DIAGNOSTIC AND FAULT CODES

GENERAL

MONITORING SYSTEM

The Engine Management System (EMS) features a monitoring system that self-diagnoses various electrical and electronic components. This mode becomes active when the ignition key is turned ON.

NOTE: Some components require the engine to be running to be monitored (fuel injectors for example).

The monitoring system continuously validates that the components (control modules, sensors and actuators) are not faulty or defective. When a malfunction is detected, the related electronic module(s):

– Sets an active fault code.
– Adapts the proper protection strategy according to the failure.
– Sends out signals to the multifunction gauge to inform the rider of a particular condition.

A fault code is an indication that a glitch or malfunction is detected by the monitoring system of the vehicle.

If a minor fault occurs, the engine and vehicle will continue to operate without noticeable loss of performance.

If a more important fault occurs, engine RPM may be limited. The engine/vehicle will continue to operate with reduced performance.

If a major component of the EMS fails, engine RPM will be limited as well as vehicle speed.

These strategies are used to protect engine/electrical system from damage and to maintain safe operation of the vehicle. In extreme cases, the engine may also be completely shut down.

Pilot Lamps for Problematic Conditions

When a problem is detected, a pilot lamp will turn on or blink in the multifunction gauge. If the fault that caused the pilot lamp to come on is momentary, the pilot lamp may turn off automatically, or may need to be reset by powering down the vehicle and then restarting it.

A message may also be displayed to provide additional information related to the fault that turned on the pilot lamp. Refer to the following chart.

NOTE: In some cases, the CHECK ENGINE message can be displayed along with other messages.

PILOT LAMP	MULTIFUNCTION GAUGE MESSAGE	CAUSE
	DESS KEY NOT RECOGNIZED	Module unable to read the key
	BAD KEY	Key not programmed for the vehicle
	BRAKE	Brake switch activated for 15 seconds or more
	LO BATT VOLT	Low system voltage
	HIGH BATT VOLT	High system voltage
	LOW OIL	Low engine oil pressure
	HI TEMP	Engine is overheating.
	LIMP HOME MODE	An important engine management component is not working properly. Vehicle performance is purposely limited.
	CHECK ENGINE	An engine management component is not functioning properly.
	MAINTENANCE REQUIRED	Periodic maintenance required.
	ECM NOT RECOGNIZED	Communication error between gauge and ECM
	CHECK DPS	DPS malfunction
	TPS FAULT PRESS OVERRIDE BUTTON TO LIMP HOME	TPS malfunction
	PPS FAULT PRESS OVERRIDE BUTTON TO LIMP HOME	PPS malfunction
	TRANSMISSION SIGNAL FAULT	Gauge receives an invalid gear position data

Limp Home Mode

When a major component of the EMS is not operating properly, limp home mode will be set.

Engine RPM will be limited and/or engine behavior and control may be modified depending on the cause of the failure.

This mode allows the rider to return home, which would otherwise not be possible without this advanced system.

LIMP HOME will be displayed in the multifunction gauge and the CHECK ENGINE light symbol will be on in the gauge.

FAULT CODES

Fault Code Categories

A fault code consists of an alphanumeric designator followed by a hexadecimal number of 3 digits. The alphanumeric designator defines the category of the fault code while the hexadecimal number refers to a unique fault.

FAULT CODE CATEGORIES		
ALPHANUMERIC DESIGNATOR	MODULE/ SYSTEM	EXAMPLE OF FAULT CODE
From P0 to P3	Power train, TCM and DPS	P0116
From U0 to U3	Communication between module and sensors	U0073

RELATED MODULE AND FAULTS	
MODULE	FAULT CODE CATEGORY
ECM	P and U
DPS	P and U
Cluster	P and U

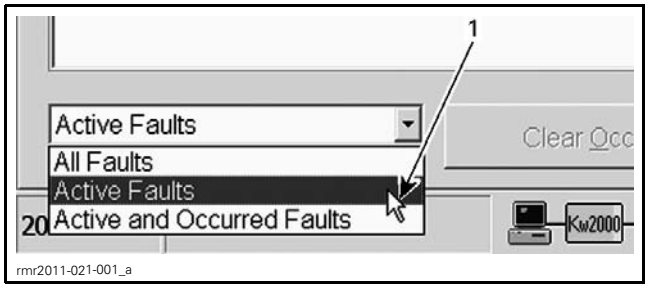
Fault Code States

Fault codes have 3 possible states:

– Active
– Occurred
– Inactive.

Click the **Fault** tab then click on the drop-down list on the LH lower corner.

Choose the fault code state you want to display.



TYPICAL
1. Drop down list

Active Fault Codes

An active fault code is an indication of a fault that is **currently triggered**.

The active fault may or may not compromise normal operation of the system(s). Service action should be taken to correct the problem that caused the fault code.

Once the fault condition(s) of the active fault is no longer present, its state will change to "occurred".

Occurred Fault Codes

An occurred fault code indicates a fault that was active, but **no longer** is.

The occurred fault does not presently affect system or component operation but is retained as a history of the faults that were detected.

The fault may have been generated due to a system or component that was momentarily operating outside normal parameters. Repeated occurred faults of this type should be considered when troubleshooting a problem, and may require that maintenance action be taken.

An occurred fault may also be generated when disconnecting and reconnecting a component, replacing a burnt fuse, when the software update of an electronic module has been carried out, or may be due to a momentary high or low voltage.

Inactive Fault Codes

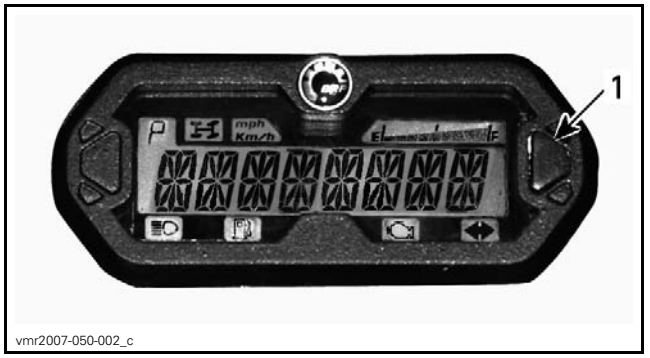
An inactive fault code represents a fault code that is neither active, nor occurred. It is simply part of a list of all possible faults that can be monitored by the ECM and multifunction gauge, which may become active or occurred if the monitoring system detects an applicable fault. These codes can be viewed in B.U.D.S.

How to Display Fault Codes in the Multifunction Gauge

NOTE: A fault code must be in an "Active" state to be displayed in the multifunction gauge. B.U.D.S. must be used to read all fault codes states.

1. Use the selector button and scroll to Engine Hour (EH) on the gauge.

OUTLANDER
1. Selector button



RENEGADE
1. Selector button

2. Press and HOLD mode button while QUICKLY toggling HI - LO beam.

NOTE: A minimum of 3 HI - LO toggles must be completed within 2 seconds.

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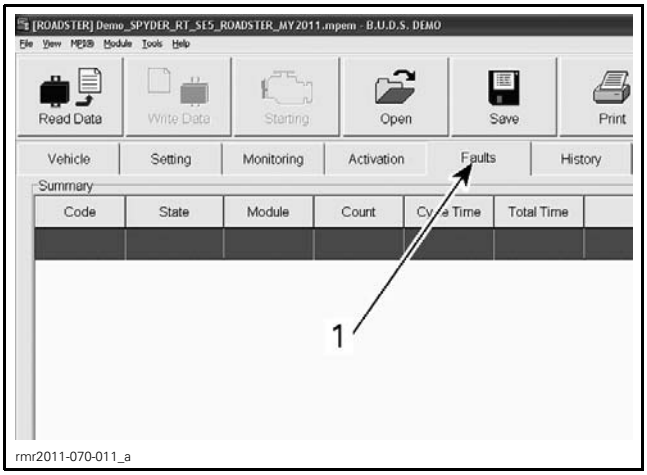
TYPICAL
Step 1: Press and hold
Step 2: Quickly toggle HI - LO beam

How to Read Fault Codes Using B.U.D.S.

