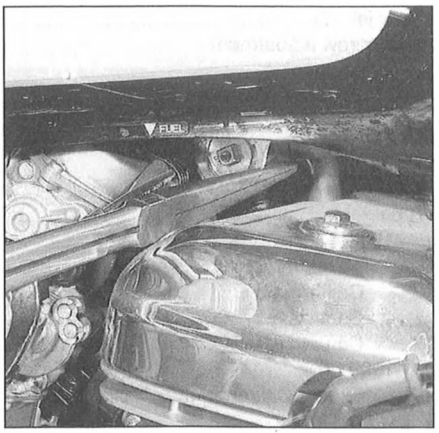
Warning: *Gasoline (petrol) is extremely flammable, so take extra precautions when you work on any part of the fuel system. Don't smoke or*



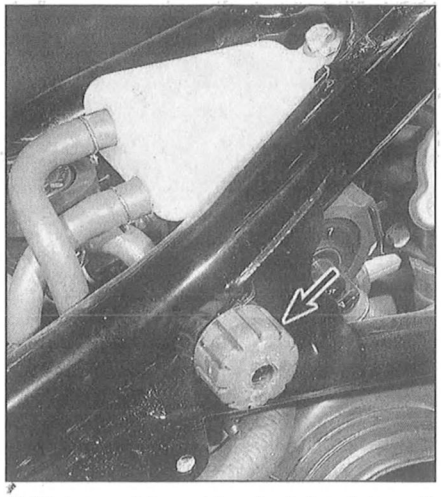
2.3 Remove the fuel tank mounting bolt and bushing; inspect the rubber grommet and replace it if it's damaged



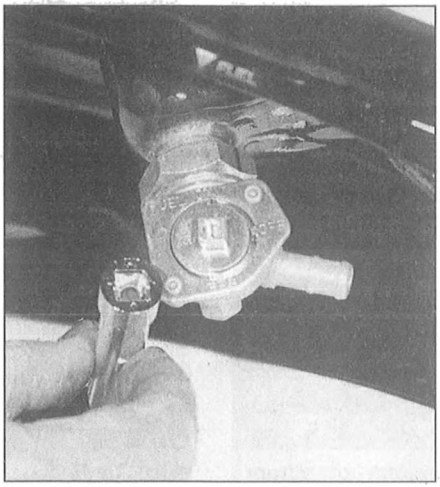
2.4 If you're planning to clean or replace the fuel tank on a VT600, remove the fuel valve knob retaining screw and remove the knob



2.5 Lift the tank slightly, back off the wire retainers and detach the fuel hoses from the fuel valve



2.10 Inspect the rubber tank insulators; if they're damaged, replace them



2.11 The square hole in the fuel valve knob aligns with the square lug on the fuel valve shaft

2.12 If the fuel tank is correctly seated on the rubber insulators, the hole in the bracket for the hold-down bolt will be aligned with the bolt hole in the frame

allow open flames or bare light bulbs near the work area, and don't work in a garage where a natural gas-type appliance (such as a water heater or clothes dryer) is present. If you spill any fuel on your skin, rinse it off immediately with soap and water. When you perform any kind of work on the fuel system, wear safety glasses and have a fire extinguisher suitable for class B fires (flammable liquids) on hand.

1 Support the bike securely so it can't be knocked over during this procedure.

2 Remove the seat (see Chapter 8). If the motorcycle has a tank-mounted speedometer, remove it (see Chapter 9).

3 Remove the fuel tank hold-down bolt and bushing **(see illustration)**. Inspect the rubber grommet. If it's cracked, torn or deteriorated, replace it.

4 If necessary, remove the fuel valve knob retaining screw **(see illustration)** and remove the knob.

5 Hold a pan under the fittings to catch drained fuel, lift up the tank and disconnect the fuel hoses from the fuel tap **(see illustration)**.

6 Remove the tank from the bike. **Warning:** *Pour the drained fuel into a safe fuel storage container. Don't leave it in the drain pan.*

7 If you're going to have the tank professionally cleaned, or if you're going to replace it, unscrew the fuel valve nut and remove the fuel valve, the O-ring and the strainer. Discard the old O-ring.

8 Clean the fuel strainer screen thoroughly and inspect it. If the strainer is clogged, torn or otherwise damaged, replace it.

9 Install the strainer, a new O-ring and the fuel valve in the tank and tighten the fuel valve nut securely.

10 Before installing the tank, inspect the fuel hoses and the rubber tank insulators on the frame **(see illustration)**. If the hoses or insulators are cracked, hardened, or otherwise deteriorated, replace them.

11 If you removed the fuel valve knob on a VT600 model, install it and tighten the knob retaining screw securely. Make sure that the square hole in the knob is aligned with the square lug on the fuel valve shaft **(see illustration)**.

12 Installation is the reverse of removal. Make sure the tank is correctly seated on the rubber insulators **(see illustration)** and make sure it doesn't pinch any control cables or wire harnesses.

3 Fuel tank - cleaning and repair

1 All repairs to the fuel tank should be carried out by a professional who has experience in this critical and potentially dangerous work. Even after cleaning and flushing of the fuel system, explosive fumes can remain and ignite during repair of the tank.

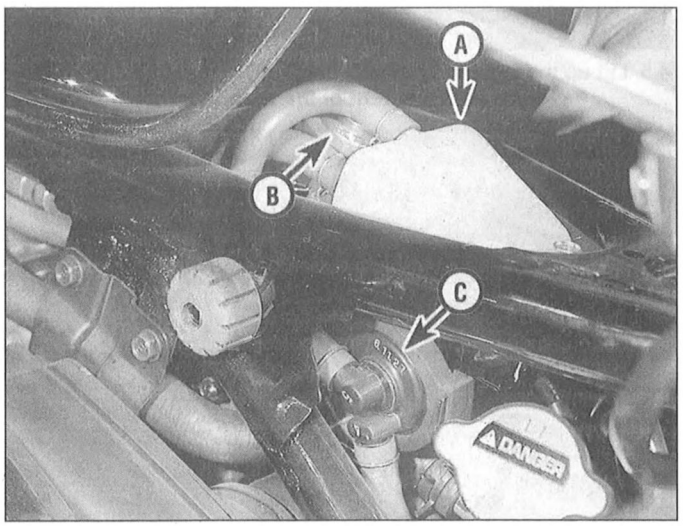
2 If the fuel tank is removed from the vehicle, it should not be placed in an area where sparks or open flames could ignite the fumes coming out of the tank. Be especially careful inside garages where a natural gas-type appliance is located, because the pilot light could cause an explosion.

4 Crankcase emission control system - description, check and component replacement

Description

Refer to illustration 4.1

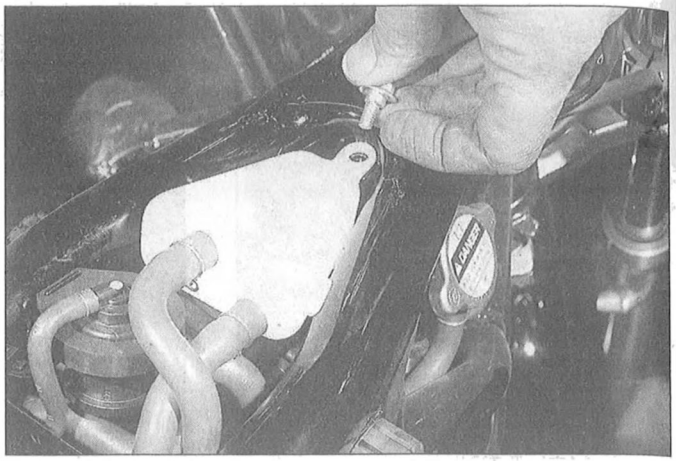
1 The closed crankcase emission control system prevents crankcase emissions from escaping into the atmosphere by routing blow-by gas from the rear cylinder head through a hose into the crankcase breather separator **(see illustration)**. Blow-by gas is routed from the separator through another hose to the air cleaner housing, where it's mixed with fresh intake air. Finally, the blow-by is drawn into the intake ducts, through the carburetors and into the combustion chamber, where it is burned.



4.1 VT600 emission control components (VT750 similar)

A Crankcase breather separator
B Carburetor air vent control valve (California models)
C Purge control valve (California models)

4.2 Inspect the crankcase emission control system hoses from the rear cylinder head cover to the separator and from the separator to the air cleaner housing (arrows)

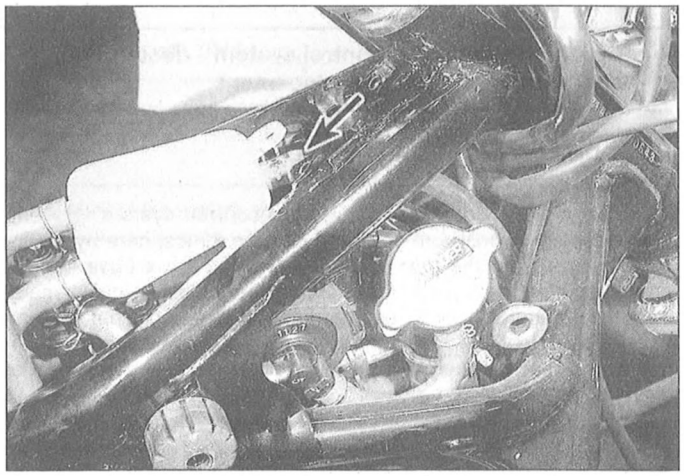


4.4 To detach the crankcase breather separator from the bike, remove this hold-down screw

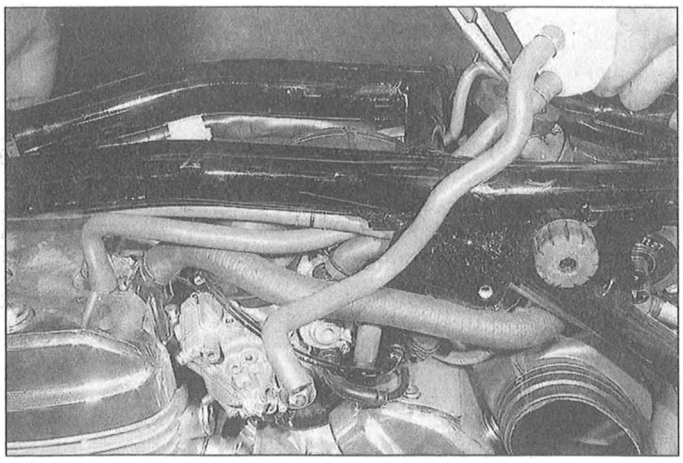
Check

Refer to illustration 4.2

2 Inspect the condition of the system hoses **(see illustration)**. Make sure that there are no cuts or tears in the hoses and all connections are tight. If the hoses are worn or damaged, replace them.



4.5 Lift up the separator slightly and detach the drain tube (arrow) from the front of the separator



4.6 Detach the hoses from the rear of the separator

3 Inspect the condition of the crankcase breather separator **(see illustration 4.1)**. If it's cracked, deteriorated or otherwise damaged, replace it.

Component replacement

Refer to illustrations 4.4, 4.5 and 4.6

4 Remove the crankcase breather separator hold-down screw **(see illustration)** and lift up the separator.

5 Disconnect the drain tube from the separator **(see illustration)**.

6 Disconnect the inlet and outlet hoses from the separator **(see illustration)**.

7 Installation is the reverse of removal.

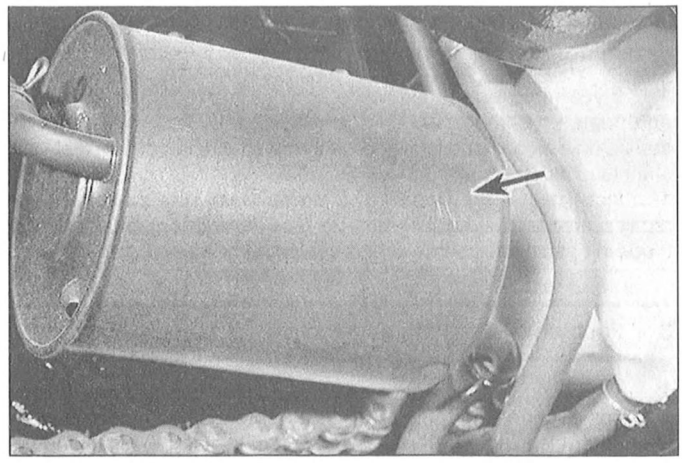
8 If you're replacing any of the three hoses, carefully note how they're routed before removing them and route the new hose(s) exactly the same way.

5 Evaporative emission control system (California models) - description, check and component replacement

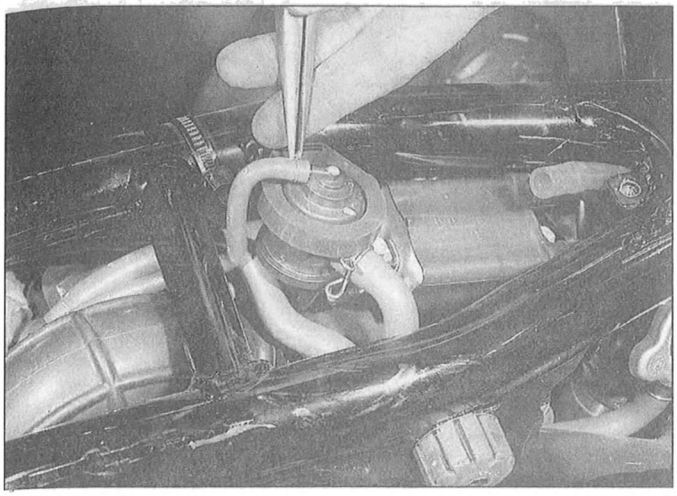
Description

Refer to illustration 5.1

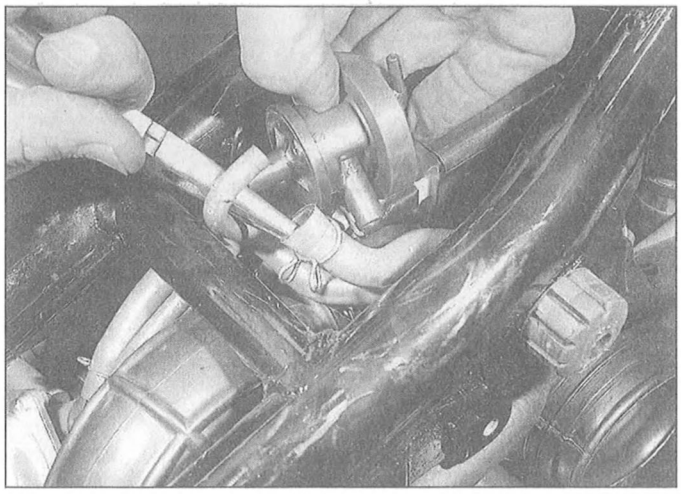
1 On California models, an evaporative emission control (EVAP) system captures raw hydrocarbon vapors from the carburetor float bowls and the fuel tank when the engine is not running. The vapors are



5.1 The evaporative emission control (EVAP) system canister (arrow) is located behind and below the engine



5.8a To detach the carburetor air vent control valve, detach the hose from the air vent port . . .



5.8b . . . lift up the valve, label the other hoses and detach them from the valve

stored in a canister located below the swingarm **(see illustration)**. When the engine is started, these vapors are routed from the canister into the combustion chambers and burned.

2 The EVAP system is controlled by the carburetor air vent (CAV) control valve and the purge control valve **(see illustration 4.1)**. When the engine is started, both valves are opened by intake vacuum. Vacuum from the front intake opens the carburetor air vent valve, venting the carburetor float bowls through the air vent valve to the canister; vacuum from the rear intake opens the purge control valve, drawing vapors from the canister through the purge control valve into the intakes. When the engine is turned off, intake vacuum is cut, closing the valves.

3 When the fuel inside the carburetor float bowls heats up, vapors from the float bowls are pushed into the canister. When fuel inside the fuel tank heats up, vapors from the fuel tank are pushed into the canister. These vapors are stored in the canister until the next time the engine is started.

4 Periodically, inspect the hoses connecting the canister, the carburetor air vent control valve and the purge control valve and the intakes.

Check and component replacement

5 Remove the fuel tank (see Section 2).

6 Remove the left side cover (see Chapter 8) and refer to the vacuum hose routing diagram on the inside of the cover for the following inspection and component tests.

7 Make sure that all the hose connections are tight, the hoses are in good condition and none of the hoses are kinked. If any of the hoses are torn, frayed or otherwise deteriorated, replace them.

Carburetor air vent control valve

Refer to illustrations 5.8a, 5.8b and 5.9

Note: *You will need a vacuum pump/gauge and a pressure pump/gauge to do the following test. If you don't have these tools, have the carburetor air vent control valve checked by a dealer service department.*

8 Mark the four hoses attached to the carburetor air vent control valve to ensure correct reassembly, then disconnect all four hoses from the carburetor air vent control valve **(see illustrations)** and remove the valve.

