

Wheels and Tires - Tire Pressure Monitoring System (TPMS)

Diagnosis and Testing

Principles of Operation

For a detailed description of the Tire Pressure Monitoring System, refer to the relevant Description and Operation section in the workshop manual. REFER to: [Wheels and Tires](#) (204-04 Wheels and Tires, Description and Operation).

Inspection and Verification



CAUTION: Diagnosis by substitution from a donor vehicle is **NOT** acceptable. Substitution of control modules does not guarantee confirmation of a fault, and may also cause additional faults in the vehicle being tested and/or the donor vehicle.

NOTES:



If a control module or a component is suspect and the vehicle remains under manufacturer warranty, refer to the Warranty Policy and Procedures manual, or determine if any prior approval programme is in operation, prior to the installation of a new module/component.



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



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

1. Verify the customer concern
2. Visually inspect for obvious signs of damage and system integrity

Visual Inspection

Mechanical	Electrical
<ul style="list-style-type: none"> • Wheels/tires • Tire pressure sensors 	<ul style="list-style-type: none"> • Fuses • Wiring harnesses and connectors • Central junction box • Tire pressure sensors

3. If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step
4. If the cause is not visually evident, verify the symptom and refer to the Symptom Chart, alternatively check for Diagnostic Trouble Codes (DTCs) and refer to the DTC Index
5. Check DDW for open campaigns. Refer to the corresponding bulletins and SSMs which may be valid for the specific customer complaint and carry out the recommendations as required

Symptom Chart

Symptom	Possible Causes	Action
Tire pressure monitoring system warning indicator illuminated continuously	<ul style="list-style-type: none"> • One or more tires punctured / incorrectly inflated 	<p>NOTE: To extinguish the warning indicator/message, it is essential that the tire pressures are adjusted to the correct pressure with the ignition set to on. It is not necessary to drive the vehicle to extinguish the warning indicator/message; changing the tire pressure causes the tire pressure sensor to transmit new data.</p> <ul style="list-style-type: none"> • Check the tires for punctures. Check the tire pressures and correct as necessary
Tire pressure monitoring system warning indicator flashing for 75 seconds and then illuminated continuously	<ul style="list-style-type: none"> • Tire pressure monitoring system fault 	<ul style="list-style-type: none"> • Using the manufacturer approved diagnostic system, check the central junction box for related DTCs and refer to the relevant DTC index

Tire Pressure Check and Adjustment



NOTE: Tire pressure adjustments are part of routine owner maintenance. Tire pressure adjustments that are required due to a lack of owner maintenance are not to be claimed under vehicle warranty.

The tire pressures should be checked using a calibrated tire pressure gauge and when the tires are cold (vehicle parked in the ambient temperature for at least one hour, not in a garage with an artificial ambient temperature).

If the tire pressure warning indicator/message does not clear within two minutes of adjusting the tire pressures, it is likely that the gauge is not correctly calibrated or the tires are warm. Perform the following steps until the warning has cleared:

1. Rotate the wheels by 180°
2. Increase the tire pressures by 3psi
3. Wait a further two minutes
4. Reset the tire pressures to the correct pressure

DTC Index

For a list of Diagnostic Trouble Codes (DTCs) that could be logged on this vehicle, please refer to Section 100-00.REFER to: [Diagnostic Trouble Code \(DTC\) Index - DTC: Module Name: Central Junction Box](#) (100-00 General Information, Description and Operation).

Pinpoint Tests

PINPOINT TEST A : U201F-11 TESTS					
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS				
A1: U201F-11 TEST 1					
	1 Set the ignition to off				
	2 Disconnect tire pressure monitoring system RF receiver connector C2875				
	3 Measure the resistance between:				
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: center;">C2875, harness side</th> <th style="width: 50%; text-align: center;">Battery</th> </tr> </thead> <tbody> <tr> <td>Terminal 1</td> <td>Negative terminal</td> </tr> </tbody> </table>	C2875, harness side	Battery	Terminal 1	Negative terminal
C2875, harness side	Battery				
Terminal 1	Negative terminal				
	Is the resistance less than 5 ohms? Yes GO to A2 . No GO to A3 .				
A2: U201F-11 TEST 2					
	1 Disconnect central junction box connector C0580				
	2 Measure the resistance between:				
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: center;">C2875, harness side</th> <th style="width: 50%; text-align: center;">Battery</th> </tr> </thead> <tbody> <tr> <td>Terminal 1</td> <td>Negative terminal</td> </tr> </tbody> </table>	C2875, harness side	Battery	Terminal 1	Negative terminal
C2875, harness side	Battery				
Terminal 1	Negative terminal				
	Is the resistance less than 5 ohms? Yes Refer to the electrical circuit diagrams and check the tire pressure monitoring system RF receiver LIN circuit for short circuit to ground. Repair the LIN circuit as necessary No GO to A4 .				
A3: U201F-11 TEST 3					
	1 Reconnect tire pressure monitoring system RF receiver connector C2875				
	2 Using the manufacturer approved diagnostic system, clear the DTCs				
	3 Set the ignition to off				
	4 Set the ignition to on				
	5 Read DTCs				
	Is DTC U201F-11 set? Yes Install a new tire pressure monitoring system RF receiver No Investigate possible cause of intermittent failure				
A4: U201F-11 TEST 4					
	1 Reconnect central junction box connector C0580				
	2 Reconnect tire pressure monitoring system RF receiver connector C2875				
	3 Using the manufacturer approved diagnostic system, clear the DTCs				
	4 Set the ignition to off				

	5	Set the ignition to on
	6	Read DTCs
	Is DTC U201F-11 set?	
	Yes Install a new central junction box	
	No Investigate possible cause of intermittent failure	

PINPOINT TEST B : U201F-12 TESTS

TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
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B1: U201F-12 TEST 1

	1	Set the ignition to off				
	2	Disconnect tire pressure monitoring system RF receiver connector C2875				
	3	Measure the resistance between:				
		<table border="1" style="width: 100%;"> <tr> <th style="width: 50%;">C2875, harness side</th> <th style="width: 50%;">Battery</th> </tr> <tr> <td>Terminal 1</td> <td>Positive terminal</td> </tr> </table>	C2875, harness side	Battery	Terminal 1	Positive terminal
C2875, harness side	Battery					
Terminal 1	Positive terminal					
	Is the resistance less than 5 ohms?					
	Yes GO to B2 .					
	No GO to B3 .					

B2: U201F-12 TEST 2

	1	Disconnect central junction box connector C0580				
	2	Measure the resistance between:				
		<table border="1" style="width: 100%;"> <tr> <th style="width: 50%;">C2875, harness side</th> <th style="width: 50%;">Battery</th> </tr> <tr> <td>Terminal 1</td> <td>Positive terminal</td> </tr> </table>	C2875, harness side	Battery	Terminal 1	Positive terminal
C2875, harness side	Battery					
Terminal 1	Positive terminal					
	Is the resistance less than 5 ohms?					
	Yes Refer to the electrical circuit diagrams and check the tire pressure monitoring system RF receiver LIN circuit for short circuit to power. Repair the LIN circuit as necessary					
	No GO to B4 .					

