

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.

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Specifications

Fuel grade	Unleaded or leaded (according to local regulations), minimum 91 octane (research method)
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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
1984 and 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

Exhaust system — 1982 through 1986 700/750 and all 1100 models

	Nm	ft-lbs
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 drawn 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.

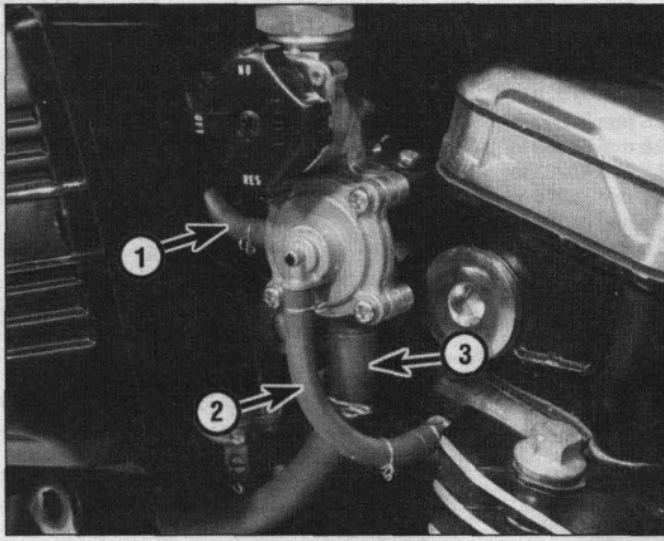
Always mop up any spilt fuel and safely dispose of the shop towel or rag used.

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

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

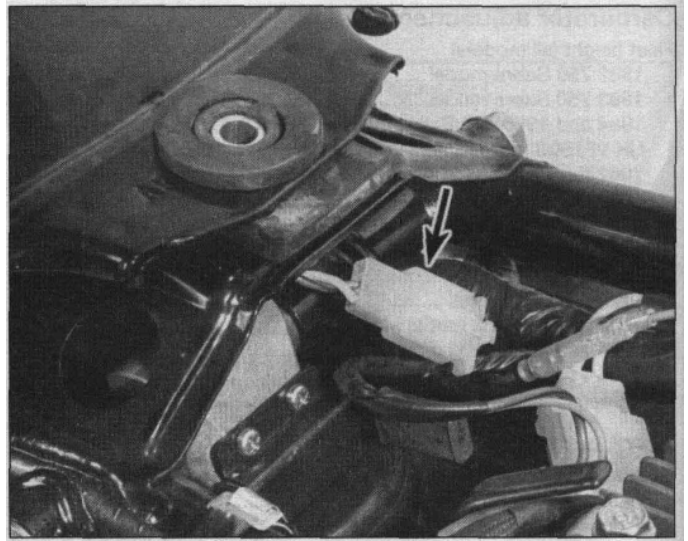
Warning: Refer to the precautions given in Section 1 before starting work

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.

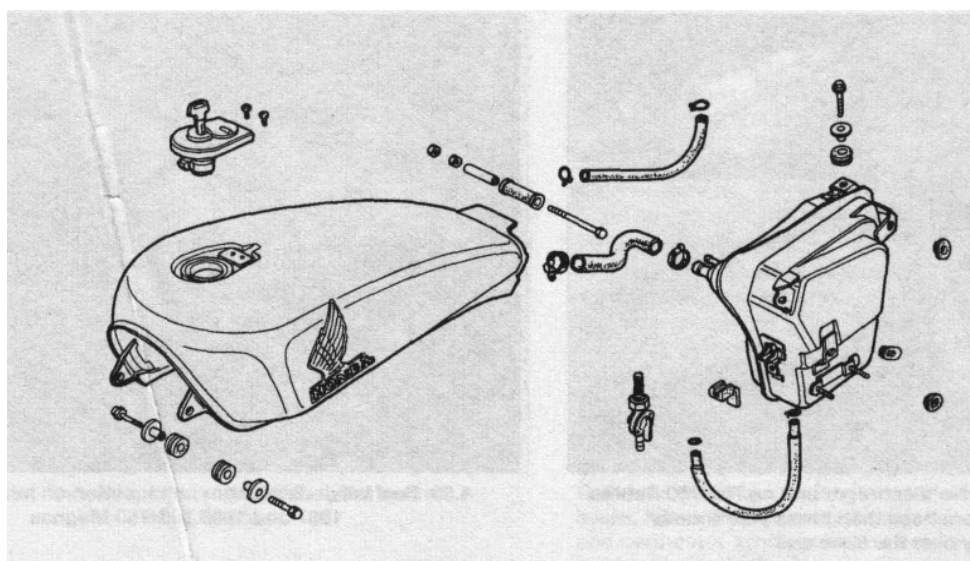


2.3 Disconnect the fuel sender wiring at the connector

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

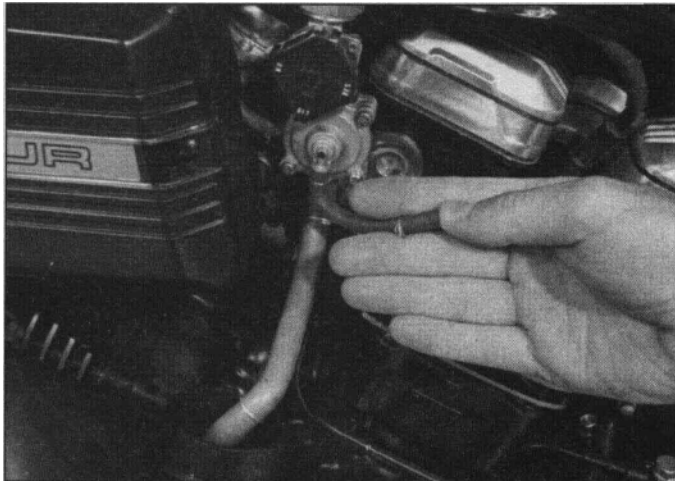
Fuel valve

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 it 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.

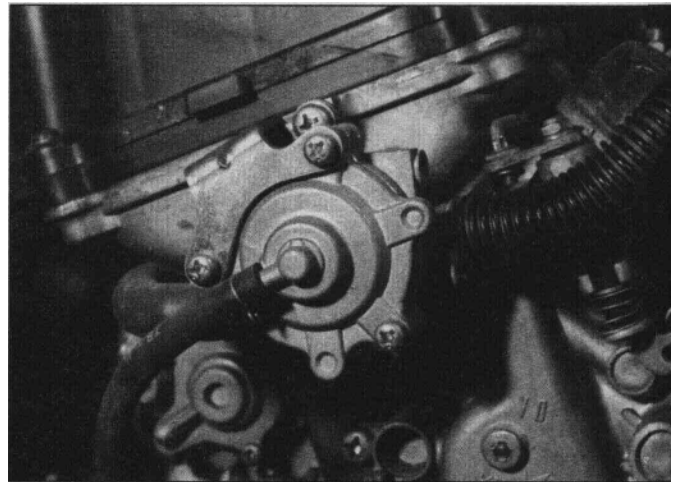
21 Attach a length of hose of the proper diameter to the valve and place the other end of the hose in a clean container, such as a multi-gallon gas (petrol) can. Turn the valve to the RES position and drain all fuel. Turn the valve OFF when draining is complete and disconnect the drain hose.

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 the 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 carburettor) 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.

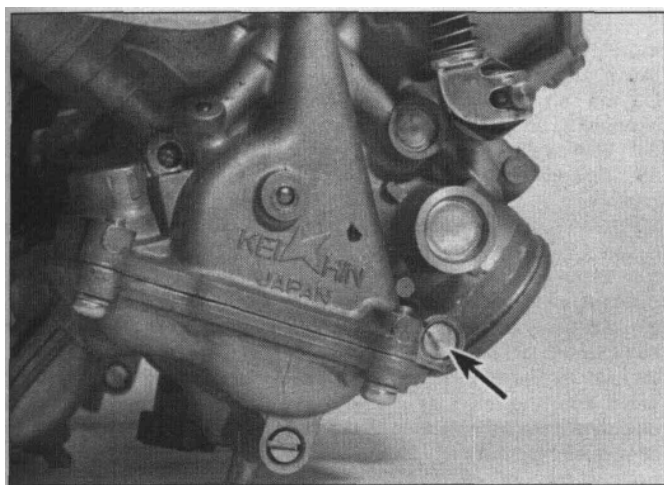
37 If the valve fails to operate as described it must be replaced individual parts are not available.

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 to 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 triggered 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.

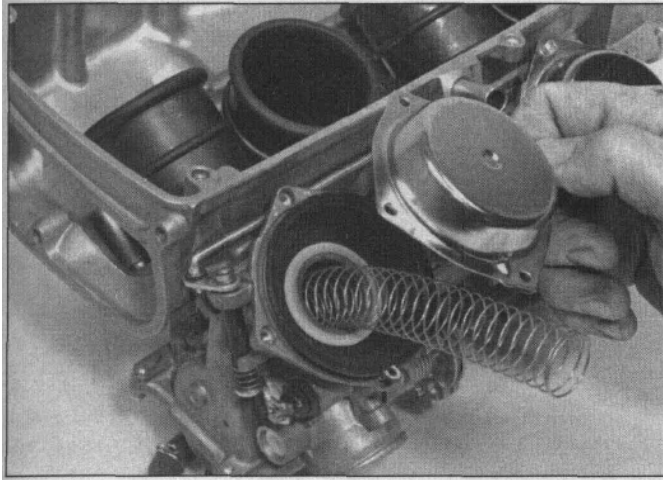
50 Using a long screwdriver, carefully pry the carburetors out of their connecting boots, then carefully remove the carburetor and air chamber assembly from the left side of the motorcycle. **Note:** *Additional clearance is gained by removing the carburetor boots from the cylinder ports.*

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.

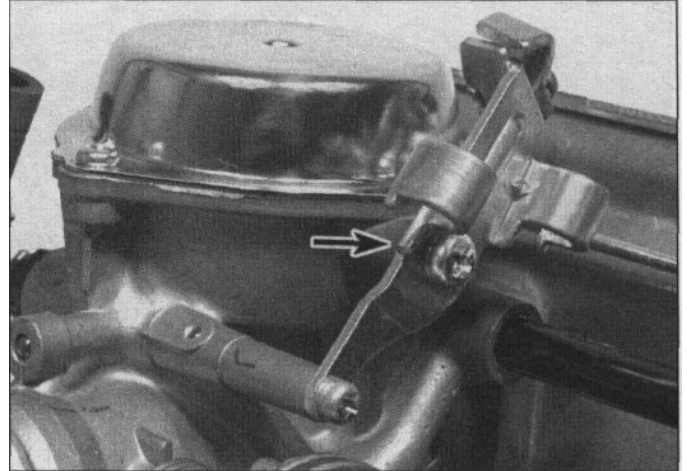
1100 Magna model

52 Remove the main fuel tank (see Section 2). **Note:** *If the tank is only half full it can be triggered 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



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

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.

- 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.
- 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.
- Don't omit to refit the ground (earth) wire when reconnecting the thermostat to the air chamber.
- Reconnect the battery, negative lead first.
- Following installation, adjust the choke cable freeplay (Section 12), throttle freeplay, idle speed and carburetor synchronization (Chapter 1).