9 Connect a hand-held vacuum pump/gauge to the port for the No. 10 hose **(see illustration)**, which goes to the carburetor for the front cylinder. Apply 250 mm Hg (9.8 in-Hg) and verify that the valve holds vacuum. If it doesn't, replace the valve.

10 Connect the vacuum pump/gauge to the air vent port (on top of the valve), apply 250 mm Hg (9.8 in-Hg) and verify that the valve holds vacuum. If it doesn't, replace the valve.

11 Reconnect the vacuum pump/gauge to the port for the No. 10 hose and connect a pressure pump/gauge to the air vent port. Plug the port for the No. 4 hose (which goes to the canister), apply 250 mm Hg (9.8 in-Hg) vacuum to the No. 10 port, pump some air into the air vent port and verify that air exits from the port for the No. 6 hose (which goes to the air joint pipe at the carburetors). If it doesn't, replace the valve.

12 If the carburetor air vent control valve fails to perform as described, replace it. Make sure that the hoses are reattached to the valve as indicated by the vacuum hose routing diagram label on the left side cover. Install the left side cover and the fuel tank.

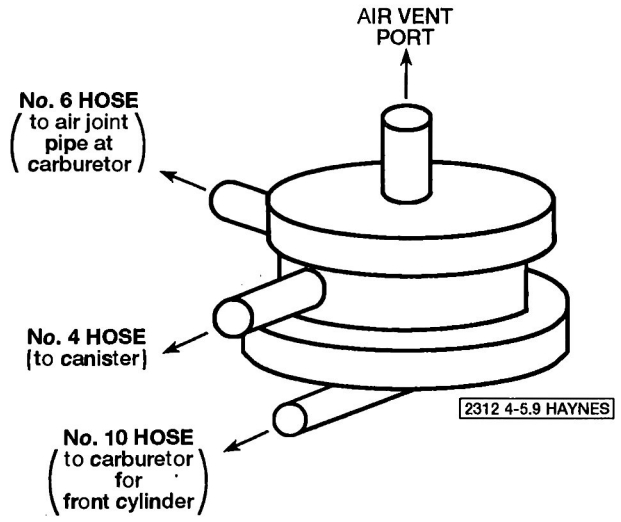
Purge control valve

Refer to illustration 5.14

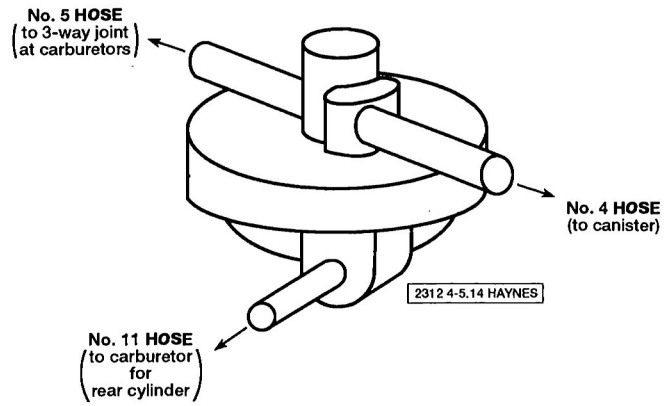
Note: *You will need a vacuum pump/gauge and a pressure pump/gauge to do the following tests. If you don't have these tools, have the purge control valve checked by a dealer service department.*

13 Mark the three hoses attached to the purge control valve to ensure correct reassembly, then disconnect all three hoses from the purge control valve and remove the valve.

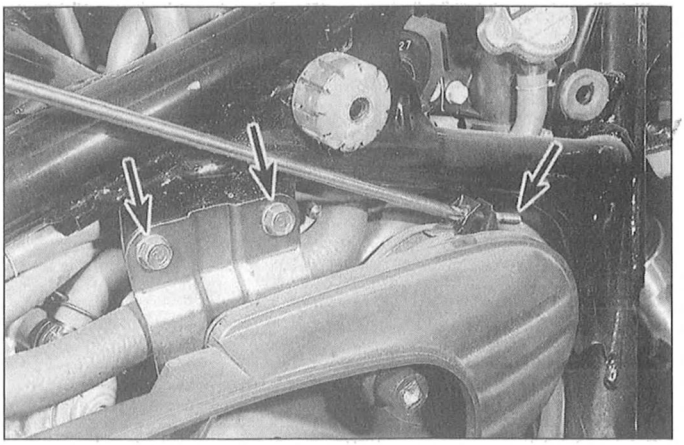
14 Connect a hand-held vacuum pump/gauge to the port for the



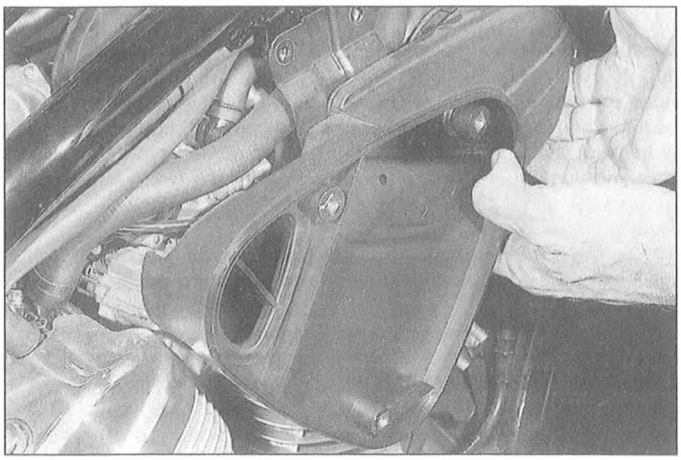
5.9 The carburetor air vent control valve (California models)



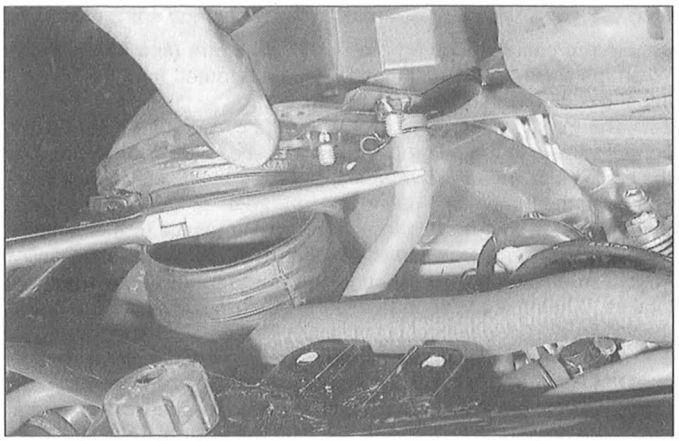
5.14 The purge control valve (California models)



6.3 To detach the air cleaner housing from the air intake chamber on a VT600 model, loosen this hose clamp that secures the housing to the air intake chamber and remove these two bolts (arrows)



6.5a Pull off the air cleaner housing . . .



6.5b . . . and detach the crankcase breather separator hose from the backside of the housing (VT600 model shown)

No. 5 hose **(see illustration)**, which goes to the three-way joint. Apply 250 mm Hg (9.8 in-Hg) vacuum and verify that the valve holds this vacuum. If it doesn't, replace the valve.

15 Disconnect the vacuum pump from the No. 5 port and connect it to the port for the No. 11 hose (which goes to the carburetor for the rear cylinder). Apply 250 mm Hg (9.8 in-Hg) vacuum and verify that the valve holds the vacuum. If it doesn't, replace the valve.

16 Connect a hand-held pressure pump/gauge to the port for the No. 4 hose (which goes to the canister). Apply 250 mm Hg (9.8 in-Hg) vacuum to the No. 11 port and pump air into the No. 4 port. Air should flow through the valve and out the No. 5 port for the three-way joint hose. If it doesn't, replace the valve.

17 If the purge control valve fails to perform as described, replace it. Make sure that the hoses are reattached to the valve as indicated by the vacuum hose routing diagram label on the left side cover. Install the left side cover and the fuel tank.

6 Air cleaner housing - removal and installation

Refer to illustrations 6.3, 6.5a and 6.5b

1 Remove the fuel tank (see Section 2).

2 Remove the air cleaner housing cover and the air filter element (see Chapter 1). **Note:** *It's not necessary to remove the housing cover and filter element in order to remove the air cleaner housing. But if you're planning to disassemble the air cleaner housing assembly, it's easier to remove the cover and filter while the housing is still installed. Of course, if you're simply removing the air cleaner housing assembly in order to reach the sub-air cleaner element, the air cleaner chamber, the carburetors or the engine, then skip this step.*

3 Remove the big hose clamp that secures the air cleaner housing to the air cleaner chamber **(see illustrations)**.

4 Remove the air cleaner housing mounting bolts **(see illustrations)**.

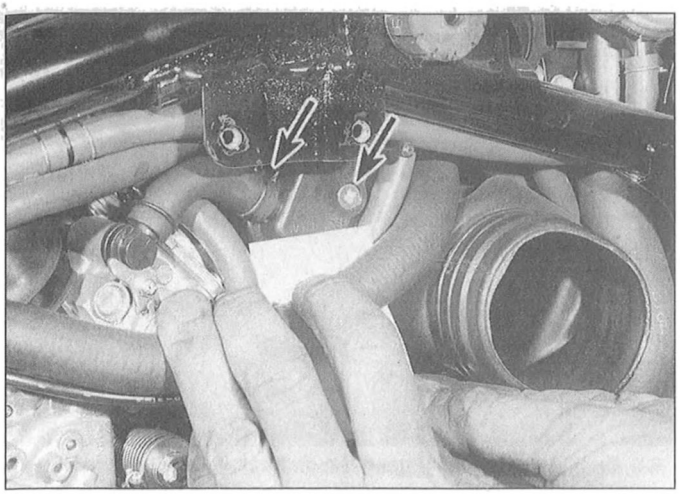
5 Pull the air cleaner housing away from the bike and detach the crankcase breather separator hose from the housing **(see illustrations)**.

6 Installation is the reverse of removal. Before reconnecting the air cleaner housing to the air intake chamber on VT600 models, apply a light coat of sealant to the area where the air cleaner housing fits onto the air intake chamber. Before reconnecting the air cleaner housing to the air intake chamber on VT750 models, apply a little grease to the inside of the big hose clamp, and make sure that the positioning pin on the backside of the housing is correctly aligned with the grommet on the front cylinder head fin.

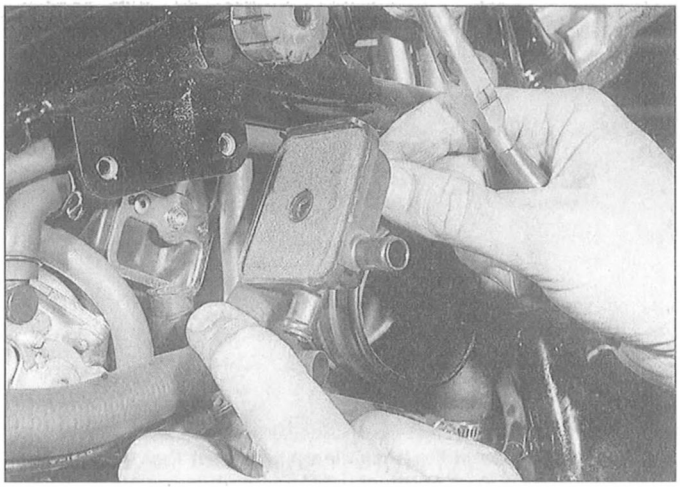
7 Sub-air cleaner element (dual-carburetor models) - removal and installation

Refer to illustrations 7.1, 7.3 and 7.4

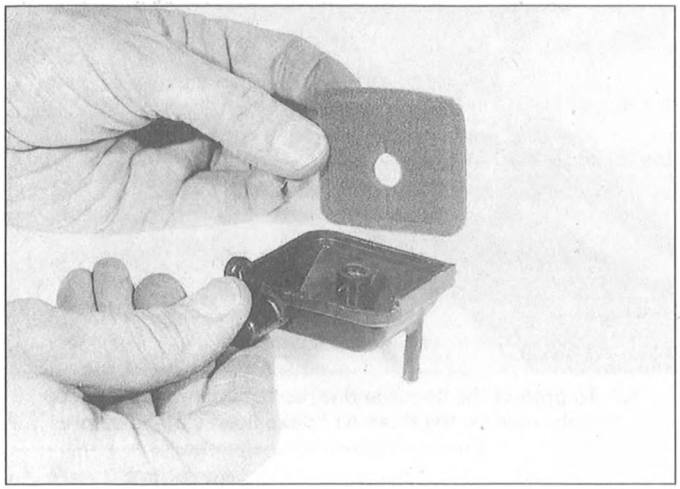
1 If you're working on a VT600, remove the air cleaner housing (see Section 6). Detach the hose between the carburetor and the sub-air cleaner cover and remove the cover retaining screw **(see illustration)**.



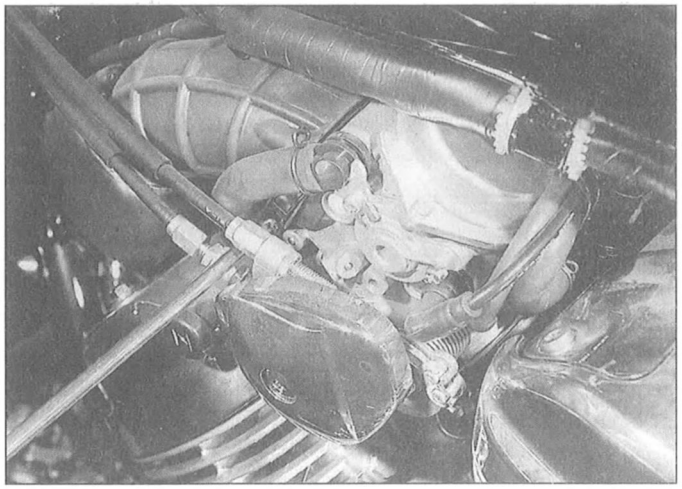
7.1 Pull down this coolant hose to expose the sub-air cleaner cover, then detach the small hose from the carburetor and remove the cover retaining screw (arrows) (VT600 models)



7.3 Pull off the sub-air cleaner cover (VT600 shown; VT750 similar)



7.4 Remove the filter element from the sub-air cleaner cover (VT600 shown; VT750 similar)



8.4a On VT600 models, loosen the hose clamp screw for the left intake duct at the rear cylinder carburetor . . .

2 If you're working on a VT750, remove the fuel tank (see Section 2).
3 Remove the sub-air cleaner cover **(see illustration)**.
4 Remove the filter element from the sub-air cleaner cover **(see illustration)**.
5 Wash the element thoroughly in non-flammable or high-flash-point solvent, squeeze it out and allow it to dry thoroughly.
6 Soak the element in gear oil (SAE 80/90) and squeeze out the excess.
7 Installation is the reverse of removal.

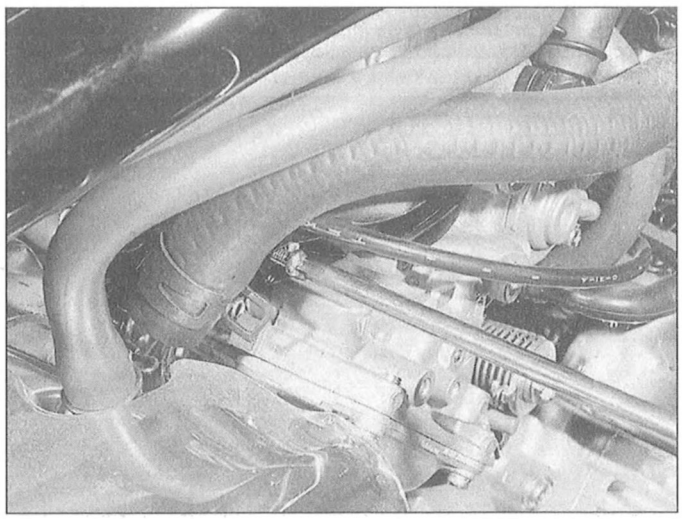
8 Air intake chamber and intake ducts - removal and installation

1 Remove the fuel tank (see Section 2).
2 Remove the air cleaner housing (see Section 6).

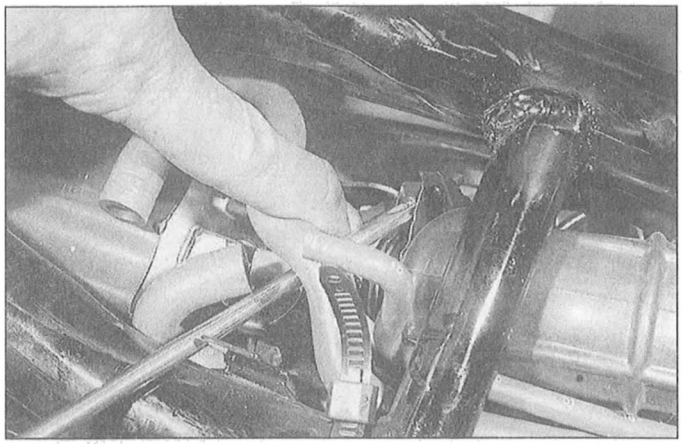
VT600 models (1988 through 1998)

Refer to illustrations 8.4a, 8.4b, 8.4c, 8.5, 8.6, 8.7, 8.8, 8.9, 8.10a and 8.10b

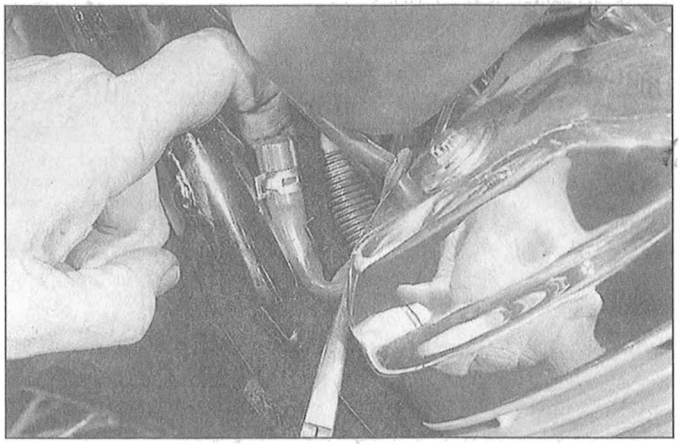
3 Remove the sub-air cleaner element (see Section 7).
4 Loosen the three intake duct hose clamp screws **(see illustrations)**.