B3: U201F-12 TEST 3

	1	Reconnect tire pressure monitoring system RF receiver connector C2875
	2	Using the manufacturer approved diagnostic system, clear the DTCs
	3	Set the ignition to off
	4	Set the ignition to on
	5	Read DTCs
	Is DTC U201F-12 set?	
	Yes Install a new tire pressure monitoring system RF receiver	
	No Investigate possible cause of intermittent failure	

B4: U201F-12 TEST 4

	1	Reconnect central junction box connector C0580
	2	Reconnect tire pressure monitoring system RF receiver connector C2875
	3	Using the manufacturer approved diagnostic system, clear the DTCs
	4	Set the ignition to off
	5	Set the ignition to on
	6	Read DTCs
	Is DTC U201F-12 set?	
	Yes Install a new central junction box	
	No Investigate possible cause of intermittent failure	

PINPOINT TEST C : U201F-87 TESTS

TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
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C1: U201F-87 TEST 1

	1	Using a multimeter, measure and record the battery voltage (reference voltage)
	2	Connect the multimeter to tire pressure monitoring system RF receiver connector C2875 terminals 3 and 2
	Is the measured voltage less than battery voltage?	
	Yes Repair the tire pressure monitoring system RF receiver power/ground circuit as necessary	

	No GO to C2 .				
C2: U201F-87 TEST 2					
1	Disconnect tire pressure monitoring system RF receiver connector C2875				
2	Disconnect central junction box connector C0580				
3	Measure the resistance between:				
	<table border="1"> <tr> <td style="text-align: center;">C2875, harness side</td> <td style="text-align: center;">C0580, harness side</td> </tr> <tr> <td>Terminal 1</td> <td>Terminal 25</td> </tr> </table>	C2875, harness side	C0580, harness side	Terminal 1	Terminal 25
C2875, harness side	C0580, harness side				
Terminal 1	Terminal 25				
	Is the resistance less than 5 ohms? Yes GO to C3 . No Refer to the electrical circuit diagrams and check the tire pressure monitoring system RF receiver LIN circuit for open circuit, high resistance. Repair the LIN circuit as necessary				
C3: U201F-87 TEST 3					
1	Reconnect central junction box connector C0580				
2	Reconnect tire pressure monitoring system RF receiver connector C2875				
3	Using the manufacturer approved diagnostic system, clear the DTCs				
4	Set the ignition to off				
5	Set the ignition to on				
6	Read DTCs				
	Is DTC U201F-87 set? Yes Install a new tire pressure monitoring system RF receiver. GO to C4 . No Investigate possible cause of intermittent failure				
C4: U201F-87 TEST 4					
1	Using the manufacturer approved diagnostic system, clear the DTCs				
2	Set the ignition to off				
3	Set the ignition to on				
4	Read DTCs				
	Is DTC U201F-87 set? Yes Install a new central junction box No Test is complete. No further action is required				
PINPOINT TEST D : C1D18-00 TESTS					
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS				
D1: C1D18-00 TEST 1					
1	Establish the locations of the tire pressure sensor localization failures: Using the manufacturer approved diagnostic system, check datalogger signals: <ul style="list-style-type: none"> • Wheel Position Triggering Statistic, Identifier 1, Unsuccessful triggering (0x4149) • Wheel Position Triggering Statistic, Identifier 2, Unsuccessful triggering (0x4149) • Wheel Position Triggering Statistic, Identifier 3, Unsuccessful triggering (0x4149) • Wheel Position Triggering Statistic, Identifier 4, Unsuccessful triggering (0x4149) 				
	Have the locations of the tire pressure sensor localization failures been identified? Yes GO to D2 . No Investigate possible cause of intermittent failure				
D2: C1D18-00 TEST 2					
1	Using the manufacturer approved diagnostic system, check the central junction box for tire pressure sensor related DTCs				
	Are any tire pressure sensor related DTCs set? Yes Refer to the relevant DTC index and perform the relevant corrective actions No GO to D3 .				
D3: C1D18-00 TEST 3					
1	Using the manufacturer approved diagnostic system, check the central junction box for initiator related DTCs				
	Are any initiator related DTCs set? Yes Refer to the relevant DTC index and perform the relevant corrective actions No				

[GO to D4](#) .

D4: C1D18-00 TEST 4

1 Check for correct installation of the initiator(s) in the location(s) identified

Are the initiator(s) correctly installed?

Yes

[GO to D5](#) .

No

Install the initiators correctly

D5: C1D18-00 TEST 5

1 Set the ignition to off

2 Disconnect central junction box connector C0584 (front initiators)

3 Disconnect central junction box connector C0586 (rear initiators)

4 Measure the resistance of the front right initiator circuit

C0584, harness side

C0584, harness side

Terminal 1

Terminal 2

5 Measure the resistance of the front left initiator circuit

C0584, harness side

C0584, harness side

Terminal 14

Terminal 15

6 Measure the resistance of the rear right initiator circuit

C0586, harness side

C0586, harness side

Terminal 30

Terminal 31

7 Measure the resistance of the rear left initiator circuit

C0586, harness side

C0586, harness side

Terminal 18

Terminal 19

Are any of the initiator resistance measurements less than 1 Ohm?

Yes

Repair the short circuit as necessary

No

Install new tire pressure sensor(s) in the locations identified

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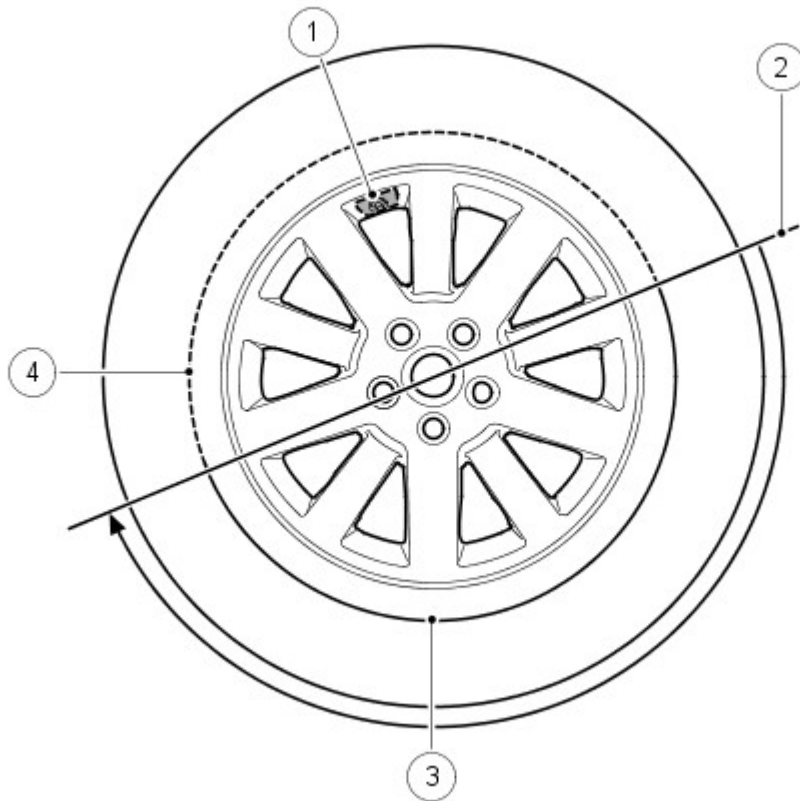
Description and Operation

TIRES



NOTE: The TPMS valve should be serviced using the suitable service kit, each time the tyre is dismantled, to ensure an air tight seal. Attention should be made to the detail of fitting this kit.

Care must be taken when removing and refitting tires to ensure that the tire pressure sensor is not damaged.



E45549

Item	Description
1	Tire valve and pressure sensor
2	Tire fitting/removal tool initial start position
3	High tire and bead tension area
4	Low tire and bead tension area

When removing the tire, the bead breaker must not be used within 90 degrees of the tire valve in each direction.

When using the tire removal machine, the fitting arm start position must be positioned as shown in the tire changing illustration. The wheel can then be rotated through 180 degrees in a counterclockwise direction. This will relieve the high tension from the tire bead allowing the remaining 180 degrees of the tire to be manually pulled from the rim.

When refitting the tire, position the fitting arm as shown. Rotate the tire and take care that the bead on the low tension side of the tire does not damage the sensor.

Tread Act - NAS Only

Vehicles supplied to the North American markets must comply with the legislation of the Transport Recall Enhancement, Accountability and Documentation (TREAD) act. Part of the requirement of the TREAD act is for the vehicle to display a label, positioned on the driver's side B-pillar, which defines the recommended tire inflation pressure, load limits and maximum load of passengers and luggage weight the vehicle can safely carry. This label will be specific to each individual vehicle and will be installed on the production line.

This label must not be removed from the vehicle. The label information will only define the specification of the vehicle as it came off the production line. It will not include dealer or owner fitted accessory wheels and tires of differing size from the original fitment.

