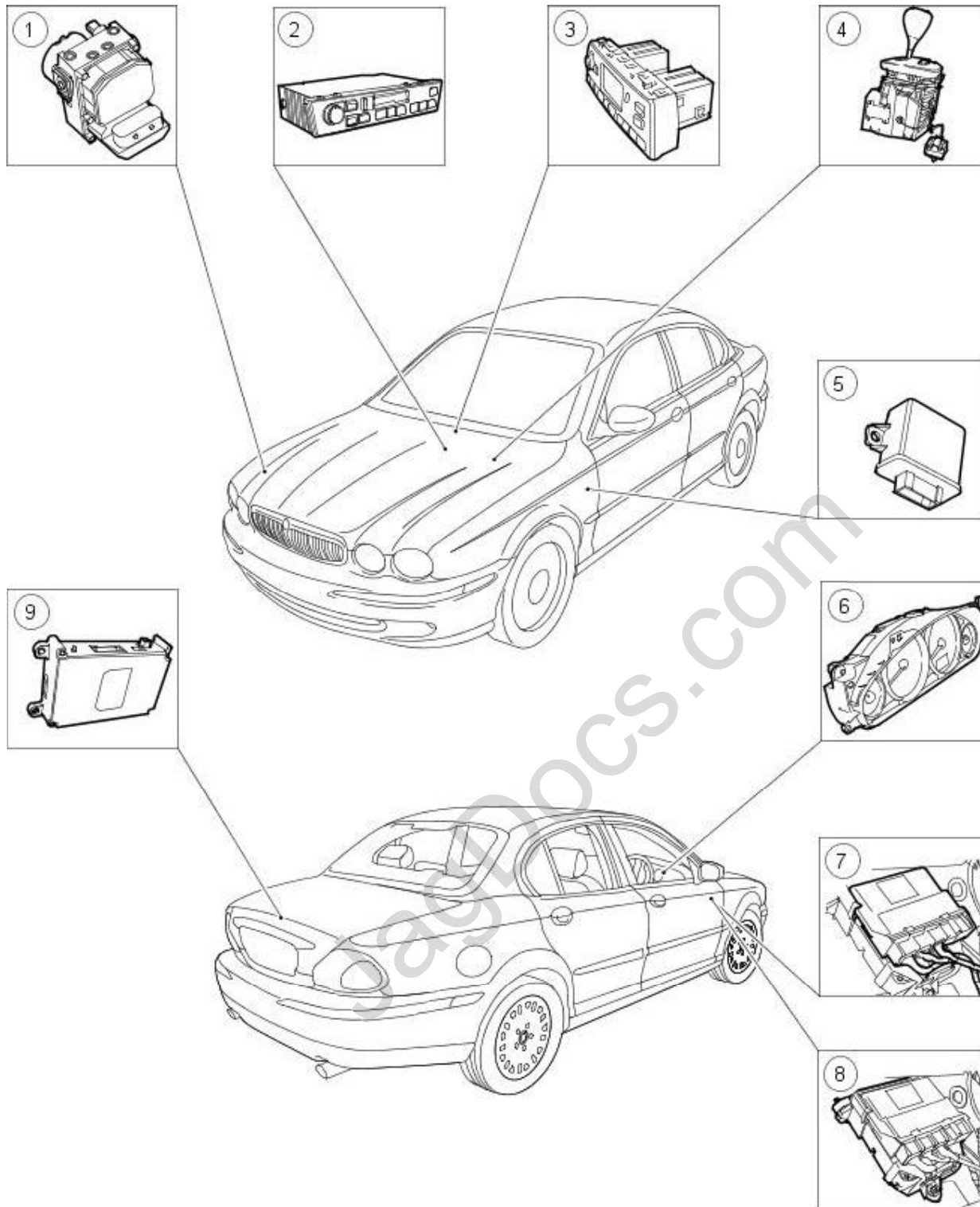


Module Communications Network - Communications Network

Description and Operation



VUJ0004096

| Item | Part Number | Description |
|------|-------------|--|
| 1 | — | Anti-lock brake control module |
| 2 | — | In car entertainment (ICE) module |
| 3 | — | Dual automatic temperature control (DATC) |
| 4 | — | J Gate module (JGM) |
| 5 | — | High intensity dipped (HID) headlight module |
| 6 | — | Instrument cluster (message center optional) |
| 7 | — | Generic electronic module (GEM) |
| 8 | — | Engine control module (ECM) |
| 9 | — | Voice activated control module (VACM) |

Module Communications Network - Communications Network VIN Range: E96603->J28492

Diagnosis and Testing

Principles of Operation

The vehicle has four module communication networks. Only three of which are connected to the diagnostic connector. The **standard corporate protocol (SCP)** and **controller area network (CAN)**, which are an unshielded twisted pair cable: data bus + and data bus - and the **International Standard Organization (ISO)** 9141 communication network, which is a single wire network.

The **domestic data bus (D2B)**, which is a fibre optic ring network, can be diagnosed through the SCP network, and with the optical bus tester.

The SCP, CAN and ISO networks can be connected to the Jaguar approved diagnostic system by one diagnostic connector. This makes troubleshooting these systems easier by allowing one smart tester to be able to diagnose any module on the three networks from one connector. On-board diagnosis of the D2B network is through the in car entertainment (ICE) head.

The diagnostic connector is located under the instrument panel.

The ISO 9141 communications network does not permit inter-module communications. When the Jaguar approved diagnostic system communicates with modules on the ISO 9141 communication network, the diagnostic system must ask for all information, the modules will not initiate communications.

The SCP communication network remains operational even with severing of one of the bus wires. Communications will also continue if one of the bus wires is shorted to ground or battery positive voltage (B+), or if some (but not all) termination resistors are lost.

Unlike the SCP communication network, the ISO 9141 communication network will not function if the wire is shorted to ground or battery positive voltage (B+). Also, if one of the modules on the ISO 9141 network loses power or shorts internally, communication to that module will fail.

The anti-lock brake control module is connected to the CAN communication network. The module comes in two forms. The first type is the standard equipped anti-lock brake system (ABS) with traction control. It controls the brake pressure to the four wheels to keep the vehicle under control while braking. The second type of ABS is optional and is called dynamic stability control (DSC). This module adds yaw and steering wheel angle sensors to the package to help in sensing a loss of vehicle control. For additional information, REFER to: [Anti-Lock Control - Stability Assist](#) (206-09 Anti-Lock Control - Stability Assist, Description and Operation).

The in car entertainment (ICE) head is connected to the SCP communication network and also to the D2B network. The D2B communicates with the compact disc player, cellular phone transceiver, navigation system, amplifier, and the voice control module. For additional information on the compact disc,

REFER to: [Audio System](#) (415-00 Information and Entertainment System - General Information, Diagnosis and Testing).

For additional information on the cellular phone,

REFER to: [Cellular Phone](#) (419-08 Cellular Phone, Diagnosis and Testing).

For additional information on the navigation system,

REFER to: [Navigation System](#) (419-07 Navigation System, Diagnosis and Testing).

For additional information on the amplifier,

REFER to: [Audio System](#) (415-01 Audio Unit, Description and Operation).

For additional information on the voice activated control system,

REFER to: [Multifunction Electronic Module](#) (419-10 Multifunction Electronic Modules, Diagnosis and Testing).

The electronic automatic temperature control (EATC) module is connected to the CAN communication network. The EATC module controls automatic climate functions that maintain the vehicle at a constant temperature setting. For additional information, REFER to: [Climate Control System](#) (412-00 Climate Control System - General Information, Diagnosis and Testing).

The instrument cluster (also known as an instrument cluster module ICM) is connected to the CAN and SCP communication networks. The instrument cluster displays information received on the SCP including speedometer, odometer, fuel, and message center warnings. The instrument cluster displays information received on the CAN including ABS, air conditioning, transmission and engine condition. The instrument cluster also controls the passive anti-theft system (PATS). For additional information;

REFER to: [Instrument Cluster and Panel Illumination](#) (413-00 Instrument Cluster and Panel Illumination, Diagnosis and Testing).

For instrument cluster operation and

REFER to: [Anti-Theft - Passive](#) (419-01B Anti-Theft - Passive, Diagnosis and Testing).

for PATS.

The general electronic module (GEM) is connected to the SCP communication network. The GEM controls both interior and exterior lighting, active anti-theft functions and warning chimes. For additional information on interior lamps,

REFER to: [Interior Lighting](#) (417-02 Interior Lighting, Diagnosis and Testing).

For additional information on exterior lighting,

REFER to: [Headlamps](#) (417-01 Exterior Lighting, Diagnosis and Testing).

For additional information on active anti-theft,

REFER to: [Anti-Theft - Active](#) (419-01A Anti-Theft - Active, Diagnosis and Testing).

For additional information on warning chimes,

REFER to: [Warning Devices](#) (413-09 Warning Devices, Diagnosis and Testing).

The engine control module (ECM) is connected to both the CAN and ISO 9141 communication networks. The ECM controls the engine performance, electronic ignition, emission controls, speed control, and on board diagnostics. For additional information;

REFER to: [Electronic Engine Controls - 2.5L NA V6 - AJV6/3.0L NA V6 - AJ27, VIN Range: E96603->J28492](#) (303-14A Electronic Engine Controls - 2.0L NA V6 - AJV6/2.5L NA V6 - AJV6/3.0L NA V6 - AJ27, Diagnosis and Testing).

REFER to: [Electronic Engine Controls - 2.0L NA V6 - AJV6](#) (303-14A Electronic Engine Controls - 2.0L NA V6 - AJV6/2.5L NA V6 - AJV6/3.0L NA V6 - AJ27, Diagnosis and Testing).

or

REFER to: [Electronic Engine Controls](#) (303-14B Electronic Engine Controls - 2.0L Duratorq-TDCi/2.2L Duratorq-TDCi (110kW/150PS) - Puma, Diagnosis and Testing).

The 'phone module is connected to the D2B communication network, and incorporates the VEMS, or Vehicle Emergency Messaging System. The module allows a user to request emergency assistance (police, ambulance, fire, recovery) or directions to a desired location at the touch of a button. Also, if any of the vehicle's airbags are deployed while the VEMS system is powered ON, the system automatically issues a call for emergency assistance. For additional information,

REFER to: [Compact Disc \(CD\) Changer - 4-Door](#) (415-01 Audio Unit, Removal and Installation).

The airbag restraints module is connected to the ISO 9141 communication network. The airbag control module controls the deployment of the air bags based on sensor input. For additional information;

The voice activated control module (VACM) is connected to the D2B communication network. This allows the user to select functions by giving a voice command. The VACM sends the command information by D2B to the correct module or audio unit.

The navigation system (NAV) is connected to the D2B communication network, and performs it's diagnostics via the SCP network. The NAV receives inputs from the GPS antenna and various other sensors. For additional information, REFER to: [Navigation System](#) (419-07 Navigation System, Diagnosis and Testing).

Inspection and Verification

1. **1.** Verify the customer concern.
2. **2.** Visually inspect for obvious signs of mechanical, electrical or optical damage.

Electrical

- Fuses
- Wiring harness
- Loose or corroded connections
- Correct engagement of electrical connectors

- Controller area network (CAN)
 - Instrument cluster (IC)
 - Steering wheel rotation sensor (SWRS)
 - Gear selector module (GSI)
 - Headlight levelling module (HID)
 - Yaw rate sensor
 - Electronic air temperature control module (EATCM)
 - Memory seat control module
 - Transmission control module (TCM)
 - Anti-lock brake control module with or without dynamic stability control (ABS/DSC)
 - Engine control module (ECM)

- Standard corporate protocol (SCP)
 - Generic electronic module (GEM)
 - Instrument cluster (IC)
 - In-car entertainment (ICE)
 - Navigation system (NAV)
 - Engine control module (ECM)

- International standards organisation (ISO)
 - Fuel fired heater module
 - Reverse park aid module
 - Restraints control module (RCM)
 - Headlight levelling module (HID)
 - Roof console scanner

- Domestic data bus (D2B)
 - ICE head unit (HU)
 - Compact disc changer (CD)
 - Cellular phone module (CPM)
 - Voice module (VACM)
 - Navigation system module (NSM)
 - Amplifier (AMP)

Visual Inspection Chart

Optical

- Routing of fibre optic harnesses
- Correct engagement of optical connectors
- Correct placement of optical connectors (ring order)
- Damage to fibre (chafing, abrasion, kinking, cuts, etc)
- Correct assembly of optical connectors (backout, etc)

Default Modes

Possible TCM default

- Fixed 4th gear
- Erratic gear shifts

Possible ECM default

- Throttle motor and relay disabled
- Throttle valve opening set to default value
- Idle speed controlled by fuel injection intervention
- Idle speed adaptation inhibited
- Throttle opening limited to 30%
- Vehicle speed limited
- Speed (cruise) control limited
- Maximum throttle opening for N range inhibited
- Maximum engine speed reduced
- HO2 sensor control circuit inhibited
- Maximum ignition retard

Symptom Chart

• **NOTE:** Network DTCs may be set by an error or communications failure in the network. Individual DTCs are in the table, alongside their respective modules, but may also be set by a combination of factors affecting the network, which would result in multiple DTCs being set

| DTC | Description | Possible Source | Action |
|-------|---|--|---|
| P1573 | CAN throttle angle error | <ul style="list-style-type: none"> TP sensor fault (additional DTCs logged) ECM CAN message error | <p>For TP sensor circuit tests, REFER to: Electronic Engine Controls - 2.0L NA V6 - AJV6 (303-14A Electronic Engine Controls - 2.0L NA V6 - AJV6/2.5L NA V6 - AJV6/3.0L NA V6 - AJ27, Diagnosis and Testing) / Electronic Engine Controls - 2.5L NA V6 - AJV6/3.0L NA V6 - AJ27, VIN Range: F96603->J28492 (303-14A Electronic Engine Controls - 2.0L NA V6 - AJV6/2.5L NA V6 - AJV6/3.0L NA V6 - AJ27, Diagnosis and Testing).</p> <p>Error message sent on CAN, but not CAN related. Check for additional DTCs indicating cause.</p> |
| P1601 | Incorrect ECM or TCM fitted to vehicle | <ul style="list-style-type: none"> ECM configuration TCM configuration | Configure the modules using the Jaguar approved diagnostic system. |
| P1603 | TCM EEPROM failure | <ul style="list-style-type: none"> Battery disconnected while the ignition switched ON B+ power supply circuit; open circuit TCM failure | For TCM EEPROM tests, GO to Pinpoint Test B. |
| P1609 | ECM microprocessor to microprocessor communication failure | <ul style="list-style-type: none"> ECM failure | Please check part is not on any form of prior authorisation before replacement. |
| P1611 | ECM sub CPU failure | <ul style="list-style-type: none"> ECM failure | Please check part is not on any form of prior authorisation before replacement. |
| P1633 | ECM main CPU failure | <ul style="list-style-type: none"> ECM failure | Please check part is not on any form of prior authorisation before replacement. |
| P1634 | Throttle 'watch-dog' circuit malfunction | <ul style="list-style-type: none"> ECM failure | Please check part is not on any form of prior authorisation before replacement. |
| P1637 | CAN ECM to ABS/TCCM or DSC control module network malfunction | <ul style="list-style-type: none"> Module power supply or ground interruption CAN open circuit fault; ABS/TCCM or DSC to ECM CAN short circuit fault ABS/TCCM or DSC module failure ECM failure | Refer to power and ground test for suspect module. For ABS/TCCM or DSC CAN circuit tests, GO to Pinpoint Test C. Please check part is not on any form of prior authorisation before replacement. |
| P1638 | CAN ECM / IC network malfunction | <ul style="list-style-type: none"> Module power supply or ground interruption CAN open circuit fault; IC to ECM CAN short circuit fault IC failure ECM failure | Refer to power and ground test for suspect module. For IC CAN circuit tests, GO to Pinpoint Test D. Please check part is not on any form of prior authorisation before replacement. |
| P1642 | CAN circuit malfunction | <ul style="list-style-type: none"> Module power supply or ground interruption CAN short circuit fault Control module failure; Check for additional logged DTCs to locate module source | Refer to power and ground test for suspect module. For network short circuit tests, GO to Pinpoint Test E. |
| P1643 | CAN ECM / TCM network malfunction | <ul style="list-style-type: none"> Module power supply or ground interruption CAN open circuit fault; TCM to ECM CAN short circuit fault TCM failure ECM failure | Refer to power and ground test for suspect module. For CAN open circuit tests, GO to Pinpoint Test A. For network short circuit tests, GO to Pinpoint Test E. Please check part is not on any form of prior authorisation before replacement. |
| P1646 | ECM HO2 sensor control malfunction, right-hand bank | <ul style="list-style-type: none"> HO2 sensor heater failure HO2 sensor sensing circuit; short circuit to ground, short circuit to high voltage, open circuit ECM failure | <p>For HO2 sensor circuit tests, REFER to: Electronic Engine Controls - 2.0L NA V6 - AJV6 (303-14A Electronic Engine Controls - 2.0L NA V6 - AJV6/2.5L NA V6 - AJV6/3.0L NA V6 - AJ27, Diagnosis and Testing) / Electronic Engine Controls - 2.5L NA V6 - AJV6/3.0L NA V6 - AJ27, VIN Range: F96603->J28492 (303-14A Electronic Engine Controls - 2.0L NA V6 - AJV6/2.5L NA V6 - AJV6/3.0L NA V6 - AJ27, Diagnosis and Testing).</p> <p>Please check part is not on any form of prior authorisation before replacement.</p> |
| P1647 | ECM HO2 sensor control malfunction, left-hand bank | <ul style="list-style-type: none"> HO2 sensor heater failure HO2 sensor sensing circuit; short circuit to ground, short circuit to high voltage, open circuit ECM failure | <p>For HO2 sensor circuit tests, REFER to: Electronic Engine Controls - 2.0L NA V6 - AJV6 (303-14A Electronic Engine Controls - 2.0L NA V6 - AJV6/2.5L NA V6 - AJV6/3.0L NA V6 - AJ27, Diagnosis and Testing) / Electronic Engine Controls - 2.5L NA V6 - AJV6/3.0L NA V6 - AJ27, VIN Range: F96603->J28492 (303-14A Electronic Engine Controls - 2.0L NA V6 - AJV6/2.5L NA V6 - AJV6/3.0L NA V6 - AJ27, Diagnosis and Testing).</p> <p>Please check part is not on any form of prior authorisation before replacement.</p> |
| P1648 | ECM KS self-test failure | <ul style="list-style-type: none"> ECM failure | Please check part is not on any form of prior authorisation before replacement. |
| P1656 | TP sensor amplifier circuit malfunction | <ul style="list-style-type: none"> ECM failure | Please check part is not on any form of prior authorisation before replacement. |

| DTC | Description | Possible Source | Action |
|-------|---|---|---|
| P1699 | CAN ECM to EATCM network malfunction | <ul style="list-style-type: none"> ● Module power supply or ground interruption ● CAN open circuit fault; EATCM to ECM ● CAN short circuit fault; EATCM to ECM ● EATCM failure ● ECM failure | Refer to power and ground test for suspect module. For EATCM open circuit tests, GO to Pinpoint Test A . For network short circuit tests, GO to Pinpoint Test F . Please check part is not on any form of prior authorisation before replacement. |
| P1777 | CAN torque reduction error | <ul style="list-style-type: none"> ● ECM CAN message error | Error message sent on CAN, but not CAN related. Check for additional DTCs indicating cause. |
| P1796 | CAN network malfunction | <ul style="list-style-type: none"> ● Module power supply or ground interruption ● CAN short circuit fault ● TCM failure | Refer to power and ground test for suspect module. For network short circuit test, GO to Pinpoint Test A . |
| P1797 | CAN TCM/ECM network malfunction | <ul style="list-style-type: none"> ● Module power supply or ground interruption ● CAN open circuit fault; TCM to ECM ● CAN short circuit fault ● TCM failure ● ECM failure | Refer to power and ground test for suspect module. For TCM open/short circuit tests, GO to Pinpoint Test C . |
| P1799 | CAN TCM to ABS/TCCM or DSC module network malfunction | <ul style="list-style-type: none"> ● Module power supply or ground interruption ● CAN short circuit fault ● ABS/TCCM or DSC module failure ● TCM failure | Refer to power and ground test for suspect module. For ABS/TCCM short circuit tests, GO to Pinpoint Test G . |
| U1041 | GEM SCP network invalid vehicle speed data | <ul style="list-style-type: none"> ● ABS/DSC wheel speed message error ● SCP network error | For GEM SCP network tests, GO to Pinpoint Test H . |
| U1135 | GEM SCP network invalid ignition switch data | <ul style="list-style-type: none"> ● Instrument cluster ignition switch message error ● SCP network error | For GEM SCP network tests, GO to Pinpoint Test H . |
| U1147 | GEM anti-theft SCP network invalid ignition key-in data | <ul style="list-style-type: none"> ● GEM key-in message error ● SCP network error | For GEM SCP network tests, GO to Pinpoint Test H . |
| U1262 | GEM SCP network ignition switch state message missing | <ul style="list-style-type: none"> ● SCP circuit(s); open circuit ● SCP network error | For GEM SCP network tests, GO to Pinpoint Test H . |
| U1262 | ICE SCP network circuit fault | <ul style="list-style-type: none"> ● SCP network circuit; open circuit, short circuit to B+, short circuit to ground ● SCP network circuit fault ● Audio unit fault | For ICE SCP network tests, GO to Pinpoint Test I . |
| U1900 | CAN instrumentation messages missing | <ul style="list-style-type: none"> ● Engine management, ABS, or DSC fault ● CAN network fault | For ABS/DSC CAN network tests, GO to Pinpoint Test G . |
| U1900 | Automatic climate control CAN fault | <ul style="list-style-type: none"> ● CAN circuit; open circuit, short circuit to B+, short circuit to ground ● Automatic climate control module internal CAN fault ● CAN network fault | For EATC CAN network tests, GO to Pinpoint Test F . |
| U1900 | ABS CAN fault | <ul style="list-style-type: none"> ● CAN circuit: open circuit, short circuit to B+, short circuit to ground ● ABS control module internal CAN fault ● CAN network fault | For ABS/DSC CAN network tests, GO to Pinpoint Test G . |
| U1900 | DSC CAN fault | <ul style="list-style-type: none"> ● CAN circuit; open circuit, short circuit to B+, short circuit to ground ● DSC control module internal CAN fault ● CAN network fault | For ABS/DSC CAN network tests, GO to Pinpoint Test G . |
| U2003 | CD autochanger not responding on D2B network | <ul style="list-style-type: none"> ● D2B network 'wake-up' circuit; short circuit to B+, short circuit to ground ● D2B network fault | For D2B 'wake-up' circuit tests, GO to Pinpoint Test K . For CD autochanger D2B network tests, GO to Pinpoint Test J . For D2B permanent supply tests, GO to Pinpoint Test R . |
| U2008 | Cellular telephone not responding on D2B network | <ul style="list-style-type: none"> ● D2B network 'wake-up' circuit; short circuit to B+, short circuit to ground ● D2B network fault | For D2B 'wake-up' circuit tests, GO to Pinpoint Test K . For cellular telephone D2B network tests, GO to Pinpoint Test L . For D2B permanent supply tests, GO to Pinpoint Test R . For D2B accessory switched supply tests, GO to Pinpoint Test S . For D2B ignition switched supply tests, GO to Pinpoint Test T . |
| U2019 | VACM not responding on D2B network | <ul style="list-style-type: none"> ● D2B network 'wake-up' circuit; short circuit to B+, short circuit to ground ● D2B network fault | For D2B 'wake-up' circuit tests, GO to Pinpoint Test K . For VACM D2B network tests, GO to Pinpoint Test M . For D2B accessory switched supply tests, GO to Pinpoint Test S . For D2B ignition switched supply tests, GO to Pinpoint Test T . |

| DTC | Description | Possible Source | Action |
|--------------------------------|---|--|--|
| U2196 | Instrument cluster CAN engine speed message invalid | <ul style="list-style-type: none"> Verify integrity of engine management system CAN network fault | For instrument cluster CAN network tests, GO to Pinpoint Test D. |
| U2197 | Instrument cluster CAN engine speed message invalid | <ul style="list-style-type: none"> Verify integrity of engine management system CAN network fault | For instrument cluster CAN network tests, GO to Pinpoint Test D. |
| U2199 | Instrument cluster CAN engine coolant temperature message invalid | <ul style="list-style-type: none"> Verify integrity of engine management system CAN network fault | For instrument cluster CAN network tests, GO to Pinpoint Test D. |
| U2200 | Instrument cluster CAN odometer count message invalid | <ul style="list-style-type: none"> Verify integrity of ABS or DSC systems CAN network fault | For instrument cluster CAN network tests, GO to Pinpoint Test D. |
| U2202 | Invalid DSC control module CAN configuration data received from ECM | <ul style="list-style-type: none"> Reconfigure the ECM using the Jaguar approved diagnostic system CAN network fault | For ECM CAN network tests, GO to Pinpoint Test E. |
| U2202 | Invalid ABS control module CAN configuration data received from ECM | <ul style="list-style-type: none"> Reconfigure the ECM using the Jaguar approved diagnostic system CAN network fault | For ECM CAN network tests, GO to Pinpoint Test E. |
| U2509 | ECM unable to fulfill ABS CAN torque reduction request | <ul style="list-style-type: none"> Verify integrity of engine management system CAN network fault | For ABS/DSC CAN network tests, GO to Pinpoint Test G. |
| U2509 | ECM unable to fulfill DSC CAN torque reduction request | <ul style="list-style-type: none"> Verify integrity of engine management system CAN network fault | For ABS/DSC CAN network tests, GO to Pinpoint Test G. |
| U2510 (security flash code 23) | Anti-theft ECM identification mismatch | <ul style="list-style-type: none"> ECM configuration fault Incorrect ECM installed | Reconfigure ECM using the Jaguar approved diagnostic system. Please check part is not on any form of prior authorisation before replacement. |
| U2511 | Anti-theft ECM invalid data | <ul style="list-style-type: none"> ECM configuration fault Incorrect ECM installed SCP network error | Reconfigure ECM using the Jaguar approved diagnostic system. Please check part is not on any form of prior authorisation before replacement. |
| U2514 | GEM wash/wipe SCP network vehicle speed message missing | <ul style="list-style-type: none"> SCP circuit(s); open circuit SCP network error | For GEM SCP network tests, GO to Pinpoint Test H. |
| U2520 | Memory seats | <ul style="list-style-type: none"> CAN open circuit fault: memory seat module to diagnostic connector CAN short circuit fault Memory seat module failure | For CAN open/short circuit tests, GO to Pinpoint Test A. |
| U2600 | Audio D2B network 'wake-up' circuit fault | <ul style="list-style-type: none"> D2B network 'wake-up' circuit; short circuit to B+ | For D2B 'wake-up' circuit tests, GO to Pinpoint Test K. |
| U2601 | Audio D2B network 'wake-up' circuit fault | <ul style="list-style-type: none"> D2B network 'wake-up' circuit; short circuit to B+ | For D2B 'wake-up' circuit tests, GO to Pinpoint Test K. |
| U2601 | Voice activation module D2B network 'wake-up' circuit fault | <ul style="list-style-type: none"> D2B network 'wake-up' circuit; short circuit to ground | For D2B 'wake-up' circuit tests, GO to Pinpoint Test K. |
| U2602 | Break in optical ring FROM ICE head unit (transmitter) | <ul style="list-style-type: none"> D2B network module disconnected D2B network optical ring broken | For optical ring tests, GO to Pinpoint Test P. |
| U2603 | Break in optical ring TO ICE head unit (receiver) | <ul style="list-style-type: none"> D2B network module disconnected D2B network optical ring broken | For optical ring tests, GO to Pinpoint Test Q. |
| U2609 | Voice activation module D2B network 'wake-up' signal out of specification | <ul style="list-style-type: none"> D2B network 'wake-up' circuit; high resistance Voice activation module failure | For D2B 'wake-up' circuit tests, GO to Pinpoint Test K. |
| U2610 | Voice activation module D2B network 'position status report' not received | <ul style="list-style-type: none"> D2B network fault | For D2B 'wake-up' circuit tests, GO to Pinpoint Test K. |
| U2611 | Voice activation module D2B network 'alarm clear command' not received | <ul style="list-style-type: none"> D2B network fault | For D2B 'wake-up' circuit tests, GO to Pinpoint Test K. |
| U2613 | Navigation control module not responding on D2B network | <ul style="list-style-type: none"> D2B network 'wake-up' circuit; short circuit to B+, short circuit to ground D2B network fault Module permanent supply fault Module accessory switched | For D2B 'wake-up' circuit tests, GO to Pinpoint Test K. For navigation module optical tests, GO to Pinpoint Test N. For D2B permanent supply tests, GO to Pinpoint Test R. For D2B accessory switched supply tests, GO to Pinpoint Test S. |

| DTC | Description | Possible Source | Action |
|-------|---|---|--|
| | | <ul style="list-style-type: none"> supply fault Module ignition switched supply fault | |
| U2614 | Amplifier not responding on D2B network | <ul style="list-style-type: none"> D2B network 'wake-up' circuit; short circuit to B+, short circuit to ground D2B network fault | For D2B 'wake-up' circuit tests, GO to Pinpoint Test K. For amplifier optical tests, GO to Pinpoint Test O. For D2B permanent supply tests, GO to Pinpoint Test R. For D2B accessory switched supply tests, GO to Pinpoint Test S. |
| None | ISO circuit malfunction, RCM | <ul style="list-style-type: none"> RCM K-line circuit; open circuit RCM K-line circuit; short circuit | For RCM ISO tests, GO to Pinpoint Test AP. |
| None | ISO circuit malfunction, HID module | <ul style="list-style-type: none"> HID module K-line circuit; open circuit HID module K-line circuit; short circuit | For HID module ISO tests, GO to Pinpoint Test AQ. |
| None | ISO circuit malfunction, roof console module | <ul style="list-style-type: none"> Roof console module K-line circuit; open circuit Roof console module K-line circuit; short circuit | For roof console module ISO tests, GO to Pinpoint Test AR. |
| None | ISO circuit malfunction, reverse park aid module | <ul style="list-style-type: none"> Reverse park aid module K-line circuit; open circuit Reverse park aid module K-line circuit; short circuit | For reverse park aid module ISO tests, GO to Pinpoint Test AS. |
| None | ISO circuit malfunction, ECM | <ul style="list-style-type: none"> ECM K-line circuit; open circuit ECM K-line circuit; short circuit | For ECM ISO tests, GO to Pinpoint Test AT. |
| None | ISO circuit malfunction, fuel fired heater (FFH) module | <ul style="list-style-type: none"> FFH module K-line circuit; open circuit FFH module K-line circuit; short circuit | For FFH module ISO tests, GO to Pinpoint Test AU. |

Power and Ground circuit test index


Modules may log DTCs if the power supply or GROUND is interrupted. Supply and GROUND tests are covered below by module name.


| Description | Possible source | Action |
|---|---|---|
| IC supply or ground fault | <ul style="list-style-type: none"> B+ supply failure Ign+ supply failure Acc+ supply failure GROUND failure | For IC circuit tests, GO to Pinpoint Test U. |
| SWRS supply or ground fault | <ul style="list-style-type: none"> Module supply failure GROUND failure | For SWRS circuit tests, GO to Pinpoint Test V. |
| Yaw rate sensor supply or ground fault | <ul style="list-style-type: none"> Module supply failure GROUND failure | For yaw rate sensor circuit tests, GO to Pinpoint Test W. |
| ABS/TCCM supply or ground fault | <ul style="list-style-type: none"> Ign+ supply failure Pump+ supply failure Solenoid+ supply failure GROUND failure Motor GROUND failure | For ABS/TCCM circuit tests, GO to Pinpoint Test X. |
| DSC module supply or ground fault | <ul style="list-style-type: none"> Ign+ supply failure Pump+ supply failure Solenoid+ supply failure GROUND failure Motor GROUND failure | For DSC module circuit tests, GO to Pinpoint Test Y. |
| GSI module supply or ground fault | <ul style="list-style-type: none"> Ign+ supply failure GROUND failure | For GSI module circuit tests, GO to Pinpoint Test Z. |
| HID module supply or ground fault | <ul style="list-style-type: none"> Ign+ supply failure GROUND failure | For HID module circuit tests, GO to Pinpoint Test AA. |
| EATC module supply or ground fault | <ul style="list-style-type: none"> B+ supply failure B+save supply failure Ign+ supply failure GROUND failure | For EATC module circuit tests, GO to Pinpoint Test AB. |
| Memory seat module supply or ground fault | <ul style="list-style-type: none"> B+1 supply failure B+2 supply failure Ign+ supply failure Electronic GROUND failure Power GROUND failure Signal GROUND | For memory seat module circuit tests, GO to Pinpoint Test AC. |


| Description | Possible source failure | Action |
|--|--|--|
| TCM supply or ground fault (16 bit) | <ul style="list-style-type: none"> ● B+ supply failure ● Ign+ supply failure ● GROUND failure | For 16 bit TCM circuit tests, GO to Pinpoint Test AD . |
| TCM supply or ground fault (32 bit) | <ul style="list-style-type: none"> ● B+ supply failure ● Ign+ supply failure ● GROUND failure | For 32 bit TCM circuit tests, GO to Pinpoint Test AE . |
| ECM supply or ground fault, vehicles with 2.0L petrol engine | <ul style="list-style-type: none"> ● B+memory supply failure ● Control supply failure ● GROUND failure | For ECM circuit tests, vehicles with 2.0L petrol engines, GO to Pinpoint Test AF . |
| ECM supply or ground fault, vehicles with 2.5/3.0L petrol engine | <ul style="list-style-type: none"> ● B+memory supply failure ● Control supply failure ● GROUND failure | For ECM circuit tests, vehicles with 2.5/3.0L petrol engines, GO to Pinpoint Test AG . |
| ECM supply or ground fault, vehicles with 2.0L diesel engine | <ul style="list-style-type: none"> ● Vpwr supply failure ● Control supply failure ● GROUND failure | For ECM circuit tests, vehicles with 2.0L diesel engines, GO to Pinpoint Test AH . |
| ICE supply or ground fault | <ul style="list-style-type: none"> ● B+memory supply failure ● Acc+ supply failure ● GROUND failure | For ICE circuit tests, GO to Pinpoint Test AI . |
| CD supply or ground fault | <ul style="list-style-type: none"> ● B+ supply failure ● GROUND failure | For CD changer circuit tests, GO to Pinpoint Test AJ . |
| NAV module supply or ground fault | <ul style="list-style-type: none"> ● B+ supply failure ● Acc+ supply failure ● GROUND failure | For NAV module circuit tests, GO to Pinpoint Test AK . |
| FFH module supply or ground fault | <ul style="list-style-type: none"> ● B+ supply failure ● Ign+ supply failure ● GROUND failure | For FFH module circuit tests, GO to Pinpoint Test AL . |
| Park aid module supply or ground fault | <ul style="list-style-type: none"> ● Ign+ supply failure ● GROUND failure | For park aid module circuit tests, GO to Pinpoint Test AM . |
| RCM supply or ground fault | <ul style="list-style-type: none"> ● Ign+ supply failure ● GROUND failure | For RCM circuit tests, GO to Pinpoint Test AN . |
| GEM supply or ground fault | <ul style="list-style-type: none"> ● B+ supply failure | For GEM circuit tests, GO to Pinpoint Test AO . |
| Amplifier supply or ground fault | <ul style="list-style-type: none"> ● B+ supply failure ● GROUND failure | For amplifier circuit tests, GO to Pinpoint Test AV . |

Pinpoint tests

• CAUTIONS:

 Diagnosis by substitution from a donor vehicle is **NOT** acceptable. Each vehicle is configured to its own vehicle identification data (VID) block, and substitution of control modules may not only not confirm a fault, but may cause faults in the vehicle being tested and/or the donor vehicle. Failure to follow this instruction may result in damage to the vehicle.

