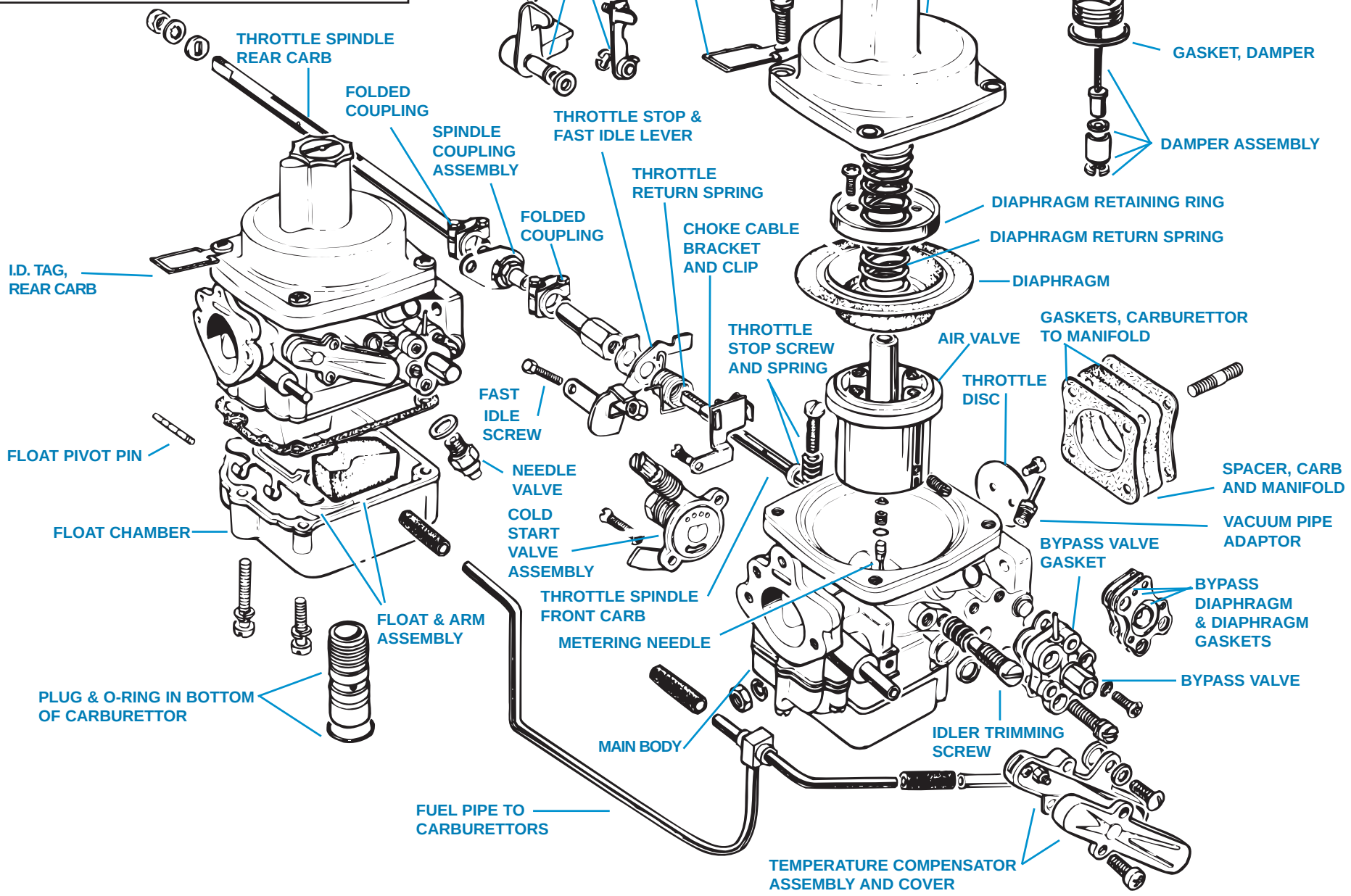
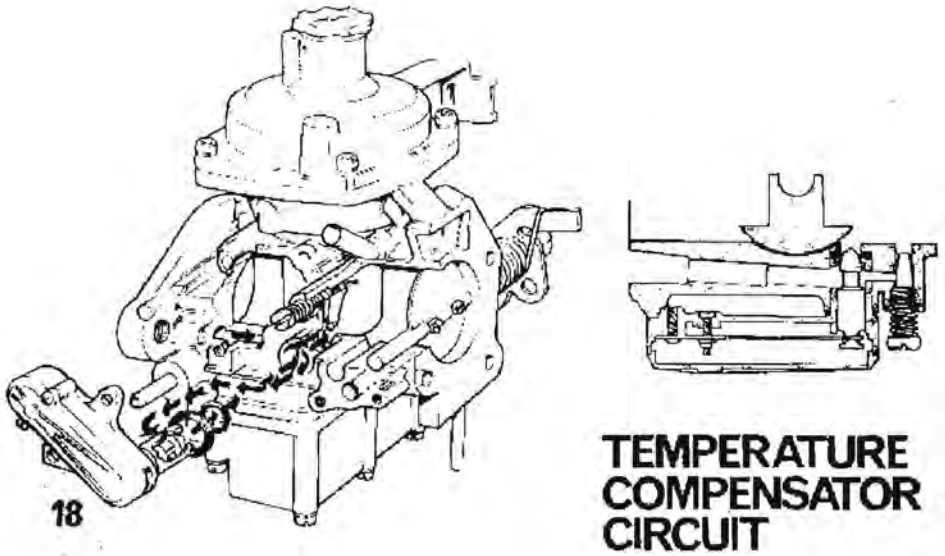
PLATE AU