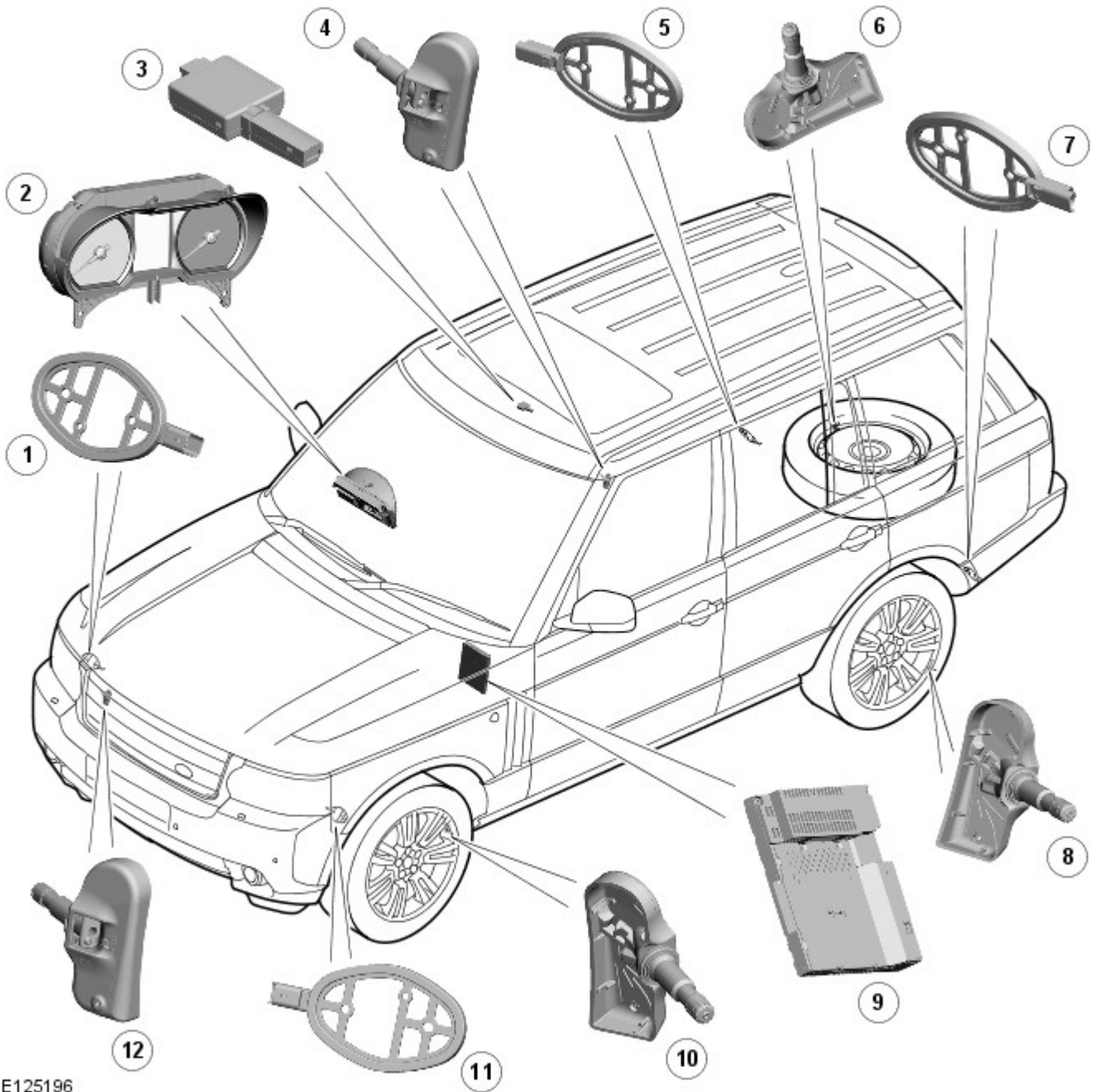


NOTE: If tires and wheels of a non-standard size are fitted to the vehicle, the car configuration file must be updated using a Land Rover approved diagnostic system.

If the label is damaged or removed for body repair, it must be replaced with a new label specific to that vehicle. A new label is requested from Land Rover parts and will be printed specifically for the supplied VIN of the vehicle.

TIRE PRESSURE MONITORING SYSTEM (TPMS)

Tire Pressure Monitoring System - Component Location



E125196

Item	Description
1	RH (right-hand) front initiator
2	Instrument cluster
3	TPMS RF receiver
4	RH rear tire pressure sensor
5	RH rear initiator
6	Spare tire pressure sensor
7	LH (left-hand) rear initiator
8	LH rear tire pressure sensor
9	Integrated Head Unit (IHU)
10	LH front tire pressure sensor
11	LH front initiator
12	RH front tire pressure sensor

The purpose of the Tire Pressure Monitoring System (TPMS) is to assist the driver in maintaining the vehicle's tire pressures at the optimum level in order to:

- improve fuel consumption
- maintain ride and handling characteristics
- reduce the risk of rapid tire deflation – which may be caused by under inflated tires

- comply with legislation in relevant markets.

The TPMS measures the pressure in each of the tires on the vehicle (including the spare, if required) and issues warnings to the driver if any of the pressures deviate from defined tolerances.

NOTES:



During a 'blow out' a very rapid reduction in pressure is experienced. The system is not intended to warn the driver of a 'blow out', since it is not possible to give the driver sufficient warning that such an event is occurring, due to its short duration. The design of the TPMS is to assist the driver in keeping the tires at the correct pressure, which will tend to reduce the likelihood of a tire 'blow out' occurring.



TPMS is inhibited when the vehicle is in Delivery mode. For more details on Delivery mode refer to the PDI manual.

A single TPMS hardware configuration is used. TPMS status information is relayed to the driver with a message displayed in the instrument cluster message center and a amber warning indicator.

Tire Location

Because of the requirement for different pressure targets and thresholds for the front and rear tires, the **CJB (central junction box)** can identify the location of the tires on the vehicle, and assign a received tire pressure sensor identification to a specific position on the vehicle (i.e. FL (front left), FR (front right), RL (rear left) or RR (rear right)).

Tire location is performed automatically by the **CJB** using an auto-location function. This function requires no manual intervention by the driver. The **CJB** can automatically learn the position of tires on the vehicle if the tire pressure sensors or their positions are changed on the vehicle.

The tire learn and location process is ready to commence when the vehicle has been stationary or is traveling at less than 12.5 mph (20 km/h) for 15 minutes. This is known as 'parking mode'. The learn/locate process requires the vehicle to be driven at speeds of more than 12 mph (20 km/h) for 15 minutes. If the vehicle speed reduces to below 12 mph (20 km/h), the learn process timer is suspended until the vehicle speed increases to more than 12 mph (20 km/h), after which time the timer is resumed. If the vehicle speed remains below 12.5 mph (20 km/h) for more than 15 minutes, the timer is set to zero and process starts again.

The **CJB** can automatically detect, under all operating conditions, the following:

- one or more tire pressure sensors have been replaced
- one or more tire pressure sensor identifications are missing
- one or more 'alien' identifications are being received, i.e. the **CJB** can reject identifications from tire pressure sensors that do not belong to the vehicle
- the spare tire and one of the tires in use on the vehicle have exchanged position on the vehicle.

If the tire pressure sensors fitted to the running wheels (not the spare) are changed, the **CJB** can learn the new sensor identifications automatically. The learn function requires no manual intervention by the driver.

If a new sensor is fitted to the spare tire it must have its identification code programmed into the **CJB** using a Land Rover approved diagnostic system, or used on the vehicle as a 'running' wheel and the vehicle driven for 15 minutes at more than 12.5 mph (20 km/h).

Spare Tire Identification

Depending on the vehicle specification, the spare tire may or may not be fitted with a tire pressure sensor.



NOTE: Tire pressure sensors cannot be fitted to steel space saver spare wheels.

If the spare tire is fitted with a tire pressure sensor, the **CJB** can detect it, determine that it is the spare tire and monitor its pressure and issue warnings to the driver accordingly. If the **CJB** expects the spare tire to be fitted with a tire pressure sensor and it does not, the **CJB** will not show a fault to the driver, however a fault code will be stored in the **CJB**.