 Electronic modules are sensitive to static electrical charges. If exposed to these charges, damage may result. Failure to follow this instruction may result in damage to the vehicle.

 When probing connectors to take measurements in the course of the pinpoint tests, use the adaptor kit, part number 3548-1358-00. Failure to follow this instruction may result in damage to the vehicle.

• NOTE: When performing voltage or resistance tests, always use a digital multimeter (DMM) accurate to 3 decimal places, and with an up-to-date calibration certificate. When testing resistance, always take the resistance of the DMM leads into account.

• NOTE: Before beginning any diagnosis of the D2B system, codes B1342, U2602, or U2603 must be rectified. No D2B function is possible with these failures present.

• NOTE: Check and rectify basic faults before beginning diagnostic routines involving pinpoint tests.

• NOTE: If DTCs are recorded and the symptom is not present when performing the pinpoint tests, an intermittent concern may be the cause. Always check for loose connections and corroded terminals.

PINPOINT TEST A : CHECK THE CONTROLLER AREA NETWORK (CAN) CONTINUITY

• NOTE: The following test is based on the maximum number of modules in the network. Refer to the wiring diagrams for information on networks with fewer modules.

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|--|--|
| A1: CHECK THE RESISTANCE OF THE CAN NETWORK | |
| 1 | Turn the ignition switch to the OFF position. |
| 2 | Measure the resistance between pins 06 (Y) and 14 (G) of the diagnostic connector. |

| | |
|---|--|
| | Is the resistance between 50 and 70 ohms? Yes GO to A3. No GO to A2. |
| A2: CHECK THE CAN NETWORK FOR SHORT CIRCUIT | |
| | 1 Turn the ignition switch to the OFF position. 2 Measure the resistance between pins 06 (Y) and 14 (G) of the diagnostic connector. |
| | Is the resistance less than 50 ohms? Yes CHECK the network for short circuit. For additional information, refer to the wiring diagrams. Clear any DTCs, test the system for normal operation. No GO to A3. |
| A3: CHECK THE CAN + CIRCUIT BETWEEN THE DIAGNOSTIC CONNECTOR AND THE STEERING WHEEL ROTATION SENSOR | |
| | 1 Disconnect the steering wheel rotation sensor connector, IP19. 2 Measure the resistance between IP19, pin 03 (Y) and the diagnostic connector, pin 06 (Y). |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. Clear any DTCs, test the system for normal operation. No GO to A4. |
| A4: CHECK THE CAN - CIRCUIT BETWEEN THE DIAGNOSTIC CONNECTOR AND THE STEERING WHEEL ROTATION SENSOR | |
| | 1 Measure the resistance between IP19, pin 04 (G) and the diagnostic connector, pin 14 (G). |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. Clear any DTCs, test the system for normal operation. No GO to A5. |
| A5: CHECK THE CAN + CIRCUIT BETWEEN THE DIAGNOSTIC CONNECTOR AND THE YAW RATE SENSOR | |
| | 1 Disconnect the yaw rate sensor connector, IP20. 2 Measure the resistance between IP20, pin 03 (Y) and the diagnostic connector, pin 06 (Y). |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. Clear any DTCs, test the system for normal operation. No GO to A6. |
| A6: CHECK THE CAN - CIRCUIT BETWEEN THE DIAGNOSTIC CONNECTOR AND THE YAW RATE SENSOR | |
| | 1 Measure the resistance between IP20, pin 02 (G) and the diagnostic connector, pin 14 (G). |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. Clear any DTCs, test the system for normal operation. No GO to A7. |
| A7: CHECK THE CAN + CIRCUIT BETWEEN THE DIAGNOSTIC CONNECTOR AND THE MEMORY SEAT MODULE (WHERE FITTED) | |
| | 1 Disconnect the memory seat module connector, DM01. 2 Measure the resistance between DM01, pin 12 (Y) and the diagnostic connector, pin 06 (Y). |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. Clear any DTCs, test the system for normal operation. No GO to A8. |
| A8: CHECK THE CAN - CIRCUIT BETWEEN THE DIAGNOSTIC CONNECTOR AND THE MEMORY SEAT MODULE (WHERE FITTED) | |
| | 1 Measure the resistance between DM01, pin 02 (G) and the diagnostic connector, pin 14 (G). |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. Clear any DTCs, test the system for normal operation. No GO to A9. |
| A9: CHECK THE CAN + CIRCUIT BETWEEN THE DIAGNOSTIC CONNECTOR AND THE ABS/DSC MODULE | |
| | 1 Disconnect the ABS/TCCM connector, JB45, or DSC module connector, JB185. 2 Measure the resistance between JB45/JB185, pin 24 (Y) and the diagnostic connector, pin 06 (Y). |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. Clear any DTCs, test the system for normal operation. No GO to A10. |
| A10: CHECK THE CAN - CIRCUIT BETWEEN THE DIAGNOSTIC CONNECTOR AND THE ABS/DSC MODULE | |
| | 1 Measure the resistance between JB45/JB185, pin 40 (G) and the diagnostic connector, pin 14 (G). |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. Clear any DTCs, test the system for normal operation. No GO to A11. |
| A11: CHECK THE CAN + CIRCUIT BETWEEN THE DIAGNOSTIC CONNECTOR AND THE HID MODULE (WHERE FITTED) | |
| | 1 Disconnect the HID module connector, IP130. 2 Measure the resistance between IP130, pin 02 (Y) and the diagnostic connector, pin 06 (Y). |

| | |
|--|---|
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. Clear any DTCs, test the system for normal operation. No GO to A12. |
| A12: CHECK THE CAN - CIRCUIT BETWEEN THE DIAGNOSTIC CONNECTOR AND THE HID MODULE (WHERE FITTED) | |
| | 1 Measure the resistance between IP130, pin 03 (G) and the diagnostic connector, pin 14 (G). |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. Clear any DTCs, test the system for normal operation. No NO circuit fault found. Check DTCs for indications of a module fault. |

PINPOINT TEST B : P1603. TCM EEPROM FAILURE

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|--|---|
| B1: DTC SET BY 3 POSSIBLE FACTORS | |
| | 1 Check battery voltage. |
| | Has the battery been discharged to a voltage where the engine would not crank? Yes CHARGE and test the battery. Install a new battery, if required. REFER to: Battery (414-01 Battery, Mounting and Cables, Removal and Installation). Carry out a drive-cycle. (The vehicle may lose its adaptive values and will need to re-learn them. These values will depend on the owner's driving style, and can only be learnt by normal use.) No GO to B2. |
| B2: DTC SET BY 3 POSSIBLE FACTORS | |
| | 1 Check the TCM for signs of water ingress. |
| | Does the TCM show any indication of water ingress? Yes INSTALL a new TCM. REFER to: Transmission Control Module (TCM) (307-01B Automatic Transmission/Transaxle - Vehicles With: 6-Speed Automatic Transaxle - AWF21, In-vehicle Repair). CLEAR the DTC, test the system for normal operation. No GO to B3. |
| B3: DTC SET BY 3 POSSIBLE FACTORS | |
| | 1 Check if the battery has been disconnected with the ignition switched on. |
| | Has the battery been disconnected with the ignition switched on? Yes CARRY out a drive-cycle. For additional information, refer to the DTC section of JTIS. (The vehicle may lose its adaptive values and will need to re-learn them. These values will depend on the owner's driving style, and can only be learnt by normal use.) No INSTALL a new TCM. REFER to: Transmission Control Module (TCM) (307-01B Automatic Transmission/Transaxle - Vehicles With: 6-Speed Automatic Transaxle - AWF21, In-vehicle Repair). CLEAR the DTC, test the system for normal operation. |

PINPOINT TEST C : P1637: CAN NETWORK MALFUNCTION, TRANSMISSION CONTROL MODULE (TCM)

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|---|---|
| C1: CHECK TCM FOR DAMAGE | |
| | 1 Inspect the TCM |
| | Does the TCM indicate any signs of damage? Yes INSTALL a new TCM. REFER to: Transmission Control Module (TCM) (307-01B Automatic Transmission/Transaxle - Vehicles With: 6-Speed Automatic Transaxle - AWF21, In-vehicle Repair). CLEAR the DTC, test the system for normal operation. No GO to C2. |
| C2: CHECK CAN + FOR SHORT CIRCUIT TO GROUND | |
| | 1 Measure the resistance between the diagnostic connector, pin 06, (Y) and GROUND. |
| | Is the resistance less than 10,000 ohms? Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to C3. |
| C3: CHECK CAN + FOR SHORT CIRCUIT TO BATTERY | |
| | 1 Measure the resistance between the diagnostic connector, pins 06, (Y) and pin 16 (OY). |
| | Is the resistance less than 10,000 ohms? Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to C4. |
| C4: CHECK CAN - FOR SHORT CIRCUIT TO GROUND | |
| | 1 Measure the resistance between the diagnostic connector, pin 14 (G) and GROUND. |
| | Is the resistance less than 10,000 ohms? Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No |

[GO to C5.](#)

C5: CHECK CAN - FOR SHORT CIRCUIT TO BATTERY

1 Measure the resistance between the diagnostic connector, pin 14 (G) and pin 16 (OY).

Is the resistance less than 10,000 ohms?

Yes

REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.

No

[GO to C6.](#)

C6: CHECK FOR SHORT CIRCUIT BETWEEN CAN + AND CAN -

1 Measure the resistance between the diagnostic connector, pins 6 (Y) and 14 (G).

Is the resistance less than 10,000 ohms?

Yes

REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.

No

[GO to C7.](#)

C7: CHECK FOR OPEN CIRCUIT ON CAN + BETWEEN DIAGNOSTIC CONNECTOR AND THE TCM

1 Disconnect the battery negative terminal.

Vehicles with 16 bit modules -

- Disconnect the TCM connector, JB131.
- Measure the resistance between the diagnostic connector, pin 06 (Y) and JB131, pin 33 (Y).

Vehicles with 32 bit modules -

- Disconnect the TCM connector, JB230.
- Measure the resistance between the diagnostic connector, pin 06 (Y) and JB230, pin 05 (Y).

Is the resistance greater than 5 ohms?

Yes

REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.

No

[GO to C8.](#)

C8: CHECK FOR OPEN CIRCUIT ON CAN - BETWEEN THE DIAGNOSTIC CONNECTOR AND THE TCM

1 Measure the resistance between the diagnostic connector, pin 14 (G) and:

Vehicles with 16 bit modules -

- JB131, pin 12 (G).

Vehicles with 32 bit modules -

- JB230, pin 06 (G).

Is the resistance less than 5 ohms?

Yes

[GO to C9.](#)

No

REPAIR the CAN - circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.

C9: CHECK FOR CORRECT BUS TERMINATION

1 Reconnect the TCM connector, JB131 or JB230.

2 Measure the resistance between the diagnostic connector, pins 06 (Y) and 14 (G).

Is the resistance between 50 and 70 ohms?

Yes

INSTALL a new TCM.

REFER to: [Transmission Control Module \(TCM\)](#) (307-01B Automatic Transmission/Transaxle - Vehicles With: 6-Speed Automatic Transaxle - AWF21, In-vehicle Repair).

CLEAR the DTC, test the system for normal operation.

No

[GO to C10.](#)

C10: CHECK CONTINUITY OF THE CAN + CIRCUIT BETWEEN THE ECM AND THE IC

1 To test:

Vehicles with 2.5 and 3.0L engine -

- Disconnect the ECM connector, EN16, and the IC connector, IP10.
- Measure the resistance between EN16, pin 124 (Y) and IP10, pin 17 (Y).

Vehicles with 2.0L petrol engine -

- Disconnect the ECM connector, EN65, and the IC connector, IP10.
- Measure the resistance between EN65, pin 89 (Y) and IP10, pin 17 (Y).

Vehicles with 2.0L diesel engine -

- Disconnect the ECM connector, DL01, and the IC connector, IP10.
- Measure the resistance between DL01, pin 54 (Y) and IP10, pin 17 (Y).

Is the resistance greater than 5 ohms?

Yes

REPAIR the CAN + circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.

No

[GO to C11.](#)

C11: CHECK CONTINUITY OF THE CAN - CIRCUIT BETWEEN THE ECM AND THE IC

| | |
|--|---|
| | <p>1 Measure the resistance between:</p> <p>Vehicles with 2.5 and 3.0L engine -</p> <ul style="list-style-type: none"> • EN16, pin 123 (G) and IP10, pin 18 (G). <p>Vehicles with 2.0L petrol engine -</p> <ul style="list-style-type: none"> • EN65, pin 88 (G) and IP10, pin 18 (G). <p>Vehicles with 2.0L diesel engine -</p> <ul style="list-style-type: none"> • DL01, pin 73 (G) and IP10, pin 18 (G). |
| | <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the CAN - circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to C12.</p> |
| C12: CHECK FOR LOSS OF TERMINATION WITHIN THE ECM | |
| | <p>1 To test:</p> <p>Vehicles with 2.5 and 3.0L engine -</p> <ul style="list-style-type: none"> • Measure the resistance between pins 123 and 124 of the ECM. <p>Vehicles with 2.0L petrol engine -</p> <ul style="list-style-type: none"> • Measure the resistance between pins 88 and 89 of the ECM. <p>Vehicles with 2.0L diesel engine -</p> <ul style="list-style-type: none"> • Measure the resistance between pins 54 and 73 of the ECM. |
| | <p>Is the resistance between 110 and 140 ohms?</p> <p>Yes GO to C13.</p> <p>No Please check part is not on any form of prior authorisation before replacement.</p> |
| C13: CHECK FOR LOSS OF TERMINATION WITHIN THE IC | |
| | <p>1 Measure the resistance between pins 17 and 18 of the IC.</p> |
| | <p>Is the resistance between 110 and 140 ohms?</p> <p>Yes POSSIBLE intermittent fault. Recheck DTCs.</p> <p>No INSTALL a new instrument cluster. REFER to: Instrument Cluster (413-01 Instrument Cluster, Removal and Installation). CLEAR the DTC, test the system for normal operation.</p> |

PINPOINT TEST D : P1638: CAN NETWORK MALFUNCTION, INSTRUMENT CLUSTER (IC)

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|---|--|
| D1: CHECK THE IC FOR DAMAGE | |
| | <p>1 Inspect the IC for damage.</p> |
| | <p>Does the IC indicate any signs of damage?</p> <p>Yes INSTALL a new instrument cluster. REFER to: Instrument Cluster (413-01 Instrument Cluster, Removal and Installation). CLEAR the DTC, test the system for normal operation.</p> <p>No GO to D2.</p> |
| D2: CHECK CAN + FOR SHORT CIRCUIT TO GROUND | |
| | <p>1 Turn the ignition switch to the OFF position.</p> <p>2 Measure the resistance between the diagnostic connector, pin 06 (Y) and GROUND.</p> |
| | <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to D3.</p> |
| D3: CHECK CAN + FOR SHORT CIRCUIT TO BATTERY | |
| | <p>1 Measure the resistance between the diagnostic connector, pin 06 (Y) and pin 16 (OY).</p> |
| | <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to D4.</p> |
| D4: CHECK CAN - FOR SHORT CIRCUIT TO GROUND | |
| | <p>1 Measure the resistance between the diagnostic connector, pin 14 (G) and GROUND.</p> |
| | <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to D5.</p> |
| D5: CHECK CAN - FOR SHORT CIRCUIT TO BATTERY | |
| | <p>1 Measure the resistance between the diagnostic connector, pins 14 (G) and 16 (OY).</p> |

| | |
|--|---|
| | <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to D6.</p> |
| D6: CHECK FOR SHORT CIRCUIT BETWEEN CAN + AND CAN - | |
| | <p>1 Disconnect the battery negative terminal.</p> <p>2 Measure the resistance between the diagnostic connector, pins 06 (Y) and 14 (G).</p> |
| | <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to D7.</p> |
| D7: CHECK FOR OPEN CIRCUIT ON CAN + BETWEEN THE DIAGNOSTIC CONNECTOR AND THE IC | |
| | <p>1 Disconnect the IC connector, IP10.</p> <p>2 Measure the resistance between the diagnostic connector, pin 06 (Y) and IP10, pin 17 (Y).</p> |
| | <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to D8.</p> |
| D8: CHECK FOR OPEN CIRCUIT ON CAN - BETWEEN THE DIAGNOSTIC CONNECTOR AND THE IC | |
| | <p>1 Measure the resistance between the diagnostic connector, pin 14 (G) and IP10, pin 18 (G).</p> |
| | <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to D9.</p> |
| D9: CHECK FOR CORRECT BUS TERMINATION | |
| | <p>1 Reconnect the IC connector, IP10.</p> <p>2 Measure the resistance between the diagnostic connector, pins 06 (Y) and 14 (G).</p> |
| | <p>Is the resistance between 50 and 70 ohms?</p> <p>Yes INSTALL a new instrument cluster. REFER to: Instrument Cluster (413-01 Instrument Cluster, Removal and Installation). CLEAR the DTC, test the system for normal operation.</p> <p>No GO to D10.</p> |
| D10: CHECK CONTINUITY OF THE CAN + CIRCUIT BETWEEN THE ECM AND THE IC | |
| | <p>1 To test:</p> <p>Vehicles with 2.5 and 3.0L engine -</p> <ul style="list-style-type: none"> ● Disconnect the ECM connector, EN16, and the IC connector, IP10. ● Measure the resistance between EN16, pin 124 (Y) and IP10, pin 17 (Y). <p>Vehicles with 2.0L petrol engine -</p> <ul style="list-style-type: none"> ● Disconnect the ECM connector, EN65, and the IC connector, IP10. ● Measure the resistance between EN65, pin 89 (Y) and IP10, pin 17 (Y). <p>Vehicles with 2.0L diesel engine -</p> <ul style="list-style-type: none"> ● Disconnect the ECM connector, DL01, and the IC connector, IP10. ● Measure the resistance between DL01, pin 54 (Y) and IP10, pin 17 (Y). |
| | <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to D11.</p> |
| D11: CHECK CONTINUITY OF THE CAN - CIRCUIT BETWEEN THE ECM AND THE IC | |
| | <p>1 Measure the resistance between:</p> <p>Vehicles with 2.5 and 3.0L engine -</p> <ul style="list-style-type: none"> ● EN16, pin 123 (G) and IP10, pin 18 (G). <p>Vehicles with 2.0L petrol engine -</p> <ul style="list-style-type: none"> ● EN65, pin 88 (G) and IP10, pin 18 (G). <p>Vehicles with 2.0L diesel engine -</p> <ul style="list-style-type: none"> ● DL01, pin 73 (G) and IP10, pin 18 (G). |
| | <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to D12.</p> |
| D12: CHECK FOR LOSS OF TERMINATION WITHIN THE ECM | |

| | |
|--|---|
| | <p>1 Measure the resistance between:</p> <p>Vehicles with 2.5 and 3.0L engine -</p> <ul style="list-style-type: none"> pins 123 and 124 of the ECM. <p>Vehicles with 2.0L petrol engine -</p> <ul style="list-style-type: none"> pins 88 and 89 of the ECM. <p>Vehicles with 2.0L diesel engine -</p> <ul style="list-style-type: none"> pins 54 and 73 of the ECM. |
|--|---|

| | |
|--|--|
| | <p>Is the resistance between 110 and 140 ohms?</p> <p>Yes GO to D13.</p> <p>No Please check part is not on any form of prior authorisation before replacement.</p> |
|--|--|

D13: CHECK FOR LOSS OF TERMINATION WITHIN THE IC

| | |
|--|---|
| | <p>1 Measure the resistance between pins 17 and 18 of the IC.</p> |
| | <p>Is the resistance between 110 and 140 ohms?</p> <p>Yes Possible intermittent fault. Recheck DTCs.</p> <p>No INSTALL a new instrument cluster. REFER to: Instrument Cluster (413-01 Instrument Cluster, Removal and Installation). CLEAR the DTC, test the system for normal operation.</p> |

PINPOINT TEST E : P1642; P1643; P1797: CAN NETWORK MALFUNCTION, ECM

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|-----------------|-------------------------|
|-----------------|-------------------------|

E1: CHECK THE ECM FOR DAMAGE

| | |
|--|--|
| | <p>1 Inspect the ECM.</p> |
| | <p>Does the ECM indicate any signs of damage?</p> <p>Yes Please check part is not on any form of prior authorisation before replacement.</p> <p>No GO to E2.</p> |

E2: CHECK CAN + FOR SHORT CIRCUIT TO GROUND

| | |
|--|---|
| | <p>1 Measure the resistance between the diagnostic connector, pin 06, (Y) and GROUND.</p> |
| | <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to E3.</p> |

E3: CHECK CAN + FOR SHORT CIRCUIT TO BATTERY

| | |
|--|---|
| | <p>1 Measure the resistance between the diagnostic connector, pin 06, (Y) and pin 16 (OY).</p> |
| | <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to E4.</p> |

E4: CHECK CAN - FOR SHORT CIRCUIT TO GROUND

| | |
|--|---|
| | <p>1 Measure the resistance between the diagnostic connector, pin 14 (G) and GROUND.</p> |
| | <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to E5.</p> |

E5: CHECK CAN - FOR SHORT CIRCUIT TO BATTERY

| | |
|--|---|
| | <p>1 Measure the resistance between the diagnostic connector, pins 14 (G) and 16 (OY).</p> |
| | <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to E6.</p> |

E6: CHECK FOR SHORT CIRCUIT BETWEEN CAN + AND CAN -

| | |
|--|---|
| | <p>1 Measure the resistance between the diagnostic connector, pins 06 (Y) and 14 (G).</p> |
| | <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to E7.</p> |

E7: CHECK FOR OPEN CIRCUIT ON CAN + BETWEEN THE DIAGNOSTIC CONNECTOR AND THE ECM

| | |
|--|---|
| | <p>1 Disconnect the battery negative terminal.</p> <p>Vehicles with 2.5 and 3.0L engine -</p> <ul style="list-style-type: none"> Disconnect the ECM connector, EN16. Measure the resistance between IP22 pin 06 (Y) and EN16, pin 124 (Y). <p>Vehicles with 2.0L petrol engine -</p> <ul style="list-style-type: none"> Disconnect the ECM connector, EN65. |
|--|---|

| | |
|---|---|
| | <ul style="list-style-type: none"> ● Measure the resistance between IP22 pin 06 (Y) and EN65, pin 89 (Y). <p>Vehicles with 2.0L diesel engine -</p> <ul style="list-style-type: none"> ● Disconnect the ECM connector, DL01. ● Measure the resistance between the diagnostic connector, pin 06 (Y) and DL01, pin 54 (Y). |
| | <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to E8.</p> |
| E8: CHECK FOR OPEN CIRCUIT ON CAN - BETWEEN THE DIAGNOSTIC CONNECTOR AND THE ECM | |
| | <p>1 To test:</p> <p>Vehicles with 2.5 and 3.0L engine -</p> <ul style="list-style-type: none"> ● Measure the resistance between the diagnostic connector, pin 14 (G) and EN16, pin 123 (G). <p>Vehicles with 2.0L petrol engine -</p> <ul style="list-style-type: none"> ● Measure the resistance between the diagnostic connector, pin 14 (G) and EN65, pin 88 (G). <p>Vehicles with 2.0L diesel engine -</p> <ul style="list-style-type: none"> ● Measure the resistance between the diagnostic connector, pin 14 (G) and DL01, pin 73 (G). |
| | <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to E9.</p> |
| E9: CHECK FOR CORRECT BUS TERMINATION | |
| | <p>1 Reconnect the ECM connector.</p> <p>2 Measure the resistance between the diagnostic connector, pins 06 (Y) and 14 (G).</p> |
| | <p>Is the resistance between 50 and 70 ohms?</p> <p>Yes Please check part is not on any form of prior authorisation before replacement.</p> <p>No GO to E10.</p> |
| E10: CHECK CONTINUITY OF THE CAN + CIRCUIT | |
| | <p>1 To test:</p> <p>Vehicles with 2.5 and 3.0L engine -</p> <ul style="list-style-type: none"> ● Disconnect the ECM connector, EN16, and the IC connector, IP10. ● Measure the resistance between EN16, pin 124 (Y) and IP10, pin 17 (Y). <p>Vehicles with 2.0L petrol engine -</p> <ul style="list-style-type: none"> ● Disconnect the ECM connector, EN65, and the IC connector, IP10. ● Measure the resistance between EN65, pin 89 (Y) and IP10, pin 17 (Y). <p>Vehicles with 2.0L diesel engine -</p> <ul style="list-style-type: none"> ● Disconnect the ECM connector, DL01, and the IC connector, IP10. ● Measure the resistance between DL01, pin 54 (Y) and IP10, pin 17 (Y). |
| | <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to E11.</p> |
| E11: CHECK CONTINUITY OF THE CAN - CIRCUIT | |
| | <p>1 Measure the resistance between:</p> <p>Vehicles with 2.5 and 3.0L engine -</p> <ul style="list-style-type: none"> ● EN16, pin 123 (G) and IP10, pin 18 (G). <p>Vehicles with 2.0L petrol engine -</p> <ul style="list-style-type: none"> ● EN65, pin 88 (G) and IP10, pin 18 (G). <p>Vehicles with 2.0L diesel engine -</p> <ul style="list-style-type: none"> ● DL01, pin 73 (G) and IP10, pin 18 (G). |
| | <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to E12.</p> |
| E12: CHECK FOR LOSS OF TERMINATION WITHIN THE ECM | |
| | <p>1 Measure the resistance between:</p> <p>Vehicles with 2.5 and 3.0L engine -</p> <ul style="list-style-type: none"> ● pins 123 and 124 of the ECM. |

| | |
|---|--|
| | <p>Vehicles with 2.0L petrol engine -</p> <ul style="list-style-type: none"> pins 88 and 89 of the ECM. <p>Vehicles with 2.0L diesel engine -</p> <ul style="list-style-type: none"> pins 54 and 73 of the ECM. |
| | <p>Is the resistance between 110 and 140 ohms?</p> <p>Yes GO to E13.</p> <p>No Please check part is not on any form of prior authorisation before replacement.</p> |
| E13: CHECK FOR LOSS OF TERMINATION WITHIN THE IC | |
| | <p>1 Measure the resistance between pins 17 and 18 of the IC.</p> <p>Is the resistance between 110 and 140 ohms?</p> <p>Yes Possible intermittent fault. Recheck DTCs.</p> <p>No INSTALL a new instrument cluster. REFER to: Instrument Cluster (413-01 Instrument Cluster, Removal and Installation). CLEAR the DTC, test the system for normal operation.</p> |

PINPOINT TEST F : P1699: CAN NETWORK MALFUNCTION, ELECTRONIC AUTOMATIC TEMPERATURE CONTROL (EATC) MODULE

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|---|---|
| F1: CHECK THE EATC MODULE FOR DAMAGE | |
| | <p>1 Inspect the EATC module for damage.</p> <p>Does the EATC module indicate any signs of damage?</p> <p>Yes INSTALL a new EATC module. REFER to: Climate Control System (412-00 Climate Control System - General Information, Description and Operation). CLEAR the DTC, test the system for normal operation.</p> <p>No GO to F2.</p> |
| F2: CHECK CAN + FOR SHORT CIRCUIT TO GROUND | |
| | <p>1 Measure the resistance between the diagnostic connector, pin 06 (Y) and GROUND.</p> <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to F3.</p> |
| F3: CHECK CAN + FOR SHORT CIRCUIT TO BATTERY | |
| | <p>1 Turn the ignition switch to the OFF position.</p> <p>2 Measure the resistance between the diagnostic connector, pin 06 (Y) and pin 16 (OY).</p> <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to F4.</p> |
| F4: CHECK CAN - FOR SHORT CIRCUIT TO GROUND | |
| | <p>1 Measure the resistance between the diagnostic connector, pin 14 (G) and GROUND.</p> <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to F5.</p> |
| F5: CHECK CAN - FOR SHORT CIRCUIT TO BATTERY | |
| | <p>1 Measure the resistance between the diagnostic connector, pin 14 (G) and pin 16 (OY).</p> <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to F6.</p> |
| F6: CHECK FOR SHORT CIRCUIT BETWEEN CAN + AND CAN - | |
| | <p>1 Disconnect the battery negative terminal.</p> <p>2 Measure the resistance between the diagnostic connector, pins 06 (Y) and 14 (G).</p> <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to F7.</p> |
| F7: CHECK FOR OPEN CIRCUIT ON CAN + BETWEEN THE DIAGNOSTIC CONNECTOR AND THE EATC MODULE | |
| | <p>1 Disconnect the EATC module connector, IP101.</p> <p>2 Measure the resistance between the diagnostic connector, pin 06 (Y) and IP101, pin 22 (Y).</p> <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No</p> |

| | |
|---|--|
| GO to F8. | |
| F8: CHECK FOR OPEN CIRCUIT ON CAN - BETWEEN THE DIAGNOSTIC CONNECTOR AND THE EATC MODULE | |
| | 1 Measure the resistance between the diagnostic connector, pin 14 (G) and IP101, pin 23 (G). |
| | Is the resistance greater than 5 ohms? |
| | Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. |
| | No GO to F9. |
| F9: CHECK FOR CORRECT BUS TERMINATION | |
| | 1 Reconnect the EATC module connector, IP101. |
| | 2 Measure the resistance between the diagnostic connector, pins 06 (Y) and 14 (G). |
| | Is the resistance between 50 and 70 ohms? |
| | Yes INSTALL a new EATC module. REFER to: Climate Control System (412-00 Climate Control System - General Information, Description and Operation). CLEAR the DTC, test the system for normal operation. |
| | No GO to F10. |
| F10: CHECK CONTINUITY OF THE CAN + CIRCUIT BETWEEN THE ECM AND THE IC | |
| | 1 To test: |
| | Vehicles with 2.5 and 3.0L engine - |
| | <ul style="list-style-type: none"> ● Disconnect the ECM connector, EN16, and the IC connector, IP10. ● Measure the resistance between EN16, pin 124 (Y) and IP10, pin 17 (Y). |
| | Vehicles with 2.0L petrol engine - |
| | <ul style="list-style-type: none"> ● Disconnect the ECM connector, EN65, and the IC connector, IP10. ● Measure the resistance between EN65, pin 89 (Y) and IP10, pin 17 (Y). |
| | Vehicles with 2.0L diesel engine - |
| | <ul style="list-style-type: none"> ● Disconnect the ECM connector, DL01, and the IC connector, IP10. ● Measure the resistance between DL01, pin 54 (Y) and IP10, pin 17 (Y). |
| | Is the resistance greater than 5 ohms? |
| | Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. |
| | No GO to F11. |
| F11: CHECK CONTINUITY OF THE CAN - CIRCUIT BETWEEN THE ECM AND THE IC | |
| | 1 Measure the resistance between: |
| | Vehicles with 2.5 and 3.0L engine - |
| | <ul style="list-style-type: none"> ● EN16, pin 123 (G) and IP10, pin 18 (G). |
| | Vehicles with 2.0L petrol engine - |
| | <ul style="list-style-type: none"> ● EN65, pin 88 (G) and IP10, pin 18 (G). |
| | Vehicles with 2.0L diesel engine - |
| | <ul style="list-style-type: none"> ● DL01, pin 73 (G) and IP10, pin 18 (G). |
| | Is the resistance greater than 5 ohms? |
| | Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. |
| | No GO to F12. |
| F12: CHECK FOR LOSS OF TERMINATION WITHIN THE ECM | |
| | 1 Measure the resistance between: |
| | Vehicles with 2.5 and 3.0L engine - |
| | <ul style="list-style-type: none"> ● pins 123 and 124 of the ECM. |
| | Vehicles with 2.0L petrol engine - |
| | <ul style="list-style-type: none"> ● pins 88 and 89 of the ECM. |
| | Vehicles with 2.0L diesel engine - |
| | <ul style="list-style-type: none"> ● pins 54 and 73 of the ECM. |
| | Is the resistance between 110 and 140 ohms? |
| | Yes GO to F13. |
| | No Please check part is not on any form of prior authorisation before replacement. |
| F13: CHECK FOR LOSS OF TERMINATION WITHIN THE IC | |
| | 1 Measure the resistance between pins 17 and 18 of the IC. |
| | Is the resistance between 110 and 140 ohms? |
| | Yes POSSIBLE intermittent fault. Recheck DTCs. |
| | No INSTALL a new instrument cluster. REFER to: Instrument Cluster (413-01 Instrument Cluster, Removal and Installation). |

CLEAR the DTC, test the system for normal operation.