NOTE: All fault code (regardless of their state) can be read with B.U.D.S.

1. Connect vehicle to the latest applicable B.U.D.S. Refer to *COMMUNICATION TOOLS AND B.U.D.S.* subsection.
2. Click on the **Read Data** button.
3. Click on the **Faults** tab.



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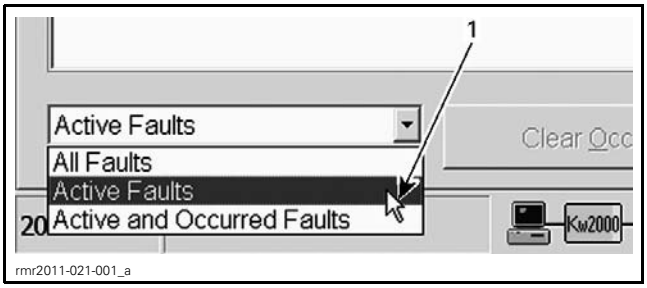
1. Fault tab

4. Click on the drop-down list on the LH lower corner.
5. Choose the fault state to display.



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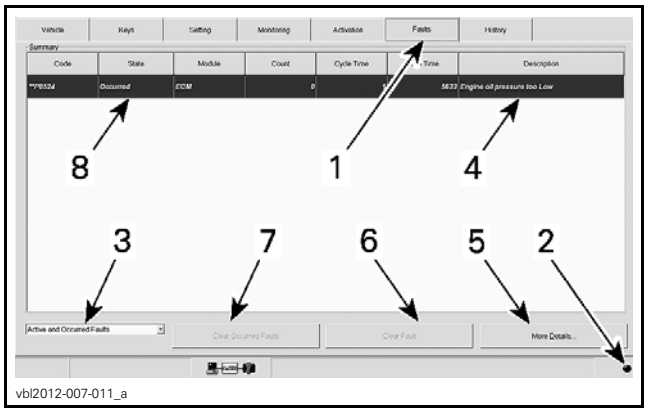
1. Drop down list

FAULT STATE	INFORMATION
All faults	Display all possible faults regardless of state
Active faults	Display only faults matching this state Empty area if there is no active fault
Active and occurred faults	Display only faults that have either state Empty area if there is neither active nor occurred fault



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FAULT PAGE
1. **Fault** *tab*
2. *Fault indicator light*
3. *Fault code state drop box*
4. *Fault description*
5. **More Details** *button*
6. **Clear Fault** *button*
7. **Clear Occurred Faults** *button*
8. *Selected fault*

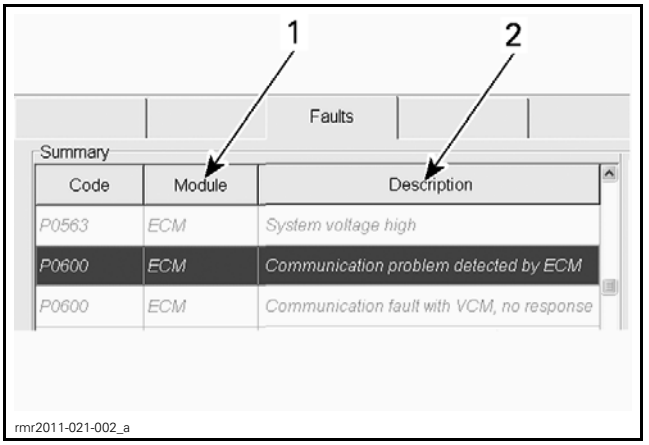
FAULT PAGE DESCRIPTION	
ITEM	INFORMATION
Fault tab	Click tab to display the fault page
Fault indicator light	When flashing, it indicates there is active fault(s)
Fault code state drop box	Click drop box to select the type of faults to display
Fault nomenclature	Display specific information and statistics related to the fault (see fault nomenclature table)
More Details button	To display possible causes and service actions related to the selected fault

FAULT PAGE DESCRIPTION	
ITEM	INFORMATION
Clear Fault button	To clear occurred faults one at a time
Clear Occurred Faults button	To clear all occurred faults in related ECU(s)
Selected fault	When a fault is selected, additional information pertaining to that fault will be displayed when clicking the "More details" button To select a fault, click on the fault with the mouse or use the cursor up or down to scroll to the desired fault

FAULT NOMENCLATURE	
COLUMN	INFORMATION
Code	Fault code number. When 2 stars (**) precedes the code, detailed conditions when the fault occurred, can be displayed by clicking the "More details" button
State	Display the fault state (active, occurred, inactive)
Module	Displays the module that reports the fault code. This is the module that detects or has received a message of an anomaly and reports it. List of modules: Cluster (multifunction gauge) DPS (dynamic power steering) ECM (engine control module)
Count	Number of times this fault occurred within the driving cycle Value: From 0 to 255
Cycle time	Not to be used Value: From 0 to 255 minutes
Total time	Not to be used Value: From 0 to 64 255 minutes
Description	Provides a short description of the fault

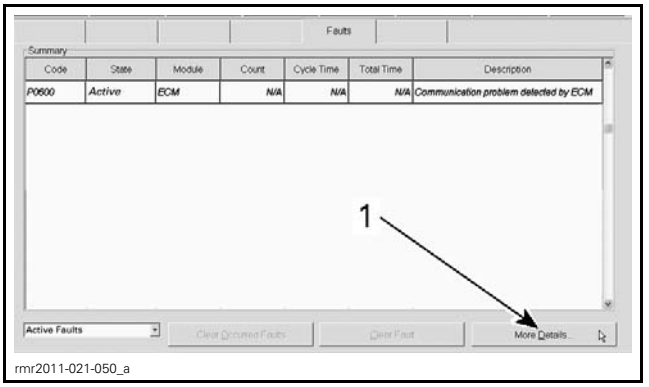
When reading a fault code in B.U.D.S., pay particular attention to which module reports a fault. It is indicated in the **Module** column.

The **Description** column gives a short description of the fault.

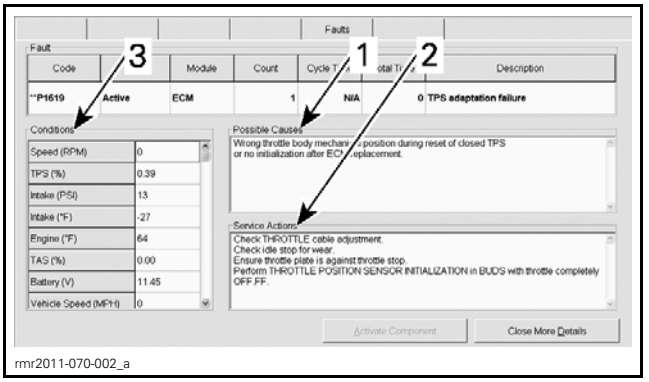


SOME COLUMNS REMOVED FOR CLARITY PURPOSE
1. *Module that reports a fault*
2. *Fault description*

Click on the **More Details** button, on the RH lower corner, to display the "Possible Causes" and the "Service Actions" to step further in the diagnosis.



1. *Click here*



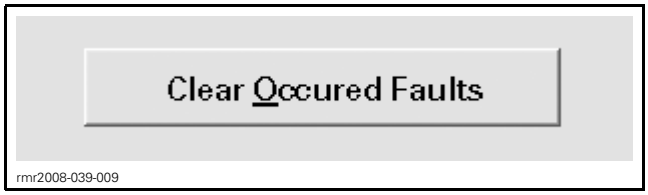
MORE DETAILS PAGE
1. *Possible causes related to the selected fault*
2. *Service actions*
3. *Operating conditions when fault occurred*

MORE DETAILS PAGE DESCRIPTION	
ITEM	INFORMATION
Possible causes	List the possible causes that triggered the fault
Service actions	List the possible actions to perform to solve the fault
Conditions when fault occurred	List the operating conditions of the engine and/or vehicle when the fault was triggered

How to Clear Fault Codes Using B.U.D.S.