8 Carburetors - disassembly, cleaning and inspection

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

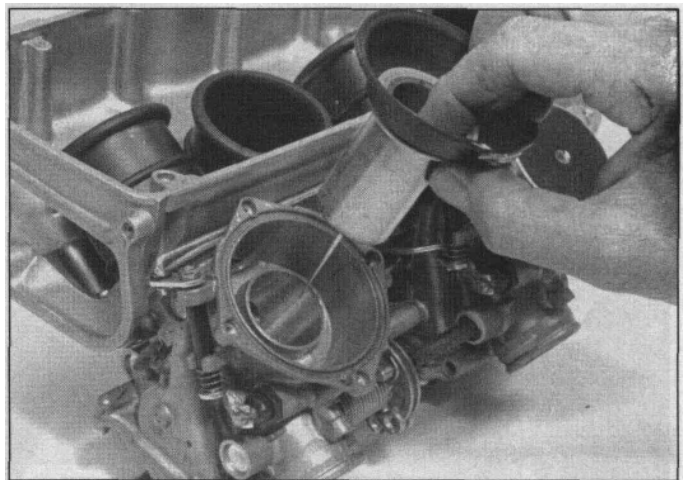
Disassembly

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

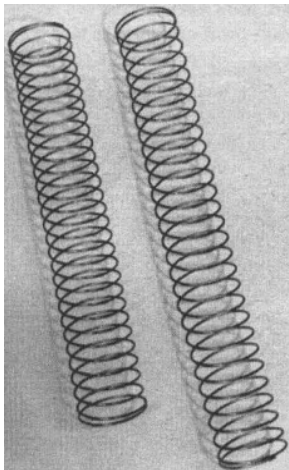
1 Remove the carburetors from the machine as described in the previous Section. Remove the heat shield (where fitted) from the front of the carburetor assembly. **Note:** There is no need to separate the carburetors from each other or from the air chamber unless absolutely necessary; each carburetor 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



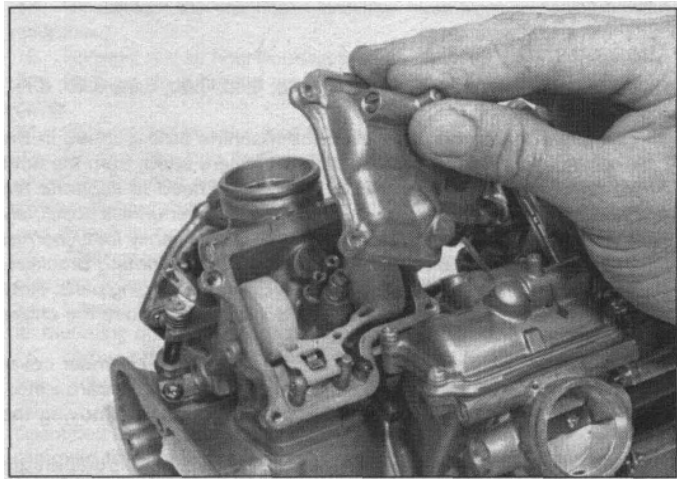
8.3a Lifting the throttle piston/diaphragm out of the carburetor the no. 2



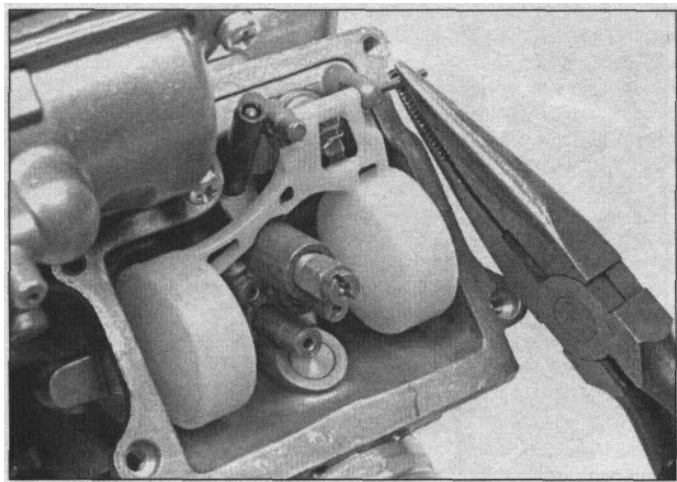
8.3b The front cylinder carburetors have longer springs than the rear

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

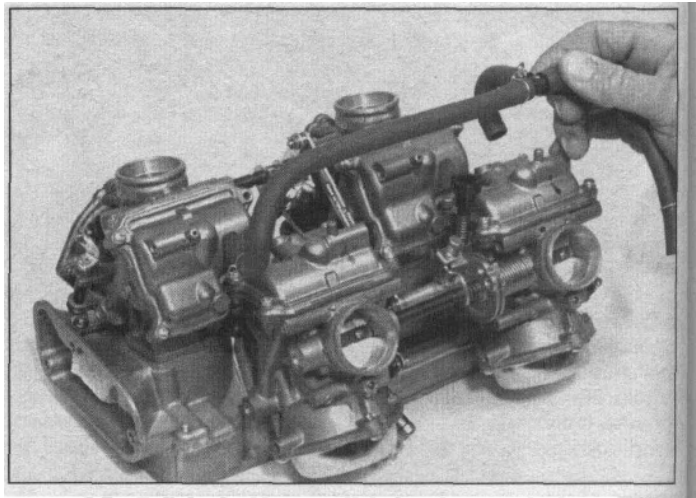
4 Insert an 8 mm socket, attached to a ratchet wrench, into the throttle piston, depress the needle holder and turn it 60° to release it.



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**).

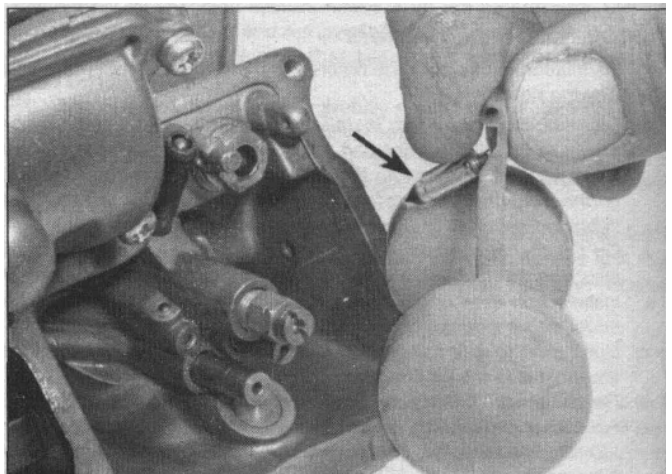
7 Unscrew the starter jet (press fit on later models), main jet, needle jet holder and pilot jet (**see illustration**).

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

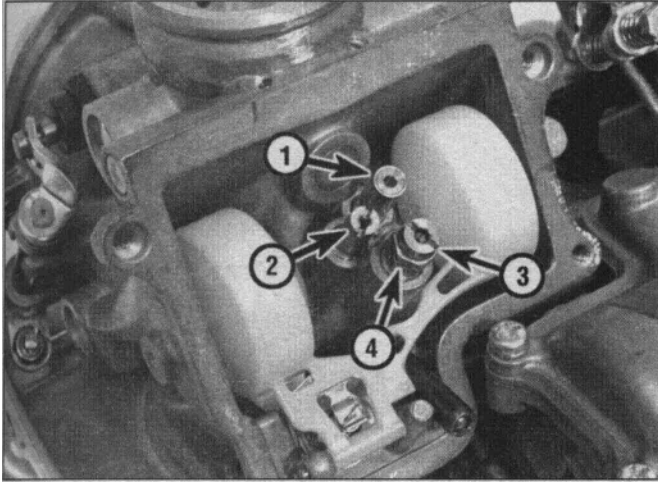
9 If pilot screw removal is required the metal limiter caps must be extracted (**see Section 5**). Center-punch the pilot screw cap to provide a starting point for the drill bit. Next, use a 4 mm drill bit to drill through the pilot screw plug (**see illustrations**). **Note:** Be *very careful not to 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 off the float and float valve



8.7 Location of carburetor jets

- 1 Starter jet 3 Main jet
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

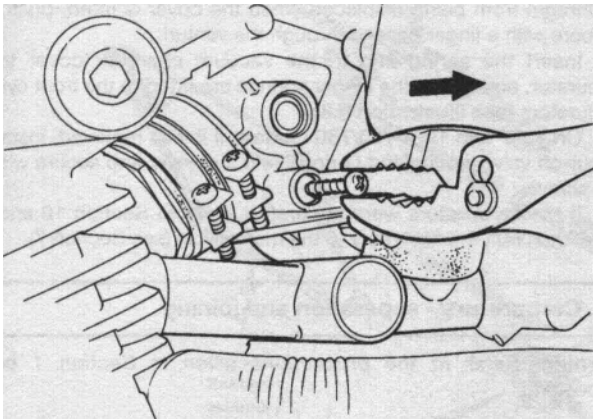
Caution: Use only a petroleum based solvent for carburetor cleaning. Don't use caustic cleaners.

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

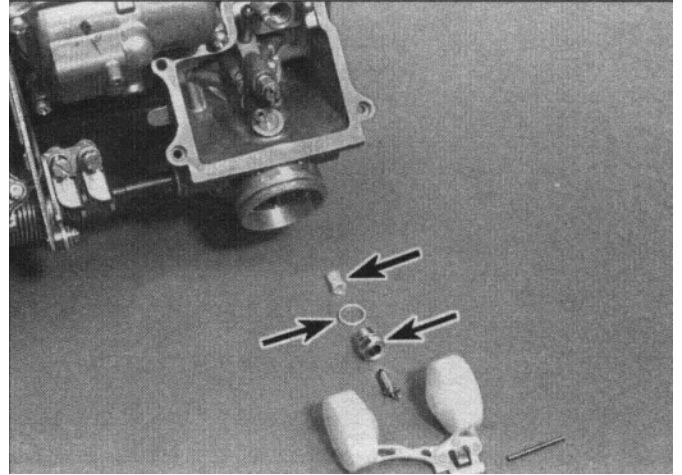
14 After the carburetor has soaked long enough for the cleaner to loosen and dissolve most of the varnish and other deposits, use a brush to remove the stubborn deposits. Rinse it again, then dry it with compressed air. Blow out all of the fuel and air passages in the main and upper body. **Caution:**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

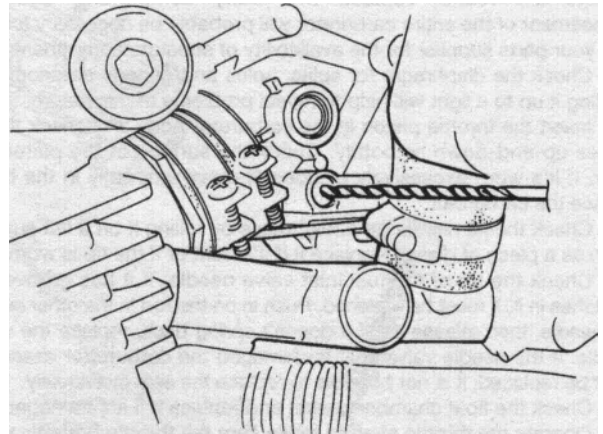
15 Check the operation of the choke plunger. If it doesn't move smoothly, replace it, along with the return spring. Inspect the needle on the end of the choke plunger and replace the plunger if it's worn or bent.



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



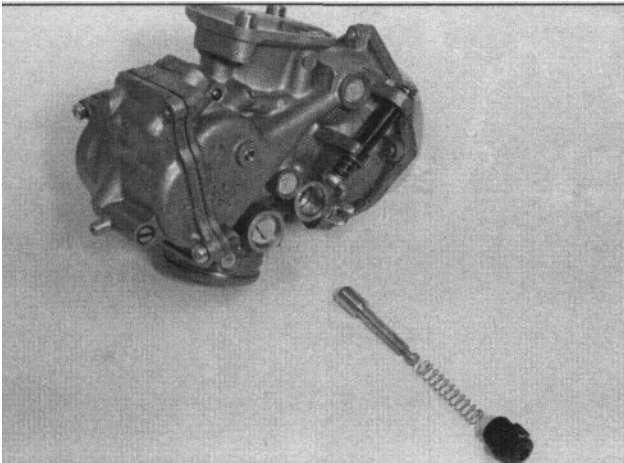
8.9a Pilot screw metal limiter caps can be drilled ...

