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|------------|--------------|---|
| DTC | P0604 | Internal Control Module Random Access Memory (RAM) Error |
| DTC | P0606 | ECM / PCM Processor |
| DTC | P0607 | Control Module Performance |
| DTC | P0657 | Actuator Supply Voltage Circuit / Open |

DESCRIPTION

The ECM continuously monitors its own internal memory status, internal circuits, and output signals transmitted to the throttle actuator. This self-check ensures that the ECM is functioning properly. If any malfunction is detected, the ECM sets the appropriate DTC and illuminates the MIL.

The ECM memory status is diagnosed by internal mirroring of the main CPU and the sub CPU to detect Random Access Memory (RAM) errors. The two CPUs also perform continuous mutual monitoring. The ECM illuminates the MIL and sets a DTC if: 1) outputs from the two CPUs are different or deviate from the standards, 2) the signals sent to the throttle actuator deviate from the standards, 3) a malfunction is found in the throttle actuator supply voltage, and 4) any other ECM malfunction is found.

| DTC No. | DTC Detection Condition | Trouble Area |
|----------------------------------|---|--------------|
| P0604 P0606 P0607 P0657 | ECM internal error (1 trip detection logic) | ECM |

MONITOR STRATEGY

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|---------------------------------------|--|
| Related DTCs | P0604: ECM RAM error P0606: ECM range check P0607: ECM CPU malfunction P0657: ETCS power supply |
| Required Sensors/Components (Main) | ECM |
| Required Sensors/Components (Related) | - |
| Frequency of Operation | Once per driving cycle: P0657 Continuous: P0604, P0606 and P0607 |
| Duration | Within 60 seconds |
| MIL Operation | Immediate |
| Sequence of Operation | None |

TYPICAL ENABLING CONDITIONS

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| Monitor runs whenever following DTCs not present | None |
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TYPICAL MALFUNCTION THRESHOLDS

ECM RAM errors (P0604):

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| RAM mirror check | Fail |
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ECM CPU range check (P0606):

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|---|---------------|
| Either of following conditions met: | - |
| Difference between throttle valve position of main CPU and throttle valve position of sub CPU | 0.3 V or more |
| Difference between accelerator pedal position of main CPU and accelerator pedal position of sub CPU | 0.3 V or more |

ECM CPU malfunction (P0607):

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|---|-----------------|
| Either A or B met | - |
| A. All of following conditions (a), (b) and (c) met | - |
| (a) CPU reset | 1 time or more |
| (b) Learned TP - learned APP | 0.4 V or more |
| (c) Electronic throttle actuator | OFF |
| B. CPU reset | 2 times or more |

ETCS power supply (P0657):

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|--|-------------|
| ETCS power supply when ignition switch turned ON | 7 V or more |
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INSPECTION PROCEDURE

Read freeze frame data using the intelligent tester. Freeze frame data records the engine condition when malfunctions are detected. When troubleshooting, freeze frame data can help determine if the vehicle was moving or stationary, if the engine was warmed up or not, if the air-fuel ratio was lean or rich, and other data from the time the malfunction occurred.

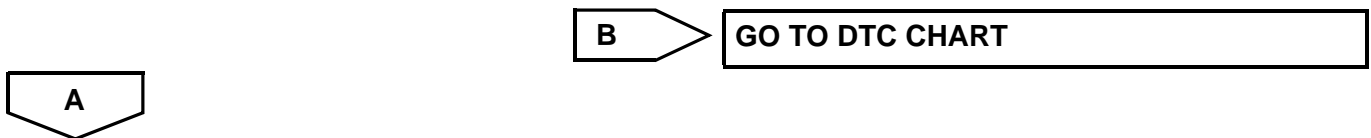
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| | |
|----------|--|
| 1 | CHECK ANY OTHER DTCS OUTPUT (IN ADDITION TO DTC P0604, P0606, P0607 or P0657) |
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- (a) Connect the intelligent tester to the DLC3.
- (b) Turn the ignition switch ON.
- (c) Turn the tester ON.
- (d) Select the following menu items: DIAGNOSIS / ENHANCED OBD II / DTC INFO / CURRENT CODES.
- (e) Read DTCs.

Result

| Display (DTC Output) | Proceed to |
|---|------------|
| P0604, P0606, P0607 or P0657 | A |
| P0604, P0606, P0607 or P0657 and other DTCs | B |



REPLACE ECM