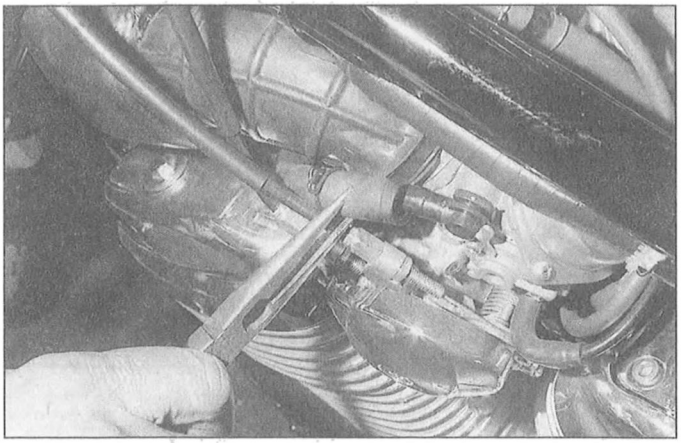
8.4b . . . loosen the hose clamp screw for the right intake duct at the front cylinder carburetor . . .



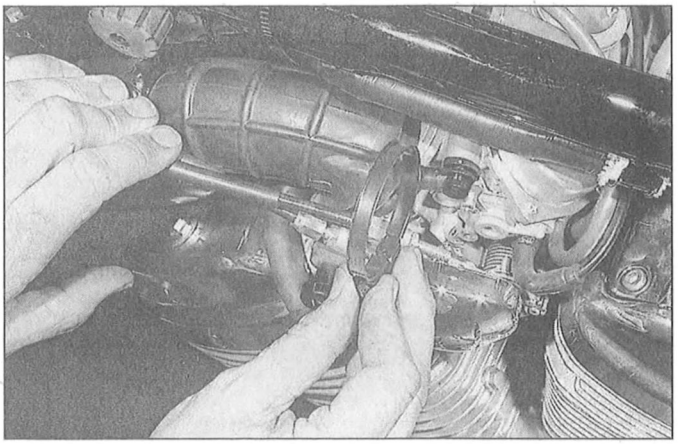
8.4c . . . and loosen the hose clamp screw for the right intake duct at the air intake chamber



8.5 On VT600 models, detach the air intake chamber drain tube from the frame



8.6 On VT600 models, detach this sub-air cleaner hose from the left carburetor to allow more clearance for removing the air intake chamber



8.7 To protect the hoses and wires from damage on VT600 models, remove the three air intake hose clamps before removing the air intake chamber

5 Detach the air intake chamber drain tube from the frame **(see illustration)**.

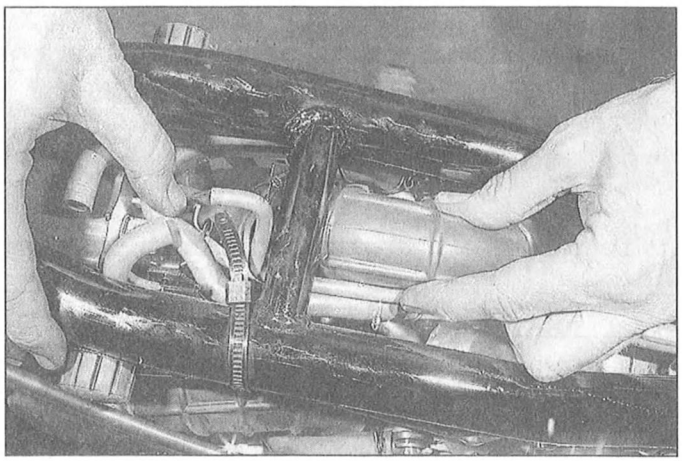
6 Disconnect the sub-air cleaner hose from the left carburetor to provide clearance for removing the left intake duct **(see illustration)**.

7 Pull off the hose clamps so they don't cut any hoses or wires or snag on something when the air intake chamber is removed **(see illustration)**.

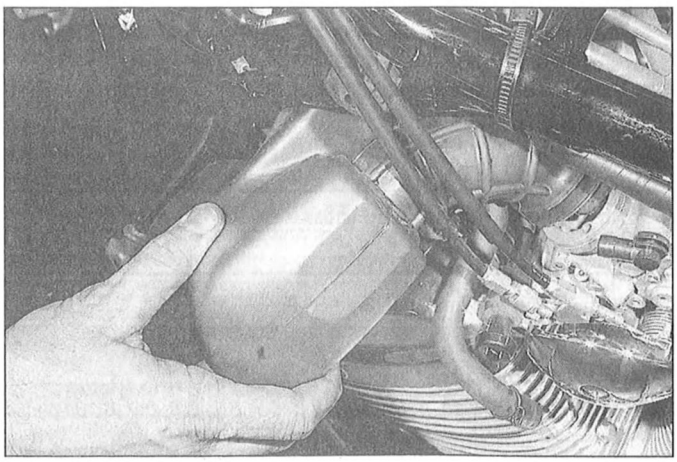
8 Disconnect the right air intake duct from the air intake chamber **(see illustration)**.

9 Remove the air intake chamber and left duct **(see illustration)**.

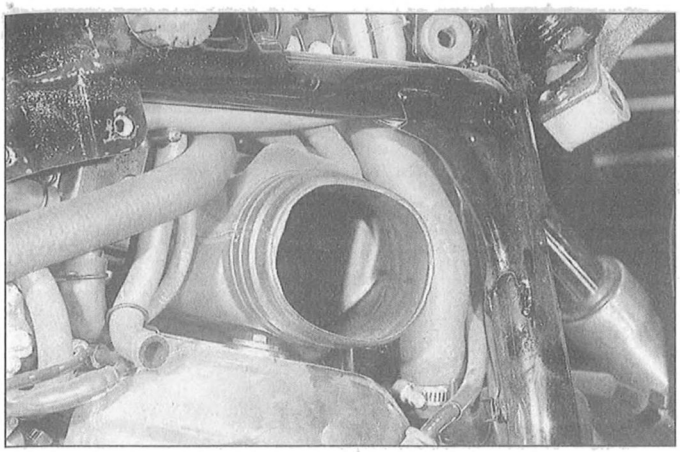
10 Installation is the reverse of removal. Make sure that the coolant hoses and the hoses for the crankcase emission control system, the evaporative emission control system (California models), the air cleaner housing and the sub-air cleaner element are correctly routed



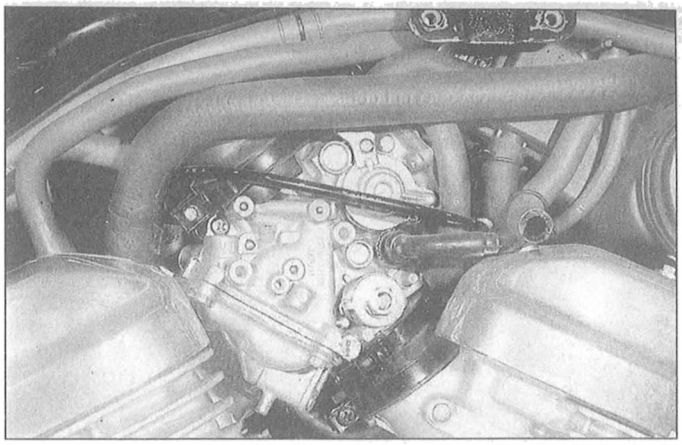
8.8 On VT600 models, detach the right air intake duct from the air intake chamber



8.9 On VT600 models, remove the air intake chamber from the left side



8.10a When installing the air intake chamber and air intake ducts on VT600 models, make sure that the coolant hoses . . .



8.10b . . . and emission hoses are routed as shown; make sure none of the hoses are kinked or pinched or accidentally disconnected

around the air intake chamber and intake ducts **(see illustrations)**. Make sure that none of the hoses are kinked, pinched or pulled loose.

VT600 models (1999 on)

11 Remove the air cleaner housing (see Section 6).
12 Disconnect the front cylinder's spark plug wire (see Chapter 1 if necessary).
13 Detach the air cleaner chamber from the mounting boss and remove it from the left side of the frame.
14 Installation is the reverse of the removal steps.

VT750 models

15 Loosen the two intake duct hose clamp screws.
16 Pull out the air intake chamber.
17 Disconnect the breather tube from the air intake chamber.
18 Remove the air intake chamber.
19 Installation is the reverse of removal.

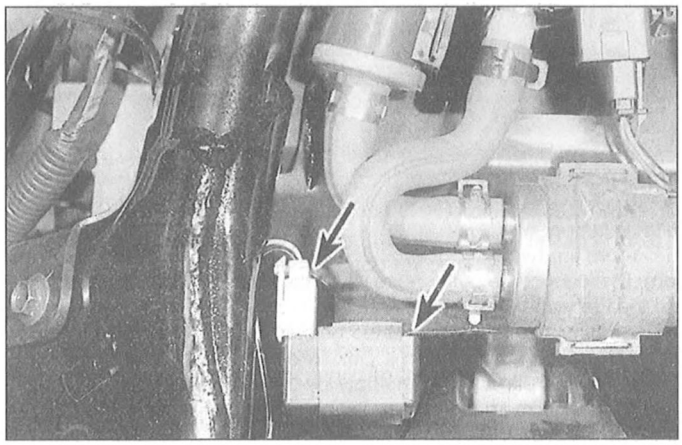
9 Fuel pump system (dual-carburetor models) - check and component replacement

1 On VT600 models, remove the seat; on VT750 models, remove the right side cover (see Chapter 8).

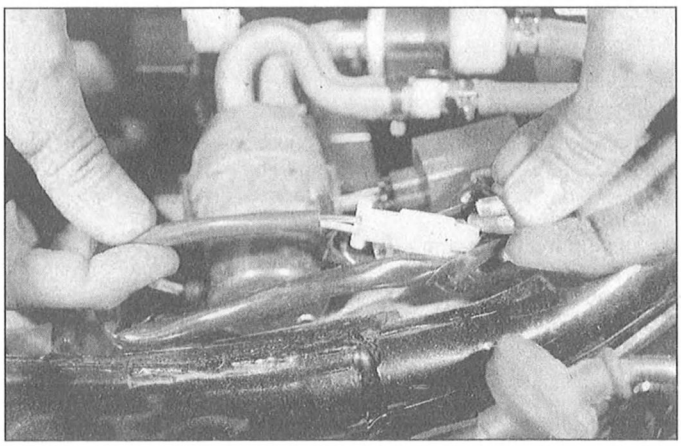
System check

Refer to illustrations 9.3 and 9.9

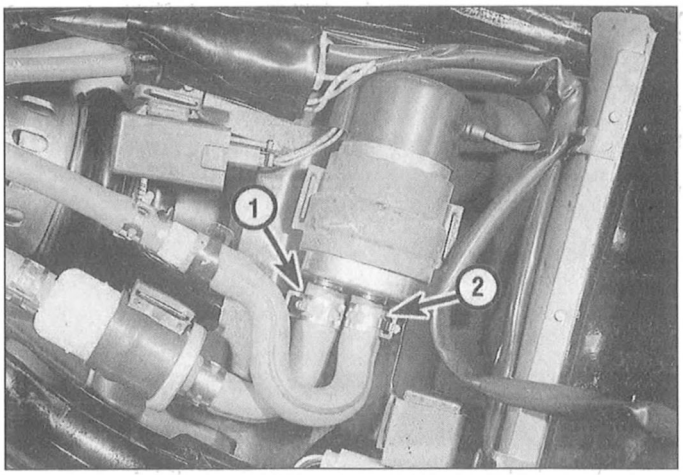
2 Make sure that the ignition switch is off before proceeding.
3 Locate the white three-pin fuel pump relay connector **(see illustration)**. On VT600 models, the fuel pump relay connector is located to the left of the fuel pump, behind the fuel filter; on VT750 models, it's on the right side of the bike, right above the coil. All fuel pump relay connectors have a black wire, a black/blue wire and either a yellow wire (1988 and 1989 VT600 models) or a yellow/blue wire (all other models). (Neither the yellow nor the yellow/blue wires are part of any of the following tests.)
4 Connect the positive lead of a voltmeter to the terminal for the black wire on the harness side of the fuel pump relay connector and connect the negative voltmeter lead to ground. Turn the ignition switch key to the On position and verify that there is battery voltage.
5 If there is no voltage, check the black wire for a loose connection or an open circuit.
6 If there is voltage, check the black/blue wire for continuity.
7 Connect the leads of an ohmmeter to the terminal for the black/blue wire on the harness side of the fuel pump relay connector and to ground and check for continuity between the black/blue wire and ground.
8 If there is continuity, replace the fuel pump relay.
9 If there is no continuity, jump the terminals for the black and the black/blue wires on the wire harness side of the fuel pump relay connector, unplug the white two-pin fuel pump connector **(see illustration)**. On VT600 models, this connector is located to the right of the fuel pump; on VT750 models, it's located on the right side of the bike (it's the inner connector of a bank of connectors, including a black connector and a green connector). Connect the leads of a voltmeter to the harness side of the fuel pump connector, turn the ignition switch to



9.3 The VT600 fuel pump relay and connector (arrows) are located under the seat, to the left of the fuel pump



9.9 The VT600 fuel pump connector (white, two-pin) is located to the right of the fuel pump



9.15 Don't confuse the fuel pump inlet and outlet ports (VT600 shown; VT750 similar)

1 Inlet port (marked by IN above port)
2 Outlet port

On and verify that there is voltage at the connector.
10 If there no voltage, check the black/blue wire and the green wire for a loose connection or an open circuit.
11 If there is voltage, replace the fuel pump.

Fuel pump discharge volume check

Refer to illustration 9.15

12 The fuel pump system may check out okay but still be delivering poor performance. If the engine lacks power or accelerates poorly, the fuel pump may be wearing out. Check the fuel pump discharge volume as follows.
13 Unplug the white three-pin fuel pump relay connector **(see illustration 9.3)**.
14 Jump the terminals for the black and the black/blue wires with a suitable jumper wire.
15 There are two fuel hoses attached to the fuel pump **(see illustration)**. Disconnect the *outlet* hose (NOT the hose between the fuel filter and the fuel pump, but the other hose).
16 Put this hose into a graduated beaker. Turn the ignition switch to On for five seconds then turn it Off. To determine the fuel pump discharge volume per minute, multiply by 12. Compare your measurement to the minimum fuel pump discharge volume listed in this Chapter's Specifications.
17 If the pump fails to deliver the minimum discharge volume, replace it.