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



9.1 Install the choke valve and its spring in the carburetor bore and secure with the nut

cover for cracks, distorted sealing surfaces and other damage. If any defects are found, replace the faulty component, although replacement of the entire carburetor will probably be necessary (check with your parts supplier for the availability of separate components).

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

19 Insert the throttle piston in the carburetor 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 bore, replace the carburetor.

20 Check the jet needle for straightness by rolling it on a flat surface (such as a piece of glass). Replace it if it's bent or if the tip is worn.

21 Check the tip of the fuel inlet valve needle. If it has grooves or scratches in it, it must be replaced. Push in on the rod in the other end of the needle, then release it - if it doesn't spring back, replace the valve needle. If the needle valve seat is damaged the carburetor assembly must be replaced; it is not possible to replace the seat individually.

22 Check the float chamber gasket and replace it if it's damaged.

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

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

9 Carburetors - reassembly and float height check

Note: When reassembling the carburetors, be sure to use the new Citings, gaskets and other parts supplied in the rebuild kit. Do not overtighten the carburetor jets and screws as they are easily damaged. Refer to illustrations 9.1, 9.7, 9.8, 9.9 and 9.11

1 Install the choke valve in its bore, followed by its spring and nut (**see illustration**). Tighten the nut securely and reconnect the operating link hook in the valve groove.

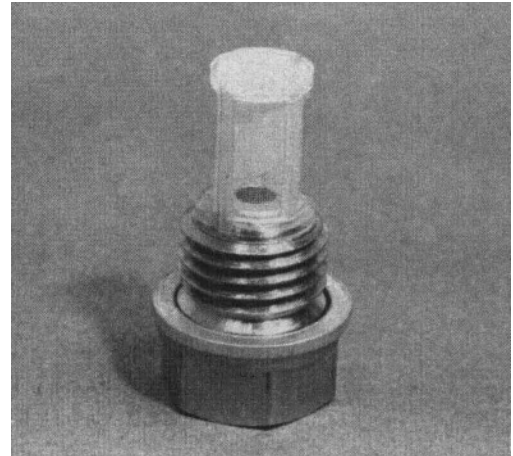
2 Install the pilot screw (if removed) along with its spring, washer and O-ring, turning it in until it seats lightly. Now, turn the screw out the number of turns previously recorded. Where applicable, drive new metal limiter caps into the pilot screw bores. If a new pilot screw has been fitted, Honda advise that the screws in the other three carburetors be replaced also, and that having been set to the standard number of turns out (see Specifications), adjustment of their settings be carried out by a dealer service department before new limiter caps are installed.

3 Screw the needle jet into position in the carburetor.

4 Screw the main jet into the end of the needle jet.

5 Screw the pilot jet into position.

6 If the starter jet was removed, screw or press it into the body (as applicable).



9.7 Assemble the float valve seat, washer and filter and install them in the carburetor body

7 Install the float valve seat, washer and filter (**see illustration**). Hook the needle valve over the float, then install the float and secure it with the pivot pin.

8 To check the float height, hold the carburetor so the float hangs down, then tilt it back until the valve needle is just seated, but not so far that the needle's spring-loaded tip is compressed. Measure the distance between the gasket face and the bottom of the float with a gauge or an accurate ruler (**see illustration**). The correct setting should be as given in the Specifications Section. On early models with brass floats, adjustment of the float height can be made by very carefully bending the tang which bears on the needle valve tip. On later models with plastic floats, the float height is not adjustable; if it is incorrect the float must be replaced. Repeat the procedure for all carburetors.

9 With the float height checked, install a new seal in the float chamber groove and install the chamber on the carburetor (**see illustration**).

10 Fit the washer to the jet needle and insert the needle into the throttle valve piston. Insert the spring and the needle holder into the center of the piston and turn it 60° in the opposite direction of removal using an 8 mm box wrench.

11 Insert the throttle piston/diaphragm assembly into the carburetor body and lightly push it down, ensuring the needle is correctly aligned with the needle jet. Press the diaphragm outer edge into its groove, ensuring the diaphragm tongue is correctly seated in the cutout on the carburetor (**see illustration**). Check the diaphragm is not creased, and that the piston moves smoothly up and down the bore. To prevent the diaphragm from being displaced when the cover is fitted, push it up the bore with a finger passed through the venturi.

12 Insert the spring and fit the vacuum chamber cover to the carburetor, noting that the longer springs are fitted to the front cylinder carburetors (**see illustration 8.3b**).

13 On 1987 and 1988 700/750 models, if it was removed, install the air cut-off valve, spring and O-ring. Refit the cover and secure with the two screws.

14 If the carburetors were separated, refer to Section 10 and join them, then refit the assembly to the motorcycle (see Section 7).

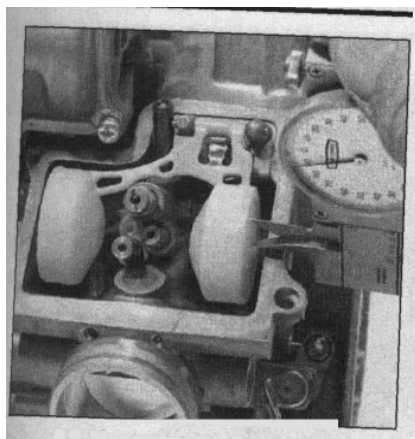
10 Carburetors - separation and joining

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

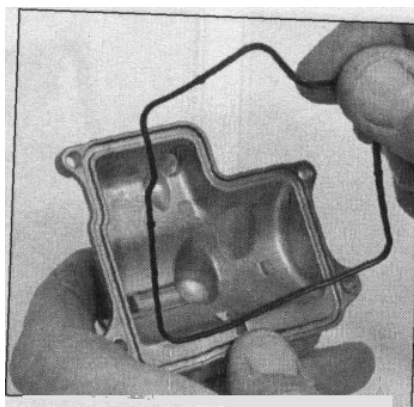
Separation

Refer to illustrations 10.1, 10.6a, 10.6b, 10.7, 10.8, 10.9 and 10.11

The carburetors do not need to be separated for normal overhaul. If you need to separate them (to replace a carburetor body, for



9.8 Measuring the float height

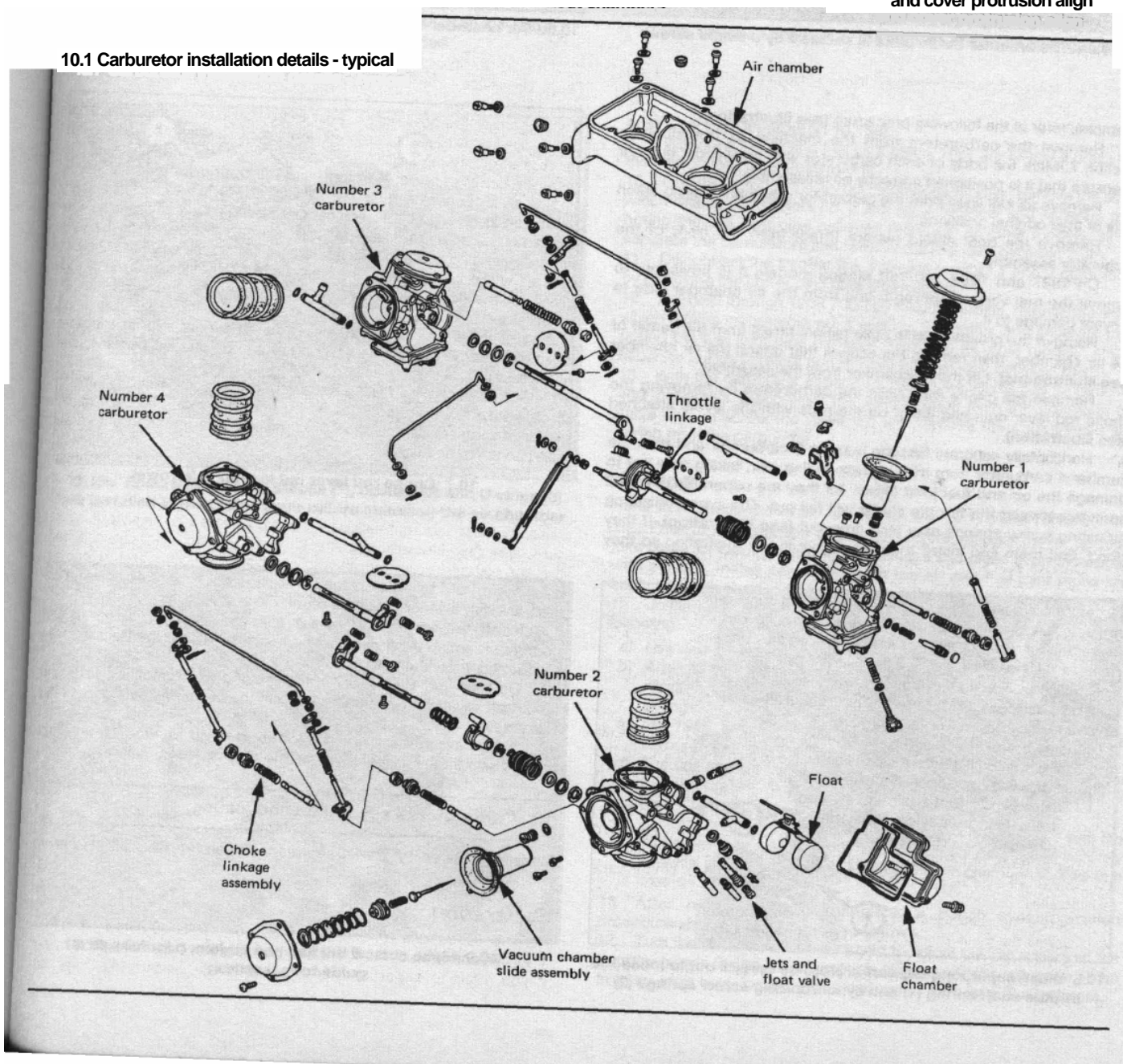


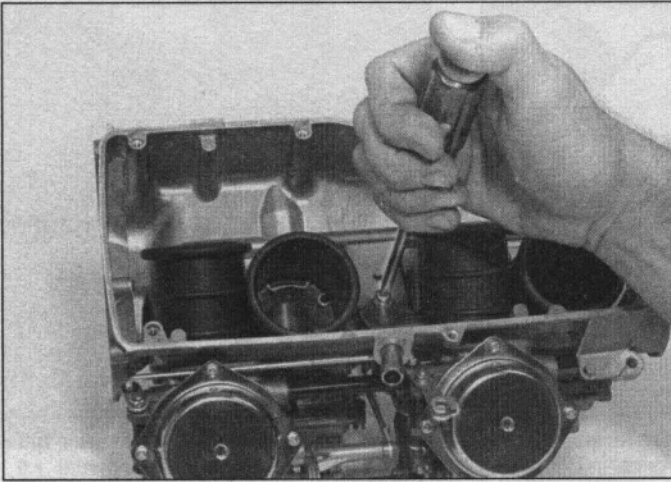
9.9 Use a new seal when installing the float chambers



9.11 Ensure diaphragm tab, vacuum tube and cover protrusion align

10.1 Carburetor installation details - typical





10.6a The breather baffle plate is secured by a single screw (example), refer to the following procedure (**see illustration**).

2 Remove the carburetors from the machine as described in Section 7. Mark the body of each carburetor with its cylinder number to ensure that it is positioned correctly on reassembly.