If the spare tire is being monitored and the driver replaces a flat 'running' tire with the spare tire, the **CJB** will not continually warn the driver that the original flat tire (now in the spare position) is flat. This prevents distraction of the driver by constant pressure warnings being issued. The driver is reminded by a message displayed for 20 seconds at each ignition on cycle that the spare tire is flat.

System Operation

Each time the vehicle is driven, the **CJB** transmits a Low Frequency (LF) (125 KHz) signal to each initiator in turn. This is received by the tire pressure sensor which transmits a Radio Frequency (RF) (315 or 433 MHz depending on market) signal to the RF receiver. This signal contains coded data which corresponds to sensor identification, air pressure, air temperature and acceleration data. This signal is communicated to the **CJB** via a K-bus line.

The system enters 'parking mode' after the vehicle speed has been less than 12.5 mph (20 km/h) for 12 minutes. In parking mode the tire pressure sensors transmit a coded signal to the **CJB** once every 13 hours. If the tire pressure decreases by more than 1 lbf/in² (0.6 bar) the sensor will transmit more often if pressure is being lost.

The spare tire sensor transmits a signal every 13 hours in the same manner as the road wheels when in parking mode. If the tire pressure decreases by more than 1 lbf/in² (0.6 bar) the sensor will transmit more often if pressure is being lost.

As each wheel responds to the LF signal from the CJB, it is assigned a position on the vehicle and is monitored for the remainder of that drive cycle in that position.

When the vehicle has been parked for more than 15 minutes and then driven at a speed of more than 12.5 mph (20 km/h), the initiators fire in turn for 18 seconds in the following order:

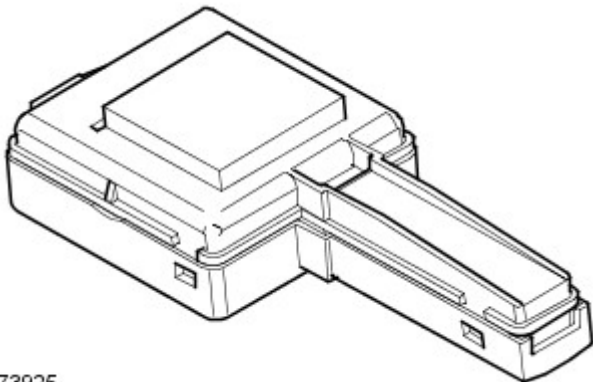
- Front left
- 6 second pause (for the to detect a response from the tire pressure sensor)
- Front right
- 6 second pause
- Rear right
- 6 second pause
- Rear left
- 6 second pause.

Each tire pressure sensor responds in turn so the CJB can establish the sensor positions at the start of the drive cycle. This process is repeated up to three times but less if the sensor positions are already known in the CJB. The process is known as 'Auto Location' and takes 7 to 8 minutes to complete. During this period the tire sensors transmit at regular intervals, once every 15 seconds. For the remainder of the drive cycle the tire sensors transmit once every 60 seconds or if a change in tire pressure is sensed until the vehicle stops and the system returns to parking mode.

Once the wheel position is established, the initiators stop firing a signal and do not fire again until the vehicle has been parked for more than 15 minutes. The signal transmissions from each wheel sensor continue at 1 minute intervals whilst the vehicle is being driven. This transmission is to monitor the tire pressure.

At 25% deflation the amber warning indicator in the instrument cluster is illuminated and an appropriate message displayed in the message center.

RF Receiver

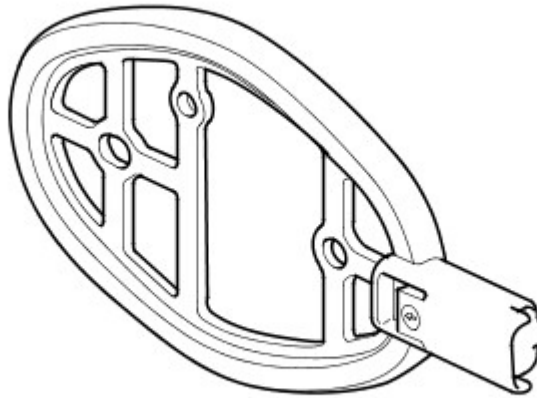


E73925

The RF receiver is mounted behind the overhead console and connects to the vehicle harness via a fly lead.

The RF receiver receives transmissions from each of the tire pressure sensors via an internal antenna. This information is then communicated to the CJB via a dedicated Local Interconnect Network (K-bus).

Initiator



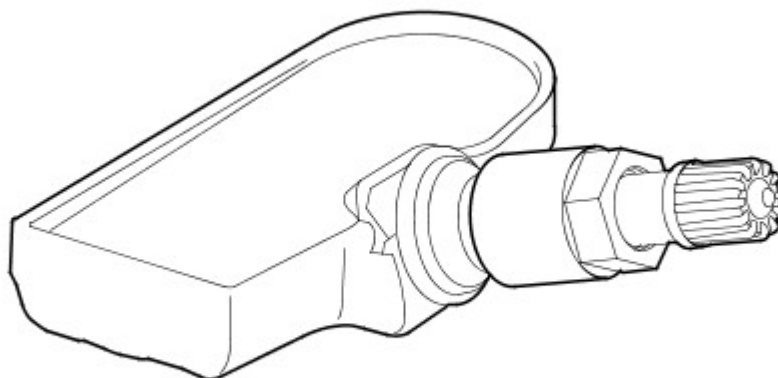
E45552

The initiators are located at the front of the front wheel arches and at the rear of the rear wheel arches and are secured with two scrivenets. The TPMS has four initiators and each has a connector which connects with the body harness.

The initiator is a passive, Low Frequency (LF) transmitter. Each initiator provides an auto-location feature to identify tire positions on the vehicle and transmit that data to the **CJB**.

The **CJB** energizes each initiator in turn using LF drivers. The corresponding tire pressure sensor detects the resulting LF transmission and responds by initiating an RF transmission of its data. This data is received by the RF receiver and communicated to the **CJB** via a K-bus. The **CJB** can then determine which sensor is transmitting and its location on the vehicle.

Tire Pressure Sensor



E45553

The TPMS system uses 'active' tire pressure sensors which are mounted on each wheel, inside the tire cavity. The sensor is retained in position by the valve attachment to the wheel structure. The sensors transmit their RF signals at either 315 MHz or 433 MHz dependent on market requirements.

The sensors periodically measure the pressure and temperature of the air inside the tire plus the centripetal acceleration acting on the sensor. These measurements are transmitted periodically to the RF receiver located behind the overhead console.

The tire pressure sensors are self-contained units which have no electrical connections into or out of the sensor.

The care points detailed in the 'Tires' section of this chapter must be followed to avoid damage to the sensor. If the sensor is replaced, the nut, seal and washer must also be replaced and the sensor tightened to the correct torque value as given in the Service Repair manual.