PINPOINT TEST G : P1799: CAN NETWORK MALFUNCTION, ANTI-LOCK BRAKE (ABS)/DYNAMIC STABILITY CONTROL (DSC) CONTROL MODULE

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|---|---|
| G1: CHECK THE ABS OR DSC MODULE FOR DAMAGE | |
| | 1 Inspect the ABS/TCCM or DSC module. |
| Does the ABS/TCCM or DSC module indicate any signs of damage? | |
| Yes | INSTALL a new ABS/TCCM or DSC module. REFER to: Hydraulic Control Unit (HCU) - VIN Range: C00001->J12991 (206-09 Anti-Lock Control - Stability Assist, Removal and Installation). CLEAR the DTC, test the system for normal operation. |
| No | GO to G2. |
| G2: CHECK CAN + FOR SHORT CIRCUIT TO GROUND | |
| | 1 Turn the ignition switch to the OFF position. |
| | 2 Measure the resistance between the diagnostic connector, pin 06 (Y) and GROUND. |
| Is the resistance less than 10,000 ohms? | |
| Yes | REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. |
| No | GO to G3. |
| G3: CHECK CAN + FOR SHORT CIRCUIT TO BATTERY | |
| | 1 Measure the resistance between the diagnostic connector, pin 06, (Y) and pin 16 (OY). |
| Is the resistance less than 10,000 ohms? | |
| Yes | REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. |
| No | GO to G4. |
| G4: CHECK CAN - FOR SHORT CIRCUIT TO GROUND | |
| | 1 Measure the resistance between the diagnostic connector, pin 14 (G) and GROUND. |
| Is the resistance less than 10,000 ohms? | |
| Yes | REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. |
| No | GO to G5. |
| G5: CHECK CAN - FOR SHORT CIRCUIT TO BATTERY | |
| | 1 Measure the resistance between the diagnostic connector, pins 14 (G) and pin 16 (OY). |
| Is the resistance less than 10,000 ohms? | |
| Yes | REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. |
| No | GO to G6. |
| G6: CHECK FOR SHORT CIRCUIT BETWEEN CAN + AND CAN - | |
| | 1 Disconnect the battery negative terminal. |
| | 2 Measure the resistance between the diagnostic connector, pins 06 (Y) and 14 (G). |
| Is the resistance less than 10,000 ohms? | |
| Yes | REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. |
| No | GO to G7. |
| G7: CHECK FOR OPEN CIRCUIT ON CAN + BETWEEN THE DIAGNOSTIC CONNECTOR AND THE ABS OR DSC MODULE | |
| | 1 Disconnect the ABS/TCCM connector, JB45, or DSC module connector, JB185. |
| | 2 Measure the resistance between the diagnostic connector, pin 06 (Y) and JB45/JB185, pin 24 (Y). |
| Is the resistance greater than 5 ohms? | |
| Yes | REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. |
| No | GO to G9. |
| G8: CHECK FOR OPEN CIRCUIT ON CAN - BETWEEN THE DIAGNOSTIC CONNECTOR AND THE ABS OR DSC MODULE | |
| | 1 Measure the resistance between the diagnostic connector, pin 14 (G) and JB45/JB185, pin 40 (G). |
| Is the resistance greater than 5 ohms? | |
| Yes | REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. |
| No | GO to G9. |
| G9: CHECK FOR CORRECT BUS TERMINATION | |
| | 1 Reconnect the ABS/TCCM module connector, JB45, or DSC module connector, JB185. |
| | 2 Measure the resistance between the diagnostic connector, pins 06 (Y) and 14 (G). |
| Is the resistance between 50 and 70 ohms? | |
| Yes | INSTALL a new ABS/TCCM module, or DSC module. REFER to: Hydraulic Control Unit (HCU) - VIN Range: C00001->J12991 (206-09 Anti-Lock Control - Stability Assist, Removal and Installation). CLEAR the DTC, test the system for normal operation. |
| No | GO to G10. |
| G10: CHECK CONTINUITY OF THE CAN + CIRCUIT BETWEEN THE ECM AND THE IC | |

| | |
|--|---|
| | <p>1 To test:</p> <p>Vehicles with 2.5 and 3.0L engine -</p> <ul style="list-style-type: none"> ● Disconnect the ECM connector, EN16, and the IC connector, IP10. ● Measure the resistance between EN16, pin 124 (Y) and IP10, pin 17 (Y). <p>Vehicles with 2.0L petrol engine -</p> <ul style="list-style-type: none"> ● Disconnect the ECM connector, EN65, and the IC connector, IP10. ● Measure the resistance between EN65, pin 89 (Y) and IP10, pin 17 (Y). <p>Vehicles with 2.0L diesel engine -</p> <ul style="list-style-type: none"> ● Disconnect the ECM connector, DL01, and the IC connector, IP10. ● Measure the resistance between DL01, pin 54 (Y) and IP10, pin 17 (Y). |
| | <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to G11.</p> |

G11: CHECK CONTINUITY OF THE CAN - CIRCUIT

| | |
|--|--|
| | <p>1 Measure the resistance between:</p> <p>Vehicles with 2.5 and 3.0L engine -</p> <ul style="list-style-type: none"> ● EN16, pin 123 (G) and IP10, pin 18 (G). <p>Vehicles with 2.0L petrol engine -</p> <ul style="list-style-type: none"> ● EN65, pin 88 (G) and IP10, pin 18 (G). <p>Vehicles with 2.0L diesel engine -</p> <ul style="list-style-type: none"> ● DL01, pin 73 (G) and IP10, pin 18 (G). |
| | <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to G12.</p> |

G12: CHECK FOR LOSS OF TERMINATION WITHIN THE ECM

| | |
|--|---|
| | <p>1 Measure the resistance between:</p> <p>Vehicles with 2.5 and 3.0L engine -</p> <ul style="list-style-type: none"> ● pins 123 and 124 of the ECM. <p>Vehicles with 2.0L petrol engine -</p> <ul style="list-style-type: none"> ● pins 88 and 89 of the ECM. <p>Vehicles with 2.0L diesel engine -</p> <ul style="list-style-type: none"> ● pins 54 and 73 of the ECM. |
| | <p>Is the resistance between 110 and 140 ohms?</p> <p>Yes GO to G13.</p> <p>No Please check part is not on any form of prior authorisation before replacement.</p> |

G13: CHECK FOR LOSS OF TERMINATION WITHIN THE IC

| | |
|--|---|
| | <p>1 Measure the resistance between pins 17 and 18 of the instrument cluster.</p> |
| | <p>Is the resistance between 110 and 140 ohms?</p> <p>Yes Possible intermittent fault. Recheck DTCs. Repeat tests from A1.</p> <p>No INSTALL a new instrument cluster. REFER to: Instrument Cluster (413-01 Instrument Cluster, Removal and Installation). CLEAR the DTC, test the system for normal operation.</p> |

PINPOINT TEST H : SCP NETWORK MALFUNCTION, GENERIC ELECTRONIC MODULE (GEM)

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|--|---|
| H1: CHECK GEM FOR DAMAGE | |
| | <p>1 Inspect the GEM for damage.</p> |
| | <p>Does the GEM indicate any signs of damage?</p> <p>Yes INSTALL a new GEM. REFER to: Generic Electronic Module (GEM) (419-10 Multifunction Electronic Modules, Removal and Installation). CLEAR the DTC, test the system for normal operation.</p> <p>No GO to H2.</p> |
| H2: CHECK THE SCP + FOR SHORT CIRCUIT TO GROUND | |
| | <p>1 Measure the resistance between the diagnostic connector, pin 02 (Y) and GROUND.</p> |
| | <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No</p> |

[GO to H3.](#)

H3: CHECK THE SCP + FOR SHORT CIRCUIT TO BATTERY

1 Measure the resistance between the diagnostic connector, pins 02 (Y) and 16 (OY).

Is the resistance less than 10,000 ohms?

Yes

REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.

No

[GO to H4.](#)

H4: CHECK THE SCP - FOR SHORT CIRCUIT TO GROUND

1 Measure the resistance between the diagnostic connector, pin 10 (U) and GROUND.

Is the resistance less than 10,000 ohms?

Yes

REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.

No

[GO to H5.](#)

H5: CHECK THE SCP - FOR SHORT CIRCUIT TO BATTERY

1 Measure the resistance between the diagnostic connector, pins 10 (U) and 16 (OY).

Is the resistance less than 10,000 ohms?

Yes

REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.

No

[GO to H6.](#)

H6: CHECK FOR SHORT CIRCUIT BETWEEN SCP + AND SCP -

1 Measure the resistance between the diagnostic connector, pins 10 (U) and 02, (Y).

Is the resistance less than 10,000 ohms?

Yes

REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.

No

[GO to H7.](#)

H7: CHECK FOR OPEN CIRCUIT ON SCP + BETWEEN THE DIAGNOSTIC CONNECTOR AND THE GEM

1 Turn the ignition switch to the **OFF** position.

2 Disconnect the battery negative terminal.

3 Disconnect the GEM connector, IP05.

4 Measure the resistance between the diagnostic connector, pin 02 (Y) and IP05, pin 19 (Y).

Is the resistance greater than 5 ohms?

Yes

REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.

No

[GO to H8.](#)

H8: CHECK FOR OPEN CIRCUIT ON SCP - BETWEEN THE DIAGNOSTIC CONNECTOR AND THE GEM

1 Measure the resistance between the diagnostic connector, pin 10 (U) and IP05, pin 18 (U).

Is the resistance greater than 5 ohms?

Yes

REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.

No

[GO to H9.](#)

H9: CHECK FOR CORRECT BUS TERMINATION ON SCP +

1 Reconnect the battery negative terminal.

2 Reconnect the GEM connector, IP05.

3 Measure the resistance between the diagnostic connector, pin 02 (Y) and GROUND.

Is the resistance 150 to 210 ohms?

Yes

INSTALL a new GEM.
REFER to: [Generic Electronic Module \(GEM\)](#) (419-10 Multifunction Electronic Modules, Removal and Installation).
CLEAR the DTC, test the system for normal operation.

No

[GO to H10.](#)

H10: CHECK THE CONTINUITY OF THE GENERIC ELECTRONIC MODULE (GEM) SCP + CIRCUIT

1 Disconnect the battery negative terminal.

2 Disconnect the GEM connector, IP05.

3 Measure the resistance between the diagnostic connector, pin 02 (Y) and IP05, pin 19 (Y).

Is the resistance greater than 5 ohms?

Yes

REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.

No

[GO to H11.](#)

H11: CHECK FOR LOSS OF SCP + TERMINATION WITHIN THE GEM

1 Disconnect the GEM connector, IP06.

2 Measure the resistance between IP05, pin 19, and IP06, pin 01 of the GEM.

Is the resistance 320 to 400 ohms?

Yes

[GO to H12.](#)

No

INSTALL a new GEM.
REFER to: [Generic Electronic Module \(GEM\)](#) (419-10 Multifunction Electronic Modules, Removal and Installation).
CLEAR the DTC, test the system for normal operation.

H12: CHECK CONTINUITY OF THE INSTRUMENT CLUSTER (IC) SCP + CIRCUIT

1 Disconnect the IC connector, IP10.

2 Measure the resistance between the diagnostic connector, pin 02 (Y) and IP10, pin 22 (Y).

| | |
|--|---|
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to H13. |
|--|---|

H13: CHECK FOR LOSS OF SCP + TERMINATION WITHIN THE INSTRUMENT CLUSTER

| | |
|--|---|
| | 1 Measure the resistance between pins 22 and 08 of the IC. |
| | Is the resistance 320 to 400 ohms? Yes Possible intermittent fault. Recheck DTCs. No INSTALL a new IC. REFER to: Instrument Cluster (413-01 Instrument Cluster, Removal and Installation). CLEAR the DTC, test the system for normal operation. |

PINPOINT TEST I : SCP NETWORK MALFUNCTION, IN CAR ENTERTAINMENT (ICE) HEAD

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|-----------------|-------------------------|
|-----------------|-------------------------|

I1: CHECK ICE FOR DAMAGE

| | |
|--|---|
| | 1 Inspect the ICE head for damage. |
| | Does the ICE head indicate any signs of damage? Yes INSTALL a new ICE head. REFER to: Audio Unit (415-01 Audio Unit, Removal and Installation). CLEAR the DTC, test the system for normal operation. No GO to I2. |

I2: CHECK THE SCP + FOR SHORT CIRCUIT TO GROUND

| | |
|--|--|
| | 1 Measure the resistance between the diagnostic connector, pin 02 (Y) and GROUND. |
| | Is the resistance less than 10,000 ohms? Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to I3. |

I3: CHECK THE SCP + FOR SHORT CIRCUIT TO BATTERY

| | |
|--|--|
| | 1 Measure the resistance between the diagnostic connector, pins 02 (Y) and 16 (OY). |
| | Is the resistance less than 10,000 ohms? Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to I4. |

I4: CHECK THE SCP - FOR SHORT CIRCUIT TO GROUND

| | |
|--|--|
| | 1 Measure the resistance between the diagnostic connector, pin 10 (U) and GROUND. |
| | Is the resistance less than 10,000 ohms? Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to I5. |

I5: CHECK THE SCP - FOR SHORT CIRCUIT TO BATTERY

| | |
|--|--|
| | 1 Measure the resistance between the diagnostic connector, pins 10 (U) and 16 (OY). |
| | Is the resistance less than 10,000 ohms? Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to I6. |

I6: CHECK FOR SHORT CIRCUIT BETWEEN SCP + AND SCP -

| | |
|--|--|
| | 1 Measure the resistance between the diagnostic connector, pins 10 (U) and 02 (Y). |
| | Is the resistance less than 10,000 ohms? Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to I7. |

I7: CHECK FOR OPEN CIRCUIT ON SCP + BETWEEN THE DIAGNOSTIC CONNECTOR AND THE ICE HEAD UNIT

| | |
|--|--|
| | 1 Turn the ignition switch to the OFF position. |
| | 2 Disconnect the battery negative terminal. |
| | 3 Disconnect the ICE connector, IP65. |
| | 4 Measure the resistance between the diagnostic connector, pin 02 (Y) and IP65, pin 09 (Y). |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to I8. |

I8: CHECK FOR OPEN CIRCUIT ON SCP - BETWEEN THE DIAGNOSTIC CONNECTOR AND THE ICE HEAD UNIT

| | |
|--|--|
| | 1 Measure the resistance between the diagnostic connector, pin 10 (U) and IP65, pin 10 (U). |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to I9. |

I9: CHECK FOR CORRECT BUS TERMINATION ON SCP +

| | |
|--|--|
| | 1 Reconnect the ICE connector, IP65. |
| | 2 Reconnect the battery negative terminal. |
| | 3 Measure the resistance between the diagnostic connector, pin 02 (Y) and GROUND. |
| | Is the resistance 150 to 210 ohms? Yes INSTALL a new ICE head unit. REFER to: Audio Unit (415-01 Audio Unit, Removal and Installation). CLEAR the DTC, test the system for normal operation. No GO to I10. |

I10: CHECK THE CONTINUITY OF THE GENERIC ELECTRONIC MODULE (GEM) SCP + CIRCUIT

| | |
|--|---|
| | 1 Turn the ignition switch to the OFF position. |
| | 2 Disconnect the battery negative terminal. |
| | 3 Disconnect the GEM connector, IP05. |
| | 4 Measure the resistance between IP22, pin 02 (Y) and IP05, pin 19 (Y). |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to I11. |

I11: CHECK FOR LOSS OF SCP + TERMINATION WITHIN THE GEM

| | |
|--|---|
| | 1 Disconnect the GEM connector, IP06. |
| | 2 Measure the resistance between IP05, pin 19, and IP06, pin 01 of the GEM. |
| | Is the resistance 320 to 400 ohms? Yes GO to I12. No INSTALL a new GEM. REFER to: Generic Electronic Module (GEM) (419-10 Multifunction Electronic Modules, Removal and Installation). |


I12: CHECK CONTINUITY OF THE IC SCP + CIRCUIT

| | |
|--|---|
| | 1 Disconnect the IC connector, IP10. |
| | 2 Measure the resistance between the diagnostic connector, pin 02 (Y) and IP10, pin 22 (Y). |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to I13. |

I13: CHECK FOR LOSS OF SCP + TERMINATION WITHIN THE IC

| | |
|--|---|
| | 1 Measure the resistance between IP10, pin 22 (Y) and IP11, pin 08 of the IC. |
| | Is the resistance 320 to 400 ohms? Yes Possible intermittent fault. Recheck DTCs. No INSTALL a new IC. REFER to: Instrument Cluster (413-01 Instrument Cluster, Removal and Installation). CLEAR the DTC, test the system for normal operation. |

PINPOINT TEST J : U2003: COMPACT DISC CHANGER NOT RESPONDING

 **CAUTION:** The following tests involve disconnection of the fibre optic harnesses. The harness connectors must be protected by suitable dust caps as soon as they are disconnected, or damage may result. The use of tools to unlatch connectors must be avoided, or the connector locking function may be lost. Failure to follow this instruction may result in damage to the vehicle.

• **NOTE:** The following test sequence is based on a five node network. Refer to the wiring diagrams for network configuration for networks with a different number of nodes (all possible network combinations are shown in the wiring diagrams).

• **NOTE:** Should a break occur in the D2B ring, then codes, U2602, or U2603 will be set, depending on the location of the break. U2602 will set if the break is in the optical harness **FROM** the ICE head unit (the transmitter signal). U2603 will set if the break is in the optical harness **TO** the ICE head unit (the receiver signal). [GO to Pinpoint Test P.](#) [GO to Pinpoint Test Q.](#)

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|--|--|
| J1: CHECK CD CHANGER MODULE, USING OPTICAL BUS TESTER | |
| | 1 Connect the Optical Bus Tester to the fibre optic lead connector, CD02. |
| | 2 Set the Optical Bus Tester to BY-PASS . |
| | 3 Clear the DTC. |
| | 4 Turn the ignition switch to the ACC position. |
| | 5 Wait for 10 seconds. |
| | 6 Check for 'not responding' DTCs. |
| | Is U2003 set? Yes CHECK the 'wake-up' signal to the module. No GO to J2. |

J2: CHECK FOR DTC U2602 OR U2603

| | |
|--|--|
| | 1 Check DTCs. |
| | Are codes U2602 or U2603 logged? Yes CHECK for break in optical harness. No Recheck DTCs. No break in optical harness. |

PINPOINT TEST K : ONE OR MORE D2B MODULES NOT RESPONDING. 'WAKE-UP' SIGNAL FAULT

• **NOTE:** The D2B 'wake-up' signal is not a constant, but will generate a pulse at each cycle of the ignition key. The ignition key must be turned to the OFF position following each step of the tests, and turned to the position indicated by the test step for each module. To avoid missing the signal, use an assistant to operate the key while reading the oscilloscope. The 'wake-up' line is battery voltage, switching to 0 volts for between 50 milliseconds and 110 milliseconds as the ICE head unit sends it's signal.

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|-----------------|-------------------------|
|-----------------|-------------------------|

K1: CHECK THE 'WAKE-UP' SIGNAL TO THE CD CHANGER

- 1 Disconnect the CD changer connector, CA301.
- 2 Turn the ignition switch to the **ACC** position.
- 3 Measure the voltage between CA301, pin 03 (O) and GROUND, using an oscilloscope (see note above).

Does the oscilloscope show a 'wake-up' signal as described?

Yes

[GO to K2.](#)

No

REPAIR the circuit between CA301, pin 03 and the ICE head unit connector, IP65, pin 19. For additional information, refer to the wiring diagrams. CLEAR the DTC. TEST the system for normal operation.

K2: CHECK THE 'WAKE-UP' SIGNAL TO THE VOICE ACTIVATED CONTROL MODULE

- 1 Disconnect the voice activated control module connector, PH02.
- 2 Turn the ignition switch to the **ACC** position.
- 3 Measure the voltage between PH02, pin 14 (O) and GROUND, using an oscilloscope (see note above).

Does the oscilloscope show a 'wake-up' signal as described?

Yes

[GO to K3.](#)

No

REPAIR the circuit between PH02, pin 14 and the ICE head unit connector, IP65, pin 19. For additional information, refer to the wiring diagrams. CLEAR the DTC. TEST the system for normal operation.

K3: CHECK THE 'WAKE-UP' SIGNAL TO THE 'PHONE MODULE

- 1 Disconnect the 'phone module connector, PH01.
- 2 Turn the ignition switch to the **ACC** position.
- 3 Measure the voltage between PH01, pin 23 (O) and GROUND, using an oscilloscope (see note above).

Does the oscilloscope show a 'wake-up' signal as described?

Yes

[GO to K4.](#)

No

REPAIR the circuit between PH01, pin 23 and the ICE head unit connector, IP65, pin 19. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.

K4: CHECK THE 'WAKE-UP' SIGNAL TO THE NAVIGATION COMPUTER

- 1 Disconnect the navigation system connector, NA07.
- 2 Turn the ignition switch to the **ACC** position.
- 3 Measure the voltage between NA07, pin 03 (O) and GROUND, using an oscilloscope (see note above).

Does the oscilloscope show a 'wake-up' signal as described?

Yes

[GO to K5.](#)

No

REPAIR the circuit between NA07, pin 03 and the ICE head unit connector, IP65, pin 19. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.

K5: CHECK THE 'WAKE-UP' SIGNAL TO THE AMPLIFIER

- 1 Disconnect the amplifier connector, CA425.
- 2 Turn the ignition switch to the **ACC** position.
- 3 Measure the voltage between CA425, pin 05 (O) and GROUND, using an oscilloscope (see note above).

Does the oscilloscope show a 'wake-up' signal as described?

Yes

CHECK for DTCs indicating a module failure.

No

REPAIR the circuit between CA425, pin 05 and the ICE head unit connector, IP65, pin 19. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.

PINPOINT TEST L : U2008: 'PHONE MODULE NOT RESPONDING

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|--|--|
| L1: CHECK 'PHONE MODULE, USING OPTICAL BUS TESTER | |
| | <ol style="list-style-type: none"> 1 Connect the Optical Bus Tester to the fibre optic lead connector, CD03. 2 Set the Optical Bus Tester to BY-PASS. 3 Clear the DTC. 4 Turn the ignition switch to the ACC position. 5 Wait for 10 seconds. 6 Check for 'not responding' DTCs. |
| | <p>Is U2008 set?</p> <p>Yes CHECK the 'wake-up' signal to the module.</p> <p>No GO to L2.</p> |
| L2: CHECK FOR DTC U2602 OR U2603 | |
| | <ol style="list-style-type: none"> 1 Check DTCs. |
| | <p>Are codes U2602 or U2603 logged?</p> <p>Yes CHECK for break in optical harness.</p> <p>No RECHECK DTCs. No break in optical harness.</p> |

PINPOINT TEST M : U2019: VOICE CONTROL MODULE NOT RESPONDING

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|---|--|
| M1: CHECK VOICE CONTROL MODULE, USING OPTICAL BUS TESTER | |
| | <ol style="list-style-type: none"> 1 Connect the Optical Bus Tester to the fibre optic lead connector, CD04. 2 Set the Optical Bus Tester to BY-PASS. 3 Clear the DTC. 4 Turn the ignition switch to the ACC position. 5 Wait for 10 seconds. 6 Check for 'not responding' DTCs. |

| | |
|---|--|
| | Is U2019 set? Yes CHECK the 'wake-up' signal to the module. No GO to M2. |
| M2: CHECK FOR DTC U2602 OR U2603 | |
| | 1 Check DTCs. Are codes U2602 or U2603 logged? Yes CHECK for break in optical harness. No RECHECK DTCs. No break in optical harness. |

PINPOINT TEST N : U2613: NAVIGATION CONTROL MODULE NOT RESPONDING

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|--|---|
| N1: CHECK NAVIGATION CONTROL MODULE, USING OPTICAL BUS TESTER | |
| | 1 Connect the Optical Bus Tester to the fibre optic connector, CD05. 2 Set the Optical Bus Tester to BY-PASS . 3 Clear the DTC. 4 Turn the ignition switch to the ACC position. 5 Wait for 10 seconds. 6 Check for DTCs. |
| | Is U2613 set? Yes CHECK the 'wake-up' signal to the module. No GO to N2. |

N2: CHECK FOR DTC U2602 OR U2603

| | |
|--|--|
| | 1 Check DTCs. Are codes U2602 or U2603 logged? Yes CHECK for break in optical harness. No RECHECK DTCs. No break in optical harness. |
|--|--|

PINPOINT TEST O : U2614: AMPLIFIER NOT RESPONDING

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|--|---|
| O1: CHECK AMPLIFIER, USING OPTICAL BUS TESTER | |
| | 1 Connect the Optical Bus Tester to the fibre optic connector, CD07. 2 Set the Optical Bus Tester to BY-PASS . 3 Clear the DTC. 4 Turn the ignition switch to the ACC position. 5 Wait for 10 seconds. 6 Check for DTCs. |
| | Is U2614 set? Yes CHECK the 'wake-up' signal to the module. No GO to O2. |

O2: CHECK FOR DTC U2602 OR U2603

| | |
|--|--|
| | 1 Check DTCs. Are codes U2602 or U2603 logged? Yes CHECK for break in optical harness. No RECHECK DTCs. No break in optical harness. |
|--|--|

PINPOINT TEST P : U2602: BREAK IN OPTICAL HARNESS FROM ICE HEAD UNIT (TRANSMITTER)

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|--|---|
| P1: CHECK FIBRE OPTIC LEAD BETWEEN LUGGAGE COMPARTMENT JOINT AND CD CHANGER | |
| | 1 Disconnect the fibre optic connector, CD02. 2 Disconnect the fibre optic connector, CD06. 3 Connect the Optical Bus Tester to the fibre optic connector, CD06. 4 Set the Optical Bus Tester to TX . 5 Set the Optical Bus Tester to ON . 6 Check for light pulses at the receiver pin of disconnected D2B connector, CD02. |
| | Are light pulses visible? Yes GO to P2. No INSTALL a new telematic harness between CD06 and CD02. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. |

P2: CHECK CABIN FIBRE OPTIC HARNESS

| | |
|--|---|
| | 1 Disconnect the fibre optic connector, CD01. 2 Disconnect the fibre optic connector, CD06. 3 Connect the Optical Bus Tester to CD01 using adaptor lead. 4 Set the Optical Bus Tester to TX . 5 Set the Optical Bus Tester to ON . 6 Check for light pulses at the receiver pin of disconnected D2B connector, CD06. |
|--|---|

| | |
|--|--|
| | <p>Are light pulses visible? Yes GO to P3. No INSTALL a new cabin optical harness between CD06 and CD01. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> |
| P3: CHECK FIBRE OPTIC LEAD BETWEEN 'A' POST AND ICE HEAD UNIT | |
| | <p>1 Disconnect the fibre optic connector, ID01. 2 Connect the Optical Bus Tester to ID01 using the adaptor lead. 3 Set the Optical Bus Tester to TX. 4 Set the Optical Bus Tester to ON. 5 Check for light pulses at the receiver pin of disconnected D2B connector, CD001.</p> |
| | <p>Are light pulses visible? Yes GO to P4. No INSTALL a new instrument optical harness between CD01 and ID01. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> |
| P4: CHECK THE ICE HEAD UNIT | |
| | <p>1 Turn the ignition switch to the ACC position. 2 Wait for 10 seconds. 3 Check for light pulses at the transmitter pin of disconnected D2B connector, ID01 (rear of ICE head unit).</p> |
| | <p>Are light pulses visible? Yes GO to P5. No INSTALL a new ICE head unit, REFER to: Audio Unit (415-01 Audio Unit, Removal and Installation). CLEAR the DTC, test the system for normal operation.</p> |
| P5: CHECK THE FIBRE OPTIC LEAD FROM THE CD CHANGER TO THE 'PHONE MODULE | |
| | <p>1 Disconnect the fibre optic connector CD02. 2 Disconnect the fibre optic connector CD03. 3 Connect the Optical Bus Tester to CD02. 4 Set the Optical Bus Tester to TX. 5 Set the Optical Bus Tester to ON. 6 Check for light pulses at the transmitter pin of disconnected D2B connector, CD03.</p> |
| | <p>Are light pulses visible? Yes GO to P6. No INSTALL a new telematic harness between CD03 and CD02. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> |
| P6: CHECK THE FIBRE OPTIC LEAD FROM THE 'PHONE MODULE TO THE VOICE MODULE | |
| | <p>1 Disconnect the fibre optic connector CD04. 2 Connect the Optical Bus Tester to CD03. 3 Set the Optical Bus Tester to TX. 4 Set the Optical Bus Tester to ON. 5 Check for light pulses at the transmitter pin of disconnected D2B connector, CD04.</p> |
| | <p>Are light pulses visible? Yes GO to P7. No INSTALL a new telematic harness between CD03 and CD04. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> |
| P7: CHECK THE FIBRE OPTIC LEAD FROM THE VOICE MODULE TO THE NAVIGATION COMPUTER | |
| | <p>1 Disconnect the fibre optic connector CD04. 2 Disconnect the fibre optic connector CD05. 3 Connect the Optical Bus Tester to CD04. 4 Set the Optical Bus Tester to TX. 5 Set the Optical Bus Tester to ON. 6 Check for light pulses at the transmitter pin of disconnected D2B connector, CD05.</p> |
| | <p>Are light pulses visible? Yes GO to P8. No INSTALL a new telematic harness between CD05 and CD04. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> |
| P8: CHECK THE FIBRE OPTIC LEAD FROM THE NAVIGATION COMPUTER TO THE AMPLIFIER | |
| | <p>1 Disconnect the fibre optic connector CD07. 2 Disconnect the fibre optic connector CD05. 3 Connect the Optical Bus Tester to CD05. 4 Set the Optical Bus Tester to TX. 5 Set the Optical Bus Tester to ON. 6 Check for light pulses at the transmitter pin of disconnected D2B connector, CD07.</p> |
| | <p>Are light pulses visible? Yes CHECK for DTC U2603. No INSTALL a new telematic harness between CD05 and CD07. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> |

| | |
|--|--------------------------------|
| PINPOINT TEST Q : U2603: BREAK IN OPTICAL HARNESS TO ICE HEAD UNIT (RECEIVER) | |
| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |

Q1: CHECK FIBRE OPTIC LEAD BETWEEN LUGGAGE COMPARTMENT JOINT AND AMPLIFIER

- 1 Disconnect the fibre optic connector, CD06.
- 2 Disconnect the fibre optic connector, CD07.
- 3 Connect the Optical Bus Tester to CD07.
- 4 Set the Optical Bus Tester to **TX**.
- 5 Set the Optical Bus Tester to **ON**.
- 6 Check for light pulses at the receiver pin of disconnected D2B connector, CD06.

Are light pulses visible?

Yes

[GO to Q2.](#)

No

INSTALL a new telematic harness between CD06 and C07. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.

Q2: CHECK CABIN FIBRE OPTIC HARNESS

- 1 Disconnect the fibre optic connector, CD01.
- 2 Disconnect the fibre optic connector, CD06.
- 3 Connect the Optical Bus Tester to CD06 using adaptor lead.
- 4 Set the Optical Bus Tester to **TX**.
- 5 Set the Optical Bus Tester to **ON**.
- 6 Check for light pulses at the receiver pin of disconnected D2B connector, CD01.

Are light pulses visible?

Yes

[GO to Q3.](#)

No

INSTALL a new cabin optical harness between CD06 and CD01. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.

Q3: CHECK FIBRE OPTIC LEAD BETWEEN 'A' POST AND ICE HEAD UNIT

- 1 Connect the Optical Bus Tester to ID01.
- 2 Set the Optical Bus Tester to **TX**.
- 3 Set the Optical Bus Tester to **ON**.
- 4 Check for light pulses at the receiver pin of disconnected D2B connector, ID01.

Are light pulses visible?

Yes

[GO to Q4.](#)

No

INSTALL a new instrument optical harness between CD01 and ID01. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.

Q4: CHECK THE ICE HEAD UNIT

- 1 Connect the optical short link between the receiver and transmitter of the ICE head unit.
- 2 Turn the ignition switch to the **ACC** position.
- 3 Wait for 10 seconds.
- 4 Check for DTC.

Is U2603 logged?

Yes

INSTALL a new ICE head unit, REFER to: [Audio Unit](#) (415-01 Audio Unit, Removal and Installation). CLEAR the DTC. TEST the system for normal operation.

No

RECHECK DTCs. No fault found in D2B system.

