

Exhaust Emission Systems

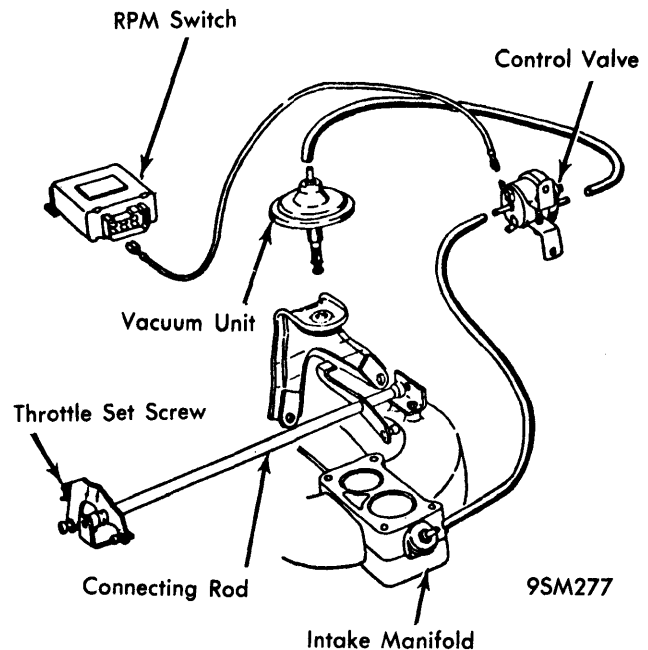
1970-71 BMW ENGINE MODIFICATION

BMW 2500 (1970-71)
 BMW 2800 (1970-71)
 BMW Bavaria (1971)
 BMW 2800 CS (1970-71)

DESCRIPTION

BMW engine modification system consists of:

- 1) A specially calibrated intake manifold which properly distributes air/fuel mixture to each cylinder.
- 2) A carburetor with reduced flow curve permitting optimum performance with a leaner air/fuel mixture.
- 3) A distributor incorporating a dual acting vacuum unit.
- 4) A vacuum unit which controls throttle position during periods of deceleration.
- 5) A control valve which governs operation of throttle vacuum unit.
- 6) An RPM switch which activates control valve.
- 7) A thermostatically controlled air cleaner.



BMW ENGINE MODIFICATION SYSTEM SCHEMATIC



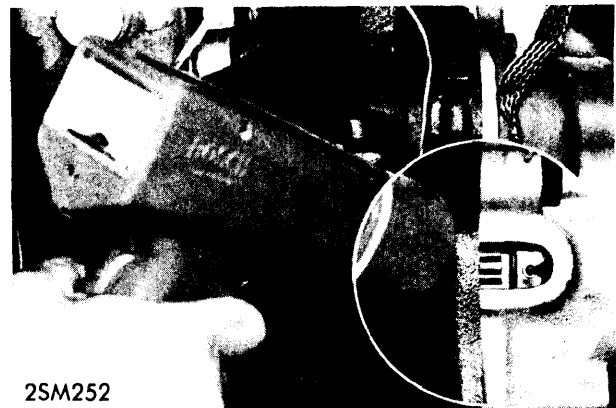
DISTRIBUTOR DUAL ACTING VACUUM UNIT

OPERATION

RPM switch activates control valve when engine speed is above 2000 RPM. Control valve allows intake manifold vacuum to reach vacuum unit on carburetor. Vacuum unit then provides a carburetor throttle opening of 3-4° until engine speed drops to 2000 RPM. Throttle position is then gradually reduced to its regular idle position. This throttle opening of 3-4° must be maintained by adjusting throttle vacuum (dashpot) unit. When carburetor throttle valves are closed and engine is running (idle and deceleration), the dual acting distributor vacuum unit retards ignition timing thus reducing the normal centrifugal and vacuum advance by approximately 12°.

MAINTENANCE

Ignition Timing – Connect timing light and tach-dwell meter. Check cam angle, if necessary adjust to 37-42°.



IGNITION TIMING MARK

- 1) Disconnect and plug distributor vacuum unit hoses. Timing mark on flywheel is visible through access hole located behind starter. Steel ball on flywheel must be indexed with pointer (on housing) when ignition is properly set.
- 2) Reconnect vacuum hoses to distributor vacuum unit. Set idle speed to 950-1000 RPM. With hoses connected, timing mark on flywheel should now be between 0° (TDC) mark and 5° ATDC.

Adjusting Carburetor Idle Mixture – Before synchronizing carburetors adjust CO content to approximately 2%. If idle speed exceeds 1000 RPM, reduce CO content. If idle speed is lower than 1000 RPM, increase CO content.

- 1) Remove air cleaner and housing. Using a suitable carburetor synchronizer, balance air intake of each carburetor. **NOTE** – Make sure engine has reached normal operating temperature. Reinstall air cleaner and housing. Adjust idle mixture to obtain 1.5-2.5% CO with engine running smoothly at an idle speed of 950-1000 RPM.

1970-71 BMW ENGINE MODIFICATION (Cont.)

2) Disconnect vacuum line at carburetor throttle vacuum unit. Manually actuate throttle linkage to obtain approximately 2500 RPM. Gradually decrease throttle opening until throttle linkage contacts throttle set screw (see illustration). When throttle linkage just contacts throttle set screw, engine speed should be 1800 RPM. If adjustment is required, loosen and turn throttle vacuum (dashpot) unit until correct speed is obtained. Reconnect vacuum line to throttle vacuum unit, engine speed should return to normal.



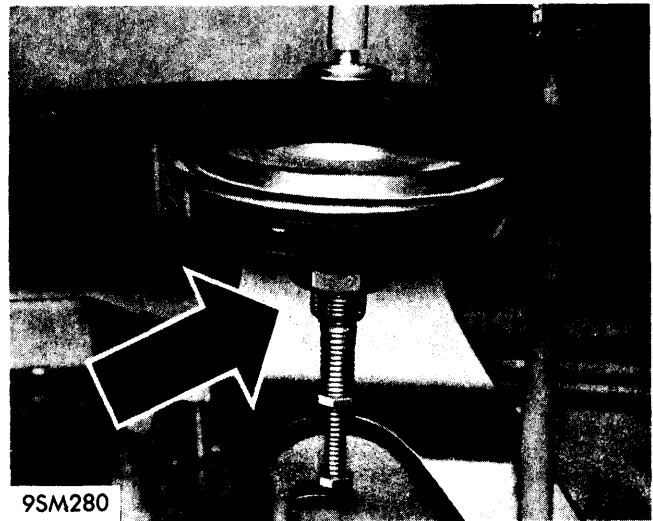
CONTROL VALVE TESTING

Adjusting Throttle (Dashpot) Unit – When engine speed is below 2000 RPM and vacuum unit does not release throttle linkage, proceed as follows:

1) Disconnect vacuum hose from vacuum unit, make sure vacuum exists in hose. If vacuum exists, vacuum unit is defective and must be replaced.

2) If vacuum does not exist in hose, disconnect lead from control valve and check continuity using a suitable test lamp. *NOTE* – When testing, engine speed should remain above 2000 RPM.

3) When checking continuity, if test lamp lights up, control valve is faulty and should be replaced. If test lamp does not light up, RPM switch is faulty and should be replaced.



THROTTLE VACUUM (DASHPOT) UNIT