

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 (including reserve)	
YZF models	19.0 litres
FZS models	
1998 and 1999 models	18.0 litres
2000 models	20.0 litres
Reserve	
YZF models	3.1 litres
FZS models	3.5 litres
Carburettors	
Type	
YZF models	Keihin CVKD36
FZS models	Mikuni BSR 33
ID mark	
UK YZF models	
1996	4TV 00
1997-on	4TV 01
US YZF models	4TV 11
FZS models	
1998 and 1999 models	5DM1 00
2000 models	5DM1 01
Pilot screw setting (turns out)	
YZF models	13/8
FZS models	2
Fuel level (see text)	
YZF models	11.5 to 12.5 mm below reference line
FZS models	
1998 and 1999 models	4.5 mm above float chamber mating surface
2000 models	3.5 mm above float chamber mating surface
Idle speed	see Chapter 1



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Carburettor jet sizes

Main jet	
YZF models155
FZS models115
Main air jet	
YZF models80
FZS models . . . . .	.80
Jet needle	
YZF models	
Cylinders 1 and 4 . . . . .	.N3FC
Cylinders 2 and 3 . . . . .	.N1YF
FZS models	
1998 and 1999 models . . . . .	.5D86
2000 models . . . . .	.5D86-3/5
Needle jet	
YZF models	2.6
FZS models	P-0
Pilot air jet	
YZF models . . . . .	.140
FZS models . . . . .	.130
Pilot jet	
YZF models . . . . .	.38
FZS models . . . . .	.12.5
Starter jet 1	
YZF models . . . . .	.50
FZS models . . . . .	.0.6
Starter jet 2	
YZF models . . . . .	.0.6
FZS models . . . . .	.0.8

Fuel pump

Resistance	
YZF models . . . . .	.1.5 to 2.5 ohms @ 20°C
FZS models . . . . .	.1.8 to 2.6 ohms @ 20°C

Fuel level sensor - FZS models

Resistance	
In "FULL" position . . . . .	.4 to 10 ohms @ 20°C
In "EMPTY" position . . . . .	.90 to 100 ohms @ 20°C

Torque settings

Downpipe assembly	
Nuts . . . . .	.10 Nm
Rear bolt . . . . .	.20 Nm
Fuel level sensor screws	
YZF models . . . . .	.7 Nm
FZS models . . . . .	.5 Nm
Fuel tank mounting bolts - FZS models . . . . .	.10Nm
Fuel tank mountings - YZF models	
Front mounting bolt nut . . . . .	.10 Nm
Rear mounting bolt . . . . .	.16Nm
Fuel tap screws . . . . .	.7 Nm
Silencer clamp bolt . . . . .	.20 Nm
Silencer mounting bolt . . . . .	.20 Nm

1 General information and precautions

General information

The fuel system consists of the fuel tank with internal level sensor, fuel tap with integral strainer, in-line filter, fuel pump, fuel hoses, carburetors and control cables.

The carburetors used on all models are CV types. There is a carburettor for each cylinder. For cold starting, a choke lever in the left-hand switch gear is connected to the carburetors by a cable.

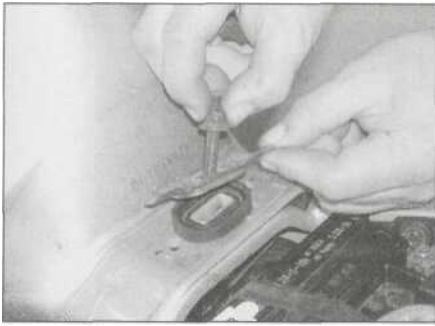
Air is drawn into the carburetors via an air filter which is housed under the fuel tank.

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

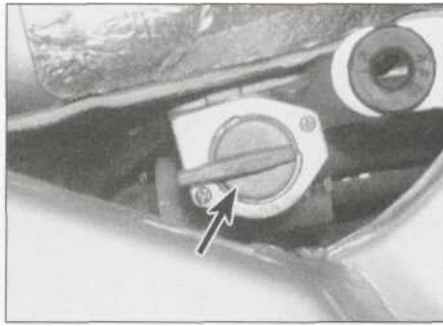
Many of the fuel system service procedures are considered routine maintenance items and for that reason are included in Chapter 1.

Precautions

Warning: Petrol (gasoline) 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



2.2 Unscrew the rear bolt and remove the plate



2.3 Turn the fuel tap (arrowed) "OFF"

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 (gasoline) or of components containing it. Remember the possible presence of vapour from these sources and move well clear before smoking.

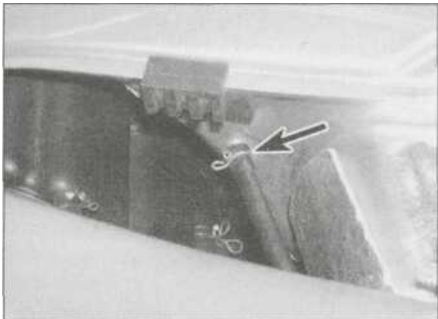
Check all electrical equipment belonging to the house, garage or workshop where work is being undertaken (see the *Safety first!* section

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 (gasoline) or any component containing it. Again, remember the possible presence of fumes before using electrical equipment.

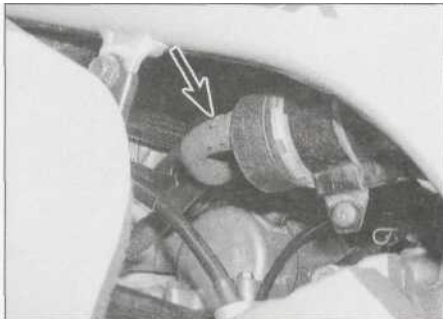
Always mop up any spilt fuel and safely dispose of the rag used.

Any stored fuel that is drained off during servicing work must be kept in sealed containers that are suitable for holding petrol (gasoline), 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 filler cap closed at all times.

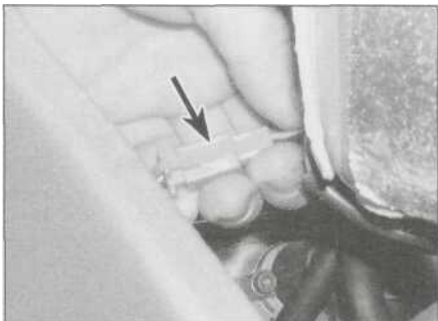
Read the *Safety first!* section of this manual carefully before starting work.



2.4a Detach the drain hose (arrowed) from the tank ..



2.4b ... and the fuel hose (arrowed) from the pump ...



2.4c ... and disconnect the wiring connector (arrowed)



2.5a Withdraw the front bolt.

2 Fuel tank and fuel tap(s) - removal and installation

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

Fuel tank

Removal - YZF models

1 Make sure the fuel cap is secure. Remove the seat (see Chapter 8).

2 Unscrew the bolt and remove the plate securing the rear of the tank (**see illustration**). Unscrew the nut on the bolt at the front, but do not yet withdraw the bolt.

3 Raise the tank at the rear and support it using a block of wood. Turn the fuel tap off - it is located on the base of the tank (**see illustration**).

4 Release the clamp securing the drain hose to its union and detach the hose (**see illustration**). Release the clamp securing the fuel hose to the fuel pump and detach the hose, being prepared to catch the residue fuel from the hose and the fuel filter with a rag (**see illustration**). Disconnect the fuel level sensor wiring connector (**see illustration**). On California models, also detach the EVAP hose from its union.

5 Withdraw the front mounting bolt, then carefully lift the tank off the frame and remove it (**see illustrations**).

6 Inspect the tank mounting rubbers for signs of damage or deterioration and replace them with new ones if necessary.

Removal - FZS models

7 Make sure the fuel cap is secure. Remove the seat (see Chapter 8).

8 Slacken the bolt securing the rear of the tank, then unscrew the bolt securing the front of the tank (**see illustrations**).

9 Raise the tank at the front and support it using a block of wood. Turn the fuel tap off - it is located on the base of the tank (**see illustration**). Release the clamp securing the fuel hose to the fuel tap and detach the hose, being prepared to catch any residue fuel with a rag.



2.5b ... and remove the tank

4»4 Fuel and exhaust systems



2.8a Slacken the rear bolt (arrowed)...

10 Release the clamps securing the drain and breather hoses to their unions, noting which fits where, and detach the hoses (**see illustration**); on 2000 models, note that the drain and breather outlets plug into a catch tray. Disconnect the fuel level sensor wiring connector (**see illustration**).

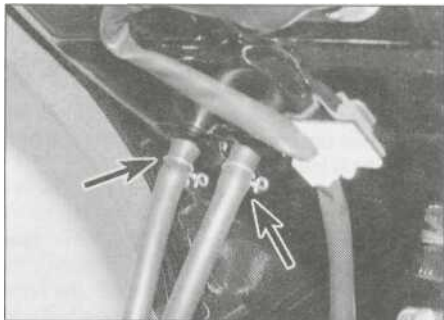
11 Remove the rear bolt and carefully lift the tank off the frame and remove it (**see illustration**).

12 Inspect the tank mounting rubbers for signs of damage or deterioration and replace them with new ones if necessary.

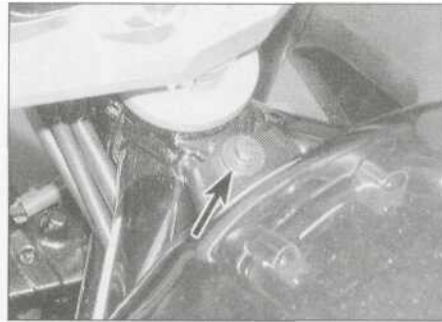
Installation

13 Installation is the reverse of removal, noting the following:

- a) Make sure the hoses are properly attached and secured by their clamps. Connect the fuel level sensor wiring connector.



2.10a Detach the hoses, noting which fits where...



2.8b ... and remove the front bolt (arrowed)

- b) Turn the fuel tap "ON" before lowering the tank.
- c) Tighten the front mounting bolt nut and the rear mounting bolt to the torque settings specified at the beginning of the chapter.
- d) Start the engine and check that there is no sign of fuel leakage, then shut it off.

Fuel tap

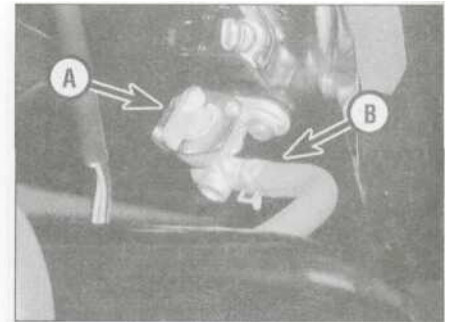
Removal

Note: If the fuel tap has been leaking, tightening the assembly screws may help. Slacken all the screws a little first, then tighten them evenly a little at a time to ensure the cover seats properly on the tap body. If leakage persists, the tap should be replaced, however nothing is lost by dismantling the tap for further inspection.

14 The tap should not be removed



2,10b ... and disconnect the wiring connector



2.9 Turn the fuel tap (A) "OFF", then detach the fuel hose (B) from its union

unnecessarily from the tank to prevent the possibility of damaging the O-ring or strainer.

15 Remove the fuel tank as described above. On YZF models, release the clamp securing the fuel hose to the fuel tap and detach the hose (**see illustration 2.18a**).

16 Connect a drain hose to the fuel outlet union on the tap and insert its end in a container suitable and large enough for storing the petrol. Turn the fuel tap to the "ON" position and allow the tank to drain. When the tank has drained, turn the tap to the "OFF" position.

17 Remove the screws on the face of the tap and disassemble it, noting how the components fit. Inspect all components for wear or damage, and replace them with new ones, if available. If any of the components are worn or damaged beyond repair and are not available individually, a new tap must be fitted.

18 Remove the screws securing the tap to the tank and withdraw the tap assembly (**see illustrations**). Discard the O-ring as a new one must be used.

19 Clean the gauze strainer to remove all traces of dirt and fuel sediment. Check the gauze for holes. If any are found, a new tap should be fitted as the strainer is not available individually.

Installation

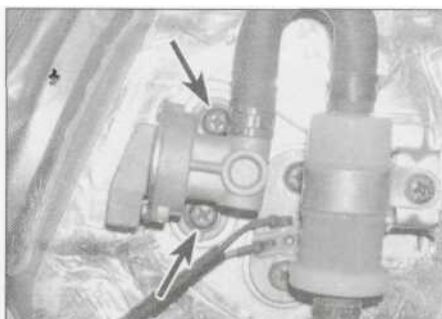
20 Installation is the reverse of removal.

21 Use a new O-ring on the tap, and tighten the screws to the torque setting specified at the beginning of the Chapter.

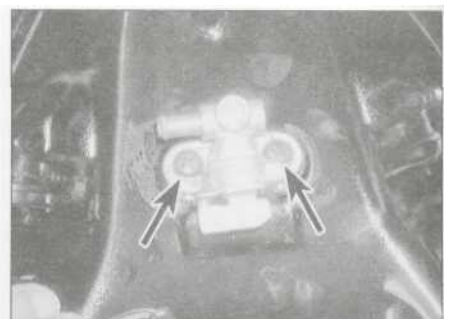
22 Install the fuel tank (see above).



