Chapter 4
Fuel and exhaust systems

Note: *Unless specifically mentioned in this Chapter, the information given for the 1982 750 Sabre applies to the UK VF750S-C, and that for the **1987** and 1988 700/750 Magnas applies to the UK VF750C-H and C-J respectively.*

Contents

Specifications

Fuel grade	Unleaded or leaded (according to local regulations), minimum 91 octane (research method)

Fuel tank capacity

1982 through 1985 700/750 Sabre models	
Total	18 lit (4.8 US gal, 4.0 Imp gal)
Reserve	4 lit (1.1 US gal, 0.9 Imp gal)
1982 through 1984 700/750 Magna models	
Total (including auxiliary tank)	14 lit (3.7 US gal, 3.1 Imp gal)
Reserve	4 lit (1.1 US gal, 0.9 Imp gal)
1985 and 1986 700 Magna models	
Total	13.5 lit (3.6 US gal, 3.0 Imp gal)
Reserve	3.5 lit (0.9 US gal, 0.8 Imp gal)
1987 and 1988 700/750 Magna models	
Total	13 lit (3.4 US gal, 2.9 Imp gal)
Reserve	2.8 lit (0.7 US gal, 0.6 Imp gal)
1100 Sabre models	
Total	22 lit (5.8 US gal, 4.8 Imp gal)
Reserve	4 lit (1.1 US gal, 0.9 Imp gal)
1100 Magna models	
Total (including auxiliary tank)	17 lit (4.5 US gal, 3.7 Imp gal)
Reserve	3 lit (0.8 US gal, 0.7 Imp gal)

Carburetor jet sizes

Main jet	Front cylinders	Rear cylinders
1982 750 Sabre model	132	132
1983 750 Sabre model	135	138
1984 and 1985 700 Sabre models	122	130
UK VF750S model	132	132
1982 750 Magna model	128	128
1983 750 Magna model	128	132
1984 through 1986 700 Magna models	95	98
1987 700 Magna California model	105	105
1987 700 Magna model except California	108	105
1988 750 Magna model	110	108
UK VF750C-H model	110	108
UK VF750C-J model	112	110
1100 Sabre models	120	128
1983 1100 Magna models	140	140
1984and 1985 1100 Magna models	118	120
1986 1100 Magna models	115	118

Pilot jet (slow jet)

1982 750 Sabre model	38
1983 through 1985 700/750 Sabre models	40
UK VF750S model	Not available
1983 750 Magna model	40
1982, and 1984 through 1986 700/750 Magna models	38
1987 and 1988 700/750 Magna models	35
UK VF750 C-H model	35
UK VF750 C-J model	38
1100 models	38

Pilot screw — initial setting (turns out)

1982 750 models	2 3/4
1983 750 Sabre models	2 1/2
1984 and 1985 700 Sabre models	3
UK VF750S-C model	2 1/2
1983 through 1986 700/750 Magna models	2 1/2
1987 700 Magna models	1 7/8 (2 1/8 California models)
1988 750 Magna models	1 3/4 (2 1/8 California models)
UK VF750C-H model	2 1/2
UK VF750C-J model	2 1/4
1100 Sabre models	3 3/8 (2 California models)
1100 Magna	
1983 models	3
1984 and 1985 models	2 3/4 (3 California models)
1986 models	2 1/2

Carburetor adjustments

Float height (all models)	
1982 750 Sabre model	8.3 mm (0.327 in)
1983 750 Sabre model	7.0 mm (0.276 in)
1984 and 1985 700 Sabre models	7.5 mm (0.300 in)
UK VF750S model	6.8 mm (0.268 in)
1982 through 1984 700/750 Magna models	7.2 mm (0.283 in)
1985 700 Magna model	7.0 mm (0.276 in)
1986 700 Magna model	7.5 mm (0.300 in)
1987 and 1988 700/750 Magna models	9.8 mm (0.386 in)
UK VF750C-H model	7.5 mm (0.300 in)
UK VF750C-J model	8.5 mm (0.335 in)
1983 1100 Magna model	6.0 mm (0.236 in)
1984 and 1985 1100 models	7.5 mm (0.300 in)
1986 1100 Magna model	8.0 mm (0.315 in)
Idle speed	See Chapter 1

Torque settings

	Nm	ft-ibs
Exhaust system — 1982 through 1986 700/750 and all 1100 models		
Muffler mounting nuts	18 to 28	13 to 20
Front pipe-to-cylinder head nuts	8 to 14	6 to 10
Exhaust chamber mounting bolts	8 to 12	6 to 9
Rear headpipe-to-exhaust chamber clamp bolts	18 to 28	13 to 20
Exhaust system — 1987 and 1988 700/750 Magna models		
Muffler mounting nuts	24 to 30	17 to 22
Front pipe-to-cylinder head nuts	8 to 12	6 to 9
Rear headpipe-to-exhaust chamber clamp bolts	18 to 28	13 to 20

1 General information and precautions

General information

On 700/750 Sabre models fuel is fed to the carburetors in a conventional gravity-feed system from the fuel tank. The 1100 Sabre model has a pump-fed fuel supply.

Early 700/750 and all 1100 Magnas are fitted with an auxiliary fuel tank under the seat in addition to the main fuel tank, which is of relatively small capacity. Fuel is pumped from the auxiliary tank to the carburetors. The auxiliary tank was discontinued on the 1985-on 700/750 Magnas, although the fuel system remained pump-fed through 1986.

Keihin CV carburetors are fitted to all models in the range. The front two carburetors are downdraft, while the rear carburetors are sidedraft. The carburetors should not be interchanged from their original positions. The butterfly-type choke valves are cable-operated by a lever on the left side of the handlebars.

Air is draw to the carburetors from a moulded plastic air filter housing containing an oiled foam element on Sabre models and a pleated paper type element on Magna models.

The exhaust system is a four-into-two design on all models except the 1987 and 1988 700/750 Magnas, where it is a four-into-four design.

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

Precautions

Warning: *Gasoline (petrol) is extremely flammable, so take extra precautions when you work on any part of the fuel system. Don't smoke or allow open flames or bare light bulbs near the work area, and don't work in a garage where a natural gas-type appliance (such as a water heater or clothes dryer) is present. If you spill any fuel on your skin, rinse it off immediately with soap and water. When you perform any kind of work on the fuel system, wear safety glasses and have a fire extinguisher suitable for 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 gasoline (petrol) or of components containing it. Remember the possible presence of vapor 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 drill, cutters etc create sparks in the normal course of operation and must not be used near gasoline (petrol) or any component containing it. Again, remember the possible presence of fumes before using electrical equipment.