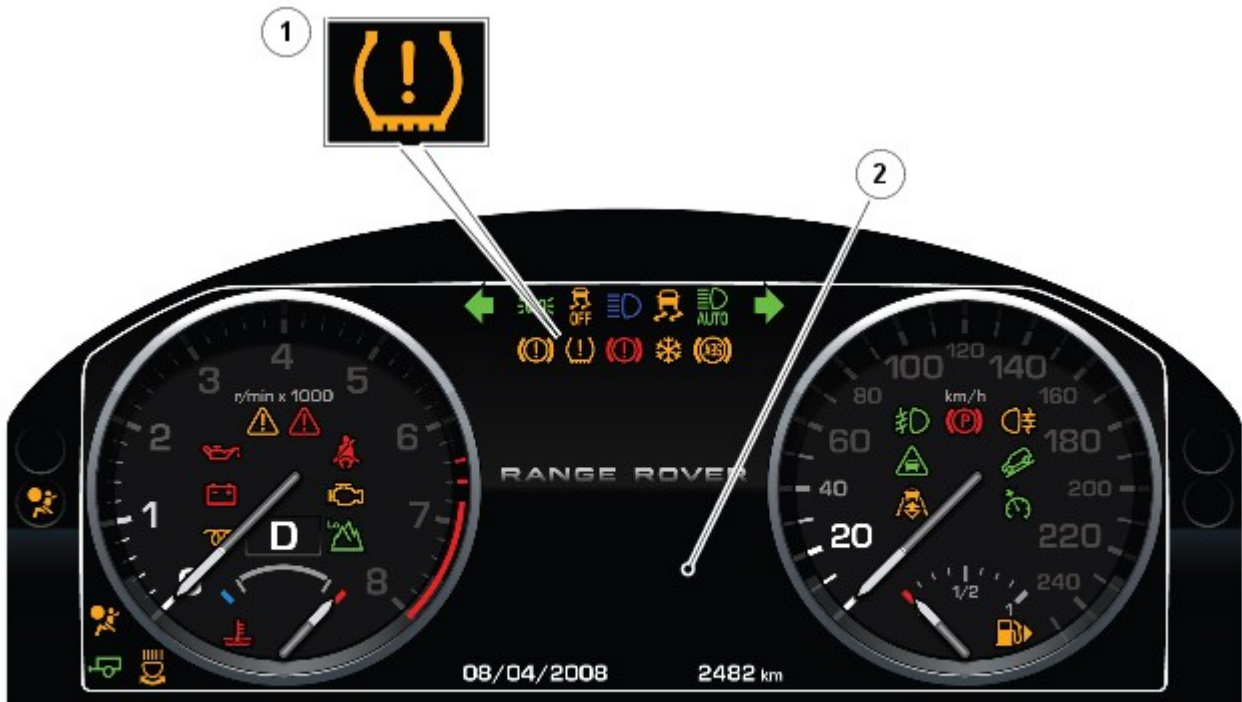
The RF transmission from the sensor contains a unique identification code in its transmission data, so that the **CJB** can identify the tire on the vehicle. If the sensor is replaced on a 'running' wheel, the new sensor identification will be learnt when the

vehicle is first driven at a speed of more than 12.5 mph (20 km/h) for 15 minutes. If a new sensor is fitted to the spare wheel, the identification for that sensor must be programmed into the **CJB** using a Land Rover approved diagnostic system or that wheel will not be monitored. The code is provided on a label with the complete wheel and tire assembly when new and is also printed on the casing of each sensor.

The replacement spare wheel may also be programmed to the vehicle by using it as a 'running' wheel for 15 minutes at more than 12.5 mph (20 km/h), then replacing it to the spare wheel position.

In order to conserve battery power, the tire sensor module uses different transmission rates when the wheel is stationary or moving. The wheel speed required to change between the stationary and moving transmission rates is very low to allow for the requirement for slow off-road driving.

Instrument Cluster Indications



E125427

Item	Description
1	Amber warning indicator
2	Message center

The warning indications to the driver are common on all vehicles fitted with TPMS. Warnings are conveyed by an amber light emitting diode (LED) warning indicator and a text message displayed in the message center.

The warning indicator and message center are driven by CAN messages from the **CJB**. The warning indicator is illuminated by the cluster software for 3 seconds when the vehicle is in power mode 6 for a bulb check.

For additional information, refer to: [Information and Message Center](#) (413-08 Information and Message Center, Description and Operation).

Controller Area Network (CAN)

The **CJB** sends and receives a number of digital messages via the medium speed controller area network (CAN). The received messages are used for the operation of the TPMS. The transmitted messages comprise of TPMS status and requests to the instrument cluster to illuminate warnings indicators and/or display messages in the message center.

Transmitted Messages

The **CJB** transmits the messages shown in the following table.

Message	Received By
TPMS diagnostic response	A Land Rover approved diagnostic system.
TPMS amber warning indicator request at 25% tire deflation	Instrument cluster
TPMS message display request	Instrument cluster

Diagnostics

The **CJB** has a diagnostic connection via the medium speed CAN to enable system status and faults to be retrieved using a Land Rover approved diagnostic system.

Additionally, an on-board diagnostic routine within the **CJB** constantly monitors the system and alerts the driver to system faults by illuminating the amber warning indicator and/or displaying a message in the instrument cluster message center.

Fault Detection

If a sensor fails, the amber warning indicator in the instrument cluster will be illuminated. A message 'XX Tyre Not Monitored' will be displayed in the message center in addition to the amber warning indicator.



NOTE: 'XX' is the tire position on the vehicle, e.g. FL (front left), FR (front right), RL (rear left) or RR (rear right).

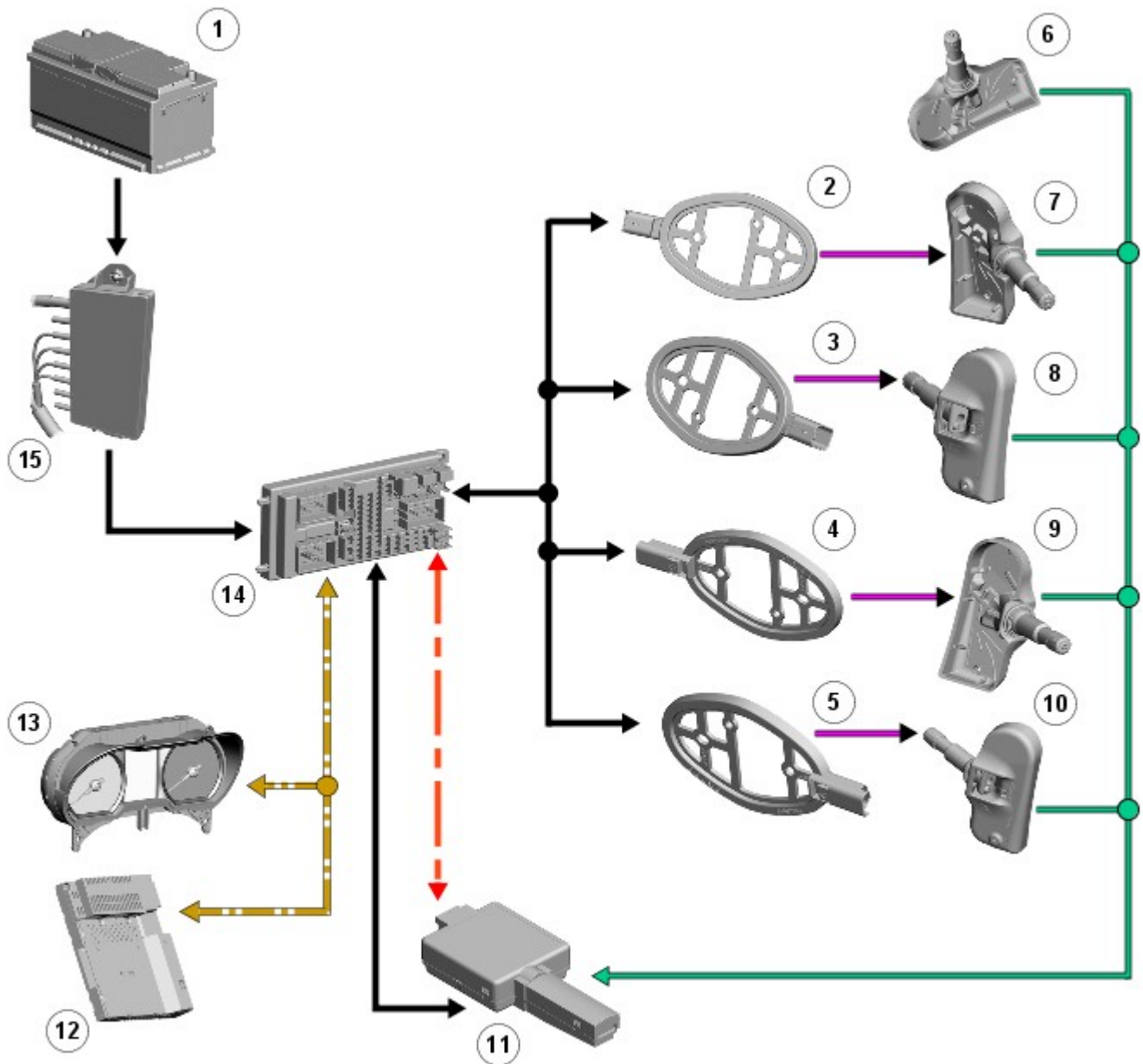
If more than one sensor fails or the **CJB** develops a fault, the amber warning indicator will be illuminated. A message 'Tyre Monitoring System Fault' will be displayed in the message center in addition to the amber warning indicator. This fault could also be caused if RF interference near the vehicle affects the system signal reception. When the interference has ceased, the fault will be automatically cancelled and the TPMS will operate normally.