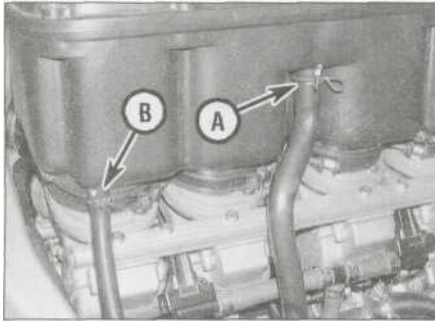
2.11 Remove the rear bolt and lift the tank off



2.18a Fuel tap screws (arrowed)- YZF models



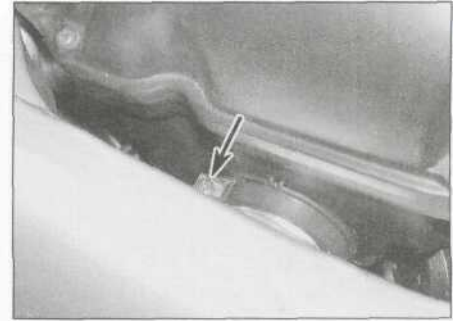
2.18b Fuel tap screws (arrowed) • FZS models



4.2 Detach the crankcase breather hose (A) and the drain hose (B) from the housing



4.3a Unscrew the bolt. . .



4.3b ... then slacken the intake duct clamp screw (arrowed) on each side ...

**3 Fuel tank -
cleaning and repair**

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- 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 Air filter housing -
removal and installation**

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Removal

YZF models

- 1 Remove the fuel tank (see Section 2).
- 2 Release the clamps securing the crankcase breather hose and the drain hose to the air filter housing and detach the hoses (see illustration).
- 3 Unscrew the bolt securing the front of the housing to the frame (see illustration). Slacken the clamp screws securing the housing to the air intake ducts at the front (see

illustration). Slacken the bottom clamp screws securing the housing to the carburettor intakes on the underside (see illustration).
4 Lift the housing up off the carburettors and remove it (see illustration). Remove the duct collar for safekeeping if required (see illustration).

FZS models

- 5 Remove the engine (see Chapter 2).
- 6 Release the clamps securing the crankcase breather hose and the drain hoses to the air filter housing and detach the hoses.
- 7 Withdraw the housing from the frame and remove it.

Installation

8 Installation is the reverse of removal. Check the condition of the various hoses and their clamps and replace them if necessary.

**5 Idle fuel/air mixture
adjustment -
general information**

1 Due to the increased emphasis on controlling exhaust emissions, certain governmental regulations have been formulated which directly affect the carburation of this machine. The pilot screws can be adjusted, but the use of an exhaust gas analyser and an auxiliary tachometer capable of accurately displaying changes of 50 rpm is the only certain 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 or removed unless it is necessary to do so during a carburettor overhaul. If the screws are to be removed, record the pilot screw's current setting by turning the screw 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.

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 Yamaha 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.

**6 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 tap and filter, the fuel hoses,



4.3c ... and the four carburettor clamp screws

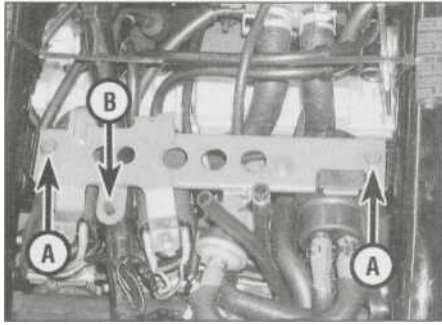


4.4a Lift the housing off the carburettors..

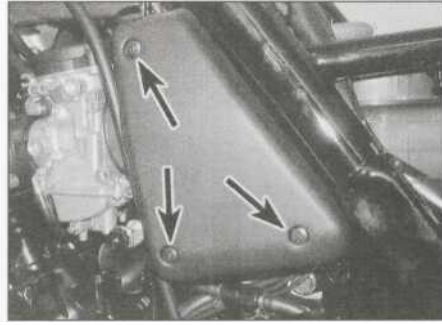


4.4b ... and remove the collars, if required

4»6 Fuel and exhaust systems



7.3a Unscrew the bolts (A) and free the rubber holder (B), then displace the bracket



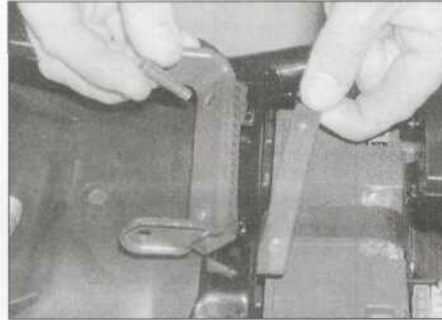
7.3b Each end cover is secured by three screws (arrowed)



7.3c Unscrew the bolt (arrowed) on each side



7.3d Unscrew the bolts (arrowed) and remove the bracket



7.3e Remove the fuel tank mounting plate...



7.3f ... and the rubber cover

the fuel pump, 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, unlubricated 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 all necessary O-rings and other parts, 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.

7 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). Drain the cooling system (see Chapter 1).
- 2 On YZF models, remove the fairing side

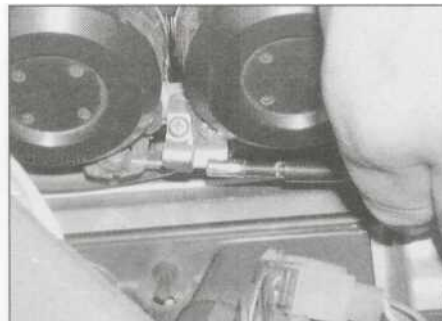
panels (see Chapter 8, Section 3), and the air filter housing (see Section 4).

3 On FZS models, unscrew the bolts on the ignition coil/fuel pump mounting bracket and free the rubber holder for the wiring loom from its hole, then displace the bracket - there is no need to disconnect any other wiring or hoses (**see illustration**). Remove the screws securing the end covers to the air filter housing and remove the covers (**see illustration**). Unscrew the bolts securing the rear of the housing on each side (**see illustration**). Unscrew the bolts securing the mounting bracket on the top of the housing and remove the bracket (see illustration). Remove the battery (see Chapter 9). Unscrew the bolts securing the fuel tank bracket and remove it, along with the mounting plate, then remove the rubber insulating cover, noting how it fits (**see illustrations**).

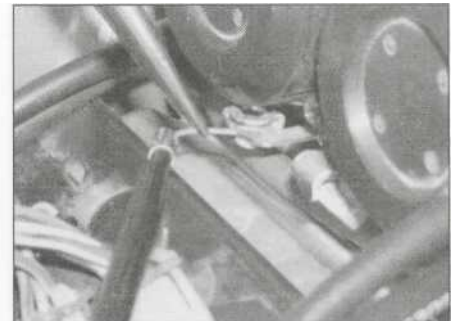
- 4 Slacken the choke outer cable bracket



7.4a Slacken the clamp screw ...



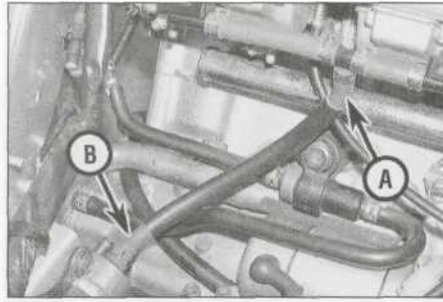
7.4b ... then detach the outer cable from the clamp



7.4c ... and the inner cable end from the lever - YZF model



7.6 Free the idle speed adjuster from its holder



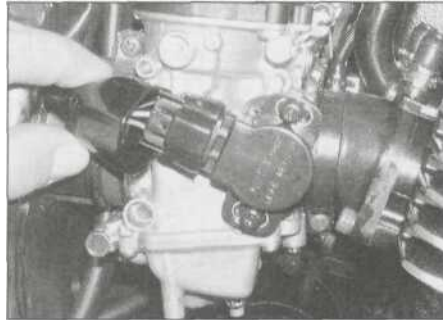
7.7a Detach the fuel hose from either the carburettors (A) or the fuel pump (B) - YZF model



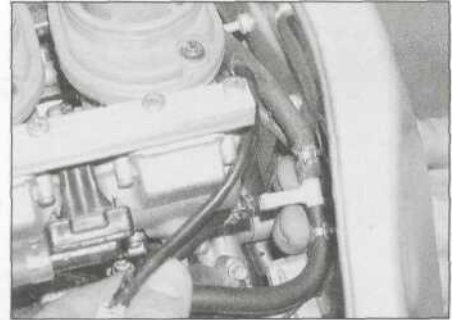
7.7b Detach the air vent hose at the union



7.8a On YZF models, disconnect the throttle position sensor wiring connector (arrowed)



7.8b On FZS models, disconnect the connector from the sensor

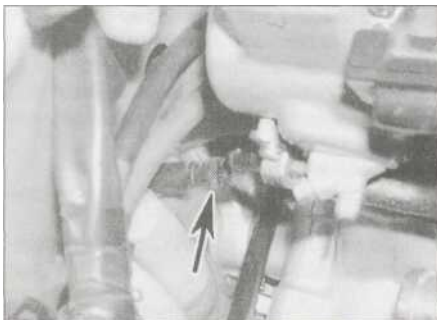


7.9a Pull the union out of the hose on the right-hand end ...

screw and free the cable from the bracket on the front of the carburettors, then detach the inner cable nipple from the choke linkage bar (see illustrations).

5 Detach the throttle cables from the carburettors (see Section 11, Steps 2 and 3). If access is too restricted, detach them after the carburettors have been drawn off the cylinder head intakes.

the wiring connector from the throttle position sensor on the left-hand end of the carburettors (see illustration).



7.9b ... and pull the hose off the union on the left-hand end

6 On YZF models, free the idle speed adjuster from its holder and feed it through to the base of the carburettors (see illustration).

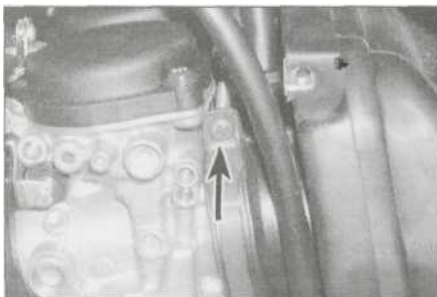
9 Release the clamps securing the heater system inlet and outlet hoses and detach the hoses. On YZF models, they are on each end of the carburettors at the bottom (see illustrations). On FZS models, they are between the outer and inner carburettor on each side, at the front.

7 Release the clamp securing the fuel supply hose either to the carburettors or to the fuel pump and detach the hose (see illustration). On YZF models, also release the clamp securing the air vent hose to the union at the front of the carburettors and detach the hose (see illustration).

10 On FZS models, fully slacken the clamps on the air intake rubbers, then slide the air filter housing back as far as possible (see illustration).

8 On YZF model, trace the wiring from the throttle position sensor on the left-hand end of the carburettors and disconnect it at the connector (see illustration). Free the wiring from its cable tie. On FZS models, disconnect

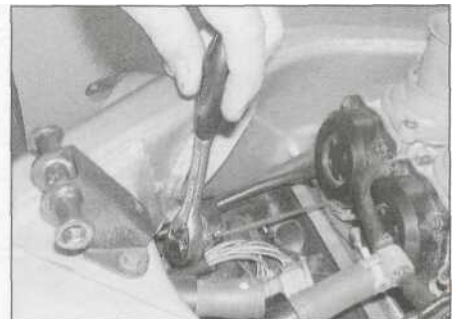
11 Fully slacken the clamps on the cylinder head intake rubbers - on YZF models, the clamp Allen bolts for Nos. 1 and 2 carburettors face back, while for 3 and 4 they face forward - access them using a suitable hex bit (see illustrations). On FZS models,



7.10 Slacken each air intake clamp screw (arrowed) and pull the air filter housing back off the carburettors



7.11 a Access the left-hand ...