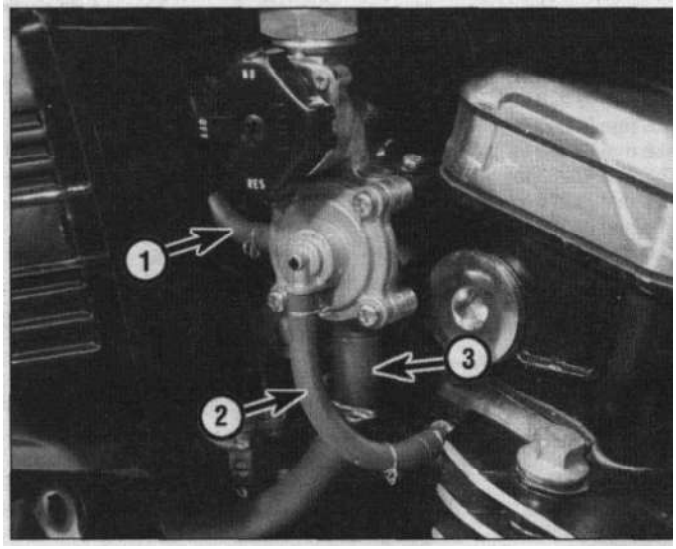
Always mop up any spilt fuel and safely dispose of the shop towel or rag used.

Any stored fuel that is drained off during servicing work, must be kept in sealed containers that are suitable for holding gasoline (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, with its **cap** and related vent hoses, the fuel pump and filters. On US California models, this includes the Evaporative Emission Control (EVAP) System components.

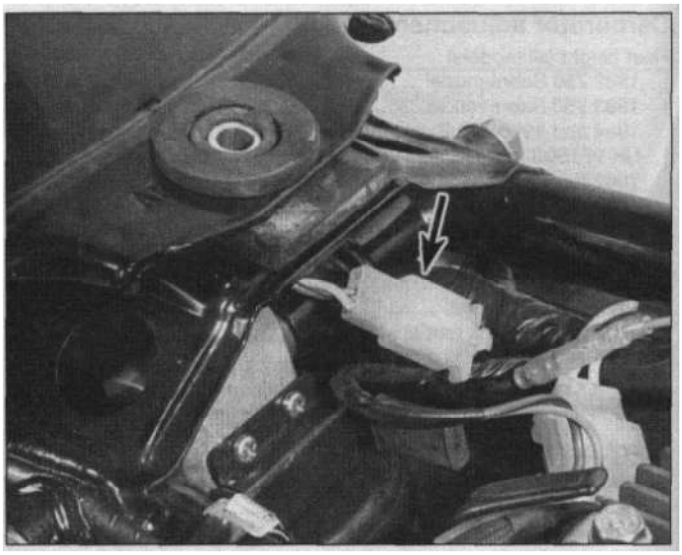
Read the Safety first! section of this manual carefully before starting work.

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.



2.2 Fuel valve connections on 700/750 Sabre models

1 Vent hose
2 Vacuum hose
3 Fuel hose



2.3 Disconnect the fuel sender wiring at the connector

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 authorized 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 - removal and installation

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

Main fuel tank

Sabre models

Refer to illustrations 2.2 and 2.3

1 Remove the side covers and seat (see Chapter 6).
2 Turn the fuel valve to the OFF position. Have a rag handy to catch any spilled fuel and disconnect the fuel hose from the valve. On 700/750 models also disconnect the vacuum and vent hoses from the valve **(see illustration).**
3 On 700/750 models, remove the fuel tank mounting bolt and collar located at the rear of the tank, followed on 1983-on models by the mounting bolt and collar on each side at the tank front mounting. Locate the fuel sender wiring connector and disconnect it **(see illustration).** Lift the rear of the tank and pull it rearwards off the motorcycle (on 1982 models this is necessary to disengage its front mounting rubbers). On 1984-on California models, disconnect the evaporative emission control system hose from the tank.
4 On 1100 models, remove the two front mounting bolts and the single rear mounting bolt, noting their collars. Locate the fuel sender wiring connector and disconnect it, then lift the tank off the motorcycle. On California models disconnect the evaporative emission control system hose from the tank.
5 Installation is a reverse of the removal procedure. Ensure that all mounting rubbers and collars are correctly positioned, and that the tank does not trap any cables, wiring or hoses. Check that there are no fuel leaks when the fuel valve is turned ON.

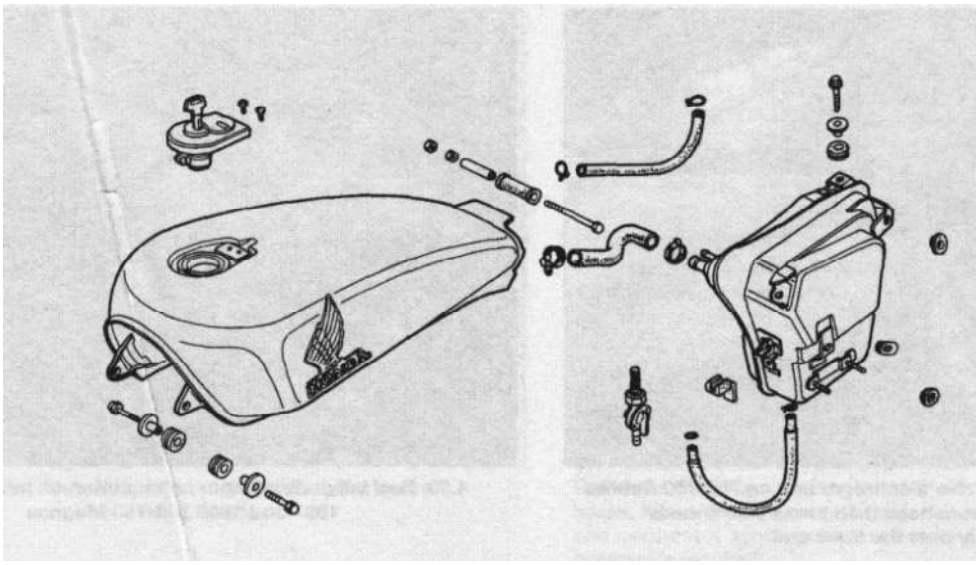
1982 through 1984 700/750 Magna models and all 1100 Magna models

Refer to illustration 2.8

6 Remove the seat (see Chapter 6).
7 Prior to removing the fuel tank, it must be drained. Remove the right (700/750 models) or left (1100 model) side cover and switch the fuel valve to the OFF position. Have a rag ready to catch any spilt fuel and disconnect the fuel pump supply hose from the valve or tank stub. Attach a length of hose of the proper diameter to the valve and place the other end of the hose in a clean container, such as a multi-gallon gas (petrol) can. Turn the valve to the ON position and drain enough fuel from the auxiliary tank to empty the main fuel tank. **Note:** *Raise the tank up on its support rod as described below to drain as much fuel as possible.* Turn the valve OFF and reconnect the fuel pump supply hose when draining is complete.
8 Remove the two front mounting bolts, then hinge the tank up on its support rod. With a rag handy to absorb any remaining fuel, disconnect the fuel and breather hoses from the rear underside of the fuel tank. On 1984-on California models, disconnect the evaporative emission control system hose from the tank **(see illustration).**
9 Disconnect the support rod hinge at the frame or tank end, and lower the tank onto the frame. Remove the throughbolt, collar and nut at the rear mounting and lift the main tank off the motorcycle.
10 Installation is a reverse of the removal procedure. Ensure that all mounting rubbers and collars are correctly positioned, and that the tank does not trap any cables, wiring or hoses. Check that there are no fuel leaks when the fuel valve is turned ON.