PINPOINT TEST R : ONE OR MORE D2B MODULES NOT RESPONDING. PERMANENT SUPPLY FAULT

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|-----------------|-------------------------|
|-----------------|-------------------------|

R1: CHECK THE PERMANENT SUPPLY TO THE CD CHANGER

- 1 Disconnect the CD changer connector, CA301.
- 2 Measure the voltage between CA301, pin 02 (OY) and GROUND.

Is the voltage less than 10 volts?

Yes

REPAIR the circuit between the CD changer connector, CA301, pin 02, and fuse 72 of the central junction fuse box. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.

No

CHECK the module for GROUND. INSTALL a new CD Changer. REFER to: [Compact Disc \(CD\) Changer - 4-Door](#) (415-01 Audio Unit, Removal and Installation). CLEAR the DTC, test the system for normal operation. [GO to R2.](#)

R2: CHECK THE PERMANENT SUPPLY TO THE VOICE ACTIVATED CONTROL MODULE

- 1 Disconnect the voice activated control module connector, PH02.
- 2 Measure the voltage between PH02, pin 22 (NR) and GROUND.

Is the voltage less than 10 volts?

Yes

REPAIR the circuit between the voice activated control module connector, PH02, pin 22, and fuse 71 of the central junction fuse box. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.

No

CHECK the module for GROUND. INSTALL a new VACM. REFER to: [Multifunction Voice Activated Module - 4-Door](#) (419-10 Multifunction Electronic Modules, Removal and Installation). CLEAR the DTC, test the system for normal operation. [GO to R3.](#)

R3: CHECK THE PERMANENT SUPPLY TO THE 'PHONE MODULE

- 1 Disconnect the 'phone module connector, PH01.
- 2 Measure the voltage between PH01, pins 12 and 13 (NR) and GROUND.

Is the voltage less than 10 volts?

Yes

REPAIR the circuit between the 'phone module connector, PH01, pins 12 and 13 and fuse 71 of the central junction fuse box. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.

No
CHECK the module for GROUND. INSTALL a new 'phone module.
REFER to: [Module - 4-Door](#) (419-08 Cellular Phone, Removal and Installation).
CLEAR the DTC, test the system for normal operation.[GO to R4.](#)

R4: CHECK THE PERMANENT SUPPLY TO THE NAVIGATION MODULE

1 Disconnect the navigation module connector, NA07.
2 Measure the voltage between NA07, pin 01 (OY) and GROUND.
Is the voltage less than 10 volts?
Yes
Repair the circuit between the navigation module connector, NA07, pin 01 and fuse 72 of the central junction fuse box. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.
No
CHECK the module for GROUND. INSTALL a new navigation module.
REFER to: [Navigation System Module - 4-Door](#) (419-07 Navigation System, Removal and Installation).
CLEAR the DTC, test the system for normal operation.[GO to R5.](#)

R5: CHECK THE PERMANENT SUPPLY TO THE AMPLIFIER

1 Disconnect the amplifier connector, CA425.
2 Measure the voltage between CA425, pin 09 (NR) and GROUND.
3 Measure the voltage between CA425, pin 03 (NR) and GROUND.
Is either voltage less than 10 volts?
Yes
Repair the circuit between the amplifier connector, CA425 and fuse 20 of the primary junction box. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.
No
CHECK the module for GROUND. INSTALL a new amplifier. CLEAR the DTC, test the system for normal operation.

PINPOINT TEST S : ONE OR MORE D2B MODULES NOT RESPONDING. ACCESSORY SWITCHED SUPPLY FAULT

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|-----------------|-------------------------|
|-----------------|-------------------------|

S1: CHECK THE ACCESSORY SWITCHED SUPPLY TO THE VOICE ACTIVATED CONTROL MODULE

1 Disconnect the voice activated control module connector, PH02.
2 Turn the ignition switch to the **ACC** position.
3 Measure the voltage between PH02, pin 08 (YG) and GROUND.
Is the voltage less than 10 volts?
Yes
REPAIR the circuit between the voice activated control module connector, PH02, pin 08 and the ignition switch. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.
(This circuit includes the central junction fuse box, fuse 69)
No
[GO to S2.](#)

S2: CHECK THE ACCESSORY SWITCHED SUPPLY TO THE 'PHONE MODULE

1 Disconnect the 'phone module connector, PH01.
2 Turn the ignition switch to the **ACC** position.
3 Measure the voltage between PH01, pin 14 (YG) and GROUND.
Is the voltage less than 10 volts?
Yes
REPAIR the circuit between the 'phone module connector, PH01, pin 14 and the ignition switch. This circuit includes the central junction fuse box, fuse 69. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.
No
[GO to S3.](#)

S3: CHECK THE ACCESSORY SWITCHED SUPPLY TO THE NAVIGATION MODULE

1 Disconnect the navigation module electrical connector, NA07.
2 Turn the ignition switch to the **ACC** position.
3 Measure the voltage between NA07, pin 11 (YG) and GROUND.
Is the voltage less than 10 volts?
Yes
REPAIR the circuit between the navigation module connector, NA07, pin 11 and the ignition switch. This circuit includes the central junction fuse box, fuse 69. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.
No
CHECK the module for GROUND. INSTALL a new navigation module.
REFER to: [Navigation System Module - 4-Door](#) (419-07 Navigation System, Removal and Installation).
CLEAR the DTC, test the system for normal operation.

PINPOINT TEST T : ONE OR MORE D2B MODULES NOT RESPONDING. IGNITION SWITCHED SUPPLY FAULT

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|-----------------|-------------------------|
|-----------------|-------------------------|

T1: CHECK THE IGNITION SWITCHED SUPPLY TO THE VOICE ACTIVATED CONTROL MODULE

1 Disconnect the voice activated control module connector, PH02.
2 Turn the ignition switch to the **ON** position.
3 Measure the voltage between PH02, pin 06 (WR) and GROUND.
Is the voltage less than 10 volts?
Yes
REPAIR the circuit between the voice activated control module connector, PH02, pin 06 and the central junction fuse box, fuse 67. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.
No
[GO to T2.](#)

T2: CHECK THE IGNITION SWITCHED SUPPLY TO THE 'PHONE MODULE

1 Disconnect the 'phone module connector, PH01.
2 Turn the ignition switch to the **ON** position.
3 Measure the voltage between PH01, pin 29 (Y) and GROUND.

| | |
|------------------------------------|--|
| Is the voltage less than 10 volts? | <p>Yes REPAIR the circuit between the 'phone module connector, PH01, pin 29 and the central junction fuse box, fuse 78. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No Check the module for GROUND. INSTALL a new 'phone module. REFER to: Module - 4-Door (419-08 Cellular Phone, Removal and Installation). CLEAR the DTC, test the system for normal operation.</p> |
|------------------------------------|--|

PINPOINT TEST U : IC SUPPLY OR GROUND FAULT

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|--|--|
| U1: CHECK THE B+ SUPPLY TO THE IC | |
| | <p>1 Disconnect the IC connector, IP11.</p> <p>2 Measure the voltage between IP11, pin 07 (OG) and GROUND.</p> |
| Is the voltage less than 10 volts? | <p>Yes REPAIR the circuit between IP11, pin 07 and battery. This circuit includes the primary junction box, fuse 45. For additional information, refer to the wiring diagrams.</p> <p>No GO to U2.</p> |
| U2: CHECK THE ACC SUPPLY TO THE IC | |
| | <p>1 Turn the ignition switch to the ACC position.</p> <p>2 Measure the voltage between IP11, pin 13 (YU) and GROUND.</p> |
| Is the voltage less than 10 volts? | <p>Yes REPAIR the circuit between IP11, pin 13 and battery. This circuit includes the primary junction box, fuse 43. For additional information, refer to the wiring diagrams.</p> <p>No GO to U3.</p> |
| U3: CHECK THE IGNITION SUPPLY TO THE IC | |
| | <p>1 Turn the ignition switch to the IGN position.</p> <p>2 Measure the voltage between IP11, pin 11 (GR) and GROUND.</p> |
| Is the voltage less than 10 volts? | <p>Yes REPAIR the circuit between IP11, pin 11 and battery. This circuit includes the primary junction box, fuse 54. For additional information, refer to the wiring diagrams.</p> <p>No GO to U4.</p> |
| U4: CHECK THE GROUND TO THE IC | |
| | <p>1 Measure the resistance between IP11, pin 08 (B) and GROUND.</p> |
| Is the resistance greater than 5 ohms? | <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams.</p> <p>No No fault found with power or ground supplies. Check for DTCs indicating a module fault.</p> |

PINPOINT TEST V : SWRS SUPPLY OR GROUND FAULT

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|--|--|
| V1: CHECK THE MODULE SUPPLY TO THE SWRS | |
| | <p>1 Disconnect the SWRS connector, IP19.</p> <p>2 Turn the ignition switch to the ON position.</p> <p>3 Measure the voltage between IP19, pin 02 (GW) and GROUND.</p> |
| Is the voltage less than 4 volts? | <p>Yes GO to V2.</p> <p>No GO to V3.</p> |
| V2: CHECK THE MODULE SUPPLY CIRCUIT TO THE SWRS FOR HIGH RESISTANCE | |
| | <p>1 Turn the ignition switch to the OFF position.</p> <p>2 Disconnect the DSC module connector, JB185.</p> <p>3 Measure the resistance between IP19, pin 02 (GW) and JB185, pin 39 (GW).</p> |
| Is the resistance greater than 5 ohms? | <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams.</p> <p>No GO to V3.</p> |
| V3: CHECK THE GROUND TO THE SWRS | |
| | <p>1 Reconnect the DSC module connector, JB185.</p> <p>2 Measure the resistance between IP19, pin 08 (U) and GROUND.</p> |
| Is the resistance greater than 5 ohms? | <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams.</p> <p>No No fault found with power or ground supplies. Check for DTCs indicating a module fault.</p> |

PINPOINT TEST W : YAW RATE SENSOR SUPPLY OR GROUND FAULT

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|---|---|
| W1: CHECK THE MODULE SUPPLY TO THE YAW RATE SENSOR | |
| | <p>1 Disconnect the yaw rate sensor connector, IP20.</p> <p>2 Turn the ignition switch to the ON position.</p> <p>3 Measure the voltage between IP20, pin 04 (GW) and GROUND.</p> |

Is the voltage less than 4 volts?

Yes

[GO to W2.](#)

No

[GO to W3.](#)

W2: CHECK THE MODULE SUPPLY CIRCUIT TO THE YAW RATE SENSOR FOR HIGH RESISTANCE

1 Turn the ignition switch to the **OFF** position.

2 Disconnect the DSC module connector, JB185.

3 Measure the resistance between IP20, pin 04 (GW) and JB185, pin 39 (GW).

Is the resistance greater than 5 ohms?

Yes

REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams.

No

[GO to W3.](#)

W3: CHECK THE GROUND TO THE YAW RATE SENSOR

1 Measure the resistance between IP20, pin 01 (U) and GROUND.

Is the resistance greater than 5 ohms?

Yes

REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams.

No

No fault found with power or ground supplies. Check for DTCs indicating a module fault.

PINPOINT TEST X : ABS/TCCM SUPPLY OR GROUND FAULT

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|---|--|
| X1: CHECK THE IGNITION SUPPLY TO THE ABS/TC MODULE | |
| | 1 Disconnect the ABS/TCCM connector, JB45. |
| | 2 Turn the ignition switch to the ON position. |
| | 3 Measure the voltage between JB45, pin 23 (GW) and GROUND. |
| | Is the voltage less than 10 volts? |
| | Yes REPAIR the circuit between JB45, pin 23 and battery. This circuit includes the front power distribution box, fuse 13 and the ignition relay. For additional information, refer to the wiring diagrams. |
| | No GO to X2. |
| X2: CHECK THE PUMP+ SUPPLY TO THE ABS/TCCM | |
| | 1 Turn the ignition switch to the ON position. |
| | 2 Measure the voltage between JB45, pin 02 (R) and GROUND. |
| | Is the voltage less than 10 volts? |
| | Yes REPAIR the circuit between JB45, pin 02 and battery. This circuit includes the front power distribution box, fuse 41. For additional information, refer to the wiring diagrams. |
| | No GO to X3. |
| X3: CHECK THE SOLENOID+ SUPPLY TO THE ABS/TCCM | |
| | 1 Turn the ignition switch to the ON position. |
| | 2 Measure the voltage between JB45, pin 06 (R) and GROUND. |
| | Is the voltage less than 10 volts? |
| | Yes REPAIR the circuit between JB45, pin 06 and battery. This circuit includes the front power distribution box, fuse 41. For additional information, refer to the wiring diagrams. |
| | No GO to X4. |
| X4: CHECK THE GROUND TO THE ABS/TCCM | |
| | 1 Turn the ignition switch to the OFF position. |
| | 2 Measure the resistance between JB45, pin 05 (B) and GROUND. |
| | Is the resistance greater than 5 ohms? |
| | Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. |
| | No GO to X5. |
| X5: CHECK THE MOTOR GROUND TO THE ABS/TCCM | |
| | 1 Measure the resistance between JB45, pin 01 (B) and GROUND. |
| | Is the resistance greater than 5 ohms? |
| | Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. |
| | No No fault found with power or ground supplies. Check for DTCs indicating a module fault. |

PINPOINT TEST Y : DSC MODULE SUPPLY OR GROUND FAULT

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|--|--|
| Y1: CHECK THE IGNITION SUPPLY TO THE DSC MODULE | |
| | 1 Disconnect the DSC module connector, JB185. |
| | 2 Turn the ignition switch to the ON position. |
| | 3 Measure the voltage between JB185, pin 23 (GW) and GROUND. |
| | Is the voltage less than 10 volts? |
| | Yes REPAIR the circuit between JB45, pin 23 and battery. This circuit includes the front power distribution box, fuse 13 and the ignition relay. For additional information, refer to the wiring diagrams. |
| | No GO to Y2. |
| Y2: CHECK THE PUMP+ SUPPLY TO THE DSC MODULE | |
| | 1 Turn the ignition switch to the ON position. |
| | 2 Measure the voltage between JB185, pin 02 (R) and GROUND. |

| | |
|------------------------------------|---|
| Is the voltage less than 10 volts? | <p>Yes REPAIR the circuit between JB185, pin 02 and battery. This circuit includes the front power distribution box, fuse 41. For additional information, refer to the wiring diagrams.</p> <p>No GO to Y3.</p> |
|------------------------------------|---|

Y3: CHECK THE SOLENOID+ SUPPLY TO THE DSC MODULE

| | |
|----------|---|
| 1 | Turn the ignition switch to the ON position. |
| 2 | Measure the voltage between JB185, pin 06 (R) and GROUND. |

| | |
|------------------------------------|---|
| Is the voltage less than 10 volts? | <p>Yes REPAIR the circuit between JB185, pin 06 and battery. This circuit includes the front power distribution box, fuse 41. For additional information, refer to the wiring diagrams.</p> <p>No GO to Y4.</p> |
|------------------------------------|---|

Y4: CHECK THE GROUND TO THE DSC MODULE

| | |
|----------|--|
| 1 | Turn the ignition switch to the OFF position. |
| 2 | Measure the resistance between JB185, pin 05 (B) and GROUND. |

| | |
|--|--|
| Is the resistance greater than 5 ohms? | <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams.</p> <p>No GO to Y5.</p> |
|--|--|

Y5: CHECK THE MOTOR GROUND TO THE DSC MODULE

| | |
|----------|--|
| 1 | Measure the resistance between JB185, pin 01 (B) and GROUND. |
|----------|--|

| | |
|--|--|
| Is the resistance greater than 5 ohms? | <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams.</p> <p>No No fault found with power or ground supplies. Check for DTCs indicating a module fault.</p> |
|--|--|

PINPOINT TEST Z : GSI MODULE SUPPLY OR GROUND FAULT

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|-----------------|-------------------------|
|-----------------|-------------------------|

Z1: CHECK THE IGNITION SUPPLY TO THE GSI MODULE

| | |
|----------|---|
| 1 | Disconnect the GSI module connector, IP14. |
| 2 | Turn the ignition switch to the ON position. |
| 3 | Measure the voltage between IP14, pin 01 (WR) and GROUND. |

| | |
|------------------------------------|--|
| Is the voltage less than 10 volts? | <p>Yes REPAIR the circuit between IP14, pin 01 and battery. This circuit includes the primary junction box, fuse 50. For additional information, refer to the wiring diagrams.</p> <p>No GO to Z2.</p> |
|------------------------------------|--|

Z2: CHECK THE GROUND TO THE GSI MODULE

| | |
|----------|---|
| 1 | Measure the resistance between IP14, pin 02 (B) and GROUND. |
|----------|---|

| | |
|--|--|
| Is the resistance greater than 5 ohms? | <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams.</p> <p>No No fault found with power or ground supplies. Check for DTCs indicating a module fault.</p> |
|--|--|

PINPOINT TEST AA : HID MODULE SUPPLY OR GROUND FAULT

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|-----------------|-------------------------|
|-----------------|-------------------------|

AA1: CHECK THE IGNITION SUPPLY TO THE HID MODULE

| | |
|----------|--|
| 1 | Disconnect the HID module connector, IP130. |
| 2 | Turn the ignition switch to the ON position. |
| 3 | Measure the voltage between IP130, pin 23 (WR) and GROUND. |

| | |
|------------------------------------|--|
| Is the voltage less than 10 volts? | <p>Yes REPAIR the circuit between IP130, pin 23 and battery. This circuit includes the primary junction box, fuse 39. For additional information, refer to the wiring diagrams.</p> <p>No GO to AA2.</p> |
|------------------------------------|--|

AA2: CHECK THE GROUND TO THE HID MODULE

| | |
|----------|--|
| 1 | Measure the resistance between IP130, pin 24 (B) and GROUND. |
|----------|--|

| | |
|--|--|
| Is the resistance greater than 5 ohms? | <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams.</p> <p>No No fault found with power or ground supplies. Check for DTCs indicating a module fault.</p> |
|--|--|

PINPOINT TEST AB : EATC MODULE SUPPLY OR GROUND FAULT

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|-----------------|-------------------------|
|-----------------|-------------------------|

AB1: CHECK THE B+ SUPPLY TO THE EATC MODULE

| | |
|----------|--|
| 1 | Disconnect the EATC module connector, IP101. |
| 2 | Measure the voltage between IP101, pin 14 (OG) and GROUND. |

| | |
|------------------------------------|--|
| Is the voltage less than 10 volts? | <p>Yes REPAIR the circuit between IP101, pin 14 and battery. This circuit includes the primary junction box, fuse 45. For additional information, refer to the wiring diagrams.</p> <p>No GO to AB2.</p> |
|------------------------------------|--|

AB2: CHECK THE IGNITION SUPPLY TO THE EATC MODULE

| | |
|---|---|
| | 1 Turn the ignition switch to the ON position. |
| | 2 Measure the voltage between IP101, pin 02 (WR) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between IP101, pin 02 and battery. This circuit includes the primary junction box, fuse 39, and the ignition relay. For additional information, refer to the wiring diagrams. No GO to AB3. |
| AB3: CHECK THE B+ SAVE SUPPLY TO THE EATC MODULE | |
| | 1 Turn the ignition switch to the OFF position. |
| | 2 Measure the voltage between IP101, pin 01 (OY) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between IP101, pin 01 and battery. This circuit includes the primary junction box, fuse 49, and the battery save relay. For additional information, refer to the wiring diagrams. No GO to AB4. |
| AB4: CHECK THE GROUND TO THE EATC MODULE | |
| | 1 Measure the resistance between IP101, pin 15 (B) and GROUND. |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. No No fault found with power or ground supplies. Check for DTCs indicating a module fault. |

PINPOINT TEST AC : MEMORY SEAT MODULE SUPPLY OR GROUND FAULT

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|---|--|
| AC1: CHECK THE B+1 SUPPLY TO THE MEMORY SEAT MODULE | |
| | 1 Disconnect the memory seat module connector, DM02. |
| | 2 Measure the voltage between DM02, pin 01 (OG) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between DM02, pin 01 and battery. This circuit includes the primary junction box, fuse 16. For additional information, refer to the wiring diagrams. No GO to AC2. |
| AC2: CHECK THE B+2 SUPPLY TO THE MEMORY SEAT MODULE | |
| | 1 Measure the voltage between DM02, pin 06 (GB) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between DM02, pin 06 and battery. This circuit includes the primary junction box, fuse 09. For additional information, refer to the wiring diagrams. No GO to AC3. |
| AC3: CHECK THE IGNITION SUPPLY TO THE MEMORY SEAT MODULE | |
| | 1 Turn the ignition switch to the ON position. |
| | 2 Measure the voltage between DM02, pin 04 (GB) and GROUND. |
| | Is the voltage less than 4 volts? Yes REPAIR the circuit between DM02, pin 04 and battery. This circuit includes the primary junction box, fuse 07. For additional information, refer to the wiring diagrams. No GO to AC4. |
| AC4: CHECK THE ELECTRONIC GROUND TO THE MEMORY SEAT MODULE | |
| | 1 Turn the ignition switch to the OFF position. |
| | 2 Measure the resistance between DM02, pin 10 (B) and GROUND. |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. No GO to AC5. |
| AC5: CHECK THE POWER GROUND TO THE MEMORY SEAT MODULE | |
| | 1 Measure the resistance between DM02, pin 05 (B) and GROUND. |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. No GO to AC6. |
| AC6: CHECK THE SIGNAL GROUND TO THE MEMORY SEAT MODULE | |
| | 1 Measure the resistance between DM02, pin 03 (B) and GROUND. |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. No No fault found with power or ground supplies. Check for DTCs indicating a module fault. |

PINPOINT TEST AD : TCM (16 BIT) SUPPLY OR GROUND FAULT

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|--|---|
| AD1: CHECK THE B+ SUPPLY TO THE TCM | |
| | 1 Disconnect the TCM connector, JB131. |
| | 2 Measure the voltage between JB131, pin 06 (UY) and GROUND. |

| | |
|--|---|
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between JB131, pin 06 and battery. This circuit includes the front power distribution box, fuse 32. For additional information, refer to the wiring diagrams. No GO to AD2. |
| AD2: CHECK THE IGNITION 1 SUPPLY TO THE TCM | |
| | 1 Turn the ignition switch to the ON position. 2 Measure the voltage between JB131, pin 36 (WU) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between JB131, pin 36 and battery. This circuit includes the front power distribution box, fuse 11, and the ignition relay. For additional information, refer to the wiring diagrams. No GO to AD3. |
| AD3: CHECK THE IGNITION 2 SUPPLY TO THE TCM | |
| | 1 Turn the ignition switch to the ON position. 2 Measure the voltage between JB131, pin 54 (WU) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between JB131, pin 54 and battery. This circuit includes the front power distribution box, fuse 11, and the ignition relay. For additional information, refer to the wiring diagrams. No GO to AD4. |
| AD4: CHECK THE GROUND 1 TO THE TCM | |
| | 1 Turn the ignition switch to the OFF position. 2 Measure the resistance between JB131, pin 09 (B) and GROUND. |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. No GO to AD5. |
| AD5: CHECK THE GROUND 2 TO THE TCM | |
| | 1 Measure the resistance between JB131, pin 38 (B) and GROUND. |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. No No fault found with power or ground supplies. Check for DTCs indicating a module fault. |

PINPOINT TEST AE : TCM (32 BIT) SUPPLY OR GROUND FAULT

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|--|---|
| AE1: CHECK THE B+ SUPPLY TO THE TCM | |
| | 1 Disconnect the TCM connector, JB231. 2 Measure the voltage between JB231, pin 28 (UY) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between JB231, pin 28 and battery. This circuit includes the front power distribution box, fuse 32. For additional information, refer to the wiring diagrams. No GO to AE2. |
| AE2: CHECK THE IGNITION 1 SUPPLY TO THE TCM | |
| | 1 Turn the ignition switch to the ON position. 2 Measure the voltage between JB231, pin 10 (WU) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between JB231, pin 10 and battery. This circuit includes the front power distribution box, fuse 11, and the ignition relay. For additional information, refer to the wiring diagrams. No GO to AE3. |
| AE3: CHECK THE IGNITION 2 SUPPLY TO THE TCM | |
| | 1 Turn the ignition switch to the ON position. 2 Measure the voltage between JB231, pin 19 (WU) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between JB231, pin 19 and battery. This circuit includes the front power distribution box, fuse 11, and the ignition relay. For additional information, refer to the wiring diagrams. No GO to AE4. |
| AE4: CHECK THE GROUND 1 TO THE TCM | |
| | 1 Turn the ignition switch to the OFF position. 2 Measure the resistance between JB231, pin 25 (B) and GROUND. |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. No GO to AE5. |
| AE5: CHECK THE GROUND 2 TO THE TCM | |
| | 1 Measure the resistance between JB231, pin 38 (B) and GROUND. |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. No No fault found with power or ground supplies. Check for DTCs indicating a module fault. |

PINPOINT TEST AF : ECM SUPPLY OR GROUND FAULT (VEHICLES WITH 2.0L PETROL ENGINE)

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|---|--|
| AF1: CHECK THE B+ SUPPLY TO THE ECM | |
| | 1 Turn the ignition switch to the OFF position. |
| | 2 Disconnect the ECM connector, EN65. |
| | 3 Measure the voltage between EN65, pin 21 (NR) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between EN65, pin 21 and battery. This circuit includes the front power distribution box, fuse 36. For additional information, refer to the wiring diagrams. No GO to AF2. |
| AF2: CHECK THE CONTROL SUPPLY TO THE ECM | |
| | 1 Turn the ignition switch to the ON position. |
| | 2 Measure the voltage between EN65, pin 69 (B) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between EN65, pin 69 and battery. This circuit includes the EMS control relay, pin 2. For additional information, refer to the wiring diagrams. No GO to AF3. |
| AF3: CHECK THE POWER GROUND (1) TO THE ECM | |
| | 1 Turn the ignition switch to the OFF position. |
| | 2 Measure the resistance between EN65, pin 19 (B) and GROUND. |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. No GO to AF4. |
| AF4: CHECK THE POWER GROUND (2) TO THE ECM | |
| | 1 Measure the resistance between EN65, pin 18 (B) and GROUND. |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. No No fault found with power or ground supplies. Check for DTCs indicating a module fault. |

PINPOINT TEST AG : ECM SUPPLY OR GROUND FAULT (VEHICLES WITH 2.5/3.0L PETROL ENGINE)

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|---|--|
| AG1: CHECK THE B+ SUPPLY TO THE ECM | |
| | 1 Turn the ignition switch to the OFF position. |
| | 2 Disconnect the ECM connector, EN16. |
| | 3 Measure the voltage between EN16, pin 22 (NR) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between EN16, pin 22 and battery. This circuit includes the front power distribution box, fuse 36. For additional information, refer to the wiring diagrams. No GO to AG2. |
| AG2: CHECK THE CONTROL SUPPLY TO THE ECM | |
| | 1 Turn the ignition switch to the ON position. |
| | 2 Measure the voltage between EN16, pin 40 (B) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between EN16, pin 40 and battery. This circuit includes the EMS control relay, pin 02. For additional information, refer to the wiring diagrams. No GO to AG3. |
| AG3: CHECK THE POWER GROUND (1) TO THE ECM | |
| | 1 Turn the ignition switch to the OFF position. |
| | 2 Measure the resistance between EN16, pin 04 (B) and GROUND. |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. No GO to AG4. |
| AG4: CHECK THE POWER GROUND (2) TO THE ECM | |
| | 1 Measure the resistance between EN16, pin 05 (B) and GROUND. |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. No No fault found with power or ground supplies. Check for DTCs indicating a module fault. |

PINPOINT TEST AH : ECM SUPPLY OR GROUND FAULT (VEHICLES WITH 2.0L DIESEL ENGINE)

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|--|--|
| AH1: CHECK THE B+ SUPPLY TO THE ECM | |
| | 1 Turn the ignition switch to the OFF position. |
| | 2 Disconnect the ECM connector, DL01. |
| | 3 Measure the voltage between DL01, pin 03 (WG) and GROUND. |

| | |
|---|---|
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between DL01, pin 03 and battery. This circuit includes the front power distribution box, fuse 21, and the EMS control relay. For additional information, refer to the wiring diagrams. No GO to AH2. |
| AH2: CHECK THE CONTROL SUPPLY TO THE ECM | |
| | 1 Turn the ignition switch to the ON position. 2 Measure the voltage between DL01, pin 09 (B) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between DL01, pin 09 and battery. This circuit includes the EMS control relay, pin 02. For additional information, refer to the wiring diagrams. No GO to AH3. |
| AH3: CHECK THE POWER GROUND (1) TO THE ECM | |
| | 1 Turn the ignition switch to the OFF position. 2 Measure the resistance between DL01, pin 01 (B) and GROUND. |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. No GO to AH4. |
| AH4: CHECK THE POWER GROUND (2) TO THE ECM | |
| | 1 Measure the resistance between DL01, pin 02 (B) and GROUND. |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. No GO to AH5. |
| AH5: CHECK THE POWER GROUND (3) TO THE ECM | |
| | 1 Measure the resistance between DL01, pin 28 (B) and GROUND. |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. No GO to AH6. |
| AH6: CHECK THE POWER GROUND (4) TO THE ECM | |
| | 1 Measure the resistance between DL01, pin 66 (B) and GROUND. |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. No GO to AH7. |
| AH7: CHECK THE POWER GROUND (5) TO THE ECM | |
| | 1 Measure the resistance between DL01, pin 88 (B) and GROUND. |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. No No fault found with power or ground supplies. Check for DTCs indicating a module fault. |

PINPOINT TEST AI : ICE SUPPLY OR GROUND FAULT

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|---|--|
| AI1: CHECK THE B+ SUPPLY TO THE ICE | |
| | 1 Turn the ignition switch to the OFF position. 2 Disconnect the ICE connector, IP65. 3 Measure the voltage between IP65, pin 11 (NW) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between IP65, pin 11 and battery. This circuit includes the primary junction box, fuse 44. For additional information, refer to the wiring diagrams. No GO to AI2. |
| AI2: CHECK THE ACC SUPPLY TO THE ICE | |
| | 1 Turn the ignition switch to the ACC position. 2 Measure the voltage between IP65, pin 02 (YG) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between IP65, pin 02 and battery. This circuit includes the primary junction box, fuse 43. For additional information, refer to the wiring diagrams. No GO to AI3. |
| AI3: CHECK THE GROUND TO THE ICE | |
| | 1 Turn the ignition switch to the OFF position. 2 Measure the resistance between IP65, pin 01 (B) and GROUND. |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. No No fault found with power or ground supplies. Check for DTCs indicating a module fault. |

PINPOINT TEST AJ : CD CHANGER SUPPLY OR GROUND FAULT

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|-----------------|-------------------------|
|-----------------|-------------------------|

AJ1: CHECK THE B+ SUPPLY TO THE CD CHANGER

| | |
|----------|---|
| 1 | Turn the ignition switch to the OFF position. |
| 2 | Disconnect the CD changer connector, CA301. |
| 3 | Measure the voltage between CA301, pin 02 (OY) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between CA301, pin 02 and battery. This circuit includes the primary junction box, fuse 44. For additional information, refer to the wiring diagrams. No GO to AJ2. |

AJ2: CHECK THE GROUND TO THE CD CHANGER

| | |
|----------|---|
| 1 | Measure the resistance between CA301, pin 01 (B) and GROUND. |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. No No fault found with power or ground supplies. Check for DTCs indicating a module fault. |

PINPOINT TEST AK : NAV MODULE SUPPLY OR GROUND FAULT

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|-----------------|-------------------------|
|-----------------|-------------------------|

AK1: CHECK THE B+ SUPPLY TO THE NAV MODULE

| | |
|----------|--|
| 1 | Turn the ignition switch to the OFF position. |
| 2 | Disconnect the NAV module connector, NA07. |
| 3 | Measure the voltage between NA07, pin 01 (OY) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between NA07, pin 01 and battery. This circuit includes the primary junction box, fuse 44. For additional information, refer to the wiring diagrams. No GO to AK2. |

AK2: CHECK THE ACC SUPPLY TO THE NAV MODULE

| | |
|----------|--|
| 1 | Turn the ignition switch to the ACC position. |
| 2 | Measure the voltage between NA07, pin 11 (YG) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between NA07, pin 11 and battery. This circuit includes the primary junction box, fuse 43. For additional information, refer to the wiring diagrams. No GO to AK3. |

AK3: CHECK THE GROUND TO THE NAV MODULE

| | |
|----------|---|
| 1 | Turn the ignition switch to the OFF position. |
| 2 | Measure the resistance between NA07, pin 02 (B) and GROUND. |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. No No fault found with power or ground supplies. Check for DTCs indicating a module fault. |

PINPOINT TEST AL : FFH MODULE SUPPLY OR GROUND FAULT

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|-----------------|-------------------------|
|-----------------|-------------------------|

AL1: CHECK THE B+ SUPPLY TO THE FFH MODULE

| | |
|----------|---|
| 1 | Turn the ignition switch to the OFF position. |
| 2 | Disconnect the FFH module connector, JB232. |
| 3 | Measure the voltage between JB232, pin 01 (GR) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between JB232, pin 01 and battery. This circuit includes the front power distribution box, fuse 31. For additional information, refer to the wiring diagrams. No GO to AL2. |

AL2: CHECK THE IGNITION SUPPLY TO THE FFH MODULE

| | |
|----------|---|
| 1 | Turn the ignition switch to the ON position. |
| 2 | Measure the voltage between JB232, pin 04 (RW) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between JB232, pin 04 and battery. This circuit includes the front power distribution box, fuse 12. For additional information, refer to the wiring diagrams. No GO to AL3. |

AL3: CHECK THE GROUND TO THE FFH MODULE

| | |
|----------|---|
| 1 | Turn the ignition switch to the OFF position. |
| 2 | Measure the resistance between JB232, pin 02 (B) and GROUND. |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. No No fault found with power or ground supplies. Check for DTCs indicating a module fault. |

PINPOINT TEST AM : PARK AID MODULE SUPPLY OR GROUND FAULT

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|-----------------|-------------------------|
|-----------------|-------------------------|

AM1: CHECK THE IGNITION SUPPLY TO THE PARK AID MODULE

| | |
|----------|--|
| 1 | Turn the ignition switch to the OFF position. |
|----------|--|

| | |
|--|--|
| | 2 Disconnect the park aid module connector, CA418. |
| | 3 Turn the ignition switch to the ON position. |
| | 4 Measure the voltage between CA418, pin 01 (N) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between CA418, pin 01 and battery. This circuit includes the primary junction box, fuse 33 and the ignition relay. For additional information, refer to the wiring diagrams. No GO to AM2. |

AM2: CHECK THE GROUND TO THE PARK AID MODULE

| | |
|--|---|
| | 1 Turn the ignition switch to the OFF position. |
| | 2 Measure the resistance between CA418, pin 16 (B) and GROUND. |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. No No fault found with power or ground supplies. Check for DTCs indicating a module fault. |

PINPOINT TEST AN : RCM SUPPLY OR GROUND FAULT

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|--|---|
| AN1: CHECK THE IGNITION SUPPLY TO THE RCM | |
| | 1 Turn the ignition switch to the OFF position. |
| | 2 Disconnect the RCM connector, IP74. |
| | 3 Turn the ignition switch to the ON position. |
| | 4 Measure the voltage between IP74, pin 12 (G) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between IP74, pin 12 and battery. This circuit includes the primary junction box, fuse 53 and the ignition relay. For additional information, refer to the wiring diagrams. No GO to AN2. |


AN2: CHECK THE GROUND TO THE RCM

| | |
|--|---|
| | 1 Turn the ignition switch to the OFF position. |
| | 2 Measure the resistance between IP74, pin 16 (B) and GROUND. |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. No No fault found with power or ground supplies. Check for DTCs indicating a module fault. |

PINPOINT TEST AO : GEM SUPPLY FAULT

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|--|--|
| AO1: CHECK THE B+ SUPPLY TO THE GEM | |
| | 1 Disconnect the GEM connector, JB172. |
| | 2 Measure the voltage between JB172, pin 01 (OY) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between JB172, pin 01 and battery. This circuit includes the primary junction box, fuse 22. For additional information, refer to the wiring diagrams. No No fault found with power supplies. Check for DTCs indicating a module fault. |

PINPOINT TEST AP : RESTRAINTS CONTROL MODULE (RCM) ISO CIRCUIT MALFUNCTION

 **WARNING:** To avoid accidental deployment and possible injury, the backup power supply must be depleted before repairing or replacing any airbag supplemental restraint system (SRS) components. To deplete the backup power supply energy, disconnect the battery ground cable and wait one minute. Failure to follow this instruction may result in personal injury.