7.11b ... and right-hand carburettor clamp bolts using a long hex bit



7.11c Clamp screws (arrowed)- FZS models



7.11d Draw the carburettors off the intakes and remove them



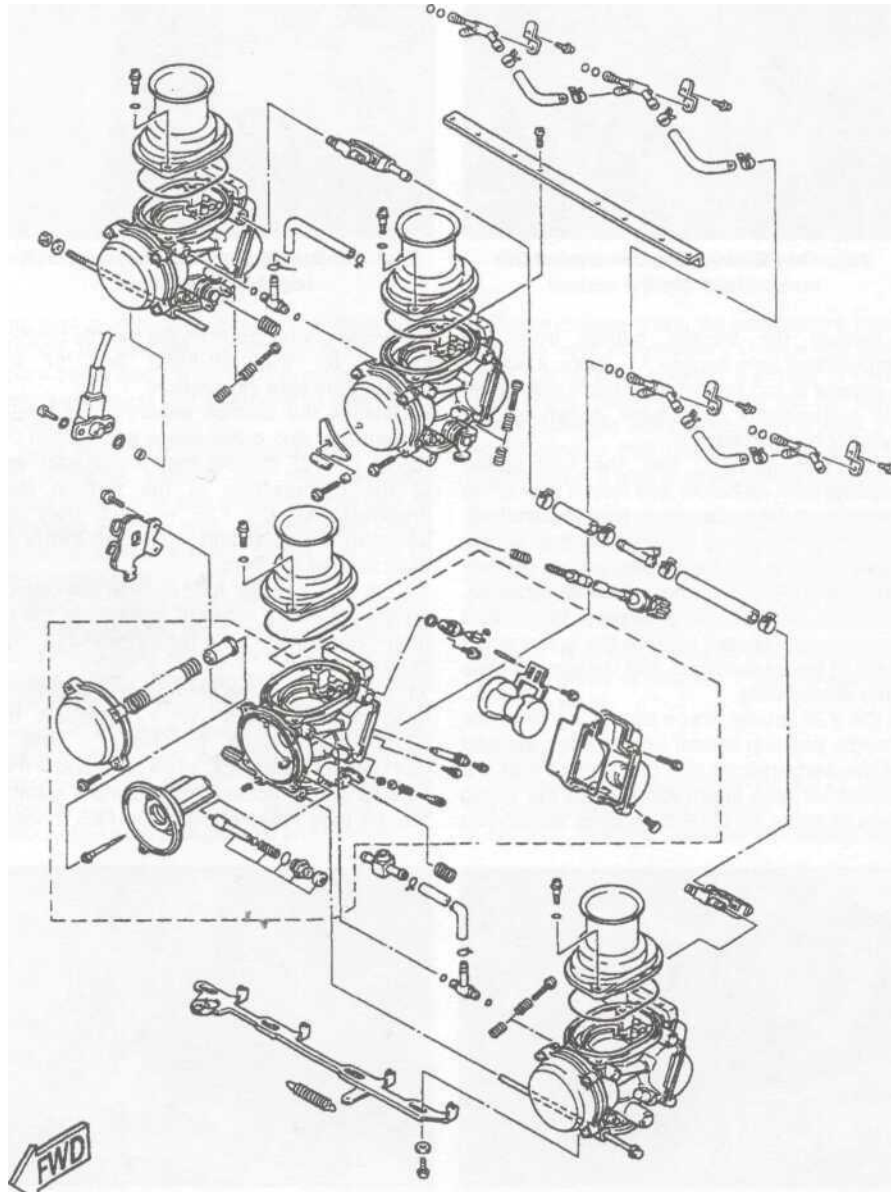
7.12 Carburettor drain screws (arrowed) - FZS models

the clamp screws are accessed from the side (see illustration). Carefully ease the carburettors off the intakes and remove them

(see illustration). **Note:** Keep the carburettors level to prevent fuel spillage from the float chambers and the possibility of the

piston diaphragms being damaged. **Caution:** Stuff clean rag into each cylinder head intake after removing the carburettors to prevent anything from falling in.

12 Place a suitable container below the float chambers, then slacken the drain bolt or screw on each chamber in turn and drain all the fuel from the carburettors (see illustration). Tighten the drain screws securely once all the fuel has been drained.



8.1 a Carburettor assembly components - YZF models

Installation

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

- a) Check for cracks or splits in the cylinder head intake rubbers, and replace them with new ones if necessary.
- b) Make sure the carburettors are fully engaged with the air and cylinder head intake rubbers and the clamps are securely tightened.
- c) Make sure all hoses are correctly routed and secured and not trapped or kinked.
- d) Refer to Section 11 for installation of the throttle cables, and Section 12 for the choke cable. Check the operation of the cables and adjust them as necessary (see Chapter 1).
- e) Check idle speed and carburettor synchronisation and adjust as necessary (see Chapter 1).
- f) Do not forget to refill the cooling system (see Chapter 1).

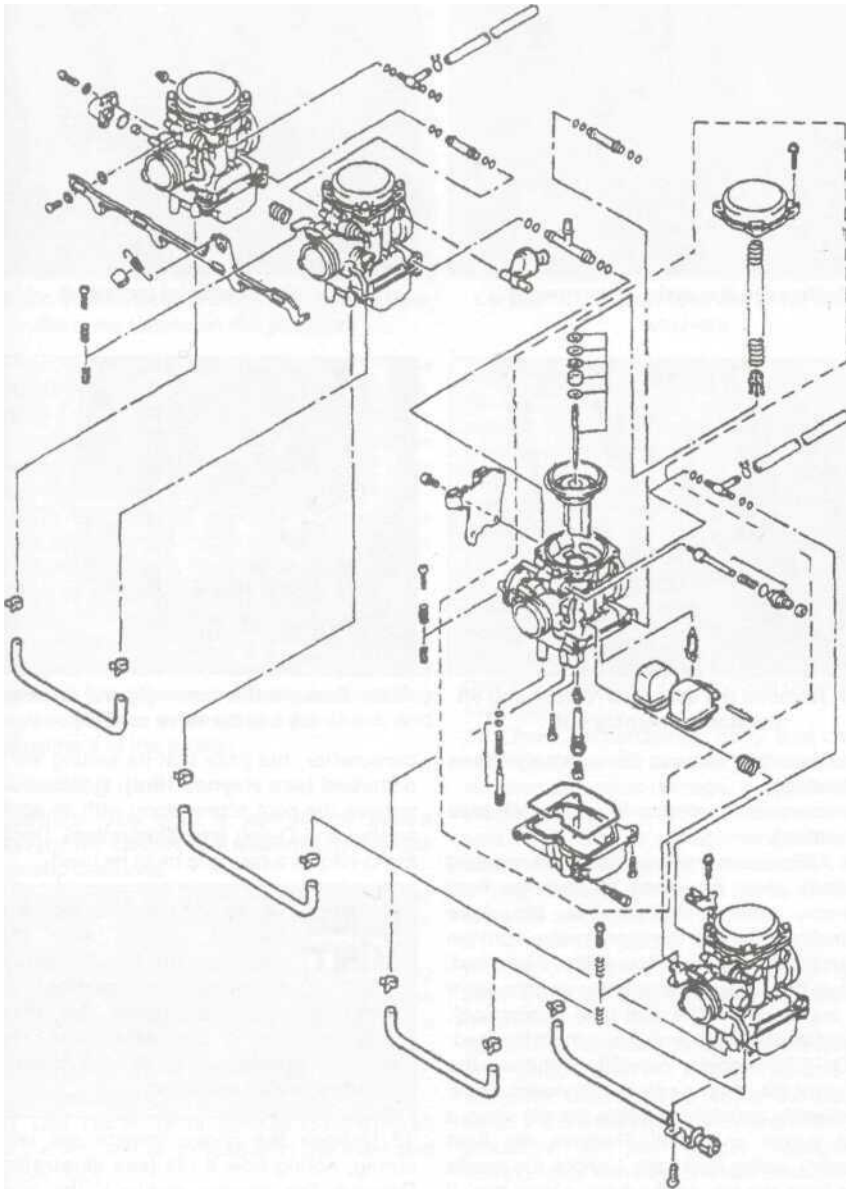
8 Carburettors -
disassembly, cleaning
and inspection

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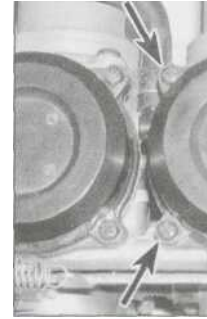
Warning: Refer to the precautions given in Section 1 before starting work.

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 illustrations).



8.1 b Carburettor assembly components - FZS models



8.2a Remove the screws (arrowed) and lift off the cover



8.2b Note the choke cable bracket (arrowed) - YZF model

2 Unscrew and remove the top cover retaining screws and remove the cover (**see illustration**). One of the screws on No. 1 carburettor on FZS models and No. 3 carburettor on YZF models also secures the choke cable bracket - note how it fits (**see illustration**).

3 On YZF models, remove the spring from inside the piston (**see illustration**). Carefully peel the diaphragm away from its sealing groove in the carburettor and withdraw the diaphragm and piston assembly (**see illustration**). Push the jet needle up from the bottom of the piston and withdraw the needle holder and needle from the top (**see illustration**).

Caution: Do not use a sharp instrument to displace the diaphragm as it is easily damaged.

4 On FZS models, remove the spring from



8.3a Withdraw the spring

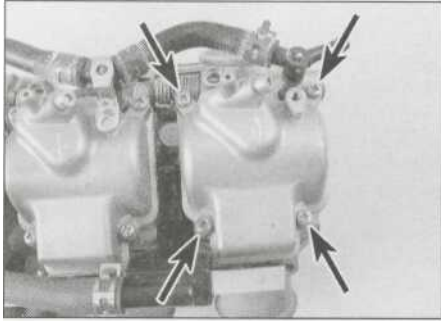


8.3b ... then carefully remove the diaphragm/piston assembly

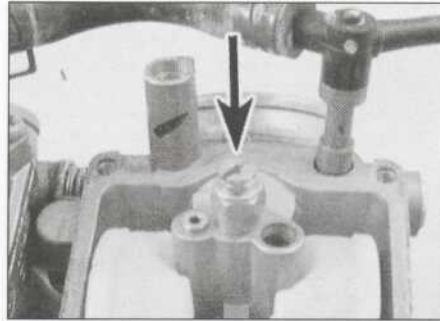


8.3c Push the needle up from the bottom and withdraw the holder and needle from the top

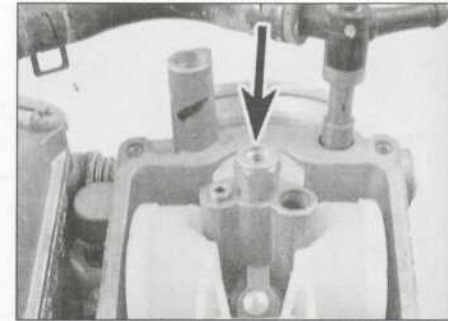
4»10 Fuel and exhaust systems



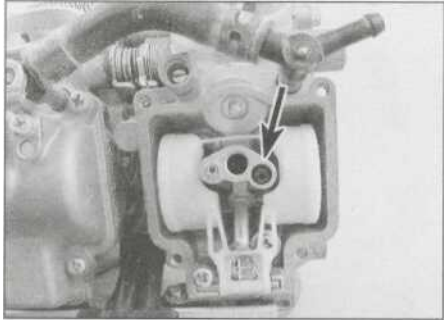
8.5 Remove the screws (arrowed) and lift off the float chamber



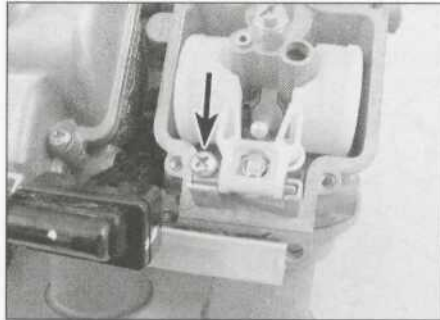
8.6 Remove the main jet (arrowed).



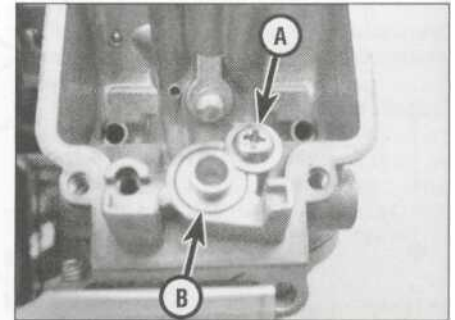
8.7 ... the needle jet (arrowed),



8.8 ... and the pilot jet (arrowed)



8.9a Remove the screw (arrowed) and lift the float assembly out



8.9b Remove the screw (A) and draw out the needle valve seat (B)

inside the piston, noting the spring seat which will probably be in the bottom of the spring. Carefully peel the diaphragm away from its sealing groove in the carburettor and withdraw the diaphragm and piston assembly. Push the jet needle up from the bottom of the piston and remove the spring seat (if it wasn't in the spring), then withdraw the needle, noting the arrangement of the various washers and spring. If the E-clip is removed from the needle, note which notch it is fitted into.

5 Remove the screws securing the float chamber to the base of the carburettor and remove the float chamber, noting how it fits (**see illustration**). Remove the rubber gasket and discard it as a new one must be used. On YZF models, note how the bracket on the chamber locates over and secures the heater system union.

6 Unscrew and remove the main jet (**see illustration**).

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

8 Unscrew and remove the pilot jet (**see illustration**).

9 On YZF models, remove the screw securing the float pivot pin, then lift out the float assembly and withdraw the pin (**see illustration**). Unhook the needle valve from the tab on the float, noting how it fits. If required, remove the screw securing the needle valve seat and draw out the seat (**see illustration**). Discard its O-ring as a new one must be used.

