

Chapter 4

Fuel and exhaust systems

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Degrees of difficulty

Easy, suitable for novice with little experience

Fairly easy, suitable for beginner with some experience

Fairly difficult, suitable for competent DIY mechanic



Difficult, suitable for experienced DIY mechanic

Very difficult, suitable for expert DIY or professional

Specifications

Fuel	
Grade	Unleaded, minimum 91 RON (Research Octane Number)
Fuel tank capacity	19 litres
Fuel tank reserve capacity	2.5 litres

Carburettors

Type	
600 cc engine	34.0 mm CV
650 cc engine	36.5 mm CV

Carburettor adjustments

Pilot screw setting (turns out)	
600 cc engine	
J and K models	1 3/4
M models	1 7/8
650 cc engine	
P models	2 1/2
S and T models	2 1/4

Float height	
600 cc engine	7.0 mm
650 cc engine	9.2 mm
Idle speed	see Chapter 1
Synchronisation vacuum range	see Chapter 1

4•2 Fuel and exhaust systems

Jet sizes

Pilot jet	
600 cc engine	38
650 cc engine	42
Main jet	
600 cc engine	
J and K models	
Front cylinder	135
Rear cylinder	130
M models (both cylinders)	128
650 cc engine	
P models	
Front cylinder	132
Rear cylinder	128
S and T models (both cylinders)	125

Torque settings

Fuel tank mounting bolts	
Front	12 Nm
Rear	22 Nm
Exhaust system	
Downpipe nuts	27 Nm
Clamp bolts	27 Nm
Silencer bolts	27 Nm

General information and precautions

General information

The fuel system consists of the fuel tank, the fuel tap and filter, the fuel pump, the carburetors, fuel hoses and control cables.

The fuel tap is of the gravity type with an integral filter inside the fuel tank.

The carburetors used on all models are Keihin CV types. On all models there is a carburettor for each cylinder. For cold starting, a choke lever mounted on the left-hand handlebar and connected by a cable, controls an enrichment circuit in the carburettor.

Air is drawn into the carburetors via an air filter which is housed under the fuel tank.

The exhaust system is a two-into-one design.

Many of the fuel system service procedures are considered routine maintenance items and for that reason are included in Chapter 1.

Precautions

Warning: 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 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 a class B type fire (flammable liquids) on hand.

Always perform service procedures in a well-ventilated area to prevent a build-up of fumes.

Never work in a building containing a gas appliance with a pilot light, or any other form of naked flame. Ensure that there are no naked light bulbs or any sources of flame or sparks nearby.

Do not smoke (or allow anyone else to smoke) while in the vicinity of petrol or of components containing it. Remember the possible presence of vapour from these sources and move well clear before smoking.

Check all electrical equipment belonging to the house, garage or workshop where work is being undertaken (see the Safety First! section of this manual). Remember that certain electrical appliances such as drills, cutters etc create sparks in the normal course of operation and must not be used near petrol or any component containing it. Again, remember the possible presence of fumes before using electrical equipment.

Always mop up any spilt fuel and safely dispose of the rag used.

Any stored fuel that is drained off during servicing work must be kept in sealed containers that are suitable for holding petrol, and clearly marked as such; the containers themselves should be kept in a safe place. Note that this last point applies equally to the fuel tank if it is removed from the machine; also remember to keep its cap closed at all times.

Note that the fuel system consists of the fuel tank and tap, with its cap and related hoses.

Read the Safety first! section of this manual carefully before starting work.

Owners of machines used in the US, particularly California, should note that their

machines must comply at all times with Federal or State legislation governing the permissible levels of noise and of pollutants such as unburnt hydrocarbons, carbon monoxide etc. that can be emitted by those machines. All vehicles offered for sale must comply with legislation in force at the date of manufacture and must not subsequently be altered in any way which will affect their emission of noise or of pollutants.

In practice, this means that adjustments may not be made to any part of the fuel, ignition or exhaust systems by anyone who is not authorised or mechanically qualified to do so, or who does not have the tools, equipment and data necessary to properly carry out the task. Also if any part of these systems is to be replaced it must be replaced with only genuine Honda components or by components which are approved under the relevant legislation. The machine must never be used with any part of these systems removed, modified or damaged.

2 Fuel tank and tap - removal and installation

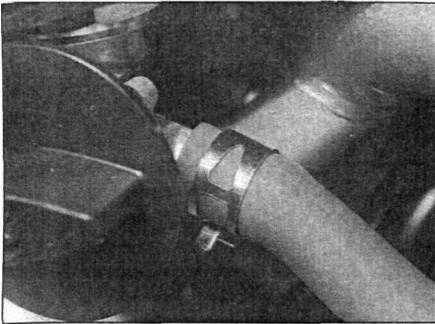
Warning: Refer to the precautions given in Section 1 before starting work.

Fuel tank

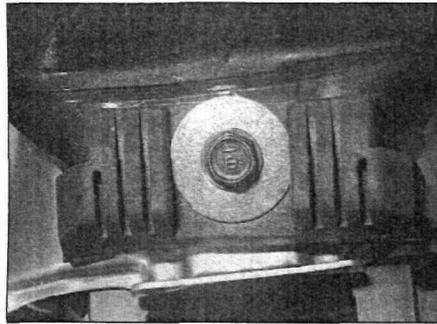
Removal

- 1 Make sure the fuel tap is turned to the OFF position and the fuel cap is secure.
- 2 Remove the seat and the left-hand side panel (see Chapter 8), then disconnect the battery, negative (-ve) terminal first.

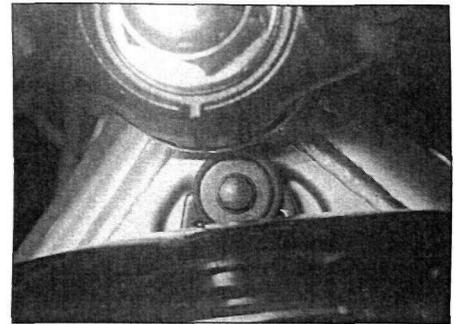
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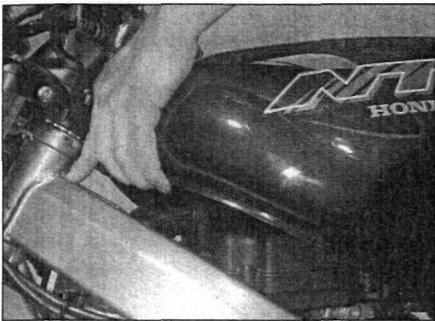
2.3 Release the clamp and detach the fuel hose from the tap



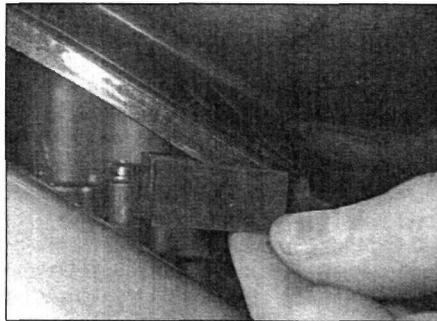
2.4a Unscrew the tank rear mounting bolt . . .



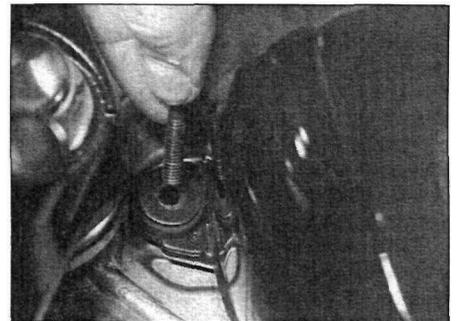
2.4b . . . then the front mounting bolt . . .



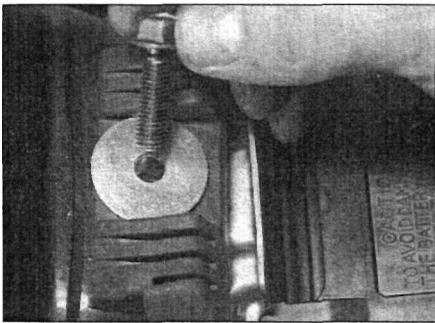
2.5 . . . and remove the tank



2.7 Do not forget the rubber mounts on each side of the tank



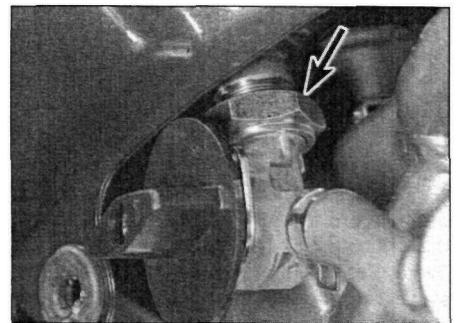
2.8a Install the front mounting bolt .



