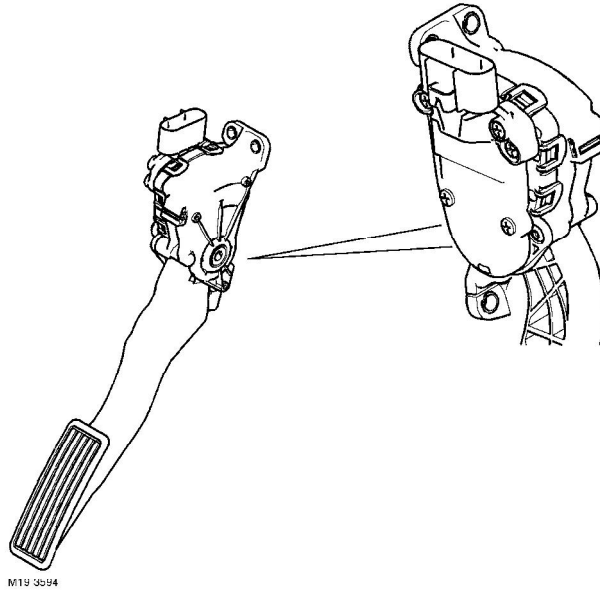


ENGINE MANAGEMENT SYSTEM - SIEMENS

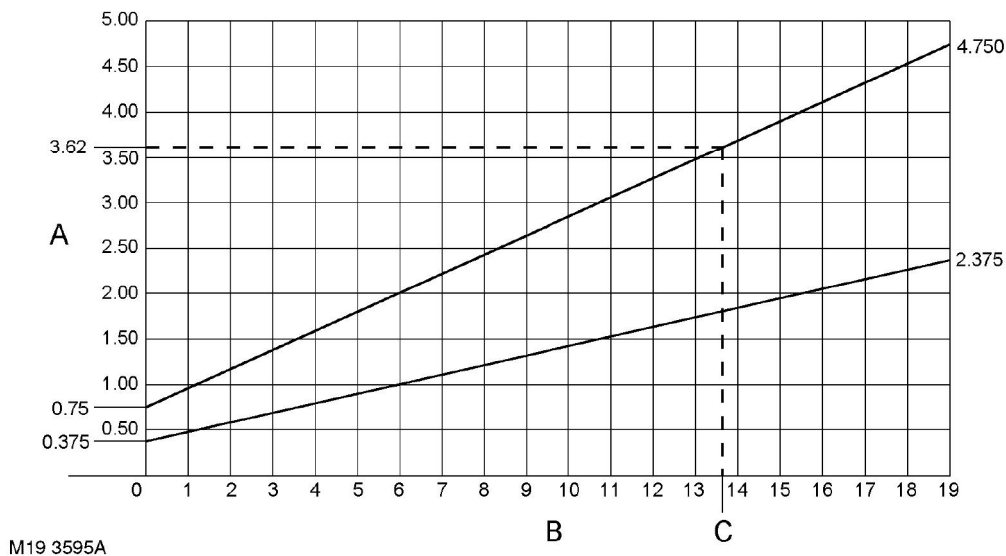
Accelerator Pedal Position (APP) Sensor – From 2003 Model Year



The APP sensor is attached to a bracket on the bulkhead. The throttle pedal is an integral part of the sensor. The pedal is attached to the sensor and rotates an internal pair of sensing elements. The pedal is also connected to two springs which provide a resistance force to pedal movement to improve feel and control.

The sensor comprises two resistance tracks (potentiometers) and two sliding contacts which are connected directly to the pedal. The sensor receives a 5V reference voltage from the ECM and outputs a linear voltage relative to the pedal position. The use of a pair of potentiometers ensures that an output signal is available should one of the tracks develop a fault.

APP Sensor Output Graph



M19 3595A

A = Voltage
B = Pedal angle (degrees)
C = Full throttle



The ECM monitors the output signals from the APP sensor and determines the position, rate of change and direction of the throttle pedal movement. The ECM stores values which relate to closed throttle and wide open throttle and can adapt new values to compensate for component wear or replacement.

The ECM uses the closed throttle APP sensor signal to initiate idle speed control and enable an overrun fuel reduction strategy.

The APP sensor signals are also broadcast on the CAN bus and are used by the EAT ECU to determine the correct points for gearshifts and kickdown.

The ECM supplies a regulated 5V output to the APP sensor and an earth path for the potentiometer tracks. The earth path is also used as a screen to protect the integrity of the signals.

If the APP sensor fails to output a signal, the ECM uses a fail-safe mode which increases the idle speed to 1250 rev/min. The ECM will not respond to movement of the throttle pedal. In the event of a total failure to output a position signal, the following symptoms will be observed:

- No throttle pedal response
- Failure of emission control
- Automatic transmission kickdown inoperative.

The APP sensor can be tested using the following procedure:

- 1 Apply a 5V supply to pins 1 and 2. Connect pins 4 and 5 to earth.
- 2 With the sensor in the idle position, check the output voltage at pin 3 – the reading should be approximately 0.73V.
- 3 With the sensor in the idle position, check the output voltage at pin 6 – the reading should be approximately 0.36V.