1985 through 1988 700/750 Magna models

11 Remove the seat (see Chapter 6).
12 Switch the fuel valve to OFF and have a rag handy to catch any drops of fuel as the hose is disconnected from it.
13 On 1985 and 1986 700 models, remove the two mounting bolts at the front of the tank and the single bolt at the rear, noting their collars. Raise the tank sufficiently to disconnect the sender unit wiring at the two-pin connector, then lift it off the motorcycle. On California models, disconnect the evaporative emission control system hose from the tank.
14 On 1987 and 1988 700/750 models remove the single mounting bolt at the front and rear of the tank, noting their collars. Lift the tank off the motorcycle. On California models, disconnect the evaporative emission control system hose from the tank.
15 Installation is a reverse of the removal procedure. Ensure that all



2.8 Main and auxiliary fuel tanks - 1982 through 1984 700/750 Magnas shown (1100 Magnas similar)

mounting rubbers and collars are correctly positioned, and that the tank does not trap any cables, wiring or hoses. Check that there are no fuel leaks when the fuel valve is turned ON.

Auxiliary fuel tank - 1982 through 1984 700/750 Magna models and all 1100 Magna models

16 Remove the seat and both side covers (see Chapter 6).
17 Disconnect the battery (negative lead first) and remove it.
18 Fully drain the main and auxiliary fuel tanks, then remove the main fuel tank as described above.
19 Disconnect the fuel level sender wiring from the sender in the tank top surface.
20 Remove the regulator/rectifier unit and its wiring tie from the side of the tank on 700/750 models (see Chapter 8).
21 Remove the rear wheel (see Chapter 7).
22 Remove the rear fender sections.
23 Have a rag ready to catch any drops of fuel and disconnect the auxiliary fuel tank hose from the fuel pump.
24 Remove the auxiliary fuel tank mounting bolt and withdraw the tank rearwards from the motorcycle.
25 The 1100 Magna has a drain bolt fitted in the base of the tank, which provides a useful means of draining any sludge or dirt which has settled in the bottom of the tank. If it is ever removed, always fit a new sealing washer on installation.
26 Installation is a reverse of the removal procedure. Ensure that the tank mounting bolt rubber grommet and collar are correctly positioned, and that the tank front edge engages the lower rubber mounting. Check that the tank does not trap any cables, wiring or hoses and that there are no fuel leaks when the fuel valve is turned ON.

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 motorcycle, 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 Fuel valve - removal and installation

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

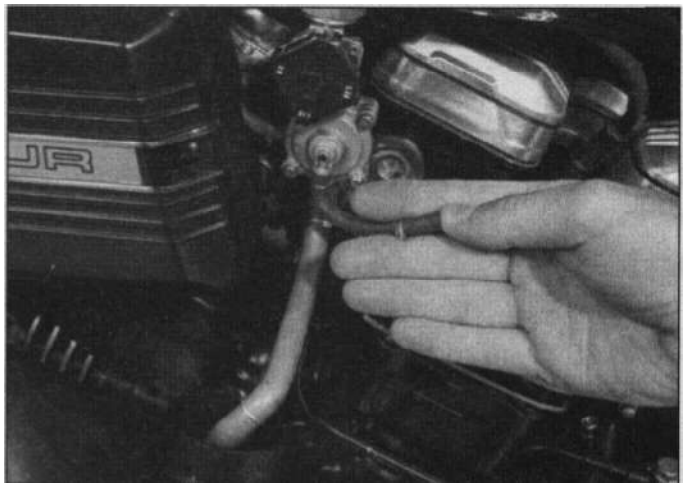
700/750 Sabre models

Fuel valve

Refer to illustration 4.10
1 Before the valve can be removed, all fuel must be drained from the tank.
2 Switch the fuel valve to the OFF position. Have a rag ready to catch any spilt fuel and disconnect the fuel, vent and vacuum hoses from the diaphragm valve stubs.
3 Attach a length of hose of the proper diameter to the fuel outlet stub (larger diameter of the three) and place the other end of the hose in a clean container, such as a multi-gallon gas (petrol) can. Turn the valve to the RES position and drain all fuel. Turn the valve OFF when draining is complete and disconnect the drain hose.
4 Remove the fuel tank (see Section 2).
5 Unscrew the fuel valve's gland nut and remove the valve and internal gauze filter from the tank. Recover the O-ring.
6 Taking suitable precautions against fire, rinse the filter gauze in fresh fuel to clean it.
7 Installation is a reverse of the removal procedure, noting that a new O-ring should be fitted at the valve-to-tank joint.

Diaphragm unit

8 The diaphragm valve housing forms part of the fuel valve body. The diaphragm can be inspected by removing the four screws and withdrawing the cover. If operating correctly it should only allow fuel to flow when the engine is running.
9 To check its operation, disconnect the vacuum hose from the no. 1 cylinder intake manifold and the fuel outlet pipe (to the carburetors) from the lower stub on the valve. Install a substitute length of hose on the outlet stub union and place its other end in a jar.
10 With the fuel valve in the ON position there should be no fuel flow



4.10 Checking the fuel valve diaphragm unit on 700/750 Sabres - suck on the vacuum hose then press your thumb tightly over the hose end

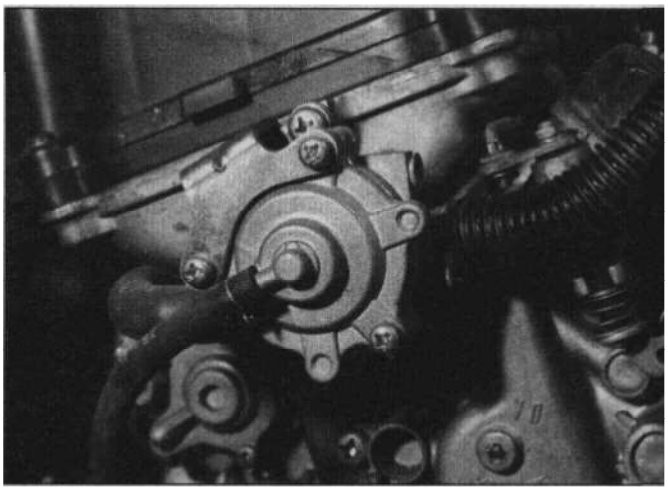
through the diaphragm valve apart from a very small amount which will be present in the pipe. Suck gently on the other end of the vacuum hose to simulate engine vacuum, then quickly cover the end with your thumb - fuel should flow from the outlet pipe if the valve is operating correctly and stop when the vacuum is released **(see illustration).**
11 If fuel is not flowing from the valve with vacuum applied, first make sure that the vacuum line is not clogged, then remove the assembly from the tank and make sure that the filter is not clogged.
12 If the valve fails to operate as described it must be replaced although check with your dealer if the diaphragm and cover assembly can be purchased separately**.**

1982 through 1984 700/750 Magna models

13 Before the valve can be removed, all fuel must be drained from the main and auxiliary tanks.
14 Remove the right side cover and switch the fuel valve to the OFF position. Have a rag ready to catch any spilt fuel and disconnect the fuel outlet hose from the valve stub.
15 Attach a length of hose of the proper diameter to the valve and place the other end of the hose in a clean container, such as a multi-gallon gas (petrol) can. Turn the valve to the RES position and drain all fuel. Turn the valve OFF when draining is complete and disconnect the drain hose.
16 Disconnect the inlet hose from the other union on the fuel valve and remove the two screws to detach the valve from its mounting bracket.
17 No replacement parts are available for the fuel valve; if it is faulty is must be replaced as a complete unit.
18 An in-line fuel filter is fitted to these models (see Chapter 1).