Replacement

18 On VT600 models, remove the seat; on VT750 models, remove the right side cover (see Chapter 8).

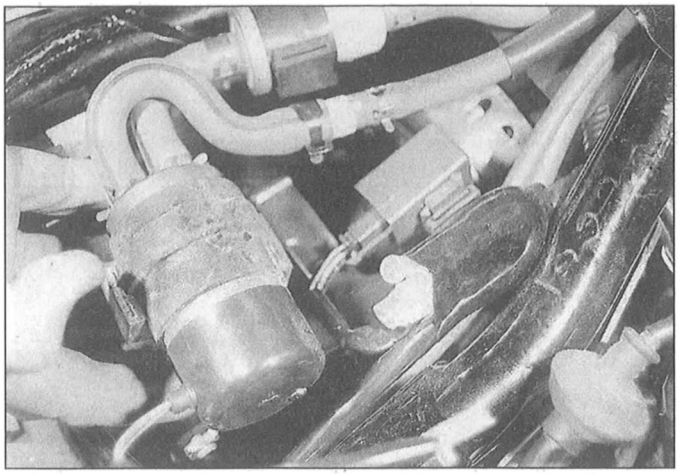
Fuel pump relay

19 Locate the fuel pump relay. On VT600 models, it's to the left, and slightly to the rear, of the fuel pump **(see illustration 9.3)**. On VT750 models, it's on the right side of the bike, right above the coil for the rear cylinder.
20 Unplug the fuel pump relay electrical connector **(see illustration 9.3)**.
21 Remove the relay from its mounting bracket.
22 Installation is the reverse of removal.

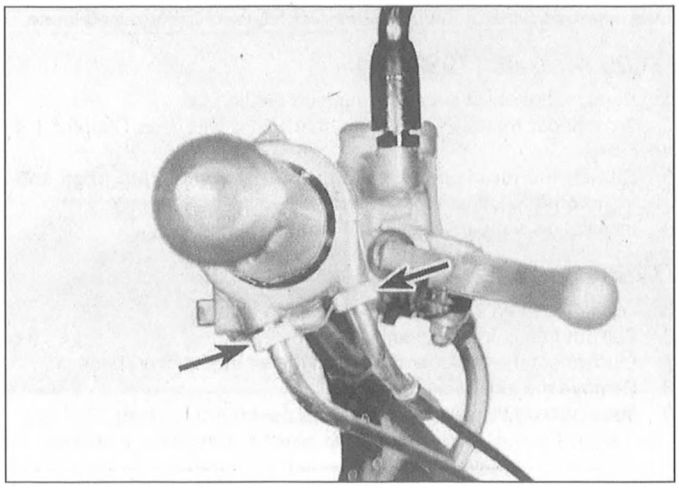
Fuel pump

Refer to illustration 9.25

23 Unplug the fuel pump electrical connector **(see illustration 9.9)**.
24 Loosen the fuel line clamps and push the ends of the fuel lines off the pump fittings **(see illustration 9.15)**.



9.25 To disengage the VT600 fuel pump from its rubber mounting bracket, simply lift it up, then disconnect the fuel pump tube and remove the pump



10.2 Before opening up the switch housing, back off the throttle cable-to-switch housing locknuts (arrows) (VT600 shown, VT750 similar)

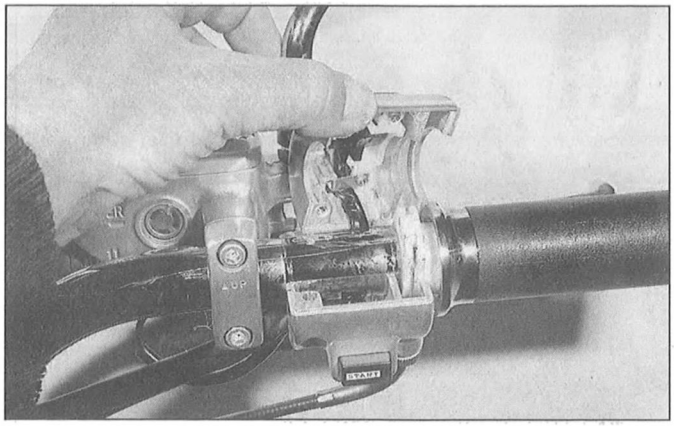
25 Disengage the fuel pump from its rubber mounting bracket **(see illustration)** and lift it up.
26 Disconnect the fuel pump tube from the pump and remove the pump.
27 Installation is the reverse of removal. Don't forget to reattach the fuel pump tube before installing the pump in its mounting bracket, and make sure that the hose between the fuel filter and the pump is attached to the inlet port, marked IN.

10 Throttle cables and grip - removal, installation and adjustment

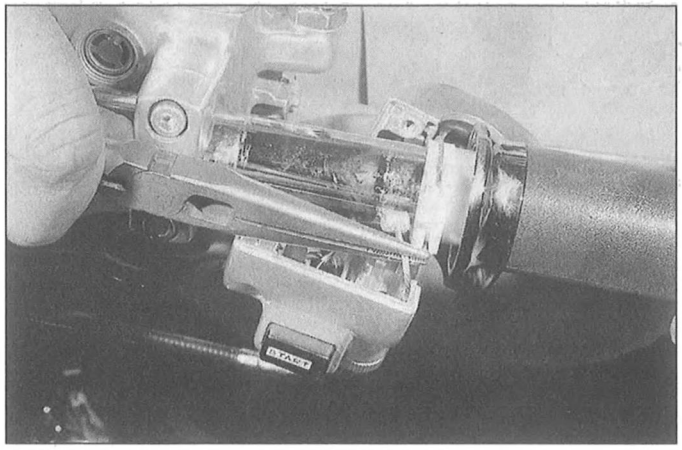
Removal

Refer to illustrations 10.2, 10.3a, 10.3b, 10.4, 10.5a, 10.5b, 10.5c and 10.7

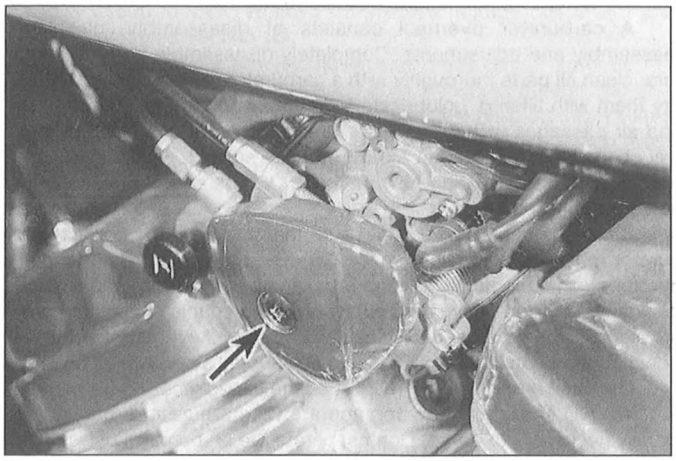
1 Loosen the throttle cable adjuster (see Section 9 in Chapter 1).
2 Back off the throttle cable-to-switch housing locknuts **(see illustration)**.
3 Remove the handlebar switch retaining screws. Separate the halves of the handlebar switch and detach the throttle cables from the throttle grip pulley **(see illustrations)**.



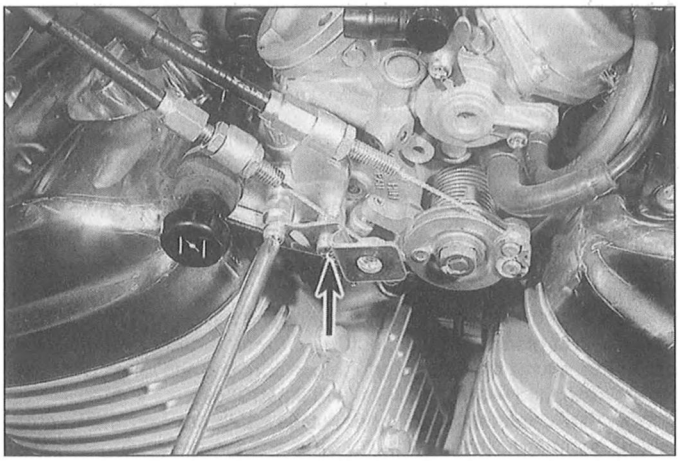
10.3a Remove the switch housing retaining screws from the underside of the lower half of the housing, then open up the switch housing



10.3b Disengage the upper ends of both cables from the throttle grip pulley



10.4 On VT600 models, remove the throttle linkage cover screw (arrow) and remove the cover



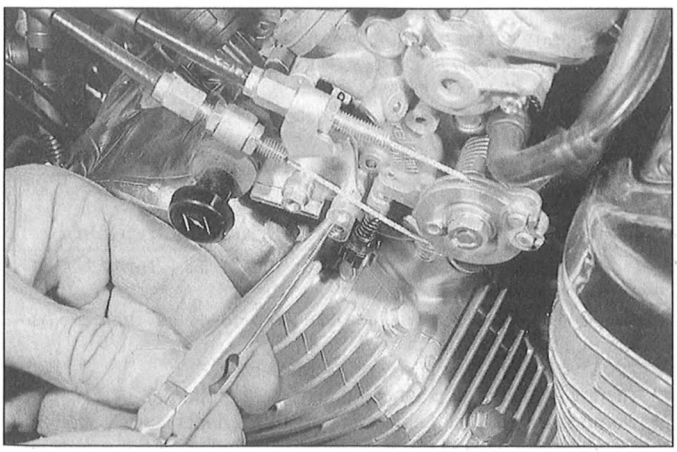
10.5a On VT600 models, remove the two throttle linkage cover screws, remove the bracket . . .

4 On VT600 models, remove the throttle linkage cover **(see illustration)**.

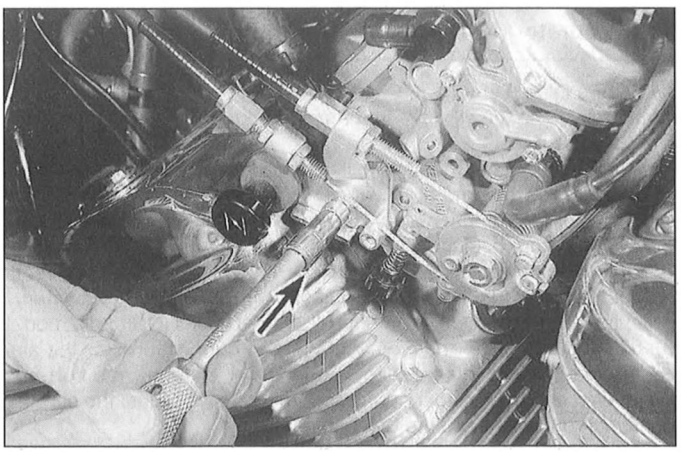
5 On VT600 models, remove the bracket for the throttle linkage cover and detach the throttle cable bracket from the left carburetor **(see illustrations)**. It's not absolutely necessary to detach the throttle cable bracket to replace the cable(s), but it's easier to disengage the cables from the bracket after it's detached. Note also that the choke knob is attached to the throttle cable bracket. It's not necessary to detach the choke knob from the bracket unless you're removing the carburetors (see Section 12) or servicing the starting enrichment valves (see Section 13).

6 On VT750 models, remove the throttle cable bracket screws and detach the throttle cable bracket from the left carburetor.

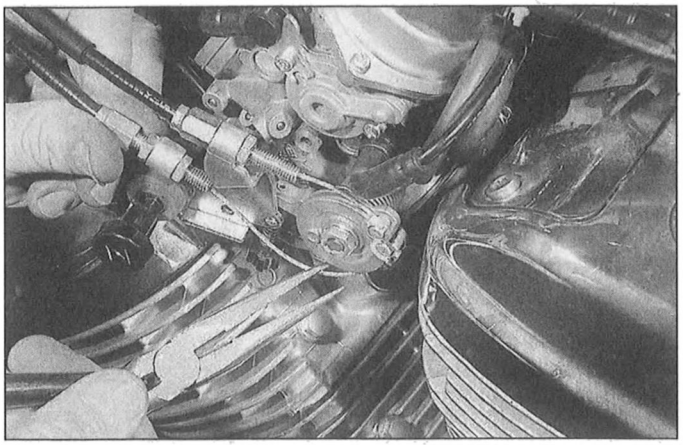
7 Detach the throttle cables from the throttle pulley at the carburetors



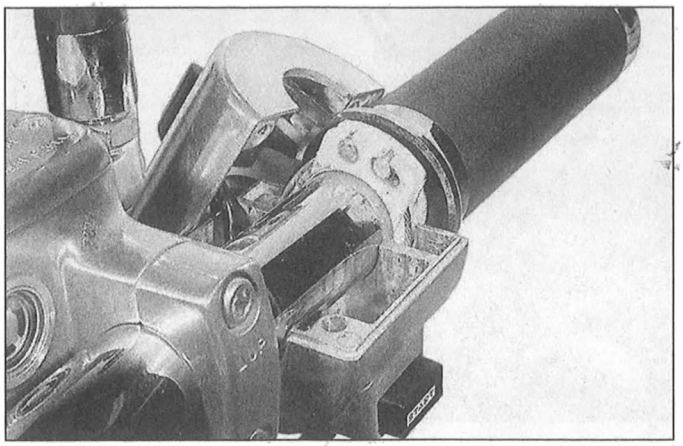
10.5b . . . remove the decelerator cable protector (small clear plastic tube) . . .



10.5c . . . remove the accelerator cable bracket screws and remove the accelerator cable bracket



10.7 Disengage the lower ends of both cables from the throttle pulley



10.11 Make sure that the upper cable ends are correctly engaged with the throttle grip pulley

(see illustration). Note how the cables are routed, then remove them.
8 Slide the throttle grip off the handlebar.

Installation

Refer to illustration 10.11

9 Clean the end of the handlebar and the inside of the throttle grip, apply a light coat of multi-purpose grease to both surfaces and install the twist grip on the handlebar. Verify that it turns freely and smoothly with no binding or rough spots.
10 Route the cables exactly the same way they were routed prior to removal. Make sure they don't interfere with other components and are not kinked or sharply angled.
11 Lubricate the ends of the accelerator and decelerator cables with multi-purpose grease and connect them to the throttle pulleys at the carburetors and at the throttle grip. Make sure that the cable ends are correctly engaged with the pulleys **(see illustration)**.
12 On VT600 models, install the throttle cable bracket, the throttle linkage cover bracket and the throttle linkage cover. Tighten the screws securely.
13 On VT750 models, install the throttle cable bracket. Tighten the screws securely.

Adjustment

14 Adjust the throttle cables (see Section 9 in Chapter 1).
15 Turn the handlebars back and forth to make sure the cables don't cause the steering to bind. With the engine idling, turn the handlebars back and forth and make sure idle speed doesn't change. If it does, find and fix the cause before riding the motorcycle.

11 Carburetor overhaul - general information

1 Poor engine performance, hesitation, hard starting, stalling, flooding and backfiring are all signs that major carburetor maintenance may be required.
2 Keep in mind that many so-called carburetor problems are really not carburetor problems at all, but engine mechanical problems or ignition system malfunctions. Try to verify that the carburetors need to be serviced before beginning a major overhaul.
3 Before assuming that a carburetor overhaul is required, inspect the fuel filter; the fuel lines; the crankcase emission control system hoses; the evaporative emission control system hoses (California models); all vacuum hoses; the hose clamps and connections for the air intake chamber and intake ducts; the air filter element; the sub-air cleaner element; the cylinder compression; the spark plugs; the carburetor synchronization; and the fuel pump.
4 Most carburetor problems are caused by dirt particles, varnish and other deposits which accumulate in, and eventually clog, fuel and air passages. Also, gaskets and O-rings shrink or deteriorate, causing fuel and air leaks which lead to poor performance.
5 A carburetor overhaul consists of disassembly, cleaning, reassembly and adjustments. Completely disassemble both carburetors, clean all parts thoroughly with a carburetor cleaning solvent, then dry them with filtered, unlubricated, compressed air. Blow out the fuel and air passages with compressed air to force out any dirt that may have been loosened but not removed by the solvent. Finally, reassemble the carburetors, using new gaskets, O-rings and, if necessary, a new float valve and seat.
6 Before getting started, make sure that you have the correct carburetor rebuild kit with all the necessary O-rings and other parts, carburetor cleaner, some clean shop rags, an air compressor and a place to work. If you don't have a compressor, buy a couple of cans of compressed air (the type used for cleaning computer keyboards and electronic components, available at any office supply store).
7 Overhaul only one carburetor at a time to avoid mixing up parts.
8 We will show you how to separate the carburetors, but it isn't usually necessary to do so. Don't separate the carburetors unless one of the joints between them is leaking, or one of the carburetors must be replaced. The vacuum chamber, the air cut-off diaphragm, the float assembly and the jets can be serviced without separating the carburetors. Achieving correct synchronization can be tricky after disconnecting and reconnecting the carburetors.