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|---|---|
| AP1: CHECK THE RCM FOR DAMAGE | |
| | 1 Inspect the RCM for damage. |
| | Does the RCM indicate signs of damage? Yes INSTALL a new RCM. REFER to: Restraints Control Module (RCM) (501-20B Supplemental Restraint System, Removal and Installation). CLEAR the DTC, test the system for normal operation. No GO to AP2. |
| AP2: CHECK K-LINE FOR SHORT CIRCUIT TO GROUND | |
| | 1 Measure the resistance between diagnostic connector, pin 07 (W) and GROUND. |
| | Is the resistance less than 10,000 ohms? Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to AP3. |
| AP3: CHECK K-LINE FOR SHORT CIRCUIT TO BATTERY | |
| | 1 Measure the resistance between diagnostic connector, pins 07 (W) and pin 16 (OY). |
| | Is the resistance less than 10,000 ohms? Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to AP4. |

AP4: CHECK FOR OPEN CIRCUIT ON K-LINE BETWEEN DIAGNOSTIC CONNECTOR AND RCM

- 1 Turn the ignition switch to the **OFF** position.
- 2 Disconnect the battery negative terminal.
- 3 Disconnect the RCM connector, IP74.
- 4 Measure the resistance between diagnostic connector, pin 07 (W) (K-line) and IP74, pin 11 (W).

Is the resistance greater than 5 ohms?

Yes

REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.

No

INSTALL a new RCM.

REFER to: [Restraints Control Module \(RCM\)](#) (501-20B Supplemental Restraint System, Removal and Installation).

CLEAR the DTC, test the system for normal operation.

PINPOINT TEST AQ : HEADLAMP LEVELLING MODULE (HID) ISO CIRCUIT MALFUNCTION

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|--|---|
| AQ1: CHECK HEADLAMP LEVELLING MODULE FOR DAMAGE | |
| | 1 Inspect the HID module for damage. |
| | Does the HID module indicate signs of damage? |
| | Yes INSTALL a new HID module. REFER to: Headlamp Leveling Module (417-01 Exterior Lighting, Removal and Installation). CLEAR the DTC, test the system for normal operation. |
| | No GO to AQ2. |
| AQ2: CHECK K-LINE FOR SHORT CIRCUIT TO GROUND | |
| | 1 Measure the resistance between diagnostic connector, pin 07 (W) and GROUND. |
| | Is the resistance less than 10,000 ohms? |
| | Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. |
| | No GO to AQ3. |
| AQ3: CHECK K-LINE FOR SHORT CIRCUIT TO BATTERY | |
| | 1 Measure the resistance between diagnostic connector, pins 07 (W) and pin 16 (OY). |
| | Is the resistance less than 10,000 ohms? |
| | Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. |
| | No GO to AQ4. |
| AQ4: CHECK FOR OPEN CIRCUIT ON K-LINE BETWEEN DIAGNOSTIC CONNECTOR AND HID MODULE | |
| | 1 Disconnect the HID module connector, IP130. |
| | 2 Measure the resistance between diagnostic connector, pin 07 (W) and IP130, pin 05 (W). |
| | Is the resistance greater than 5 ohms? |
| | Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. |
| | No INSTALL a new HID module. REFER to: Headlamp Leveling Module (417-01 Exterior Lighting, Removal and Installation). CLEAR the DTC, test the system for normal operation. |

PINPOINT TEST AR : ROOF CONSOLE ISO CIRCUIT MALFUNCTION

• NOTE: There are two levels of Roof Console. High-line, with moon roof, and/or reading lamps, plus VEMS and/or garage door opener (electrical connector, RC22). Low-line, with moon roof and/or reading lamps only (electrical connector, RC33).

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|---|--|
| AR1: CHECK ROOF CONSOLE MODULE FOR DAMAGE | |
| | 1 Inspect the roof console module for damage. |
| | Does the roof console module indicate signs of damage? |
| | Yes INSTALL a new roof console module. CLEAR the DTC, test the system for normal operation. |
| | No GO to AR2. |
| AR2: CHECK K-LINE FOR SHORT CIRCUIT TO GROUND | |
| | 1 Measure the resistance between diagnostic connector, pin 07 (W) and GROUND. |
| | Is the resistance less than 10,000 ohms? |
| | Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. |
| | No GO to AR3. |
| AR3: CHECK K-LINE FOR SHORT CIRCUIT TO BATTERY | |
| | 1 Measure the resistance between diagnostic connector, pin 07 (W) and pin 16 (OY). |
| | Is the resistance less than 10,000 ohms? |
| | Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. |
| | No GO to AR4. |
| AR4: CHECK FOR OPEN CIRCUIT ON K-LINE BETWEEN THE DIAGNOSTIC CONNECTOR AND THE ROOF CONSOLE MODULE | |
| | 1 Turn the ignition switch to the OFF position. |
| | 2 Disconnect the battery negative terminal. |
| | 3 Disconnect the roof console module connector (RC23, high-line, RC33, low-line). |

| | |
|--|---|
| | <p>4 Measure the resistance between the diagnostic connector, pin 07 (W) and:</p> <p>Vehicles with low-line console -</p> <ul style="list-style-type: none"> ● RC23, pin 08 (W). <p>Vehicles with high-line console -</p> <ul style="list-style-type: none"> ● RC33, pin 03 (W). |
| | <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No INSTALL a new roof console module. CLEAR the DTC, test the system for normal operation.</p> |

PINPOINT TEST AS : REVERSE PARK AID ISO CIRCUIT MALFUNCTION

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|-----------------|-------------------------|
|-----------------|-------------------------|

AS1: CHECK THE REVERSE PARK AID MODULE FOR DAMAGE

| | |
|--|---|
| | <p>1 Inspect the reverse park aid module for damage.</p> |
| | <p>Does the reverse park aid module indicate signs of damage?</p> <p>Yes INSTALL a new reverse park aid module. REFER to: Parking Aid Module - 4-Door (413-13 Parking Aid, Removal and Installation). CLEAR the DTC, test the system for normal operation.</p> <p>No GO to AS2.</p> |

AS2: CHECK K-LINE FOR SHORT CIRCUIT TO GROUND

| | |
|--|--|
| | <p>1 Measure the resistance between diagnostic connector, pin 07 (W) and GROUND.</p> |
| | <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to AS3.</p> |

AS3: CHECK K-LINE FOR SHORT CIRCUIT TO BATTERY

| | |
|--|--|
| | <p>1 Measure the resistance between diagnostic connector, pin 07 (W) and pin 16 (OY).</p> |
| | <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to AS4.</p> |

AS4: CHECK FOR OPEN CIRCUIT ON K-LINE BETWEEN THE DIAGNOSTIC CONNECTOR AND THE REVERSE PARK AID MODULE

| | |
|--|---|
| | <p>1 Turn the ignition switch to the OFF position.</p> |
| | <p>2 Disconnect the battery negative terminal.</p> |
| | <p>3 Disconnect the reverse park aid module connector, RB07.</p> |
| | <p>4 Measure the resistance between diagnostic connector, pin 07 (W) and RB07, pin 05 (W).</p> |
| | <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No INSTALL a new reverse park aid module. REFER to: Parking Aid Module - 4-Door (413-13 Parking Aid, Removal and Installation). CLEAR the DTC, test the system for normal operation.</p> |

PINPOINT TEST AT : ECM ISO CIRCUIT MALFUNCTION

• NOTE: These pinpoint tests apply only to OBD2 diagnostics. The ECM does most of it's diagnostics via CAN.

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|-----------------|-------------------------|
|-----------------|-------------------------|

AT1: CHECK ECM FOR DAMAGE

| | |
|--|---|
| | <p>1 Inspect the ECM for damage.</p> |
| | <p>Does the ECM indicate signs of damage?</p> <p>Yes Please check part is not on any form of prior authorisation before replacement.</p> <p>No GO to AT2.</p> |

AT2: CHECK K-LINE FOR SHORT CIRCUIT TO GROUND

| | |
|--|--|
| | <p>1 Measure the resistance between the diagnostic connector, pin 07 (W) and GROUND.</p> |
| | <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to AT3.</p> |

AT3: CHECK K-LINE FOR SHORT CIRCUIT TO BATTERY

| | |
|--|--|
| | <p>1 Measure the resistance between the diagnostic connector, pins 07 (W) and 16 (OY).</p> |
| | <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to AT4.</p> |

AT4: CHECK FOR OPEN CIRCUIT ON K-LINE BETWEEN THE DIAGNOSTIC CONNECTOR AND THE ECM

• NOTE: The diesel ECM is not part of the ISO network.

| | |
|--|---|
| | <ol style="list-style-type: none"> 1 Turn the ignition switch to the OFF position. 2 Disconnect the battery negative terminal. <ul style="list-style-type: none"> Vehicles with 2.5 and 3.0L engine - <ul style="list-style-type: none"> ● Disconnect the ECM connector, EN16. ● Measure the resistance between the diagnostic connector, pin 07 (W) and EN16, pin 105 (W). Vehicles with 2.0L petrol engine - <ul style="list-style-type: none"> ● Disconnect the ECM connector, EN65. ● Measure the resistance between the diagnostic connector, pin 07 (W) and EN65, pin 39 (W). |
| | <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No Please check part is not on any form of prior authorisation before replacement.</p> |

PINPOINT TEST AU : FUEL FIRED HEATER (FFH) MODULE ISO CIRCUIT MALFUNCTION

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|--|---|
| AU1: CHECK THE FFH MODULE FOR DAMAGE | |
| | <ol style="list-style-type: none"> 1 Inspect the FFH module for damage. |
| | <p>Does the FFH module indicate signs of damage?</p> <p>Yes Please check part is not on any form of prior authorisation before replacement.</p> <p>No GO to AU2.</p> |
| AU2: CHECK K-LINE FOR SHORT CIRCUIT TO GROUND | |
| | <ol style="list-style-type: none"> 1 Measure the resistance between the diagnostic connector, pin 07 (W) and GROUND. |
| | <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to AU3.</p> |
| AU3: CHECK K-LINE FOR SHORT CIRCUIT TO BATTERY | |
| | <ol style="list-style-type: none"> 1 Measure the resistance between the diagnostic connector, pins 07 (W) and 16 (OY). |
| | <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to AU4.</p> |
| AU4: CHECK FOR OPEN CIRCUIT ON K-LINE BETWEEN THE DIAGNOSTIC CONNECTOR AND THE FFH MODULE | |
| | <ol style="list-style-type: none"> 1 Turn the ignition switch to the OFF position. 2 Disconnect the battery negative terminal. 3 Disconnect the FFH module connector, JB232. 4 Measure the resistance between the diagnostic connector, pin 07 (W) and JB232, pin 03 (W). |
| | <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No Please check part is not on any form of prior authorisation before replacement.</p> |

PINPOINT TEST AV : AMPLIFIER SUPPLY OR GROUND FAULT

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|--|--|
| AV1: CHECK THE B+ SUPPLY TO THE AMPLIFIER | |
| | <ol style="list-style-type: none"> 1 Turn the ignition switch to the OFF position. 2 Disconnect the amplifier connector, CA425. 3 Measure the voltage between CA425, pin 03 (NR) and GROUND. 4 Measure the voltage between CA425, pin 09 (NR) and GROUND. |
| | <p>Is either voltage less than 10 volts?</p> <p>Yes REPAIR the circuit between CA425, pins 03/09 and battery. This circuit includes the primary junction box, fuse 20. For additional information, refer to the wiring diagrams.</p> <p>No GO to AV2.</p> |
| AV2: CHECK THE GROUND TO THE AMPLIFIER | |
| | <ol style="list-style-type: none"> 1 Turn the ignition switch to the OFF position. 2 Measure the resistance between CA425, pin 02 (B) and GROUND. 3 Measure the resistance between CA425, pin 08 (B) and GROUND. |
| | <p>Is either resistance greater than 5 ohms?</p> <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams.</p> <p>No No fault found with power or ground supplies. Check for DTCs indicating a module fault.</p> |

Module Communications Network - Communications Network VIN Range: J28493->V99999

Diagnosis and Testing

Principles of Operation

The vehicle has four module communication networks. Only three of which are connected to the diagnostic connector. The **standard corporate protocol (SCP)** and **controller area network (CAN)**, which are an unshielded twisted pair cable: data bus + and data bus - and the **International Standard Organization (ISO)** 9141 communication network, which is a single wire network.

The **domestic data bus (D2B)**, which is a fibre optic ring network, can be diagnosed through the SCP network, and with the optical bus tester.

The SCP, CAN and ISO networks can be connected to the Jaguar approved diagnostic system by one diagnostic connector. This makes troubleshooting these systems easier by allowing one smart tester to be able to diagnose any module on the three networks from one connector. On-board diagnosis of the D2B network is through the in car entertainment (ICE) head.

The diagnostic connector is located under the instrument panel.

The ISO 9141 communications network does not permit inter-module communications. When the Jaguar approved diagnostic system communicates with modules on the ISO 9141 communication network, the diagnostic system must ask for all information, the modules will not initiate communications.

The SCP communication network remains operational even with severing of one of the bus wires. Communications will also continue if one of the bus wires is shorted to ground or battery positive voltage (B+), or if some (but not all) termination resistors are lost.

Unlike the SCP communication network, the ISO 9141 communication network will not function if the wire is shorted to ground or battery positive voltage (B+). Also, if one of the modules on the ISO 9141 network loses power or shorts internally, communication to that module will fail.

The anti-lock brake control module is connected to the CAN communication network. The module comes in two forms. The first type is the standard equipped anti-lock brake system (ABS) with traction control. It controls the brake pressure to the four wheels to keep the vehicle under control while braking. The second type of ABS is optional and is called dynamic stability control (DSC). This module adds yaw and steering wheel angle sensors to the package to help in sensing a loss of vehicle control. For additional information, REFER to: [Anti-Lock Control - Stability Assist](#) (206-09 Anti-Lock Control - Stability Assist, Description and Operation).

The in car entertainment (ICE) head is connected to the SCP communication network and also to the D2B network. The D2B communicates with the compact disc player, cellular phone transceiver, navigation system, amplifier, and the voice control module. For additional information on the compact disc,

REFER to: [Audio System](#) (415-00 Information and Entertainment System - General Information, Diagnosis and Testing).

For additional information on the cellular phone,

REFER to: [Cellular Phone](#) (419-08 Cellular Phone, Diagnosis and Testing).

For additional information on the navigation system,

REFER to: [Navigation System](#) (419-07 Navigation System, Diagnosis and Testing).

For additional information on the amplifier,

REFER to: [Audio System](#) (415-01 Audio Unit, Description and Operation).

For additional information on the voice activated control system,

REFER to: [Multifunction Electronic Module](#) (419-10 Multifunction Electronic Modules, Diagnosis and Testing).

The electronic automatic temperature control (EATC) module is connected to the CAN communication network. The EATC module controls automatic climate functions that maintain the vehicle at a constant temperature setting. For additional information, REFER to: [Climate Control System](#) (412-00 Climate Control System - General Information, Diagnosis and Testing).

The instrument cluster (also known as an instrument cluster module ICM) is connected to the CAN and SCP communication networks. The instrument cluster displays information received on the SCP including speedometer, odometer, fuel, and message center warnings. The instrument cluster displays information received on the CAN including ABS, air conditioning, transmission and engine condition. The instrument cluster also controls the passive anti-theft system (PATS). For additional information;

REFER to: [Instrument Cluster and Panel Illumination](#) (413-00 Instrument Cluster and Panel Illumination, Diagnosis and Testing).

For instrument cluster operation and

REFER to: [Anti-Theft - Passive](#) (419-01B Anti-Theft - Passive, Diagnosis and Testing).

for PATS.

The general electronic module (GEM) is connected to the SCP communication network. The GEM controls both interior and exterior lighting, active anti-theft functions and warning chimes. For additional information on interior lamps,

REFER to: [Interior Lighting](#) (417-02 Interior Lighting, Diagnosis and Testing).

For additional information on exterior lighting,

REFER to: [Headlamps](#) (417-01 Exterior Lighting, Diagnosis and Testing).

For additional information on active anti-theft,

REFER to: [Anti-Theft - Active](#) (419-01A Anti-Theft - Active, Diagnosis and Testing).

For additional information on warning chimes,

REFER to: [Warning Devices](#) (413-09 Warning Devices, Diagnosis and Testing).

The engine control module (ECM) is connected to both the CAN and ISO 9141 communication networks. The ECM controls the engine performance, electronic ignition, emission controls, speed control, and on board diagnostics. For additional information;

REFER to: [Electronic Engine Controls - 2.5L NA V6 - AJV6/3.0L NA V6 - AJ27, VIN Range: E96603->J28492](#) (303-14A Electronic Engine Controls - 2.0L NA V6 - AJV6/2.5L NA V6 - AJV6/3.0L NA V6 - AJ27, Diagnosis and Testing).

REFER to: [Electronic Engine Controls - 2.0L NA V6 - AJV6](#) (303-14A Electronic Engine Controls - 2.0L NA V6 - AJV6/2.5L NA V6 - AJV6/3.0L NA V6 - AJ27, Diagnosis and Testing).

or

REFER to: [Electronic Engine Controls](#) (303-14B Electronic Engine Controls - 2.0L Duratorq-TDCi/2.2L Duratorq-TDCi (110kW/150PS) - Puma, Diagnosis and Testing).

The 'phone module is connected to the D2B communication network, and incorporates the VEMS, or Vehicle Emergency Messaging System. The module allows a user to request emergency assistance (police, ambulance, fire, recovery) or directions to a desired location at the touch of a button. Also, if any of the vehicle's airbags are deployed while the VEMS system is powered ON, the system automatically issues a call for emergency assistance. For additional information,

REFER to: [Compact Disc \(CD\) Changer - 4-Door](#) (415-01 Audio Unit, Removal and Installation).

The airbag restraints module is connected to the ISO 9141 communication network. The airbag control module controls the deployment of the air bags based on sensor input. For additional information;

The voice activated control module (VACM) is connected to the D2B communication network. This allows the user to select functions by giving a voice command. The VACM sends the command information by D2B to the correct module or audio unit.

The navigation system (NAV) is connected to the D2B communication network, and performs it's diagnostics via the SCP network. The NAV receives inputs from the GPS antenna and various other sensors. For additional information, REFER to: [Navigation System](#) (419-07 Navigation System, Diagnosis and Testing).

Inspection and Verification

1. **1.** Verify the customer concern.
2. **2.** Visually inspect for obvious signs of mechanical, electrical or optical damage.

| Electrical |
|--|
| <ul style="list-style-type: none"> ● Fuses ● Wiring harness ● Loose or corroded connections ● Correct engagement of electrical connectors ● Controller area network (CAN) ● Instrument cluster (IC) ● Steering wheel rotation sensor (SWRS) ● Gear selector module (GSI) ● Headlight levelling module (HID) ● Yaw rate sensor ● Electronic air temperature control module (EATCM) ● Memory seat control module ● Transmission control module (TCM) ● Anti-lock brake control module with or without dynamic stability control (ABS/DSC) ● Engine control module (ECM) ● Standard corporate protocol (SCP) ● Generic electronic module (GEM) ● Instrument cluster (IC) ● In-car entertainment (ICE) ● Navigation system (NAV) ● Engine control module (ECM) ● International standards organization (ISO) ● Fuel fired heater module ● Reverse park aid module ● Restraints control module (RCM) ● Headlight levelling module (HID) ● Roof console scanner ● Domestic data bus (D2B) ● ICE head unit (HU) ● Compact disc changer (CD) ● Cellular phone module (CPM) ● Voice module (VACM) ● Navigation system module (NSM) ● Amplifier (AMP) |

Visual Inspection Chart

| Optical |
|--|
| <ul style="list-style-type: none"> ● Routing of fibre optic harnesses ● Correct engagement of optical connectors ● Correct placement of optical connectors (ring order) ● Damage to fibre (chafing, abrasion, kinking, cuts, etc) ● Correct assembly of optical connectors (backout, etc) |

Default Modes

Possible TCM default

- Fixed 4th gear
- Erratic gear shifts

Possible ECM default

- Throttle motor and relay disabled
- Throttle valve opening set to default value
- Idle speed controlled by fuel injection intervention
- Idle speed adaptation inhibited
- Throttle opening limited to 30%
- Vehicle speed limited
- Speed (cruise) control limited
- Maximum throttle opening for N range inhibited
- Maximum engine speed reduced
- HO2 sensor control circuit inhibited
- Maximum ignition retard

Symptom Chart

• **NOTE:** Network DTCs may be set by an error or communications failure in the network. Individual DTCs are in the table, alongside their respective modules, but may also be set by a combination of factors affecting the network, which would result in multiple DTCs being set for one error, or, as in the case of an open circuit, no DTC being set.

| DTC | Description | Possible Source | Action |
|-------|-----------------------------------|--|--|
| P0860 | CAN ECM / JGM network malfunction | <ul style="list-style-type: none"> ● Module power supply or ground interruption ● CAN open circuit fault; JGM to ECM | Refer to power and ground test for suspect module. For JGM CAN circuit tests, GO to Pinpoint Test AW . Please check part is not on any form of prior authorization before replacement. |

| DTC | Description | Possible Source | Action |
|-------|---|--|--|
| | | <ul style="list-style-type: none"> ● CAN short circuit fault ● JGM failure ● ECM failure | |
| P1573 | CAN throttle angle error | <ul style="list-style-type: none"> ● TP sensor fault (additional DTCs logged) ● ECM CAN message error | For TP sensor circuit tests, REFER to: Electronic Engine Controls - 2.5L NA V6 - AJV6/3.0L NA V6 - AJ27, VIN Range: E96603->J28492 (303-14A Electronic Engine Controls - 2.0L NA V6 - AJV6/2.5L NA V6 - AJV6/3.0L NA V6 - AJ27, Diagnosis and Testing) / Electronic Engine Controls - 2.5L NA V6 - AJV6/3.0L NA V6 - AJ27, VIN Range: E96603->J28492 (303-14A Electronic Engine Controls - 2.0L NA V6 - AJV6/2.5L NA V6 - AJV6/3.0L NA V6 - AJ27, Diagnosis and Testing). Error message sent on CAN, but not CAN related. Check for additional DTCs indicating cause. |
| P1601 | Incorrect ECM or TCM fitted to vehicle | <ul style="list-style-type: none"> ● ECM configuration ● TCM configuration | Configure the modules using the Jaguar approved diagnostic system. |
| P1603 | TCM EEPROM failure | <ul style="list-style-type: none"> ● Battery disconnected while the ignition switched ON ● B+ power supply circuit; open circuit ● TCM failure | For TCM EEPROM tests, GO to Pinpoint Test B . |
| P1609 | ECM microprocessor to microprocessor communication failure | <ul style="list-style-type: none"> ● ECM failure | Please check part is not on any form of prior authorization before replacement. |
| P1611 | ECM sub CPU failure | <ul style="list-style-type: none"> ● ECM failure | Please check part is not on any form of prior authorization before replacement. |
| P1633 | ECM main CPU failure | <ul style="list-style-type: none"> ● ECM failure | Please check part is not on any form of prior authorization before replacement. |
| P1634 | Throttle 'watch-dog' circuit malfunction | <ul style="list-style-type: none"> ● ECM failure | Please check part is not on any form of prior authorization before replacement. |
| P1637 | CAN ECM to ABS/TCCM or DSC control module network malfunction | <ul style="list-style-type: none"> ● Module power supply or ground interruption ● CAN open circuit fault; ABS/TCCM or DSC to ECM ● CAN short circuit fault ● ABS/TCCM or DSC module failure ● ECM failure | Refer to power and ground test for suspect module. For ABS/TCCM or DSC CAN circuit tests, GO to Pinpoint Test C . Please check part is not on any form of prior authorization before replacement. |
| P1638 | CAN ECM / IC network malfunction | <ul style="list-style-type: none"> ● Module power supply or ground interruption ● CAN open circuit fault; IC to ECM ● CAN short circuit fault ● IC failure ● ECM failure | Refer to power and ground test for suspect module. For IC CAN circuit tests, GO to Pinpoint Test D . Please check part is not on any form of prior authorization before replacement. |
| P1642 | CAN circuit malfunction | <ul style="list-style-type: none"> ● Module power supply or ground interruption ● CAN short circuit fault ● Control module failure; Check for additional logged DTCs to locate module source | Refer to power and ground test for suspect module. For network short circuit tests, GO to Pinpoint Test E . |
| P1643 | CAN ECM / TCM network malfunction | <ul style="list-style-type: none"> ● Module power supply or ground interruption ● CAN open circuit fault; TCM to ECM ● CAN short circuit fault ● TCM failure ● ECM failure | Refer to power and ground test for suspect module. For CAN open circuit tests, GO to Pinpoint Test A . For network short circuit tests, GO to Pinpoint Test E . Please check part is not on any form of prior authorization before replacement. |
| P1646 | ECM HO2 sensor control malfunction, right-hand bank | <ul style="list-style-type: none"> ● HO2 sensor heater failure ● HO2 sensor sensing circuit; short circuit to ground, short circuit to high voltage, open circuit ● ECM failure | For HO2 sensor circuit tests, REFER to: Electronic Engine Controls - 2.5L NA V6 - AJV6/3.0L NA V6 - AJ27, VIN Range: E96603->J28492 (303-14A Electronic Engine Controls - 2.0L NA V6 - AJV6/2.5L NA V6 - AJV6/3.0L NA V6 - AJ27, Diagnosis and Testing) / Electronic Engine Controls - 2.5L NA V6 - AJV6/3.0L NA V6 - AJ27, VIN Range: E96603->J28492 (303-14A Electronic Engine Controls - 2.0L NA V6 - AJV6/2.5L NA V6 - AJV6/3.0L NA V6 - AJ27, Diagnosis and Testing). Please check part is not on any form of prior authorization before replacement. |
| P1647 | ECM HO2 sensor control malfunction, left-hand bank | <ul style="list-style-type: none"> ● HO2 sensor heater failure ● HO2 sensor sensing circuit; short circuit to ground, short circuit to high voltage, open circuit ● ECM failure | For HO2 sensor circuit tests, REFER to: Electronic Engine Controls - 2.5L NA V6 - AJV6/3.0L NA V6 - AJ27, VIN Range: E96603->J28492 (303-14A Electronic Engine Controls - 2.0L NA V6 - AJV6/2.5L NA V6 - AJV6/3.0L NA V6 - AJ27, Diagnosis and Testing) / Electronic Engine Controls - 2.5L NA V6 - AJV6/3.0L NA V6 - AJ27, VIN Range: E96603->J28492 (303-14A Electronic Engine Controls - 2.0L NA V6 - AJV6/2.5L NA V6 - AJV6/3.0L NA V6 - AJ27, Diagnosis and Testing). Please check part is not on any form of prior authorization before replacement. |
| P1648 | ECM KS self-test failure | <ul style="list-style-type: none"> ● ECM failure | Please check part is not on any form of prior authorization before replacement. |

| DTC | Description | Possible Source | Action |
|-------|---|---|---|
| P1656 | TP sensor amplifier circuit malfunction | <ul style="list-style-type: none"> ECM failure | Please check part is not on any form of prior authorization before replacement. |
| P1699 | CAN ECM to EATCM network malfunction | <ul style="list-style-type: none"> Module power supply or ground interruption CAN open circuit fault; EATCM to ECM CAN short circuit fault; EATCM to ECM EATCM failure ECM failure | Refer to power and ground test for suspect module. For EATCM open circuit tests, GO to Pinpoint Test A . For network short circuit tests, GO to Pinpoint Test F . Please check part is not on any form of prior authorization before replacement. |
| P1777 | CAN torque reduction error | <ul style="list-style-type: none"> ECM CAN message error | Error message sent on CAN, but not CAN related. Check for additional DTCs indicating cause. |
| P1796 | CAN network malfunction | <ul style="list-style-type: none"> Module power supply or ground interruption CAN short circuit fault TCM failure | Refer to power and ground test for suspect module. For network short circuit test, GO to Pinpoint Test A . |
| P1797 | CAN TCM/ECM network malfunction | <ul style="list-style-type: none"> Module power supply or ground interruption CAN open circuit fault; TCM to ECM CAN short circuit fault TCM failure ECM failure | Refer to power and ground test for suspect module. For TCM open/short circuit tests, GO to Pinpoint Test C . |
| P1799 | CAN TCM to ABS/TCCM or DSC module network malfunction | <ul style="list-style-type: none"> Module power supply or ground interruption CAN short circuit fault ABS/TCCM or DSC module failure TCM failure | Refer to power and ground test for suspect module. For ABS/TCCM short circuit tests, GO to Pinpoint Test G . |
| U1041 | GEM SCP network invalid vehicle speed data | <ul style="list-style-type: none"> ABS/DSC wheel speed message error SCP network error | For GEM SCP network tests, GO to Pinpoint Test H . |
| U1135 | GEM SCP network invalid ignition switch data | <ul style="list-style-type: none"> Instrument cluster ignition switch message error SCP network error | For GEM SCP network tests, GO to Pinpoint Test H . |
| U1147 | GEM anti-theft SCP network invalid ignition key-in data | <ul style="list-style-type: none"> GEM key-in message error SCP network error | For GEM SCP network tests, GO to Pinpoint Test H . |
| U1262 | GEM SCP network ignition switch state message missing | <ul style="list-style-type: none"> SCP circuit(s); open circuit SCP network error | For GEM SCP network tests, GO to Pinpoint Test H . |
| U1262 | ICE SCP network circuit fault | <ul style="list-style-type: none"> SCP network circuit; open circuit, short circuit to B+, short circuit to ground SCP network circuit fault Audio unit fault | For ICE SCP network tests, GO to Pinpoint Test I . |
| U1900 | CAN instrumentation messages missing | <ul style="list-style-type: none"> Engine management, ABS, or DSC fault CAN network fault | For ABS/DSC CAN network tests, GO to Pinpoint Test G . |
| U1900 | Automatic climate control CAN fault | <ul style="list-style-type: none"> CAN circuit; open circuit, short circuit to B+, short circuit to ground Automatic climate control module internal CAN fault CAN network fault | For EATC CAN network tests, GO to Pinpoint Test E . |
| U1900 | ABS CAN fault | <ul style="list-style-type: none"> CAN circuit: open circuit, short circuit to B+, short circuit to ground ABS control module internal CAN fault CAN network fault | For ABS/DSC CAN network tests, GO to Pinpoint Test G . |
| U1900 | DSC CAN fault | <ul style="list-style-type: none"> CAN circuit; open circuit, short circuit to B+, short circuit to ground DSC control module internal CAN fault CAN network fault | For ABS/DSC CAN network tests, GO to Pinpoint Test G . |
| U2003 | CD autochanger not responding on D2B network | <ul style="list-style-type: none"> D2B network 'wake-up' circuit; short circuit to B+, short circuit to ground D2B network fault | For D2B 'wake-up' circuit tests, GO to Pinpoint Test K . For CD autochanger D2B network tests, GO to Pinpoint Test J . For D2B permanent supply tests, GO to Pinpoint Test R . |
| U2008 | Cellular telephone not responding on D2B network | <ul style="list-style-type: none"> D2B network 'wake-up' circuit; short circuit to B+, short circuit to ground D2B network fault | For D2B 'wake-up' circuit tests, GO to Pinpoint Test K . For cellular telephone D2B network tests, GO to Pinpoint Test L . For D2B permanent supply tests, GO to Pinpoint Test R . For D2B accessory switched supply tests, GO to Pinpoint Test S . For D2B ignition switched supply tests, GO to Pinpoint Test T . |