CARBURETTORS, OVERVIEW





FRAME 18

The Temperature Compensator

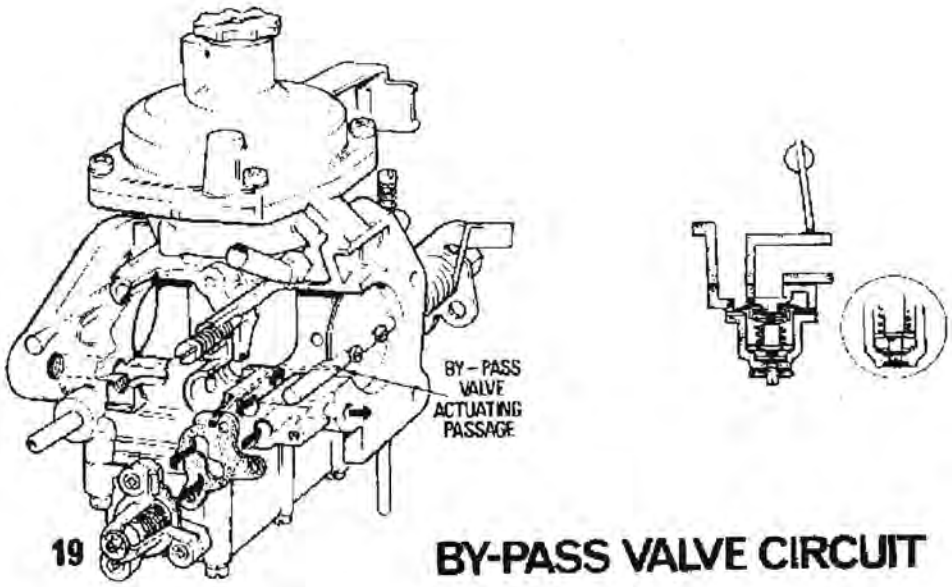
Emission testing has shown the need for a temperature compensator to cater for minor mixture strength variations caused by heat transfer to the carburetter castings. This demonstrates the extraordinary precision demanded by exhaust emission requirements.

The temperature compensator allows some of the air which is passing through the carburetter to by-pass the bridge section and be bled into the mixing chamber. A tapered plug on the end of a bi-metal strip regulates the amount of air introduced into the mixing chamber and is related to the heat 'sensed' by the bi-metal strip. The temperature compensator is sealed in two places to avoid leakage at the joint with the main body.