3 Remove all fuel lines from the carburetor assembly, having taken note of their original positions.

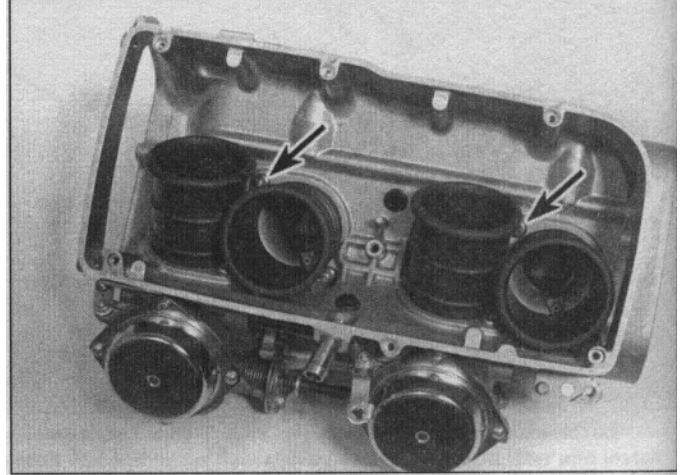
4 Remove the heat shield (where fitted) from the front of the carburetor assembly.

5 On 1987 and 1988 700/750 Magna models it is advisable to remove the fuel valve diaphragm unit from the air chamber side to prevent damage to it.

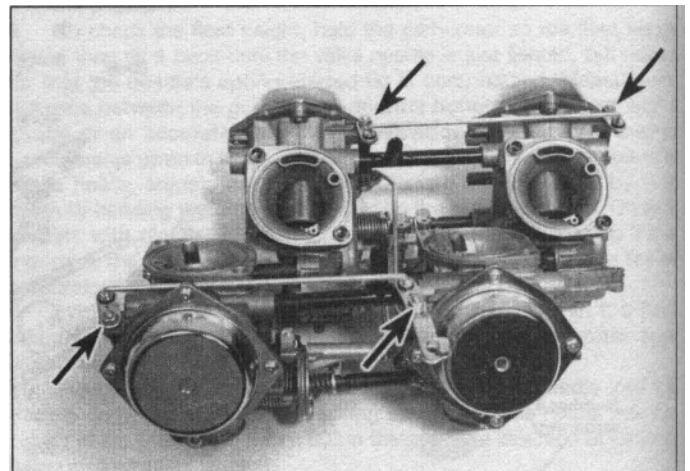
6 Remove the breather baffle plate (where fitted) from the center of the air chamber, then remove the screws that attach the air chamber (**see illustrations**). Lift the air chamber from the assembly.

7 Remove the choke rods from the carburetors by removing the choke rod lever nuts and lifting off the rods with the levers attached (**see illustration**).

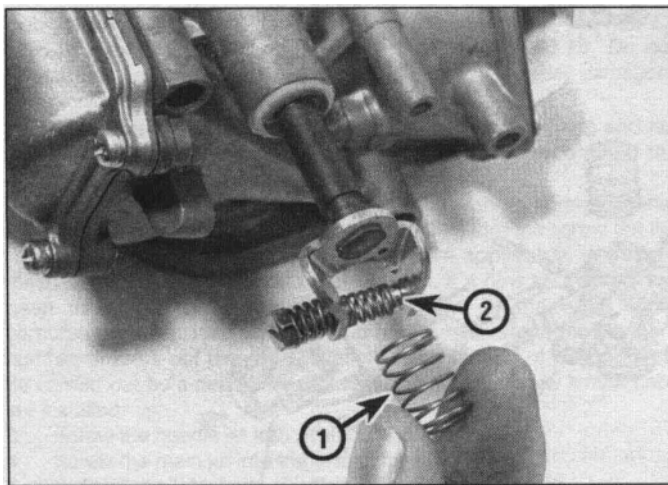
8 Horizontally separate first the number 3 carburetor and then the number 4 carburetor from their corresponding pair, taking care not to damage the air and fuel joint pipes. As they are separated, the coil springs between the throttle shafts will fall out. The synchronization adjusting screw springs may also drop out (**see illustration**). If they don't, find them and install them as shown in the illustration so they



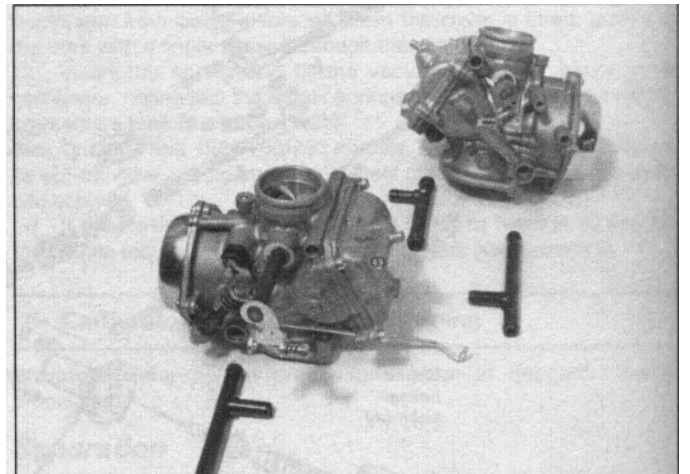
10.6b Air chamber-to-carburetor screws - there are eight in total



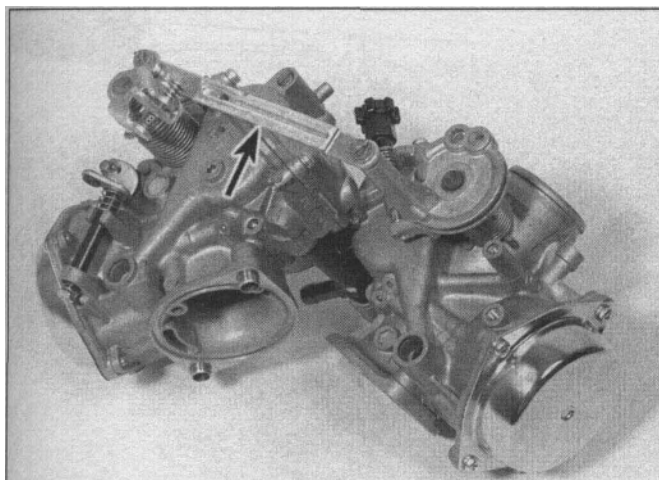
10.7 Choke rod lever nut locations (arrows)



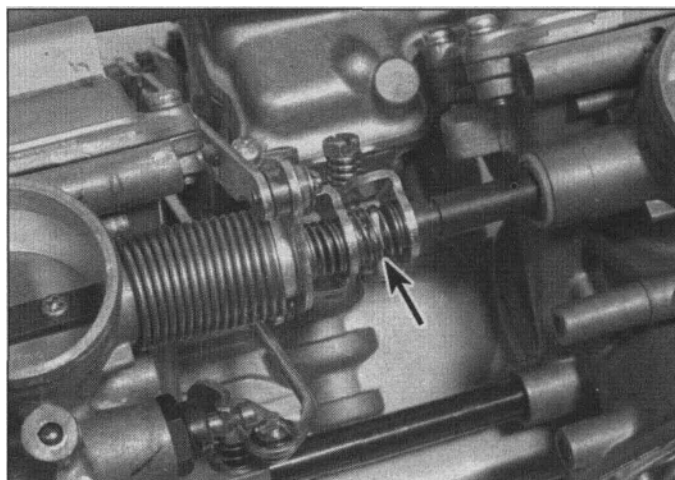
10.8 When separating the carburetors be careful not to loose the throttle shaft spring (1) and synchronizing screw springs (2)



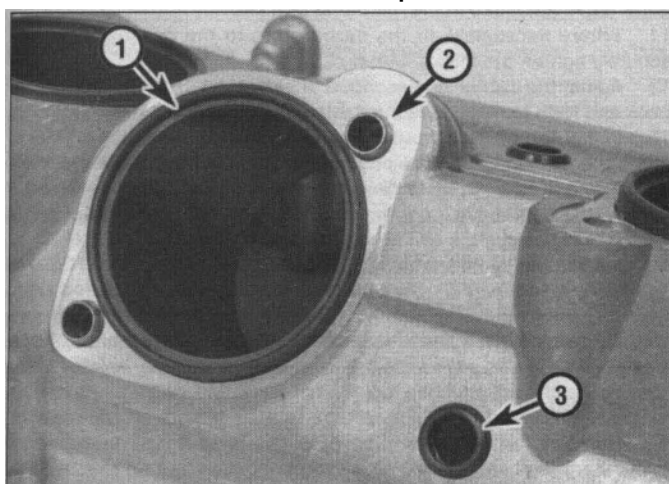
10.9 Make note of the fuel and air joint positions as a guide to reassembly



10.11 Throttle link must be detached before nos. 1 and 2 carburetors can be separated



10.15a Installed position of the throttle shaft coil springs (arrow)



10.15b Ensure all velocity stacks (1), dowels (2) and O-rings (3) are installed in the carburetors before installing the air chamber

aren't lost (**see illustration 10.15a**).

9 Withdraw the air and fuel joint pipes. They are simply a press fit in the carburetors (**see illustration**).

10 On 1985 through 1988 700/750 Magna models, remove the screw which retains carburetors no. 3 and no. 4 together and separate them noting the fuel joint pipe between them. On all other models, simply separate the carburetors and retrieve the fuel joint between them.

11 Disconnect the throttle link from the number 1 and 2 carburetors by removing the cotter pins (**see illustration**).

12 On 1985 through 1988 700/750 Magna models, remove the screw which retains carburetors no. 1 and no. 2 together and separate them noting the fuel joint pipe between them. On all other models, simply separate the carburetors and retrieve the fuel joint between them.

13 With the carburetor separated, the choke valves can be removed and inspected. 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.

Joining

Refer to illustrations 10.15a, 10.15b, 10.17a, 10.17b and 10.18

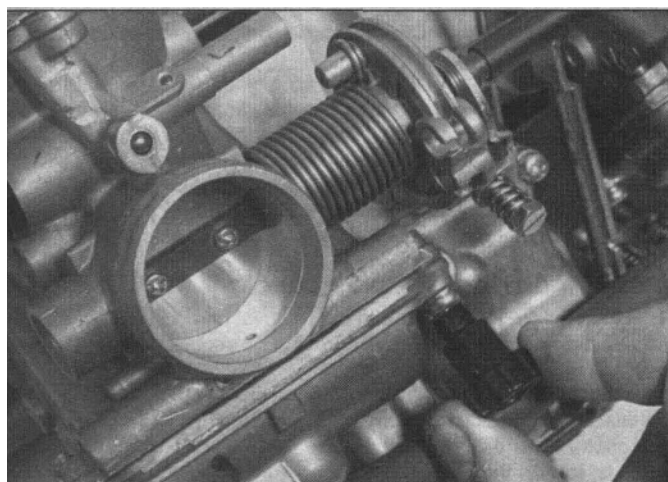
14 Prior to reconnection of the carburetors, inspect the air and fuel joint pipes for cracks, blockage or damage and clean them thoroughly with solvent. Install new O-rings on the air and fuel joint pipes and apply oil to the O-rings prior to installing the pipes in the carburetors.