2.8b . . . then the rear mounting bolt



2.9 Connect the fuel hose to the tap



2.14 The tap is secured to the tank by a nut (arrow)

3 Release the fuel hose clamp and detach the hose from the tap, noting its routing (**see illustration**).

4 Unscrew the fuel tank rear mounting bolt first, then the front mounting bolt, and remove the bolts with their collars, noting how they fit (**see illustrations**).

5 Remove the tank by carefully drawing it back and away from the bike (**see illustration**). Take care not to lose the mounting rubbers from the front and rear of the tank, and from between the sides of the tank and the frame, noting how they fit. On all except J models, note the routing of the overflow drain hose into the drain tray.

6 Check the tank mounting rubbers for damage or deterioration and replace them if necessary.

Installation

7 If removed, install the tank mounting rubbers (**see illustration**). Carefully lower the fuel tank into position, making sure the rubbers remain

in place and that the overflow drain hose is correctly routed. Check that the tank is properly seated and is not pinching any control cables or wires.

8 Install the front mounting bolt and its collar first, and tighten it to the torque setting specified at the beginning of the Chapter (**see illustration**). Next install the rear mounting bolt and its collar, and tighten it to the specified torque setting (**see illustration**).

9 Reconnect the fuel hose to the tap, making sure it is correctly fitted and routed, and secure it with its clamp (**see illustration**).

10 Connect the battery, fitting the negative (-) terminal last, then install the seat and the left-hand side panel (see Chapter 8).

11 Turn the fuel tap to the ON or RES position and check that there is no sign of fuel leakage. Start the engine and check again that there is no sign of fuel leakage, then shut it off.

Fuel tap

Removal

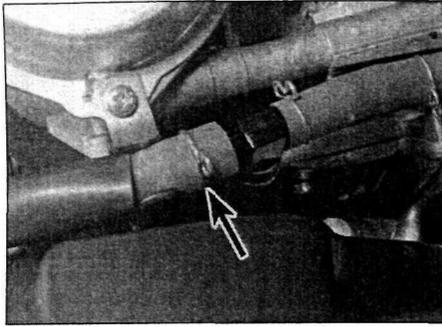
12 The tap should not be removed unnecessarily otherwise there is a danger of damaging the O-ring or the filter.

13 Remove the fuel tank as described above. Connect a drain hose to the fuel tap stub and insert its end in a container suitable and large enough for storing the petrol. Turn the fuel tap to the RES position, and allow the tank to fully drain.

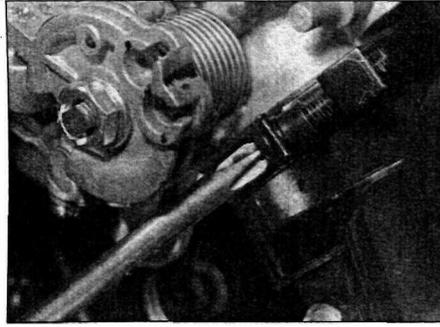
14 Unscrew the nut securing the tap to the tank and withdraw the tap assembly (**see illustration**). Check the condition of the O-ring. If it is in good condition it can be re-used. If it is in any way deteriorated or damaged it must be replaced.

15 Clean the gauze filter to remove all traces of dirt and fuel sediment. Check the gauze

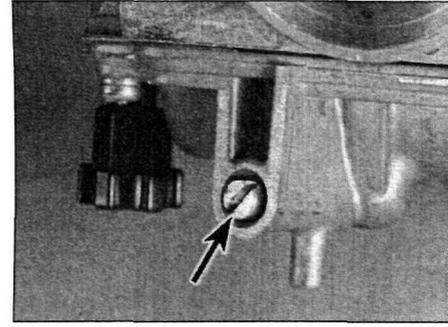
4•4 Fuel and exhaust systems



6.5 Release the fuel hose clamp and detach the hose from the union (arrow)



6.6 Slacken the clamps securing the carburettors to the inlet adapters



6.7 Carburettor drain screw (arrow)

for holes. If any are found, a new filter should be fitted.

16 Apart from the tap control knob, filter and O-ring, internal components are not available for the fuel tap. If the tap is leaking, unscrew the screw securing the knob to the tap and remove the control knob. Tighten the screws securing the tap cover to the tap body. If leakage persists, the tap should be replaced with a new unit, however nothing is lost by dismantling the tap for further inspection. Remove the screws and disassemble the tap, noting how the components fit.

Installation

17 Installation is the reverse of removal.

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 bike, 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 Idle fuel/air mixture adjustment - general information

1 Due to the increased emphasis on controlling motorcycle exhaust emissions, certain governmental regulations have been formulated which directly affect the carburation of this machine. In order to comply with the regulations, the carburettors on some models are sealed so they can't be tampered with. The pilot screws on other models are accessible, but the use of an exhaust gas analyser is the only accurate way to adjust the idle fuel/air mixture and be sure

the machine doesn't exceed the emissions regulations.

2 The pilot screws are set to their correct position by the manufacturer and should not be adjusted unless it is necessary to do so for a carburettor overhaul. If the screws are renewed, they should be set to the position specified at the beginning of the Chapter.

3 If the engine runs extremely rough at idle or continually stalls, and if a carburettor overhaul does not cure the problem, take the motorcycle to a Honda dealer equipped with an exhaust gas analyser. They will be able to properly adjust the idle fuel/air mixture to achieve a smooth idle and restore low speed performance.

5 Carburettor overhaul - general information

1 Poor engine performance, hesitation, hard starting, stalling, flooding and backfiring are all signs that major carburettor maintenance may be required.

2 Keep in mind that many so-called carburettor problems are really not carburettor problems at all, but mechanical problems within the engine or ignition system malfunctions. Try to establish for certain that the carburettors are in need of maintenance before beginning a major overhaul.

3 Check the fuel filter, the fuel hoses, the intake manifold joint clamps, the air filter, the ignition system, the spark plugs and carburettor synchronisation before assuming that a carburettor overhaul is required.

4 Most carburettor problems are caused by dirt particles, varnish and other deposits which build up in and block the fuel and air passages. Also, in time, gaskets and O-rings shrink or deteriorate and cause fuel and air leaks which lead to poor performance.

5 When overhauling the carburettors, disassemble them completely and clean the parts thoroughly with a carburettor cleaning solvent and dry them with filtered, un lubricated compressed air. Blow through the fuel and air passages with compressed air to force out any dirt that may have been

loosened but not removed by the solvent. Once the cleaning process is complete, reassemble the carburettor using new gaskets and O-rings.

6 Before disassembling the carburettors, make sure you have a carburettor rebuild kit (which will include all necessary O-rings and other parts), some carburettor cleaner, a supply of clean rags, some means of blowing out the carburettor passages and a clean place to work. It is recommended that only one carburettor be overhauled at a time to avoid mixing up parts.

Carburettors - removal and installation



Warning: Refer to the precautions given in Section 1 before starting work.

Removal

1 Remove the fuel tank (see Section 2).

2 Remove the air filter housing (refer to Section 12).

3 Detach the throttle cables from the carburettors (see Section 10).

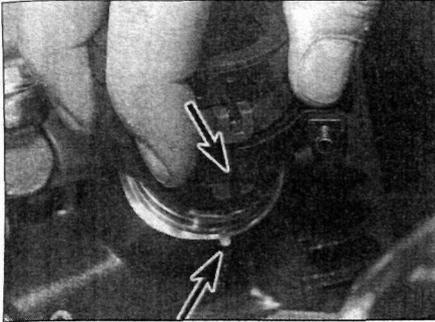
4 Detach the choke cables from the carburettors (see Section 11).

5 Release the clamp securing the main fuel hose to the carburettors and detach the hose (see illustration).

6 Slacken the clamps securing the carburettors to the cylinder head inlet adapters and ease the carburettors off the adapters, noting how they fit (see illustration). **Note:** Keep the carburettors upright to prevent fuel spillage from the float chambers and the possibility of the piston diaphragms being damaged.

7 Place a suitable container below the float chambers, then slacken the drain screws and drain all the fuel from the carburettors (see illustration). Once all the fuel has been drained, tighten the drain screws securely.

8 If necessary, release the clamps securing the inlet adapters to the cylinder heads and remove the adapters, noting how they fit (see illustration).