If a tire pressure sensor battery voltage becomes low, the sensor transmits a message to the **CJB**. The **CJB** stores the low battery condition as a fault flag in its memory with no other visual warnings displayed. If the battery fails, the sensor will stop transmitting and the **CJB** will transmit a message to display 'FL Tyre Not Monitored' for example in the message center. The dealer should interrogate the **CJB** for the fault flag using a Land Rover approved diagnostic system to determine the cause of the message. If the battery has failed, the sensor must be replaced and the stored fault flags removed using a Land Rover approved diagnostic system. The **CJB** will learn the identification of the new sensor when the vehicle is driven. If the replaced sensor is fitted to the spare wheel (if fitted), its identification must be manually programmed into the **CJB** using a Land Rover approved diagnostic system or by using it as a 'running' wheel for 15 minutes at more than 12.5 mph (20 km/h), then replacing it to the spare wheel position.

CONTROL DIAGRAM



NOTE: **A** = Hardwired; **B** = K-Bus; **F** = RF Transmission; **N** = Medium Speed CAN Bus; **W** = LF Transmission



E125197



Item	Description
1	Battery
2	RH rear initiator
3	LH rear initiator
4	RH front initiator
5	LH front initiator
6	Spare tire pressure sensor
7	RH rear tire pressure sensor
8	LH rear tire pressure sensor
9	RH front tire pressure sensor
10	LH front tire pressure sensor
11	TPMS RF receiver
12	Integrated Head Unit (IHU)
13	Instrument cluster
14	CJB
15	BJB (battery junction box)

General Information - Diagnostic Trouble Code (DTC) Index DTC: Module Name: Central Junction Box

Description and Operation

Central Junction Box (CJB)



CAUTION: Diagnosis by substitution from a donor vehicle is **NOT** acceptable. Substitution of control modules does not guarantee confirmation of a fault, and may also cause additional faults in the vehicle being tested and/or the donor vehicle.

NOTES:



If a control module or a component is suspect and the vehicle remains under manufacturer warranty, refer to the Warranty Policy and Procedures manual, or determine if any prior approval programme is in operation, prior to the installation of a new module/component.



Generic scan tools may not read the codes listed, or may read only 5-digit codes. Match the 5 digits from the scan tool to the first 5 digits of the 7-digit code listed to identify the fault (the last 2 digits give extra information read by the manufacturer-approved diagnostic system).



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



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



Inspect connectors for signs of water ingress, and pins for damage and/or corrosion.







If DTCs are recorded and, after performing the pinpoint tests, a fault is not present, an intermittent concern may be the cause. Always check for loose connections and corroded terminals.




Check DDW for open campaigns. Refer to the corresponding bulletins and SSMs which may be valid for the specific customer complaint and carry out the recommendations as required.

The table below lists all Diagnostic Trouble Codes (DTCs) that could be logged in the Central Junction Box (CJB). For additional diagnosis and testing information, refer to the relevant Diagnosis and Testing section in the workshop manual. For additional information, refer to: [Communications Network](#) (418-00 Module Communications Network, Diagnosis and Testing).


DTC	Description	Possible Causes	Action
B1009-51	Ignition Authorization - Not programmed	<ul style="list-style-type: none"> Not programmed 	<ul style="list-style-type: none"> Configure the module using the manufacturers approved diagnostic system
B1009-62	Ignition Authorization - Signal compare failure	<p>NOTE: This DTC is only likely to occur following component replacement applications failing prior to completion</p> <ul style="list-style-type: none"> Encrypted data exchange between instrument cluster and the central junction box does not match 	<ul style="list-style-type: none"> Configure the module using the manufacturers approved diagnostic system. If problem persists, carry out CAN network integrity test and module self test using manufacturer approved diagnostic system. Alternatively, refer to the electrical circuit diagrams and check CAN circuit
B1009-63	Ignition Authorization - Circuit/component	<ul style="list-style-type: none"> Circuit/component protection time-out CAN circuit fault Instrument cluster fault 	<p>NOTE: Only diagnose this DTC if the customer is reporting a start related issue</p> <ul style="list-style-type: none"> Clear the DTC and retest. Check for additional ignition related DTCs and rectify as necessary. If problem

	protection time-out	<ul style="list-style-type: none"> Central junction box fault Battery voltage too low 	persists, carry out CAN network integrity test and on demand self test using manufacturer approved diagnostic system. Alternatively, refer to the electrical circuit diagrams and check CAN circuits
B1009-81	Ignition Authorization - Invalid serial data received	<ul style="list-style-type: none"> Invalid serial data received CAN circuit fault Instrument cluster fault 	<ul style="list-style-type: none"> Check for instrument cluster related DTCs. Configure the module using the manufacturer approved diagnostic system
B100D-51	Column Lock Authorization - Not programmed	<ul style="list-style-type: none"> Module not programmed 	<ul style="list-style-type: none"> Configure the electric steering column lock control module using the manufacturers approved diagnostic system
B100D-64	Column Lock Authorization - Signal plausibility failure	<ul style="list-style-type: none"> Signal plausibility failure Steering column lock unable to perform lock action CAN network fault Anti-lock braking system, engine control module, central junction box fault 	 NOTE: Prior to clearing this DTC, carry out the Vehicle Functional Reset application using the manufacturer approved diagnostic system <ul style="list-style-type: none"> Check the serviceability of the steering column and lock. Clear the DTC and retest. If problem persists, carry out CAN network integrity test and on demand self test using manufacturer approved diagnostic system. Alternatively, refer to the electrical circuit diagrams and check CAN circuits
B100D-67	Column Lock Authorization - Signal incorrect after event	<ul style="list-style-type: none"> Signal incorrect after event Instrument cluster fault CAN network fault 	<ul style="list-style-type: none"> Check for additional related DTCs. Clear the DTC and retest. If problem persists, carry out CAN network integrity test and on demand self test using manufacturer approved diagnostic system. Alternatively, refer to the electrical circuit diagrams and check CAN circuits
B100D-81	Column Lock Authorization - Invalid serial data received	 NOTE: This DTC is only likely to occur following component replacement applications failing prior to completion <ul style="list-style-type: none"> Encrypted data exchange between steering column lock and the central junction box does not match 	 NOTE: Prior to clearing this DTC, carry out the Vehicle Functional Reset application using the manufacturer approved diagnostic system <ul style="list-style-type: none"> Configure the module using the manufacturers approved diagnostic system. If problem persists, carry out CAN network integrity test and module self test using manufacturer approved diagnostic system. Alternatively, refer to the electrical circuit diagrams and check CAN circuit
B100D-87	Column Lock Authorization - Missing message	<ul style="list-style-type: none"> Missing message Battery voltage too low CAN network fault No response from electric steering column lock control module, instrument cluster, central junction box Electric steering column lock control module, instrument cluster, central junction box fault 	<ul style="list-style-type: none"> Check for additional related DTCs. Clear the DTC and retest. If problem persists, carry out CAN network integrity test and module self test using manufacturer approved diagnostic system. Alternatively, refer to the electrical circuit diagrams and check CAN circuit
B100D-96	Column Lock Authorization - Component internal	<ul style="list-style-type: none"> Component internal failure Battery voltage too low 	 NOTE: Prior to clearing this DTC, carry out the Vehicle Functional Reset application using the manufacturer approved diagnostic system <ul style="list-style-type: none"> Clear the DTC and retest. Check steering is not under high side load. Refer to the electrical circuit diagrams and check steering column lock circuits. Carry out CAN