15 Joining is the reverse of the disassembly procedure, noting the following.

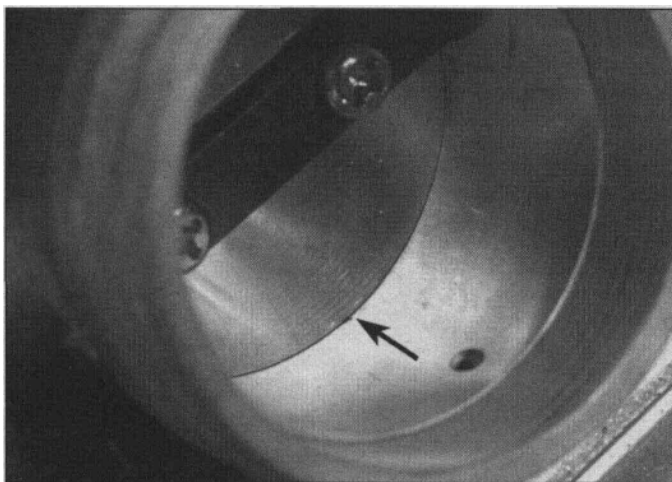
- Use new O-rings on the fuel and vent line fittings.
- After all four carburetors are connected, loosen the synchronization adjusting screws and re-install the synchronization springs.
- On 1985 through 1988 700/750 Magna models, tighten the carburetor joining screws only lightly at this stage.
- The coil springs between the throttle shafts can be installed after the carburetors have been loosely attached to the air chamber (**see illustration**).
- Prior to connecting the carburetors to the air chamber, be sure the rubber velocity stacks, grommets and dowel pins are all securely in place (**see illustration**). Tighten the air chamber screws in a criss-cross sequence.

16 After reconnection is complete, a bench synchronization procedure should be carried out as follows.

17 Turn the throttle stop screw (used to adjust the idle speed) so the throttle valve in the no. 1 carburetor is aligned with the rear edge of the front by-pass hole, located in the carburetor bore (**see illustrations**).



10.17a On no. 1 carburetor, use the throttle stop screw ...



10.17b ... to set the throttle valve level with the rear edge of the front bypass hole (arrow)

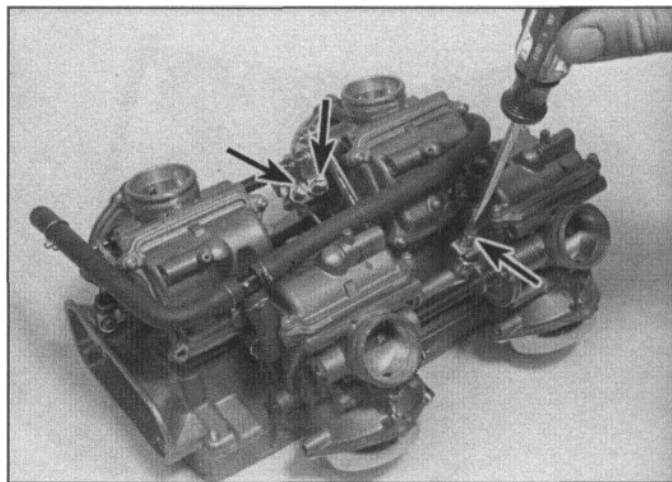
18 Align the throttle valves in each of the other carburetors in the same manner by turning the synchronization adjusting screws (see illustration).

19 Open the throttle slightly by pressing on the throttle linkage, then release it and make sure it returns smoothly with no drag or binding. Also check the choke valve linkage for smooth operation. If the choke linkage arms were disconnected from each other, new cotter pins should be used on reassembly.

20 Install the carburetors on the motorcycle (see Section 7).

21 On 1987 and 1988 700/750 Magna models, tighten the carburetor joining screws securely.

22 Carry out carburetor synchronization (see Chapter 1).



10.18 Set up the other throttle valves using the synchronizing screws (arrows)

10 Make sure the cables are correctly connected and locate the outer cable adjusters in the mounting bracket.

11 Where necessary, fit the carburetors to the cylinder head and securely tighten the intake rubber clips.

12 Adjust the cables as described in Chapter 1. Turn the handlebars back and forth to make sure the cables don't cause the steering to bind.

13 Install the air filter housing as described in Section 14. Prior to fitting the fuel tank, start the engine and turn the handlebars back and forth to make sure the idle speed doesn't rise as the bars are turned. If it does, the cables are incorrectly routed. Sort out the problem before riding the motorcycle.

14 Install the fuel tank (see Section 2).

11 Throttle cables - removal and installation

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

Removal

1 Remove the air filter housing as described in Section 14.

2 Loosen the throttle cable locknuts then free each outer cable from its mounting bracket. Detach the inner cables from the throttle pulley. If necessary to improve access to throttle cam, loosen the four retaining clips securing the carburetor intake rubbers to the cylinder head and disengage the carburetors from the cylinder head. Keep the carburetors upright to prevent fuel spillage.

3 Unscrew the three (early models) or two (later models) right handlebar switch screws and free the switch from the handlebar.

4 Disconnect the throttle cables from the throttle grip and unscrew each cable from the lower half of the handlebar switch. Mark each cable to ensure it is connected correctly on installation.

5 Remove the cables from the machine noting their exact routing.

Installation

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

7 Screw the cables into the lower half of the handlebar switch, making sure they are correctly connected. Lubricate the end of each cable with multi-purpose grease and attach the cables to the throttle grip pulley.

8 Fit the switch lower half to the handlebar, locating its peg in the handlebar hole. Fit the top half of the switch and securely tighten the screws (forward screws must be tightened first).

9 Lubricate the end of each cable with multi-purpose grease and attach them to the carburetor throttle cam.

12 Choke cable - removal, installation and freeplay check

Removal

1 Remove the fuel tank (Sabre) or trig it up if less than half full (Magna).

2 Loosen the choke cable retainer screw, near the no. 1 carburetor.

3 Disengage the cable outer from its retainer clamp and then disengage the end of the cable from the lever.

4 Remove the rear view mirror from the left side.

5 On early models, remove the two bolts that hold the clutch master cylinder to the handlebars and lift the master cylinder off (keep it level to prevent fluid leakage). Disengage the cable trunnion from the choke lever.

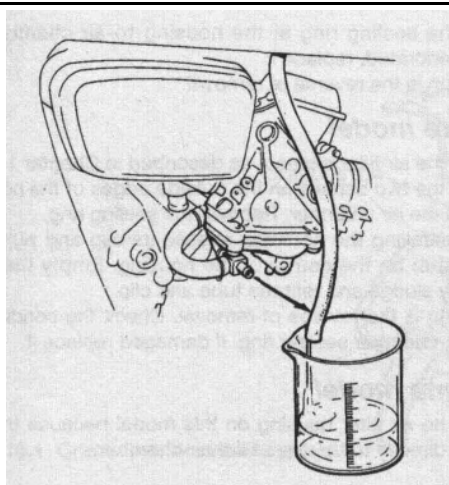
6 On later models (where the cable goes into the base of the handlebar switch), remove the two screws from the switch underside and separate the switch halves. Disengage the cable trunnion from the choke lever.

7 Unscrew the cable casing from the clutch master cylinder clamp (early models) or handlebar switch lower half (later models) and then withdraw it from the motorcycle.

Installation and freeplay check

8 Installation is the reverse of the removal procedure. Lubricate the cable inner and ensure that it is routed in its original path and secured with any relevant ties.

9 Set the cable freeplay by pulling the choke operating lever on the handlebar fully back (choke on) and check for any further movement at the choke lever on the carburetors. There should be no freeplay; if there is, loosen the outer cable clamp screw and reposition the outer cable accordingly. Push the choke operating lever fully forward (choke off) and check for a small amount of slack in the carburetor linkage, indicating that the choke is fully off.



13.3 When checking the fuel pump output, route the carburetor fuel supply hose into a glass jar or measuring vessel

13 Fuel pump - check, removal and installation

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

Check

Refer to illustration 13.3

- 1 Make sure there is adequate fuel in the fuel tank and that the battery is fully charged.
- 2 With the engine running, examine all fuel lines between the fuel tank and fuel pump for leaks, loose connections, kinks or crimps in the rubber hoses. Air leaks before the fuel pump can seriously affect the pump's output.
- 3 Disconnect the fuel supply hose from the carburetors. Place a clean container such as a glass jar at the end of the detached fuel hose and turn the ignition switch on for several seconds (**see illustration**). There should be strong, regular spurts of fuel from the line until the ignition switch is turned off again.
- 4 If little or no fuel emerges from the line during the test, then either the line or fuel filter is clogged or the fuel pump is not working properly. Disconnect all fuel lines and blow them out. Replace the fuel filter (see Chapter 1). If the lines and filter are not clogged, then the pump is faulty and should be replaced.
- 5 A more accurate method of testing fuel pump flow capacity is to perform the previous test using a measuring container and a watch according to the following sub-Section.

1982 through 1986 700/750 Magna models

- 6 Turn the ignition ON for 5 seconds, then turn it OFF. Measure the amount of fuel in the glass jar and multiply it by 12 to arrive at the output per minute. On 1982 through 1984 models the pump should produce approximately 614 cc (21 US fl oz, 22 Imp fl oz) of fuel, and on 1985 and 1986 models it should produce approximately 600 cc (20 US fl oz, 21 Imp fl oz) of fuel.

1100 Sabre models

- 7 Remove the seat and left side cover (see Chapter 6).
- 8 With the fuel supply hose connected to the carburetors, start the engine and pinch the fuel valve vacuum hose, then turn the fuel valve OFF and ignition switch OFF.
- 9 Disconnect the fuel pump relay connector, and using a jumper wire, short the black/light green and white wire terminals on the harness side of the connector together.
- 10 Disconnect the fuel supply hose from the carburetors and place its open end in a glass jar. Turn the fuel valve ON, then turn the ignition ON for 5 seconds, then turn the ignition OFF.

- 11 Measure the amount of fuel in the jar and multiply it by 12 to arrive at the output per minute. If the pump is operating correctly it should produce approximately 800 cc (27 US fl oz, 28 Imp fl oz).
- 12 Remove the testing equipment and reconnect the wiring and fuel hose.

1100 Magna models

- 13 Remove the seat and side covers (see Chapter 6).
- 14 Make sure the ignition switch is OFF, then disconnect the fuel pump relay connector. Using a jumper wire, short the black and white wire terminals on the harness side of the connector together.
- 15 Disconnect the fuel supply hose from the carburetors and place its open end in a glass jar. Turn the ignition ON for 5 seconds, then turn it OFF.
- 16 Measure the amount of fuel in the jar and multiply it by 12 to arrive at the output per minute. If the pump is operating correctly it should produce approximately 614 cc (21 US fl oz, 22 Imp fl oz).
- 17 Remove the testing equipment and reconnect the wiring and fuel hose.

Removal and installation

1982 through 1984 700/750 Magna models

- 18 Remove the seat.
- 19 Remove the main fuel tank as described in Section 2.
- 20 Remove both side covers (see Chapter 6).
- 21 Disconnect the battery leads, negative lead first. Remove the battery.
- 22 Remove the battery tray.
- 23 Remove the starter relay (see Chapter 8).
- 24 Turn the fuel valve OFF and clamp the fuel hoses to prevent fuel flow. Have a rag handy to catch fuel spills, then detach the fuel inlet and outlet hoses from the fuel pump.
- 25 Disconnect the wiring connectors leading to the fuel pump.
- 26 Remove the fuel pump mounting bolts and lift out the fuel pump.
- 27 Installation is the reverse of the removal procedure.