6.8 Note the fitting of the inlet adapters as they must be correctly installed (arrows)

Installation

9 Installation is the reverse of removal, noting the following.

- a) Check for cracks or splits in the cylinder head inlet adapters. If they have been removed from the cylinder head, make sure they are installed with the slotted tab on the adapter aligning with the raised lip on the underside of the cylinder head stub (see illustration 6.8).
- b) Make sure the air filter housing and the cylinder head inlet adapters are fully engaged with the carburettors and their retaining clamps are securely tightened.
- c) Make sure all hoses are correctly routed and secured and not trapped or kinked.
- d) Check the operation of the choke and throttle cables and adjust them as necessary (see Chapter 1).
- e) Check idle speed and carburettor synchronisation: adjust as necessary (Chapter 1).

7 Carburettors - disassembly, cleaning and inspection

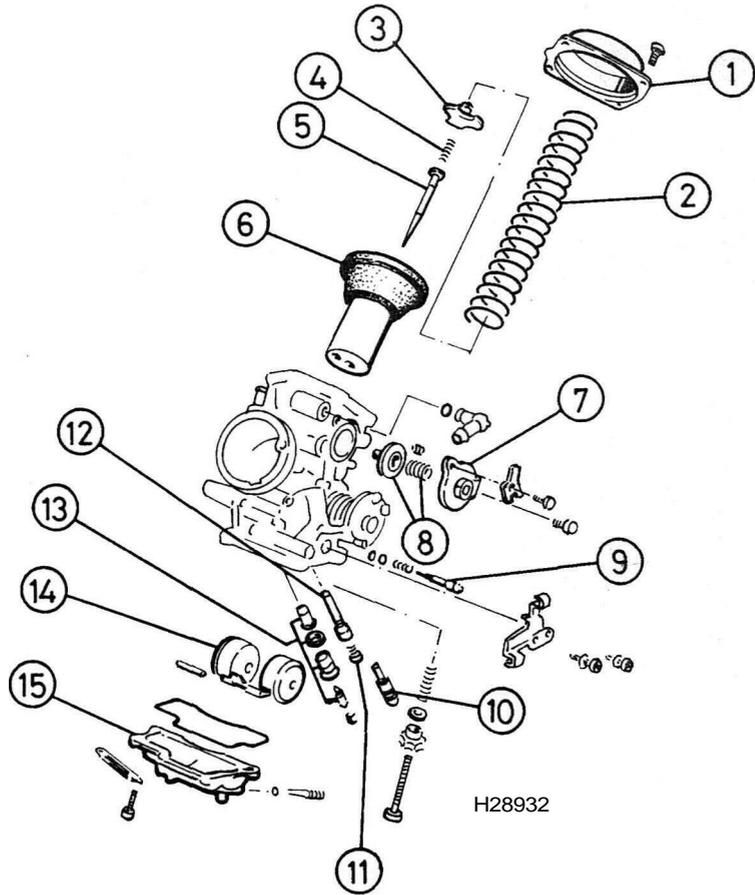
Warning: Refer to the precautions given in Section 1 before starting work.

Disassembly

1 Remove the carburettors from the machine as described in the previous Section. **Note:** Do not separate the carburettors unless absolutely necessary; each carburettor can be dismantled sufficiently for all normal cleaning and adjustments while in place on the mounting brackets. Dismantle the carburettors separately to avoid interchanging parts (see illustration).

2 Unscrew and remove the four top cover retaining screws (see illustration). Lift off the cover and remove the spring from inside the piston.

3 Carefully peel the diaphragm away from its sealing groove in the carburettor and withdraw the diaphragm and piston assembly. Caution: Do not use a sharp instrument to displace the diaphragm as it is easily damaged. Note how the tab on the diaphragm fits in the recess in the carburettor body.



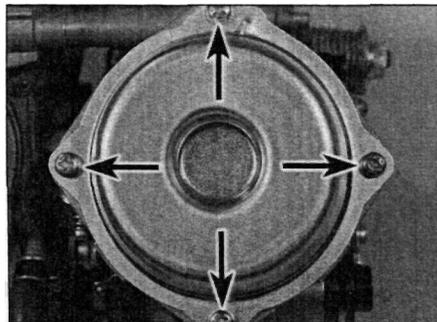
7.1 Carburettor components

- | | |
|----------------------------|--------------------------------|
| Top cover | 9 Pilot screw assembly |
| Spring | 10 Pilot jet |
| Jet needle retainer | 11 Mainjet |
| Spring | 12 Needlejet |
| Jet needle | 13 Float needle valve assembly |
| Diaphragm/piston assembly | 14 Float |
| Air cut-off valve cover | 15 Float chamber |
| Air cut-off valve assembly | |

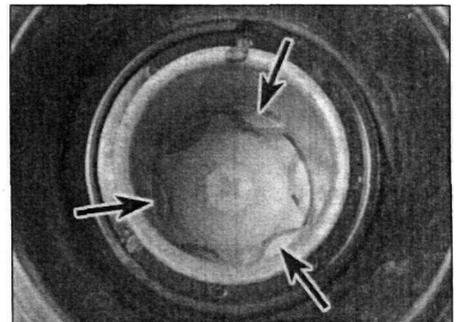
4 If necessary, push down on the jet needle retainer using a Phillips screwdriver and rotate it until its tabs are released from the protrusions inside the piston (see illustration). Push the needle up from the

bottom of the piston and withdraw it from the top. Take care not to lose the spring and other components and note how they fit.

5 Unscrew the screws securing the float chamber to the base of the carburettor and

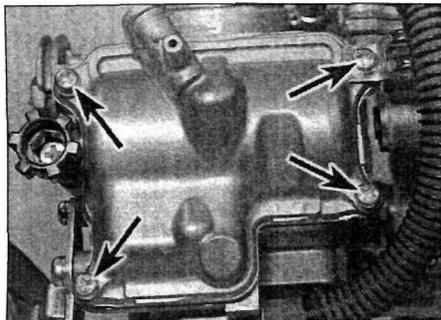


7.2 The carburettor top cover is secured by four screws (arrows)

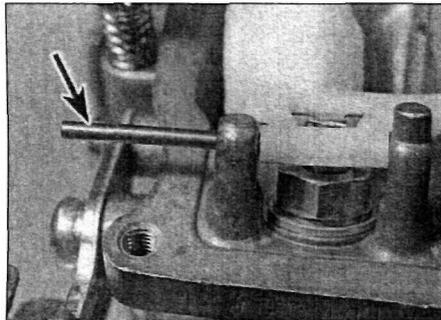


7.4 The jet needle retainer locates under three tabs in the piston (arrows)

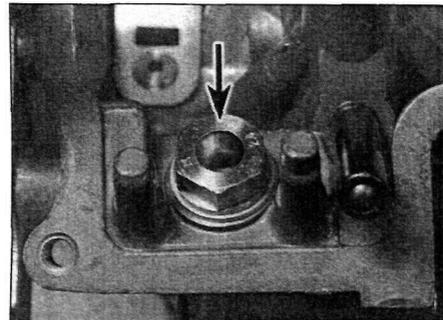
4•6 Fuel and exhaust systems



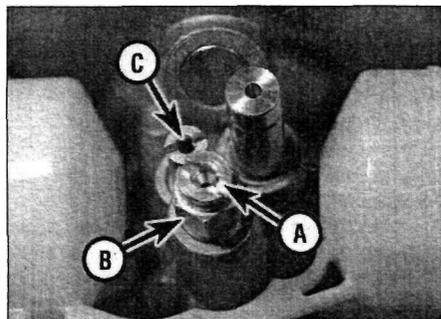
7.5 The float chamber is secured by four screws (arrows)



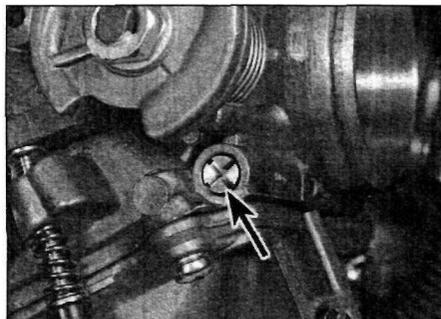
7.6a Withdraw the float pin (arrow) and remove the float



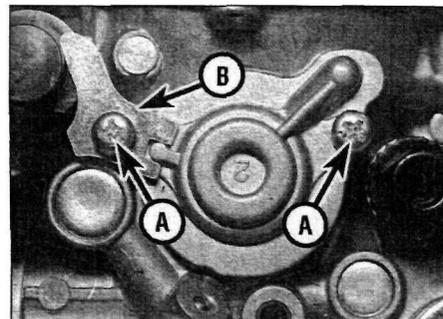
7.6b Unscrew the float valve seat (arrow)