12 Carburetors - removal and installation

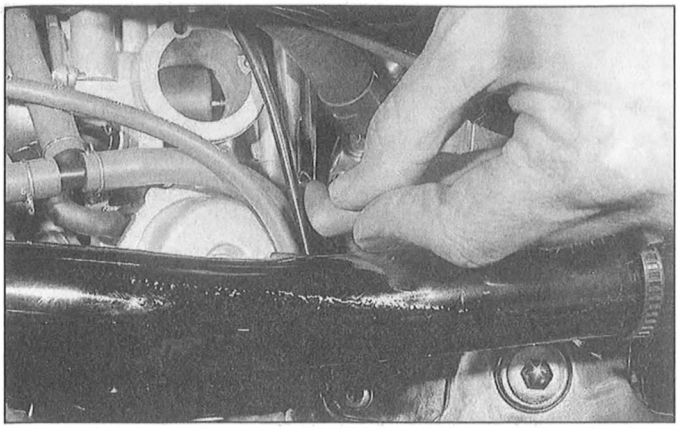
Warning: *Gasoline (petrol) is extremely flammable, so take extra precautions when you work on any part of the fuel system. Don't smoke or allow open flames or bare light bulbs near the work area, and don't work in a garage where a natural gas-type appliance (such as a water heater or clothes dryer) is present. If you spill any fuel on your skin, rinse it off immediately with soap and water. When you perform any kind of work on the fuel system, wear safety glasses and have an extinguisher suitable for class B fires (flammable liquids) on hand.*

Removal

VT600 (1988 through 1998) and VT750C/CD models

Refer to illustrations 12.6, 12.10a, 12.10b, 12.12a, 12.12b and 12.12c

1 Remove the fuel tank (see Section 2).
2 Remove the drain screws from both float bowls and drain the carburetors into a suitable container.
3 Remove the air cleaner housing (see Section 6).
4 Remove the sub-air cleaner element (see Section 7).
5 Remove the air intake chamber and intake ducts (see Section 8).
6 Detach the fuel line from the T-fitting located behind the carburetors on VT600 models **(see illustration)** and below the carbs on VT750 models.

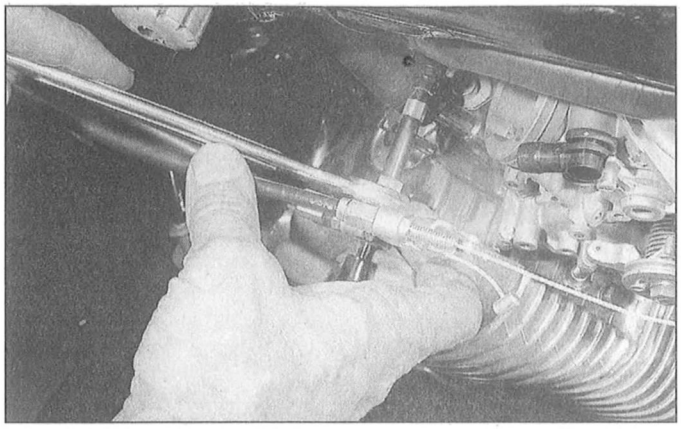


12.6 Detach the fuel hose from the T-fitting behind the carburetors on VT600 models (shown) or below the carbs on VT750 models

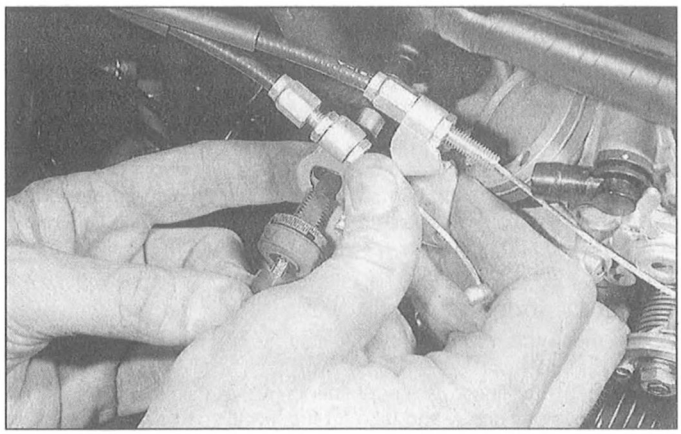
7 On VT600 models, remove the throttle linkage cover and the cover bracket (see Section 10).
8 On VT750 models, remove the left side cover (see Chapter 8).
9 Detach the throttle cable bracket from the left carburetor and disengage the throttle cables from the pulley (see Section 10). Unless you're replacing the throttle cables, it's not necessary to detach them from the cable bracket; they can remain attached to the bracket.
10 On VT600 models, separate the choke knob and cable from the throttle cable bracket **(see illustrations)**.
11 On VT750 models, remove the cylinder fins from the left side of the rear cylinder (see Section 7 in Chapter 2), detach the choke knob bracket, then detach the choke knob from the bracket.
12 Loosen the carburetor insulator clamp screws **(see illustration)**, carefully work the carbs free from the insulators **(see illustration)**, with a big screwdriver if necessary, pull the carbs from the left side of the engine **(see illustration)**, detach the air hoses and remove the carburetors. (If you're planning to service the cylinder heads, you can also unbolt the insulators from the cylinder heads and remove the carburetor assembly and insulators together.)
13 After the carburetors have been removed, stuff clean rags into the insulators to prevent the entry of dirt or other objects.
14 Inspect the carburetor insulators. If they're cracked or brittle, replace them.

VT600 (1999 and later) models

15 Remove the air cleaner (see Section 6).

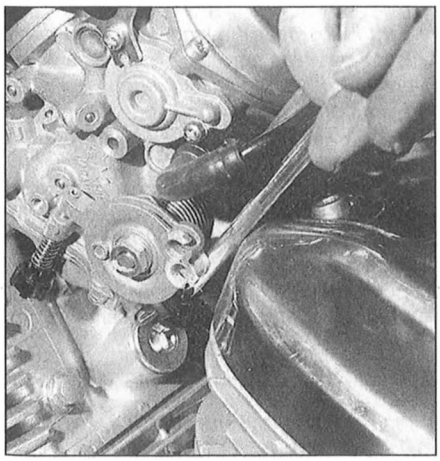


12.10a On VT600 models, back off the choke shaft locknut on the backside of the throttle cable bracket . . .

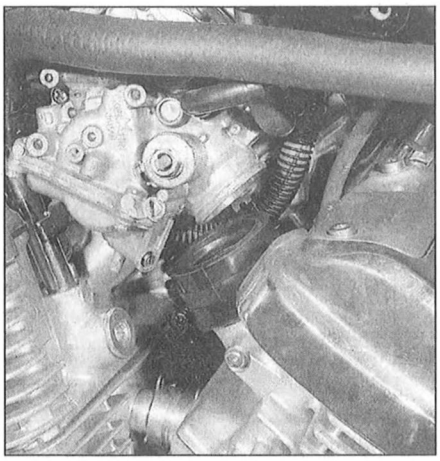


12.10b . . . and disengage the choke knob and shaft from the bracket

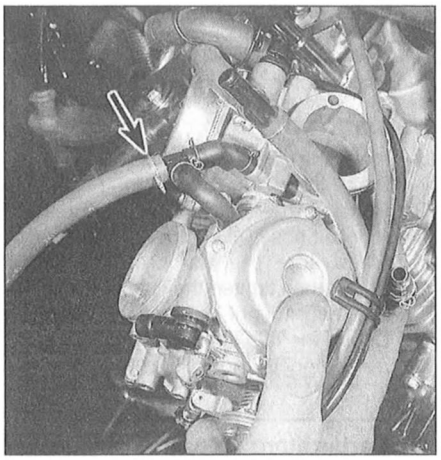
16 Loosen the float bowl drain screw and drain the carburetor into a suitable container.
17 Remove the fuel tank (see Section 2).
18 Remove the throttle linkage cover. Loosen the throttle cable adjusters, but don't remove the cables yet.
19 Remove the choke and idle speed knobs.
20 Label and disconnect the fuel line, vacuum hoses and coolant



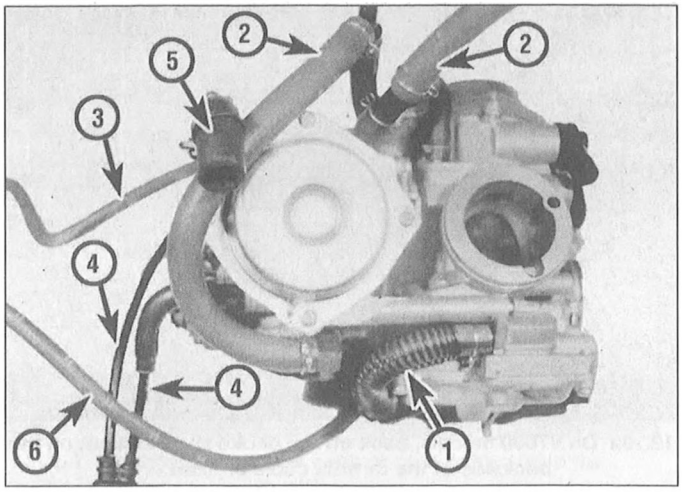
12.12a Loosen the insulator clamp screws . . .



12.12b . . . separate the carburetors from the insulators (if they're hard to pull out of the insulators, use a big screwdriver to gently pry them loose) . . .



12.12c . . . pull the carbs out from the left side of the engine, detach the air tubes (arrow) and remove the carbs



13.2a Carburetor hose routing (top view, as seen from the front)

1 *Fuel hose*
2 *Air hoses*
3 *Air vent control valve hose*
4 *Choke cable/starting enrichment valve*
5 *Sub-air cleaner hose*
6 *Purge valve hose*

hoses. Plug or cap the coolant hoses so they don't drip.

21 Loosen the clamping band screws and work the carburetor out of the intake manifold. Pull the carburetor out, slip the throttle cables out of the brackets, then disconnect the cable ends from the throttle pulley.

VT750DC models

22 Remove the fuel tank and air cleaner housing (see Sections 2 and 6).

23 Free the fuel line from the retainer on top of the rear cylinder.

24 Remove one screw and take off the throttle cable cover. Working behind the cover, loosen the throttle cable adjuster locknuts, then remove the wiring harness retainer, cover bracket and throttle cable bracket.

25 Slip the throttle cables out of the brackets, then disconnect the cable ends from the throttle pulley.

26 Unbolt the choke cable bracket from the rear cylinder.

27 At the rear carburetor, disconnect the carburetor heater electrical connector, detach the sub-air cleaner tube and loosen the clamping band screw at the cylinder.

28 Repeat Step 27 at the front carburetor.

29 Label and disconnect the vacuum hoses.

30 Work the carburetors and intake tubes free of the cylinders, then lift the assembly, disconnect the fuel line and take it out.

31 Pull back the choke plunger boots, unscrew the nuts and take the plungers out of the carburetors.

Installation

32 Place the carburetor assembly in position on the engine and connect the air intake tube(s), but don't tighten the clamping screws yet.

33 Reverse the removal steps to connect the throttle cables, fuel lines, coolant hoses (if equipped) and emission hoses.

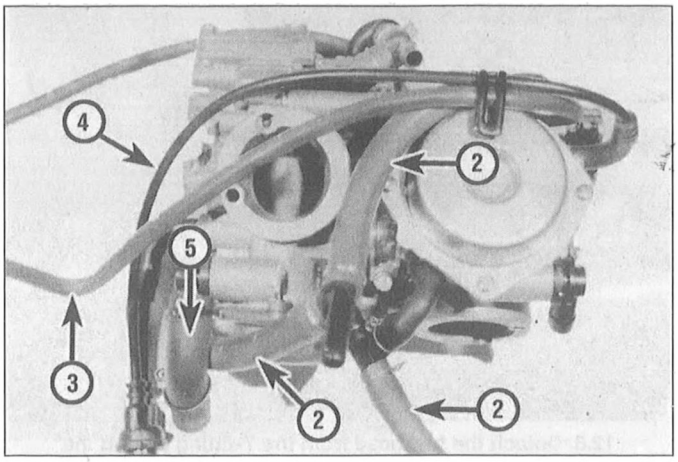
34 Make sure the carburetor(s) and securely seated in the insulator(s), then tighten the clamping screws securely.

35 The remainder of installation is the reverse of the removal steps.

36 Check the idle speed (and carburetor synchronization on dual-carburetor models). Adjust if necessary (see Chapter 1).

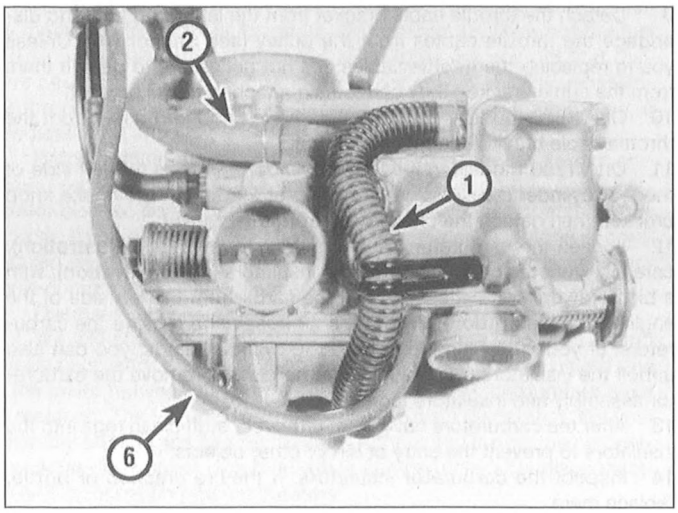
13 Carburetors - disassembly, inspection, cleaning and reassembly

Warning: *Gasoline (petrol) is extremely flammable, so take extra precautions when you work on any part of the fuel system. Don't smoke or allow open flames or bare light bulbs near the work area, and don't work in a garage where a natural gas-type appliance (such as a water heater or clothes dryer) is present. If you spill any fuel on your skin, rinse it off immediately with soap and water. When you perform any kind of work on the fuel system, wear safety glasses and have a fire extinguisher suitable for class B type fires (flammable liquids) on hand.*



13.2b Carburetor hose routing (top view, as seen from the rear)

2 *Air hoses*
3 *Air vent control valve hose*
4 *Choke cable/starting enrichment valve*
5 *Sub-air cleaner hose*



13.2c Carburetor hose routing (front view)

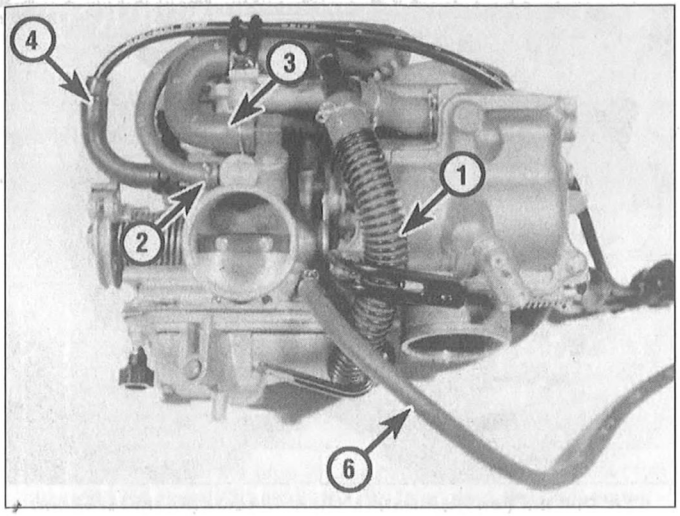
1 *Fuel hose*
2 *Air hose*
6 *Purge valve hose*

Note: *The following procedures are specific to dual carburetors, used on all except 1999 and later VT600 models. Service procedures for the single carburetor used on the 1999 and later VT600 are similar in design to those for dual carburetors, but include an accelerator pump. If you're working on a single carburetor, ignore the steps which don't apply, and service the accelerator pump diaphragm in the same way as the air cut-off diaphragm.*

Disassembly

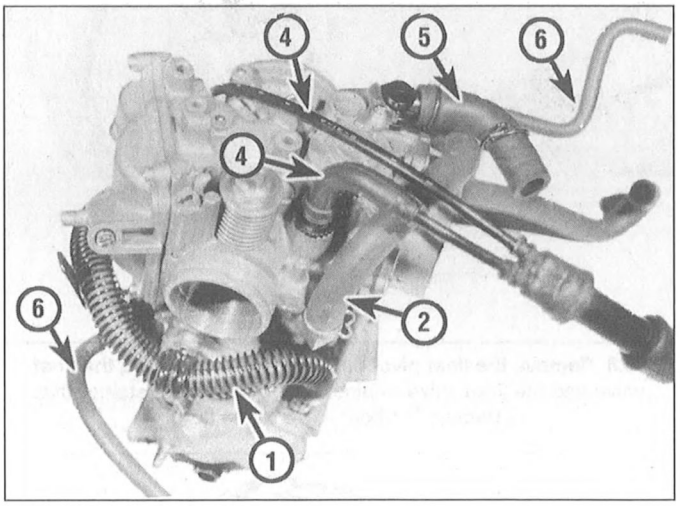
Refer to illustrations 13.2a, 13.2b, 13.2c, 13.2d, 13.2e, 13.2f, 13.3a, 13.3b, 13.3c, 13.5, 13.6, 13.7, 13.8, 13.9, 13.10, 13.11, 13.12a, 13.12b, 13.13, 13.14 and 13.15

Note: *Work on one carburetor at a time to avoid mixing up the parts, and to give you a "reference carburetor" to refer to if you can't remember how things go back together. As you disassemble each carburetor,*