As the temperature of the carburetter rises and the bi-metal strip is actuated, air is bled into the mixing chamber which causes the air valve to ride in a lower position, in order to maintain depression on its downstream side. The effect of this is to give a smaller fuel flow and weaken the mixture.

In the cold position, no air is passed through the temperature compensator.

NOTE: THIS ASSEMBLY IS PRE-SET AND MUST NOT BE ADJUSTED. If a malfunction of the component is suspected and the tapered plug is free when carefully tested by hand, the compensator assembly must be changed.



19 **BY-PASS VALVE CIRCUIT**

FRAME 19

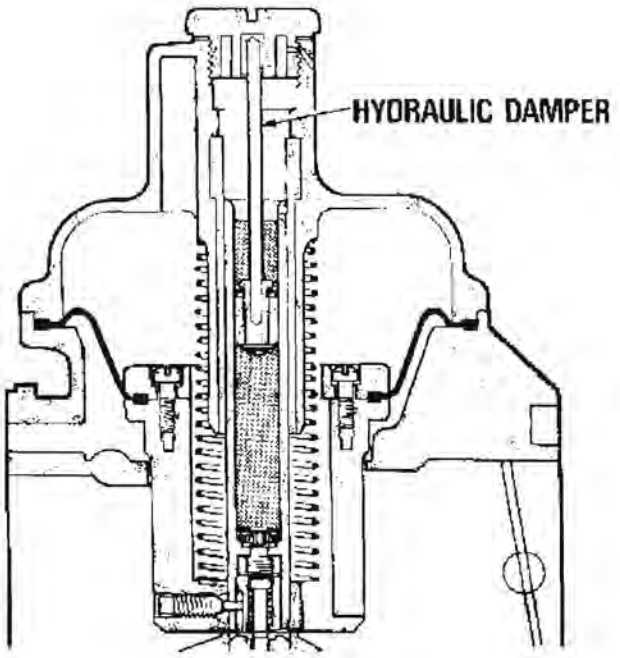
By-Pass Valve

During periods of engine over-run, high emissions of hydrocarbons and carbon monoxide will occur due to a rich mixture in the combustion chamber contaminated by exhaust gases, which is incombustible due to a lack of oxygen.

To counter the above condition a by-pass valve is fitted to the carburetter. The by-pass valve opens when a high inlet manifold depression overcomes the tension of the valve diaphragm spring, allowing extra fuel/air to feed from the mixing chamber of the carburetter via a passage to the downstream side of the butterfly.

The extra fuel/air mixture fed into the combustion chamber allows complete combustion to take place.

The by-pass valve can only be serviced as a complete unit and should be adjusted as described in Frame 42 .