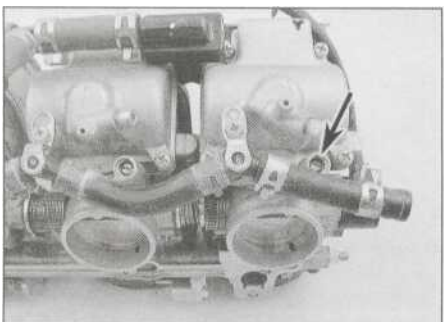
10 On FZS models, carefully withdraw the float pivot pin using a pair of thin-nosed pliers. If necessary, carefully displace the pin using a small punch or a nail. Remove the float assembly, noting how it fits. Unhook the needle valve from the tab on the float, noting how it fits. If required, remove the needle valve seat. Discard its O-ring as a new one must be used.

11 The pilot screw can be removed from the

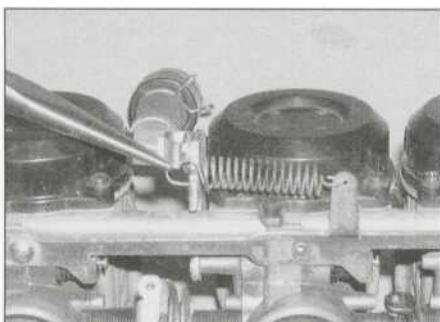
carburettor, but note that its setting will be disturbed (**see Haynes Hint**). Unscrew and remove the pilot screw along with its spring, washer and O-ring (**see illustration**). Discard the O-ring as a new one must be used.

HINT To record the pilot screw's current setting, turn the screw 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.

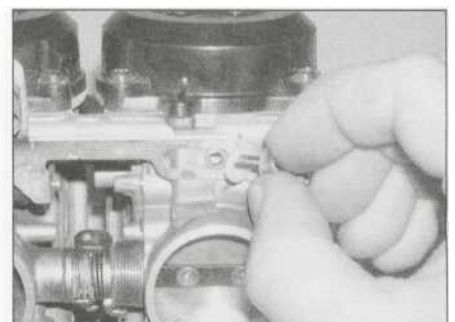
12 Unhook the choke linkage bar return spring, noting how it fits (**see illustration**). Remove the screws securing the choke linkage bar to the carburetors, noting the plastic washers (**see illustration**). Lift off the bar, noting how it fits (**see illustration**).



8.11 Pilot screw (arrowed) - YZF models shown



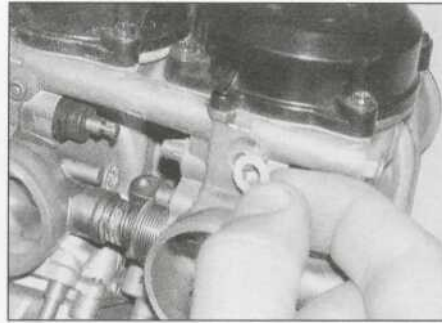
8.12a Unhook the spring ...



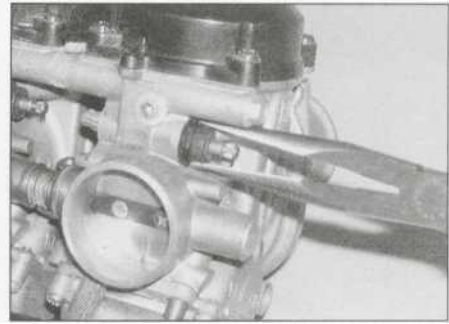
8.12b ... then remove the screws and plastic washers



8.12c Remove the linkage bar, noting how the arms locate on the plungers ...



8.12d ... and remove the inner plastic washers



8.12e Unscrew the plunger assembly using pliers

Remove the inner plastic washers (**see illustration**). Unscrew the choke plunger nut, using a pair of thin-nosed pliers if access is too restricted for a spanner, and withdraw the plunger assembly from the carburettor body (**see illustration**).

13 On YZF models, if required, remove the bolts securing the intake funnel and remove the funnel, noting how it fits. Discard the O-ring as a new one must be used.

14 A throttle position sensor is mounted on the outside of the right-hand carburettor. Do not remove the sensor from the carburettor unless it is known to be faulty and is being replaced. Refer to Chapter 5 for check and adjustment of the sensor.

Cleaning

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

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

16 After the carburettor has soaked long enough for the cleaner to loosen and dissolve most of the varnish and other deposits, use a nylon-bristled brush to remove the stubborn deposits. Rinse it again, then dry it with compressed air.

17 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

18 Check the operation of the choke plunger assembly (**see illustration**). If it doesn't move smoothly, inspect the needle on the end of the choke plunger, the spring and the plunger linkage bar. Replace the assembly if any component is worn, damaged or bent - individual parts are not available.

19 If removed from the carburettor, check the tapered portion of the pilot screw and the spring and O-ring for wear or damage (**see illustration**). Replace the assembly with a new one if necessary - individual parts are not available.

20 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 with a new one, although replacement of the entire carburettor will probably be necessary (check with a Yamaha dealer on the availability of separate components).

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

22 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 in the guide, replace the components with new ones as necessary.

23 Check the jet needle for straightness by rolling it on a flat surface such as a piece of plate glass. Replace it with a new one if it's bent or if the tip is worn.

24 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 renewed as a set (**see illustration**). Check the gauze filter on the underside of the seat for holes and replace the seat with a new one if necessary.

25 Operate the throttle shaft to make sure the throttle butterfly valve opens and closes smoothly. If it doesn't, cleaning the throttle linkage may help. Otherwise, replace the carburettor with a new one.

26 Check the float for damage. This will usually be apparent by the presence of fuel inside the float. If it is damaged, replace it with a new one.

9 Carburettors - separation and joining

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

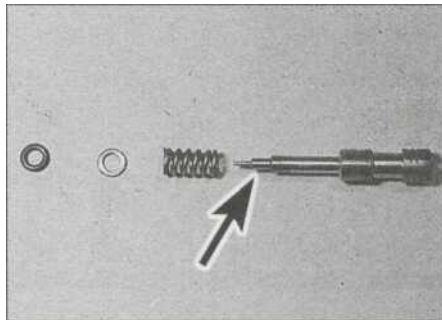
Separation

1 The carburettors 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.

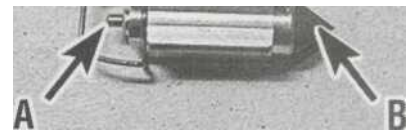
2 Remove the carburettors from the machine (see Section 7). Mark the body of each carburettor with its cylinder location to ensure that it is positioned correctly on reassembly. Refer to **illustration 8.1 a** or **8.1 b**.



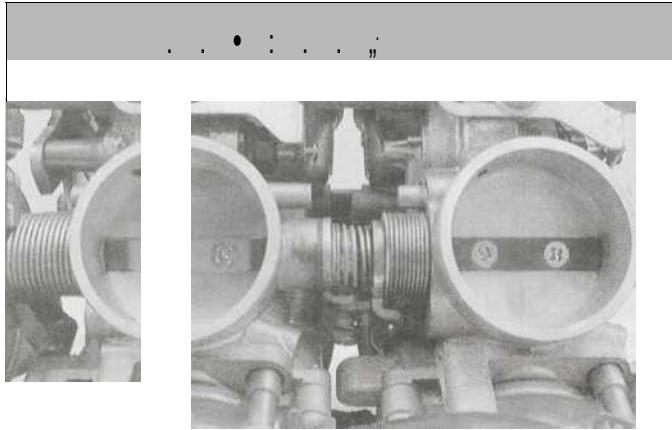
8.18 Choke plunger assembly



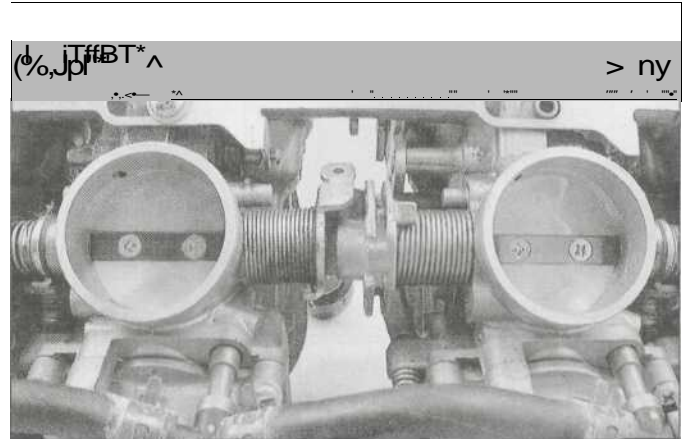
8.19 Check the tapered portion of the pilot screw (arrowed) for wear



8.24 Check the valve's spring-loaded rod (A) and tip (B) for wear or damage



9.3a Note the difference in the throttle linkage assembly between one carburettor..



9.3b ... and the other

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 illustrations). Also note the arrangement of the various hoses, unions, joint pieces and collars, and of the cable brackets (see illustrations).

4 Unhook the choke linkage bar return spring,

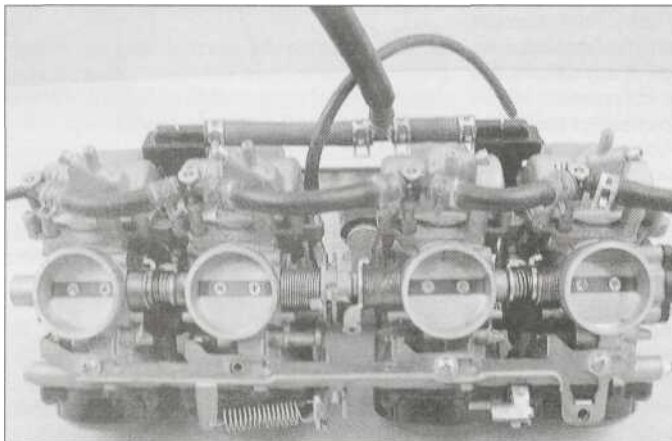
noting how it fits (see illustration 8.12a). Remove the screws securing the choke linkage bar to the carburettors, noting the plastic washers (see illustration 8.12b). Lift off the bar, noting how it fits (see illustration 8.12c). Remove the inner plastic washers (see illustration 8.12d).

5 On UK models, release the clamps securing the heating system hoses linking each

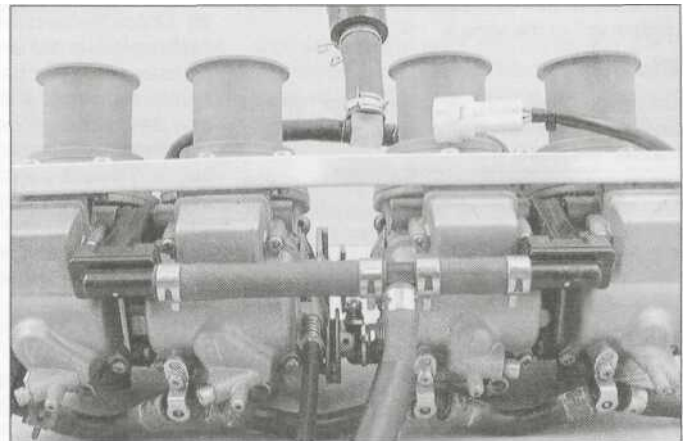
carburettor and detach the hoses (see illustration 9.3c).

6 On YZF models, unscrew the nut on the end of the long through-bolt and withdraw the bolt, then remove the screws securing the mounting plate and remove the plate, noting how it fits (see illustrations).

7 On FZS models, unscrew the nuts from the through-bolts securing the carburettors



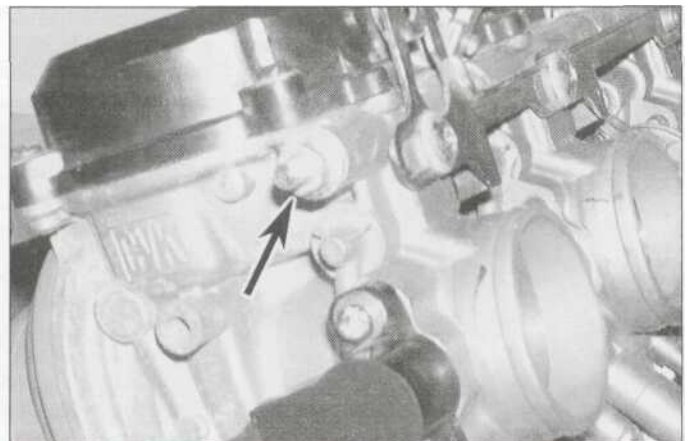
9.3c Note how the various hoses ...



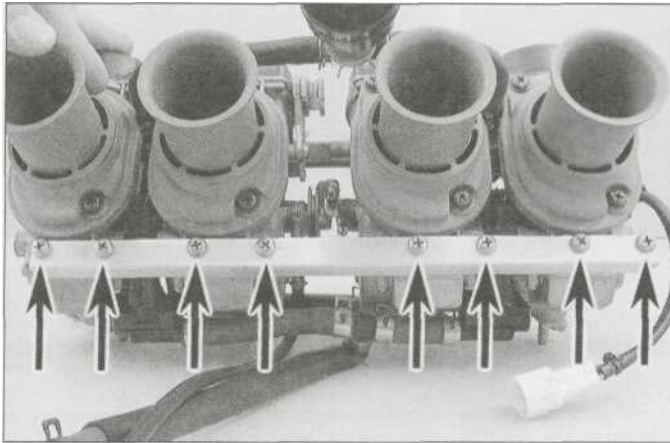
9.3d ... joint pieces ...



