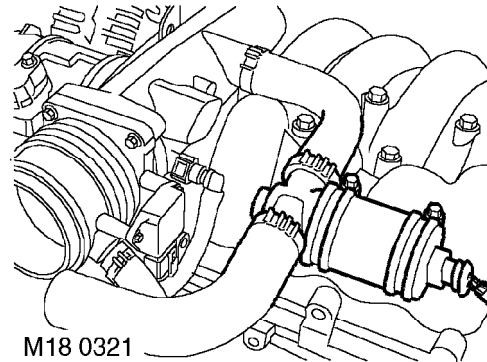


ENGINE MANAGEMENT SYSTEM - V8

Idle Air Control Valve (IACV) (C0641)



The IACV is located on the side of the air inlet pipe on top of the engine. The IACV is used to maintain good quality idle speed under all operating conditions.

When an engine is running at idle it is subject to a combination of internal and external loads that can affect idle speed. These loads include engine friction, water pump, alternator operation, and air conditioning.

The IACV acts as an air bypass valve. The ECM uses the IACV to enable the closed loop idle speed calculation to be made by the ECM. This calculation regulates the amount of air flow into the engine at idle, therefore compensating for any internal or external loads that may affect idle speed.

The IACV utilises two coils that use opposing PWM signals to control the position of opening/closing of a rotary valve. If one of the circuits that supply the PWM signal fails, the ECM closes down the remaining signal preventing the IACV from working at its maximum/ minimum setting. If this should occur, the IACV automatically resumes a default idle position. In this condition, the engine idle speed is raised and maintained at 1200 rev/min with no load placed on the engine.

The idle speed in cold start condition is held at 1200 rev/min in neutral for 20 seconds and ignition timing is retarded as a catalyst heating strategy. The cold start idle speed and the default idle position give the same engine speed 1200 rev/min, and although they are the same figure they must not be confused with each other as they are set separately by the ECM.

Note that the rotary valve must not be forced to move by mechanical means. The actuator can not be serviced; if defective, the entire IACV must be replaced.

Input/Output

The input to the IACV is a 12 volt signal from fuse 2 located in the engine compartment fuse box. The output earth signal to open and close the actuator is controlled by the ECM as follows:

- IACV (open signal) - via pin 42 of connector C0636 of the ECM
 - IACV (closed signal) - via pin 43 of connector C0636 of the ECM
- IACV can fail the following ways or supply incorrect signal:
- Actuator faulty.
 - Rotary valve seized.
 - Wiring loom fault.
 - Connector fault.
 - Intake system air leak.
 - Blocked actuator port or hoses.
 - Restricted or crimped actuator port or hoses.