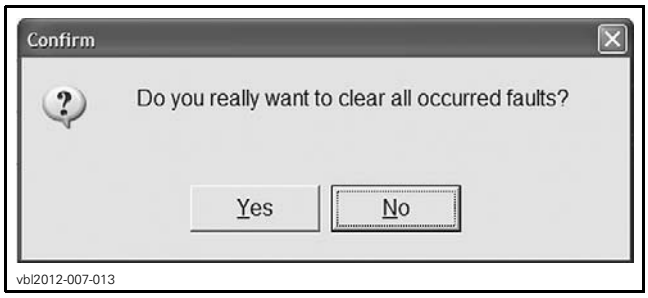
1. Connect vehicle to the latest applicable B.U.D.S. software. Refer to *COMMUNICATION TOOLS AND B.U.D.S.* subsection.
2. Click on the **Read Data** button.
3. Click on the **Faults** tab.

The fault(s) (occurred state only) can be cleared by pressing the **Clear Occurred Faults**or **Clear Fault** buttons in B.U.D.S.



FAULTS PAGE TAB, CLEAR OCCURRED FAULTS

4. Click YES on the following message box.



The following message will appear.

5. Turn ignition OFF and wait until the message disappears.

This will reset the appropriate counter(s) and will also record that the problem has been fixed in the related ECU memory.

NOTE: An active fault code cannot be cleared. In other words, the problem relevant to the fault code must be repaired before the fault can be cleared.

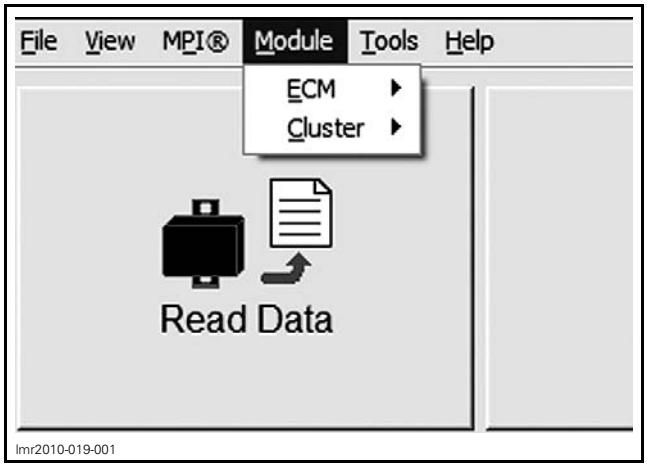
FAULT CODE DIAGNOSTIC

Missing Module

If a module is missing, several fault codes will appear.

To quickly find which module is missing, perform the following:

1. Connect vehicle to the latest applicable B.U.D.S. software. Refer to *COMMUNICATION TOOLS AND B.U.D.S.* subsection.
2. Click on the **Read Data** button.
3. Click **Module** in the menu bar.
4. Look at the list of modules.
5. If a module is not visible, then it is not communicating through the CAN bus (controller area network).



TYPICAL - MODULE SUBMENU LIST

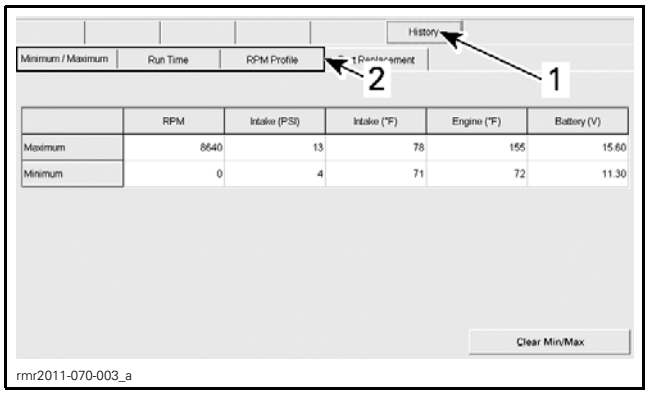
6. Refer to the following table to find the appropriate subsection in this manual to diagnose the missing module.

MISSING MODULE	SECTION TO REFER TO
ECM	*ELECTRONIC FUEL INJECTION (EFI)*
Cluster	*LIGHTS, GAUGE AND ACCESSORIES*
DPS	*STEERING (DPS) AND FRONT WHEELS*

Diagnostic Tips

To see the last minute of operating conditions, click on the **History** tab in B.U.D.S.

NOTE: The page displays data whatever there is fault code(s) or not.



1. History tab
2. Additional history pages

HISTORY PAGE DESCRIPTION	
ITEM	INFORMATION
Minimum/ Maximum	Display the minimum and maximum values encountered. Click "Clear Min/Max" to reset the values
Run time	Display the time proportion in what mode the engine was running in
RPM profile	Display the RPM range proportion in which the engine was running in

When a minor fault occurs:

– Turn ignition key OFF.
– Wait 30 seconds.
– Turn ignition key ON.

This should change the fault state from "Active" to "Occurred".

The vehicle should then operate normally.

If a sensor-related fault persists, you may try disconnecting/reconnecting the sensor.

Read the following for a general approach to troubleshoot fault codes (active or occurred).

GENERAL GUIDELINES TO SOLVE FAULT CODES	
CONDITION	ACTION
Troubleshooting vehicle	Use B.U.D.S. to: Read fault codes. Display "Active" faults to see components currently not operating normally. Display "Occurred" faults to troubleshoot intermittent problems. Monitor system(s), sensor(s), switches and actual conditions. Activate component(s) for troubleshooting. Set components (resets etc). Know the last minute of operating conditions by using the "History" page. Know the operating conditions, if available, when a fault code occurred by using the "More details" button in the fault page.
New fault(s) appear after a vehicle maintenance or repair	Check sensor connections or mixed up connections. **Before** vehicle maintenance: Read the electronic modules with B.U.D.S. Save and print the B.U.D.S. file (keep faults option only). **After** vehicle maintenance: Read the electronic modules with B.U.D.S. Compare the fault code(s) before and after the maintenance using the printed copy and the current B.U.D.S. reading. Investigate only the newly fault codes. Clear all occurred faults in B.U.D.S.
Communication faults displayed as "Occurred" after module flashing	Normal behavior when flashing a module Clear all occurred faults and check again
Sensor "Active" fault	Read the fault description in B.U.D.S. Click on the "More Details" button. Look at the "Conditions" when available. Read the "Possible Causes". Apply the "Service Actions".
Low system voltage on one module Power problem on sensor(s)	Check related fuse(s) and relay. Check related power and ground wires. Check for common power supply to several sensors/modules (refer to *POWER DISTRIBUTION AND GROUNDS)*. **NOTE:** Some sensors are supplied by the battery while others are supplied by a module.
Low system voltage on several modules (several communication faults will also appear)	Check battery condition and connections. Check related fuse(s) and relay. Check voltage regulator/rectifier.
High system voltage on several modules	A battery charger has likely been used to substitute the vehicle battery. Clear all occurred faults and check again. Check voltage regulator/rectifier.
When all modules report that a module is missing	Check the module that is reported as missing. Check related fuse(s) and relay. Check related power and ground wires.
When several modules are in fault	Search for a common problem such as a faulty sensor.
CAN buss OFF	When several modules and sensors report that a module is missing. The missing module may report CAN bus off. Check related CAN wires (continuity, short to ground, short between CAN low and high). Check module pins and wiring terminals. Then, the other modules should stop reporting that module is missing.