1985 and 1986 700 Magna models

19 Before the valve can be removed, all fuel must be drained from the tank.
20 Switch the fuel valve to the OFF position. Have a rag ready to catch any spilt fuel and disconnect the fuel hose from the valve stub.
21 Attach a length of hose of the proper diameter to the valve and place the other end of the hose in a clean container, such as a multi-gallon gas (petrol) can. Turn the valve to the RES position and drain all fuel. Turn the valve OFF when draining is complete and disconnect the drain hose.
22 Remove the fuel tank (see Section 2).
23 Unscrew the fuel valve's gland nut and remove the valve from the tank. Recover the O-ring.
24 Installation is a reverse of removal, noting that a new O-ring should be fitted at the valve-to-tank joint.
25 An in-line fuel filter is fitted to these models (see Chapter 1).



4.33 Fuel valve diaphragm unit location on air chamber - 1987 and 1988 700/750 Magnas

1987 and 1988 700/750 Magna models

Fuel valve

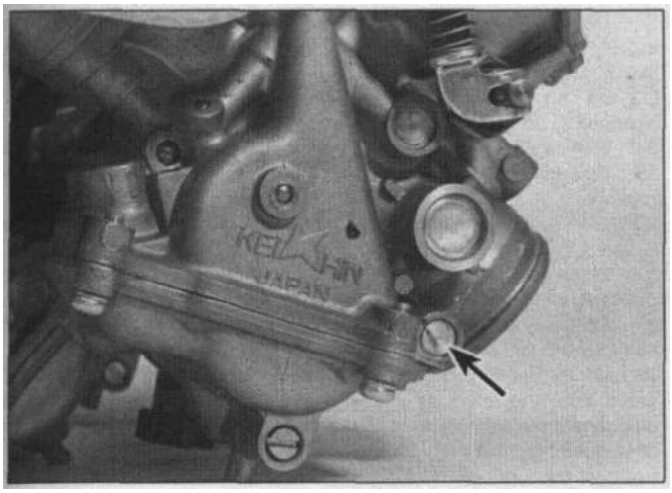
26 Before the valve can be removed, all fuel must be drained from the tank.
27 Switch the fuel valve to the OFF position. Have a rag ready to catch any spilt fuel and disconnect the fuel hose from the valve stub.
28 Attach a length of hose of the proper diameter to the valve and place the other end of the hose in a clean container, such as a multi-gallon gas (petrol) can. Turn the valve to the RES position and drain all fuel. Turn the valve OFF when draining is complete and disconnect thi drain hose.
29 Remove the fuel tank (see Section 2).
30 Unscrew the fuel valve's gland nut and remove the valve and internal gauze filter from the tank. Recover the O-ring.
31 Taking suitable precautions against fire, rinse the filter gauze in fresh fuel to clean it.
32 Installation is a reverse of the removal procedure, noting that a new O-ring should be fitted at the valve-to-tank joint.

Diaphragm unit

Refer to illustration 4.33
33 The fuel valve diaphragm is retained to the air chamber left by two screws; remove the air chamber left side cover for access (see **illustration).** If operating correctly it should only allow fuel to flow when the engine is running.
34 To check its operation, disconnect the vacuum hose from the no, 2 cylinder intake manifold and the fuel outlet pipe (to the carburetore] from the front stub on the valve. Install a substitute length of hose on the outlet stub union and place its other end in a jar.
35 With the fuel valve in the ON position there should be no fuel flow through the diaphragm valve. Suck gently on the other end of the vacuum hose to simulate engine vacuum, then quickly cover the end with your thumb - fuel should flow from the outlet stub if the valve is operating correctly and stop when the vacuum is released.
36 If fuel is not flowing from the valve with vacuum applied, first make sure that the vacuum line is not clogged, then remove the fuel valve from the tank and make sure that the filter is not clogged.
37 If the valve fails to operate as described it must be replaced individual parts are not available.

1100 Sabre models

38 Remove the fuel tank (see Section 2).
39 Turn the fuel valve to the RES position and drain the fuel via the outlet pipe into a container marked as being suitable for the storage of gasoline (petrol).
40 Remove its two retaining screws and remove the fuel valve from



5.1 Metal limiter caps (arrow) seal the pilot screws in certain markets

the rear of the tank. Recover the valve gasket.
41 Installation is a reverse of removal, noting that a new gasket should be fitted at the valve-to-tank joint.
42 An in-line fuel filter is fitted to this model (see Chapter 1).

1100 Magna models

43 Before the valve can be removed, all fuel must be drained from the tank.
44 Remove the left side cover and switch the fuel valve to the OFF position.
45 Have a rag ready to catch any spilt fuel and disconnect the fuel outlet hose from its tank stub. Attach a length hose of the proper diameter to the stub and place the other end of the hose in a clean container, such as a multi-gallon gas (petrol) can. Turn the valve to the RES position and drain all fuel from the auxiliary tank. Turn the valve OFF and reconnect the outlet hose when draining is complete. Complete draining can be achieved by removing the drain bolt from the base of the tank.
46 Remove the two screws to free the fuel valve and its gasket from the fuel tank.
47 Installation is a reverse of removal, noting that a new gasket should be fitted at the valve-to-tank joint and a new sealing washer fitted to the tank drain bolt if removed.
48 An in-line fuel filter is fitted to this model (see Chapter 1).

5 Idle fuel/air mixture adjustment - general information

Refer to *illustration 5.1*
1 Due to the increased emphasis on controlling motorcycle exhaust emissions, certain governmental regulations have been formulated which directly affect the carburetion of this machine. In order to comply with the regulations, the carburetors on many models have a metal limiter cap stuck onto the end of the pilot screw (which controls the idle fuel/air mixture) on each carburetor, so they can't be tampered with **(see illustration).** These should only be removed in the event of a complete carburetor overhaul, and even then the screws should be returned to their original settings. If a new pilot screw is fitted, set it to the basic setting given in the Specifications section of this chapter and have its setting checked with the use of an exhaust gas analyzer; this is the only accurate way to adjust the idle fuel/air mixture and be sure the machine doesn't exceed the emissions regulations.
2 Refer to Sections 8 and 9 for pilot screw removal and installation.
3 If the engine runs extremely rough at idle or continually stalls, and if a carburetor overhaul does not cure the problem, take the motorcycle to a Honda dealer service department or other repair shop equipped with an exhaust gas analyzer. They will be able to properly adjust the idle fuel/air mixture to achieve a smooth idle and restore low speed performance.
4 If the motorcycle is operated continuously at high altitudes (above 2000 meters, 6,500 feet) alteration of the pilot screw setting will be required - refer to a Honda dealer for details.