	failure	<ul style="list-style-type: none"> • Torque load on steering column 	network integrity test and module self test using manufacturer approved diagnostic system. If the problem persists, renew the electric steering column lock control module
B1024-83	Start Control Unit - Value of signal protection calculation incorrect	<ul style="list-style-type: none"> • Value of signal protection calculation incorrect • Start control unit fault • LIN network fault 	<ul style="list-style-type: none"> • Clear the DTC and retest. Refer to the electrical circuit diagrams and check start control unit circuits. If the problem persists, renew the start control unit
B1024-87	Start Control Unit - Missing message	<ul style="list-style-type: none"> • Missing message • Start control unit fault • LIN network fault 	<ul style="list-style-type: none"> • Clear the DTC and retest. Refer to the electrical circuit diagrams and check start control unit circuits. If the problem persists, renew the start control unit
B1026-11	Steering Column Lock - Circuit short to ground	<ul style="list-style-type: none"> • Circuit short to ground 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check electric steering column lock circuits
B102B-67	Passive Key - Signal incorrect after event	<ul style="list-style-type: none"> • Passive key authorization signal incorrect after event • Encrypted data exchange between electric steering column lock control module and central junction box does not match • Low speed CAN fault • Keyless vehicle module fault • Central junction box fault 	<ul style="list-style-type: none"> • Configure the module using the manufacturer approved diagnostic system. Check CAN communications between the modules
B102B-87	Passive Key - Missing message	<ul style="list-style-type: none"> • Passive key authorization missing message • Confirm placement of key within vehicle • Low speed CAN fault • Key fob battery low/battery contact issue • Interference from other RF signal • Electromagnetic compatibility/noise • Keyless vehicle module fault • Receiver fault • Receiver not programmed correctly • Serial communication fault (between receiver and keyless vehicle module) • Key fault • Passive antenna fault • Central junction box fault 	 <p>NOTE: The action below is only required if this DTC and DTC B1B01-87 have been stored, or vehicle start issue has been reported</p> <ul style="list-style-type: none"> • Check whereabouts of keys, including spare and confirm correct functionality • Refer to the electrical circuit diagrams and check the power and ground circuits to the keyless vehicle module and receiver • Check CAN communications between central junction box and keyless vehicle module • Check key fob battery • Check vehicle surroundings for possible sources of interference, move vehicle and retest. Check CAN network for interference/electromagnetic compatibility related issues • Check serial circuit between receiver and keyless vehicle module. Refer to the electrical circuit diagrams and check circuits to all three antennas • Disconnect battery, then re-connect - confirm correct operation by re-programming keys using the manufacturer approved diagnostic system
B1046-23	Front Fog Lamp Control Switch - Signal stuck low	<ul style="list-style-type: none"> • Switch signal stuck low • Switch circuit short to ground • Switch activated for more than one minute 	<ul style="list-style-type: none"> • Check the operation of the switch. Refer to the electrical circuit diagrams and check the switch circuit. Clear the DTC and retest. If the DTC persists, renew the switch



		<ul style="list-style-type: none"> • Switch fault 	
B1047-23	Rear Fog Lamp Control Switch - Signal stuck low	<ul style="list-style-type: none"> • Switch signal stuck low • Switch circuit short to ground • Switch activated for more than one minute • Switch fault 	<ul style="list-style-type: none"> • Check the operation of the switch. Refer to the electrical circuit diagrams and check the switch circuit. Clear the DTC and retest. If the DTC persists, renew the switch
B1051-23	Front Washer Switch - Signal stuck low	<ul style="list-style-type: none"> • Switch signal stuck low • Switch circuit short to ground • Switch activated for more than one minute • Switch fault 	<ul style="list-style-type: none"> • Check the operation of the switch. Refer to the electrical circuit diagrams and check the switch circuit. Clear the DTC and retest. If the DTC persists, renew the switch
B1052-23	Rear Washer Switch - Signal stuck low	<ul style="list-style-type: none"> • Switch signal stuck low • Switch circuit short to ground • Switch activated for more than one minute • Switch fault 	<ul style="list-style-type: none"> • Check the operation of the switch. Refer to the electrical circuit diagrams and check the switch circuit. Clear the DTC and retest. If the DTC persists, renew the switch
B1087-86	LIN Bus "A" - Signal invalid	<ul style="list-style-type: none"> • The header of the LIN message received is incorrect 	<ul style="list-style-type: none"> • Clear the stored DTC and retest, if the DTC returns localize the fault, refer to the electrical circuit diagrams and disconnect the analogue clock (by removing the supply fuse) and retest. Check the operation of the steering wheel switches on the LIN bus circuit (i.e. cruise, gearshift paddles, information and entertainment lower switchpack where installed). If a fault is evident with either the analogue clock or the left-side steering wheel module, replace as required
B1087-88	LIN Bus "A" - Bus off	<ul style="list-style-type: none"> • LIN bus circuit short to power or ground 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the LIN circuit between the central junction box, the left-side steering wheel module and the analogue clock module for short circuit to power or short circuit to ground
B1088-86	LIN Bus "B" - Signal invalid	<ul style="list-style-type: none"> • Signal invalid 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the LIN B circuit between the central junction box and the rain/light sensor, battery backed sounder and volumetric sensor (where installed)
B1088-88	LIN Bus "B" - Bus off	<ul style="list-style-type: none"> • Bus off 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the LIN B circuit between the central junction box and the rain/light sensor, battery backed sounder and volumetric sensor (where installed)
B108B-11	Start Button Circuit "A" - Circuit short to ground	<ul style="list-style-type: none"> • Circuit short to ground 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the start button circuit
B108B-12	Start Button Circuit "A" - Circuit short to battery	<ul style="list-style-type: none"> • Circuit short to power 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the start button circuit
B108B-13	Start Button Circuit "A" - Circuit open	<ul style="list-style-type: none"> • Circuit open circuit 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the start button circuit
		<ul style="list-style-type: none"> • Start button signal stuck low 	

B108B-23	Start Button Circuit "A" - Signal stuck low	<ul style="list-style-type: none"> • Switch activated for more than one minute • SW1 constantly active for a long period of time while button press detected at SW2 • Switch failure 	<ul style="list-style-type: none"> • Check the operation of the switch. Refer to the electrical circuit diagrams and check the start button circuit. Renew the start switch as required
B108C-11	Start Button Circuit "B" - Circuit short to ground	<ul style="list-style-type: none"> • Circuit short to ground 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the start button circuit
B108C-12	Start Button Circuit "B" - Circuit short to battery	<ul style="list-style-type: none"> • Circuit short to power 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the start button circuit
B108C-13	Start Button Circuit "B" - Circuit open	<ul style="list-style-type: none"> • Circuit open circuit 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the start button circuit
B108C-23	Start Button Circuit "B" - Signal stuck low	<ul style="list-style-type: none"> • Start button signal stuck low • Switch activated for more than one minute • SW1 constantly active for a long period of time while button press detected at SW2 • Switch failure 	<ul style="list-style-type: none"> • Check the operation of the switch. Refer to the electrical circuit diagrams and check the start button circuit. Renew the start switch as required
B1095-11	Wiper On/Off Relay - Circuit short to ground	<ul style="list-style-type: none"> • Wiper on/off relay circuit short circuit to ground 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the circuit
B1095-12	Wiper On/Off Relay - Circuit short to battery	<ul style="list-style-type: none"> • Wiper on/off relay circuit short circuit to power 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the circuit
B1095-13	Wiper On/Off Relay - Circuit open	<ul style="list-style-type: none"> • Wiper on/off relay circuit open circuit 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the circuit
B1096-11	Wiper High/Low Relay - Circuit short to ground	<ul style="list-style-type: none"> • Wiper circuit short circuit to ground 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the circuit
B1096-12	Wiper High/Low Relay - Circuit short to battery	<ul style="list-style-type: none"> • Wiper circuit short circuit to power 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the circuit
B1096-13	Wiper High/Low Relay - Circuit open	<ul style="list-style-type: none"> • Wiper circuit open circuit 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the circuit
B1097-11	Heated Windshield Relay - Circuit short to ground	<ul style="list-style-type: none"> • Heated windshield relay circuit short circuit to ground 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the circuit
B1097-12	Heated Windshield Relay - Circuit short to battery	<ul style="list-style-type: none"> • Heated windshield relay circuit short circuit to power 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the circuit
B1097-13	Heated Windshield Relay - Circuit open	<ul style="list-style-type: none"> • Heated windshield relay circuit open circuit 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the circuit