GENERAL GUIDELINES TO SOLVE FAULT CODES	
CONDITION	ACTION
Occurred fault(s)	May have been generated due to a system or component that was momentarily operating outside normal parameters.
	May be generated when disconnecting and reconnecting a component, replacing a burnt fuse, or may be due to a momentary high or low voltage.
	Before being "Occurred", a fault has always been "Active" for a certain time, indicating that an unexpected condition or problem has been present during the driving cycle A frequent momentarily fault or an intermittent fault may never be seen as "Active" in B.U.D.S. while there is still a pending problem. This type of malfunctions can be discovered by looking at the "Occurred" faults and then by evaluating the fault count. As long as a fault is present, it is displayed as "Active"
Fault count (0 - 255)	**Low value:** Suggests handling problems (connections, terminal contact/shape etc.). **High value:** Suggests a frequent and unsolved problem. The problem should be investigated.
Fault conditions (More details button)	Look for abnormal, excessive values.
Hard to find problems	When the basic troubleshooting has been done and the fault code(s) persists, often the problem is related to the wiring harness, connections or electromechanical components. Short to ground, to battery or between wires. Wire splices, chafing, terminal problems (pulled out, bent, out of shape, corroded etc.). Bad contacts in switch or relay.

ECUs share information and their systems may interact with each other. Certain faults may cause more than one ECU to set a fault code or indication (pilot lamp or message) as the failure of some components may affect the operation of several systems.

FAULT CODE TABLE

ACRONYMS USED IN THE FAULT CODE TABLE	
USED IN FAULT CODE TABLE	MEANING
ECM	Engine Control Module
DPS	Dynamic Power Steering
CAN	Controller Area Network
TPS	Throttle Position Sensor
GBPS	Gearbox Position Sensor

NOTE: The following fault code table was up to date as of printing. For the latest fault codes, use B.U.D.S.

FAULT CODE	REPORTING MODULE	DESCRIPTION	POSSIBLE CAUSE	SERVICE ACTION
P0500	DPS	Invalid or missing vehicle speed	No vehicle speed avalable and vehicle is in (H or L Gear) whit engine RPM over 4000 RPM. Damaged circuit vehicle speed sensor circuit, damaged sensor, wrong mounting position of speed sensor.	Check if vehicle speed is available in Monitoring page in B.U.D.S. Check fuse. Measure voltage between harness connector CV-A and ground. (Expected value: 11 to 13 volts). Measure resistance from connector: CL-9 to CV-B (Expected value: < 2 ohms).
P0551	DPS	TORQUE_SENSOR _OPEN	Damaged DPS.	External troubleshooting is not possible Replace the DPS.
P0552	DPS	TORQUE_SENSOR _SHORT_GND	Damaged DPS.	External troubleshooting is not possible. Replace the DPS.
P0553	DPS	TORQUE_SENSOR _SHORT_5V	Damaged DPS.	External troubleshooting is not possible Replace the DPS.
P0562	DPS	System voltage low	Blown fuse, battery failure, voltage regulator failure, damaged circuit wires or connection, damaged magneto generator.	Check DPS fuse. Measure voltage between harness connector DPS1-A and ground. (Expected value = 11 to 13 volts). Measure voltage between harness connector DPS2-AandB and ground. (Expected value = 11 to 13 volts). Measure battery voltage with engine stopped. (Expected value: 11 to 13 volts). Check ground and positive connections on battery.
P0563	DPS	System voltage high	Rectifier failure, damaged circuit wires or connection.	Measure battery voltage with engine stopped. (Expected value: 11 to 13 volts). Measure battery voltage with engine Running. (Expected value: 13 to 14.7 volts). Check connections on voltage regulator. Check ground and positive connections on battery.
P0601	DPS	CALIBRATION FAULT	DPS not calibrated or damage DPS.	Try updating the DPS

FAULT CODE	REPORTING MODULE	DESCRIPTION	POSSIBLE CAUSE	SERVICE ACTION
P0605	DPS	EEPROM COMMUNICATION FAULT	Internal error or damaged DPS.	External troubleshooting is not possible. Replace the DPS.
P0636	DPS	MOTOR LOW CURRENT FAULT	Blown fuse, damaged circuit wires or connection.	Check DPS motor connections. Check DPS motor fuse. Measure battery voltage with engine stopped. (Expected value: 11 to 13 volts). Check connections on voltage regulator. Check ground and positive connections on battery.
P0637	DPS	MOTOR HIGH CURRENT FAULT	Internal error or damaged DPS.	External troubleshooting is not possible. Replace the DPS.
P0658	DPS	PHASE A_LOW	DPS motor supply. Damaged DPS.	Check DPS motor connections.
P0659	DPS	PHASE A_HIGH	DPS motor supply. Damaged DPS.	Check DPS motor connections.
P0666	DPS	TEMPERATURE SENSING FAULT	Internal temperature error or damaged DPS.	External troubleshooting is not possible. Replace the DPS.
P1F01	DPS	Power output overload	Motor short circuit or power output failed.	check fuse, Reset fault, If fault re-occur, replace DPS unit.
P1F02	DPS	Power output overload (18 V).	Motor short circuit or power output failed.	Measure battery voltage with engine stopped. (Expected value: 11 to 13 volts). Measure battery voltage with engine running. (Expected value: 13 to 14.7 volts). test charging system as per shop manual.
P1F03	DPS	Electronic Circuit Overheat	Hi temperature detected by on board temperature sensor.	Fault may become Active in extreme use situations. Reset fault and let DPS cool down. If fault re-occur in normal riding conditions, replace DPS unit

FAULT CODE	REPORTING MODULE	DESCRIPTION	POSSIBLE CAUSE	SERVICE ACTION
P1F05	DPS	Motor current sensor range/ performance	Motor input vs output Current correlation check failed.	Check Battery Condition. Check battery and ground connections. Check all connections related to the DPS. Test charging system as per shop manual procedures. Ensure the DPS is updated with the latest software.
P2670	DPS	PHASE B_LOW	DPS motor supply. Damaged DPS.	Check DPS motor connections.
P2671	DPS	PHASE B_HIGH	DPS motor supply. Damaged DPS.	Check DPS motor connections.
U0073	DPS	CAN bus off, no messages	Damaged circuit wires or damaged DPS pins.	Disconnect MPI2 from DLC connector. Measure resistance between DLC-1 and DLC-2 (Expected value = 50 to 70 ohms). Measure resistance between DLC-1 and DPS1-C (Expected value < 2 ohms). Measure resistance between DLC-2 and DPS1-D (Expected value < 2 ohms).
U0100	DPS	Lost communication with ECM (lost of CAN ID's)	Damaged circuit wires, damaged ECM or damaged DPS/ECM pins.	Disconnect MPI2 from DLC connector. Measure resistance between DLC-1 and DLC-2 (Expected value = 50 to 70 ohms). Measure resistance between DLC-1 and ECM B1 (Expected value < 2 ohms). Measure resistance between DLC-2 and ECM C1 (Expected value < 2 ohms).