6 Carburetor overhaul - general information

1 Poor engine performance, hesitation, hard starting, stalling, flooding and backfiring are all signs that major carburetor maintenance may be required.
2 Keep in mind that many so-called carburetor problems are really not carburetor problems at all, but mechanical problems within the engine or ignition system malfunctions. Try to establish for certain that the carburetors are in need of maintenance before beginning a major overhaul.
3 Check the fuel filter, the fuel lines, the tank cap vent (except California models), the intake manifold hose clamps, the vacuum hoses, the air filter element, the cylinder compression, the spark plugs and carburetor synchronization before assuming that a carburetor overhaul is required.
4 Most carburetor 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 the carburetor is overhauled, it is generally disassembled completely and the parts are cleaned thoroughly with a carburetor cleaning solvent and dried with filtered, unlubricated compressed air. The fuel and air passages are also blown through 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, the carburetor is reassembled using new gaskets and O-rings.
6 Before disassembling the carburetors, make sure you have a carburetor rebuild kit (which will include all necessary O-rings and other parts), some carburetor cleaner, a supply of rags, some means of blowing out the carburetor passages and a clean place to work. It is recommended that only one carburetor be overhauled at a time to avoid mixing up parts.

7 Carburetors - removal and installation

Warning: Refer fo *the precautions given in Section 1 before starting work. Disconnect the battery negative lead.*

Removal

Sabre models

1 Remove the fuel tank (see Section 2).
2 Remove the air filter housing (see Section 14).
3 Disconnect the crankcase breather hose from its stub on the air chamber.
4 On the 1982 750 model, remove the right ignition coil mounting bolts so that the coil can be maneuvered to one side for access to the air chamber screws. Also remove the bolt which attaches the water pipe to the air chamber.
5 On 1983 through 1985 700/750 models, remove both front side covers and remove the ignition coil mounting bracket, complete with coils from the left side (right side on California models).
6 Remove the bolt that attaches the thermostat to the air chamber (it also secures the ground/earth cable).
7 Remove the air chamber cover screws and slide the chamber out of position.
8 On 1982 750 Sabre models remove the radiator side mounting bolts.
9 Disengage the choke cable outer from its retainer clamp and then disengage the end of the cable from the lever.
10 Loosen the throttle cable locknuts then free each outer cable from

its mounting bracket. Detach the inner cables from the throttle pulley.
11 Unbend the retainers that secure the front two spark plug wires and any wiring to the air chamber heat shield.
12 Label and then disconnect the fuel and emission hoses from the carburetors. On 1984-on California models, it may be necessary to disconnect the purge control valve from the frame to permit carburetor removal. On 1100 models, disconnect the air vent control valve hoses from the valve. If the valve hoses are disconnected, label them carefully as a guide to reinstallation.
13 Loosen all hose clamps that secure the carburetor-to-cylinder head boots.
14 Using a long screwdriver, carefully pry the carburetors out of their connecting boots, then carefully remove the carburetor and air chamber assembly through the left side of the motorcycle. **Note:** *Additional clearance is gained by removing the carburetor boots from the cylinder ports.*
15 With the carburetors removed, place a suitable container below the carburetor float chambers then loosen the drain screws and drain all the fuel from the carburetors. Once all the fuel has been drained, tighten all the drain screws securely.

1982 through 1984 700/750 Magna models

16 Remove the main fuel tank (see Section 2). **Note:** *If the tank is only half full it can be trigged up on its support rod after the tank front mounting bolts have been removed - this will save having to drain the tank of fuel.*
17 Remove both the right and left side air chamber covers.
18 Disconnect the crankcase breather hose from its stub on the air chamber.
19 Remove the air filter housing (see Section 14).
20 Remove its retaining screws and withdraw the air chamber top cover.
21 Remove the radiator (see Chapter 3).
22 Remove the bolt that attaches the thermostat housing to the air chamber; this bolt also secures the ground (earth) wire. Disconnect the coolant temperature sender unit wire. Remove the thermostat housing and detach its hose from the crossover pipes.
23 Disengage the choke cable outer from its retainer clamp and then disengage the end of the cable from the lever.
24 Loosen the throttle cable locknuts then free each outer cable from its mounting bracket. Detach the inner cables from the throttle pulley.
25 Unbend the retainers that secure the front two spark plug wires to the air chamber heat shield.
26 On early 1982 models, prior to serial number CM015298 (identified by all-metal air chamber covers), the carburetor assembly is removed from the right side. On models later than this serial number (identified by partly rubber air chamber covers) the carburetors are removed from the left side. On the earlier models, remove the coolant crossover pipes (see Chapter 3).
27 Label and then disconnect the fuel and emission hoses from the carburetors. On 1984-on California models, it may be necessary to disconnect the purge control valve from the frame to permit carburetor removal from the left side of the motorcycle. If the valve hoses are disconnected, label them carefully as a guide to reinstallation.
28 Loosen the carburetor boot clamps and withdraw the carburetors from the boots. A long screwdriver can be used to pry them out. Remove the boots from the cylinder ports. This is made easier by removing the clamps from the boots first.
29 Lift out the carburetor assembly. **Note:** *If additional clearance is necessary, loosen the engine mount bolts and move the engine on its mounts.*
30 With the carburetors removed, place a suitable container below the carburetor float chambers then loosen the drain screws and drain all the fuel from the carburetors. Once all the fuel has been drained, tighten all the drain screws securely.

1985 and 1986 700 Magna models

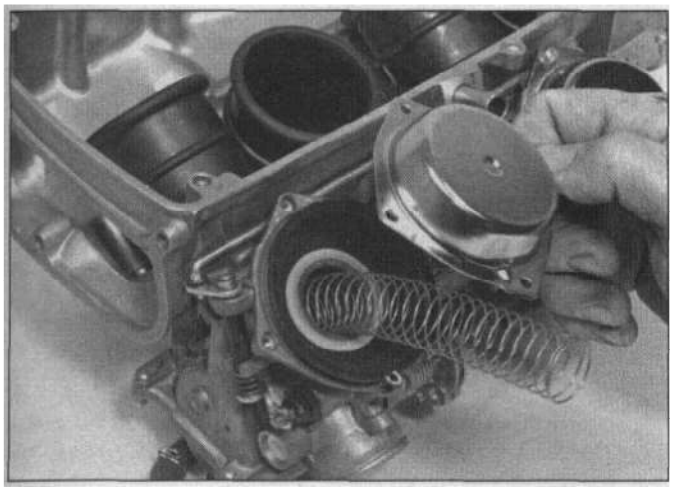
31 Remove the fuel tank (see Section 2).
32 Remove the air filter housing (see Section 14).
33 Remove the air chamber side covers from both sides of the motorcycle. On the right side remove the bolt which retains the thermostat housing to the air chamber, noting the ground (earth) wire. On the left side, remove the cover over the electrical multi-pin connectors and disconnect them.
34 Remove the radiator (see Chapter 3).
35 Disconnect the crankcase breather hose from the rear of the air chamber.
36 Remove its retaining screws and withdraw the air chamber top cover.
37 Disengage the choke cable outer from its retainer clamp and then disengage the end of the cable from the lever.
38 Loosen the throttle cable locknuts then free each outer cable from its mounting bracket. Detach the inner cables from the throttle pulley.
39 On all California models, label and disconnect the purge control valve from the left side of the motorcycle, then on 1986 models disconnect the air injection control valve and air vent control valve. On all models, disconnect the fuel supply hose and all emission hoses from the carburetors.
40 Loosen all hose clamps that secure the carburetor-to-cylinder head boots.
41 Using a long screwdriver, carefully pry the carburetors out of their connecting boots, then carefully remove the carburetor and air chamber assembly from the left side of the motorcycle. **Note:** *Additional clearance is gained by removing the carburetor boots from the cylinder ports.*
42 With the carburetors removed, place a suitable container below the carburetor float chambers then loosen the drain screws and drain all the fuel from the carburetors. Once all the fuel has been drained, tighten all the drain screws securely.