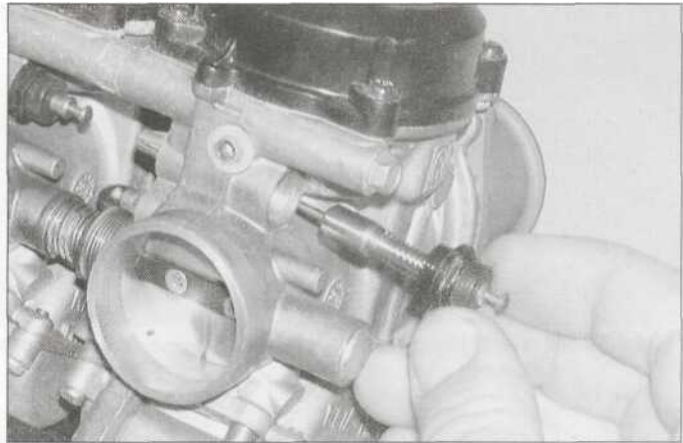
9.3e ... and other components link together - YZF model



9.6a Unscrew the nut (arrowed) and withdraw the bolt...



9.6b ... then remove the screws (arrowed) and the mounting plate



10.1 Fit the choke plunger assembly into the carburettor

together and withdraw the bolts. Remove the spacing collars, noting how the choke cable lever fits on the top one.

8 Mark the position of each carburettor and gently separate them, noting how the throttle linkage is connected, and being careful not to lose any springs or fuel and vent fittings that are present between the carburettors, noting any O-rings fitted with them.

Joining

9 Where fitted, install new O-rings on the fuel and vent fittings. Lubricate the O-rings with a light film of oil and install the fittings into their respective holes, making sure they seat completely (see illustrations 8.1 a and 8.1 b).

10 Position the coil springs between the carburettors, gently push the carburettors together, then make sure the throttle linkages are correctly engaged. Check the fuel and vent fittings to make sure they engage properly also. On UK models, connect the heating system hoses and secure them with their clamps.

11 On YZF models, install the lower mounting plate and its screws, and the long through-bolt and its nut, but don't tighten them completely yet. On FZS models, install the two long through-bolts but do not yet tighten them. Set the carburettors on a sheet of plate glass, then align them with a straight-edge placed along the edges of the bores. When the centrelines of the carburettors are all in horizontal and vertical alignment, tighten the screws and nut or bolts securely.

12 Fit the inner plastic washers for the choke linkage bar screws, then fit the choke linkage bar onto the plungers, making sure the slots in the arms locate correctly behind the nipple on the end of each choke plunger (see illustrations 8.12d and 8.12c). Fit the outer plastic washers and secure the linkage bar in place with the screws (see illustration 8.12b) Make sure the choke linkage operates smoothly and returns quickly under spring pressure.

13 Install the throttle synchronisation springs. Visually synchronise the throttle butterfly valves, turning the adjusting screws on the throttle linkage, if necessary, to equalise the clearance between the butterfly valve and throttle bore of each carburettor. Make sure the throttle operates smoothly and returns quickly under spring pressure.

14 Install the carburettors (see Section 7) and check carburettor synchronisation and idle speed (see Chapter 1).

10 Carburettors-reassembly and fuel level check

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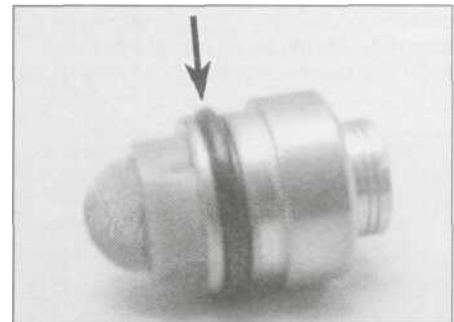
A **Warning:** Refer to the precautions given in Section 1 before proceeding

Note: When reassembling the carburettors, be sure to use the new O-rings, seals and other parts supplied in the rebuild kit. Do not overtighten the carburettor jets and screws as they are easily damaged (see illustration 8.1a or 8.1 b).

1 Install the choke plunger assembly into the carburettor body and tighten the nut to secure it (see illustration). Fit the inner plastic washers for the choke linkage bar screws, then fit the choke linkage bar onto the plungers, making sure the slots in the arms locate correctly behind the nipple on the end of each choke plunger (see illustrations 8.12d and 8.12c). Fit the outer plastic washers and secure the linkage bar in place with the screws (see illustration 8.12b).

2 Install the pilot screw (if removed) along with its spring, washer and O-ring, turning it in until it seats lightly (see illustration 8.11). Now, turn the screw out the number of turns previously recorded, or as specified at the beginning of the Chapter.

3 On YZF models, if removed, fit a new O-ring onto the needle valve seat, then press it into place and secure it with the screw (see illustrations). Hook the float needle valve



10.3a Fit a new O-ring into the groove .



10.3b ... and press the seat into place ...

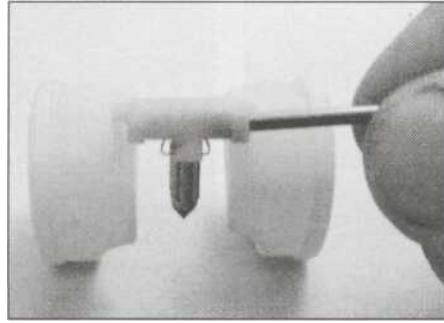


10.3c ... and secure it with the screw

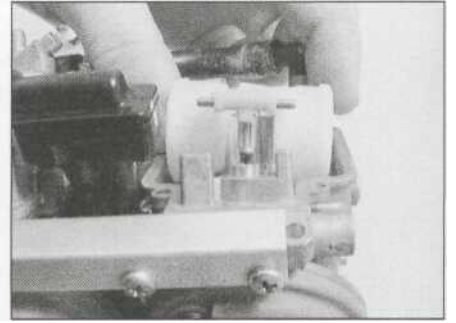
4»14 Fuel and exhaust systems



10.3d Fit the needle valve onto its tab .



10.3e ... and install the pin



10.3f Install the float assembly .

onto the tab on the float assembly, then install the pivot pin (**see illustration**). Position the float assembly in the carburettor, making sure the needle valve locates in the seat, and the pin ends locate in the cutouts, then secure the assembly with the screw (**see illustrations**).

4 On FZS models, if removed, fit a new O-ring

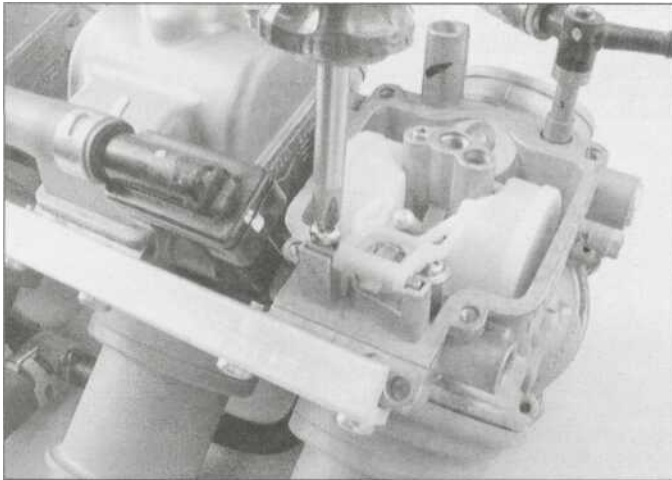
onto the needle valve seat, then install it in the carburettor. Hook the float needle valve onto the tab on the float assembly, then position the float assembly in the carburettor, making sure the needle valve locates in the seat, and install the pin, making sure it is secure.

5 Install the pilot jet (**see illustration**).

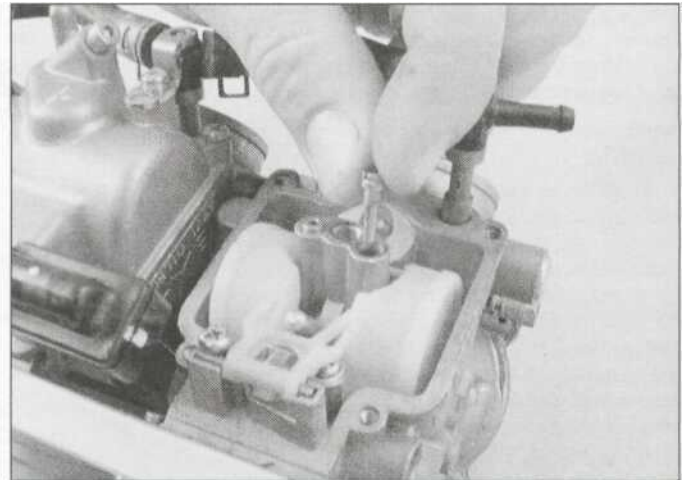
6 Install the needle jet (**see illustration**).

7 Install the main jet (**see illustration**).

8 Fit a new gasket onto the float chamber, making sure it is seated properly in its groove, then install the chamber on the carburettor and tighten its screws securely (**see illustrations**). On YZF models, make sure the bracket on the



10.3g ... and secure it with the screw



10.5 Install the pilot jet.



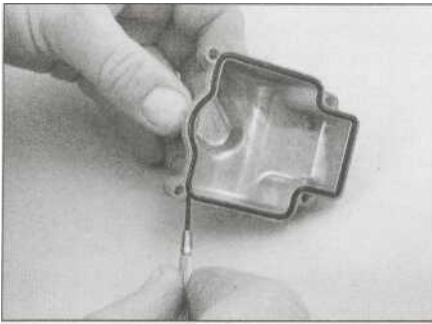
10.6 ... the needle jet...



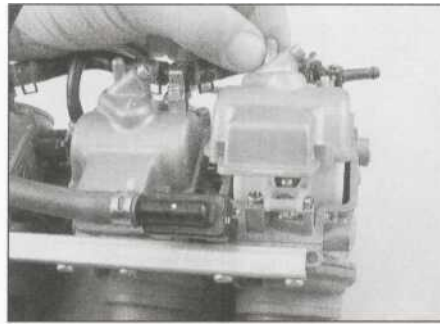
10.7 ... and the main jet



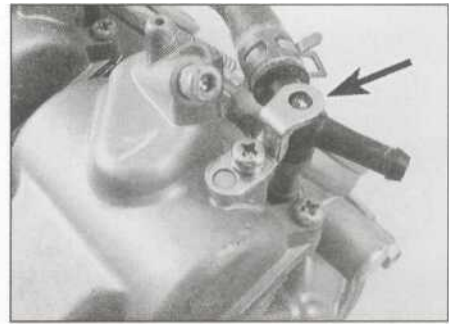
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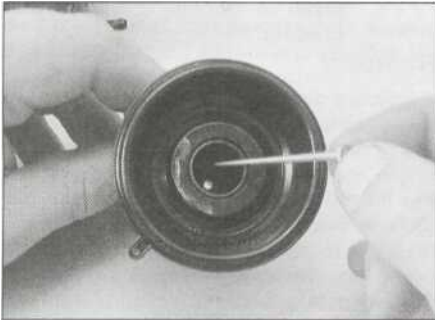
10.8a Fit a new gasket into the groove ...



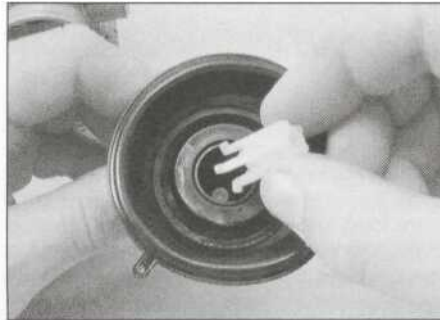
10.8b ... and install the float chamber



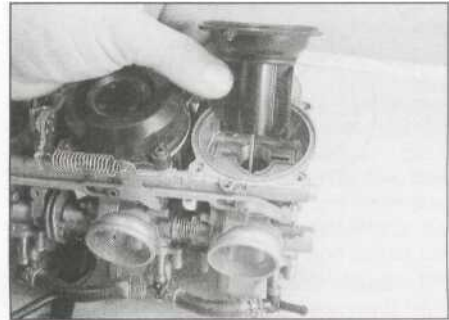
10.8c Make sure the bracket locates onto the union (arrowed)



10.9a Install the needle ...



10.9b ... and its holder ...



10.9c ... then install the assembly .

chamber locates over and secures the heater system union (see illustration).