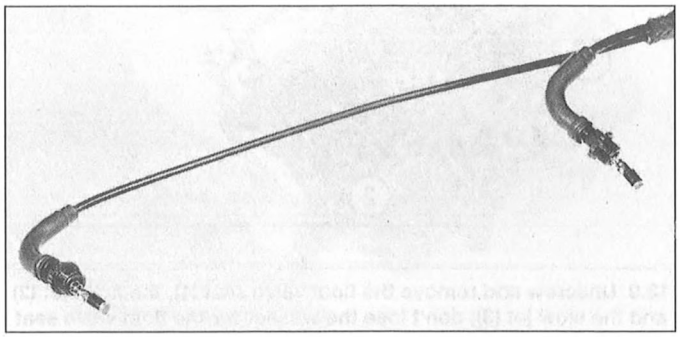
13.2d Carburetor hose routing (rear view)

1 *Fuel hose*
2 *Air hose*
3 *Air vent control valve hose*
4 *Choke cable/starting enrichment valve*
6 *Purge valve hose*



13.2f Carburetor hose routing (right view)

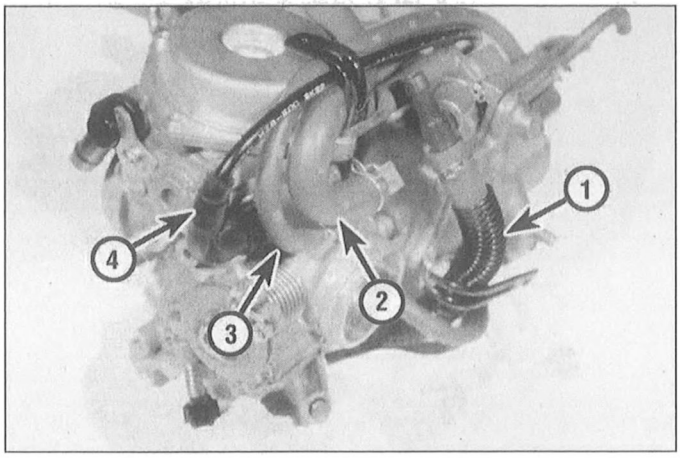
1 *Fuel hose*
2 *Air hose*
4 *Choke cable/starting enrichment valve*
5 *Sub-air cleaner hose*
6 *Purge valve hose*



13.3b . . . and pull out the valve

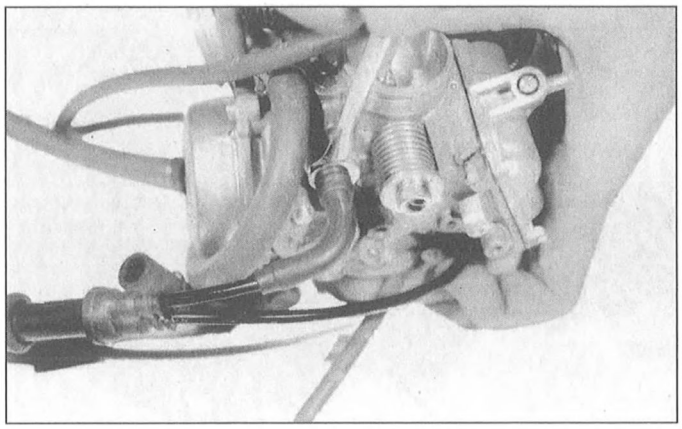
store the parts for each sub-assembly in a clearly labeled plastic bag so you don't lose anything.

1 Remove the carburetors (see Section 12), then place them on a clean working surface.

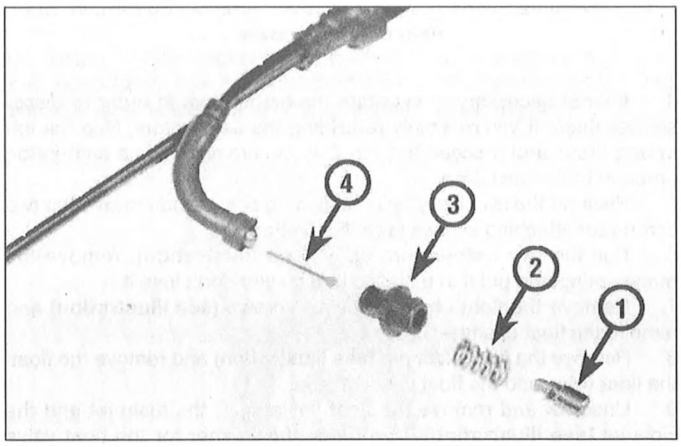


13.2e Carburetor hose routing (left view)

1 *Fuel hose*
2 *Air hose*
3 *Air vent control valve hose*
4 *Choke cable/starting enrichment valve*



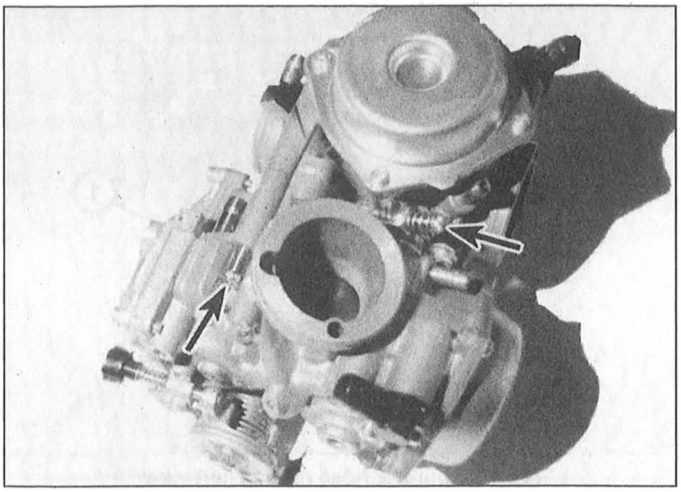
13.3a To remove the starting enrichment valve, loosen it with a wrench . . .



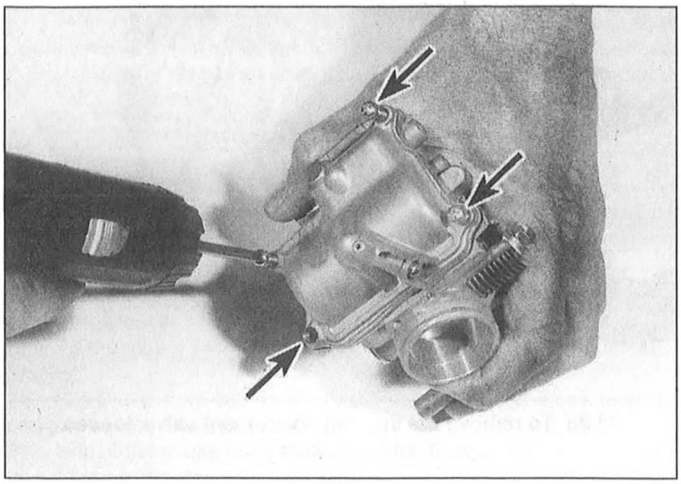
13.3c Each starting enrichment valve assembly consists of the valve itself (1), the spring (2), the collar (3) and the choke cable end (4)

2 Carefully study how the air and fuel hoses are routed **(see illustrations)**, mark them with adhesive labels or colored electrical tape, then detach them from the carburetors. Use the accompanying photos to help you route the hoses correctly during reassembly.

3 Remove the starting enrichment valves **(see illustrations)**.



13.5 Back off the synchronization adjusting screw (right arrow) and remove the two carburetor attaching screws (arrow) (the other attaching screw, not visible in this photo, is in exactly the same location on the side of the other carburetor)



13.7 Remove the float chamber cover screws and remove the float chamber cover

4 It's not necessary to separate the carburetors in order to disassemble them. If you're simply rebuilding the carburetors, skip the following Steps and proceed to Step 7. If you are replacing a carburetor, proceed to the next Step.

5 Back off the synchronization adjusting screw and remove the two carburetor attaching screws **(see illustration)**.

6 Pull the two carburetors apart **(see illustration)**, remove the thrust spring and put it in a plastic bag so you don't lose it.

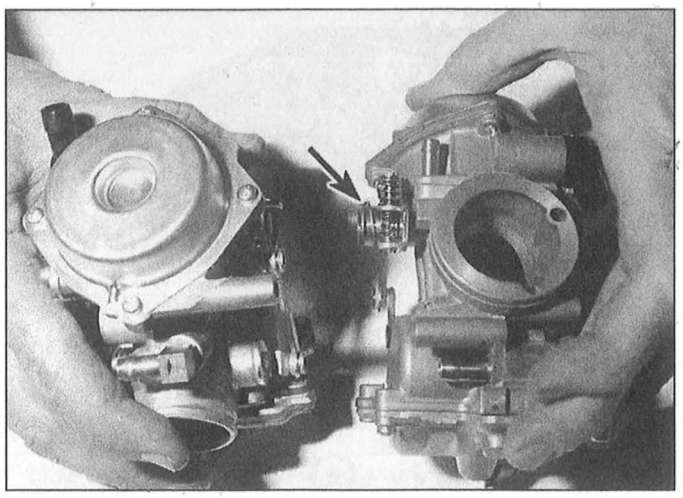
7 Remove the float chamber cover screws **(see illustration)** and remove the float chamber cover.

8 Remove the float pivot pin **(see illustration)** and remove the float, the float valve and the float valve retainer.

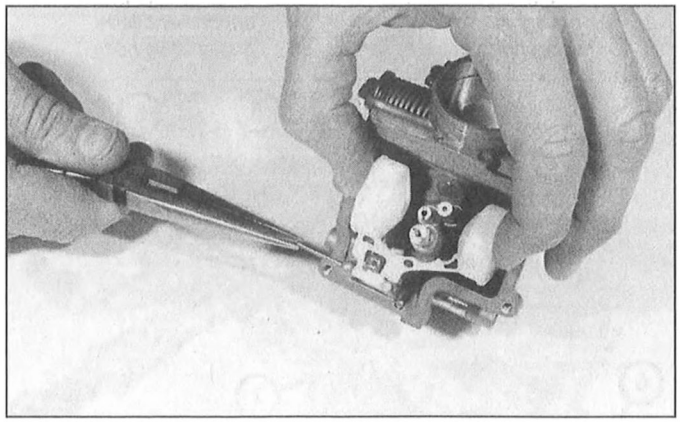
9 Unscrew and remove the float valve seat, the main jet and the slow jet **(see illustration)**. Don't lose the washer for the float valve seat.

10 Center punch the plug for the pilot screw, then drill out the plug with a 4 mm (5/32-inch) drill bit **(see illustration)**. To protect the pilot screw from damage, use a drill stop set to prevent the drill bit from going deeper than 3 mm (1/8-inch). Make sure you don't damage the pilot screw.

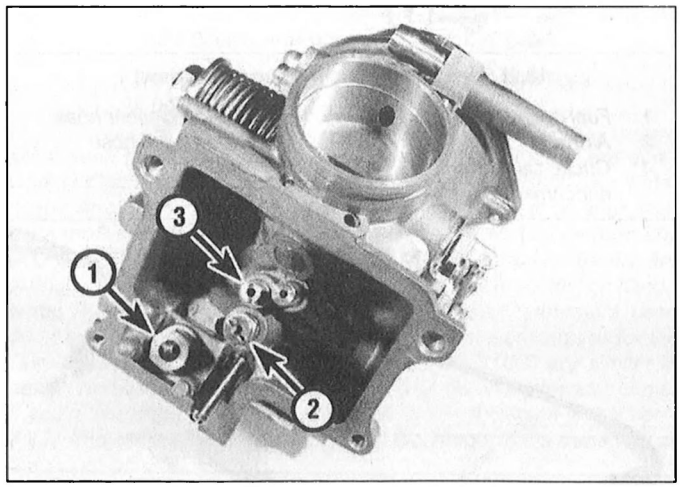
11 Screw a self-tapping 4 mm screw into the drilled-out plug, grasp the head of the self-tapping screw and pull out the plug **(see illustration)**.



13.6 Pull the two carburetors apart, remove the thrust spring (arrow) and put it in a plastic bag so you don't lose it

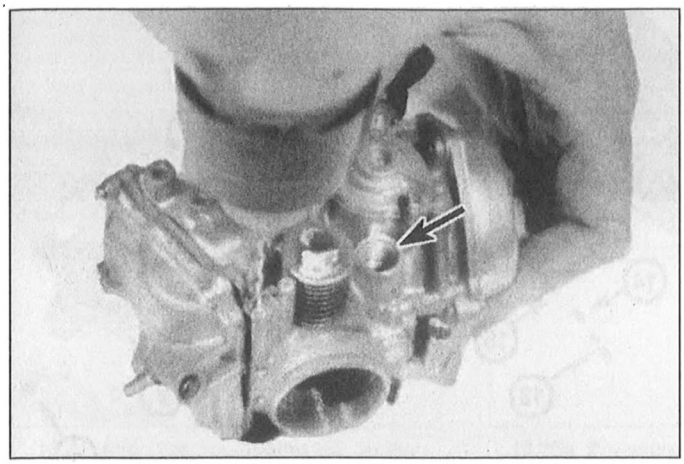


13.8 Remove the float pivot pin and remove the float, the float valve and the float valve retainer (the small metal retainer that attaches the float valve to the float)

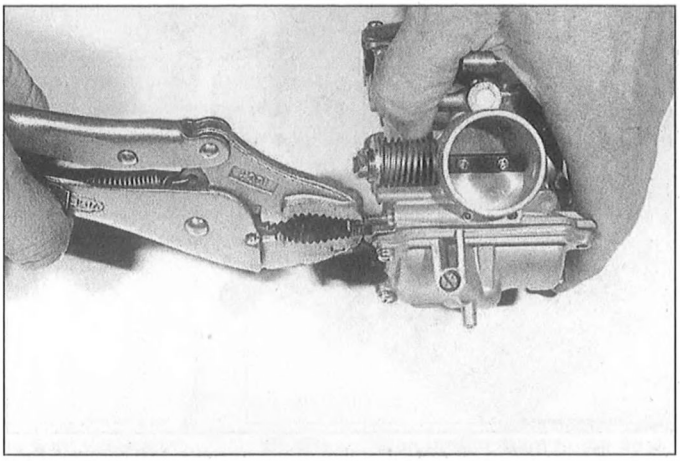


13.9 Unscrew and remove the float valve seat (1), the main jet (2) and the slow jet (3); don't lose the washer for the float valve seat

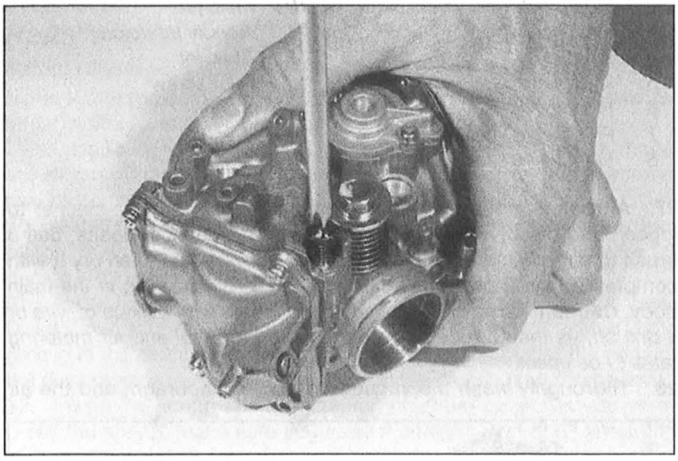
12 Carefully counting the number of turns, screw in the pilot screw until it seats lightly. **Caution:** *Do NOT keep turning the pilot screw in after you feel it stop; this will damage the screw.* Jot down the number of turns it took to seat the screw; you'll need this number when



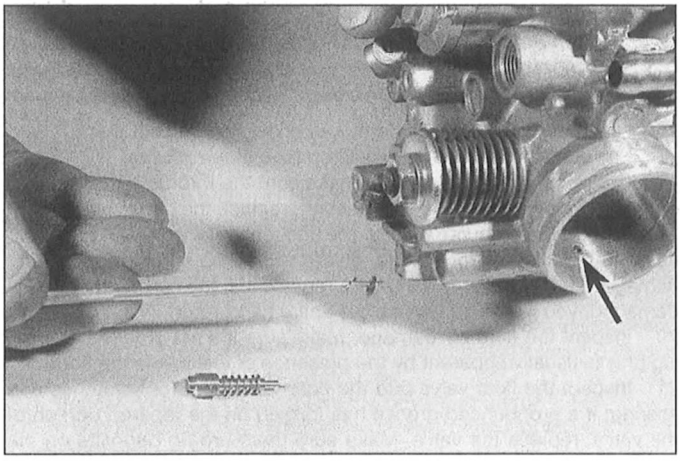
13.10 Center punch the plug for the pilot screw, then drill out the plug with a 4 mm (5/32-inch) drill bit; to protect the pilot screw from damage, use a drill stop set to prevent the drill bit from going deeper than 3 mm (1/8-inch)