1987 and 1988 700/750 Magna models

43 Remove the fuel tank (see Section 2).
44 Remove the air filter housing (see Section 14). On the right side, remove the bolt which retains the thermostat housing to the air chamber, noting the ground (earth) wire and remove the screws which secure the side air chamber to the main chamber. On the left side label and disconnect the hoses from the air injection control valve, then remove the valve and its air chamber and detach the side air chamber from the main chamber.
45 Remove the air chamber top cover screws and withdraw the cover.
46 Disengage the choke cable outer from its retainer clamp and then disengage the end of the cable from the lever.
47 Loosen the throttle cable locknuts then free each outer cable from its mounting bracket. Detach the inner cables from the throttle pulley.
48 Disconnect the vacuum hose and fuel tank hose from the automatic fuel valve on the left side of the air chamber. Label and disconnect all emission system hoses from the carburetors. Label its hoses, then disconnect and remove the air vent control valve.
49 Loosen all hose clamps that secure the carburetor-to-cylinder head boots.
50 Using a long screwdriver, carefully pry the carburetors out of their connecting boots, then carefully remove the carburetor and air chamber assembly from the left side of the motorcycle. **Note:** *Additional clearance is gained by removing the carburetor boots from the cylinder ports.*
51 With the carburetors removed, place a suitable container below the carburetor float chambers then loosen the drain screws and drain all the fuel from the carburetors. Once all the fuel has been drained, tighten all the drain screws securely.

1100 Magna model

52 Remove the main fuel tank (see Section 2). **Note:** *If the tank is only half full it can be trigged up on its support rod after the tank front mounting bolts have been removed - this will save having to drain the tank of fuel.*
53 Remove the air filter (see Chapter 1).



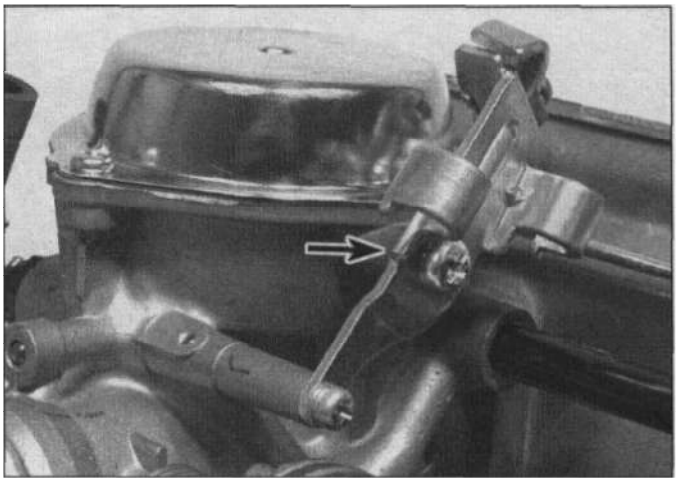
8.2a The vacuum chamber cover is under light pressure from the spring

54 Disconnect the crankcase breather hose from its stub on the air chamber.
55 Remove the screws retaining the air chamber side covers, followed by those retaining the air chamber top cover. Withdraw the covers from the motorcycle.
56 On the right side, remove the bolt which retains the thermostat housing to the air chamber, noting the ground (earth) wire.
57 Label and disconnect the emission system hoses from the carburetors and on 1986 models disconnect the hoses from the air vent control valve on the left side; detach the valve from its mounting.
58 Disengage the choke cable outer from its retainer clamp and then disengage the end of the cable from the lever.
59 Loosen the throttle cable locknuts then free each outer cable from its mounting bracket. Detach the inner cables from the throttle pulley.
60 Loosen all hose clamps that secure the carburetor-to-cylinder head boots.
61 Using a long screwdriver, carefully pry the carburetors out of their connecting boots, then carefully remove the carburetor and air chamber assembly from the left side of the motorcycle. **Note:** *Additional clearance is gained by removing the carburetor boots from the cylinder ports and also by loosening the engine mount bolts and moving the engine on its mounts.*
62 With the carburetors removed, place a suitable container below the carburetor float chambers then loosen the drain screws and drain all the fuel from the carburetors. Once all the fuel has been drained, tighten all the drain screws securely.

Installation - all models

63 Installation is basically the reverse of the removal procedure, with the following notes.

a) Clearance is tight when installing the carburetors, so it may be easier to install the boots on the cylinder ports with the clamps removed. The clamps can then be slipped over the boots prior to connecting the carburetors to them. Be sure the clamps are tightened securely to prevent possible air leaks.
b) On California models, ensure that the purge control valve, air injection control valve and air vent control valve hoses are all installed on their original unions - refer to the hose routing label under either side cover or on the rear fender for information. c) Don't omit to refit the ground (earth) wire when reconnecting the thermostat to the air chamber.
d) Reconnect the battery, negative lead first.
e) Following installation, adjust the choke cable freeplay (Section 12), throttle freeplay, idle speed and carburetor synchroni ation (Chapter 1).



8.2b Remove the choke/throttle cable bracket (arrow) first on no.1 carburetor

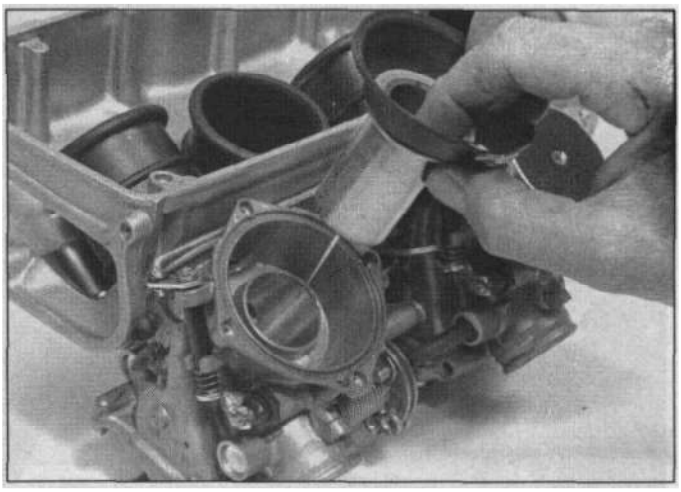
8 Carburetors - disassembly, cleaning and inspection