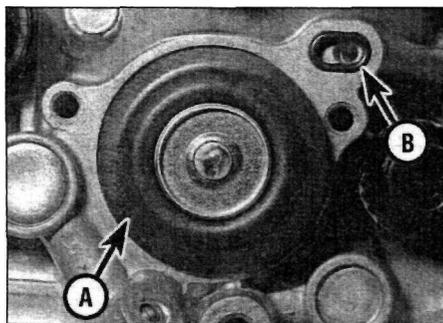
7.7 Main jet (A), needle jet (B), pilot jet (C)



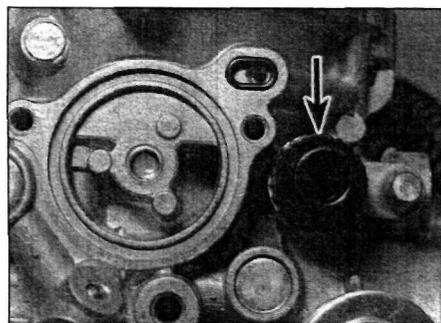
7.10 Pilot screw (arrow)



7.11a Air cut-off valve screws (A). Note the fitting of the plate (B)



7.11b Air cut-off valve diaphragm (A) and O-ring (B)



7.12 Choke plunger (arrow)

remove the float chamber (see illustration). Remove the gasket and discard it as a new one must be fitted.

6 Using a pair of thin-nose pliers, carefully withdraw the float pin (see illustration). If necessary, displace the pin using a small punch or a nail. Remove the float and unhook the float needle valve, noting how it fits onto the tab on the float. Unscrew and remove the float needle valve seat, taking care not to damage its gauze filter (see illustration).

7 Unscrew and remove the main jet from the needle jet (see illustration).

8 Unscrew and remove the needle jet (see illustration 7.7).

9 Unscrew and remove the pilot jet, next to the needle jet bore (see illustration 7.7).

10 The pilot screw can be removed from the carburettor, but note that its setting will be disturbed (see *Haynes Hint*). Unscrew and

remove the pilot screw along with its spring, washer and O-ring (see illustration).

HAYNES HINT

To record the pilot screw's current setting, turn the screw it in until it seats lightly, counting the number of turns necessary to achieve this, then fully unscrew it. On installation, the screw is simply backed out the number of turns you've recorded.

11 Remove the two screws securing the air cut-off valve cover and its plate, noting that it is under spring pressure (see illustration). Carefully release the cover and remove the spring and cut-off valve diaphragm, noting how they fit (see illustration). Also remove the O-ring.

12 If the choke plungers were reinstalled into the carburettor following cable removal (see Section 11), unscrew the choke plunger nut and withdraw the spring and the plunger from the carburettor body (see illustration).

Cleaning

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

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

14 After the carburettor 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.

15 Use a jet of compressed air to blow out all of the fuel and air passages in the main and upper 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.

Inspection

16 Check the operation of the choke plunger in the carburettor. If it doesn't move smoothly, inspect the needle on the end of the choke plunger and the plunger itself. Replace the plunger assembly if worn or bent.

17 Check the tapered portion of the pilot screw and the spring for wear or damage. Replace them if necessary.

18 Check the carburettor body, float chamber and top cover for cracks, distorted sealing surfaces and other damage. If any defects are found, replace the faulty component, although replacement of the entire carburettor will probably be necessary (check with a Honda dealer on the availability of separate components).

19 Check the piston and diaphragm for splits, holes and general deterioration. Holding it up to a light will help to reveal problems of this nature.

20 Insert the piston in the carburettor body and check that it moves up-and-down smoothly. Check the surface of the piston for wear. If it's worn excessively or doesn't move smoothly, replace it.

21 Check the jet needle for straightness by

rolling it on a flat surface (such as a piece of glass). Replace it if it's bent or if the tip is worn.

22 Check the tip of the float needle valve and the valve seat. If either has grooves or scratches in it, or is in any way worn, they must be replaced as a set. Also check the condition of the valve seat filter.

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

24 Check the floats for damage. This will usually be apparent by the presence of fuel inside one of the floats. If the floats are damaged, they must be replaced.

25 Check the air cut-off valve assembly components and O-ring for wear or damage and replace the assembly if necessary (individual components are not available).

8 Carburetors - separation and joining

Warning: Refer to the precautions given in Section 1 before proceeding

Separation

1 The carburetors do not need to be separated for normal overhaul. If you need to separate them (to replace a carburettor body, for example), refer to the following procedure.

2 Remove the carburetors from the machine (see Section 6). Mark the body of each

carburettor with its cylinder location to ensure that it is positioned correctly on reassembly.

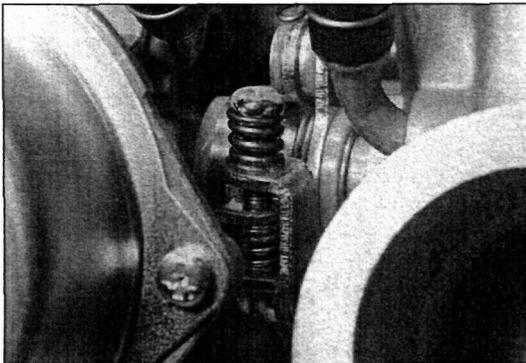
3 Make a note of how the throttle return springs, linkage assembly and carburettor synchronisation springs are arranged to ensure that they are fitted correctly on reassembly (see illustration). Also note the arrangement of the various hoses and their unions (see illustrations).

4 Unscrew the two screws securing the carburetors together and carefully separate the carburetors (see illustration). Retrieve the synchronisation springs. On J, K and M models, if the air hose connection elbow is removed, replace the elbow O-ring.

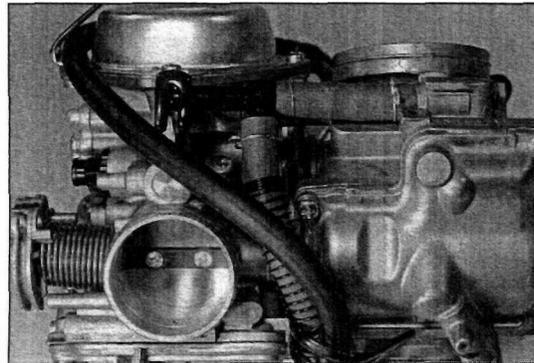
Joining

5 Assembly is the reverse of the disassembly procedure, noting the following.

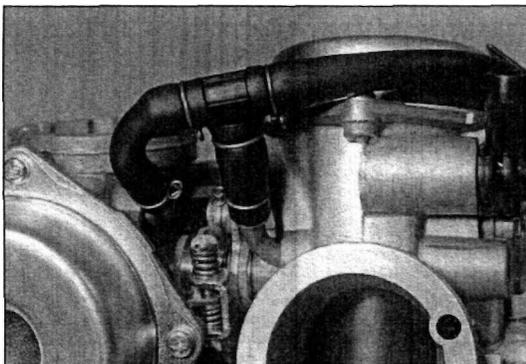
- a) Make sure the fuel and air hoses and elbows are correctly and securely inserted into the carburetors (see illustrations 8.3b and 8.3c).
- b) Install the synchronisation spring after the carburetors are joined together. Make sure it is correctly and squarely seated (see illustration 8.3a).
- c) Check the operation of both the choke and throttle linkages ensuring that both operate smoothly and return quickly under spring pressure before installing the carburetors on the machine.
- d) Install the carburetors (see Section 6) and check carburettor synchronisation and idle speed (see Chapter 1).



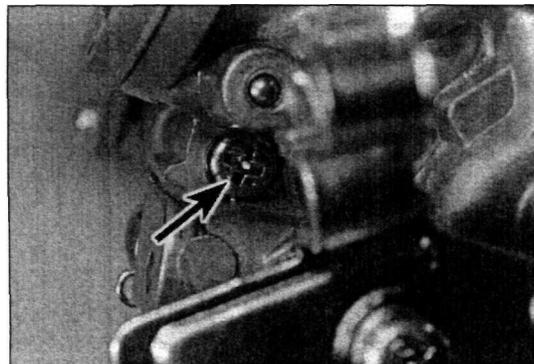
8.3a Synchronisation spring arrangement



8.3b Carburettor hose arrangement



8.3c Carburettor hose arrangement



8.4 Carburettor joining screw

4•8 Fuel and exhaust systems

Carburetors - reassembly and float height check



Warning: Refer to the precautions given in Section 1 before proceeding.

Note: When reassembling the carburetors, be sure to use the new O-rings, seals and other parts supplied in the rebuild kit. Do not overtighten the carburetor jets and screws as they are easily damaged.