13.11 Screw a self-tapping 4 mm screw into the drilled-out plug, grasp the head of the screw and pull out the plug



13.12a Carefully counting the number of turns it takes to seat the screw, screw in the pilot screw until it seats lightly and jot down the number for assembly

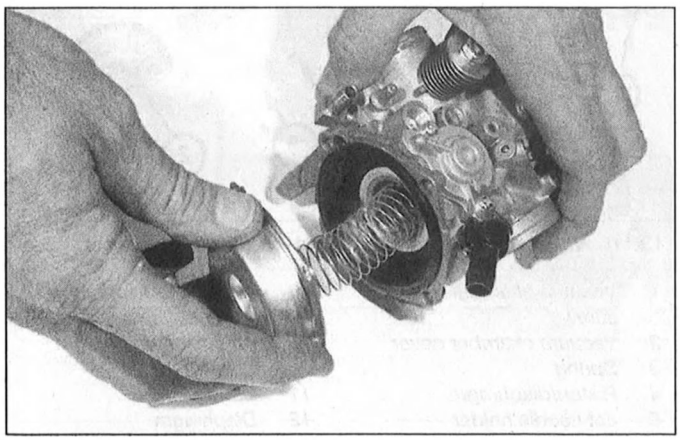


13.12b Remove the pilot screw, washer and O-ring; the bypass hole (arrow) is an alignment mark for throttle adjustment

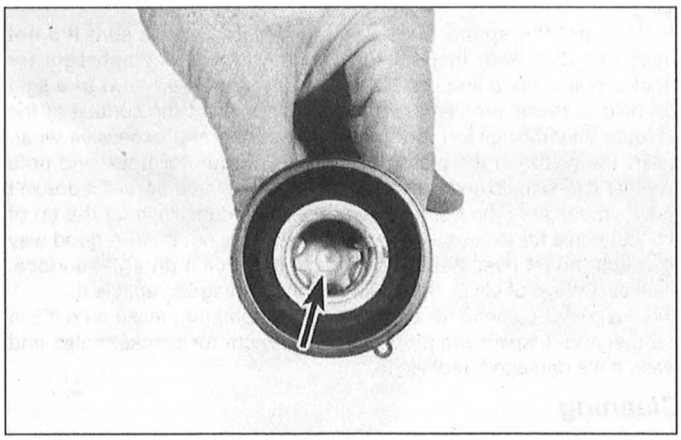
reassembling the carburetor. Remove the pilot screw, the washer and the O-ring **(see illustrations)**.

13 Remove the vacuum chamber screws and remove the vacuum chamber cover **(see illustration)**. Remove the spring and the piston/diaphragm assembly.

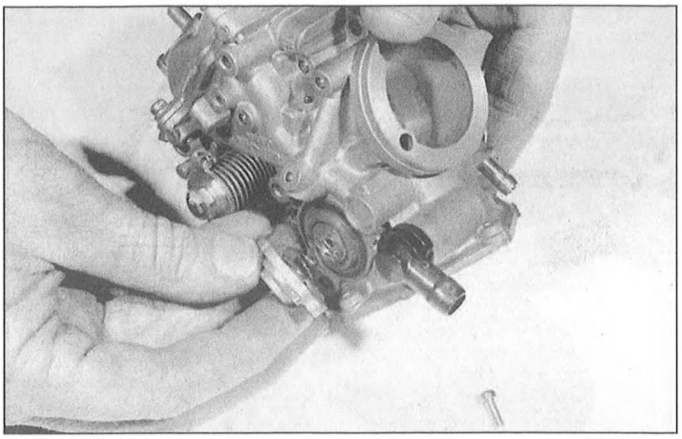
14 Using a Phillips screwdriver, push down on the jet needle holder **(see illustration)**, turn it counterclockwise 90 degrees to unlock it, and remove the jet needle holder, the spring and the jet needle.



13.13 Remove the vacuum chamber screws and remove the vacuum chamber cover, the spring and the piston/diaphragm assembly



13.14 Using a Phillips screwdriver, push down on the jet needle holder, turn it counterclockwise 90 degrees to unlock it, then remove the jet needle holder, the spring and the jet needle



13.15 Remove the air cut-off valve cover screws and remove the air cut-off valve cover, the spring and the diaphragm; remove and discard the old O-ring

15 Remove the air cut-off valve cover screws and remove the air cut-off valve cover, the spring and the diaphragm **(see illustration)**. Remove and discard the old O-ring.

Inspection

Refer to illustrations 13.17a and 13.17b

16 Clean or wipe off all the parts well enough to inspect them.

17 Lay out all the parts for inspection **(see illustrations)**.

18 Operate the throttle shaft to make sure the throttle butterfly valve opens and closes smoothly. If it doesn't, replace the carburetor.

19 Inspect the carburetor body, the float chamber cover and the vacuum chamber cover for cracks, distorted sealing surfaces and other damage. If either cover is damaged, replace it. If the carburetor body is damaged, you'll have to replace the entire carburetor.

20 Inspect the float for damage. Make sure it's not cracked or leaking (this is usually apparent by the presence of fuel inside the float).

21 Inspect the float valve and the float valve seat for scratches and scoring; if a pronounced groove has formed on the tapered portion of the valve, replace the valve. Make sure there are no deposits on the sealing surface of the valve or the valve seat which might prevent the valve from fully closing against the seat. Make sure that no deposits on the bore of the seat are blocking fuel flow through the seat. If any of these parts are damaged, replace them. There's a small filter in the seat; make sure it's not clogged or damaged.

22 Inspect the jets. Make sure that the passages through the jets are clean and free of deposits.

23 Inspect the tapered part of the pilot screw for wear and damage. Make sure the spring is in good shape. Replace any worn or damaged parts.

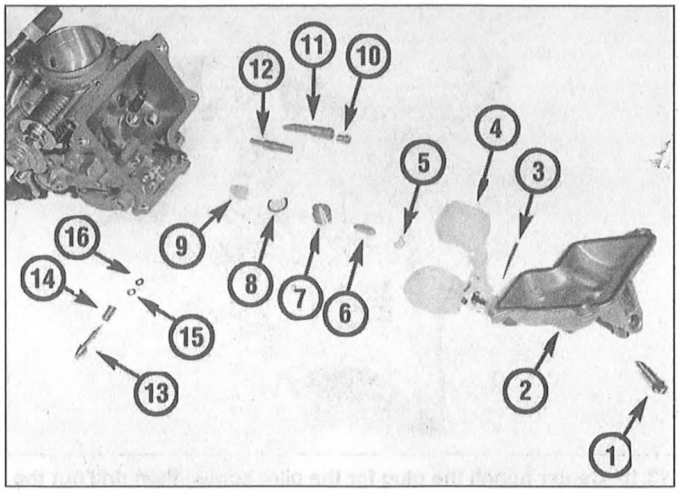
24 Inspect the spring for the vacuum piston; make sure it's not kinked or distorted. Inspect the vacuum chamber diaphragm for cracks, holes, tears and general deterioration (holding it up to a light will help to reveal problems of this nature). Inspect the surface of the vacuum chamber piston for scratches, scoring and excessive wear. Insert the piston in the piston bore in the carburetor body and note whether it moves up and down smoothly in the piston bore. If it doesn't move smoothly in the bore, replace the carburetor. Inspect the tip of the jet needle for excessive wear. Make sure it's not bent. A good way to check the jet needle for straightness is to roll it on a flat surface, such as a piece of glass. If the jet needle is damaged, replace it.

25 Inspect the spring for the air cut-off diaphragm; make sure it's in good shape. Inspect the air cut-off diaphragm for cracks, holes and tears. If it's damaged, replace it.

Cleaning

Caution: *Use only a petroleum based solvent for carburetor cleaning. Don't use caustic cleaners.*

26 Submerge the metal components in the solvent for about thirty minutes (or longer, if the directions recommend it).

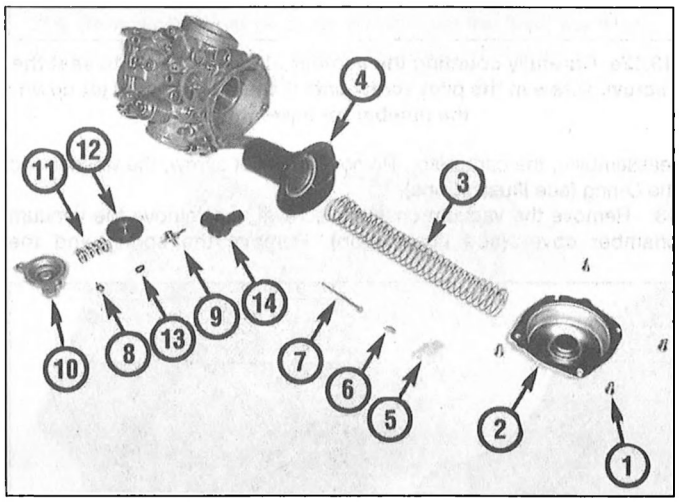


13.17a Float assembly, jets and pilot screw assembly

1	*Drain screw*	9	*Float valve seat filter*
2	*Float chamber cover*	10	*Main jet*
3	*Float valve pin*	11	*Needle jet holder*
4	*Float*	12	*Slow jet*
5	*Retainer*	13	*Pilot screw*
6	*Float valve*	14	*Spring*
7	*Float valve seat*	15	*Washer*
8	*Float valve seat washer*	16	*O-ring*

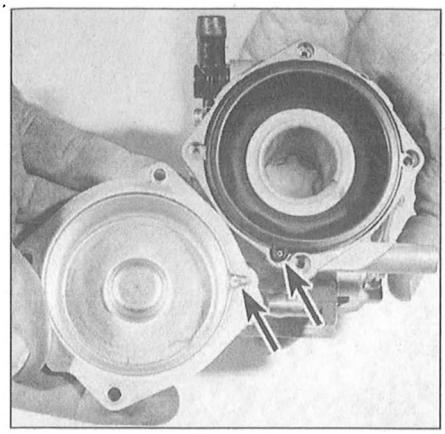
27 After the carburetor has soaked long enough for the cleaner to loosen and dissolve most of the varnish and other deposits, use a brush to remove the stubborn deposits. Rinse it again, then dry it with compressed air. Blow out all of the fuel and air passages in the main body. **Caution:** *Never clean the jets or passages with a piece of wire or a drill bit, as they will be enlarged, causing the fuel and air metering rates to be upset.*

28 Thoroughly wash the vacuum chamber diaphragm and the air

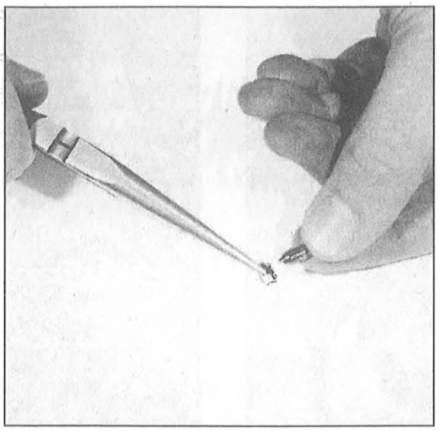


13.17b Vacuum chamber and air cut-off diaphragm assemblies

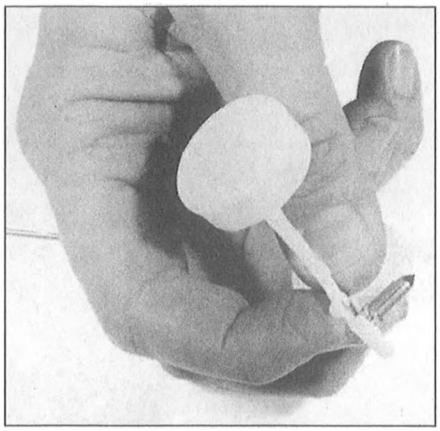
1	*Vacuum chamber cover screws*	9	*Air cut-off diaphragm cover screw/bracket*
2	*Vacuum chamber cover*	10	*Air cut-off diaphragm cover*
3	*Spring*	11	*Spring*
4	*Piston/diaphragm*	12	*Diaphragm*
5	*Jet needle holder*	13	*O-ring*
6	*Spring*	14	*Elbow fitting for sub-air cleaner hose*
7	*Jet needle*		
8	*Air cut-off diaphragm cover screw*		



13.31 Align the positioning tab on the edge of the diaphragm with the notches in the cover and carburetor body



13.35a Reassemble the float valve and the retainer . . .



13.35b . . . then attach them to the float

cut-off valve diaphragm with soap and water, then rinse them off with clean water.

Reassembly

Refer to illustrations 13.31, 13.35a, 13.35b, 13.36, 13.45 and 13.47

Note: *When reassembling the carburetors, be sure to use the new O-rings, gaskets and other parts supplied in the rebuild kit.*

29 Install a new O-ring with its flat side toward the carburetor. Install the air cut-off diaphragm, spring and cover. Tighten the cover screws securely.

30 Install the jet needle, spring, and jet needle holder in the vacuum piston. Push down on the jet needle holder and turn it clockwise 90 degrees to lock it into place.

31 Install the vacuum diaphragm/piston assembly in the piston bore. Make sure that the lip on the underside of the diaphragm is seated in the groove in the carburetor casting and the positioning tab on the edge of the diaphragm is aligned with the cavity in the groove **(see illustration)**.

32 Install the spring and the vacuum chamber cover. As you compress the spring, make sure you keep it straight. And don't pinch the diaphragm. Install the cover screws and tighten them securely.

33 Install the needle jet holder, main jet and slow jet. **Caution:** Don't overtighten the jets. Because they're made of soft brass, it's easy to strip the threads.

34 Install the float valve seat/filter. Again, don't overtighten it.

35 Assemble the float valve, retainer and float **(see illustrations)**.

36 Place the float assembly in position and secure it with the float pin. Make sure that the float valve is correctly seated on the float valve seat and the float valve retainer is correctly engaged with the float **(see illustration)**.

37 Using a carburetor float level gauge (Honda special tool 07401-0010000), check the float level. Place the carburetor(s) on a bench with the float chamber on its side, so that the float is hanging from its pivot pin. Place the gauge so that it's perpendicular to the machined face of the float chamber and position it so that it's aligned with the main jet. Check the float level and compare your measurement to the float level listed in this Chapter's Specifications. If the float level is incorrect, replace the float assembly.

38 Install the float chamber cover with a new O-ring, install the cover screws and tighten them securely.

39 Install the pilot screw, return it to its original position in accordance with your notes and install a new sealing plug. If you're installing a new pilot screw, establish a baseline by setting it at the same position as the old pilot screw, then - after the carburetors are installed and synchronized - adjust it (see Section 14). Don't install a sealing plug at this time if you're using a new pilot screw.

40 Repeat Steps 7 through 39 for the other carburetor.

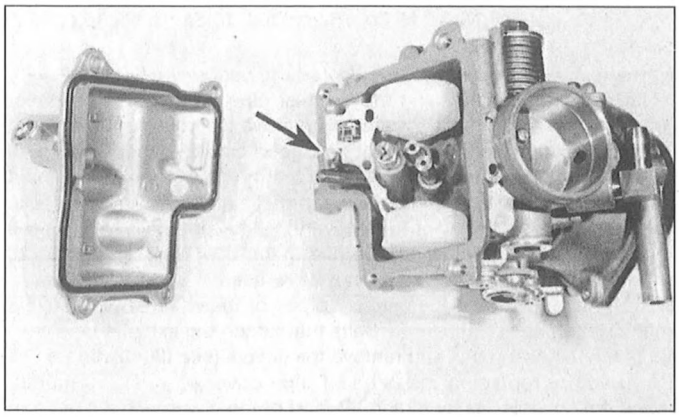
41 If you separated the carburetors, reattach them as follows. If not, go to Step 50.

42 Back off the synchronizer adjusting screw **(see illustration 13.5)** to remove spring tension.

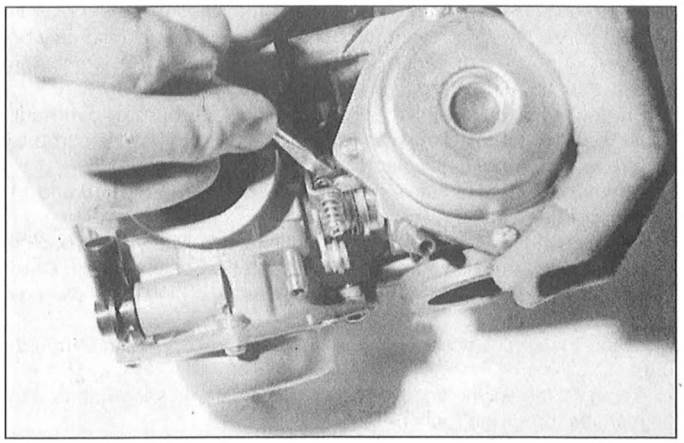
43 Install the thrust spring **(see illustration 13.6)** between the throttle links.