FAULT CODE	REPORTING MODULE	DESCRIPTION	POSSIBLE CAUSE	SERVICE ACTION
U0155	DPS	Lost communication with CLUSTER	Missing CAN ID. Module internal error. Damaged circuit wires or damaged module pins.	Measure voltage between harness connector CL-17 and ground. (Expected value = 11 to 13 volts). Disconnect MPI2 from DLC connector. Measure resistance between DLC-1 and DLC-2 (Expected value = 50 to 70 ohms). Measure resistance between DLC-1 and CL-4 (Expected value < 2 ohms). Measure resistance between DLC-2 and CL-19 (Expected value < 2 ohms).
U0400	DPS	Variant coding failure software incompatibility	Faulty variant coding. Faulty programming.	Try updating the variant or calibration.
P0008	ECM	Lost of synchronisation	Engine Synchronisation Check Failed.	Check for Crankshaft Position Sensor fault. Check for dirty Crankshaft Position Sensor. Check compression on engine.
P0107	ECM	Manifold Air Pressure Sensor voltage too Low	Damaged sensor, damaged circuit wires, damaged connector or damaged ECM pins, ECM voltage supply Low.	Make sure sensor connector is fully inserted. Measure voltage between harness connector pins 1 and 3 . (Expected value: 4.8 to 5.1 volts). Measure resistance from connector: ECM-F3 to MAPTS-2 (Expected value: < 2 ohms). Measure resistance from connector: ECM-A1 to MAPTS-3 (Expected value: < 2 ohms). Measure resistance from connector: ECM-G2 to MAPTS-1 (Expected value: < 2 ohms). Measure resistance from connector: ECM-F2 to MAPTS-4 (Expected value: < 2 ohms).

FAULT CODE	REPORTING MODULE	DESCRIPTION	POSSIBLE CAUSE	SERVICE ACTION
P0108	ECM	Manifold Air Pressure Sensor voltage too High	Damaged sensor, wires shorted to battery +, ECM voltage supply too High.	Make sure sensor connector is fully inserted. Measure voltage between harness connector pins 1 and 3 . (Expected value: 4.8 to 5.1 volts). Measure resistance from connector: ECM-F3 to MAPTS-2 (Expected value: < 2 ohms). Measure resistance from connector: ECM-A1 to MAPTS-3 (Expected value: < 2 ohms). Measure resistance from connector: ECM-G2 to MAPTS-1 (Expected value: < 2 ohms). Measure resistance from connector: ECM-F2 to MAPTS-4 (Expected value: < 2 ohms).
P0112	ECM	Intake Air Temperature Sensor 1 circuit Low	Damaged sensor, damaged circuit wires, damaged connector or damaged ECM pins, ECM voltage supply Low	Make sure sensor connector is fully inserted. Measure voltage between harness connector pins 1 and 3 . (Expected value: 4.8 to 5.1 volts). Measure resistance from connector: ECM-F3 to MAPTS-2 (Expected value: < 2 ohms). Measure resistance from connector: ECM-A1 to MAPTS-3 (Expected value: < 2 ohms). Measure resistance from connector: ECM-G2 to MAPTS-1 (Expected value: < 2 ohms). Measure resistance from connector: ECM-F2 to MAPTS-4 (Expected value: < 2 ohms).

FAULT CODE	REPORTING MODULE	DESCRIPTION	POSSIBLE CAUSE	SERVICE ACTION
P0113	ECM	Intake Air Temperature Sensor 1 circuit High	Damaged sensor, wires shorted to battery +, ECM voltage supply too High.	Make sure sensor connector is fully inserted. Measure voltage between harness connector pins 1 and 3 . (Expected value: 4.8 to 5.1 volts). Measure resistance from connector: ECM-F3 to MAPTS-2 (Expected value: < 2 ohms). Measure resistance from connector: ECM-A1 to MAPTS-3 (Expected value: < 2 ohms). Measure resistance from connector: ECM-G2 to MAPTS-1 (Expected value: < 2 ohms). Measure resistance from connector: ECM-F2 to MAPTS-4 (Expected value: < 2 ohms).
P0114	ECM	Intake Air Temperature Sensor Intermittent	Damaged sensor, damaged circuit wires, damaged connector or damaged ECM pins, ECM voltage supply.	Make sure sensor connector is fully inserted. Measure voltage between harness connector pins 1 and 3 . (Expected value: 4.8 to 5.1 volts). Measure resistance from connector: ECM-F3 to MAPTS-2 (Expected value: < 2 ohms). Measure resistance from connector: ECM-A1 to MAPTS-3 (Expected value: < 2 ohms). Measure resistance from connector: ECM-G2 to MAPTS-1 (Expected value: < 2 ohms). Measure resistance from connector: ECM-F2 to MAPTS-4 (Expected value: < 2 ohms).
P0116	ECM	Engine Coolant Temperature Sensor 1 circuit range/ performance	Damaged sensor, wires shorted to battery +, ECM voltage supply.	Disconnect the sensor. Measure resistance from connector: ECM-F4 to CTS-1 (Expected value: < 2 ohms). Measure resistance from connector: ECM-C3 to CTS-2 (Expected value: < 2 ohms). Measure CTS resistance value (Expected value: 2280 to 2736 ohms at 19 to 21°C (66 to 70°F)).

FAULT CODE	REPORTING MODULE	DESCRIPTION	POSSIBLE CAUSE	SERVICE ACTION
P0117	ECM	Engine Coolant Temperature Sensor 1 circuit Low	Engine temperature sensor or circuit wires shorted to ground.	Disconnect the sensor. Measure resistance from connector: ECM-F4 to CTS-1 (Expected value: < 2 ohms). Measure resistance from connector: ECM-C3 to CTS-2 (Expected value: < 2 ohms). Measure CTS resistance value (Expected value: 2280 to 2736 ohms at 19 to 21°C (66 to 70°F)).
P0118	ECM	Engine Coolant Temperature Sensor 1 circuit High	Disconnected sensor or sensor resistance too High.	Disconnect the sensor. Measure resistance from connector: ECM-F4 to CTS-1 (Expected value: < 2 ohms). Measure resistance from connector: ECM-C3 to CTS-2 (Expected value: < 2 ohms). Measure CTS resistance value (Expected value: 2280 to 2736 ohms at 19 to 21°C (66 to 70°F)).
P011A	ECM	Engine Coolant Temperature Correlation Check failed	Correlation Check failed.	Check for coolant fluid leak and coolant fluid level. Check radiator condition. Check for other fault, check thermostat.
P0122	ECM	Throttle Position Sensor (TPS) Short circuit to GND	Damaged circuit wires, damaged sensor or damaged ECM pins.	Make sure sensor connector is fully inserted. Measure resistance from connector: ECM-A1 to TPS-1 (Expected value: < 2 ohms). Measure resistance from connector: ECM-G3 to TPS-3 (Expected value: < 2 ohms). Measure resistance from connector: ECM-G2 to TPS-2 (Expected value: < 2 ohms).

FAULT CODE	REPORTING MODULE	DESCRIPTION	POSSIBLE CAUSE	SERVICE ACTION
P0123	ECM	Throttle Position Sensor (TPS) shorted to battery +	Damaged circuit wires, damaged sensor or damaged ECM pins.	Make sure sensor connector is fully inserted. Measure resistance from connector: ECM-A1 to TPS-1 (Expected value: < 2 ohms). Measure resistance from connector: ECM-G3 to TPS-3 (Expected value: < 2 ohms). Measure resistance from connector: ECM-G2 to TPS-2 (Expected value: < 2 ohms).
P0217	ECM	Engine Coolant over temperature condition	Coolant fluid temperature too high.	Check for coolant fluid leak and coolant fluid level. Check radiator condition. Check for other fault, Check thermostat.
P0219	ECM	Engine Overspeed Condition detected	Engine speed too high.	
P0231	ECM	Fuel Pump circuit shorted to ground, or open circuit	Blown fuse, damaged or disconnected fuel pump relay, damaged circuit wires, damaged connectors or damaged ECM output pins.	Check fuse. Measure voltage between harness connector PF1-12B and ground (Expected value: 11 to 13 volts). Measure voltage between harness connector PF1-11B and ground (Expected value: 11 to 13 volts). Measure resistance from harness connector: ECM-J1 to PF1-12A (Expected value: < 2 ohms). Measure resistance from harness connector: PF1-11A to FP-3 (Expected value: < 2 ohms). Measure resistance from harness connector: FP-4 to ground (Expected value: < 2 ohms).