20

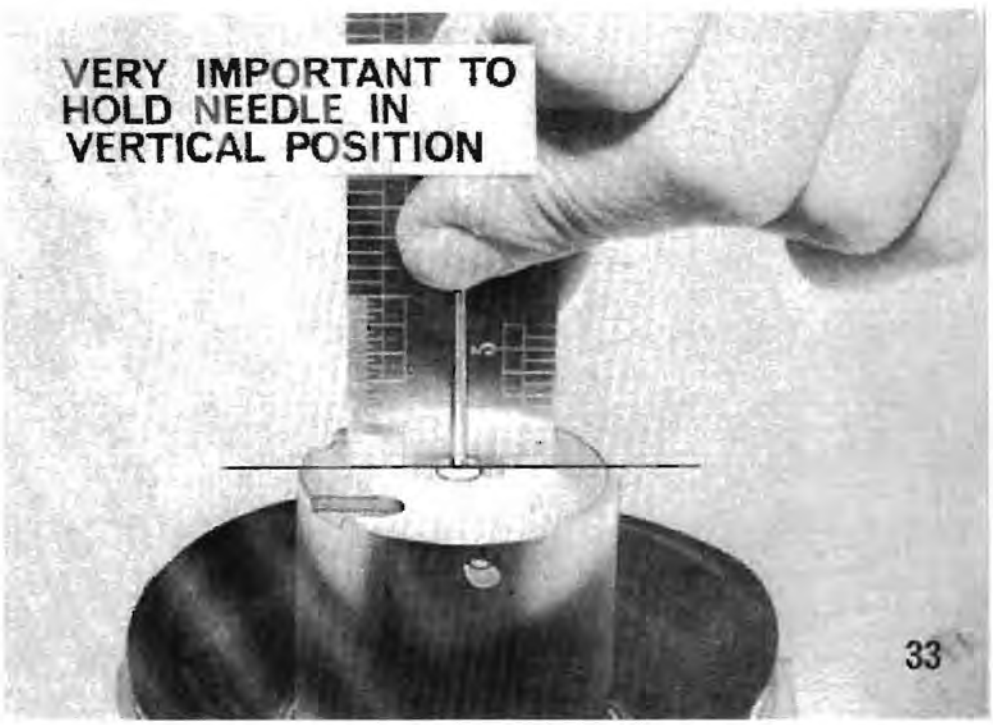
FRAME 20

Hydraulic Damper

At any point in the throttle range a temporary enrichment is needed when the throttle is suddenly opened. A hydraulic damper is fitted inside the hollow guide rod of the air valve.

The guide itself is filled with 'Zenith Lube Pack' or S.A.E. 20 engine oil to within 1/4 inch of the end of the rod.

When the throttle is suddenly opened the immediate upward motion of the piston is resisted by the damper. For this brief period a temporary increase in the depression over the jet orifice is achieved and the mixture is enriched. Downward movement of the air valve is assisted by a coil spring.



FRAME 33

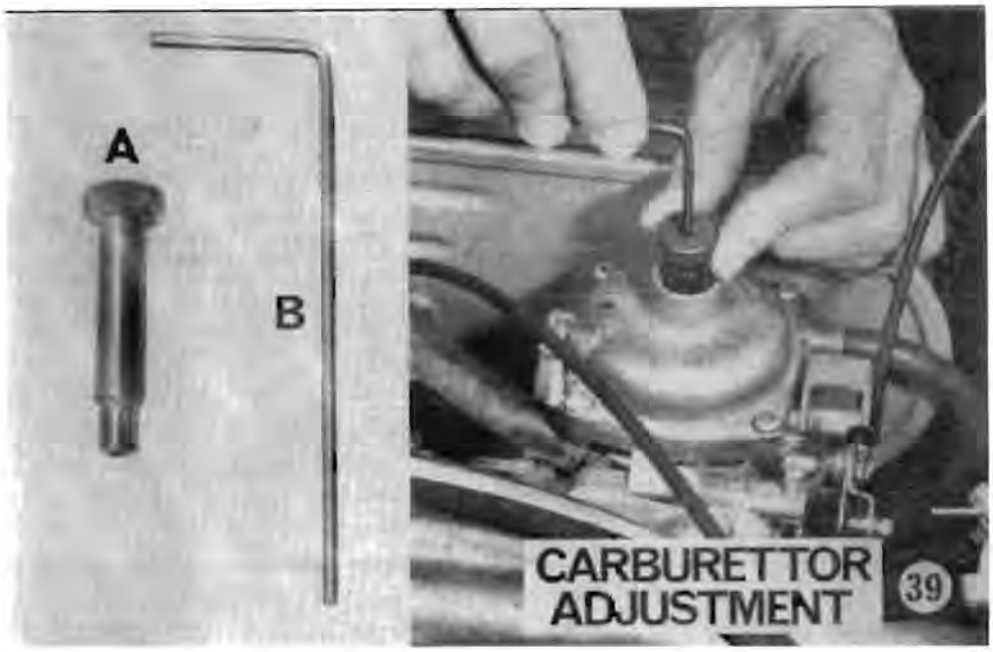
Correct Positioning of Needle

It is most important that the needle is adjusted to the mid condition before fitting to the carburetter and final adjustment using an air fuel meter.

Using tools previously described, adjust the needle until the face of the nylon washer is below the surface of the air valve.

Hold a steel rule in the position shown above with the needle against it and held in the vertical position against spring pressure.