| DTC | Description | Possible Source | Action |
|--------------------------------|---|---|---|
| U2019 | VACM not responding on D2B network | <ul style="list-style-type: none"> ● D2B network 'wake-up' circuit; short circuit to B+, short circuit to ground ● D2B network fault | For D2B 'wake-up' circuit tests, GO to Pinpoint Test K . For VACM D2B network tests, GO to Pinpoint Test M . For D2B accessory switched supply tests, GO to Pinpoint Test S . For D2B ignition switched supply tests, GO to Pinpoint Test T . |
| U2196 | Instrument cluster CAN engine speed message invalid | <ul style="list-style-type: none"> ● Verify integrity of engine management system ● CAN network fault | For instrument cluster CAN network tests, GO to Pinpoint Test D . |
| U2197 | Instrument cluster CAN engine speed message invalid | <ul style="list-style-type: none"> ● Verify integrity of engine management system ● CAN network fault | For instrument cluster CAN network tests, GO to Pinpoint Test D . |
| U2199 | Instrument cluster CAN engine coolant temperature message invalid | <ul style="list-style-type: none"> ● Verify integrity of engine management system ● CAN network fault | For instrument cluster CAN network tests, GO to Pinpoint Test D . |
| U2200 | Instrument cluster CAN odometer count message invalid | <ul style="list-style-type: none"> ● Verify integrity of ABS or DSC systems ● CAN network fault | For instrument cluster CAN network tests, GO to Pinpoint Test D . |
| U2202 | Invalid DSC control module CAN configuration data received from ECM | <ul style="list-style-type: none"> ● Reconfigure the ECM using the Jaguar approved diagnostic system ● CAN network fault | For ECM CAN network tests, GO to Pinpoint Test E . |
| U2202 | Invalid ABS control module CAN configuration data received from ECM | <ul style="list-style-type: none"> ● Reconfigure the ECM using the Jaguar approved diagnostic system ● CAN network fault | For ECM CAN network tests, GO to Pinpoint Test E . |
| U2509 | ECM unable to fulfill ABS CAN torque reduction request | <ul style="list-style-type: none"> ● Verify integrity of engine management system ● CAN network fault | For ABS/DSC CAN network tests, GO to Pinpoint Test G . |
| U2509 | ECM unable to fulfill DSC CAN torque reduction request | <ul style="list-style-type: none"> ● Verify integrity of engine management system ● CAN network fault | For ABS/DSC CAN network tests, GO to Pinpoint Test G . |
| U2510 (security flash code 23) | Anti-theft ECM identification mismatch | <ul style="list-style-type: none"> ● ECM configuration fault ● Incorrect ECM installed | Reconfigure ECM using the Jaguar approved diagnostic system. Please check part is not on any form of prior authorization before replacement. |
| U2511 | Anti-theft ECM invalid data | <ul style="list-style-type: none"> ● ECM configuration fault ● Incorrect ECM installed ● SCP network error | Reconfigure ECM using the Jaguar approved diagnostic system. Please check part is not on any form of prior authorization before replacement. |
| U2514 | GEM wash/wipe SCP network vehicle speed message missing | <ul style="list-style-type: none"> ● SCP circuit(s); open circuit ● SCP network error | For GEM SCP network tests, GO to Pinpoint Test H . |
| U2520 | Memory seats | <ul style="list-style-type: none"> ● CAN open circuit fault: memory seat module to diagnostic connector ● CAN short circuit fault ● Memory seat module failure | For CAN open/short circuit tests, GO to Pinpoint Test A . |
| U2600 | Audio D2B network 'wake-up' circuit fault | <ul style="list-style-type: none"> ● D2B network 'wake-up' circuit; short circuit to B+ | For D2B 'wake-up' circuit tests, GO to Pinpoint Test K . |
| U2601 | Audio D2B network 'wake-up' circuit fault | <ul style="list-style-type: none"> ● D2B network 'wake-up' circuit; short circuit to B+ | For D2B 'wake-up' circuit tests, GO to Pinpoint Test K . |
| U2601 | Voice activation module D2B network 'wake-up' circuit fault | <ul style="list-style-type: none"> ● D2B network 'wake-up' circuit; short circuit to ground | For D2B 'wake-up' circuit tests, GO to Pinpoint Test K . |
| U2602 | Break in optical ring FROM ICE head unit (transmitter) | <ul style="list-style-type: none"> ● D2B network module disconnected ● D2B network optical ring broken | For optical ring tests, GO to Pinpoint Test P . |
| U2603 | Break in optical ring TO ICE head unit (receiver) | <ul style="list-style-type: none"> ● D2B network module disconnected ● D2B network optical ring broken | For optical ring tests, GO to Pinpoint Test Q . |
| U2609 | Voice activation module D2B network 'wake-up' signal out of specification | <ul style="list-style-type: none"> ● D2B network 'wake-up' circuit; high resistance ● Voice activation module failure | For D2B 'wake-up' circuit tests, GO to Pinpoint Test K . |
| U2610 | Voice activation module D2B network 'position status report' not received | <ul style="list-style-type: none"> ● D2B network fault | For D2B 'wake-up' circuit tests, GO to Pinpoint Test K . |
| U2611 | Voice activation module D2B network 'alarm clear command' not received | <ul style="list-style-type: none"> ● D2B network fault | For D2B 'wake-up' circuit tests, GO to Pinpoint Test K . |

| DTC | Description | Possible Source | Action |
|-------|---|--|--|
| U2613 | Navigation control module not responding on D2B network | <ul style="list-style-type: none"> ● D2B network 'wake-up' circuit; short circuit to B+, short circuit to ground ● D2B network fault ● Module permanent supply fault ● Module accessory switched supply fault ● Module ignition switched supply fault | For D2B 'wake-up' circuit tests, GO to Pinpoint Test K. For navigation module optical tests, GO to Pinpoint Test N. For D2B permanent supply tests, GO to Pinpoint Test R. For D2B accessory switched supply tests, GO to Pinpoint Test S. |
| U2614 | Amplifier not responding on D2B network | <ul style="list-style-type: none"> ● D2B network 'wake-up' circuit; short circuit to B+, short circuit to ground ● D2B network fault | For D2B 'wake-up' circuit tests, GO to Pinpoint Test K. For amplifier optical tests, GO to Pinpoint Test O. For D2B permanent supply tests, GO to Pinpoint Test R. For D2B accessory switched supply tests, GO to Pinpoint Test S. |
| None | ISO circuit malfunction, RCM | <ul style="list-style-type: none"> ● RCM K-line circuit; open circuit ● RCM K-line circuit; short circuit | For RCM ISO tests, GO to Pinpoint Test AP. |
| None | ISO circuit malfunction, HID module | <ul style="list-style-type: none"> ● HID module K-line circuit; open circuit ● HID module K-line circuit; short circuit | For HID module ISO tests, GO to Pinpoint Test AQ. |
| None | ISO circuit malfunction, roof console module | <ul style="list-style-type: none"> ● Roof console module K-line circuit; open circuit ● Roof console module K-line circuit; short circuit | For roof console module ISO tests, GO to Pinpoint Test AR. |
| None | ISO circuit malfunction, reverse park aid module | <ul style="list-style-type: none"> ● Reverse park aid module K-line circuit; open circuit ● Reverse park aid module K-line circuit; short circuit | For reverse park aid module ISO tests, GO to Pinpoint Test AS. |
| None | ISO circuit malfunction, ECM | <ul style="list-style-type: none"> ● ECM K-line circuit; open circuit ● ECM K-line circuit; short circuit | For ECM ISO tests, GO to Pinpoint Test AT. |
| None | ISO circuit malfunction, fuel fired heater (FFH) module | <ul style="list-style-type: none"> ● FFH module K-line circuit; open circuit ● FFH module K-line circuit; short circuit | For FFH module ISO tests, GO to Pinpoint Test AU. |

Power and Ground circuit test index

Modules may log DTCs if the power supply or GROUND is interrupted. Supply and GROUND tests are covered below by module name.

| Description | Possible source | Action |
|--|--|---|
| IC supply or ground fault | <ul style="list-style-type: none"> ● B+ supply failure ● Ign+ supply failure ● Acc+ supply failure ● GROUND failure | For IC circuit tests, GO to Pinpoint Test U. |
| SWRS supply or ground fault | <ul style="list-style-type: none"> ● Module supply failure ● GROUND failure | For SWRS circuit tests, GO to Pinpoint Test V. |
| Yaw rate sensor supply or ground fault | <ul style="list-style-type: none"> ● Module supply failure ● GROUND failure | For yaw rate sensor circuit tests, GO to Pinpoint Test W. |
| ABS/TCCM supply or ground fault | <ul style="list-style-type: none"> ● Ign+ supply failure ● Pump+ supply failure ● Solenoid+ supply failure ● GROUND failure ● Motor GROUND failure | For ABS/TCCM circuit tests, GO to Pinpoint Test X. |
| DSC module supply or ground fault | <ul style="list-style-type: none"> ● Ign+ supply failure ● Pump+ supply failure ● Solenoid+ supply failure ● GROUND failure ● Motor GROUND failure | For DSC module circuit tests, GO to Pinpoint Test Y. |
| GSI module supply or ground fault | <ul style="list-style-type: none"> ● Ign+ supply failure ● GROUND failure | For GSI module circuit tests, GO to Pinpoint Test Z. |
| HID module supply or ground fault | <ul style="list-style-type: none"> ● Ign+ supply failure ● GROUND failure | For HID module circuit tests, GO to Pinpoint Test AA. |
| EATC module supply or ground fault | <ul style="list-style-type: none"> ● B+ supply failure ● B+save supply failure ● Ign+ supply failure ● GROUND failure | For EATC module circuit tests, GO to Pinpoint Test AB. |

| Description | Possible source | Action |
|--|---|--|
| Memory seat module supply or ground fault | <ul style="list-style-type: none"> ● B+1 supply failure ● B+2 supply failure ● Ign+ supply failure ● Electronic GROUND failure ● Power GROUND failure ● Signal GROUND failure | For memory seat module circuit tests, GO to Pinpoint Test AC . |
| TCM supply or ground fault (16 bit) | <ul style="list-style-type: none"> ● B+ supply failure ● Ign+ supply failure ● GROUND failure | For 16 bit TCM circuit tests, GO to Pinpoint Test AD . |
| TCM supply or ground fault (32 bit) | <ul style="list-style-type: none"> ● B+ supply failure ● Ign+ supply failure ● GROUND failure | For 32 bit TCM circuit tests, GO to Pinpoint Test AE . |
| ECM supply or ground fault, vehicles with 2.0L petrol engine | <ul style="list-style-type: none"> ● B+memory supply failure ● Control supply failure ● GROUND failure | For ECM circuit tests, vehicles with 2.0L petrol engines, GO to Pinpoint Test AF . |
| ECM supply or ground fault, vehicles with 2.5/3.0L petrol engine | <ul style="list-style-type: none"> ● B+memory supply failure ● Control supply failure ● GROUND failure | For ECM circuit tests, vehicles with 2.5/3.0L petrol engines, GO to Pinpoint Test AG . |
| ECM supply or ground fault, vehicles with 2.0L diesel engine | <ul style="list-style-type: none"> ● Vpwr supply failure ● Control supply failure ● GROUND failure | For ECM circuit tests, vehicles with 2.0L diesel engines, GO to Pinpoint Test AH . |
| ICE supply or ground fault | <ul style="list-style-type: none"> ● B+memory supply failure ● Acc+ supply failure ● GROUND failure | For ICE circuit tests, GO to Pinpoint Test AI . |
| CD supply or ground fault | <ul style="list-style-type: none"> ● B+ supply failure ● GROUND failure | For CD changer circuit tests, GO to Pinpoint Test AJ . |
| NAV module supply or ground fault | <ul style="list-style-type: none"> ● B+ supply failure ● Acc+ supply failure ● GROUND failure | For NAV module circuit tests, GO to Pinpoint Test AK . |
| FFH module supply or ground fault | <ul style="list-style-type: none"> ● B+ supply failure ● Ign+ supply failure ● GROUND failure | For FFH module circuit tests, GO to Pinpoint Test AL . |
| Park aid module supply or ground fault | <ul style="list-style-type: none"> ● Ign+ supply failure ● GROUND failure | For park aid module circuit tests, GO to Pinpoint Test AM . |
| RCM supply or ground fault | <ul style="list-style-type: none"> ● Ign+ supply failure ● GROUND failure | For RCM circuit tests, GO to Pinpoint Test AN . |
| GEM supply or ground fault | <ul style="list-style-type: none"> ● B+ supply failure | For GEM circuit tests, GO to Pinpoint Test AO . |
| Amplifier supply or ground fault | <ul style="list-style-type: none"> ● B+ supply failure ● GROUND failure | For amplifier circuit tests, GO to Pinpoint Test AV . |
| JGM supply or ground fault | <ul style="list-style-type: none"> ● Ign+ supply failure ● GROUND failure | For JGM circuit tests, GO to Pinpoint Test AX . |

Pinpoint tests

• CAUTIONS:



Diagnosis by substitution from a donor vehicle is **NOT** acceptable. Each vehicle is configured to its own vehicle identification data (VID) block, and substitution of control modules may not only not confirm a fault, but may cause faults in the vehicle being tested and/or the donor vehicle. Failure to follow this instruction may result in damage to the vehicle.



Electronic modules are sensitive to static electrical charges. If exposed to these charges, damage may result. Failure to follow this instruction may result in damage to the vehicle.



When probing connectors to take measurements in the course of the pinpoint tests, use the adaptor kit, part number 3548-1358-00. Failure to follow this instruction may result in damage to the vehicle.

• NOTE: When performing voltage or resistance tests, always use a digital multimeter (DMM) accurate to 3 decimal places, and with an up-to-date calibration certificate. When testing resistance, always take the resistance of the DMM leads into account.

• NOTE: Before beginning any diagnosis of the D2B system, codes B1342, U2602, or U2603 must be rectified. No D2B function is possible with these failures present.

• NOTE: Check and rectify basic faults before beginning diagnostic routines involving pinpoint tests.

• NOTE: If DTCs are recorded and the symptom is not present when performing the pinpoint tests, an intermittent concern may be the cause. Always check for loose connections and corroded terminals.

PINPOINT TEST A : CHECK THE CONTROLLER AREA NETWORK (CAN) CONTINUITY

• NOTE: The following test is based on the maximum number of modules in the network. Refer to the wiring diagrams for information on networks with fewer modules.

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|---|---|
| A1: CHECK THE RESISTANCE OF THE CAN NETWORK | |
| | <ol style="list-style-type: none"> 1 Turn the ignition switch to the OFF position. 2 Measure the resistance between pins 06 (Y) and 14 (G) of the diagnostic connector. |
| | <p>Is the resistance between 50 and 70 ohms?</p> <p>Yes GO to A3.</p> <p>No GO to A2.</p> |
| A2: CHECK THE CAN NETWORK FOR SHORT CIRCUIT | |
| | <ol style="list-style-type: none"> 1 Turn the ignition switch to the OFF position. 2 Measure the resistance between pins 06 (Y) and 14 (G) of the diagnostic connector. |
| | <p>Is the resistance less than 50 ohms?</p> <p>Yes CHECK the network for short circuit. For additional information, refer to the wiring diagrams. Clear any DTCs, test the system for normal operation.</p> <p>No GO to A3.</p> |
| A3: CHECK THE CAN + CIRCUIT BETWEEN THE DIAGNOSTIC CONNECTOR AND THE STEERING WHEEL ROTATION SENSOR | |
| | <ol style="list-style-type: none"> 1 Disconnect the steering wheel rotation sensor connector, IP19. 2 Measure the resistance between IP19, pin 03 (Y) and the diagnostic connector, pin 06 (Y). |
| | <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. Clear any DTCs, test the system for normal operation.</p> <p>No GO to A4.</p> |
| A4: CHECK THE CAN - CIRCUIT BETWEEN THE DIAGNOSTIC CONNECTOR AND THE STEERING WHEEL ROTATION SENSOR | |
| | <ol style="list-style-type: none"> 1 Measure the resistance between IP19, pin 04 (G) and the diagnostic connector, pin 14 (G). |
| | <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. Clear any DTCs, test the system for normal operation.</p> <p>No GO to A5.</p> |
| A5: CHECK THE CAN + CIRCUIT BETWEEN THE DIAGNOSTIC CONNECTOR AND THE YAW RATE SENSOR | |
| | <ol style="list-style-type: none"> 1 Disconnect the yaw rate sensor connector, IP20. 2 Measure the resistance between IP20, pin 03 (Y) and the diagnostic connector, pin 06 (Y). |
| | <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. Clear any DTCs, test the system for normal operation.</p> <p>No GO to A6.</p> |
| A6: CHECK THE CAN - CIRCUIT BETWEEN THE DIAGNOSTIC CONNECTOR AND THE YAW RATE SENSOR | |
| | <ol style="list-style-type: none"> 1 Measure the resistance between IP20, pin 02 (G) and the diagnostic connector, pin 14 (G). |
| | <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. Clear any DTCs, test the system for normal operation.</p> <p>No GO to A7.</p> |
| A7: CHECK THE CAN + CIRCUIT BETWEEN THE DIAGNOSTIC CONNECTOR AND THE MEMORY SEAT MODULE (WHERE FITTED) | |
| | <ol style="list-style-type: none"> 1 Disconnect the memory seat module connector, DM01. 2 Measure the resistance between DM01, pin 12 (Y) and the diagnostic connector, pin 06 (Y). |
| | <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. Clear any DTCs, test the system for normal operation.</p> <p>No GO to A8.</p> |
| A8: CHECK THE CAN - CIRCUIT BETWEEN THE DIAGNOSTIC CONNECTOR AND THE MEMORY SEAT MODULE (WHERE FITTED) | |
| | <ol style="list-style-type: none"> 1 Measure the resistance between DM01, pin 02 (G) and the diagnostic connector, pin 14 (G). |
| | <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. Clear any DTCs, test the system for normal operation.</p> <p>No GO to A9.</p> |
| A9: CHECK THE CAN + CIRCUIT BETWEEN THE DIAGNOSTIC CONNECTOR AND THE ABS/DSC MODULE | |
| | <ol style="list-style-type: none"> 1 Disconnect the ABS/TCCM connector, JB45, or DSC module connector, JB185. 2 Measure the resistance between JB45/JB185, pin 24 (Y) and the diagnostic connector, pin 06 (Y). |
| | <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. Clear any DTCs, test the system for normal operation.</p> <p>No GO to A10.</p> |
| A10: CHECK THE CAN - CIRCUIT BETWEEN THE DIAGNOSTIC CONNECTOR AND THE ABS/DSC MODULE | |
| | <ol style="list-style-type: none"> 1 Measure the resistance between JB45/JB185, pin 40 (G) and the diagnostic connector, pin 14 (G). |

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| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. Clear any DTCs, test the system for normal operation. No GO to A11. |
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A11: CHECK THE CAN + CIRCUIT BETWEEN THE DIAGNOSTIC CONNECTOR AND THE HID MODULE (WHERE FITTED)

| | |
|--|--|
| | 1 Disconnect the HID module connector, IP130. |
| | 2 Measure the resistance between IP130, pin 02 (Y) and the diagnostic connector, pin 06 (Y). |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. Clear any DTCs, test the system for normal operation. No GO to A12. |

A12: CHECK THE CAN - CIRCUIT BETWEEN THE DIAGNOSTIC CONNECTOR AND THE HID MODULE (WHERE FITTED)

| | |
|--|---|
| | 1 Measure the resistance between IP130, pin 03 (G) and the diagnostic connector, pin 14 (G). |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. Clear any DTCs, test the system for normal operation. No NO circuit fault found. Check DTCs for indications of a module fault. |

PINPOINT TEST B : P1603. TCM EEPROM FAILURE

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|--|---|
| B1: DTC SET BY 3 POSSIBLE FACTORS | |
| | 1 Check battery voltage. |
| | Has the battery been discharged to a voltage where the engine would not crank? Yes CHARGE and test the battery. Install a new battery, if required. REFER to: Battery (414-01 Battery, Mounting and Cables, Removal and Installation). Carry out a drive-cycle. (The vehicle may lose its adaptive values and will need to re-learn them. These values will depend on the owner's driving style, and can only be learnt by normal use.) No GO to B2. |

B2: DTC SET BY 3 POSSIBLE FACTORS

| | |
|--|---|
| | 1 Check the TCM for signs of water ingress. |
| | Does the TCM show any indication of water ingress? Yes INSTALL a new TCM. REFER to: Transmission Control Module (TCM) (307-01B Automatic Transmission/Transaxle - Vehicles With: 6-Speed Automatic Transaxle - AWF21, In-vehicle Repair). CLEAR the DTC, test the system for normal operation. No GO to B3. |

B3: DTC SET BY 3 POSSIBLE FACTORS

| | |
|--|--|
| | 1 Check if the battery has been disconnected with the ignition switched on. |
| | Has the battery been disconnected with the ignition switched on? Yes CARRY out a drive-cycle. For additional information, refer to the DTC section of GTR. (The vehicle may lose its adaptive values and will need to re-learn them. These values will depend on the owner's driving style, and can only be learnt by normal use.) No INSTALL a new TCM. REFER to: Transmission Control Module (TCM) (307-01B Automatic Transmission/Transaxle - Vehicles With: 6-Speed Automatic Transaxle - AWF21, In-vehicle Repair). CLEAR the DTC, test the system for normal operation. |

PINPOINT TEST C : P1637: CAN NETWORK MALFUNCTION, TRANSMISSION CONTROL MODULE (TCM)

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|---|---|
| C1: CHECK TCM FOR DAMAGE | |
| | 1 Inspect the TCM |
| | Does the TCM indicate any signs of damage? Yes INSTALL a new TCM. REFER to: Transmission Control Module (TCM) (307-01B Automatic Transmission/Transaxle - Vehicles With: 6-Speed Automatic Transaxle - AWF21, In-vehicle Repair). CLEAR the DTC, test the system for normal operation. No GO to C2. |
| C2: CHECK CAN + FOR SHORT CIRCUIT TO GROUND | |
| | 1 Measure the resistance between the diagnostic connector, pin 06, (Y) and GROUND. |
| | Is the resistance less than 10,000 ohms? Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to C3. |
| C3: CHECK CAN + FOR SHORT CIRCUIT TO BATTERY | |
| | 1 Measure the resistance between the diagnostic connector, pins 06, (Y) and pin 16 (OY). |

| | |
|---|---|
| | <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to C4.</p> |
| C4: CHECK CAN - FOR SHORT CIRCUIT TO GROUND | |
| | <p>1 Measure the resistance between the diagnostic connector, pin 14 (G) and GROUND.</p> |
| | <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to C5.</p> |
| C5: CHECK CAN - FOR SHORT CIRCUIT TO BATTERY | |
| | <p>1 Measure the resistance between the diagnostic connector, pin 14 (G) and pin 16 (OY).</p> |
| | <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to C6.</p> |
| C6: CHECK FOR SHORT CIRCUIT BETWEEN CAN + AND CAN - | |
| | <p>1 Measure the resistance between the diagnostic connector, pins 6 (Y) and 14 (G).</p> |
| | <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to C7.</p> |
| C7: CHECK FOR OPEN CIRCUIT ON CAN + BETWEEN DIAGNOSTIC CONNECTOR AND THE TCM | |
| | <p>1 Disconnect the battery negative terminal.</p> <p>Vehicles with 16 bit modules -</p> <ul style="list-style-type: none"> ● Disconnect the TCM connector, JB131. ● Measure the resistance between the diagnostic connector, pin 06 (Y) and JB131, pin 33 (Y). <p>Vehicles with 32 bit modules -</p> <ul style="list-style-type: none"> ● Disconnect the TCM connector, JB230. ● Measure the resistance between the diagnostic connector, pin 06 (Y) and JB230, pin 05 (Y). |
| | <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to C8.</p> |
| C8: CHECK FOR OPEN CIRCUIT ON CAN - BETWEEN THE DIAGNOSTIC CONNECTOR AND THE TCM | |
| | <p>1 Measure the resistance between the diagnostic connector, pin 14 (G) and:</p> <p>Vehicles with 16 bit modules -</p> <ul style="list-style-type: none"> ● JB131, pin 12 (G). <p>Vehicles with 32 bit modules -</p> <ul style="list-style-type: none"> ● JB230, pin 06 (G). |
| | <p>Is the resistance less than 5 ohms?</p> <p>Yes GO to C9.</p> <p>No REPAIR the CAN - circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> |
| C9: CHECK FOR CORRECT BUS TERMINATION | |
| | <p>1 Reconnect the TCM connector, JB131 or JB230.</p> |
| | <p>2 Measure the resistance between the diagnostic connector, pins 06 (Y) and 14 (G).</p> |
| | <p>Is the resistance between 50 and 70 ohms?</p> <p>Yes INSTALL a new TCM. REFER to: Transmission Control Module (TCM) (307-01B Automatic Transmission/Transaxle - Vehicles With: 6-Speed Automatic Transaxle - AWF21, In-vehicle Repair). CLEAR the DTC, test the system for normal operation.</p> <p>No GO to C10.</p> |
| C10: CHECK CONTINUITY OF THE CAN + CIRCUIT BETWEEN THE ECM AND THE IC | |
| | <p>1 To test:</p> <p>Vehicles with 2.5 and 3.0L engine -</p> <ul style="list-style-type: none"> ● Disconnect the ECM connector, EN16, and the IC connector, IP10. ● Measure the resistance between EN16, pin 124 (Y) and IP10, pin 17 (Y). <p>Vehicles with 2.0L petrol engine -</p> <ul style="list-style-type: none"> ● Disconnect the ECM connector, EN65, and the IC connector, IP10. ● Measure the resistance between EN65, pin 89 (Y) and IP10, pin 17 (Y). <p>Vehicles with 2.0L and 2.2L diesel engine -</p> |

| | |
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| | <ul style="list-style-type: none"> ● Disconnect the ECM connector, DL01, and the IC connector, IP10. ● Measure the resistance between DL01, pin 54 (Y) and IP10, pin 17 (Y). |
| | <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the CAN + circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to C11.</p> |
| C11: CHECK CONTINUITY OF THE CAN - CIRCUIT BETWEEN THE ECM AND THE IC | |
| | <p>1 Measure the resistance between:</p> <p>Vehicles with 2.5 and 3.0L engine -</p> <ul style="list-style-type: none"> ● EN16, pin 123 (G) and IP10, pin 18 (G). <p>Vehicles with 2.0L petrol engine -</p> <ul style="list-style-type: none"> ● EN65, pin 88 (G) and IP10, pin 18 (G). <p>Vehicles with 2.0L and 2.2L diesel engine -</p> <ul style="list-style-type: none"> ● DL01, pin 73 (G) and IP10, pin 18 (G). |
| | <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the CAN - circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to C12.</p> |
| C12: CHECK FOR LOSS OF TERMINATION WITHIN THE ECM | |
| | <p>1 To test:</p> <p>Vehicles with 2.5 and 3.0L engine -</p> <ul style="list-style-type: none"> ● Measure the resistance between pins 123 and 124 of the ECM. <p>Vehicles with 2.0L petrol engine -</p> <ul style="list-style-type: none"> ● Measure the resistance between pins 88 and 89 of the ECM. <p>Vehicles with 2.0L and 2.2L diesel engine -</p> <ul style="list-style-type: none"> ● Measure the resistance between pins 54 and 73 of the ECM. |
| | <p>Is the resistance between 110 and 140 ohms?</p> <p>Yes GO to C13.</p> <p>No Please check part is not on any form of prior authorization before replacement.</p> |
| C13: CHECK FOR LOSS OF TERMINATION WITHIN THE IC | |
| | <p>1 Measure the resistance between pins 17 and 18 of the IC.</p> |
| | <p>Is the resistance between 110 and 140 ohms?</p> <p>Yes POSSIBLE intermittent fault. Recheck DTCs.</p> <p>No INSTALL a new instrument cluster. REFER to: Instrument Cluster (413-01 Instrument Cluster, Removal and Installation). CLEAR the DTC, test the system for normal operation.</p> |

PINPOINT TEST D : P1638: CAN NETWORK MALFUNCTION, INSTRUMENT CLUSTER (IC)

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|---|--|
| D1: CHECK THE IC FOR DAMAGE | |
| | <p>1 Inspect the IC for damage.</p> |
| | <p>Does the IC indicate any signs of damage?</p> <p>Yes INSTALL a new instrument cluster. REFER to: Instrument Cluster (413-01 Instrument Cluster, Removal and Installation). CLEAR the DTC, test the system for normal operation.</p> <p>No GO to D2.</p> |
| D2: CHECK CAN + FOR SHORT CIRCUIT TO GROUND | |
| | <p>1 Turn the ignition switch to the OFF position.</p> <p>2 Measure the resistance between the diagnostic connector, pin 06 (Y) and GROUND.</p> |
| | <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to D3.</p> |
| D3: CHECK CAN + FOR SHORT CIRCUIT TO BATTERY | |
| | <p>1 Measure the resistance between the diagnostic connector, pin 06 (Y) and pin 16 (OY).</p> |
| | <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to D4.</p> |
| D4: CHECK CAN - FOR SHORT CIRCUIT TO GROUND | |
| | <p>1 Measure the resistance between the diagnostic connector, pin 14 (G) and GROUND.</p> |

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| | <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to D5.</p> |
| D5: CHECK CAN - FOR SHORT CIRCUIT TO BATTERY | |
| | <p>1 Measure the resistance between the diagnostic connector, pins 14 (G) and 16 (OY).</p> |
| | <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to D6.</p> |
| D6: CHECK FOR SHORT CIRCUIT BETWEEN CAN + AND CAN - | |
| | <p>1 Disconnect the battery negative terminal.</p> |
| | <p>2 Measure the resistance between the diagnostic connector, pins 06 (Y) and 14 (G).</p> |
| | <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to D7.</p> |
| D7: CHECK FOR OPEN CIRCUIT ON CAN + BETWEEN THE DIAGNOSTIC CONNECTOR AND THE IC | |
| | <p>1 Disconnect the IC connector, IP10.</p> |
| | <p>2 Measure the resistance between the diagnostic connector, pin 06 (Y) and IP10, pin 17 (Y).</p> |
| | <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to D8.</p> |
| D8: CHECK FOR OPEN CIRCUIT ON CAN - BETWEEN THE DIAGNOSTIC CONNECTOR AND THE IC | |
| | <p>1 Measure the resistance between the diagnostic connector, pin 14 (G) and IP10, pin 18 (G).</p> |
| | <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to D9.</p> |
| D9: CHECK FOR CORRECT BUS TERMINATION | |
| | <p>1 Reconnect the IC connector, IP10.</p> |
| | <p>2 Measure the resistance between the diagnostic connector, pins 06 (Y) and 14 (G).</p> |
| | <p>Is the resistance between 50 and 70 ohms?</p> <p>Yes INSTALL a new instrument cluster. REFER to: Instrument Cluster (413-01 Instrument Cluster, Removal and Installation). CLEAR the DTC, test the system for normal operation.</p> <p>No GO to D10.</p> |
| D10: CHECK CONTINUITY OF THE CAN + CIRCUIT BETWEEN THE ECM AND THE IC | |
| | <p>1 To test:</p> <p>Vehicles with 2.5 and 3.0L engine -</p> <ul style="list-style-type: none"> ● Disconnect the ECM connector, EN16, and the IC connector, IP10. ● Measure the resistance between EN16, pin 124 (Y) and IP10, pin 17 (Y). <p>Vehicles with 2.0L petrol engine -</p> <ul style="list-style-type: none"> ● Disconnect the ECM connector, EN65, and the IC connector, IP10. ● Measure the resistance between EN65, pin 89 (Y) and IP10, pin 17 (Y). <p>Vehicles with 2.0L and 2.2L diesel engine -</p> <ul style="list-style-type: none"> ● Disconnect the ECM connector, DL01, and the IC connector, IP10. ● Measure the resistance between DL01, pin 54 (Y) and IP10, pin 17 (Y). |
| | <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to D11.</p> |
| D11: CHECK CONTINUITY OF THE CAN - CIRCUIT BETWEEN THE ECM AND THE IC | |
| | <p>1 Measure the resistance between:</p> <p>Vehicles with 2.5 and 3.0L engine -</p> <ul style="list-style-type: none"> ● EN16, pin 123 (G) and IP10, pin 18 (G). <p>Vehicles with 2.0L petrol engine -</p> <ul style="list-style-type: none"> ● EN65, pin 88 (G) and IP10, pin 18 (G). <p>Vehicles with 2.0L and 2.2L diesel engine -</p> <ul style="list-style-type: none"> ● DL01, pin 73 (G) and IP10, pin 18 (G). |

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| | <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to D12.</p> |
|--|--|