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

Disassembly

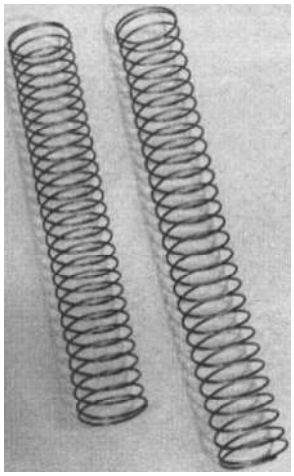
Refer to illustrations 8.2a, 8.2b, 8.3a, 8.3b, 8.5a, 8.5b, 8.6a, 8.6b, 8.7, 8.8, 8.9a, 8.9b and 8.11

1 Remove the carburetors from the machine as described in the previous Section. Remove the heat shield (where fitted) from the front of the carburetor assembly. **Note:** *There is no need to separate the carburetors from each other or from the air chamber unless absolutely necessary; each carburetor can be dismantled sufficiently for all normal cleaning and adjustments while in place on the mounting brackets. Dismantle the carburetors separately to avoid interchanging parts.* Note that it is necessary to separate the carburetors to remove the choke valves.
2 Remove the four screws that retain the vacuum chamber cover and lift it off **(see illustration).** If working on the no. 1 carburetor, remove the choke and throttle cable bracket prior to removing the vacuum chamber cover **(see illustration).**
3 Withdraw the spring and lift out the throttle piston/diaphragm assembly **(see illustration).** Note that the no. 1 and 3 carburetors (rear cylinders) use shorter springs and thinner jet needles than



8.3a Lifting the throttle piston/diaphragm out of the carburetor

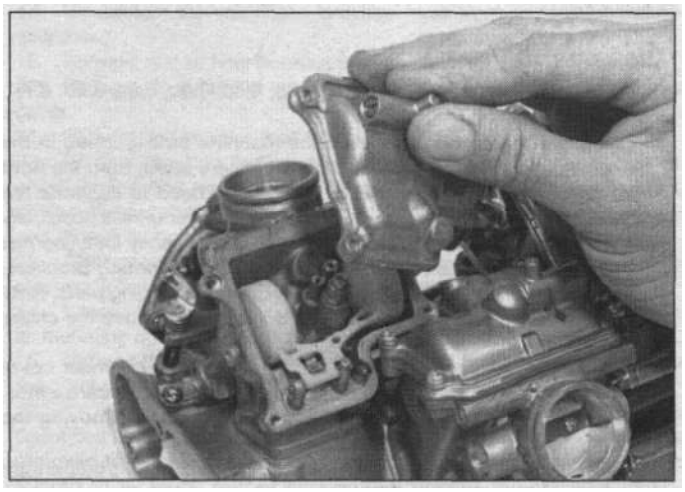
the no. 2



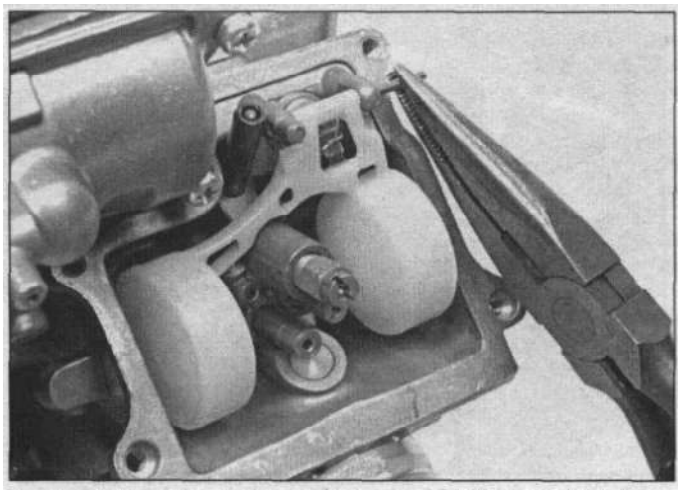
8.3b The front cylinder carburetors have longer springs than the rear

and 4 carburetors (front cylinders) **(see illustration).**

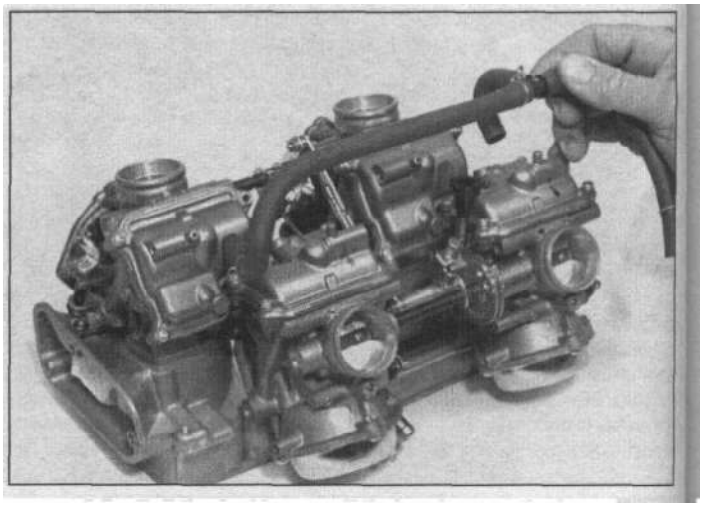
4 Insert an 8 mm socket, attached to a ratchet wrench, into the throttle piston, depress the needle holder and turn it 60° to release it.



8.5b Remove the four screws to detach the float chamber



8.6a Use needle-nose pliers to extract the float pin …



8.5a Pull the fuel hoses off their unions on the base of the carburetors

The needle holder, spring and jet needle can now be removed from the throttle valve.

5 Turn the carburetor over and remove first the fuel hoses and then the float chamber **(see illustrations).** It is attached to the carburetor body with four screws.

6 Use a needle-nose pliers to withdraw the float pin, then lift out the float and float valve **(see illustrations).**

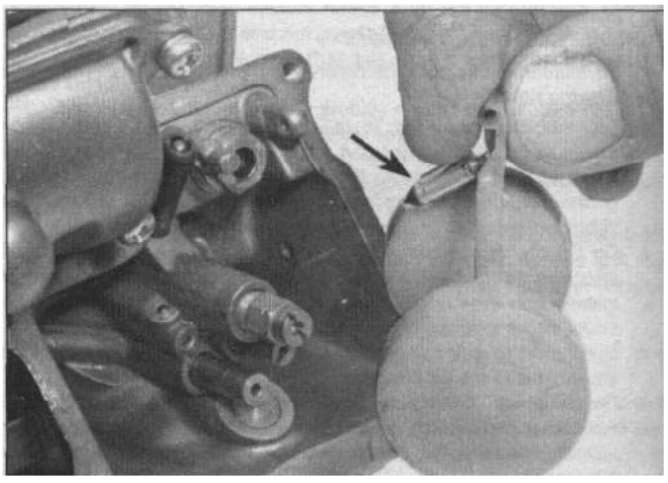
7 Unscrew the starter jet (press fit on later models), main jet, needle jet holder and pilot jet **(see illustration).**

8 Remove the float valve seat and washer **(see illustration).** Certain models also have a gauze filter attached to the valve seat.