Adjust the needle upwards until the face of the nylon washer just contacts the steel rule.



FRAME 39

Carburetter Needle Adjustment Through the Top Cover

Provision is made to adjust the air/fuel ratio within the permitted range by moving the carburetter needle using the special tools shown above.

IT IS ESSENTIAL THAT ADJUSTMENTS ARE MADE ONLY BY AUTHORIZED DEALERS OR DISTRIBUTORS USING APPROVED NON-DISPERSIVE INFRA-RED CO MEASURING EQUIPMENT, AND TO ENSURE THAT THE LEGAL CO LEVELS ARE NOT EXCEEDED.

NOTE:
The air cleaner MUST be in position when adjusting the carburetter mixture.

Before attempting to adjust the mixture, screw the trimming screw in against its seat.

To adjust the air/fuel mixture unscrew the damper from the carburetter top cover and to prevent loss of damper oil, slowly insert tool 'A' until the lugs engage with the slots in the air valve tube. Insert tool 'B' through the centre of 'A' which automatically centres the hexagonal end of tool 'B' to engage with the screw adjustment at the bottom of the air valve tube.

To richen the mixture hold tool 'A' to prevent the air valve turning and rotate tool 'B' in a clockwise direction by increments of one-quarter of a turn.

If the car is fitted with twin carburetters it is ESSENTIAL to adjust BOTH carburetters by the same amount.

To weaken the mixture turn tool 'B' in an anti-clockwise direction.

There is approximately one full turn in each direction.

It is very important to avoid prolonged idling when checking air/fuel ratios. After each three-minute continuous testing, run the engine at 2,000 rev/min for one minute.

Remove the special tools, check carburetter air valve damper oil level and replace the damper.

Further fine adjustments to the mixture, to aid drivability of the vehicle, may be made using the trimming screw as described in the next frame.

FRAME 40

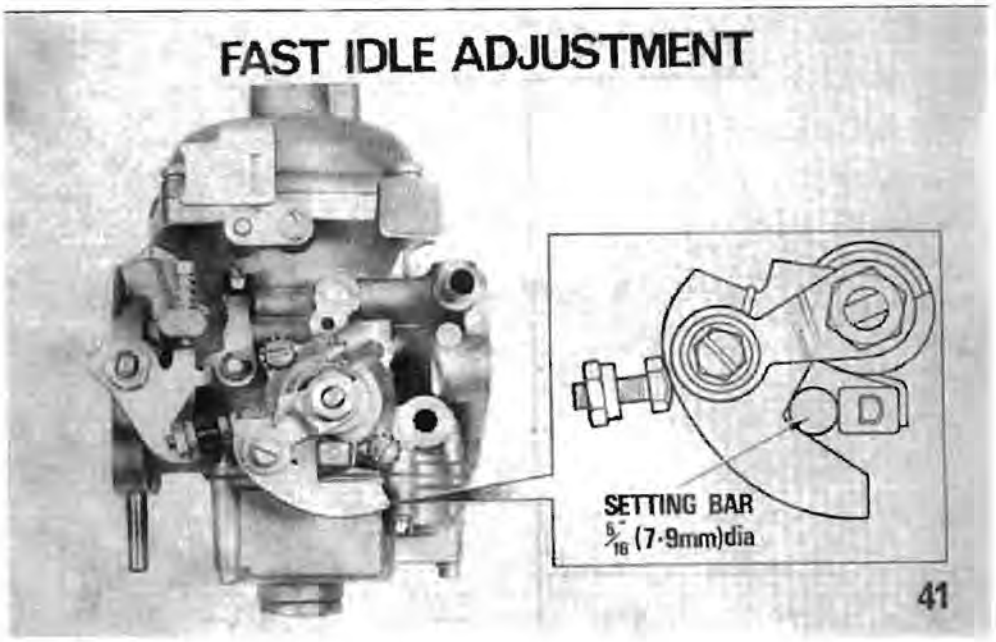
Trimming Screw Adjustment

Having checked all settings, couple up on air/fuel ratio meter and observe combustion efficiency.

