

constant 12 volts for operation and cannot withstand VPWR voltage variations. VBPWR is regulated to VPWR minus 1.5 volts and is also current limited to protect the sensors.

POWERTRAIN CONTROL HARDWARE > POWER AND GROUND SIGNALS > VEHICLE POWER (VPWR)

The VPWR is the primary source of PCM power. VPWR is switched through the PCM power relay.

POWERTRAIN CONTROL HARDWARE > POWER AND GROUND SIGNALS > VEHICLE REFERENCE VOLTAGE (VREF)

The VREF is a consistent positive voltage (5 volts plus or minus 0.5 volt) provided by the PCM. VREF is typically used by 3-wire sensors and some digital input signals.

MALFUNCTION INDICATOR LAMP (MIL)

The MIL notifies the driver the PCM has confirmed an on board diagnostic (OBD) emission related component or system concern. When this occurs, an OBD DTC sets.

- The MIL is located in the instrument panel cluster (IPC) and is labeled CHECK ENGINE, SERVICE ENGINE SOON or the international standards organization (ISO) standard engine symbol.
- The MIL is illuminated with the ignition ON, engine OFF, until the engine is cranked for starting. The MIL will turn OFF after engine start if no concerns are present.
- The MIL may flash after 17 seconds with the ignition ON, engine OFF, unless the OBD inspection/maintenance (I/M) readiness indicators indicate all of the OBD monitors have completed since the last keep alive memory (KAM) reset or since the PCM DTCs have been cleared with a reset command from the scan tool.
- The MIL will remain illuminated after engine start if a confirmed emission related concern or an OBD DTC exists.
- If the MIL flashes at a steady rate, after engine start, a severe misfire condition may exist.
- The MIL will remain OFF with the ignition ON, engine OFF, if a MIL indicator or IPC concern is present.
- To turn OFF the MIL after a repair, a reset command from the scan tool must be sent, or 3 consecutive drive cycles must be completed without a concern.
- If the MIL flashes erratically, a low battery voltage concern may be present causing the PCM to reset during cranking.
- For all MIL concerns, go to SYMPTOM CHARTS .