Section K6

Air intake systems

Introduction
There are two types of air intake system. One is temperature sensitive and has an underwing cleaner and rubber trunking connected to twin S.U. HIF7 carburetters (see Fig. K94). The other has a flat pan type air cleaner with twin intake horns mounted over a Solex 4A1 carburetter as shown in Figure K96.

S.U. HIF7 carburetter air intake system

This underwing temperature controlled air intake system comprises.

Air cleaner/silencer
Cold air intake
Air blending valve
Paper air filter element
Hot air pick-up
Resonator
Temperature sensor

Air cleaner/silencer
The air cleaner/silencer assembly is secured to the valance plate under the front right-hand wing.

The cold air intake has an air blending valve. From a cold start the valve is in the closed position, allowing only warm air to enter from the hot air pick-up. When the control temperature has been attained, the sensor reduces the vacuum signal to the blending valve which controls the proportions of cold and warm air to maintain a constant intake temperature. At maximum opening of the throttles, the vacuum signal falls causing the blending valve to adopt its full 'cold air' position for maximum performance.

The paper air filter element is mounted horizontally into the air cleaner/silencer and secured by a central stud, locating plates and hexagonal extended nut. The carburetter intake air passes via the filter and trunking to the intake elbow.

Hot air pick-up
The hot air pick-up is mounted above 'A' bank exhaust manifold and is connected to the air cleaner/silencer by a rubber trunking. Warm air from around the exhaust manifold is used to raise the temperature of the intake air under cold start conditions.

Resonator
The resonator is fitted into the rubber trunking between the air cleaner/silencer and the carburetter air intake elbow. It reduces resonance or noise in the intake system.

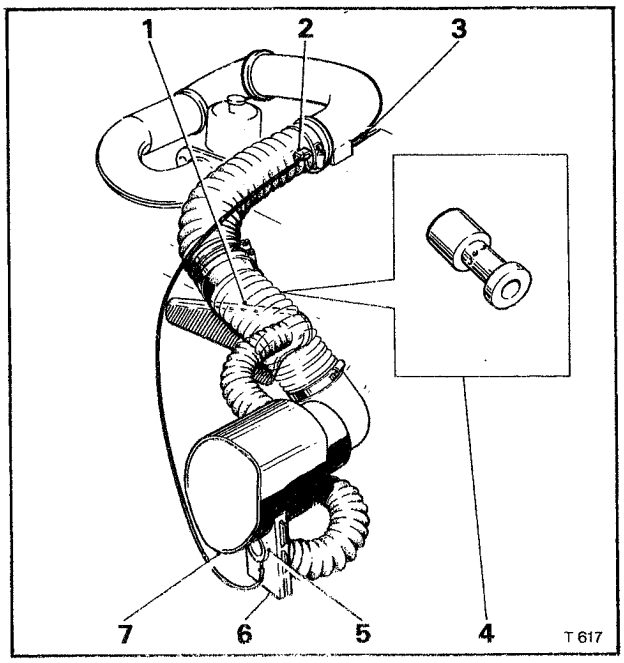

Fig. K94 S.U. HIF7 carburetters air intake system
1 Hot air scoop
2 Temperature sensor
3 Manifold vacuum hose
4 Resonator
5 Air blending valve
6 Cold air intake
7 Air cleaner/silencer

Temperature sensor (see Fig. K95)
The temperature sensor is mounted in the carburetter air intake elbow and operates the air blending valve. A bi-metal strip senses changes in the air intake temperature and regulates the vacuum signal to the blending valve which varies the proportions of cold and hot air to maintain a constant air intake temperature.

The sensors are colour coded white (or natural) and are pre-set to control at 20° C. (68° F.). The only exceptions are the sensors fitted to cars destined for Japan which have a yellow spot on the top face and pre-set to 0° C. (32° F.).

Air filter element - To remove and fit
1. Unscrew the knurled setscrew located in the

centre of the air filter cover; withdraw the cover together with the trunking.
2. Remove the hexagonal nut from the central stud; withdraw the filter element and the two end plates.
3. To fit the new element reverse the removal procedure.

Air cleaner/silencer - To remove
1. Carry out the procedure for removing the air filter element.
2. Raise the front of the car and support the car on suitable stands.
3. Remove the right-hand front wheel (see Chapter R).
4. Remove the front underwing sheet.
5. Disconnect the trunking from the hot air duct. Also disconnect the vacuum hose connected to the air blending valve.
6. From inside the engine compartment unscrew the six 7/16in. A/F setscrews retaining the air cleaner/silencer; withdraw the air cleaner/silencer together with the cork gasket.

Air cleaner/silencer - To fit
To fit the air cleaner/silencer reverse the procedure given for removal, noting the following.
1. Fit a new cork gasket to the air cleaner/silencer mounting face.
2. Check the vacuum hose for deterioration; renew if necessary.