1985 and 1986 700 Magna models

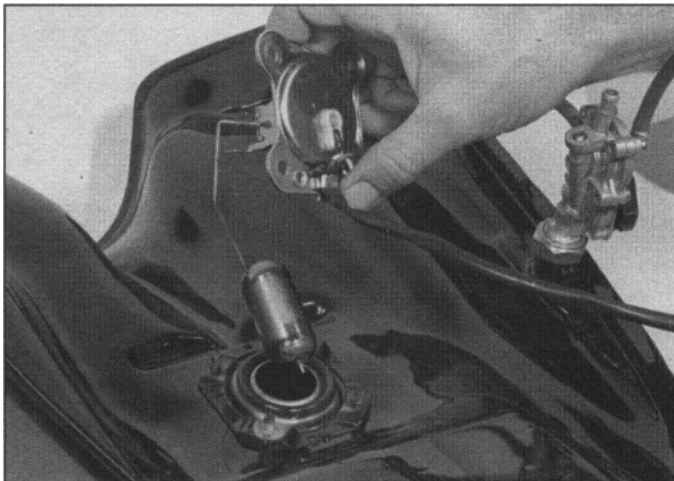
- 28 Remove both side covers (see Chapter 6).
- 29 Disconnect the battery leads, negative lead first.
- 30 Turn the fuel valve OFF and clamp the fuel hoses to prevent fuel flow. Have a rag handy to catch fuel spills, then detach the fuel inlet and outlet hoses from the fuel pump.
- 31 Disconnect the wiring connectors leading to the fuel pump.
- 32 Maneuver the fuel pump out of its mounting rubber.
- 33 Installation is the reverse of the removal procedure.

1100 Sabre models

- 34 Remove the seat and both side covers (see Chapter 6).
- 35 Disconnect the battery leads, negative lead first.
- 36 Disconnect the wiring connectors for the fuel pump, fuel unit and both spark units.
- 37 To gain access to the fuel pump, remove the right side spark unit from its holder and the stop/tail light sensor from its holder (use the wiring diagram at the end of this manual for component identification).
- 38 Turn the fuel valve OFF and clamp the fuel hoses to prevent fuel flow. Have a rag handy to catch fuel spills, then detach the fuel inlet and outlet hoses from the fuel pump.
- 39 Maneuver the fuel pump out of its rubber mounting.
- 40 Installation is the reverse of the removal procedure. Refer to the wiring diagram at the end of this manual, and ensure that all electrical connections have been made correctly.

1100 Magna models

- 41 Remove the seat and both side covers (see Chapter 6).
- 42 Disconnect the battery leads, negative lead first.
- 43 Turn the fuel valve OFF and clamp the fuel hoses to prevent fuel flow. Have a rag handy to catch fuel spills, then detach the fuel inlet and outlet hoses from the fuel pump.
- 44 Disconnect the wiring connector leading to the fuel pump.



15.2 Take care not to bend the float arm when removing the fuel sender from the tank

45 Remove the two mounting bolts and lift the pump upwards and out of the motorcycle. Note the location of the washer, grommet, collar and nut.

46 Installation is the reverse of the removal procedure.

14 Air filter housing - removal and installation

1982 750 Sabre model

- 1 Remove the air filter elements as described in Chapter 1.
- 2 Remove the three screws on each side and detach the air filter housings from the side of the air chamber. Recover the sealing rings.
- 3 Installation is a reverse of removal, noting that the sealing rings must be replaced if damaged.

1983 through 1985 700/750 Sabre and 1982 through 1986 700/750 Magna models

- 4 Remove the air filter element as described in Chapter 1.
- 5 On Magna models, remove the single screw and collar from the top rear of the housing and loosen the screw clamp which secures the housing to the carburetor air chamber. On Sabre models, remove the three screws which retain the housing to the air chamber.
- 6 Pull the crankcase breather hose off the back of the housing and lift the housing up and off the motorcycle.
- 7 Before installing the housing, release its clip and pull the drain tube off the stub on the base of the housing. Empty the tube and housing of any sludge and refit the tube and clip.
- 8 On Magna models, inspect the condition of the flexible hose between the air chamber and filter housing; replace it if split or deteriorated.
- 9 Installation is the reverse of removal. Ensure that the housing front end engages the air duct correctly.

1987 and 1988 700/750 Magna models

- 10 Remove the air filter element as described in Chapter 1.
- 11 Remove the air chamber side covers (single screw at lower edge) and the screws which secure the air chambers to the air filter housing; you may need to move the thermostat (right side) and air injection control valve assembly (left side) to gain access to the screws.
- 12 Working from the top of the air filter housing, remove the six screws which retain the housing to the air chamber on the carburetors.
- 13 Pull the crankcase breather hose off the back of the housing and lift it up and off the motorcycle.
- 14 Before installing the housing, release its clip and pull the drain tube off the stub on the base of the housing. Empty the tube and housing of any sludge and refit the tube and clip.

15 Check the sealing ring at the housing-to-air chamber joint; if broken or deteriorated, replace it.

16 Installation is the reverse of removal.

1100 Sabre model

- 17 Remove the air filter element as described in Chapter 1.
- 18 Remove the two screws on the outside edges of the housing and detach it from the air chamber. Recover the sealing ring.
- 19 Before installing the housing, release its clip and pull the drain tube off the stub on the corner of the housing. Empty the tube and housing of any sludge and refit the tube and clip.
- 20 Installation is the reverse of removal. Check the condition of the housing-to-air chamber sealing ring; if damaged replace it.

1100 Magna model

21 There is no air filter housing on this model because the element cover screws directly to the top of the air chamber.

15 Fuel sender - removal and installation

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

All Sabre models and 1985/86 700 Magna models

Refer to illustration 15.2

- 1 Remove the fuel tank (see Section 2) and drain all fuel into a container suitable for the storage of gasoline (petrol).
- 2 The fuel sender is secured to the tank base by four nuts. Recover the O-ring and be especially careful not to bend the float arm as the sender is withdrawn through the tank base (**see illustration**).
- 3 Installation is a reverse of the removal procedure, noting that a new O-ring should be used between the tank and sender.

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

- 4 Remove the seat and left side cover (see Chapter 6).
- 5 Drain all fuel from the main fuel tank and half of the auxiliary tank into a container suitable for the storage of gasoline (petrol).
- 6 The sender is set in the top of the auxiliary fuel tank. Disconnect its wires and unscrew the sender from the tank. Plug the tank opening while the sender is removed.
- 7 Installation is a reverse of the removal procedure, noting that a new sealing ring should be installed between the tank and sender unit.

16 Crankcase breather - general information and system components check

General information

Refer to illustration 16.1

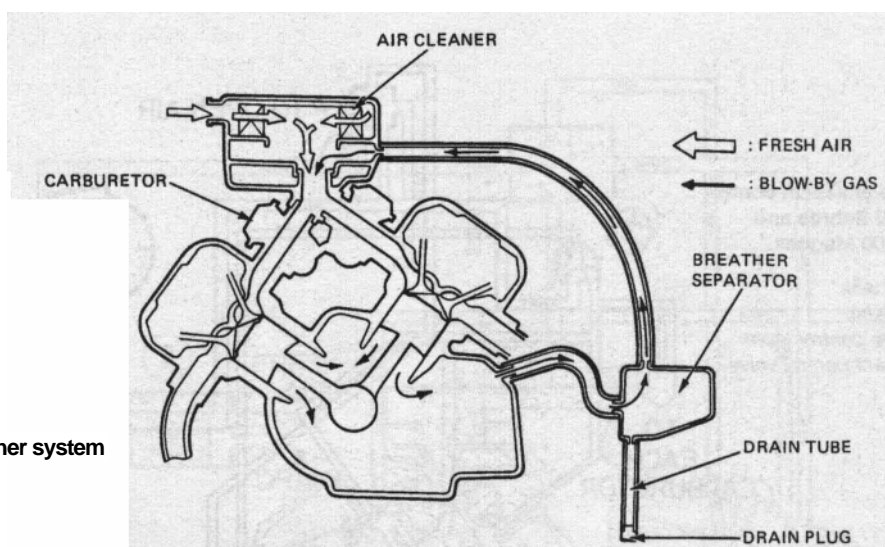
- 1 The crankcase breather prevents the discharge of hydrocarbons from crankcase vapor into the atmosphere. Gases are sucked out of the crankcase via engine vacuum, through a hose to the separator tank, and from there through another hose up to the air filter housing or chamber. From there, the gases combine with fresh air and are sucked into the carburetors for reburning (**see illustration**).
- 2 Over a period of time, sludge may build up in the separator tank and hoses to the extent that they become clogged. Rough idling or a reduced engine speed at idle are indications of this condition.
- 3 Certain models have a drain tube or catch tank linked to the separator tank which has to be emptied in accordance with the maintenance schedule (see Chapter 1), but on others, the system will have to be disassembled and cleaned out if a blockage is suspected.

System components check

Refer to illustration 16.6

- 4 To check for proper vacuum in the system, disconnect the rubber

16.1 Crankcase breather system



16.6 Crankcase breather separator tank (arrow) will be found in the mid-frame area - 700/750 Sabre location shown

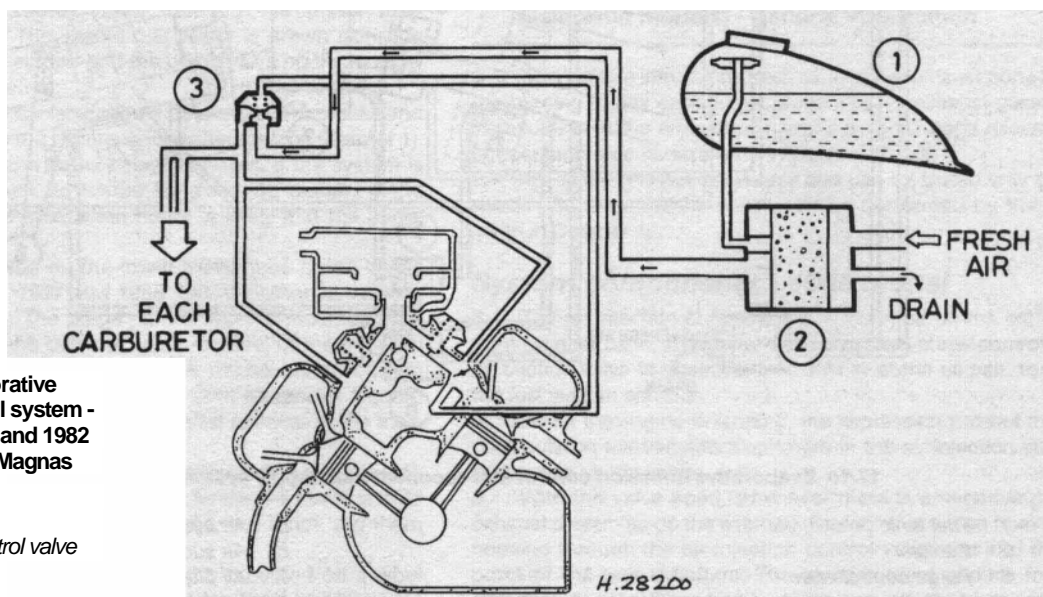
hose where it exits the rear of the crankcase. With the engine idling, place your thumb lightly over the end of the hose. You should feel a slight vacuum. The suction may be heard as your thumb is released. This will indicate that air is being drawn all the way through the system. If a vacuum is felt, the system is functioning properly.

5 If there is no or very little vacuum at the end of the hose, the system is either clogged or an air leak exists. Remove the separator tank and connecting hoses, and blow them through with compressed air.

6 Air leaks might be due to a cracked hose, poor connection or cracked separator tank (see illustration).

17 Evaporative emission control system (1984-on California models) - general information

Refer to illustrations 17.1a, 17.1b, 17.1c and 17.1d 1 This system conforms to the California Air Resources Board (CARB) requirements governing stringent emission control standards. Fuel vapors are routed from the fuel system into the engine to be burned, instead of letting them evaporate into the atmosphere. While the engine is stopped, vapors are absorbed by and stored in a carbon canister (see illustrations).

