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PRIMARY CHECK CARD.

NOTE: Before any attempt is made to diagnose faults on the Petrol Injection system the checks itemized on the PRIMARY CHECK CARD MUST be completed.

PETROL INJECTION FAULT DIAGNOSIS

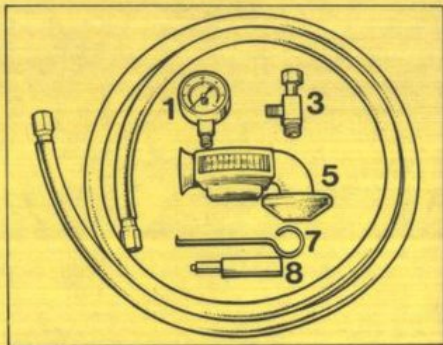
From extensive experience it has been noted that garage personnel all too frequently blame the Petrol Injection system for faults, which, when correctly diagnosed, have been shown to be caused through poor engine tune.

With this in mind the accompanying cards have been produced to give QUICK, EFFECTIVE AND EFFICIENT fault diagnosis.

SPECIAL EQUIPMENT REQUIRED

To carry out Petrol Injection Fault Diagnosis quickly and efficiently the following equipment is ESSENTIAL.

1. Pressure gauge 0 to 120 lbf/in² (0 to 8.4 kg/cm²), Churchill Part No. CBW 1B.
2. Ammeter 0 to 10 amps and voltmeter 0 to 20 volts.
3. Pressure test adaptor (Churchill No. S 351).
4. 15 ft (4.6 m) of twin cable 28/-012, two nipples soldered on one end of cable. Cable connector for connection in series to pump.
5. Synchro check or similar carburettor air-flow meter.
6. Vacuum gauge.
7. Wire hook for removing metering unit sealing rings.
8. Tool for fitting sealing rings to metering unit.



SERVICE PRECAUTIONS

The fuel pump should never be switched on while any normally pressurized part of the fuel system is dismantled.

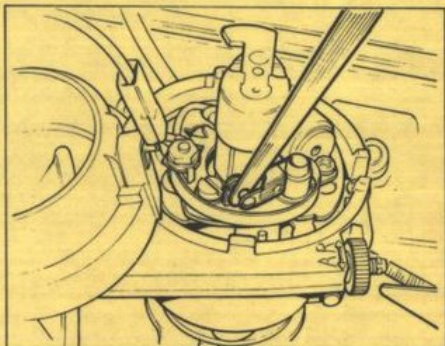
If it is necessary to have the ignition switched on to check some electrical component fitted to the car, without the engine running, it is recommended that the fuel pump is isolated.

PRE-DIAGNOSIS CHECK OPERATIONS

- a. Ensure that there is a sufficient supply of clean fuel in the petrol tank.
- b. Battery should be fully charged and in good condition.

ENGINE TUNE

1. Remove sparking plugs, clean, check and set gaps to 0.025 in (0.63 mm).
2. Remove distributor cap and waterproof cover, remove points, clean, replace and reset to 0.014 to 0.016 in (0.35 to 0.40 mm). Dwell angle 32 to 38° TR6 and 2.5 P.I.

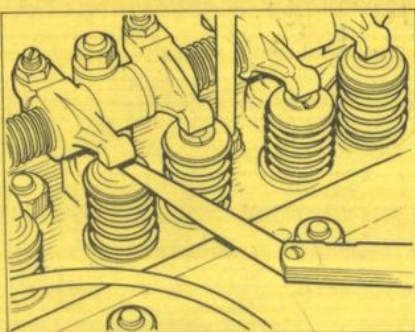


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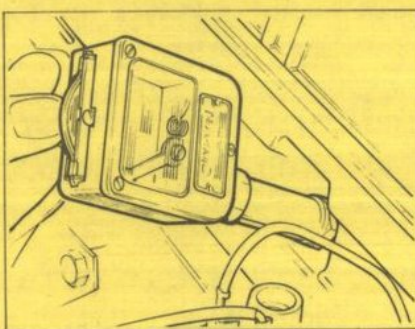
3. Remove rocker cover—it is not necessary to remove injector pipes—the rocker cover can be tilted and pulled towards the air cleaner under injector pipes, but it will be necessary to remove the two vacuum pipes from the inlet manifold.

Set tappets COLD 0.010 in (0.25 mm) gap.

NOTE: Engine can be rotated by means of a socket spanner on the alternator pulley nut.



4. Check compression pressures—engine hot. Alternatively, check for cylinder leakage using suitable equipment.

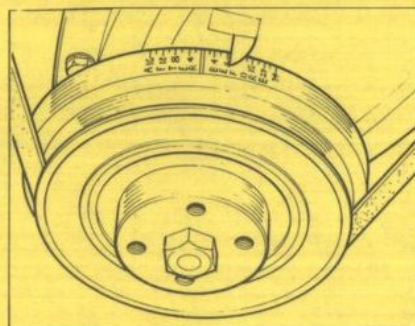


5. Static Timing—

2.5 P.I. 8° B.T.D.C.

TR6 11° B.T.D.C.

Turn engine in **CLOCKWISE** direction (viewed from front of engine) until pointer on front cover lines up with correct mark on crankshaft damper, No. 1 cylinder firing.



