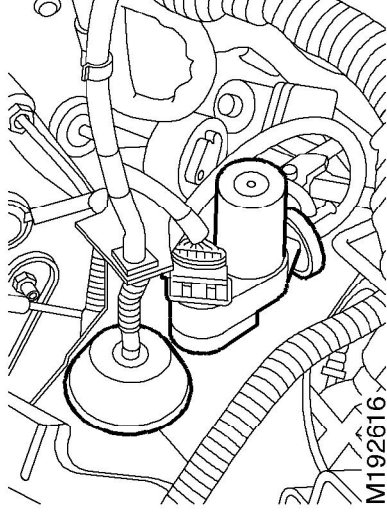




ENGINE MANAGEMENT SYSTEM - V8

Vacuum pump assembly



The vacuum pump assembly contains three components:

- The vacuum pump.
- The vacuum control valve.
- The vacuum dump valve.

The vacuum pump provides the vacuum for the system while the two valves work in conjunction to allow the pump to increase the vacuum to the pneumatic actuator (increase vehicle speed) or release vacuum from the pneumatic actuator (decrease vehicle speed). On vehicles from 03 model year, the cruise control vacuum pump and pneumatic actuator assembly is fitted with a heat shield to protect the components from heat from the exhaust manifold.

The vacuum control valve opens to allow the vacuum pump to increase the vacuum in the pneumatic actuator to increase vehicle speed. When the vehicle reaches the set speed, the vacuum pump control valve closes to hold vacuum in the pneumatic actuator and the vacuum pump is turned off by the cruise control ECU.

The vacuum dump valve is normally open. When cruise control is active, the cruise control ECU provides voltage to close the vacuum dump valve. If power is lost, (e.g. when the brakes or clutch are applied or cruise control is turned off at the cruise control master switch) the vacuum dump valve will immediately open and cruise control will be deactivated.

The cruise control ECU provides power for all three components within the vacuum pump assembly. The cruise control ECU provides earth control circuits for the vacuum pump and the vacuum control valve. The vacuum dump valve is permanently grounded.

Input/Output

The cruise control ECU provides both power and earth to the components within the vacuum pump assembly. Current draw at the vacuum pump assembly varies depending on components operating.

Vacuum pump current draw

Component	State of components		
	Off	On	On
Vacuum dump valve	Off	On	On
Vacuum control valve	Off	Off	On
Vacuum pump	Off	Off	On
Current draw, amperes	0	0.23	0.37
			2.14

When cruise is requested, the cruise control ECU provides voltage to the vacuum pump assembly and provides a pulsed earth signal. The pulse period is dependent on the difference between the vehicle set speed and the actual road speed. Removing the earth path switches off the pump.