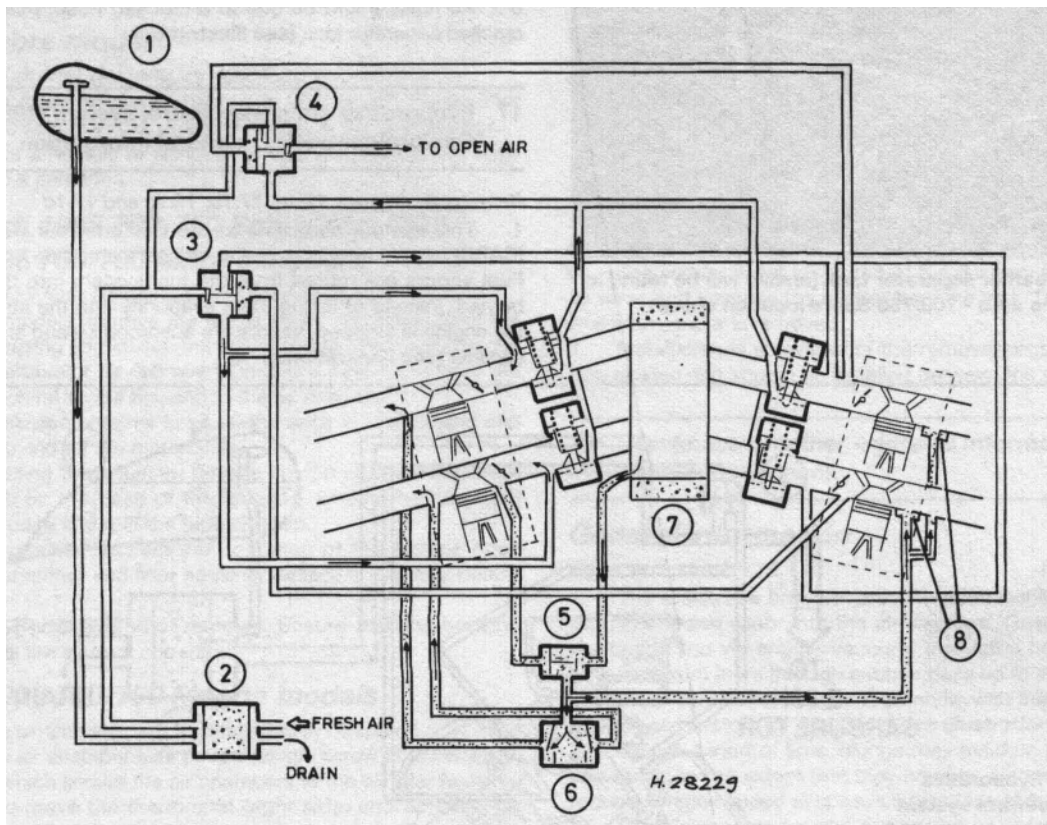
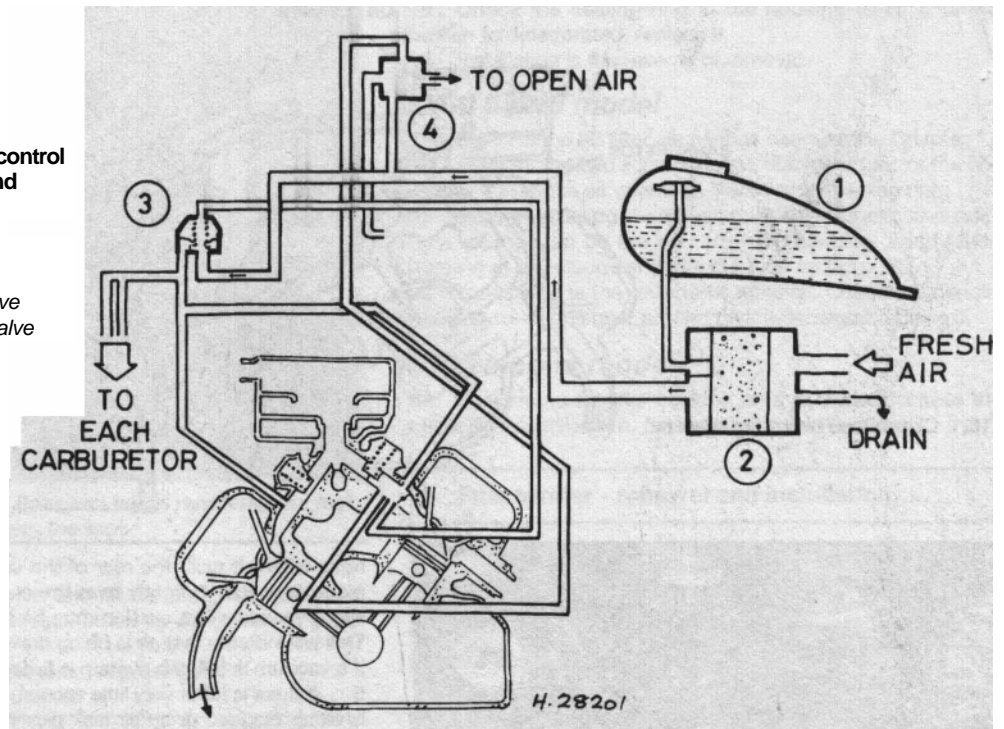


17.1a Evaporative emission control system - 700/750 Sabres and 1982 through 1985 Magnas

- 1 Fuel tank
- 2 Canister
- 3 Purge control valve

17.1b Evaporative emission control system -1100 Sabres and 1986-on 1100 Magnas

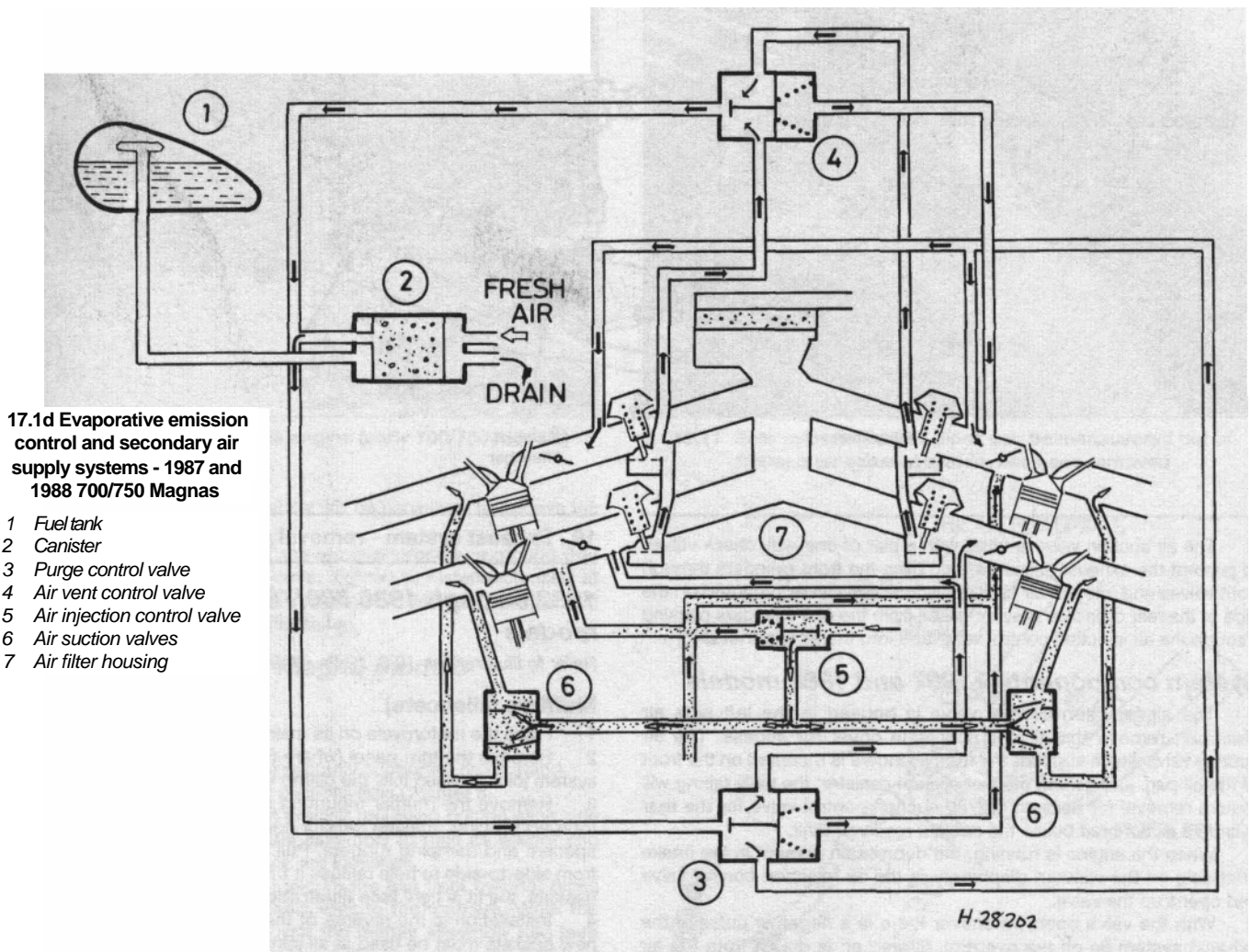
- 1 Fuel tank
- 2 Canister
- 3 Purge control valve
- 4 Air vent control valve



17.1c Evaporative emission control and secondary air supply systems - 1986 700 Magna

- 1 Fuel tank
- 2 Canister
- 3 Purge control valve
- 4 Air vent control valve

- 5 Air injection control valve
- 6 Air suction valve
- 7 Air filter housing
- 8 Reed valves (rear cylinders)



2 The air vent control valve (fitted to all 1100 Sabre models and all 1986-on Magna models) routes vapor from the carburetor float chambers to the canister. The stored fuel vapor is drawn from the canister when the engine is started and the purge valve opens to allow vapor to pass to the carburetors.

3 The system hoses and canister should be checked for cracks and damage in accordance with the maintenance schedule (see Chapter 1). Apart from the inspection and replacement of hoses, if the system is suspected of failure it must be tested by a Honda dealer. If the motorcycle is difficult to re-start when hot, it is likely that the purge control valve is at fault.

4 The canister is mounted on the lower frame tube brace at the front of the motorcycle (on 1987 and 1988 700/750 Magnas, remove the belly fairing for access). The purge control valve is mounted on a bracket on the left side of the cylinder head; removal of the front left side cover or air chamber side cover will be necessary on certain models for access to the valve. The air vent control valve is located above the carburetors and can be accessed after removal of the main fuel tank.

5 Details of the vacuum hose connections are given on a label stuck to the inside of either side cover or on the rear fender. All hoses should carry a label containing their number reference, but if not, tag them carefully when disconnecting.

6 Information relating to emission control is provided on a label stuck to the right side lower frame tube on models through 1986 or to the right side upper frame tube on models from 1987-on.

18 Secondary air supply system (1986-on 700/750 California models) - general information

1 This system introduces fresh air into the exhaust ports to promote the burning of any excess fuel present in the exhaust gases, resulting in reduction in the amount of harmful hydrocarbons released into the atmosphere (see illustrations 17.1c and 17.1d).