1 Install the air cut-off valve O-ring, using a new one if necessary, into its recess, followed by the air cut-off valve diaphragm, making sure it is properly seated (see illustrations). Fit the spring against the diaphragm, then install the cover with its plate and tighten its screws securely (see illustrations).

2 Install the pilot screw (if removed) along with its spring, washer and O-ring, turning it in until it seats lightly (see illustration 7.10). Now, turn the screw out the number of turns previously recorded, or as specified at the beginning of the Chapter.

3 Screw the pilot jet into the body of the carburetor (see illustration).

4 Install the needle jet into the body of the carburetor (see illustration). Screw the main jet into the end of the needle jet (see illustration).

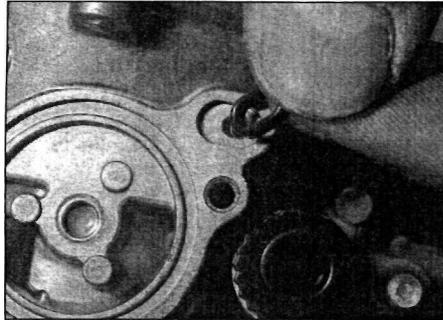
5 If removed, install the float needle valve seat, making sure its filter is attached (see illustration).

6 Hook the float needle valve onto the float tab, then position the float assembly in the

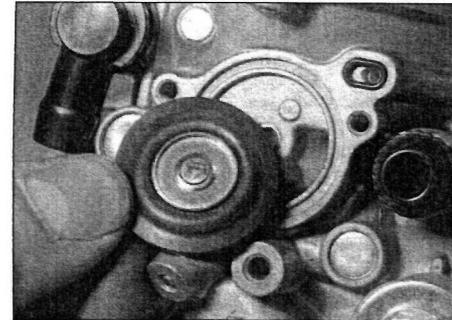
carburetor and install the pin, making sure it is secure (see illustrations).

7 To check the float height, hold the carburetor so the float hangs down, then tilt it back until the needle valve is just seated, but not so far that the needle's spring-loaded tip is compressed. Measure the distance between

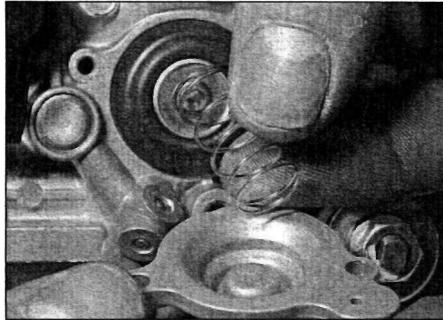
the gasket face (with the gasket removed) and the bottom of the float with an accurate ruler (see illustration). The correct setting should be as given in the Specifications at the beginning of the Chapter. If it is incorrect, adjust the float height by carefully bending the float tab a little at a time until the correct height is obtained.



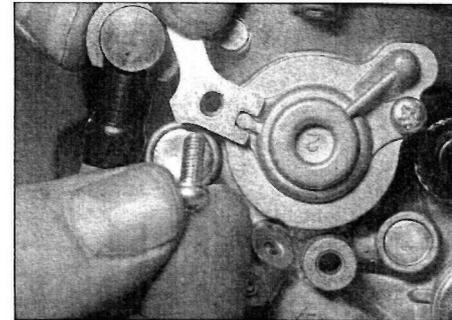
9.1 a Install the air cut-off valve O-ring . . .



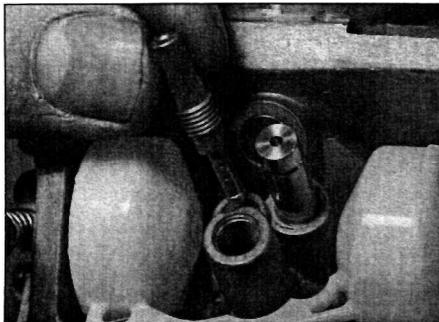
9.1 b . . . followed by the diaphragm . . .



9.1 c . . . the spring . . .



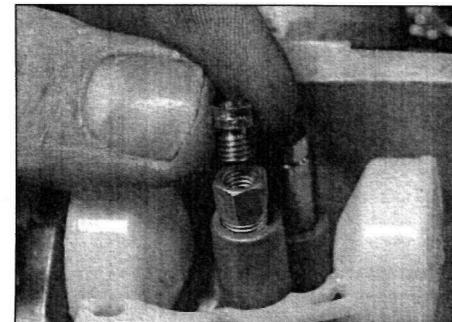
9.1 d . . . and the cover with its plate



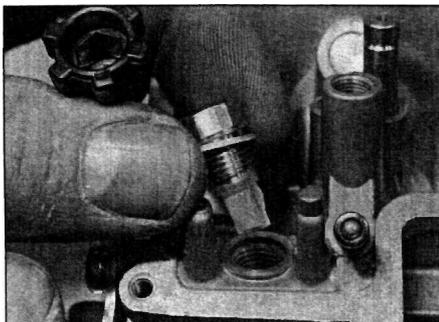
9.3 Install the pilot jet



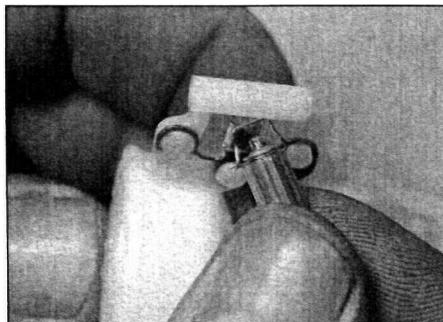
9.4a Install the needle jet



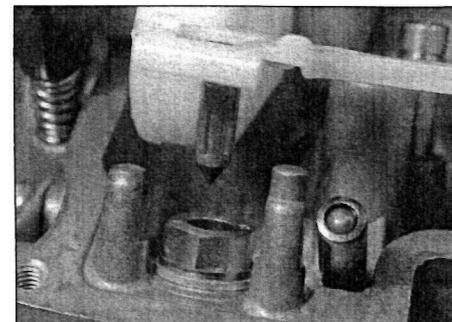
9.4b Install the main jet into the end of the needle jet



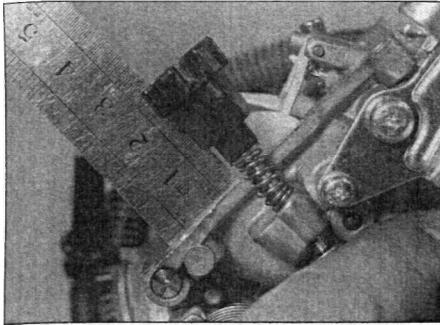
9.5 Install the float needle valve seat



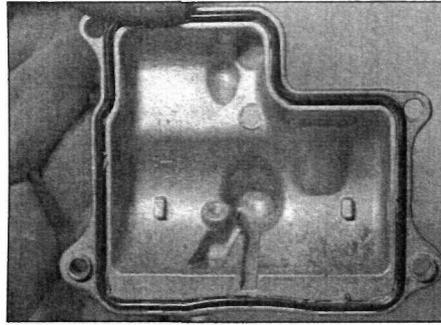
9.6a Fit the needle valve onto the tab on the float . . .



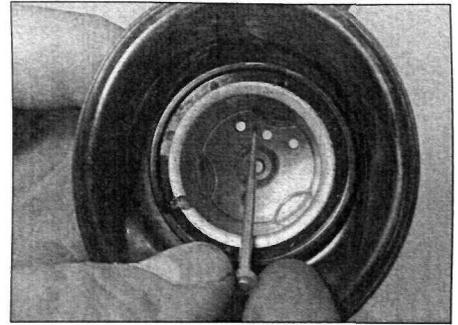
9.6b . . . then install the float assembly



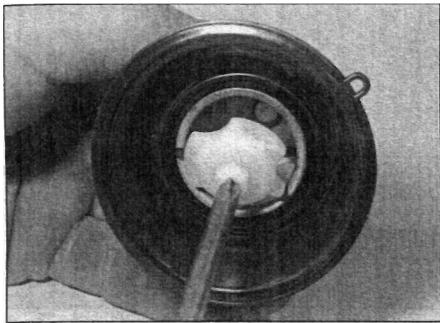
9.7 Measuring the float height



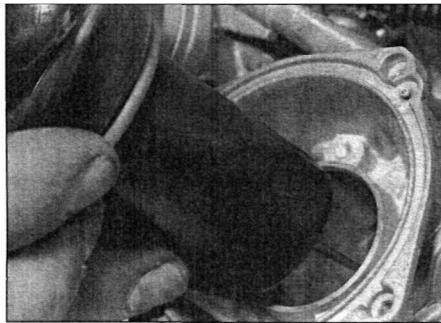
9.8 Install the float chamber using a new gasket



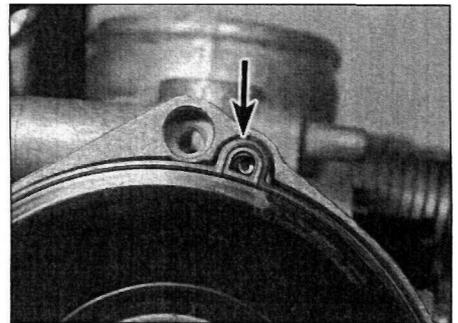
9.9a Install the jet needle into the piston . . .