If the readings are slightly outside the permitted limits, adjust both carburetter trim screws by equal amounts until the needle reads within limits.

NOTE: The trim screw is not an ordinary mixture adjusting screw. The adjustment is so fine that only with the use of a meter can the results be detected.

It is very important to avoid prolonged idling when checking the air/fuel ratios. After each three-minute continuous testing, run the engine at 2,000 rev/min for one minute.



FRAME 41

Carburetter Linkage

A certain amount of 'lost motion' is incorporated in the carburetter linkage on all models to the fast idle condition without disturbing the closed position of the throttle. The amount of lost motion is not adjustable and must not be confused with wear.

Fast Idling

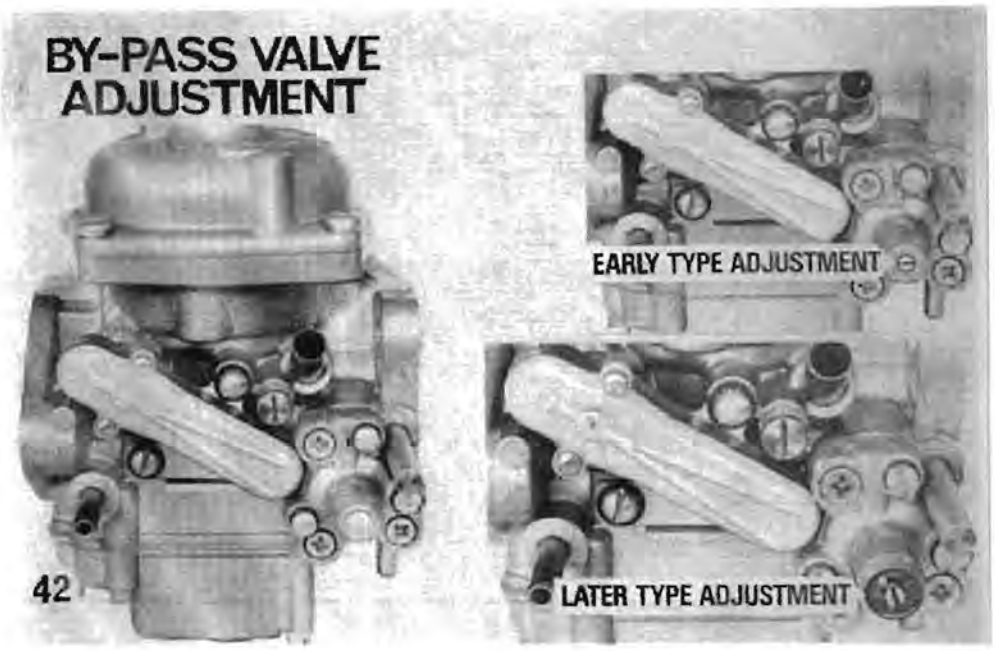
The engine should be tuned so that the idling speed is between 800 and 850 rev/min.

Stop the engine and place a piece of 5/16 in (7.9 mm) diameter bar between the fast idle cam and the stop as shown in the illustration.

Adjust the fast idle screw until the head of the screw just touches the cam, then tighten the locknut and remove the setting bar.

The above setting should give a fast idle of 1,300 rev/min engine HOT and approximately 1,100 rev/min engine COLD.

NOTE: If the engine is fitted with twin carburetters the above setting must be carried out on each carburetter except the Triumph Stag.



FRAME 42

By-Pass Valve Adjustment

If complaints are received of lack of engine braking or very high idling speeds and the engine is found to be in a good state of tune, the by-pass valve may be floating on its seating.

To check for this condition, remove the distributor vacuum pipe from the manifold and place a finger over the hole in the manifold.

If the by-pass valve is floating, then the above procedure will aggravate the condition, causing a sudden increase in engine speed which is maintained.

With the valve operating correctly, with the vacuum pipe removed, the engine idle speed should rise to approximately 1,300 rev/min.

NOTE: If the valves are removed for cleaning, they should be refitted and adjusted according to the procedure given [below].