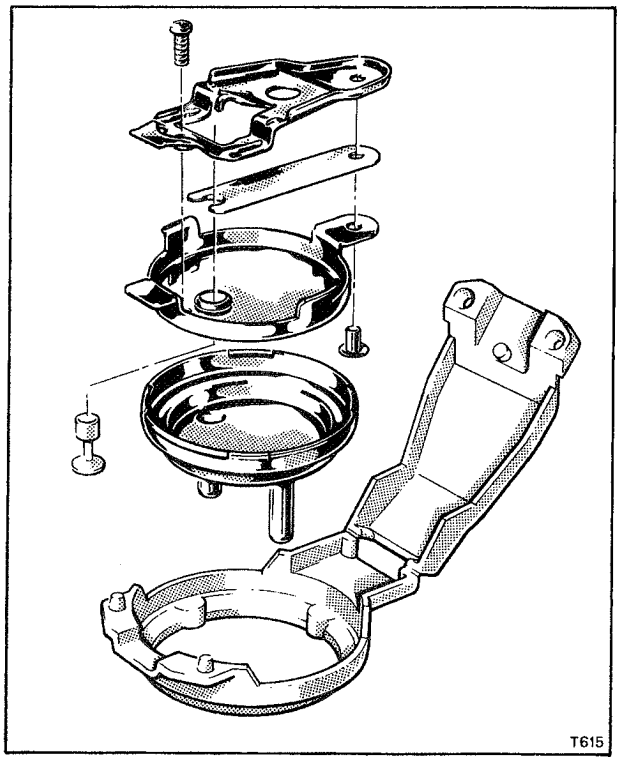

Fig. K95 Temperature sensor

Hot air pick-up - To remove and fit
1. Slacken the worm drive clips situated around the forward section of the carburetter air intake trunking; remove the trunking.
2. Slacken the worm drive clip situated around the hot air pick-up trunking; remove the trunking.
3. Remove the two 7/16in. A/F nuts and washers securing the hot air pick-up to the inner longeron captive bolts; withdraw the pick-up.
4. To fit the hot air pick-up reverse the removal procedure.

Resonator - To remove and fit
1. Slacken the two worm drive clips situated at the centre of the rubber trunking which connects the air cleaner/silencer to the carburetter intake elbow. Ease the clips along the trunking.
2. Remove the trunking from the resonator; withdraw the resonator.
3. To fit the resonator reverse the removal procedure.

Temperature sensor - To remove
1. Disconnect the electrical connection at the cut-out switch fitted into the carburetter intake elbow.
2. Unscrew the ½ in. A/F choke stove pipe connection at the carburetter intake elbow.
3. Slacken the worm drive clip securing the intake trunking to the elbow and remove the trunking.
4. Remove the 7/16 in. A/F setscrew and washer securing the intake elbow to the thermostat housing bracket; remove the elbow from the choke housing.
5. Remove the sensor vacuum pipe connections; withdraw the intake elbow.
6. Suitably position the inverted intake elbow on a bench and carefully remove the sensor securing clip; withdraw the sensor.

Temperature sensor - To fit
To fit the temperature sensor reverse the procedure given for removal noting the following points.
1. A **new** securing clip must be used when fitting the sensor to the air intake elbow.
2. Ensure that the vacuum pipes fitted underneath the sensor do not become trapped (by poor alignment) when the intake elbow is fitted into the choke housing.

Solex 4A1 carburetter air intake system

The flat pan type air intake is mounted on top of the carburetter. It is supported from the air intake horns by two struts which locate onto the forward loom retaining studs of the rocker covers.

A knurled nut secures the air intake onto the central locating stud situated in the top cover of the carburetter. An engine breather pipe connects the oil filler housing on 'B' bank cylinder head with the underside of the air intake.

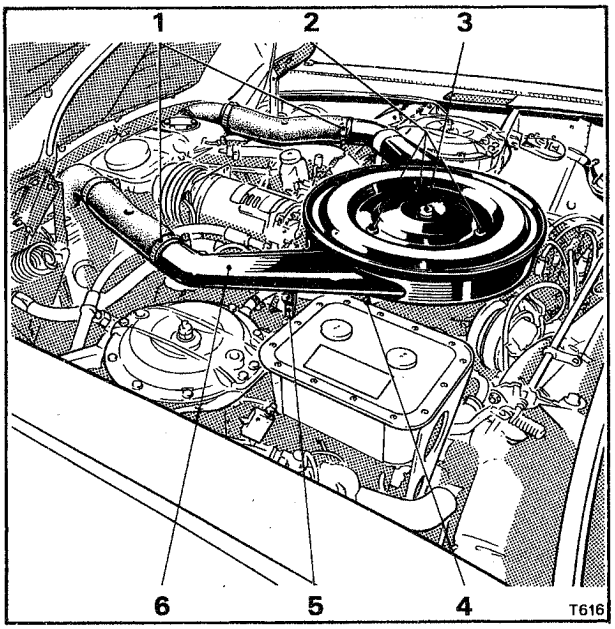

Fig. K96 Solex 4A1 carburetter air intake system

1 Intake horn trunking clips
2 Filter cover cap nuts
3 Knurled securing nut
4 Engine breather pipe clip
5 Domed nut (intake support legs)
6 Intake horn

Air is drawn through the intake horns from the vicinity of the radiator and passes through the paper air filter element before entering the carburetter.

Flat pan air intake - To remove and fit

1. Using a 7/16 in. A/F spanner unscrew the domed nuts securing the air intake assembly struts to the rocker covers; collect the nuts and washers.
2. Slacken the worm drive clip securing the engine breather pipe to the oil filler on 'B' bank cylinder head; remove the pipe from the housing.
3. Slacken the worm drive clips (if fitted) at the intake horn end of the rubber trunking; withdraw the trunkings from the intake horns.
4. Unscrew the knurled nut from the centre of the filter housing.

To remove the air intake, withdraw the support struts from the rocker cover studs and lift upwards.
5. To fit the air intake reverse the removal procedure, noting that the rubber sealing ring fitted between the carburetter and air intake must be in a good condition.

Flat pan air filter element - To remove and fit

1. Remove the three 7/16 in. A/F cap nuts which secure the filter cover.
2. Remove the central securing knurled nut from the filter assembly.
3. Lift up the filter cover and withdraw the filter element.
4. To fit a new filter element reverse the removal procedure.