FAULT CODE	REPORTING MODULE	DESCRIPTION	POSSIBLE CAUSE	SERVICE ACTION
P0232	ECM	Fuel Pump circuit shorted to battery +	Blown fuse, damaged or disconnected fuel pump relay, damaged circuit wires, damaged connectors or damaged ECM output pins.	Check fuse. Measure voltage between harness connector PF1-12B and ground (Expected value: 11 to 13 volts). Measure voltage between harness connector PF1-11B and ground (Expected value: 11 to 13 volts). Measure resistance from harness connector: ECM-J1 to PF1-12A (Expected value: < 2 ohms). Measure resistance from harness connector: PF1-11A to FP-3 (Expected value: < 2 ohms). Measure resistance from harness connector: FP-4 to ground (Expected value: < 2 ohms).
P0261	ECM	Cylinder 1 injector open circuit or shorted to ground	Blown fuse, damaged or disconnected injector, damaged or disconnected circuit wires, damaged ECM output pins.	Disconnect injector 1. Measure resistance between injector pin 1 and 2 (Expected value = 14 to15 ohms). Measure resistance from harness connector: INJ1-1 to INJ1-2 (Expected value: > OPEN). Measure voltage between harness connector INJ1-2 and ground. (Expected value: 11 to 13 volts). Measure resistance from harness connector: ECM-K4 to INJ1-1 (Expected value: < 2 ohms).

FAULT CODE	REPORTING MODULE	DESCRIPTION	POSSIBLE CAUSE	SERVICE ACTION
P0262	ECM	Cylinder 1 injector shorted to battery +	Damaged injector, damaged circuit wires, damaged connector or damaged ECM output pins.	Disconnect injector 1. Measure resistance between injector pin 1 and 2 (Expected value = 14 to15 ohms). Measure resistance from harness connector: INJ1-1 to INJ1-2 (Expected value: > OPEN). Measure voltage between harness connector INJ1-2 and ground. (Expected value: 11 to 13 volts). Measure resistance from harness connector: ECM-K4 to INJ1-1 (Expected value: < 2 ohms).
P0264	ECM	Cylinder 2 injector open circuit or shorted to ground	Blown fuse, damaged or disconnected injector, damaged or disconnected circuit wires, damaged ECM output pins.	Disconnect injector 2. Measure resistance between injector pin 1 and 2 (Expected value = 14 to15 ohms). Measure resistance from harness connector: INJ2-1 to INJ2-2 (Expected value: > OPEN). Measure voltage between harness connector INJ2-2 and ground. (Expected value: 11 to 13 volts). Measure resistance from harness connector: ECM-L4 to INJ2-1 (Expected value: < 2 ohms).
P0265	ECM	Cylinder 2 injector shorted to battery +	Damaged injector, damaged circuit wires, damaged connector or damaged ECM output pins.	Disconnect injector 2. Measure resistance between injector pin 1 and 2 (Expected value = 14 to15 ohms). Measure resistance from harness connector: INJ2-1 to INJ2-2 (Expected value: > OPEN). Measure voltage between harness connector INJ2-2 and ground. (Expected value: 11 to 13 volts). Measure resistance from harness connector: ECM-L4 to INJ2-1 (Expected value: < 2 ohms).

FAULT CODE	REPORTING MODULE	DESCRIPTION	POSSIBLE CAUSE	SERVICE ACTION
P0338	ECM	Crankshaft Position Sensor Spike detected	Damaged CPS, damaged circuit wires, damaged connector or damaged ECM output pins. Wrong mounting position of sensor.	Make sure sensor connector is fully inserted. Measure resistance from connector: ECM-E1 to CPS-1 (Expected value: < 2 ohms). Measure resistance from connector: ECM-D1 to CPS-2 (Expected value: < 2 ohms).
P0339	ECM	Crankshaft Position Sensor Intermittent	Incorect number of tooth detecded. Damaged CPS, damaged circuit wires, damaged connector or damaged ECM output pins. Wrong mounting position of sensor.	Make sure sensor connector is fully inserted. Measure resistance from connector: ECM-E1 to CPS-1 (Expected value: < 2 ohms). Measure resistance from connector: ECM-D1 to CPS-2 (Expected value: < 2 ohms).
P0480	ECM	Radiator cooling fan relay	Blown fuse, damaged or disconnected relay, damaged circuit wires or connectors, damaged ECM output pins, damaged Relay.	Check fuse Disconnect relay. Measure resistance between terminals 85 and 86 on relay. (Expected value: 70 to 90 ohms) Measure resistance between harness connector PF-1E and ground. (Expected value > OPEN). Measure resistance from harness connector: ECM-B3 to PF1-1E (Expected value: < 2 ohms)
P0508	ECM	Idle Air Control System Circuit Low	Damaged IDLE, damaged circuit wires, damaged connector or damaged ECM output pins.	Make sure IDLE connector is fully inserted. Measure resistance from connector: ECM-D4 to IDLE-D (Expected value: < 2 ohms). Measure resistance from connector: ECM-D3 to IDLE-A (Expected value: < 2 ohms). Measure resistance from connector: ECM-E4 to IDLE-B (Expected value: < 2 ohms). Measure resistance from connector: ECM-C4 to IDLE-C (Expected value: < 2 ohms).

FAULT CODE	REPORTING MODULE	DESCRIPTION	POSSIBLE CAUSE	SERVICE ACTION
P0509	ECM	Idle Air Control System Circuit High	Damaged IDLE, damaged circuit wires, damaged connector or damaged ECM output pins.	Make sure IDLE connector is fully inserted. Measure resistance from connector: ECM-D4 to IDLE-D (Expected value: < 2 ohms). Measure resistance from connector: ECM-D3 to IDLE-A (Expected value: < 2 ohms). Measure resistance from connector: ECM-E4 to IDLE-B (Expected value: < 2 ohms). Measure resistance from connector: ECM-C4 to IDLE-C (Expected value: < 2 ohms).
P0513	ECM	Invalid Access Key Detected	A non stored access key was detected when key switch was turned to ON.	Use a stored access key to turn key switch. If no stored access keys are available program one and try again.
P0523	ECM	Engine oil pressure sensor sticking	Damaged switch, damaged circuit wires, damaged connector, damaged ECM pins.	Measure resistance between harness connector OPS and ground When engine stopped. (Expected value < 2 ohms). Measure resistance between harness connector OPS and ground When engine running. (Expected value = open). Measure resistance from harness connector: OPS to ECM-E2 (Expected value: < 2 ohms).
P0524	ECM	Engine oil pressure too Low	Damaged switch, damaged circuit wires, damaged connector, damaged ECM pins.	Measure resistance between harness connector OPS and ground When engine stopped. (Expected value < 2 ohms). Measure resistance between harness connector OPS and ground When engine running. (Expected value = open). Measure resistance from harness connector: OPS to ECM-E2 (Expected value: < 2 ohms).

FAULT CODE	REPORTING MODULE	DESCRIPTION	POSSIBLE CAUSE	SERVICE ACTION
P0562	ECM	System voltage low	Blown fuse FC, battery failure, voltage regulator failure, damaged circuit wires or connection, damaged magneto generator. An external battery charger may have been used.	Measure battery voltage with engine stopped. (Expected value: 11 to 13 volts). Measure battery voltage with engine running. (Expected value: 13 to 14.7 volts). Check connections on voltage regulator. Check ground and positive connections on battery. Check ground on vehicle frame.
P0563	ECM	System voltage high	Damaged regulator. An external battery charger may have been used.	Measure battery voltage with engine stopped. (Expected value: 11 to 13 volts). Measure battery voltage with engine running. (Expected value: 13 to 14.7 volts). Check connections on voltage regulator. Check ground and positive connections on battery. Check ground on vehicle frame.
P0615	ECM	Starter Relay circuit open	Damaged relay, Danaged start switch, damaged circuit wires, damaged connector, damaged ECM pins.	Check start button, Check Run/Stop button, check if free weeling diode is in the good way. Disconnect starter solenoid relay. Measure resistance from harness connector: ECM-L3 to SS2 (Expected value: < 2 ohms). Measure resistance from harness connector: MG2-6 to SS1 (Expected value: < 2 ohms). Measure resistance between terminals SS1 and SS2. (Expected value: 3 to 6 ohms).