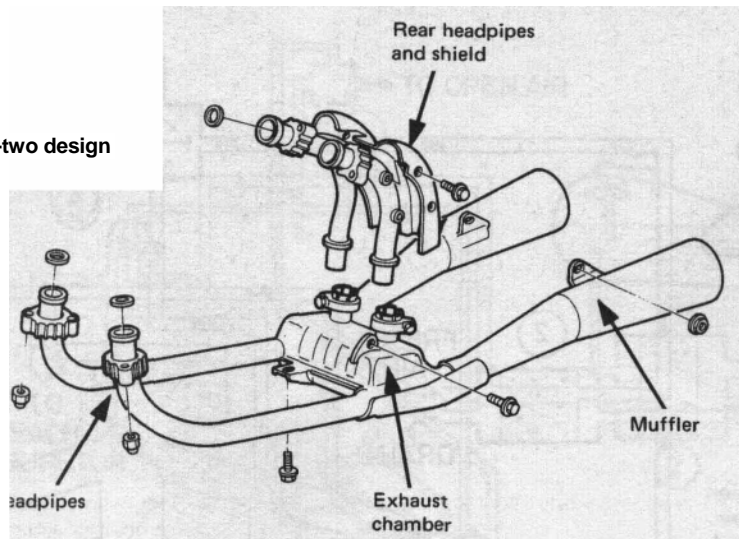
2 The system is not adjustable and can be tested only by a Honda dealer. Routine checks which can be performed by the owner are given in Chapter 1.

System components -1986 model

3 The air injection control valve is mounted on the left side of the front cylinder bank, just below the fuel system purge control valve. The air suction valve is mounted on the front of the oil pan, to the rear of the fuel system canister.

4 When the engine is running, the depression present in the intake duct acts on the vacuum diaphragm in the air injection control valve and opens up the valve.

5 With the valve open, whenever there is a negative pulse in the exhaust system (ie on the overrun), filtered air is drawn from the air filter housing through the air injection control valve and into the exhaust ports of the rear cylinders. The same system applies for the front cylinders, but the filtered air is drawn through the air injection control valve and the air suction valve before reaching the exhaust ports.

19.3 Exhaust system - early four-into-two design

6 The air suction valve is fitted with a pair of one-way check valves to prevent the exhaust gases passing from the front cylinders through both valves and into the air filter housing. Reed valves mounted on the side of the rear cylinders prevent gases from the rear cylinders passing through the air injection control valve and into the air filter housing.

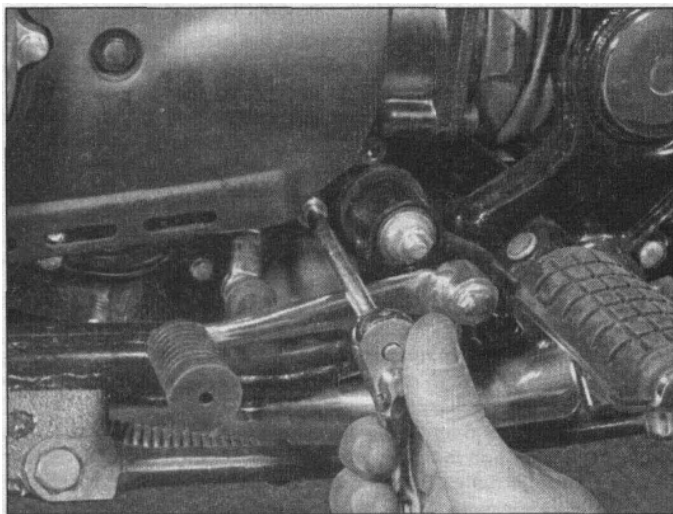
System components - 1987 and 1988 models

7 The air injection control valve is housed in the left side air chamber; remove the air chamber side cover for access. The air suction valve which supplies the front cylinders is mounted on the front of the oil pan, just behind the fuel system canister; the belly fairing will require removal for access. The air suction control valve for the rear cylinders is mounted below the coolant reservoir tank.

8 When the engine is running, the depression present in the intake duct acts on the vacuum diaphragm in the air injection control valve and opens up the valve.

9 With the valve open, whenever there is a negative pulse in the exhaust system (ie on the overrun), filtered air is drawn from the air filter housing through the air injection control valve and air suction valves and into the exhaust ports.

10 The air suction valves are fitted with a pair of reed valves to prevent the exhaust gases passing from the cylinders through both valves and into the air filter housing.



19.9a Exhaust chamber bolts are located on left side of engine ...

19 Exhaust system - removal and installation**1982 through 1986 700/750 models and all 1100 models**

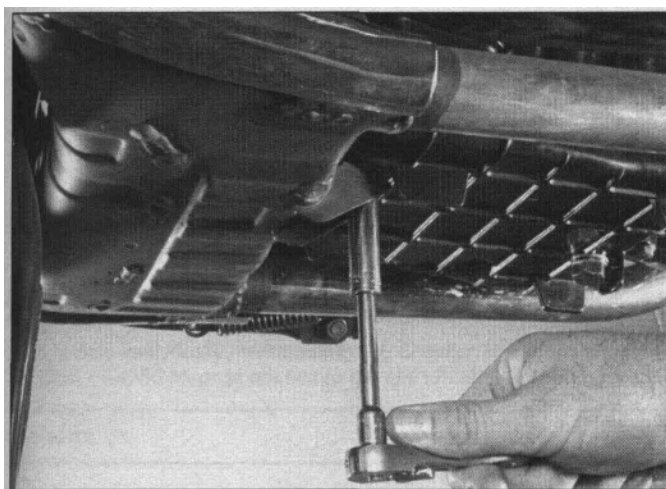
Refer to illustrations 19.3, 19.9a, 19.9b and 19.11

Mufflers (silencers)

- 1 Place the motorcycle on its main stand.
- 2 Remove the trim panel (where fitted) from the muffler-to-exhaust system joint. Loosen fully the clamp which retains this joint.
- 3 Remove the muffler mounting nut and bolt from the passenger footpeg bracket, making careful note of the position of all washers, spacers and damping rubbers. Pull the muffler rearwards, twisting it from side-to-side to help release it from its joint clamp. Due to the joint gaskets, the fit is tight (**see illustration**).
- 4 Installation is the reverse of the removal procedure, noting that new gaskets must be used at all joints. Tighten all fasteners loosely at first, and then when the system is in its correct position, secure them to the specified torque (**see Specifications**).

Complete system

- 5 Place the motorcycle on its main stand.
- 6 Remove the muffler (silencer) mounting bolt on each side and place a wood block under the assembly to take its weight and prevent strain while the main exhaust fasteners are released.
- 7 Remove the nuts that retain the exhaust pipes to the front cylinder head.
- 8 Loosen fully the clamps that secure the exhaust chamber to the two rear exhaust headpipes.
- 9 On 700/750 models remove the two exhaust chamber mounting bolts (one is located on the left side of the engine and one is located underneath the engine) (**see illustrations**). On 1100 models the chamber is held by a single long bolt on the left side of the engine (remove the rear left engine cover for access).
- 10 Carefully work the rear cylinder pipes out of the chamber stubs and lower the complete exhaust system clear of the motorcycle. Note that the rear cylinder pipe clamps may need to be rotated to clear the swingarm.
- 11 On all models except the 1985 and 1986 700 Magnas, the rear cylinder headpipes can be removed after removing the exhaust system. First remove the screws that attach the heat shield to both headpipes, then remove the nuts that attach the pipes to the rear cylinder head bank. Carefully work each pipe up and out the side of the motorcycle (**see illustration**). Due to lack of clearance, the heat shield cannot be removed without first removing other components. On 1985



19.9b ... and underneath the engine (early 700/750 models)

and 1986 700 models, engine removal will be necessary to remove the rear cylinder headpipes.

12 Installation is the reverse of the removal procedure, noting that new gaskets must be used at all joints. Tighten all fasteners loosely at first, and then when the system is in its correct position, secure them to the specified torque (see Specifications).

1987 and 1988 700/750 Magna models

Refer to illustration 19.16

Muffler (silencer)

13 Ensure that the motorcycle is securely supported on its stand.

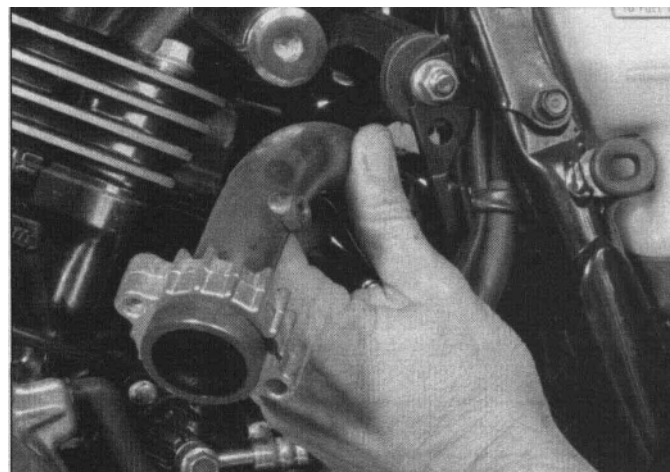
14 Remove the belly fairing rear sections (see Chapter 6).

15 Remove the muffler (silencer) bracket mounting bolt on each side and place a wood block under the assembly to take its weight and prevent strain while the joint clamps are loosened.

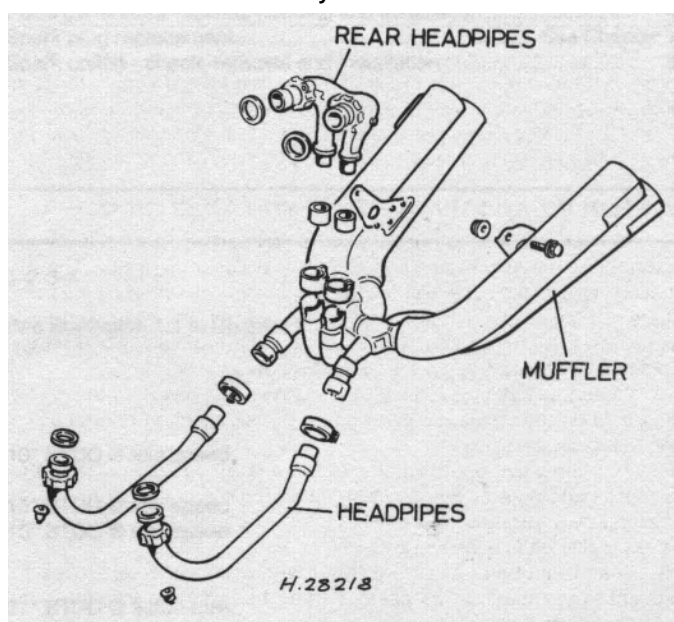
16 Loosen fully the clamps that secure the two front cylinder pipes and two rear cylinder exhaust headpipes to the mufflers. Work the muffler stubs off the pipes and lower the muffler assembly free (see illustration).

17 If required, the right and left side mufflers can be separated after the connecting pipe clamp bolt has been fully loosened and the joint pulled apart.

18 Installation is the reverse of the removal procedure, noting that new gaskets must be used at all joints. Tighten all fasteners loosely at first, and then when the system is in its correct position, secure them to the specified torque (see Specifications).



19.11 Rear cylinder header pipes can be maneuvered out of frame after exhaust system has been removed



19.16 Exhaust system - four-into-four design

Complete system

19 Ensure that the motorcycle is securely supported on its stand.

20 Remove the belly fairing (see Chapter 6).

21 Remove the muffler (silencer) bracket mounting bolt on each side and place a wood block under the assembly to take its weight and prevent strain while the main exhaust fasteners are released.

22 Remove the nuts that retain the exhaust pipes to the front cylinder head.

23 Loosen fully the clamps that secure the two rear exhaust headpipes to the mufflers and carefully work the headpipes out of the stubs and lower the complete exhaust system clear of the motorcycle.

24 If required, the right and left side mufflers can be separated after the connecting pipe clamp bolt has been fully loosened and the joint pulled apart.

25 Engine removal will be necessary to remove the rear cylinder headpipes from the cylinder head; the pipes are covered by a heat shield and retained to the head by nuts.

26 Installation is the reverse of the removal procedure, noting that new gaskets must be used at all joints. Tighten all fasteners loosely at first, and then when the system is in its correct position, secure them to the specified torque (see Specifications).