9 On YZF models, fit the jet needle into the piston, then fit the needle holder (see illustrations). Fit the piston/diaphragm assembly into the carburettor and lightly push the piston down, ensuring the needle is correctly aligned with the needle jet (see illustration). Press the diaphragm outer edge into its groove, making sure it is correctly seated with the tab on the diaphragm locating correctly into the recess in the carburettor (see illustration). Check the diaphragm is not creased, and that the piston moves smoothly up and down in the guide.

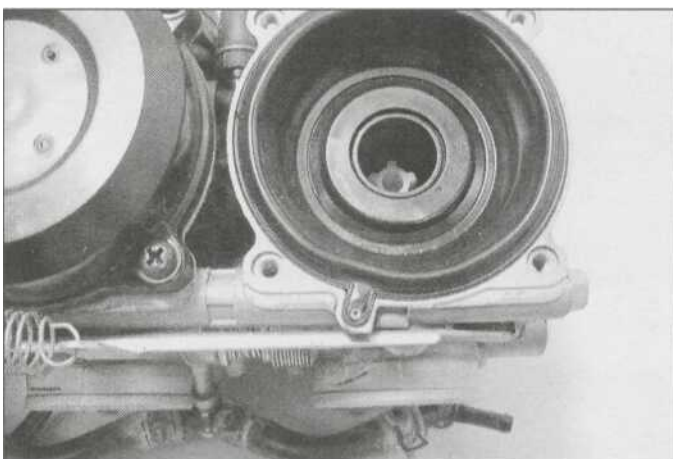
10 On FZS models, if removed, fit the E-clip into the 3rd groove from the top of the needle, then fit two of the thin washers on top of it. Also slide the thick washer and the remaining thin washer under the E-clip. Fit the jet needle into the piston, then fit the needle holder. Fit the piston/diaphragm assembly into the carburettor and lightly push the piston down, ensuring the needle is correctly aligned with the needle jet. Press the diaphragm outer edge into its groove, making sure it is correctly seated with the tab on the diaphragm locating correctly into the recess in the carburettor. Check the diaphragm is not creased, and that the piston moves smoothly up and down in the guide.

11 Fit the spring into the diaphragm assembly, making sure it locates correctly onto the needle holder, then fit the top cover onto the carburettor, locating the peg into the top of the spring, and tighten its screws securely (see illustration).

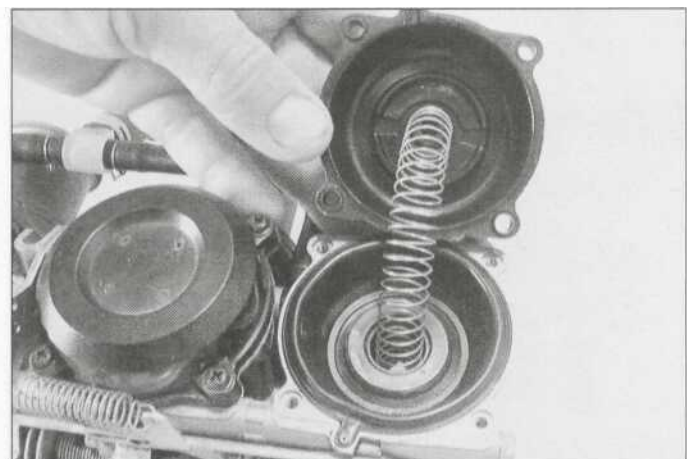
12 On YZF models, if removed, install the intake funnel using a new O-ring and apply a suitable non-permanent thread locking compound to the bolts. Do not overtighten them.

13 Install the carburettors, but if the fuel level (float height) is to be checked do not yet install the air filter housing or fuel tank (see Section 7).

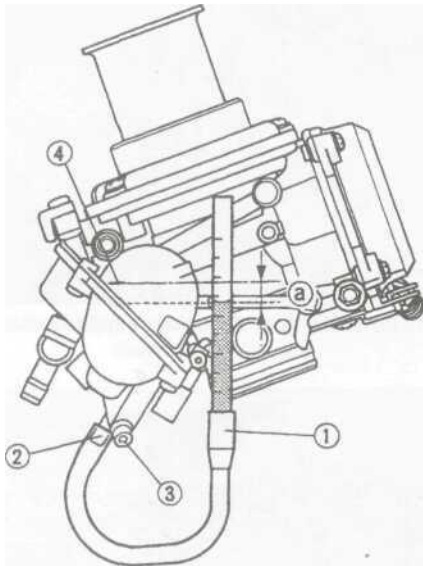
14 To check the fuel level, position the



10.9d ... making sure the rim of the diaphragm locates and seats correctly

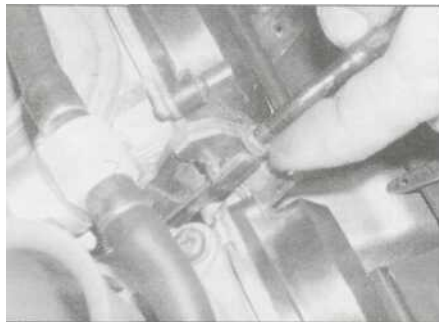


10.11 Insert the spring and fit the cover, locating the peg in the top of the spring

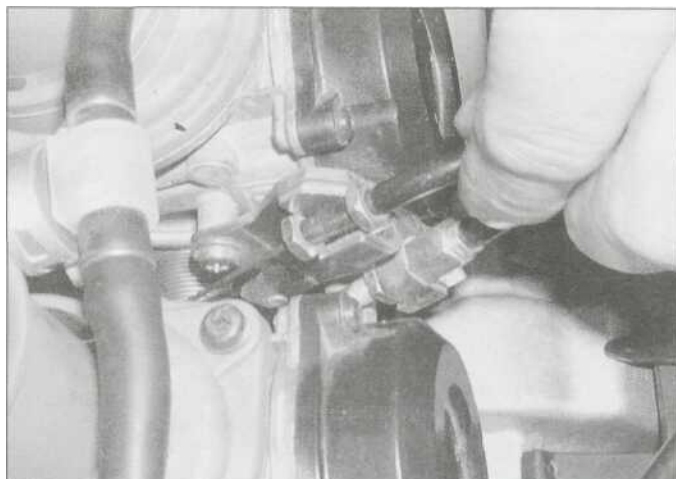


**10.14a Measuring fuel level-
YZF models**

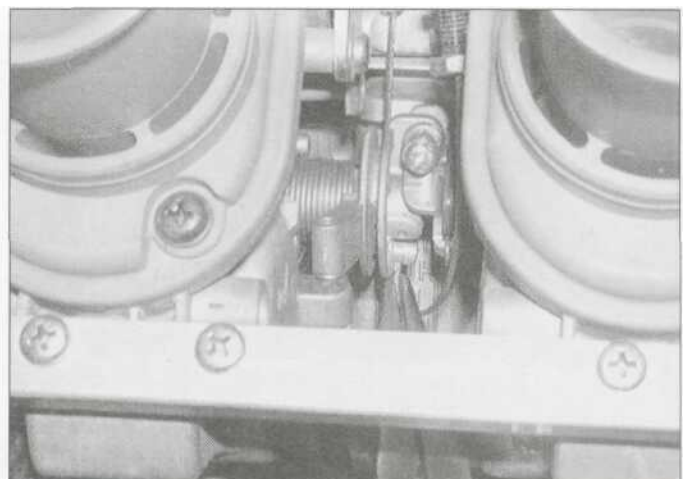
- 1 Gauge/tubing 3 Drain screw
2 Drain hose union 4 Reference line
a = Specified distance



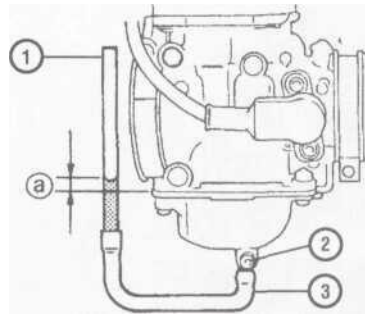
11.3a Slacken the locknut...



11.3b ... then free the cable from the bracket..



11.3c ... and detach the cable end from the carburettor



**10.14b Measuring fuel level -
FZS models**

- 1 Gauge/tubing 3 Drain screw
2 Drain hose union
a = Specified distance above float chamber

motorcycle on level ground and support it using an auxiliary stand so that it is vertical. Arrange a temporary fuel supply, either by using a small temporary tank or by using an extra long fuel pipe to the now remote fuel tank. Alternatively, position the tank on a suitable base on the motorcycle, taking care not to scratch any paintwork, and making sure that the tank is safely and securely supported. Connect the fuel line to the carburettors. Yamaha provide a fuel level gauge (part No, 90890-01312), or alternatively a suitable length of clear plastic tubing can be used. Attach the gauge or tubing to the drain hose union on one of the carburettors and position its open end vertically and above the level of the carburettors. Slacken the drain screw and allow the fuel to flow into the tube (**see illustration 7.12**). The level at which the fuel stabilises in the tubing indicates the level of the fuel in the float chamber. Refer to the Specifications at the beginning of the Chapter and measure the level relative to the correct reference point on the carburettor for your model (**see illustrations**). If it is incorrect, detach the fuel supply and drain the

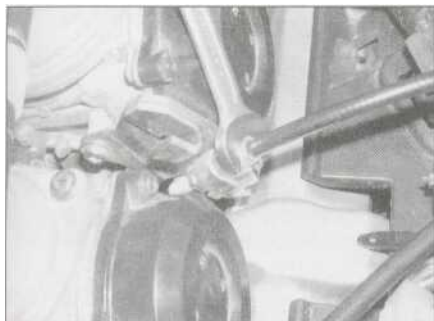
carburettors, then remove the float from the chamber (see Section 8, Steps 5 and 9 or 10), and adjust the float height by carefully bending the float tab a little at a time until the correct height is obtained. Repeat the procedure for the other carburettors. **Note:** *Bending the tang up increases the float height and lowers the fuel level - bending it down decreases the float height and raises the fuel level.*

**11 Throttle cables -
removal and installation**

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

Removal

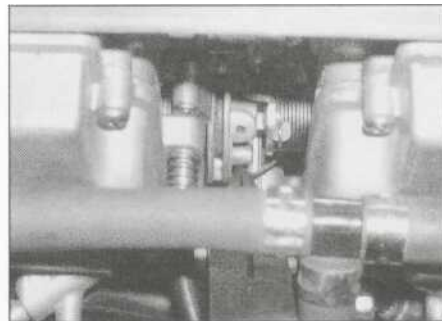
1 Remove the fuel tank, and on YZF models the air filter housing (see Sections 2 and 4). On FZS models, unscrew the bolts on the ignition coil/fuel pump mounting bracket and free the rubber holder for the wiring loom from its hole, then displace the bracket - there is no need to disconnect any other wiring or hoses (**see illustration 7.3a**).
2 Whilst it is possible to detach the throttle cables with the carburettors *in situ*, there is a limited amount of space to work in and it can be tricky. If required, displace the carburettors to improve access (see Section 7). Mark each cable according to its location (i.e. accelerator (opening) cable or decelerator (closing) cable).
3 Slacken the accelerator (opening) cable top nut and slide the adjuster down in the bracket until the bottom nut is clear of the lug, then slip the cable out of the bracket and free the cable end from the throttle cam (**see illustrations**). Unscrew the decelerator (closing) cable hex and slide it down in the bracket until the captive nut is clear of the lug, then slip the cable out of the bracket and free the cable end from the throttle cam (**see illustrations**). Withdraw the cables from the machine noting the correct routing of each cable.



11.3d Slacken the hex ...



11.3e ... then free the cable from the bracket...



11.3f ... and detach the cable end from the carburettor

4 Pull the rubber boot off the throttle housing on the handlebar (**see illustration**). Remove the throttle housing screws and separate the halves (**see illustrations**). Displace the cable elbows from the housing, noting how they fit, and detach the cable nipples from the pulley (**see illustration**). Mark each cable to ensure it is connected correctly on installation.

Installation

5 Lubricate the cable nipples with multi-purpose grease and install them into the throttle pulley at the handlebar (**see illustration 11.4d**). Fit the cable elbows into the housing, making sure they locate correctly

(**see illustration 11.4c**). Join the housing halves, making sure the pin locates in the hole in the handlebar, and tighten the screws (**see illustration 11.4b**). Fit the rubber boot back onto the housing (**see illustration 11.4a**).

6 Feed the cables through to the carburettors, making sure they are correctly routed. The cables must not interfere with any other component and should not be kinked or bent sharply.

7 Lubricate the decelerator cable nipple with multi-purpose grease and fit it into the lower socket on the carburettor throttle cam (**see illustration 11.3f**). Fit the cable into the bracket and pull it up so that the nut becomes captive,

then thread the top hex down onto the bracket and tighten it (**see illustrations 11.3e and 11.3d**). Lubricate the accelerator cable nipple with multi-purpose grease and fit it into the upper socket on the carburettor throttle cam (**see illustration 11.3c**). Fit the accelerator cable adjuster into the upper bracket and pull it up so that the lower nut becomes captive, then thread the top nut down onto the bracket (**see illustration 11.3b and 11.3a**). Check that the amount of freeplay is correct and adjust it if necessary (see Chapter 1), then tighten the locknut against the bracket.