FAULT CODE	REPORTING MODULE	DESCRIPTION	POSSIBLE CAUSE	SERVICE ACTION
P0616	ECM	Starter Relay circuit shorted to ground	Damaged relay, Danaged start switch, damaged circuit wires, damaged connector, damaged ECM pins.	Check start button, Check Run/Stop button, check if free weeling diode is in the good way. Disconnect starter solenoid relay. Measure resistance from harness connector: ECM-L3 to SS2 (Expected value: < 2 ohms). Measure resistance from harness connector: MG2-6 to SS1 (Expected value: < 2 ohms). Measure resistance between terminals SS1 and SS2. (Expected value: 3 to 6 ohms).
P0617	ECM	Starter Relay circuit shorted to battery +	Damaged relay, Danaged start switch, damaged circuit wires, damaged connector, damaged ECM pins.	Check start button, Check Run/Stop button, check if free weeling diode is in the good way. Disconnect starter solenoid relay. Measure resistance from harness connector: ECM-L3 to SS2 (Expected value: < 2 ohms). Measure resistance from harness connector: MG2-6 to SS1 (Expected value: < 2 ohms). Measure resistance between terminals SS1 and SS2. (Expected value: 3 to 6 ohms).
P0642	ECM	Sensor Reference Voltage Low	Damaged sensor connected to ECM voltage supply. Damaged ECM voltage supply output.	Measure voltage between harness connector ECM-A1 and ground. (Expected value: 4.8 to 5.1 volts). Check sensor connected to ECM voltage supply output.
P0643	ECM	Sensor Reference Voltage High	Damaged sensor connected to ECM voltage supply. Damaged ECM voltage supply output.	Measure voltage between harness connector ECM-A1 and ground. (Expected value: 4.8 to 5.1 volts). Check sensor connected to ECM voltage supply output.

FAULT CODE	REPORTING MODULE	DESCRIPTION	POSSIBLE CAUSE	SERVICE ACTION
P0685	ECM	Accessory relay circuit	Diagnosis related to Accessories or Light relay. Blown fuse, damaged or disconnected relay, damaged circuit wires, damaged connectors or damaged ECM output pins.	Check fuse. Disconnect Accessory relay and Lights relay and turn key switch (on w/lights). Measure voltage between harness connector PF1-10E and ground. (Expected value: 11 to 13 volts). Measure voltage between harness connector PF1-6D and ground. (Expected value: 11 to 13 volts). Measure resistance from harness connector: ECM-K2 to PF1-12D (Expected value: < 2 ohms). Measure resistance from harness connector: ECM-K2 to PF1-7C (Expected value: < 2 ohms). Measure resistance between terminals 85 and 86 on the 2 relays. (Expected value: 70 to 90 ohms).
P0686	ECM	Accessory relay circuit shorted to ground or open circuit	diagnosis related to Accessories or Light relay, Blown fuse, damaged or disconnected relay, damaged circuit wires, damaged connectors or damaged ECM output pins	Check fuse. Disconnect Accessory relay and Lights relay and turn key switch (on w/lights). Measure voltage between harness connector PF1-10E and ground. (Expected value: 11 to 13 volts). Measure voltage between harness connector PF1-6D and ground. (Expected value: 11 to 13 volts). Measure resistance from harness connector: ECM-K2 to PF1-12D (Expected value: < 2 ohms). Measure resistance from harness connector: ECM-K2 to PF1-7C (Expected value: < 2 ohms). Measure resistance between terminals 85 and 86 on the 2 relays. (Expected value: 70 to 90 ohms).

FAULT CODE	REPORTING MODULE	DESCRIPTION	POSSIBLE CAUSE	SERVICE ACTION
P0687	ECM	Accessory relay circuit shorted to battery +	diagnosis related to Accessories or Light relay, Damaged relay, damaged circuit wires, damaged connector or damaged ECM output pins.	Check fuse Disconnect Accessory relay and Lights relay and turn key switch (on w/lights) Measure voltage between harness connector PF1-10E and ground. (Expected value: 11 to 13 volts) Measure voltage between harness connector PF1-6D and ground. (Expected value: 11 to 13 volts) Measure resistance from harness connector: ECM-K2 to PF1-12D (Expected value: < 2 ohms) Measure resistance from harness connector: ECM-K2 to PF1-7C (Expected value: < 2 ohms) Measure resistance between terminals 85 and 86 on the 2 relays. (Expected value: 70 to 90 ohms)
P0691	ECM	Radiator fan circuit shorted to ground or open circuit	Blown fuse, damaged or disconnected fan relay, damaged circuit wires, damaged connectors or damaged ECM output pins.	Check fuse. Disconnect radiator fan relay. Measure voltage between harness connector PF1-3D and ground. (Expected value: 11 to 13 volts). Measure resistance from harness connector: ECM-B3 to PF1-1E (Expected value: < 2 ohms). Measure resistance between terminals 85 and 86 on relay. (Expected value: 70 to 90 ohms).
P0692	ECM	Radiator fan circuit shorted to battery +	Damaged fan relay, damaged circuit wires, damaged connector or damaged ECM output pins.	Check fuse. Disconnect radiator fan relay. Measure voltage between harness connector PF1-3D and ground. (Expected value: 11 to 13 volts). Measure resistance from harness connector: ECM-B3 to PF1-1E (Expected value: < 2 ohms). Measure resistance between terminals 85 and 86 on relay. (Expected value: 70 to 90 ohms).

FAULT CODE	REPORTING MODULE	DESCRIPTION	POSSIBLE CAUSE	SERVICE ACTION
P0705	ECM	Subtransmission Internal switch Combinations error	Wrong Switch Combinations. Damaged Switch, damaged circuit wires, damaged connectors or damaged ECM pins.	Check for disconnected transmission connector. Check for misplaced terminal on gearbox. Measure resistance form each switch to ground in all position (PR and N) (Expected value if switch activated: < 2 ohms). Measure resistance from harness connector: ECM-J3 to PRN-1 (Expected value: < 2 ohms). Measure resistance from harness connector: ECM-H2 to PRN-2 (Expected value: < 2 ohms). Measure resistance from harness connector: ECM-H4 to PRN-3 (Expected value: < 2 ohms).
P0706	ECM	GBPS invalide gear position	GBPS pisition not plausible.	Verify that gear position information change when you change the position of gear on vehicle. Disconnect GBPS. Measure voltage between harness connector GBPS-1 and GBPS-3. (Expected value: 4.8 to 5.1 volts). Measure resistance from connector: ECM-D2 to GBPS-2 (Expected value: < 2 ohms). Measure resistance from connector: ECM-C3 to GBPS-3 (Expected value: < 2 ohms). Replace GBPS sensor.