D12: CHECK FOR LOSS OF TERMINATION WITHIN THE ECM

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|--|--|
| | <p>1 Measure the resistance between:</p> <p>Vehicles with 2.5 and 3.0L engine -</p> <ul style="list-style-type: none"> pins 123 and 124 of the ECM. <p>Vehicles with 2.0L petrol engine -</p> <ul style="list-style-type: none"> pins 88 and 89 of the ECM. <p>Vehicles with 2.0L and 2.2L diesel engine -</p> <ul style="list-style-type: none"> pins 54 and 73 of the ECM. |
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| | <p>Is the resistance between 110 and 140 ohms?</p> <p>Yes GO to D13.</p> <p>No Please check part is not on any form of prior authorization before replacement.</p> |
|--|--|

D13: CHECK FOR LOSS OF TERMINATION WITHIN THE IC

| | |
|--|---|
| | <p>1 Measure the resistance between pins 17 and 18 of the IC.</p> |
| | <p>Is the resistance between 110 and 140 ohms?</p> <p>Yes Possible intermittent fault. Recheck DTCs.</p> <p>No INSTALL a new instrument cluster. REFER to: Instrument Cluster (413-01 Instrument Cluster, Removal and Installation). CLEAR the DTC, test the system for normal operation.</p> |

PINPOINT TEST E : P1642; P1643; P1797: CAN NETWORK MALFUNCTION, ECM

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|---|---|
| E1: CHECK THE ECM FOR DAMAGE | |
| | <p>1 Inspect the ECM.</p> |
| | <p>Does the ECM indicate any signs of damage?</p> <p>Yes Please check part is not on any form of prior authorization before replacement.</p> <p>No GO to E2.</p> |
| E2: CHECK CAN + FOR SHORT CIRCUIT TO GROUND | |
| | <p>1 Measure the resistance between the diagnostic connector, pin 06, (Y) and GROUND.</p> |
| | <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to E3.</p> |
| E3: CHECK CAN + FOR SHORT CIRCUIT TO BATTERY | |
| | <p>1 Measure the resistance between the diagnostic connector, pin 06, (Y) and pin 16 (OY).</p> |
| | <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to E4.</p> |
| E4: CHECK CAN - FOR SHORT CIRCUIT TO GROUND | |
| | <p>1 Measure the resistance between the diagnostic connector, pin 14 (G) and GROUND.</p> |
| | <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to E5.</p> |
| E5: CHECK CAN - FOR SHORT CIRCUIT TO BATTERY | |
| | <p>1 Measure the resistance between the diagnostic connector, pins 14 (G) and 16 (OY).</p> |
| | <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to E6.</p> |
| E6: CHECK FOR SHORT CIRCUIT BETWEEN CAN + AND CAN - | |
| | <p>1 Measure the resistance between the diagnostic connector, pins 06 (Y) and 14 (G).</p> |
| | <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to E7.</p> |
| E7: CHECK FOR OPEN CIRCUIT ON CAN + BETWEEN THE DIAGNOSTIC CONNECTOR AND THE ECM | |

| | |
|--|---|
| | <p>1 Disconnect the battery negative terminal.</p> <p>Vehicles with 2.5 and 3.0L engine -</p> <ul style="list-style-type: none"> ● Disconnect the ECM connector, EN16. ● Measure the resistance between IP22 pin 06 (Y) and EN16, pin 124 (Y). <p>Vehicles with 2.0L petrol engine -</p> <ul style="list-style-type: none"> ● Disconnect the ECM connector, EN65. ● Measure the resistance between IP22 pin 06 (Y) and EN65, pin 89 (Y). <p>Vehicles with 2.0L and 2.2L diesel engine -</p> <ul style="list-style-type: none"> ● Disconnect the ECM connector, DL01. ● Measure the resistance between the diagnostic connector, pin 06 (Y) and DL01, pin 54 (Y). |
|--|---|

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|--|---|
| | <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to E8.</p> |
|--|---|

E8: CHECK FOR OPEN CIRCUIT ON CAN - BETWEEN THE DIAGNOSTIC CONNECTOR AND THE ECM

| | |
|--|---|
| | <p>1 To test:</p> <p>Vehicles with 2.5 and 3.0L engine -</p> <ul style="list-style-type: none"> ● Measure the resistance between the diagnostic connector, pin 14 (G) and EN16, pin 123 (G). <p>Vehicles with 2.0L petrol engine -</p> <ul style="list-style-type: none"> ● Measure the resistance between the diagnostic connector, pin 14 (G) and EN65, pin 88 (G). <p>Vehicles with 2.0L and 2.2L diesel engine -</p> <ul style="list-style-type: none"> ● Measure the resistance between the diagnostic connector, pin 14 (G) and DL01, pin 73 (G). |
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|--|---|
| | <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to E9.</p> |
|--|---|

E9: CHECK FOR CORRECT BUS TERMINATION

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| | <p>1 Reconnect the ECM connector.</p> |
| | <p>2 Measure the resistance between the diagnostic connector, pins 06 (Y) and 14 (G).</p> |

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| | <p>Is the resistance between 50 and 70 ohms?</p> <p>Yes Please check part is not on any form of prior authorization before replacement.</p> <p>No GO to E10.</p> |
|--|--|

E10: CHECK CONTINUITY OF THE CAN + CIRCUIT

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|--|--|
| | <p>1 To test:</p> <p>Vehicles with 2.5 and 3.0L engine -</p> <ul style="list-style-type: none"> ● Disconnect the ECM connector, EN16, and the IC connector, IP10. ● Measure the resistance between EN16, pin 124 (Y) and IP10, pin 17 (Y). <p>Vehicles with 2.0L petrol engine -</p> <ul style="list-style-type: none"> ● Disconnect the ECM connector, EN65, and the IC connector, IP10. ● Measure the resistance between EN65, pin 89 (Y) and IP10, pin 17 (Y). <p>Vehicles with 2.0L and 2.2L diesel engine -</p> <ul style="list-style-type: none"> ● Disconnect the ECM connector, DL01, and the IC connector, IP10. ● Measure the resistance between DL01, pin 54 (Y) and IP10, pin 17 (Y). |
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| | <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to E11.</p> |
|--|--|

E11: CHECK CONTINUITY OF THE CAN - CIRCUIT

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|--|---|
| | <p>1 Measure the resistance between:</p> <p>Vehicles with 2.5 and 3.0L engine -</p> <ul style="list-style-type: none"> ● EN16, pin 123 (G) and IP10, pin 18 (G). <p>Vehicles with 2.0L petrol engine -</p> <ul style="list-style-type: none"> ● EN65, pin 88 (G) and IP10, pin 18 (G). <p>Vehicles with 2.0L and 2.2L diesel engine -</p> <ul style="list-style-type: none"> ● DL01, pin 73 (G) and IP10, pin 18 (G). |
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| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to E12. |
|--|---|

E12: CHECK FOR LOSS OF TERMINATION WITHIN THE ECM

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| | 1 Measure the resistance between: Vehicles with 2.5 and 3.0L engine - <ul style="list-style-type: none"> pins 123 and 124 of the ECM. Vehicles with 2.0L petrol engine - <ul style="list-style-type: none"> pins 88 and 89 of the ECM. Vehicles with 2.0L and 2.2L diesel engine - <ul style="list-style-type: none"> pins 54 and 73 of the ECM. |
| | Is the resistance between 110 and 140 ohms? Yes GO to E13. No Please check part is not on any form of prior authorization before replacement. |

E13: CHECK FOR LOSS OF TERMINATION WITHIN THE IC

| | |
|--|--|
| | 1 Measure the resistance between pins 17 and 18 of the IC. |
| | Is the resistance between 110 and 140 ohms? Yes Possible intermittent fault. Recheck DTCs. No INSTALL a new instrument cluster. REFER to: Instrument Cluster (413-01 Instrument Cluster, Removal and Installation). CLEAR the DTC, test the system for normal operation. |

PINPOINT TEST F : P1699: CAN NETWORK MALFUNCTION, ELECTRONIC AUTOMATIC TEMPERATURE CONTROL (EATC) MODULE

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|--|--|
| F1: CHECK THE EATC MODULE FOR DAMAGE | |
| | 1 Inspect the EATC module for damage. |
| | Does the EATC module indicate any signs of damage? Yes INSTALL a new EATC module. REFER to: Climate Control System (412-00 Climate Control System - General Information, Description and Operation). CLEAR the DTC, test the system for normal operation. No GO to F2. |
| F2: CHECK CAN + FOR SHORT CIRCUIT TO GROUND | |
| | 1 Measure the resistance between the diagnostic connector, pin 06 (Y) and GROUND. |
| | Is the resistance less than 10,000 ohms? Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to F3. |
| F3: CHECK CAN + FOR SHORT CIRCUIT TO BATTERY | |
| | 1 Turn the ignition switch to the OFF position. |
| | 2 Measure the resistance between the diagnostic connector, pin 06 (Y) and pin 16 (OY). |
| | Is the resistance less than 10,000 ohms? Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to F4. |
| F4: CHECK CAN - FOR SHORT CIRCUIT TO GROUND | |
| | 1 Measure the resistance between the diagnostic connector, pin 14 (G) and GROUND. |
| | Is the resistance less than 10,000 ohms? Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to F5. |
| F5: CHECK CAN - FOR SHORT CIRCUIT TO BATTERY | |
| | 1 Measure the resistance between the diagnostic connector, pin 14 (G) and pin 16 (OY). |
| | Is the resistance less than 10,000 ohms? Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to F6. |
| F6: CHECK FOR SHORT CIRCUIT BETWEEN CAN + AND CAN - | |
| | 1 Disconnect the battery negative terminal. |
| | 2 Measure the resistance between the diagnostic connector, pins 06 (Y) and 14 (G). |

Is the resistance less than 10,000 ohms?

Yes

REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.

No

[GO to F7.](#)

F7: CHECK FOR OPEN CIRCUIT ON CAN + BETWEEN THE DIAGNOSTIC CONNECTOR AND THE EATC MODULE

1 Disconnect the EATC module connector, IP101.

2 Measure the resistance between the diagnostic connector, pin 06 (Y) and IP101, pin 22 (Y).

Is the resistance greater than 5 ohms?

Yes

REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.

No

[GO to F8.](#)

F8: CHECK FOR OPEN CIRCUIT ON CAN - BETWEEN THE DIAGNOSTIC CONNECTOR AND THE EATC MODULE

1 Measure the resistance between the diagnostic connector, pin 14 (G) and IP101, pin 23 (G).

Is the resistance greater than 5 ohms?

Yes

REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.

No

[GO to F9.](#)

F9: CHECK FOR CORRECT BUS TERMINATION

1 Reconnect the EATC module connector, IP101.

2 Measure the resistance between the diagnostic connector, pins 06 (Y) and 14 (G).

Is the resistance between 50 and 70 ohms?

Yes

INSTALL a new EATC module.

REFER to: [Climate Control System](#) (412-00 Climate Control System - General Information, Description and Operation).

CLEAR the DTC, test the system for normal operation.

No

[GO to F10.](#)

F10: CHECK CONTINUITY OF THE CAN + CIRCUIT BETWEEN THE ECM AND THE IC

1 To test:

Vehicles with 2.5 and 3.0L engine -

- Disconnect the ECM connector, EN16, and the IC connector, IP10.
- Measure the resistance between EN16, pin 124 (Y) and IP10, pin 17 (Y).

Vehicles with 2.0L petrol engine -

- Disconnect the ECM connector, EN65, and the IC connector, IP10.
- Measure the resistance between EN65, pin 89 (Y) and IP10, pin 17 (Y).

Vehicles with 2.0L and 2.2L diesel engine -

- Disconnect the ECM connector, DL01, and the IC connector, IP10.
- Measure the resistance between DL01, pin 54 (Y) and IP10, pin 17 (Y).

Is the resistance greater than 5 ohms?

Yes

REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.

No

[GO to F11.](#)

F11: CHECK CONTINUITY OF THE CAN - CIRCUIT BETWEEN THE ECM AND THE IC

1 Measure the resistance between:

Vehicles with 2.5 and 3.0L engine -

- EN16, pin 123 (G) and IP10, pin 18 (G).

Vehicles with 2.0L petrol engine -

- EN65, pin 88 (G) and IP10, pin 18 (G).

Vehicles with 2.0L and 2.2L diesel engine -

- DL01, pin 73 (G) and IP10, pin 18 (G).

Is the resistance greater than 5 ohms?

Yes

REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.

No

[GO to F12.](#)

F12: CHECK FOR LOSS OF TERMINATION WITHIN THE ECM

1 Measure the resistance between:

Vehicles with 2.5 and 3.0L engine -

- pins 123 and 124 of the ECM.

Vehicles with 2.0L petrol engine -

- pins 88 and 89 of the ECM.

Vehicles with 2.0L and 2.2L diesel engine -

- pins 54 and 73 of the ECM.

Is the resistance between 110 and 140 ohms?

Yes
[GO to F13.](#)

No
Please check part is not on any form of prior authorization before replacement.

F13: CHECK FOR LOSS OF TERMINATION WITHIN THE IC

1 Measure the resistance between pins 17 and 18 of the IC.

Is the resistance between 110 and 140 ohms?

Yes
POSSIBLE intermittent fault. Recheck DTCs.

No
INSTALL a new instrument cluster.
REFER to: [Instrument Cluster](#) (413-01 Instrument Cluster, Removal and Installation).
CLEAR the DTC, test the system for normal operation.

PINPOINT TEST G : P1799: CAN NETWORK MALFUNCTION, ANTI-LOCK BRAKE (ABS)/DYNAMIC STABILITY CONTROL (DSC) CONTROL MODULE

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|---|--|
| G1: CHECK THE ABS OR DSC MODULE FOR DAMAGE | |
| | 1 Inspect the ABS/TCCM or DSC module. |
| | Does the ABS/TCCM or DSC module indicate any signs of damage? Yes INSTALL a new ABS/TCCM or DSC module. REFER to: Hydraulic Control Unit (HCU) - VIN Range: J12992->V99999 (206-09 Anti-Lock Control - Stability Assist, Removal and Installation). CLEAR the DTC, test the system for normal operation. No GO to G2. |
| G2: CHECK CAN + FOR SHORT CIRCUIT TO GROUND | |
| | 1 Turn the ignition switch to the OFF position. |
| | 2 Measure the resistance between the diagnostic connector, pin 06 (Y) and GROUND. |
| | Is the resistance less than 10,000 ohms? Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to G3. |
| G3: CHECK CAN + FOR SHORT CIRCUIT TO BATTERY | |
| | 1 Measure the resistance between the diagnostic connector, pin 06, (Y) and pin 16 (OY). |
| | Is the resistance less than 10,000 ohms? Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to G4. |
| G4: CHECK CAN - FOR SHORT CIRCUIT TO GROUND | |
| | 1 Measure the resistance between the diagnostic connector, pin 14 (G) and GROUND. |
| | Is the resistance less than 10,000 ohms? Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to G5. |
| G5: CHECK CAN - FOR SHORT CIRCUIT TO BATTERY | |
| | 1 Measure the resistance between the diagnostic connector, pins 14 (G) and pin 16 (OY). |
| | Is the resistance less than 10,000 ohms? Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to G6. |
| G6: CHECK FOR SHORT CIRCUIT BETWEEN CAN + AND CAN - | |
| | 1 Disconnect the battery negative terminal. |
| | 2 Measure the resistance between the diagnostic connector, pins 06 (Y) and 14 (G). |
| | Is the resistance less than 10,000 ohms? Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to G7. |
| G7: CHECK FOR OPEN CIRCUIT ON CAN + BETWEEN THE DIAGNOSTIC CONNECTOR AND THE ABS OR DSC MODULE | |
| | 1 Disconnect the ABS/TCCM connector, JB45, or DSC module connector, JB185. |
| | 2 Measure the resistance between the diagnostic connector, pin 06 (Y) and JB45/JB185, pin 24 (Y). |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to G9. |
| G8: CHECK FOR OPEN CIRCUIT ON CAN - BETWEEN THE DIAGNOSTIC CONNECTOR AND THE ABS OR DSC MODULE | |
| | 1 Measure the resistance between the diagnostic connector, pin 14 (G) and JB45/JB185, pin 40 (G). |

| | |
|--|---|
| | <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to G9.</p> |
|--|---|

G9: CHECK FOR CORRECT BUS TERMINATION

| | |
|--|---|
| | <p>1 Reconnect the ABS/TCCM module connector, JB45, or DSC module connector, JB185.</p> <p>2 Measure the resistance between the diagnostic connector, pins 06 (Y) and 14 (G).</p> |
|--|---|

| | |
|--|--|
| | <p>Is the resistance between 50 and 70 ohms?</p> <p>Yes INSTALL a new ABS/TCCM module, or DSC module. REFER to: Hydraulic Control Unit (HCU) - VIN Range: J12992->V99999 (206-09 Anti-Lock Control - Stability Assist, Removal and Installation). CLEAR the DTC, test the system for normal operation.</p> <p>No GO to G10.</p> |
|--|--|

G10: CHECK CONTINUITY OF THE CAN + CIRCUIT BETWEEN THE ECM AND THE IC

| | |
|--|--|
| | <p>1 To test:</p> <p>Vehicles with 2.5 and 3.0L engine -</p> <ul style="list-style-type: none"> ● Disconnect the ECM connector, EN16, and the IC connector, IP10. ● Measure the resistance between EN16, pin 124 (Y) and IP10, pin 17 (Y). <p>Vehicles with 2.0L petrol engine -</p> <ul style="list-style-type: none"> ● Disconnect the ECM connector, EN65, and the IC connector, IP10. ● Measure the resistance between EN65, pin 89 (Y) and IP10, pin 17 (Y). <p>Vehicles with 2.0L and 2.2L diesel engine -</p> <ul style="list-style-type: none"> ● Disconnect the ECM connector, DL01, and the IC connector, IP10. ● Measure the resistance between DL01, pin 54 (Y) and IP10, pin 17 (Y). |
|--|--|

| | |
|--|--|
| | <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to G11.</p> |
|--|--|

G11: CHECK CONTINUITY OF THE CAN - CIRCUIT

| | |
|--|---|
| | <p>1 Measure the resistance between:</p> <p>Vehicles with 2.5 and 3.0L engine -</p> <ul style="list-style-type: none"> ● EN16, pin 123 (G) and IP10, pin 18 (G). <p>Vehicles with 2.0L petrol engine -</p> <ul style="list-style-type: none"> ● EN65, pin 88 (G) and IP10, pin 18 (G). <p>Vehicles with 2.0L and 2.2L diesel engine -</p> <ul style="list-style-type: none"> ● DL01, pin 73 (G) and IP10, pin 18 (G). |
|--|---|

| | |
|--|--|
| | <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to G12.</p> |
|--|--|

G12: CHECK FOR LOSS OF TERMINATION WITHIN THE ECM

| | |
|--|--|
| | <p>1 Measure the resistance between:</p> <p>Vehicles with 2.5 and 3.0L engine -</p> <ul style="list-style-type: none"> ● pins 123 and 124 of the ECM. <p>Vehicles with 2.0L petrol engine -</p> <ul style="list-style-type: none"> ● pins 88 and 89 of the ECM. <p>Vehicles with 2.0L and 2.2L diesel engine -</p> <ul style="list-style-type: none"> ● pins 54 and 73 of the ECM. |
|--|--|

| | |
|--|--|
| | <p>Is the resistance between 110 and 140 ohms?</p> <p>Yes GO to G13.</p> <p>No Please check part is not on any form of prior authorization before replacement.</p> |
|--|--|

G13: CHECK FOR LOSS OF TERMINATION WITHIN THE IC

| | |
|--|---|
| | <p>1 Measure the resistance between pins 17 and 18 of the instrument cluster.</p> |
| | <p>Is the resistance between 110 and 140 ohms?</p> <p>Yes Possible intermittent fault. Recheck DTCs. Repeat tests from A1.</p> <p>No INSTALL a new instrument cluster. REFER to: Instrument Cluster (413-01 Instrument Cluster, Removal and Installation). CLEAR the DTC, test the system for normal operation.</p> |

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|---|---|
| H1: CHECK GEM FOR DAMAGE | |
| | <ol style="list-style-type: none"> 1 Inspect the GEM for damage. |
| | <p>Does the GEM indicate any signs of damage?</p> <p>Yes INSTALL a new GEM. REFER to: Generic Electronic Module (GEM) (419-10 Multifunction Electronic Modules, Removal and Installation). CLEAR the DTC, test the system for normal operation.</p> <p>No GO to H2.</p> |
| H2: CHECK THE SCP + FOR SHORT CIRCUIT TO GROUND | |
| | <ol style="list-style-type: none"> 1 Measure the resistance between the diagnostic connector, pin 02 (Y) and GROUND. |
| | <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to H3.</p> |
| H3: CHECK THE SCP + FOR SHORT CIRCUIT TO BATTERY | |
| | <ol style="list-style-type: none"> 1 Measure the resistance between the diagnostic connector, pins 02 (Y) and 16 (OY). |
| | <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to H4.</p> |
| H4: CHECK THE SCP - FOR SHORT CIRCUIT TO GROUND | |
| | <ol style="list-style-type: none"> 1 Measure the resistance between the diagnostic connector, pin 10 (U) and GROUND. |
| | <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to H5.</p> |
| H5: CHECK THE SCP - FOR SHORT CIRCUIT TO BATTERY | |
| | <ol style="list-style-type: none"> 1 Measure the resistance between the diagnostic connector, pins 10 (U) and 16 (OY). |
| | <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to H6.</p> |
| H6: CHECK FOR SHORT CIRCUIT BETWEEN SCP + AND SCP - | |
| | <ol style="list-style-type: none"> 1 Measure the resistance between the diagnostic connector, pins 10 (U) and 02, (Y). |
| | <p>Is the resistance less than 10,000 ohms?</p> <p>Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to H7.</p> |
| H7: CHECK FOR OPEN CIRCUIT ON SCP + BETWEEN THE DIAGNOSTIC CONNECTOR AND THE GEM | |
| | <ol style="list-style-type: none"> 1 Turn the ignition switch to the OFF position. |
| | <ol style="list-style-type: none"> 2 Disconnect the battery negative terminal. |
| | <ol style="list-style-type: none"> 3 Disconnect the GEM connector, IP05. |
| | <ol style="list-style-type: none"> 4 Measure the resistance between the diagnostic connector, pin 02 (Y) and IP05, pin 19 (Y). |
| | <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to H8.</p> |
| H8: CHECK FOR OPEN CIRCUIT ON SCP - BETWEEN THE DIAGNOSTIC CONNECTOR AND THE GEM | |
| | <ol style="list-style-type: none"> 1 Measure the resistance between the diagnostic connector, pin 10 (U) and IP05, pin 18 (U). |
| | <p>Is the resistance greater than 5 ohms?</p> <p>Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> <p>No GO to H9.</p> |
| H9: CHECK FOR CORRECT BUS TERMINATION ON SCP + | |
| | <ol style="list-style-type: none"> 1 Reconnect the battery negative terminal. |
| | <ol style="list-style-type: none"> 2 Reconnect the GEM connector, IP05. |
| | <ol style="list-style-type: none"> 3 Measure the resistance between the diagnostic connector, pin 02 (Y) and GROUND. |
| | <p>Is the resistance 150 to 210 ohms?</p> <p>Yes INSTALL a new GEM. REFER to: Generic Electronic Module (GEM) (419-10 Multifunction Electronic Modules, Removal and Installation). CLEAR the DTC, test the system for normal operation.</p> <p>No GO to H10.</p> |
| H10: CHECK THE CONTINUITY OF THE GENERIC ELECTRONIC MODULE (GEM) SCP + CIRCUIT | |
| | <ol style="list-style-type: none"> 1 Disconnect the battery negative terminal. |
| | <ol style="list-style-type: none"> 2 Disconnect the GEM connector, IP05. |
| | <ol style="list-style-type: none"> 3 Measure the resistance between the diagnostic connector, pin 02 (Y) and IP05, pin 19 (Y). |

| | |
|--|---|
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to H11. |
|--|---|

H11: CHECK FOR LOSS OF SCP + TERMINATION WITHIN THE GEM

| | |
|--|--|
| | 1 Disconnect the GEM connector, IP06. |
| | 2 Measure the resistance between IP05, pin 19, and IP06, pin 01 of the GEM. |

| | |
|--|---|
| | Is the resistance 320 to 400 ohms? Yes GO to H12. No INSTALL a new GEM. REFER to: Generic Electronic Module (GEM) (419-10 Multifunction Electronic Modules, Removal and Installation). CLEAR the DTC, test the system for normal operation. |
|--|---|

H12: CHECK CONTINUITY OF THE INSTRUMENT CLUSTER (IC) SCP + CIRCUIT

| | |
|--|--|
| | 1 Disconnect the IC connector, IP10. |
| | 2 Measure the resistance between the diagnostic connector, pin 02 (Y) and IP10, pin 22 (Y). |

| | |
|--|---|
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to H13. |
|--|---|

H13: CHECK FOR LOSS OF SCP + TERMINATION WITHIN THE INSTRUMENT CLUSTER

| | |
|--|---|
| | 1 Measure the resistance between pins 22 and 08 of the IC. |
|--|---|

| | |
|--|---|
| | Is the resistance 320 to 400 ohms? Yes Possible intermittent fault. Recheck DTCs. No INSTALL a new IC. REFER to: Instrument Cluster (413-01 Instrument Cluster, Removal and Installation). CLEAR the DTC, test the system for normal operation. |
|--|---|

PINPOINT TEST I : SCP NETWORK MALFUNCTION, IN CAR ENTERTAINMENT (ICE) HEAD

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|-----------------|-------------------------|
|-----------------|-------------------------|

I1: CHECK ICE FOR DAMAGE

| | |
|--|---|
| | 1 Inspect the ICE head for damage. |
|--|---|

| | |
|--|---|
| | Does the ICE head indicate any signs of damage? Yes INSTALL a new ICE head. REFER to: Audio Unit (415-01 Audio Unit, Removal and Installation). CLEAR the DTC, test the system for normal operation. No GO to I2. |
|--|---|

I2: CHECK THE SCP + FOR SHORT CIRCUIT TO GROUND

| | |
|--|--|
| | 1 Measure the resistance between the diagnostic connector, pin 02 (Y) and GROUND. |
|--|--|

| | |
|--|--|
| | Is the resistance less than 10,000 ohms? Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to I3. |
|--|--|

I3: CHECK THE SCP + FOR SHORT CIRCUIT TO BATTERY

| | |
|--|--|
| | 1 Measure the resistance between the diagnostic connector, pins 02 (Y) and 16 (OY). |
|--|--|

| | |
|--|--|
| | Is the resistance less than 10,000 ohms? Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to I4. |
|--|--|

I4: CHECK THE SCP - FOR SHORT CIRCUIT TO GROUND

| | |
|--|--|
| | 1 Measure the resistance between the diagnostic connector, pin 10 (U) and GROUND. |
|--|--|

| | |
|--|--|
| | Is the resistance less than 10,000 ohms? Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to I5. |
|--|--|

I5: CHECK THE SCP - FOR SHORT CIRCUIT TO BATTERY

| | |
|--|--|
| | 1 Measure the resistance between the diagnostic connector, pins 10 (U) and 16 (OY). |
|--|--|

| | |
|--|--|
| | Is the resistance less than 10,000 ohms? Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to I6. |
|--|--|

I6: CHECK FOR SHORT CIRCUIT BETWEEN SCP + AND SCP -


| | |
|--|---|
| | 1 Measure the resistance between the diagnostic connector, pins 10 (U) and 02 (Y). |
|--|---|

| | |
|--|--|
| | Is the resistance less than 10,000 ohms? Yes REPAIR the short circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to I7. |
|--|--|

I7: CHECK FOR OPEN CIRCUIT ON SCP + BETWEEN THE DIAGNOSTIC CONNECTOR AND THE ICE HEAD UNIT

| | |
|---|---|
| | 1 Turn the ignition switch to the OFF position. |
| | 2 Disconnect the battery negative terminal. |
| | 3 Disconnect the ICE connector, IP65. |
| | 4 Measure the resistance between the diagnostic connector, pin 02 (Y) and IP65, pin 09 (Y). |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to I8. |
| I8: CHECK FOR OPEN CIRCUIT ON SCP - BETWEEN THE DIAGNOSTIC CONNECTOR AND THE ICE HEAD UNIT | |
| | 1 Measure the resistance between the diagnostic connector, pin 10 (U) and IP65, pin 10 (U). |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to I9. |
| I9: CHECK FOR CORRECT BUS TERMINATION ON SCP + | |
| | 1 Reconnect the ICE connector, IP65. |
| | 2 Reconnect the battery negative terminal. |
| | 3 Measure the resistance between the diagnostic connector, pin 02 (Y) and GROUND. |
| | Is the resistance 150 to 210 ohms? Yes INSTALL a new ICE head unit. REFER to: Audio Unit (415-01 Audio Unit, Removal and Installation). CLEAR the DTC, test the system for normal operation. No GO to I10. |
| I10: CHECK THE CONTINUITY OF THE GENERIC ELECTRONIC MODULE (GEM) SCP + CIRCUIT | |
| | 1 Turn the ignition switch to the OFF position. |
| | 2 Disconnect the battery negative terminal. |
| | 3 Disconnect the GEM connector, IP05. |
| | 4 Measure the resistance between IP22, pin 02 (Y) and IP05, pin 19 (Y). |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to I11. |
| I11: CHECK FOR LOSS OF SCP + TERMINATION WITHIN THE GEM | |
| | 1 Disconnect the GEM connector, IP06. |
| | 2 Measure the resistance between IP05, pin 19, and IP06, pin 01 of the GEM. |
| | Is the resistance 320 to 400 ohms? Yes GO to I12. No INSTALL a new GEM. REFER to: Generic Electronic Module (GEM) (419-10 Multifunction Electronic Modules, Removal and Installation). |
| I12: CHECK CONTINUITY OF THE IC SCP + CIRCUIT | |
| | 1 Disconnect the IC connector, IP10. |
| | 2 Measure the resistance between the diagnostic connector, pin 02 (Y) and IP10, pin 22 (Y). |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to I13. |
| I13: CHECK FOR LOSS OF SCP + TERMINATION WITHIN THE IC | |
| | 1 Measure the resistance between IP10, pin 22 (Y) and IP11, pin 08 of the IC. |
| | Is the resistance 320 to 400 ohms? Yes Possible intermittent fault. Recheck DTCs. No INSTALL a new IC. REFER to: Instrument Cluster (413-01 Instrument Cluster, Removal and Installation). CLEAR the DTC, test the system for normal operation. |

PINPOINT TEST J : U2003: COMPACT DISC CHANGER NOT RESPONDING

 **CAUTION:** The following tests involve disconnection of the fibre optic harnesses. The harness connectors must be protected by suitable dust caps as soon as they are disconnected, or damage may result. The use of tools to unlatch connectors must be avoided, or the connector locking function may be lost. Failure to follow this instruction may result in damage to the vehicle.

• **NOTE:** The following test sequence is based on a five node network. Refer to the wiring diagrams for network configuration for networks with a different number of nodes (all possible network combinations are shown in the wiring diagrams).

• **NOTE:** Should a break occur in the D2B ring, then codes, U2602, or U2603 will be set, depending on the location of the break. U2602 will set if the break is in the optical harness **FROM** the ICE head unit (the transmitter signal). U2603 will set if the break is in the optical harness **TO** the ICE head unit (the receiver signal). **GO to Pinpoint Test P.** **GO to Pinpoint Test Q.**

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|--|--|
| J1: CHECK CD CHANGER MODULE, USING OPTICAL BUS TESTER | |
| | 1 Connect the Optical Bus Tester to the fibre optic lead connector, CD02. |
| | 2 Set the Optical Bus Tester to BY-PASS . |
| | 3 Clear the DTC. |
| | 4 Turn the ignition switch to the ACC position. |
| | 5 Wait for 10 seconds. |

| | |
|---|---|
| | <p>6 Check for 'not responding' DTCs.</p> <p>Is U2003 set?</p> <p>Yes</p> <p>CHECK the 'wake-up' signal to the module.</p> <p>No</p> <p>GO to J2.</p> |
| J2: CHECK FOR DTC U2602 OR U2603 | |
| | <p>1 Check DTCs.</p> <p>Are codes U2602 or U2603 logged?</p> <p>Yes</p> <p>CHECK for break in optical harness.</p> <p>No</p> <p>Recheck DTCs. No break in optical harness.</p> |

PINPOINT TEST K : ONE OR MORE D2B MODULES NOT RESPONDING. 'WAKE-UP' SIGNAL FAULT

• NOTE: The D2B 'wake-up' signal is not a constant, but will generate a pulse at each cycle of the ignition key. The ignition key must be turned to the OFF position following each step of the tests, and turned to the position indicated by the test step for each module. To avoid missing the signal, use an assistant to operate the key while reading the oscilloscope. The 'wake-up' line is battery voltage, switching to 0 volts for between 50 milliseconds and 110 milliseconds as the ICE head unit sends it's signal.