44 Reattach the carburetors with the two carburetor attaching screws **(see illustration 13.5)** and tighten the screws securely.

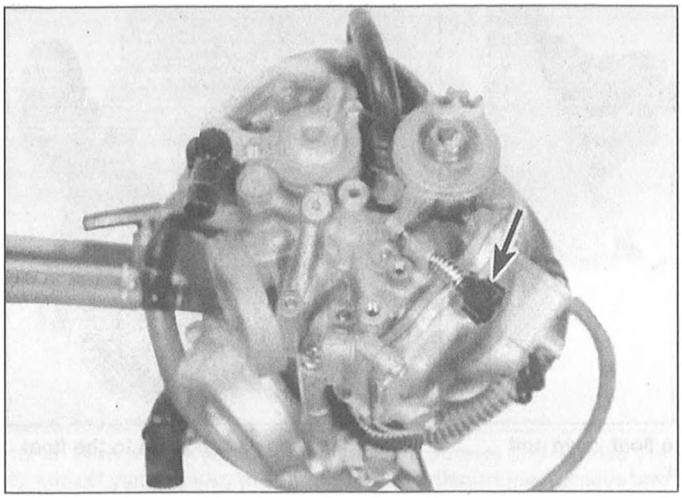
45 Make sure the synchronizer spring is correctly positioned **(see illustration)**, then tighten the synchronizer adjusting screw.



13.36 Place the float assembly in position and secure it with the float pin; make sure that the float valve is correctly seated on the float valve seat and the float valve retainer is correctly engaged with the float



13.45 Make sure that each synchronizer spring is correctly positioned, then tighten the synchronizer adjusting screw

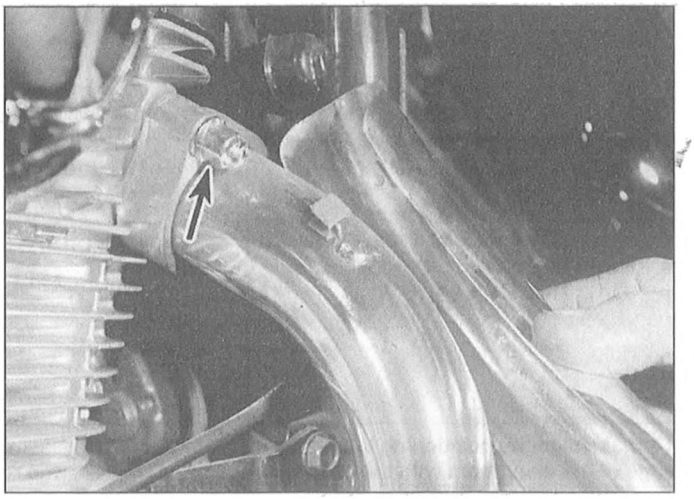


13.47 Use the idle stop screw (arrow) to adjust the throttle valve of the carburetor for the rear cylinder so that it's aligned with the by-pass hole

46 Open the throttle slightly by rotating the throttle valve, then release the throttle. It should close quickly and smoothly, without dragging.
47 Turn the throttle stop screw **(see illustration)** to align the throttle valve in the rear carburetor with the edge of the by-pass hole **(see illustration 13.12b)**.
48 Turn the synchronizer adjusting screw **(see illustration 13.5)** to align the throttle valve in the front carburetor with the edge of the by-pass hole.
49 Operate the throttle and verify that it operates smoothly and that both throttle valves are aligned with their respective by-pass holes.
50 Reattach the starting enrichment valves. Make sure the valve, spring and collar are correctly assembled on the end of each choke cable **(see illustration 13.3c)** and tighten them securely.
51 Referring to the accompanying photos **(see illustrations 13.2a through 13.2f)**, reattach all air and fuel hoses.
52 Install the carburetors (see Section 12).
53 Synchronize the carburetors (see Chapter 1).

14 Idle fuel/air mixture - adjustment

1 Because of emissions regulations of the Environmental Protection Agency (EPA), and the regulatory bodies of some state governments as well, the idle fuel/air mixture is a critical adjustment. In order to comply with these regulations, each carburetor has a sealing plug in the pilot screw hole to prevent tampering. These plugs should only be removed during a complete carburetor overhaul, after which the screws must be returned to their original settings.
2 If you replaced the pilot screws during a carburetor overhaul, adjust the idle fuel/air mixture as follows. Make sure that the carburetors are synchronized (see Chapter 1) before proceeding.
3 Remove each pilot screw plug, if necessary (see Steps 10 and 11 in Section 13).
4 Turn each pilot screw clockwise until it seats lightly, then back it out to the initial opening listed in this Chapter's Specifications. **Caution:** *Do NOT overtighten the pilot screw; overtightening it will damage it.*
5 Start the engine and warm it up to its normal operating temperature.
6 Turn off the engine and hook up a tachometer in accordance with the manufacturer's instructions.
7 Start the engine and adjust the engine idle speed to the idle speed listed in the Chapter 1 Specifications with the throttle stop screw.



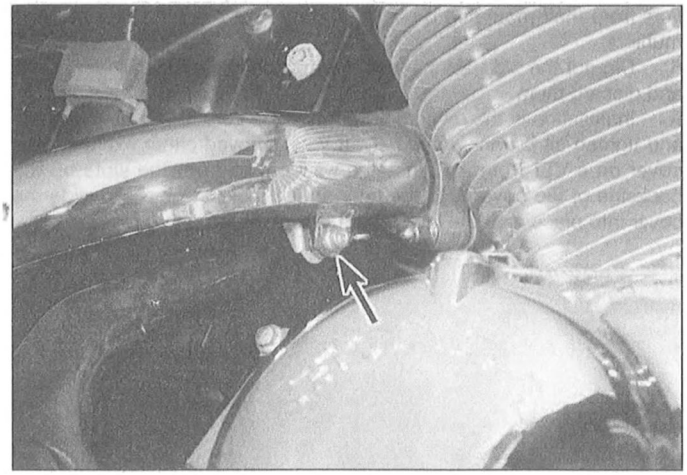
15.2a Unbolt the cover for access to the front exhaust pipe nuts on a VT600 (lower nut hidden)

8 Back out each pilot screw 1/2-turn from its initial setting.
9 If the engine speed increases by 50 rpm or more, back out each pilot screw another 1/2 turn and continue doing so until the engine speed no longer increases.
10 Adjust the idle speed to the idle speed listed in the Chapter 1 Specifications with the throttle stop screw.
11 Turn in the pilot screw for the rear cylinder carburetor until the engine speed drops 50 rpm.
12 Back out the pilot screw for the rear cylinder carburetor to the final opening listed in this Chapter's Specifications.
13 Adjust the idle speed with the throttle stop screw.
14 Repeat Steps 11, 12 and 13 and adjust the pilot screw for the front cylinder carburetor.
15 Install new sealing plugs into the pilot screw holes with a 7 mm guide driver (Honda special tool 07942-8230000, or equivalent). When each plug is fully seated, its surface is recessed 1 mm (1/32-inch).
16 If the engine runs extremely rough or blows black smoke at idle or continually stalls, and a carburetor overhaul, followed by the preceding adjustment, does not cure the problem, take the motorcycle to a Honda dealer service department, or a motorcycle repair shop, equipped with an exhaust gas analyzer. They will be able to correctly adjust the idle fuel/air mixture to achieve a smooth idle and restore low speed performance.

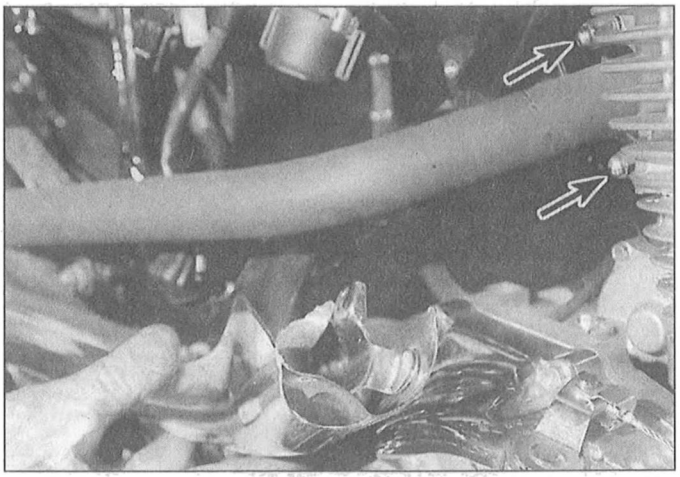
15 Exhaust system - removal and installation

Refer to illustrations 15.2a, 15.2b, 15.2c, 15.4, 15.5a, 15.5b, 15.6, 15.7 and 15.8

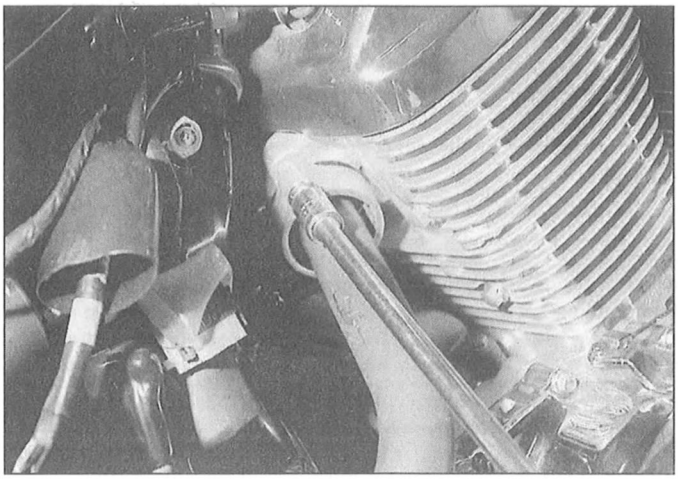
Warning: *Make sure the engine is cool before performing this procedure.*
1 Unless you're replacing the exhaust pipe covers or the exhaust pipes themselves, it's unnecessary to remove the covers. However, at least on VT600 models, this might be a good time to inspect each pipe for corrosion and other damage, including the part of the pipe behind the cover (especially if you live in a damp climate). On VT750 models, however, you do NOT want to remove the exhaust pipe covers unless you're replacing them. If you remove them, they must be replaced; once removed, VT750 covers cannot be re-used.
2 If you're replacing the exhaust pipes or the exhaust pipe covers on a VT600 model, remove the bolts that attach the exhaust pipe covers to the exhaust pipes and remove the covers **(see illustrations)**.
3 If you're replacing the exhaust pipe cover on a VT750 model, knock the cover loose by hitting the end of the cover with a plastic or rubber-tipped mallet. Strike the cover hard enough to break the lock tab, then disengage the cover from the exhaust pipe and discard the cover (once the lock tab is broken, the cover must be replaced).
4 Remove the two nuts that secure the front exhaust pipe to the



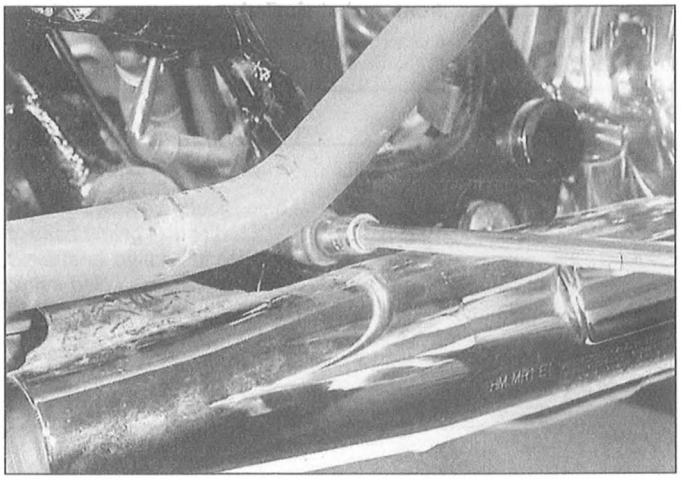
15.2b Remove the clamp (arrow) and rear bolt (not shown) to detach the VT600 rear exhaust pipe cover . . .



15.2c . . . and lift the cover off



15.4 Remove the two nuts that secure the rear exhaust pipe to the rear cylinder head



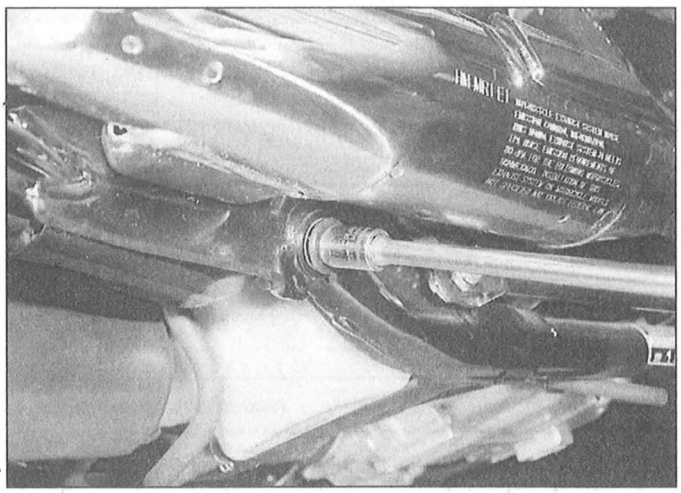
15.5a The VT600 upper muffler is attached to its bracket by this nut . . .

front cylinder head **(see illustration 15.2a)** and the rear pipe to the rear cylinder head **(see illustration)**.

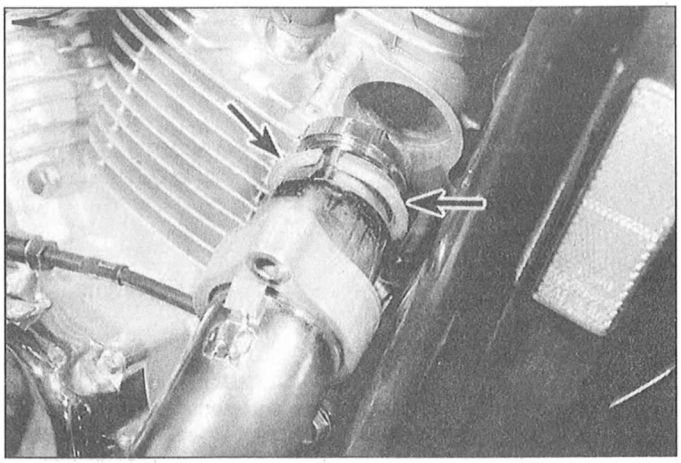
5 On VT600 models, remove the muffler mounting nut and bolt **(see illustrations)**.

6 On VT750 models, remove the muffler mounting nuts (they're below the muffler).

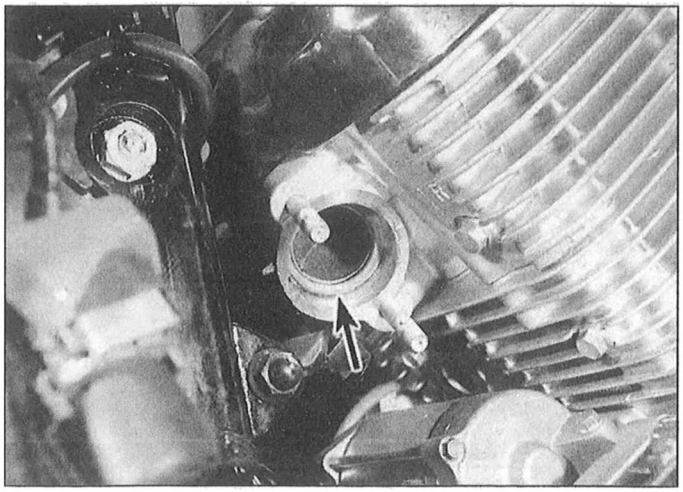
7 Slide back the exhaust pipe joints, pull the pipes out of the cylinder heads, remove the collars **(see illustration)**, disengage the muf-



15.5b . . . and the lower muffler is attached to its bracket by this bolt



15.7 Slide back the joint, pull the exhaust pipe out of the head and remove the split collar (arrows) (front pipe shown, rear pipe similar)



15.8 After the exhaust pipes have been removed, carefully pry out the old gaskets (arrow) (rear exhaust pipe gasket shown, front gasket similar)

flers from their mounting brackets and remove the exhaust pipes and mufflers.

8 Dig out the old gaskets **(see illustration)** from the cylinder heads and discard them.

9 Installation is the reverse of removal. Be sure to use new gaskets and tighten all fasteners securely. If you removed either exhaust pipe cover on a VT750 model, install a new cover: align the slots on the backside of the cover with the tabs on the exhaust pipe and slide the cover into place until the lock tab on the cover locks into place.