6. Re-check timing with engine running using a strobelight.

Timing should be:

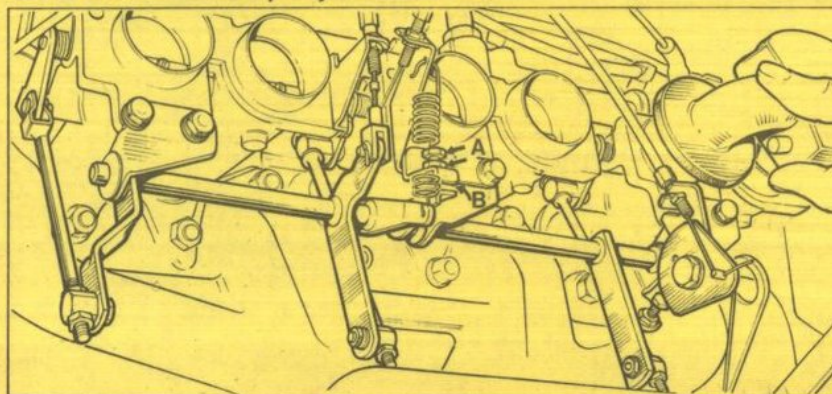
2.5 P.I. 8° B.T.D.C. with distributor vacuum pipe disconnected.

22 to 24° B.T.D.C. with distributor vacuum pipe connected.

TR6 11° B.T.D.C. (TR6 does not have vacuum advance.)

7. Remove airbox. Check tightness of three vacuum adaptors on inlet manifold. If necessary, renew fibre washers. Ensure short rubber balance pipes between air intakes are in good condition and not leaking.

8. Air intake butterfly adjustment:



Slacken choke fast idle adjustment screw to clear cam in all throttle positions.

Slacken locknut on throttle cable to abutment bracket and ensure there is free play in the throttle cable.

Slacken locknut on linkage screw 'A' (see illustration).

Start engine.

Apply a synchro check air-flow meter to one of the rear pair of air intakes and using adjustment screw 'A' increase the engine revs until a suitable reading is shown on the air-flow meter, i.e. 2 or 3. The rear pair of air intakes are used as the MASTER SET and the air flow on the two other sets of air intakes must match the 'master' set.

The butterflies are adjusted by means of rods on the linkage, the locknuts slackened and the rod screwed in or out to alter the air flow to match the 'master' set as necessary.

Care should be exercised when tightening the locknuts on the rods. Hold a screwdriver in the slot of the control rod to ensure the air-flow readings remain constant.

Repeat operation for all sets of intakes.

Finally, re-check air flow through intakes to ensure uniformity.

Unscrew adjustment screw 'A' to slow-running position.

NOTE: Screw 'A' should not touch bracket at 'B' during the next operation.

Place thumb over slow-running valve. Engine should stall.

If engine continues to run, one set of butterflies is leaking and the adjustment procedure must be repeated.

Finally, screw in adjustment screw 'A' to just touch bracket at 'B'. Tighten locknut.

9. Fit vacuum gauge and 'T' piece to centre inlet manifold.

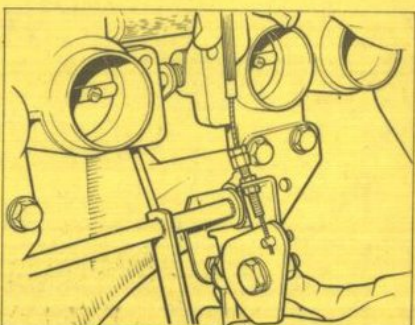
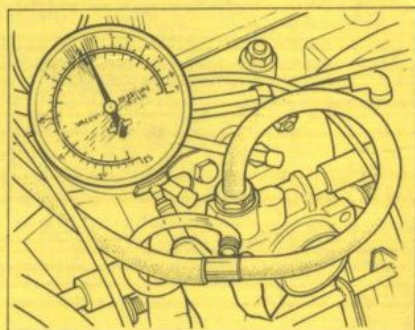
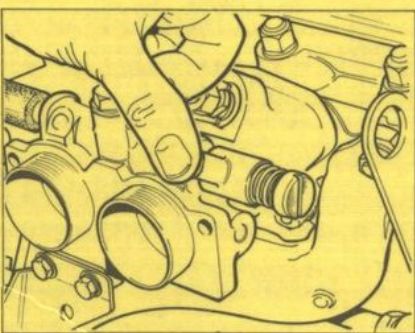
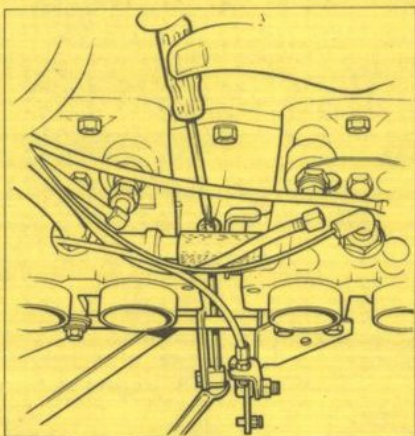
Vacuum readings

(at 800 r.p.m.):

2.5 P.I. 10 to 12 in vacuum
(33.8 to 40.63 kN/m²)

TR6 7 to 8 in vacuum
(23.7 to 27.0 kN/m²)

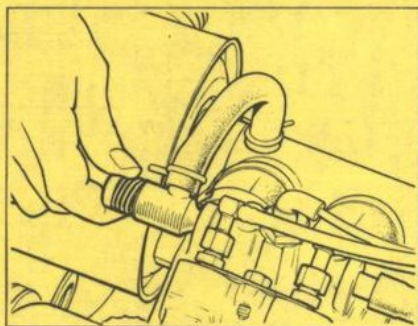
10. With the engine idling, pull the cold start cable to its maximum position and turn the adjustment screw, which acts on the cam, until the engine speed rises to approximately 1,800 to 2,000 r.p.m. Release the cable and ensure there is clearance between the cold start cam and screw, then tighten



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locknut. If no clearance exists, re-adjust screw accordingly and re-check engine r.p.m. at maximum cold start position.

11. Refit airbox and reset engine idling speed to 750 to 800 r.p.m. by means of the air valve in the inlet manifold.



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