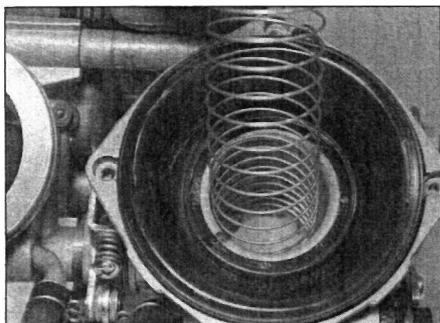
9.9b . . . and secure it with its retainer, making sure the spring sits properly between the needle and the retainer



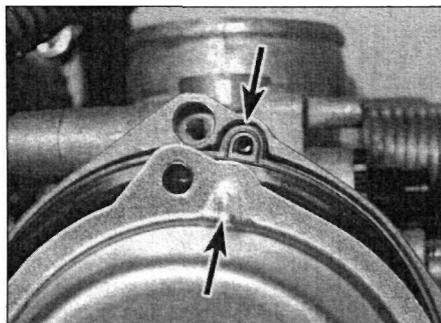
9.10a Install the piston assembly .



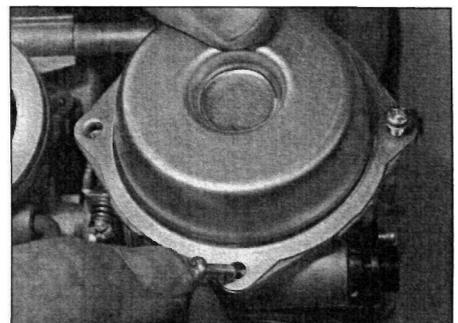
9.10b . . . making sure the diaphragm tab is correctly positioned and seated (arrow)



9.11a Install the spring . . .



9.11b . . . and the cover, making sure it is correctly aligned (arrows) . . .



9.11c . . . and secure it with its screws

8 With the float height checked, fit a new gasket to the float chamber, making sure it is seated properly in its groove, and install the chamber on the carburettor (see illustration).

9 If removed, carefully install the jet needle, spring and retainer into the piston, making sure all the components are correctly fitted, then push down on the needle retainer using a Phillips screwdriver and rotate it until its tabs lock under the protrusions in the piston (see illustrations).

10 Insert the piston assembly into the body and lightly push it down, ensuring the jet needle is correctly aligned with the needle jet

(see illustration). Align the tab on the diaphragm with the recess in the carburettor body, then press the diaphragm outer edge into its groove, making sure it is correctly seated and that the tab locates in the recess (see illustration). Check the diaphragm is not creased, and that the piston moves smoothly up and down in its guide.

11 Install the spring into the piston (see illustration). Fit the top cover to the carburettor, aligning the mark with the tab on the diaphragm, and tighten its screws securely (see illustrations).

12 Install the carburettors (see Section 6).

10 Throttle cables - removal and installation

10/11

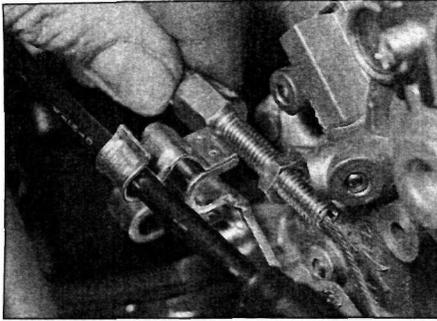
Warning: Refer to the precautions given in Section 1 before proceeding.

Removal

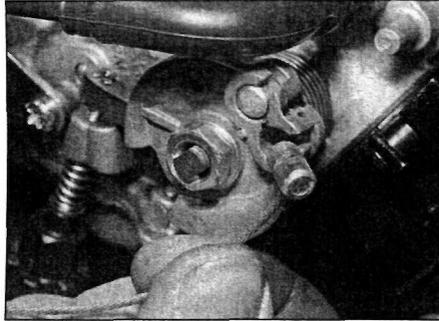
1 Remove the fuel tank (see Section 2), and, if access is too restricted, also remove the air filter housing (see Section 12).

2 Slacken the locknuts securing the cable lower ends to their mounting brackets and

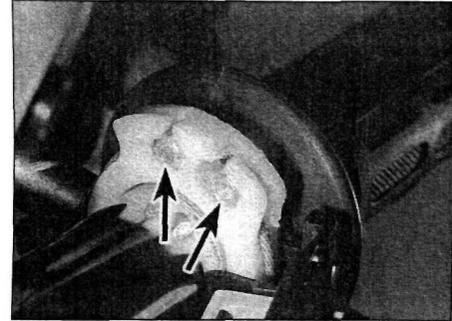
4•10 Fuel and exhaust systems



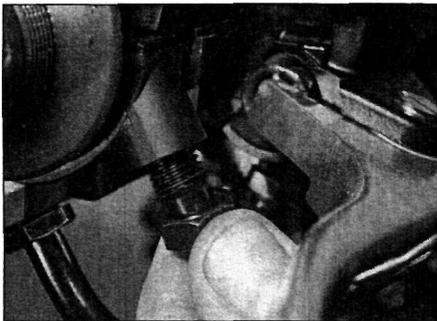
10.2a Release the throttle cable ends from their brackets . . .



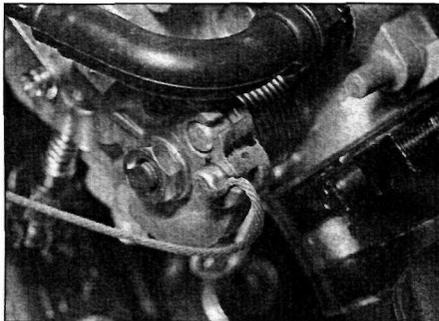
10.2b . . . and detach the nipples from the throttle cam



10.3a Detach the nipples from the throttle grip pulley (arrows) . . .



10.3b . . . then unscrew the elbow nuts and remove the cables



10.8a Attach the nipples to the throttle cam . . .



10.8b . . . then secure the cables in the bracket

release each outer cable from its bracket (**see illustration**). Detach the inner cables from the throttle cam (**see illustration**). Mark each cable according to its location.

3 Unscrew the two right-hand handlebar switch/throttle pulley housing screws, and separate the two halves. Detach the cable nipples from the pulley, then unscrew each cable elbow retaining nut and remove each cable and elbow from the housing, noting how they fit (**see illustrations**). Mark each cable to ensure it is connected correctly on installation.

4 Remove the cables from the machine noting the correct routing of each cable.

Installation

5 Install the cables making sure they are correctly routed. The cables must not interfere with any other component and should not be kinked or bent sharply.

6 Install the cable elbows into the lower half of the switch/throttle pulley housing, making sure each cable is installed into its correct position, and tighten their retaining nuts securely. Lubricate the cable nipples with multi-purpose grease and install them into the throttle pulley (**see illustrations 10.3a and 10.3b**)

7 Fit the two halves of the housing onto the handlebar, making sure the pin in the lower half of the housing locates in the hole in the underside of the handlebar, and install the screws, tightening them securely.

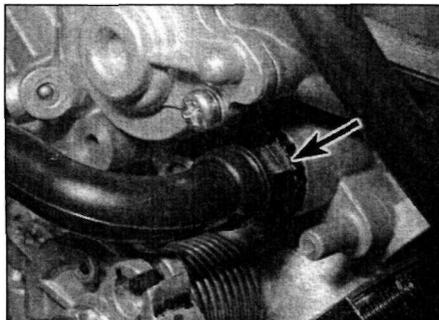
8 Lubricate the cable lower end nipples with multi-purpose grease and attach them to the carburettor throttle cam (**see illustration**). Install the outer cable ends into the mounting brackets, making sure each cable is installed in its correct position, and tighten their locknuts securely (**see illustration**).

9 Operate the throttle to check that it opens and closes freely.

10 Check and adjust the throttle cables (Chapter 1). Turn the handlebars back and forth to make they don't cause the steering to bind.