8 Operate the throttle to check that it opens and closes freely. Turn the handlebars back and forth to make sure the cable doesn't cause the steering to bind.

9 On FZS models, install the ignition coil/fuel pump mounting bracket and fit the rubber holder for the wiring loom into its hole (**see illustration 7.3a**)

10 Install the carburettors (if displaced), the air filter housing on YZF models, and the fuel tank (see Sections 7, 4 and 2).

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



11.4a Pull the boot back off the housing ..



11.4b ... and remove the housing screws



11.4c Separate the halves and detach the cable elbows ...



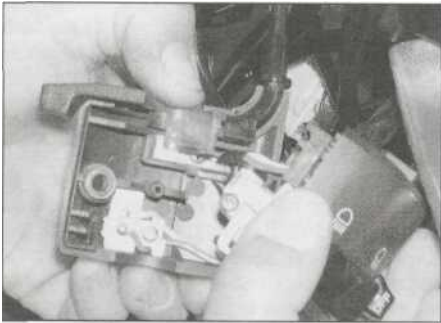
11.4d ... and free the cable ends from the throttle pulley



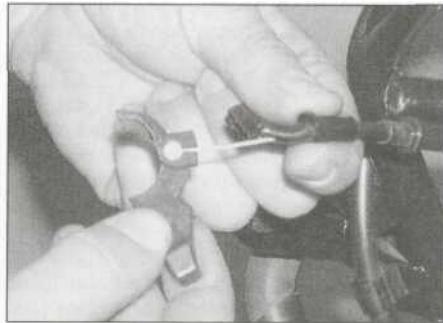
12.3a Remove the housing screws ,



12.3b ... and separate the halves



12.3c Remove the choke lever and cable elbow..

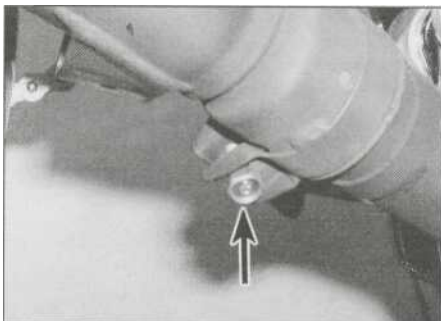


12.3d .. and free the cable end from the lever

**12 Choke cable-
removal and installation**

Removal

- 1 Remove the fuel tank and the air filter housing (see Sections 2 and 4). On FZS models, unscrew the bolts on the ignition coil/fuel pump mounting bracket and free the rubber holder for the wiring loom from its hole, then displace the bracket - there is no need to disconnect any other wiring or hoses (see illustration 7.3a).
- 2 Slacken the choke outer cable bracket screw and free the cable from the bracket on the front of the carburettors, then detach the inner cable nipple from the choke linkage bar arm (see illustrations 7.4a, 7.4b and 7.4c).



13.2 Slacken the clamp bolt (arrowed)..

- 3 Unscrew the two handlebar switch/choke lever housing screws and separate the two halves (see illustrations). Lift the lever and elbow out of the housing, noting how they fit, and detach the cable nipple from the lever (see illustrations).

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 and attach it to the choke lever (see illustration 12.3d). Fit the lever and elbow into the housing, then fit the two halves of the housing onto the handlebar, making sure the lever fits correctly, and the pin locates in the hole in the handlebar (see illustrations 12.3c and 12.3b). Install the



13.3 ... and remove the mounting bolt (arrowed)

- screws and tighten them securely (see illustration 12.3a).
- 6 Lubricate the cable nipple with multi-purpose grease and attach it to the choke linkage lever on the carburettor (see illustration 7.4c). Fit the outer cable into its bracket, making sure there is a small amount of freeplay in the inner cable, and tighten the screw (see illustrations 7.4b and 7.4a).
- 7 Check the operation of the choke cable (see Chapter 1, Section 17).
- 8 On FZS models, install the ignition coil/fuel pump mounting bracket and fit the rubber holder for the wiring loom into its hole (see illustration 7.3a).
- 9 Install the air filter housing and the fuel tank (see Sections 4 and 2).

**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 On YZF models, if required for improved clearance and to avoid the possibility of damage, remove the right-hand fairing side panel (see Chapter 8, Section 3).
- 2 Slacken the clamp bolt securing the silencer to the downpipe assembly (see illustration).
- 3 Unscrew and remove the silencer mounting bolt, then release the silencer from the exhaust downpipe assembly (see illustration).
- 4 Remove the sealing ring from the end of the silencer or downpipe assembly and discard it as a new one should be used.

Installation

- 5 Fit the new sealing ring onto the end of the downpipe assembly.
- 6 Fit the silencer onto the downpipe assembly, making sure it is pushed fully home. Align the silencer mounting bracket at the rear and install the bolt, but do not yet tighten it.
- 7 Tighten the clamp bolt to the torque setting specified at the beginning of the Chapter, then tighten the silencer mounting bolt to the specified torque (see illustrations 13.2 and 13.3).
- 8 Run the engine and check the system for leaks.

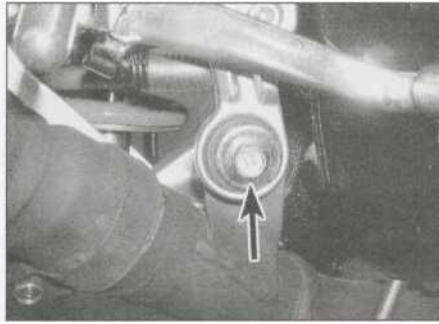
Completesystem

Removal

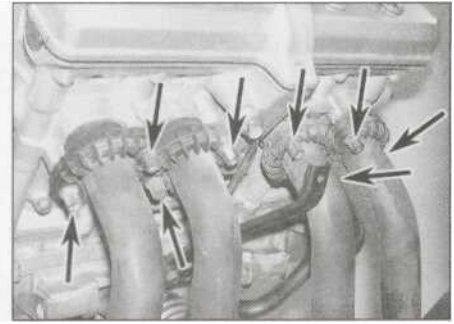
- 9 On YZF models, remove the fairing side panels (see Chapter 8, Section 3).
- 10 Slacken the silencer mounting bolt but do not yet remove it (see illustration 13.3).



13.10a Downpipe assembly bolt - YZF models



13.10b Downpipe assembly bolt (arrowed) - FZS models



13.11 Unscrew the downpipe clamp nuts (arrowed)

Unscrew the bolt securing the rear of the downpipe assembly to the frame (**see illustrations**).

11 Unscrew the eight downpipe clamp nuts from the cylinder head (**see illustration**).

12 Supporting the system, remove the silencer mounting bolt, then detach the downpipes from the cylinder head and remove the system (**see illustration**).

13 Remove the gasket from each port in the

cylinder head and discard them as new ones must be fitted (**see illustration**).

Installation

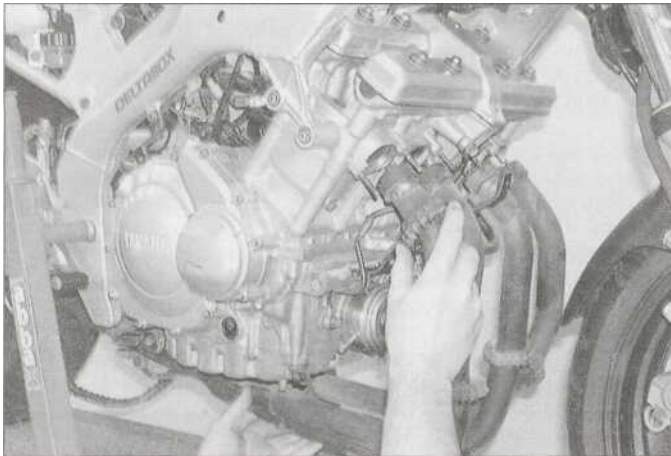
14 Fit a new gasket into each of the cylinder head ports (**see illustration**). Apply a smear of grease to the gaskets to keep them in place whilst fitting the downpipe if necessary.

15 Manoeuvre the assembly into position so that the head of each downpipe is located in

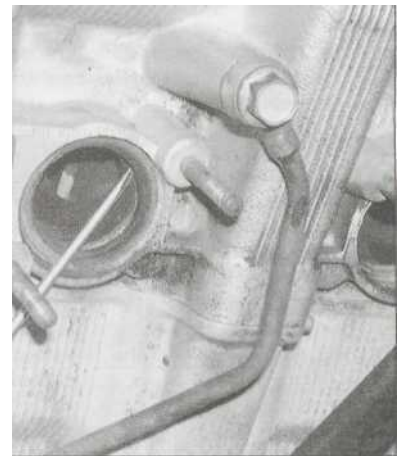
its port in the cylinder head, then install the silencer mounting bolt and the downpipe assembly rear bolt, but do not yet tighten them.

16 Fit the downpipe nuts and tighten them to the torque setting specified at the beginning of the Chapter (**see illustration**). Now tighten the other bolts to the specified torque.

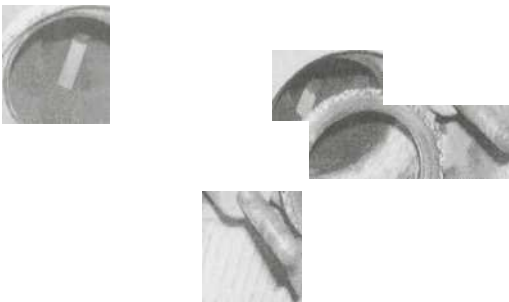
17 Run the engine and check the system for leaks.



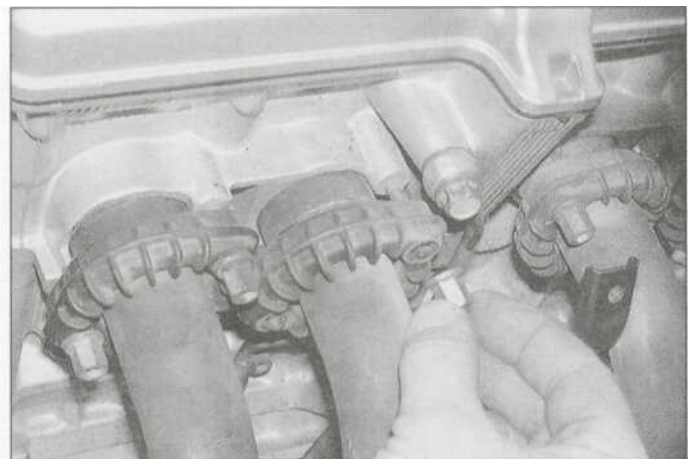
13.12 Detach the downpipes from the head and remove the assembly



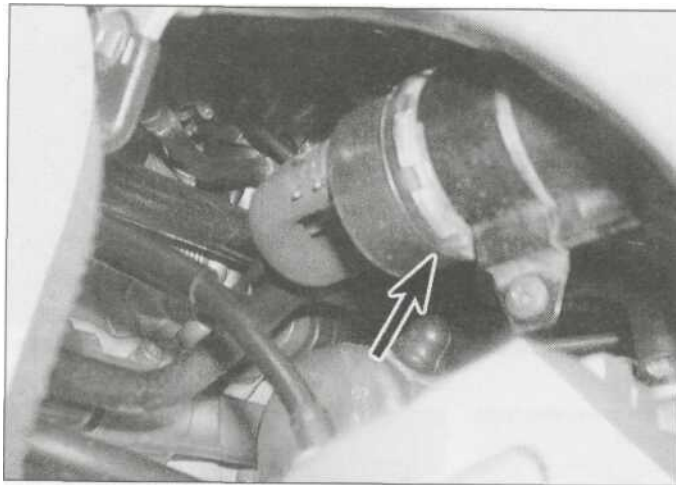
13.13 Lever out the old gaskets and discard them



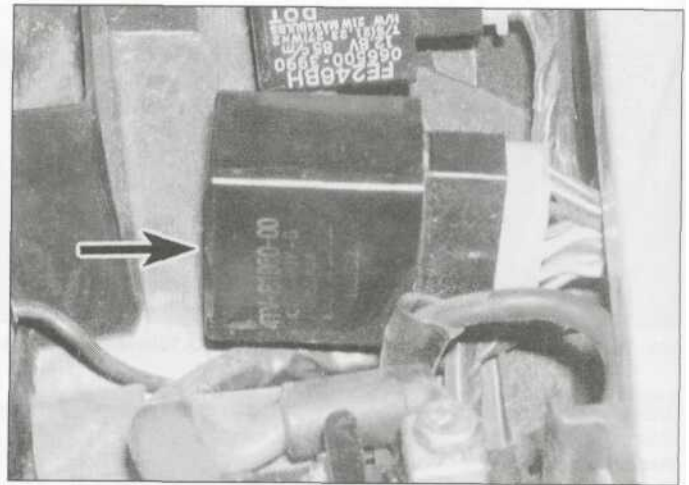
13.14 Fit a new gasket into each port



13.16 Fit the downpipe assembly nuts and tighten them to the specified torque



14.1a Fuel pump (arrowed)-
YZF models



14.1b Relay (arrowed) •
YZF models

**14 Fuel pump and relay -
check, removal and installation**

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

Check

1 On YZF models, the fuel pump is mounted on the inside of the frame on the left-hand side, and the relay is mounted under the seat behind the battery - remove the fuel tank for access (see Section 2) (see illustrations). On FZS models, the fuel pump is mounted on the underside of the bracket under the fuel tank, and the relay is behind the left-hand side cover - remove the fuel tank and the cover for access (see Section 2 for the fuel tank and Chapter 8, Section 3, for the side cover) (see illustrations).