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|---|--|
| K1: CHECK THE 'WAKE-UP' SIGNAL TO THE CD CHANGER | |
| | <p>1 Disconnect the CD changer connector, CA301.</p> <p>2 Turn the ignition switch to the ACC position.</p> <p>3 Measure the voltage between CA301, pin 03 (O) and GROUND, using an oscilloscope (see note above).</p> <p>Does the oscilloscope show a 'wake-up' signal as described?</p> <p>Yes</p> <p>GO to K2.</p> <p>No</p> <p>REPAIR the circuit between CA301, pin 03 and the ICE head unit connector, IP65, pin 19. For additional information, refer to the wiring diagrams. CLEAR the DTC. TEST the system for normal operation.</p> |
| K2: CHECK THE 'WAKE-UP' SIGNAL TO THE VOICE ACTIVATED CONTROL MODULE | |
| | <p>1 Disconnect the voice activated control module connector, PH02.</p> <p>2 Turn the ignition switch to the ACC position.</p> <p>3 Measure the voltage between PH02, pin 14 (O) and GROUND, using an oscilloscope (see note above).</p> <p>Does the oscilloscope show a 'wake-up' signal as described?</p> <p>Yes</p> <p>GO to K3.</p> <p>No</p> <p>REPAIR the circuit between PH02, pin 14 and the ICE head unit connector, IP65, pin 19. For additional information, refer to the wiring diagrams. CLEAR the DTC. TEST the system for normal operation.</p> |
| K3: CHECK THE 'WAKE-UP' SIGNAL TO THE 'PHONE MODULE | |
| | <p>1 Disconnect the 'phone module connector, PH01.</p> <p>2 Turn the ignition switch to the ACC position.</p> <p>3 Measure the voltage between PH01, pin 23 (O) and GROUND, using an oscilloscope (see note above).</p> <p>Does the oscilloscope show a 'wake-up' signal as described?</p> <p>Yes</p> <p>GO to K4.</p> <p>No</p> <p>REPAIR the circuit between PH01, pin 23 and the ICE head unit connector, IP65, pin 19. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> |
| K4: CHECK THE 'WAKE-UP' SIGNAL TO THE NAVIGATION COMPUTER | |
| | <p>1 Disconnect the navigation system connector, NA07.</p> <p>2 Turn the ignition switch to the ACC position.</p> <p>3 Measure the voltage between NA07, pin 03 (O) and GROUND, using an oscilloscope (see note above).</p> <p>Does the oscilloscope show a 'wake-up' signal as described?</p> <p>Yes</p> <p>GO to K5.</p> <p>No</p> <p>REPAIR the circuit between NA07, pin 03 and the ICE head unit connector, IP65, pin 19. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> |
| K5: CHECK THE 'WAKE-UP' SIGNAL TO THE AMPLIFIER | |
| | <p>1 Disconnect the amplifier connector, CA425.</p> <p>2 Turn the ignition switch to the ACC position.</p> <p>3 Measure the voltage between CA425, pin 05 (O) and GROUND, using an oscilloscope (see note above).</p> <p>Does the oscilloscope show a 'wake-up' signal as described?</p> <p>Yes</p> <p>CHECK for DTCs indicating a module failure.</p> <p>No</p> <p>REPAIR the circuit between CA425, pin 05 and the ICE head unit connector, IP65, pin 19. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.</p> |

PINPOINT TEST L : U2008: 'PHONE MODULE NOT RESPONDING

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|--|---|
| L1: CHECK 'PHONE MODULE, USING OPTICAL BUS TESTER | |
| | <p>1 Connect the Optical Bus Tester to the fibre optic lead connector, CD03.</p> <p>2 Set the Optical Bus Tester to BY-PASS.</p> <p>3 Clear the DTC.</p> <p>4 Turn the ignition switch to the ACC position.</p> <p>5 Wait for 10 seconds.</p> <p>6 Check for 'not responding' DTCs.</p> <p>Is U2008 set?</p> <p>Yes</p> <p>CHECK the 'wake-up' signal to the module.</p> <p>No</p> <p>GO to L2.</p> |

L2: CHECK FOR DTC U2602 OR U2603

| | |
|--|---|
| | 1 Check DTCs. |
| | Are codes U2602 or U2603 logged? |
| | Yes CHECK for break in optical harness. |
| | No RECHECK DTCs. No break in optical harness. |

PINPOINT TEST M : U2019: VOICE CONTROL MODULE NOT RESPONDING

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|---|--|
| M1: CHECK VOICE CONTROL MODULE, USING OPTICAL BUS TESTER | |
| | 1 Connect the Optical Bus Tester to the fibre optic lead connector, CD04. |
| | 2 Set the Optical Bus Tester to BY-PASS . |
| | 3 Clear the DTC. |
| | 4 Turn the ignition switch to the ACC position. |
| | 5 Wait for 10 seconds. |
| | 6 Check for 'not responding' DTCs. |
| | Is U2019 set? |
| | Yes CHECK the 'wake-up' signal to the module. |
| | No GO to M2. |

M2: CHECK FOR DTC U2602 OR U2603

| | |
|--|---|
| | 1 Check DTCs. |
| | Are codes U2602 or U2603 logged? |
| | Yes CHECK for break in optical harness. |
| | No RECHECK DTCs. No break in optical harness. |

PINPOINT TEST N : U2613: NAVIGATION CONTROL MODULE NOT RESPONDING

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|--|---|
| N1: CHECK NAVIGATION CONTROL MODULE, USING OPTICAL BUS TESTER | |
| | 1 Connect the Optical Bus Tester to the fibre optic connector, CD05. |
| | 2 Set the Optical Bus Tester to BY-PASS . |
| | 3 Clear the DTC. |
| | 4 Turn the ignition switch to the ACC position. |
| | 5 Wait for 10 seconds. |
| | 6 Check for DTCs. |
| | Is U2613 set? |
| | Yes CHECK the 'wake-up' signal to the module. |
| | No GO to N2. |

N2: CHECK FOR DTC U2602 OR U2603

| | |
|--|---|
| | 1 Check DTCs. |
| | Are codes U2602 or U2603 logged? |
| | Yes CHECK for break in optical harness. |
| | No RECHECK DTCs. No break in optical harness. |

PINPOINT TEST O : U2614: AMPLIFIER NOT RESPONDING

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|--|---|
| O1: CHECK AMPLIFIER, USING OPTICAL BUS TESTER | |
| | 1 Connect the Optical Bus Tester to the fibre optic connector, CD07. |
| | 2 Set the Optical Bus Tester to BY-PASS . |
| | 3 Clear the DTC. |
| | 4 Turn the ignition switch to the ACC position. |
| | 5 Wait for 10 seconds. |
| | 6 Check for DTCs. |
| | Is U2614 set? |
| | Yes CHECK the 'wake-up' signal to the module. |
| | No GO to O2. |

O2: CHECK FOR DTC U2602 OR U2603

| | |
|--|---|
| | 1 Check DTCs. |
| | Are codes U2602 or U2603 logged? |
| | Yes CHECK for break in optical harness. |
| | No RECHECK DTCs. No break in optical harness. |

PINPOINT TEST P : U2602: BREAK IN OPTICAL HARNESS FROM ICE HEAD UNIT (TRANSMITTER)

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|--|---|
| P1: CHECK FIBRE OPTIC LEAD BETWEEN LUGGAGE COMPARTMENT JOINT AND CD CHANGER | |
| | 1 Disconnect the fibre optic connector, CD02. |
| | 2 Disconnect the fibre optic connector, CD06. |
| | 3 Connect the Optical Bus Tester to the fibre optic connector, CD06. |
| | 4 Set the Optical Bus Tester to TX . |
| | 5 Set the Optical Bus Tester to ON . |

| | |
|--|---|
| 6 | Check for light pulses at the receiver pin of disconnected D2B connector, CD02. |
| Are light pulses visible? | |
| Yes GO to P2. | |
| No INSTALL a new telematic harness between CD06 and CD02. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. | |

P2: CHECK CABIN FIBRE OPTIC HARNESS

| | |
|----------|---|
| 1 | Disconnect the fibre optic connector, CD01. |
| 2 | Disconnect the fibre optic connector, CD06. |
| 3 | Connect the Optical Bus Tester to CD01 using adaptor lead. |
| 4 | Set the Optical Bus Tester to TX . |
| 5 | Set the Optical Bus Tester to ON . |
| 6 | Check for light pulses at the receiver pin of disconnected D2B connector, CD06. |

| | |
|--|--|
| Are light pulses visible? | |
| Yes GO to P3. | |
| No INSTALL a new cabin optical harness between CD06 and CD01. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. | |

P3: CHECK FIBRE OPTIC LEAD BETWEEN 'A' POST AND ICE HEAD UNIT

| | |
|----------|--|
| 1 | Disconnect the fibre optic connector, ID01. |
| 2 | Connect the Optical Bus Tester to ID01 using the adaptor lead. |
| 3 | Set the Optical Bus Tester to TX . |
| 4 | Set the Optical Bus Tester to ON . |
| 5 | Check for light pulses at the receiver pin of disconnected D2B connector, CD001. |

| | |
|---|--|
| Are light pulses visible? | |
| Yes GO to P4. | |
| No INSTALL a new instrument optical harness between CD01 and ID01. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. | |

P4: CHECK THE ICE HEAD UNIT

| | |
|----------|--|
| 1 | Turn the ignition switch to the ACC position. |
| 2 | Wait for 10 seconds. |
| 3 | Check for light pulses at the transmitter pin of disconnected D2B connector, ID01 (rear of ICE head unit). |

| | |
|--|--|
| Are light pulses visible? | |
| Yes GO to P5. | |
| No INSTALL a new ICE head unit, REFER to: Audio Unit (415-01 Audio Unit, Removal and Installation). CLEAR the DTC, test the system for normal operation. | |

P5: CHECK THE FIBRE OPTIC LEAD FROM THE CD CHANGER TO THE 'PHONE MODULE

| | |
|----------|--|
| 1 | Disconnect the fibre optic connector CD02. |
| 2 | Disconnect the fibre optic connector CD03. |
| 3 | Connect the Optical Bus Tester to CD02. |
| 4 | Set the Optical Bus Tester to TX . |
| 5 | Set the Optical Bus Tester to ON . |
| 6 | Check for light pulses at the transmitter pin of disconnected D2B connector, CD03. |

| | |
|--|--|
| Are light pulses visible? | |
| Yes GO to P6. | |
| No INSTALL a new telematic harness between CD03 and CD02. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. | |

P6: CHECK THE FIBRE OPTIC LEAD FROM THE 'PHONE MODULE TO THE VOICE MODULE

| | |
|----------|--|
| 1 | Disconnect the fibre optic connector CD04. |
| 2 | Connect the Optical Bus Tester to CD03. |
| 3 | Set the Optical Bus Tester to TX . |
| 4 | Set the Optical Bus Tester to ON . |
| 5 | Check for light pulses at the transmitter pin of disconnected D2B connector, CD04. |

| | |
|--|--|
| Are light pulses visible? | |
| Yes GO to P7. | |
| No INSTALL a new telematic harness between CD03 and CD04. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. | |

P7: CHECK THE FIBRE OPTIC LEAD FROM THE VOICE MODULE TO THE NAVIGATION COMPUTER

| | |
|----------|--|
| 1 | Disconnect the fibre optic connector CD04. |
| 2 | Disconnect the fibre optic connector CD05. |
| 3 | Connect the Optical Bus Tester to CD04. |
| 4 | Set the Optical Bus Tester to TX . |
| 5 | Set the Optical Bus Tester to ON . |
| 6 | Check for light pulses at the transmitter pin of disconnected D2B connector, CD05. |

| | |
|--|--|
| Are light pulses visible? | |
| Yes GO to P8. | |
| No INSTALL a new telematic harness between CD05 and CD04. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. | |

P8: CHECK THE FIBRE OPTIC LEAD FROM THE NAVIGATION COMPUTER TO THE AMPLIFIER

| | |
|----------|--|
| 1 | Disconnect the fibre optic connector CD07. |
| 2 | Disconnect the fibre optic connector CD05. |

| | |
|---------------------------|---|
| 3 | Connect the Optical Bus Tester to CD05. |
| 4 | Set the Optical Bus Tester to TX . |
| 5 | Set the Optical Bus Tester to ON . |
| 6 | Check for light pulses at the transmitter pin of disconnected D2B connector, CD07. |
| Are light pulses visible? | |
| Yes | CHECK for DTC U2603. |
| No | INSTALL a new telematic harness between CD05 and CD07. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. |

PINPOINT TEST Q : U2603: BREAK IN OPTICAL HARNESS TO ICE HEAD UNIT (RECEIVER)

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|---|--|
| Q1: CHECK FIBRE OPTIC LEAD BETWEEN LUGGAGE COMPARTMENT JOINT AND AMPLIFIER | |
| 1 | Disconnect the fibre optic connector, CD06. |
| 2 | Disconnect the fibre optic connector, CD07. |
| 3 | Connect the Optical Bus Tester to CD07. |
| 4 | Set the Optical Bus Tester to TX . |
| 5 | Set the Optical Bus Tester to ON . |
| 6 | Check for light pulses at the receiver pin of disconnected D2B connector, CD06. |
| Are light pulses visible? | |
| Yes | GO to Q2. |
| No | INSTALL a new telematic harness between CD06 and C07. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. |
| Q2: CHECK CABIN FIBRE OPTIC HARNESS | |
| 1 | Disconnect the fibre optic connector, CD01. |
| 2 | Disconnect the fibre optic connector, CD06. |
| 3 | Connect the Optical Bus Tester to CD06 using adaptor lead. |
| 4 | Set the Optical Bus Tester to TX . |
| 5 | Set the Optical Bus Tester to ON . |
| 6 | Check for light pulses at the receiver pin of disconnected D2B connector, CD01. |
| Are light pulses visible? | |
| Yes | GO to Q3. |
| No | INSTALL a new cabin optical harness between CD06 and CD01. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. |
| Q3: CHECK FIBRE OPTIC LEAD BETWEEN 'A' POST AND ICE HEAD UNIT | |
| 1 | Connect the Optical Bus Tester to ID01. |
| 2 | Set the Optical Bus Tester to TX . |
| 3 | Set the Optical Bus Tester to ON . |
| 4 | Check for light pulses at the receiver pin of disconnected D2B connector, ID01. |
| Are light pulses visible? | |
| Yes | GO to Q4. |
| No | INSTALL a new instrument optical harness between CD01 and ID01. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. |
| Q4: CHECK THE ICE HEAD UNIT | |
| 1 | Connect the optical short link between the receiver and transmitter of the ICE head unit. |
| 2 | Turn the ignition switch to the ACC position. |
| 3 | Wait for 10 seconds. |
| 4 | Check for DTC. |
| Is U2603 logged? | |
| Yes | INSTALL a new ICE head unit, REFER to: Audio Unit (415-01 Audio Unit, Removal and Installation). CLEAR the DTC. TEST the system for normal operation. |
| No | RECHECK DTCs. No fault found in D2B system. |

PINPOINT TEST R : ONE OR MORE D2B MODULES NOT RESPONDING. PERMANENT SUPPLY FAULT

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|---|---|
| R1: CHECK THE PERMANENT SUPPLY TO THE CD CHANGER | |
| 1 | Disconnect the CD changer connector, CA301. |
| 2 | Measure the voltage between CA301, pin 02 (OY) and GROUND. |
| Is the voltage less than 10 volts? | |
| Yes | REPAIR the circuit between the CD changer connector, CA301, pin 02, and fuse 72 of the central junction fuse box. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. |
| No | CHECK the module for GROUND. INSTALL a new CD Changer. REFER to: Compact Disc (CD) Changer - 4-Door (415-01 Audio Unit, Removal and Installation). CLEAR the DTC, test the system for normal operation. GO to R2. |
| R2: CHECK THE PERMANENT SUPPLY TO THE VOICE ACTIVATED CONTROL MODULE | |
| 1 | Disconnect the voice activated control module connector, PH02. |
| 2 | Measure the voltage between PH02, pin 22 (NR) and GROUND. |

Is the voltage less than 10 volts?

Yes

REPAIR the circuit between the voice activated control module connector, PH02, pin 22, and fuse 71 of the central junction fuse box. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.

No

CHECK the module for GROUND. INSTALL a new VACM.
REFER to: [Multifunction Voice Activated Module - 4-Door](#) (419-10 Multifunction Electronic Modules, Removal and Installation).
CLEAR the DTC, test the system for normal operation.[GO to R3.](#)

R3: CHECK THE PERMANENT SUPPLY TO THE 'PHONE MODULE

1 Disconnect the 'phone module connector, PH01.

2 Measure the voltage between PH01, pins 12 and 13 (NR) and GROUND.

Is the voltage less than 10 volts?

Yes

REPAIR the circuit between the 'phone module connector, PH01, pins 12 and 13 and fuse 71 of the central junction fuse box. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.

No

CHECK the module for GROUND. INSTALL a new 'phone module.
REFER to: [Module - 4-Door](#) (419-08 Cellular Phone, Removal and Installation).
CLEAR the DTC, test the system for normal operation.[GO to R4.](#)

R4: CHECK THE PERMANENT SUPPLY TO THE NAVIGATION MODULE

1 Disconnect the navigation module connector, NA07.

2 Measure the voltage between NA07, pin 01 (OY) and GROUND.

Is the voltage less than 10 volts?

Yes

Repair the circuit between the navigation module connector, NA07, pin 01 and fuse 72 of the central junction fuse box. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.

No

CHECK the module for GROUND. INSTALL a new navigation module.
REFER to: [Navigation System Module - 4-Door](#) (419-07 Navigation System, Removal and Installation).
CLEAR the DTC, test the system for normal operation.[GO to R5.](#)

R5: CHECK THE PERMANENT SUPPLY TO THE AMPLIFIER

1 Disconnect the amplifier connector, CA425.

2 Measure the voltage between CA425, pin 09 (NR) and GROUND.

3 Measure the voltage between CA425, pin 03 (NR) and GROUND.

Is either voltage less than 10 volts?

Yes

Repair the circuit between the amplifier connector, CA425 and fuse 20 of the primary junction box. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation.

No

CHECK the module for GROUND. INSTALL a new amplifier. CLEAR the DTC, test the system for normal operation.

PINPOINT TEST S : ONE OR MORE D2B MODULES NOT RESPONDING. ACCESSORY SWITCHED SUPPLY FAULT

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|--|---|
| S1: CHECK THE ACCESSORY SWITCHED SUPPLY TO THE VOICE ACTIVATED CONTROL MODULE | |
| | 1 Disconnect the voice activated control module connector, PH02. |
| | 2 Turn the ignition switch to the ACC position. |
| | 3 Measure the voltage between PH02, pin 08 (YG) and GROUND. |
| | Is the voltage less than 10 volts? |
| | Yes |
| | REPAIR the circuit between the voice activated control module connector, PH02, pin 08 and the ignition switch. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. (This circuit includes the central junction fuse box, fuse 69) |
| | No |
| | GO to S2. |
| S2: CHECK THE ACCESSORY SWITCHED SUPPLY TO THE 'PHONE MODULE | |
| | 1 Disconnect the 'phone module connector, PH01. |
| | 2 Turn the ignition switch to the ACC position. |
| | 3 Measure the voltage between PH01, pin 14 (YG) and GROUND. |
| | Is the voltage less than 10 volts? |
| | Yes |
| | REPAIR the circuit between the 'phone module connector, PH01, pin 14 and the ignition switch. This circuit includes the central junction fuse box, fuse 69. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. |
| | No |
| | GO to S3. |
| S3: CHECK THE ACCESSORY SWITCHED SUPPLY TO THE NAVIGATION MODULE | |
| | 1 Disconnect the navigation module electrical connector, NA07. |
| | 2 Turn the ignition switch to the ACC position. |
| | 3 Measure the voltage between NA07, pin 11 (YG) and GROUND. |
| | Is the voltage less than 10 volts? |
| | Yes |
| | REPAIR the circuit between the navigation module connector, NA07, pin 11 and the ignition switch. This circuit includes the central junction fuse box, fuse 69. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. |
| | No |
| | CHECK the module for GROUND. INSTALL a new navigation module. REFER to: Navigation System Module - 4-Door (419-07 Navigation System, Removal and Installation). CLEAR the DTC, test the system for normal operation. |

PINPOINT TEST T : ONE OR MORE D2B MODULES NOT RESPONDING. IGNITION SWITCHED SUPPLY FAULT

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|-----------------|-------------------------|
|-----------------|-------------------------|

| T1: CHECK THE IGNITION SUPPLY TO THE VOICE ACTIVATED CONTROL MODULE | |
|--|---|
| 1 | Disconnect the voice activated control module connector, PH02. |
| 2 | Turn the ignition switch to the ON position. |
| 3 | Measure the voltage between PH02, pin 06 (WR) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between the voice activated control module connector, PH02, pin 06 and the central junction fuse box, fuse 67. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No GO to T2. |
| T2: CHECK THE IGNITION SWITCHED SUPPLY TO THE 'PHONE MODULE | |
| 1 | Disconnect the 'phone module connector, PH01. |
| 2 | Turn the ignition switch to the ON position. |
| 3 | Measure the voltage between PH01, pin 29 (Y) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between the 'phone module connector, PH01, pin 29 and the central junction fuse box, fuse 78. For additional information, refer to the wiring diagrams. CLEAR the DTC, test the system for normal operation. No Check the module for GROUND. INSTALL a new 'phone module. REFER to: Module - 4-Door (419-08 Cellular Phone, Removal and Installation). CLEAR the DTC, test the system for normal operation. |

PINPOINT TEST U : IC SUPPLY OR GROUND FAULT

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|--|---|
| U1: CHECK THE B+ SUPPLY TO THE IC | |
| 1 | Disconnect the IC connector, IP11. |
| 2 | Measure the voltage between IP11, pin 07 (OG) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between IP11, pin 07 and battery. This circuit includes the primary junction box, fuse 45. For additional information, refer to the wiring diagrams. No GO to U2. |
| U2: CHECK THE ACC SUPPLY TO THE IC | |
| 1 | Turn the ignition switch to the ACC position. |
| 2 | Measure the voltage between IP11, pin 13 (YU) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between IP11, pin 13 and battery. This circuit includes the primary junction box, fuse 43. For additional information, refer to the wiring diagrams. No GO to U3. |
| U3: CHECK THE IGNITION SUPPLY TO THE IC | |
| 1 | Turn the ignition switch to the IGN position. |
| 2 | Measure the voltage between IP11, pin 11 (GR) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between IP11, pin 11 and battery. This circuit includes the primary junction box, fuse 54. For additional information, refer to the wiring diagrams. No GO to U4. |
| U4: CHECK THE GROUND TO THE IC | |
| 1 | Measure the resistance between IP11, pin 08 (B) and GROUND. |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. No No fault found with power or ground supplies. Check for DTCs indicating a module fault. |

PINPOINT TEST V : SWRS SUPPLY OR GROUND FAULT

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|--|---|
| V1: CHECK THE MODULE SUPPLY TO THE SWRS | |
| 1 | Disconnect the SWRS connector, IP19. |
| 2 | Turn the ignition switch to the ON position. |
| 3 | Measure the voltage between IP19, pin 02 (GW) and GROUND. |
| | Is the voltage less than 4 volts? Yes GO to V2. No GO to V3. |
| V2: CHECK THE MODULE SUPPLY CIRCUIT TO THE SWRS FOR HIGH RESISTANCE | |
| 1 | Turn the ignition switch to the OFF position. |
| 2 | Disconnect the DSC module connector, JB185. |
| 3 | Measure the resistance between IP19, pin 02 (GW) and JB185, pin 39 (GW). |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. No GO to V3. |
| V3: CHECK THE GROUND TO THE SWRS | |
| 1 | Reconnect the DSC module connector, JB185. |
| 2 | Measure the resistance between IP19, pin 08 (U) and GROUND. |

Is the resistance greater than 5 ohms?

Yes

REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams.

No

No fault found with power or ground supplies. Check for DTCs indicating a module fault.

PINPOINT TEST W : YAW RATE SENSOR SUPPLY OR GROUND FAULT

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|---|---|
| W1: CHECK THE MODULE SUPPLY TO THE YAW RATE SENSOR | |
| | 1 Disconnect the yaw rate sensor connector, IP20. |
| | 2 Turn the ignition switch to the ON position. |
| | 3 Measure the voltage between IP20, pin 04 (GW) and GROUND. |
| | Is the voltage less than 4 volts? |
| | Yes GO to W2. |
| | No GO to W3. |
| W2: CHECK THE MODULE SUPPLY CIRCUIT TO THE YAW RATE SENSOR FOR HIGH RESISTANCE | |
| | 1 Turn the ignition switch to the OFF position. |
| | 2 Disconnect the DSC module connector, JB185. |
| | 3 Measure the resistance between IP20, pin 04 (GW) and JB185, pin 39 (GW). |
| | Is the resistance greater than 5 ohms? |
| | Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. |
| | No GO to W3. |
| W3: CHECK THE GROUND TO THE YAW RATE SENSOR | |
| | 1 Measure the resistance between IP20, pin 01 (U) and GROUND. |
| | Is the resistance greater than 5 ohms? |
| | Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. |
| | No No fault found with power or ground supplies. Check for DTCs indicating a module fault. |

PINPOINT TEST X : ABS/TCCM SUPPLY OR GROUND FAULT

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|---|--|
| X1: CHECK THE IGNITION SUPPLY TO THE ABS/TC MODULE | |
| | 1 Disconnect the ABS/TCCM connector, JB45. |
| | 2 Turn the ignition switch to the ON position. |
| | 3 Measure the voltage between JB45, pin 23 (GW) and GROUND. |
| | Is the voltage less than 10 volts? |
| | Yes REPAIR the circuit between JB45, pin 23 and battery. This circuit includes the front power distribution box, fuse 13 and the ignition relay. For additional information, refer to the wiring diagrams. |
| | No GO to X2. |
| X2: CHECK THE PUMP+ SUPPLY TO THE ABS/TCCM | |
| | 1 Turn the ignition switch to the ON position. |
| | 2 Measure the voltage between JB45, pin 02 (R) and GROUND. |
| | Is the voltage less than 10 volts? |
| | Yes REPAIR the circuit between JB45, pin 02 and battery. This circuit includes the front power distribution box, fuse 41. For additional information, refer to the wiring diagrams. |
| | No GO to X3. |
| X3: CHECK THE SOLENOID+ SUPPLY TO THE ABS/TCCM | |
| | 1 Turn the ignition switch to the ON position. |
| | 2 Measure the voltage between JB45, pin 06 (R) and GROUND. |
| | Is the voltage less than 10 volts? |
| | Yes REPAIR the circuit between JB45, pin 06 and battery. This circuit includes the front power distribution box, fuse 41. For additional information, refer to the wiring diagrams. |
| | No GO to X4. |
| X4: CHECK THE GROUND TO THE ABS/TCCM | |
| | 1 Turn the ignition switch to the OFF position. |
| | 2 Measure the resistance between JB45, pin 05 (B) and GROUND. |
| | Is the resistance greater than 5 ohms? |
| | Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. |
| | No GO to X5. |
| X5: CHECK THE MOTOR GROUND TO THE ABS/TCCM | |
| | 1 Measure the resistance between JB45, pin 01 (B) and GROUND. |
| | Is the resistance greater than 5 ohms? |
| | Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. |
| | No No fault found with power or ground supplies. Check for DTCs indicating a module fault. |

PINPOINT TEST Y : DSC MODULE SUPPLY OR GROUND FAULT

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|--|--|
| Y1: CHECK THE IGNITION SUPPLY TO THE DSC MODULE | |
| | 1 Disconnect the DSC module connector, JB185. |

| | |
|--|--|
| | 2 Turn the ignition switch to the ON position. |
| | 3 Measure the voltage between JB185, pin 23 (GW) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between JB45, pin 23 and battery. This circuit includes the front power distribution box, fuse 13 and the ignition relay. For additional information, refer to the wiring diagrams. No GO to Y2. |

Y2: CHECK THE PUMP+ SUPPLY TO THE DSC MODULE

| | |
|--|--|
| | 1 Turn the ignition switch to the ON position. |
| | 2 Measure the voltage between JB185, pin 02 (R) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between JB185, pin 02 and battery. This circuit includes the front power distribution box, fuse 41. For additional information, refer to the wiring diagrams. No GO to Y3. |

Y3: CHECK THE SOLENOID+ SUPPLY TO THE DSC MODULE

| | |
|--|--|
| | 1 Turn the ignition switch to the ON position. |
| | 2 Measure the voltage between JB185, pin 06 (R) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between JB185, pin 06 and battery. This circuit includes the front power distribution box, fuse 41. For additional information, refer to the wiring diagrams. No GO to Y4. |

Y4: CHECK THE GROUND TO THE DSC MODULE

| | |
|--|---|
| | 1 Turn the ignition switch to the OFF position. |
| | 2 Measure the resistance between JB185, pin 05 (B) and GROUND. |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. No GO to Y5. |

Y5: CHECK THE MOTOR GROUND TO THE DSC MODULE

| | |
|--|---|
| | 1 Measure the resistance between JB185, pin 01 (B) and GROUND. |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. No No fault found with power or ground supplies. Check for DTCs indicating a module fault. |

PINPOINT TEST Z : GSI MODULE SUPPLY OR GROUND FAULT

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|--|---|
| Z1: CHECK THE IGNITION SUPPLY TO THE GSI MODULE | |
| | 1 Disconnect the GSI module connector, IP14. |
| | 2 Turn the ignition switch to the ON position. |
| | 3 Measure the voltage between IP14, pin 01 (WR) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between IP14, pin 01 and battery. This circuit includes the primary junction box, fuse 50. For additional information, refer to the wiring diagrams. No GO to Z2. |
| Z2: CHECK THE GROUND TO THE GSI MODULE | |
| | 1 Measure the resistance between IP14, pin 02 (B) and GROUND. |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. No No fault found with power or ground supplies. Check for DTCs indicating a module fault. |

PINPOINT TEST AA : HID MODULE SUPPLY OR GROUND FAULT

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|---|---|
| AA1: CHECK THE IGNITION SUPPLY TO THE HID MODULE | |
| | 1 Disconnect the HID module connector, IP130. |
| | 2 Turn the ignition switch to the ON position. |
| | 3 Measure the voltage between IP130, pin 23 (WR) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between IP130, pin 23 and battery. This circuit includes the primary junction box, fuse 39. For additional information, refer to the wiring diagrams. No GO to AA2. |
| AA2: CHECK THE GROUND TO THE HID MODULE | |
| | 1 Measure the resistance between IP130, pin 24 (B) and GROUND. |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. No No fault found with power or ground supplies. Check for DTCs indicating a module fault. |

PINPOINT TEST AB : EATC MODULE SUPPLY OR GROUND FAULT

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|--|---|
| AB1: CHECK THE B+ SUPPLY TO THE EATC MODULE | |
| | 1 Disconnect the EATC module connector, IP101. |
| | 2 Measure the voltage between IP101, pin 14 (OG) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between IP101, pin 14 and battery. This circuit includes the primary junction box, fuse 45. For additional information, refer to the wiring diagrams. No GO to AB2. |
| AB2: CHECK THE IGNITION SUPPLY TO THE EATC MODULE | |
| | 1 Turn the ignition switch to the ON position. |
| | 2 Measure the voltage between IP101, pin 02 (WR) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between IP101, pin 02 and battery. This circuit includes the primary junction box, fuse 39, and the ignition relay. For additional information, refer to the wiring diagrams. No GO to AB3. |
| AB3: CHECK THE B+ SAVE SUPPLY TO THE EATC MODULE | |
| | 1 Turn the ignition switch to the OFF position. |
| | 2 Measure the voltage between IP101, pin 01 (OY) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between IP101, pin 01 and battery. This circuit includes the primary junction box, fuse 49, and the battery save relay. For additional information, refer to the wiring diagrams. No GO to AB4. |
| AB4: CHECK THE GROUND TO THE EATC MODULE | |
| | 1 Measure the resistance between IP101, pin 15 (B) and GROUND. |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. No No fault found with power or ground supplies. Check for DTCs indicating a module fault. |

PINPOINT TEST AC : MEMORY SEAT MODULE SUPPLY OR GROUND FAULT

| TEST CONDITIONS | DETAILS/RESULTS/ACTIONS |
|---|--|
| AC1: CHECK THE B+1 SUPPLY TO THE MEMORY SEAT MODULE | |
| | 1 Disconnect the memory seat module connector, DM02. |
| | 2 Measure the voltage between DM02, pin 01 (OG) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between DM02, pin 01 and battery. This circuit includes the primary junction box, fuse 16. For additional information, refer to the wiring diagrams. No GO to AC2. |
| AC2: CHECK THE B+2 SUPPLY TO THE MEMORY SEAT MODULE | |
| | 1 Measure the voltage between DM02, pin 06 (GB) and GROUND. |
| | Is the voltage less than 10 volts? Yes REPAIR the circuit between DM02, pin 06 and battery. This circuit includes the primary junction box, fuse 09. For additional information, refer to the wiring diagrams. No GO to AC3. |
| AC3: CHECK THE IGNITION SUPPLY TO THE MEMORY SEAT MODULE | |
| | 1 Turn the ignition switch to the ON position. |
| | 2 Measure the voltage between DM02, pin 04 (GB) and GROUND. |
| | Is the voltage less than 4 volts? Yes REPAIR the circuit between DM02, pin 04 and battery. This circuit includes the primary junction box, fuse 07. For additional information, refer to the wiring diagrams. No GO to AC4. |
| AC4: CHECK THE ELECTRONIC GROUND TO THE MEMORY SEAT MODULE | |
| | 1 Turn the ignition switch to the OFF position. |
| | 2 Measure the resistance between DM02, pin 10 (B) and GROUND. |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. No GO to AC5. |
| AC5: CHECK THE POWER GROUND TO THE MEMORY SEAT MODULE | |
| | 1 Measure the resistance between DM02, pin 05 (B) and GROUND. |
| | Is the resistance greater than 5 ohms? Yes REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. No GO to AC6. |
| AC6: CHECK THE SIGNAL GROUND TO THE MEMORY SEAT MODULE | |
| | 1 Measure the resistance between DM02, pin 03 (B) and GROUND. |