Adjustment

Early cars with 1973 specification have a by-pass valve adjustment screw, which is covered by a washer shown in the illustration 'A'.

NOTE: The washer must be replaced when any adjustment has been made. On later cars the adjustment screw is exposed as in 'B'.

NOTE: It is not necessary to remove the spring clip when turning the adjustment screw.

If the engine is fitted with two carburetters the by-pass valve adjustment screw on the carburetter NOT being adjusted should be screwed anti-clockwise fully onto its seat.

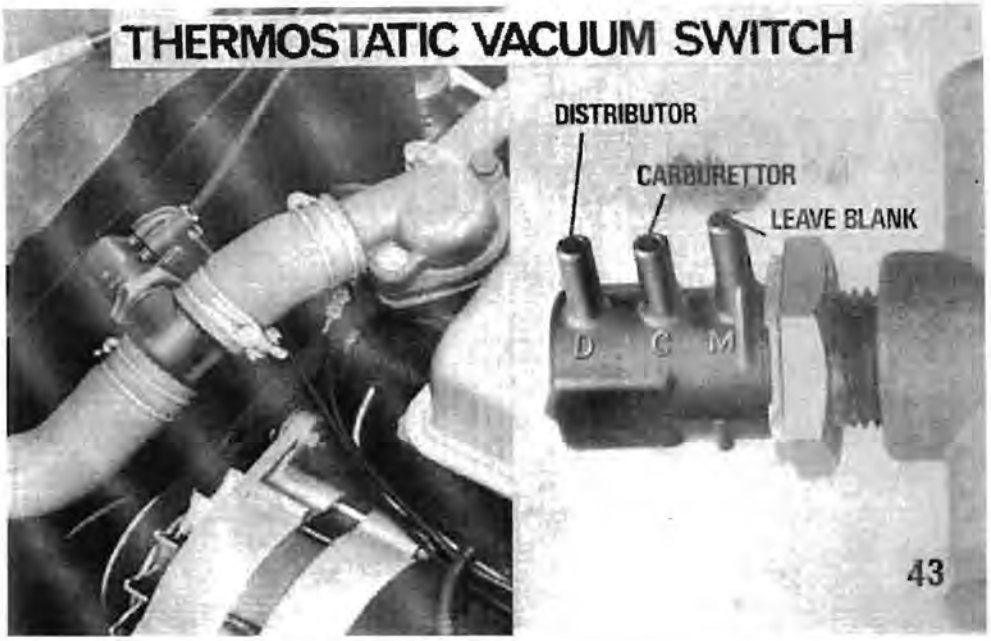
This procedure prevents the one by-pass valve from working while the valve on the other carburetter is adjusted. It is not necessary to repeat this procedure when re-adjusting the other by-pass valve on the second carburetter.

Remove the distributor vacuum pipe from the manifold and block off the hole in the manifold. Screw the by-pass valve clockwise until engine speed increases abruptly (approximately 2,000 to 2,500 rev/min), the valve is then 'floating' on its seat. Turn the adjustment screw anti-clockwise until the engine **just** returns to normal idle.

Using the throttle, suddenly increase engine speed and return to normal: engine speed should drop to approximately 1,300 rev/min. If not, the valve is still 'floating': re-adjust valve as necessary.

When the necessary condition has been achieved, turn the by-pass valve adjustment screw ANTI-CLOCKWISE half a turn to seat the valve correctly. Replace the washer in the body of the deceleration valve if necessary.

Repeat the operation on the remaining carburetter. When the by-pass valves on both carburetters are correctly set, unplug the manifold vacuum hole and refit the distributor vacuum pipe.



FRAME 43

Thermostatic Vacuum Switch

Thermostatic vacuum switches are fitted to all U.S.A. cars, an example of which is shown in the illustration.

The switch is integral with the cooling system and vacuum pipes from the carburetter and distributor are fitted to the switch.

During high ambient temperatures and city driving the coolant temperature may become excessive, in which case a valve is actuated in the switch, by the thermostat, which then closes off the vacuum retard to the distributor.

This action allows the engine speed to rise, allowing greater coolant circulation and thereby reducing overheating.