11 Install the air filter housing if removed (see Section 12), and the fuel tank (see Section 2).

12 Start the engine and check that the idle speed does not rise as the handlebars are turned. If it does, the throttle cables are routed incorrectly. Correct the problem before riding the motorcycle.

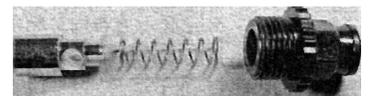


11.1a Choke plunger assembly nut (arrow)

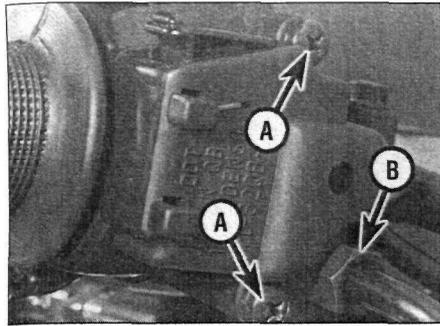
11 Choke cable - removal and installation

Removal

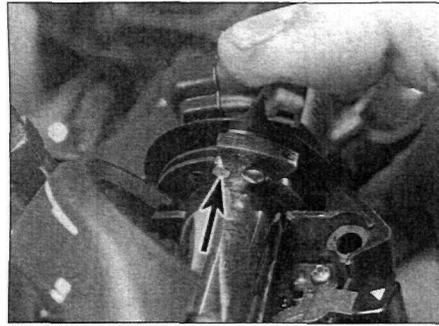
1 Remove the fuel tank (see Section 2). Unscrew each choke plunger assembly nut from the carburetors and withdraw the assembly from each carburettor body (**see illustration**). Compress the spring and detach the cable end from the choke plunger, noting how it fits (**see illustration**). Withdraw the cable from the assembly. If the carburettor is not being disassembled for cleaning, it is advisable to reinstall the choke plunger assembly into the carburettor to avoid losing any of the components.



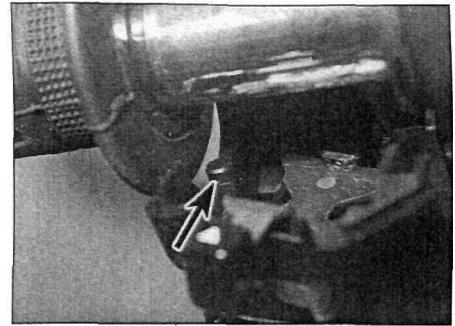
11.1b Choke plunger assembly components



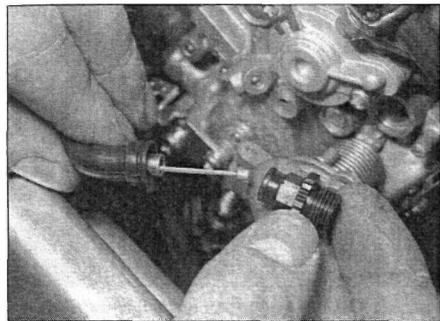
11.2a Handlebar switch screws (A), choke cable elbow nut (B)



11.2b Detach the cable nipple from the lever (arrow)



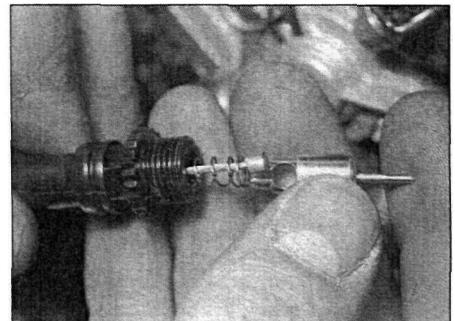
11.5 The pin on the lower switch housing (arrow) locates in a hole in the handlebar



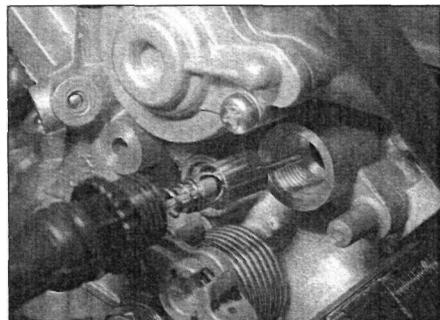
11.6a Install the plunger assembly nut onto the cable . . .



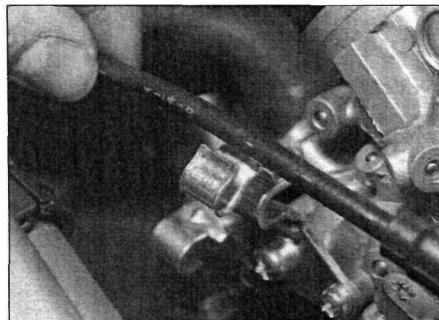
11.6b . . . followed by the spring .



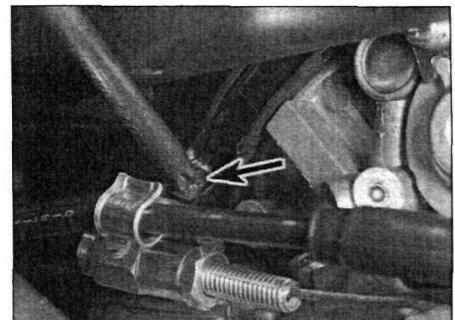
11.6c . . . and the plunger



11.6d Install the plunger assembly into the carburettor



11.7 Fit the cable into its guide



11.22 Slacken the clamp screws securing the housing to the carburettor inlets

2 Unscrew the two left-hand handlebar switch/choke lever housing screws and separate the two halves (**see illustration**). Detach the cable nipple from the choke lever (**see illustration**), then unscrew the cable elbow retaining nut and withdraw the cable and elbow from the housing.

3 Remove the cable from the machine noting its correct routing.

Installation

4 Install the cable making sure it is correctly routed. The cable must not interfere with any other component and should not be kinked or bent sharply.

5 Lubricate the upper cable nipple with multi-purpose grease. Install the cable elbow

in the switch/choke lever housing lower half and attach the nipple to the choke lever. Tighten the cable elbow retaining nut securely. Fit the two halves of the housing onto the handlebar, making sure the pin in the lower half of the housing locates in the hole in the underside of the handlebar (**see illustration**), and install the screws, tightening them securely.

6 Pass the lower end of each inner cable through its plunger assembly nut and spring, then attach the nipple to the plunger, making sure it is secure (**see illustrations**). Install each plunger assembly into the carburettor body and tighten its nut securely (**see illustration**).

7 Fit the cable in its guide (**see illustration**). Check the operation of the choke cable as described in Chapter 1.

12 Air filter housing - removal and installation

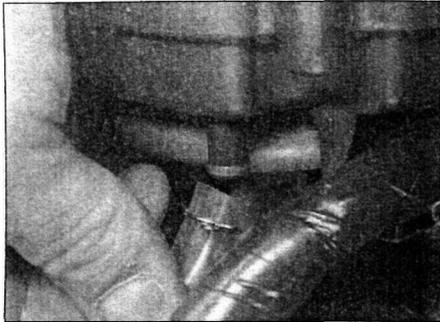
Removal

1 Remove the fuel tank (see Section 2).

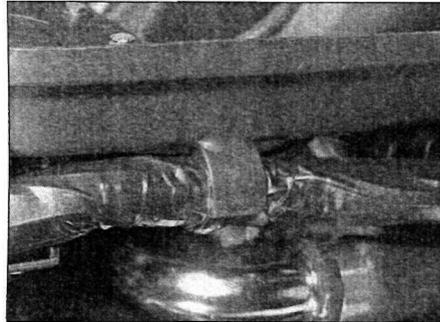
2 Slacken the clamp screws securing the air filter housing to the carburettor intakes (**see illustration**).

3 Release the air filter drain hose clamp at the air filter housing end and detach the hose

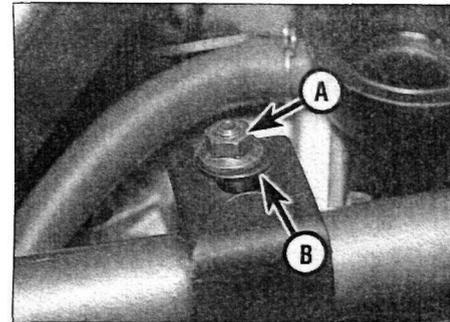
4•12 Fuel and exhaust systems



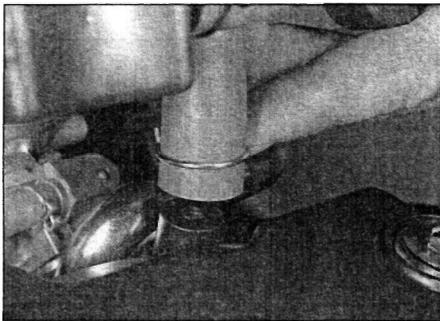
12.3a Detach the drain hose .