FAULT CODE	REPORTING MODULE	DESCRIPTION	POSSIBLE CAUSE	SERVICE ACTION
P0707	ECM	Gear position sensor shorted to ground, or open circuit		Verify that gear position information change when you change the position of gear on vehicle. Disconnect GBPS. Measure voltage between harness connector GBPS-1 and GBPS-3. (Expected value: 4.8 to 5.1 volts) Measure resistance from connector: ECM-D2 to GBPS-2 (Expected value: < 2 ohms) Measure resistance from connector: ECM-C3 to GBPS-3 (Expected value: < 2 ohms) Replace GBPS sensor
P0708	ECM	Gear position sensor circuit shorted to battery +		Verify that gear position information change when you change the position of gear on vehicle. Disconnect GBPS. Measure voltage between harness connector GBPS-1 and GBPS-3. (Expected value: 4.8 to 5.1 volts). Measure resistance from connector: ECM-D2 to GBPS-2 (Expected value: < 2 ohms). Measure resistance from connector: ECM-C3 to GBPS-3 (Expected value: < 2 ohms). Replace GBPS sensor.
P1562	ECM	System voltage low (from Key switch)	Blown fuse FC, battery failure, voltage regulator failure, damaged circuit wires or connection, damaged magneto generator. An external battery charger may have been used.	Measure battery voltage with engine stopped. (Expected value: 11 to 13 volts). Measure battery voltage with engine running. (Expected value: 13 to 14.7 volts). Check connections on voltage regulator. Check ground and positive connections on battery. Check ground on vehicle frame.

FAULT CODE	REPORTING MODULE	DESCRIPTION	POSSIBLE CAUSE	SERVICE ACTION
P1563	ECM	System voltage high (from Key switch)	Damaged regulator. An external battery charger may have been used.	Measure battery voltage with engine stopped. (Expected value: 11 to 13 volts). Measure battery voltage with engine running. (Expected value: 13 to 14.7 volts). Check connections on voltage regulator. Check ground and positive connections on battery. Check ground on vehicle frame.
P1619	ECM	TPS adaptation failure	Wrong throttle body mechanical position during reset of closed TPS or no initialization after ECM replacement.	Check THROTTLE cable adjustment. Check idle stop for wear. Ensure throttle plate is against throttle stop. Perform THROTTLE POSITION SENSOR INITIALIZATION in B.U.D.S. with throttle completely OFF.
P2300	ECM	Cyllinder 1 Ignition output shorted to ground	Damaged ignition coil, damaged circuit wires, damaged connector or damaged ECM output pins.	Open the ECM Activation page in B.U.D.S. Perform an ignition coil activation and check if ignition coil is reacting as expected. Measure resistance from harness connector: ECM-M2 to BA-3 (Expected value: < 2 ohms). Measure voltage between harness connector BA-2 and ground. (Expected value: 11 to 13 volts). Refer to the service manual for detailed ignition coil testing procedure.

FAULT CODE	REPORTING MODULE	DESCRIPTION	POSSIBLE CAUSE	SERVICE ACTION
P2301	ECM	Cyllinder 1 Ignition output short to V +	Damaged ignition coil, damaged circuit wires, damaged connector or damaged ECM output pins.	Open the ECM Activation page in B.U.D.S. Perform an ignition coil activation and check if ignition coil is reacting as expected. Measure resistance from harness connector: ECM-M2 to BA-3 (Expected value: < 2 ohms). Measure voltage between harness connector BA-2 and ground. (Expected value: 11 to 13 volts). Refer to the service manual for detailed ignition coil testing procedure.
P2303	ECM	Cyllinder 2 Ignition output shorted to ground	Damaged ignition coil, damaged circuit wires, damaged connector or damaged ECM output pins.	Open the ECM Activation page in B.U.D.S. Perform an ignition coil activation and check if ignition coil is reacting as expected. Measure resistance from harness connector: ECM-M1 to BA-1 (Expected value: < 2 ohms). Measure voltage between harness connector BA-2 and ground. (Expected value: 11 to 13 volts). Refer to the service manual for detailed ignition coil testing procedure.
P2304	ECM	Cyllinder 2 Ignition output short to V +	Damaged ignition coil, damaged circuit wires, damaged connector or damaged ECM output pins.	Open the ECM Activation page in B.U.D.S. Perform an ignition coil activation and check if ignition coil is reacting as expected. Measure resistance from harness connector: ECM-M1 to BA-1 (Expected value: < 2 ohms). Measure voltage between harness connector BA-2 and ground. (Expected value: 11 to 13 volts). Refer to the service manual for detailed ignition coil testing procedure.
P280A	ECM	Gear position sensor adaptation not plausible	GBPS learning position failure. Wrong transmission mechanical position during GBPS reset. No initialization after ECM replacement.	Using B.U.D.S. performe a GBPS initialization.

FAULT CODE	REPORTING MODULE	DESCRIPTION	POSSIBLE CAUSE	SERVICE ACTION
U0073	ECM	CAN bus off, no messages	Damaged circuit wires or damaged CLUSTER pins.	Disconnect MPI2 from DB connector. Measure resistance between DB-1 and DB-2 (Expected value = 50 to 70 ohms). Measure resistance between DB-1 and ECM-B1 (Expected value < 2 ohms). Measure resistance between DB-2 and ECM-C1 (Expected value < 2 ohms).
U0155	ECM	Lost communication with CLUSTER	Missing CLUSTER CAN ID. Module internal error. Damaged circuit wires or damaged module pins.	Measure voltage between harness connector CL-17 and ground. (Expected value = 11 to 13 volts). Disconnect MPI2 from DLC connector. Measure resistance between DLC-1 and DLC-2 (Expected value = 50 to 70 ohms). Measure resistance between DLC-1 and ECM-B1 (Expected value < 2 ohms). Measure resistance between DLC-2 and ECM-C1 (Expected value < 2 ohms). Measure resistance between DLC-1 and CL-19 (Expected value < 2 ohms). Measure resistance between DLC-2 and CL-18 (Expected value < 2 ohms).

FAULT CODE	REPORTING MODULE	DESCRIPTION	POSSIBLE CAUSE	SERVICE ACTION
U0155	ECM	Lost communication with CLUSTER (lost of CAN ID's)	Missing CAN ID. Module internal error. Damaged circuit wires or damaged module pins.	Check for Cluster fault or ECM fault. Measure voltage between harness connector CL-17 and ground. (Expected value = 11 to 13 volts). Disconnect MPI2 from DLC connector. Measure resistance between DLC-1 and DLC-2 (Expected value = 50 to 70 ohms). Measure resistance between DLC-1 and ECMB-C1 (Expected value < 2 ohms). Measure resistance between DLC-2 and ECMB-C2 (Expected value < 2 ohms). Measure resistance between DLC-1 and CL-19 (Expected value < 2 ohms). Measure resistance between DLC-2 and CL-18 (Expected value < 2 ohms).
U0167	ECM	Lost communication with Vehicle Immobilizer Control Module	The Vehicle Immobilizer is reporting an electrical fault on the communication line.	Check for dirty or oxidized Key contact. Clean key contact if needed. Check for broke key contact. Ensure sensor connector is fully inserted. Measure resistance between ECMB-A1 and CC-C (Expected value < 2 ohms). Measure resistance between ECMB-C2 and CC-E (Expected value < 2 ohms).

FAULT CODE	REPORTING MODULE	DESCRIPTION	POSSIBLE CAUSE	SERVICE ACTION
U0167	ECM	Lost communication with Vehicle Immobilizer Control Module	The Vehicle Immobilizer is reporting an electrical fault on the communication line.	Check for dirty or oxidized Key contact. Clean key contact if needed. Check for broke key contact. Ensure sensor connector is fully inserted. Measure resistance between ECMB-A1 and CC-C (Expected value < 2 ohms). Measure resistance between ECMB-C2 and CC-E (Expected value < 2 ohms).
U0300	ECM	Invalid Security Exchange received	Incorrect ECM or CLUSTER. Incorrect software version.	Install the proper ECM or CLUSTER on vehicle. Update security coding using B.U.D.S.
U0426	ECM	Invalid Data Received From Vehicle Immobilizer Control Module	The Vehicle Immobilizer could not read the number of the access key.	Check for dirty or oxidized Key contact. Clean key contact if needed. Check for broke key contact. Ensure sensor connector is fully inserted. Measure resistance between ECMB-A1 and CC-C (Expected value < 2 ohms). Measure resistance between ECMB-C2 and CC-E (Expected value < 2 ohms).