2 The fuel pump is controlled through the starter circuit cut-off relay so that it runs whenever the ignition is switched "ON" and the ignition is operative (i.e., only when the engine is turning over). As soon as the ignition is killed, the relay will cut off the fuel pump's electrical supply (so that there is no risk of fuel being sprayed out under pressure in the event of an accident).

3 It should be possible to hear or feel the fuel pump running whenever the engine is turning over - either place your ear close beside the pump or feel it with your fingertips. If you can't hear or feel anything, check the circuit fuse (see Chapter 9). If the fuse is good, check the pump and relay for loose or corroded connections or physical damage and rectify as necessary.

4 If the circuit is fine so far, switch the ignition "OFF". Unplug the relay's wiring connector. Using an ohmmeter or continuity tester, connect the positive (+ve) probe to the relay's

red/black wire terminal, and the negative (-ve) probe to the relay's blue/black wire terminal. There should be no continuity. Leaving the meter connected, now connect a fully charged 12 volt battery using two insulated jumper wires, connecting the positive (+ve) terminal of the battery to the relay's red/black wire terminal, and the negative (-ve) terminal of the battery to the relay's blue/red wire terminal. There should now be continuity. If the relay does not behave as described, replace it with a new one. If the relay is good, refer to Chapter 9 and perform the other checks relevant to the relay as described in Section 25 - the relay performs many functions in conjunction with other components in the system, which may also need testing in order to locate the fault. Refer to the *Wiring Diagrams* at the end of Chapter 9 to trace the full circuit.

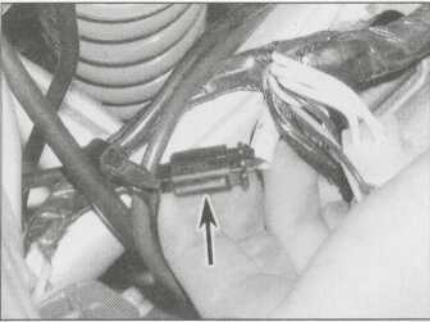
5 If the pump still does not work, trace the wiring from the pump and disconnect it at the



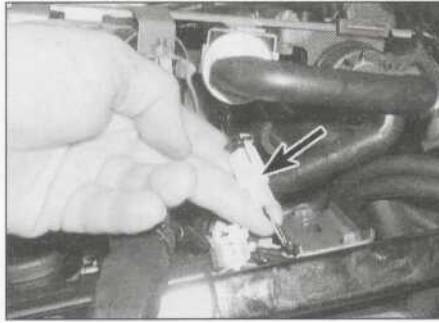
14.1c Fuel pump (arrowed) -
FZS models



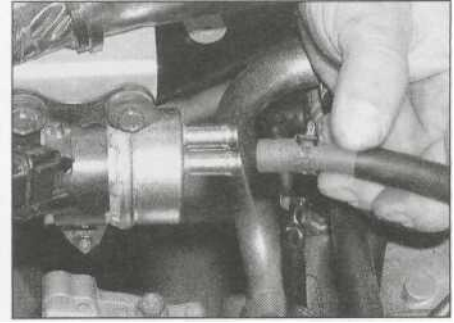
14.1d Relay (arrowed) •
FZS models



14.5a Fuel pump wiring connector - YZF models



14.5b Fuel pump wiring connector - FZS models



14.9a Disconnect the fuel hose ,

connector (see illustrations). Using an ohmmeter, connect the probes to the terminals on the pump side of the wiring connector and measure the resistance. If the reading is not as specified at the beginning of the Chapter, replace the pump with a new one.

Removal

6 On YZF models, the fuel pump is mounted on the inside of the frame on the left-hand side, and the relay is mounted under the seat behind the battery - remove the fuel tank for access (see Section 2) (see illustrations 14.1a and 14.1). On FZS models, the fuel pump is mounted on the underside of the bracket under the fuel tank, and the relay is behind the left-hand side cover - remove the fuel tank and the cover for access (see Section 2 for the fuel tank and Chapter 8, Section 3, for the side cover) (see illustrations 14.1c and 14.1d).

7 Make sure both the ignition is switched "OFF". Remove the fuel tank (see Section 2).

8 Trace the wiring from the fuel pump and disconnect it at the connector (see illustrations 14.5a and 14.5b).

9 On YZF models, disconnect the remaining hose from the pump, using a rag to mop up

any spilled fuel, then unscrew the two bolts securing the pump to the frame and remove it (see illustrations).

10 On FZS models, unscrew the bolts on the ignition coil/fuel pump mounting bracket and free the rubber holder for the wiring loom from its hole, then displace the bracket - there is no need to disconnect any other wiring or hoses (see illustration 7.3a). Make a note or sketch of which fuel hose fits where as an aid to installation. Using a rag to mop up any spilled fuel, disconnect the two fuel hoses from the fuel pump, then unscrew the bolt securing the pump to the underside of the bracket and remove it (see illustration).

11 To remove the fuel cut-off relay, disconnect the relay wiring connector and remove the relay from its mounting lug (see illustration 14.1 b or 14.1 d)

Installation

12 Installation is a reverse of the removal procedure. Make sure the fuel hoses are correctly and securely fitted to the pump - the hose from the in-line filter attaches to the outer union; the hose to the carburetors attaches to the inner union. Start the engine and check carefully that there are no leaks at the pipe connections.

15 Fuel level warning light, fuel gauge/warning light and sensor - check and replacement jQ

Fuel level warning light and sensor - YZF models

Check

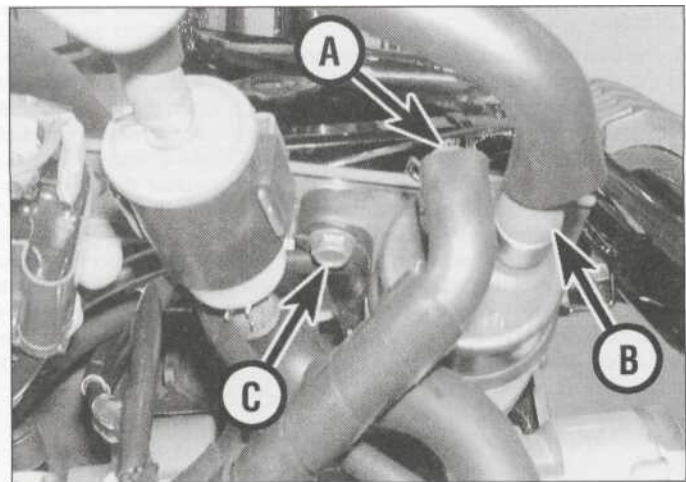
1 The circuit consists of the sensor mounted in the fuel tank and the warning light mounted in the instrument panel. If the system malfunctions check first that the battery is fully charged and that the bulb and fuses are good (see Chapter 9). If they are, remove the fuel tank and drain it (see Section 2).

2 Using an ohmmeter or continuity tester, check for continuity between the terminals on the sensor side of the wiring connector. There should be continuity. If not, replace the sensor with a new one (see below).

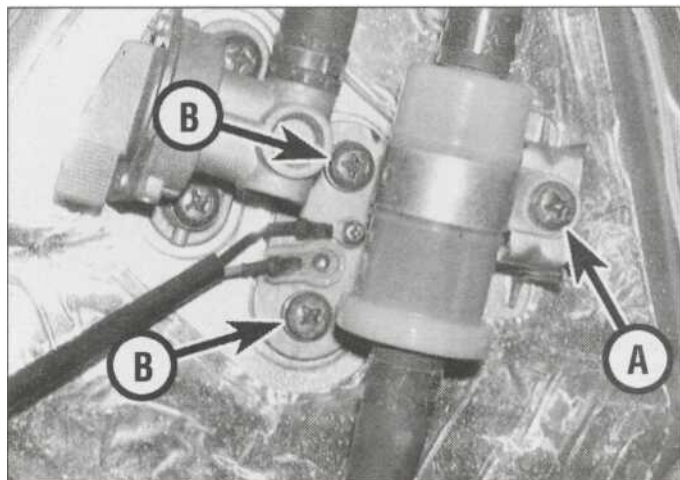
3 If the sensor is good, install the fuel tank, but do not fill it with the fuel. With the ignition "ON", check for voltage at the warning light bulbholder by connecting the positive (+ve) probe of a voltmeter to the green/yellow terminal on the loom side of the connector, and the negative (-ve) probe to the green



14.9b ... then unscrew the bolts and remove the pump



14.10 Disconnect the hose to the carburetors (A) and the hose from the filter (B), then unscrew the bolt (C) and remove the pump



15.6 Fuel filter screw (A), fuel level sensor screws (B)



15.13 Disconnect the wiring connector from the instrument cluster

terminal. If no voltage is present, the fault lies in the wiring. Check all the relevant wiring and wiring connectors (see Chapter 9), and referring to the *Wiring Diagrams* at the end of Chapter 9.

Replacement

4 See Chapter 9, Section 17, for replacement of the warning light bulb.

5 To replace the sensor, remove the fuel tank and drain it (see Section 2).

6 Remove the screw securing the fuel filter and displace it, then remove the screws securing the sensor and draw it out of the tank (**see illustration**). Discard the O-ring.

7 Fit a new O-ring onto the sensor and install it in the tank. Tighten the screws to the torque setting specified at the beginning of the Chapter.

8 Install the tank (see Section 2), and check carefully for leaks around the sensor before using the bike.

Fuel gauge, warning light and sensor - FZS models

Check

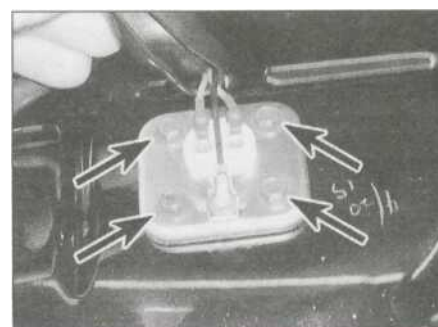
9 The circuit consists of the sensor mounted in the fuel tank and the gauge and warning light assembly mounted in the instrument panel. If the system malfunctions check first that the battery is fully charged and that the bulb and fuses are all good. If they are, remove the fuel tank and drain it (see Section 2).

10 Using an ohmmeter or continuity tester, check for continuity between the green/red wire terminal and the black wire terminal on the sensor side of the wiring connector. There should be continuity. If not, replace the sensor with a new one (see below).

11 If continuity is shown, remove the sensor (see below). Connect the positive (+ve) probe of an ohmmeter to the green terminal on the sensor connector, and the negative (-ve) probe to the black terminal. Check the resistance of the sensor in both the "FULL" and "EMPTY" positions and compare the readings to those specified at the beginning of the Chapter. If the readings are not as specified, replace the sensor with a new one.

12 If the resistances are correct, connect the sensor wiring connector and turn the ignition switch "ON". With the sensor in the full position, the gauge should read "FULL", and with the sensor in the empty position the gauge should read "EMPTY" (the gauge needle may not respond immediately - leave it in the position being tested for at least three minutes to accurately check the system). If not, check all the relevant wiring and wiring connectors between the sensor and the gauge, referring to the wiring diagrams at the end of Chapter 9. If the wiring and connectors are good, there could be an internal fault in the instrument cluster wiring between the connector and the bulb. If not, replace the gauge with a new one.

13 To check the warning light, remove and drain the fuel tank, then connect the fuel level sensor wiring connector. Remove the fairing (see Chapter 8) and disconnect the instrument cluster wiring connector (**see illustration**). With the ignition "ON", check for voltage by connecting the positive (+ve) probe of a voltmeter to the brown wire terminal on the loom side of the connector, and the negative (-ve) probe to the green/red terminal. If no voltage is present, the fault lies in the wiring. Check all the relevant wiring and wiring



15.15 Fuel level sensor bolts (arrowed)

connectors (see Chapter 9), and referring to the *Wiring Diagrams* at the end of Chapter 9. If all the wiring and connectors are good, there could be an internal fault in the instrument cluster wiring between the connector and the bulb.

Replacement

14 To replace the sensor, remove the fuel tank and drain it (see Section 2).

15 Remove the bolts securing the sensor and draw it out of the tank (**see illustration**). Discard the gasket.

16 Fit a new gasket onto the sensor and install it in the tank. Tighten the bolts to the torque setting specified at the beginning of the Chapter.

17 Install the tank (see Section 2), and check carefully for leaks around the sensor before using the bike.

18 See Chapter 9, Sections 16 or 17, for replacement of the fuel gauge or the warning light.