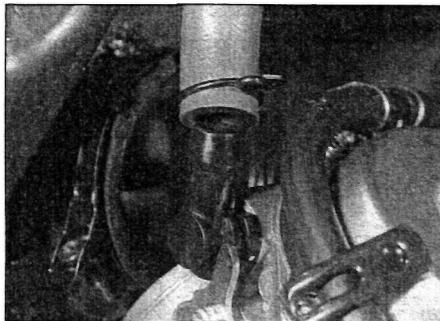
12.3b ... and release the wiring loom from its clip



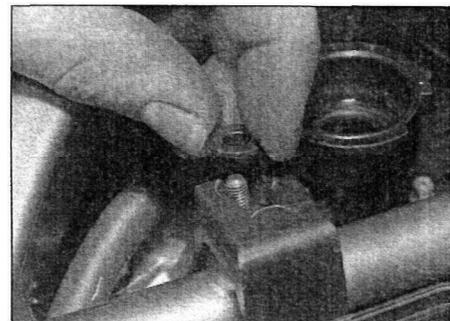
12.4a Air filter housing nut (A) and collar (B)



12.4b Detach the crankcase breather hose ...



12.4c ... and the sub-air filter hoses as the housing is lifted away



12.5 Do not forget to install the collar

from the housing (see illustration). Also release the wiring loom from its clip on the side of the housing (see illustration).

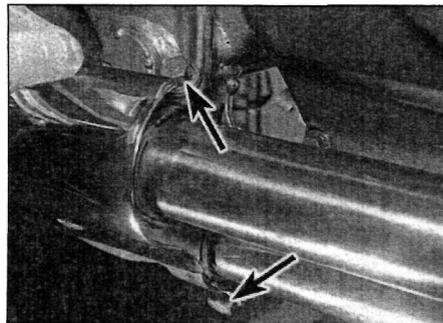
4 Unscrew the nut and remove the collar securing the front of the air filter housing to the frame, then carefully lift the housing up off the carburettors, noting how it fits (see illustration). Release the crankcase breather hose from the rear cylinder valve cover and the sub-air filter hoses from the carburettors as they become accessible (see illustrations).

Installation

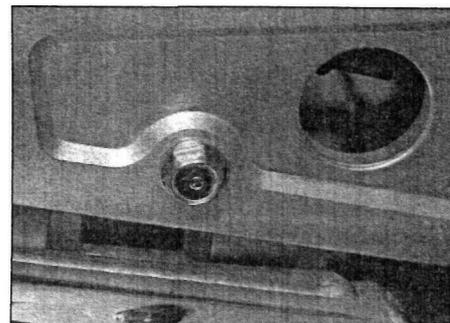
5 Installation is the reverse of removal. Make sure all the hoses are correctly installed and secured by their clamps. Do not forget to fit the collar with the filter housing nut (see illustration).

2 Unscrew and remove the silencer mounting nut and bolt, noting the spacer (S and T models only), and the collector box mounting bolt, then carefully pull the silencer/collector box from the downpipes (see illustrations).

Note that the seals between the downpipes and the silencer/collector box are easily damaged and should be checked following removal of the silencer and replaced if necessary.



13.1 Silencer clamp bolts (arrows)



13.2a Silencer mounting bolt

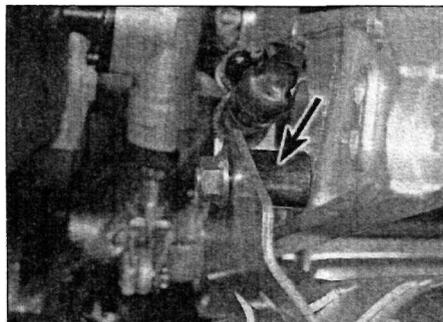
13 Exhaust system - removal and installation

Warning: If the engine has been running the exhaust system will be very hot. Allow the system to cool before carrying out any work.

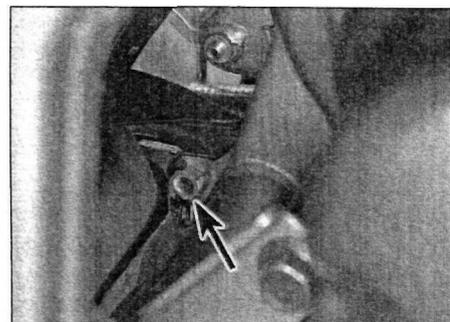
Silencer

Removal

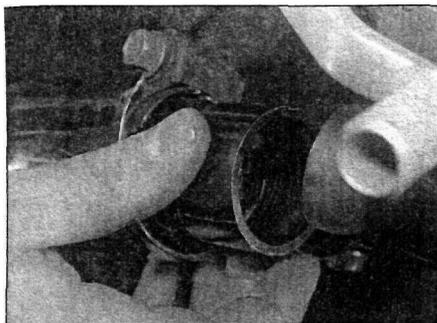
1 Slacken the clamp bolts securing the silencer/collector box to the exhaust downpipes (see illustration).



13.2b Note the spacer (arrow) on S and T models only



13.2c The collector box has a captive nut (arrow) for its mounting bolt



13.4 Check the condition of the seals as they are easily damaged

3 If necessary, unscrew the three screws securing the heat guard to the silencer/collector box and remove the guard.

Installation

4 Installation is the reverse of removal. Make sure the seals between the silencer/collector box and the downpipes are in good condition and correctly installed (**see illustration**). Tighten the silencer/collector box mounting bolt and clamp bolt to the torque settings specified at the beginning of the Chapter.

Complete system

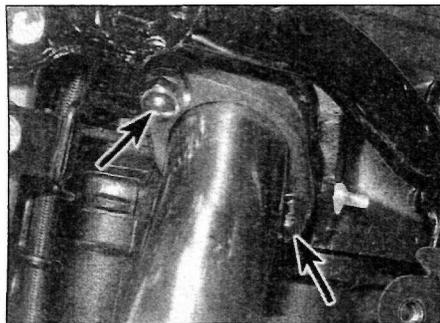
Removal

5 Remove the silencer (see above).

6 Unscrew the front downpipe flange retaining nuts from the cylinder head studs and carefully remove the pipe (**see illustration**).

7 Unscrew the rear downpipe flange retaining nuts from the cylinder head studs and carefully remove the pipe.

8 Remove the gasket from each cylinder head, noting that the rear gasket is a smaller diameter than that of the front, and discard them as new ones must be fitted (**see illustration**).



13.6 Front downpipe nuts (arrows)

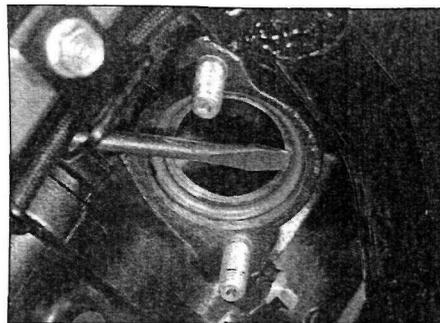


13.10 Fit a new gasket into each cylinder head

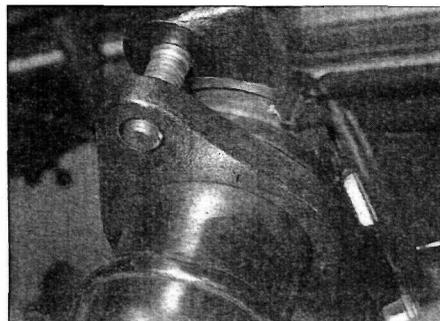
9 Note that the seals between the downpipes and the silencer/collector box are easily damaged and should be checked following removal of the downpipes and replaced if necessary (**see illustration 13.4**).

Installation

10 Fit a new gasket into each of the cylinder head ports with the flanged side inwards, making sure that the smaller diameter gasket is fitted to the rear cylinder head (**see illustration**). Apply a smear of grease to the gaskets to keep them in place whilst fitting the downpipe.



13.8 Lever out the old exhaust gaskets and discard them



13.11 Fit the flange over the studs

11 Install the rear downpipe, and slide the flange onto the cylinder head studs and fit the nuts (**see illustration**). Tighten the downpipe nuts evenly to the torque setting specified at the beginning of the Chapter.

12 Install the front downpipe, and slide the flange onto the cylinder head studs and fit the nuts. Tighten the downpipe nuts evenly to the torque setting specified at the beginning of the Chapter.

13 Install the silencer (see above).

14 Run the engine and check the system for leaks.