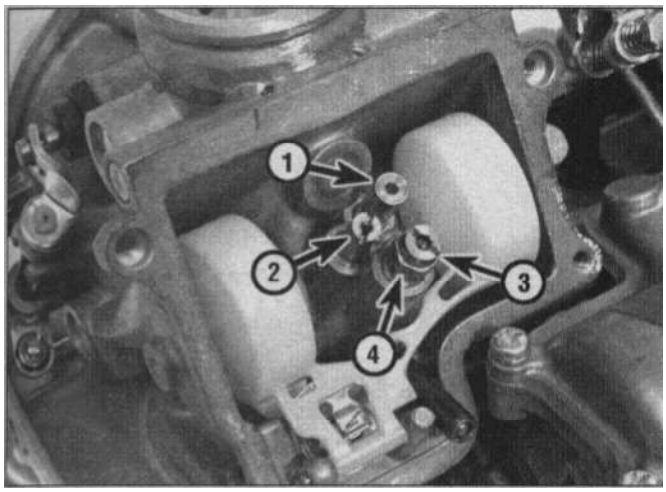
9 If pilot screw removal is required the metal limiter caps must be extracted (see Section 5). Center-punch the pilot screw cap to provide a starting point for the drill bit. Next, use a 4 mm drill bit to drill through the pilot screw plug **(see illustrations). Note:** Be *very careful not to drill into the pilot screw underneath.* Force a self-tapping screw into the drilled plug and use a screwdriver to turn it until the cap begins rotating with the screw. Grasp the head of the screw with pliers and pull it out.

10 Screw the pilot screw in until it seats lightly, counting the number of turns necessary to achieve this, then remove the screw along with its spring, flat washer and O-ring. If the screw is bent or damaged in any way, all the pilot screws must be replaced as a set.

11 If the carburetors have been separated, the choke valves can be removed from the bodies. Disconnect the linkage hook from the groove in the valve end, unscrew the valve nut and remove the choke valve and spring from the carburetor **(see illustration).**



8.6b ... and lift oft the float and float valve



8.7 Location of carburetor jets

1 Starter jet 3 Main et
2 Pilot jet 4 Needle jet holder

12 On 1987 and 1988 700/750 Magna models, each carburetor body has an air cut-off valve on the side of its throttle bore. Remove the two screws to release the cover and withdraw the spring, O-ring and valve. Inspect all components for damage or deterioration and replace the cut-off valve assembly if necessary.

Cleaning

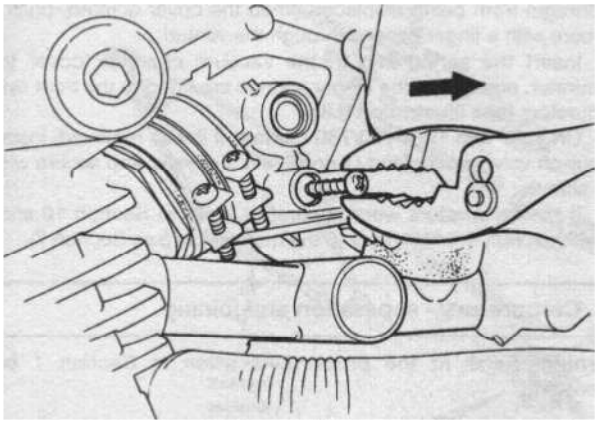
Caution: Use *only a petroleum based solvent for carburetor cleaning. Don't use caustic cleaners.*

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

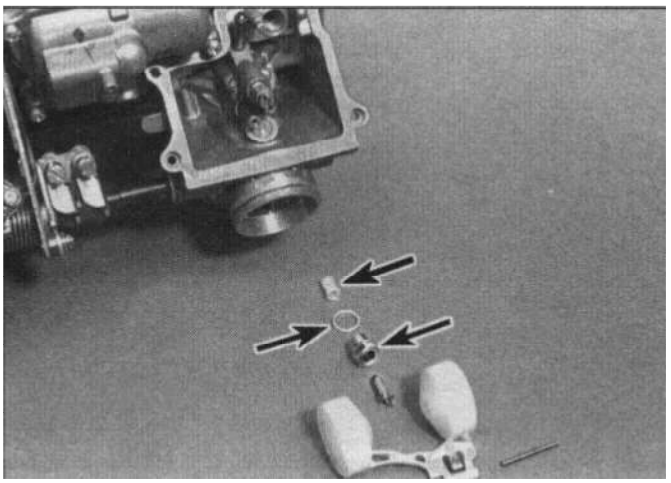
14 After the carburetor has soaked long enough for the cleaner to loosen and dissolve most of the varnish and other deposits, use a brush to remove the stubborn deposits. Rinse it again, then dry it with compressed air. Blow out all of the fuel and air passages in the main and upper body. **Caution:** *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

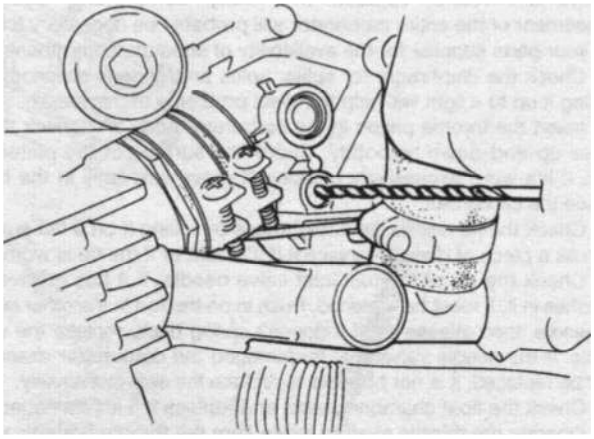
15 Check the operation of the choke plunger. If it doesn't move smoothly, replace it, along with the return spring. Inspect the needle on the end of the choke plunger and replace the plunger if it's worn or bent.



8.9b ... and a self-tapping screw used to extract them



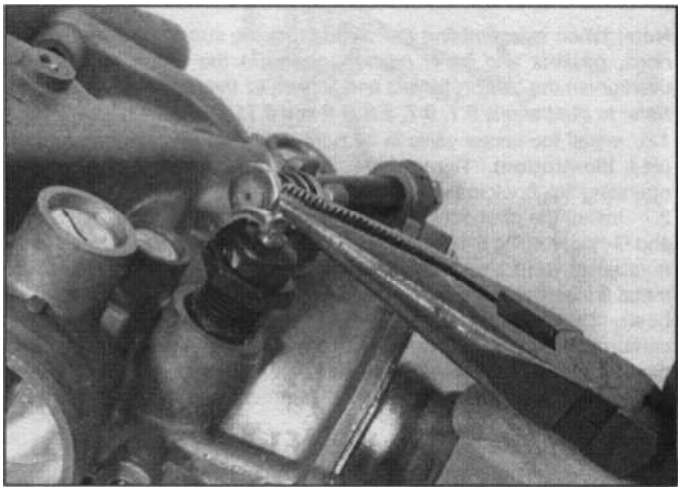
8.8 Float and valve components - valve seat, washer and filter (arrows) can be unscrewed from carburetor body



8.9a Pilot screw metal limiter caps can be drilled ...

16 Check the tapered portion of the pilot screw for wear or damage. Replace the pilot screw if necessary.

17 Check the carburetor body, float chamber and vacuum chamber



8.11 With the choke valve nut completely unscrewed, the choke valve can be pulled up and disengaged from its operating hook