B109D-11	Rear Courtesy Light - Circuit short to ground	<ul style="list-style-type: none"> Rear courtesy lamp circuit short circuit to ground 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the circuit
B109D-13	Rear Courtesy Light - Circuit open	<ul style="list-style-type: none"> Rear courtesy lamp circuit open circuit 	 <p>NOTE: This DTC may be logged under normal operating conditions. No action required if function is correct</p> <ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the circuit
B109E-51	Remote Keyless Entry - Not programmed	<ul style="list-style-type: none"> Not programmed 	<ul style="list-style-type: none"> Configure the system using the manufacturers approved diagnostic system
B10A2-31	Crash Input - No signal	<ul style="list-style-type: none"> No signal 	<ul style="list-style-type: none"> Check the supplemental restraints system and engine control module for related DTCs. Refer to the electrical circuit diagrams and check the circuit between the supplemental restraints system, the central junction box and the engine control module
B10A2-38	Crash Input - Signal frequency incorrect	<ul style="list-style-type: none"> Signal frequency incorrect 	<ul style="list-style-type: none"> Check the restraints control module for DTCs and rectify first
B10AB-51	Remote Keyless Entry Synchronization - Not programmed	<ul style="list-style-type: none"> Not programmed 	<ul style="list-style-type: none"> Configure the system using the manufacturers approved diagnostic system
B10AD-09	Rain Sensor - Component Failures	<ul style="list-style-type: none"> Rain/light sensor obscured Battery supply voltage below 9 volts Sensor incorrectly installed Component failure 	<ul style="list-style-type: none"> Check the rain/light sensor is not obscured. Check for related low voltage stored DTCs Check the security and installation of the rain/light sensor. Clear the DTC and retest If the DTC returns suspect an internal fault
B10AD-83	Rain Sensor - Value of signal protection calculation incorrect	<ul style="list-style-type: none"> Value of signal protection calculation incorrect Sensor fault 	<ul style="list-style-type: none"> Clear the DTC and retest. If the problem persists, renew the rain/light sensor
B10AD-87	Rain Sensor - Missing message	<ul style="list-style-type: none"> Missing message - LIN slave node is not responding 	<ul style="list-style-type: none"> Check the operation of the rain/light sensor. Refer to the electrical circuit diagrams and check the LIN circuit between the rain/light sensor and the central junction box. Should also check LIN control unit and rain/light sensor power and ground circuits
B10AD-96	Rain Sensor - Component internal failure	<ul style="list-style-type: none"> Component internal failure 	<ul style="list-style-type: none"> Clear the DTC and retest. If the problem persists, renew the rain/light sensor
B10E5-11	PCM Wake-Up Signal - Circuit short to ground	<ul style="list-style-type: none"> Engine control module wake-up signal short to ground 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and test the early wake-up signal circuit
B10E5-15	PCM Wake-Up Signal - Circuit short to battery or open	<ul style="list-style-type: none"> Engine control module wake-up signal short circuit to power or open circuit 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and test the early wake-up signal circuit
B10F2-4B	Sunroof Control - Over temperature	<ul style="list-style-type: none"> Sunroof control motor over temperature Temperature sensor defective or not calibrated Debris in the channels/guides 	<ul style="list-style-type: none"> Check the sunroof for smooth operation and obstructions that would cause the motor to overheat. If necessary, renew the motor




		<ul style="list-style-type: none"> • Cable(s) sticking/damaged • Roof opening panel not correctly aligned • Motor fault 	
B10F2-74	Sunroof Control - Actuator slipping	<ul style="list-style-type: none"> • Sunroof control motor slipping due to mechanical failure • Debris in the channels/guides • Cable(s) sticking/damaged • Roof opening panel not correctly aligned • Motor fault 	<ul style="list-style-type: none"> • Remove the motor and check the cables for free movement and damage. Check the sunroof for smooth operation and obstructions that would cause the motor to slip. If necessary, renew the motor
B10F2-93	Sunroof Control - No operation	<ul style="list-style-type: none"> • No operation, roof position is not valid • Motor position not calibrated 	<ul style="list-style-type: none"> • Configure the module using the manufacturers approved diagnostic system
B10F2-9A	Sunroof Control - Component or system operating conditions	<ul style="list-style-type: none"> • Component or system operating conditions • Excessive continuous motor operation 	<ul style="list-style-type: none"> • This DTC is not necessarily a fault and may be logged when the sunroof has been operated continuously and the sunroof has temporarily been disabled to prevent motor over-heat. Clear the DTC and check the operation of the switch and sunroof operation
B10F8-11	Accessory Socket 'A' Relay - Circuit short to ground	<ul style="list-style-type: none"> • Accessory socket 'A' relay circuit short to ground 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the circuit
B10F8-12	Accessory Socket 'A' Relay - Circuit short to battery	<ul style="list-style-type: none"> • Accessory socket 'A' relay circuit short to power 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the circuit
B10F8-13	Accessory Socket 'A' Relay - Circuit open	<ul style="list-style-type: none"> • Accessory socket 'A' relay circuit open ground 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the circuit
B10F9-11	Accessory Socket 'B' Relay - Circuit short to ground	<ul style="list-style-type: none"> • Accessory socket 'B' relay circuit short to ground 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the circuit
B10F9-12	Accessory Socket 'B' Relay - Circuit short to battery	<ul style="list-style-type: none"> • Accessory socket 'B' relay circuit short to power 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the circuit
B10F9-13	Accessory Socket 'B' Relay - Circuit open	<ul style="list-style-type: none"> • Accessory socket 'B' relay circuit open ground 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the circuit
B1102-11	Trailer Stop Lamp - Circuit short to ground	<ul style="list-style-type: none"> • Trailer stop lamp circuit short to ground 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the circuit Repair as necessary
B1115-11	High Mounted Stop Lamp Control - Circuit short to ground	<ul style="list-style-type: none"> • High mounted stop lamp control circuit short to ground 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the circuit Repair as necessary
B112B-83	Steering Wheel Module - Value of signal protection calculation incorrect	<ul style="list-style-type: none"> • Value of signal protection calculation incorrect 	<ul style="list-style-type: none"> • Check the steering wheel switch functions to localize the failure. Clear the stored DTC and retest. If the DTC returns suspect the left-side steering wheel module and replace as required





B112B-87	Steering Wheel Module - Missing message	<ul style="list-style-type: none"> Missing message 	<ul style="list-style-type: none"> Check the operation of the steering wheel switches on the LIN bus circuit (i.e. cruise, gearshift paddles, information and entertainment lower switchpack where installed) Refer to the electrical circuit diagrams and check the LIN circuit between the steering wheel module and the central junction box. Check the left-side steering wheel module power and ground circuits
B112B-96	Steering Wheel Module - Component internal failure	<ul style="list-style-type: none"> Component internal failure 	<ul style="list-style-type: none"> Clear the stored DTC and retest. If the DTC returns suspect the left-side steering wheel module and replace as required
B112C-83	Interior Motion Sensor - Value of signal protection calculation incorrect	<ul style="list-style-type: none"> Value of signal protection calculation incorrect 	<ul style="list-style-type: none"> Clear the DTC and retest. If the problem persists, renew the volumetric sensor
B112C-87	Interior Motion Sensor - Missing message	<ul style="list-style-type: none"> Missing message 	<ul style="list-style-type: none"> Check the operation of the volumetric sensor Refer to the electrical circuit diagrams and check the LIN circuit between the volumetric sensor and the central junction box. Should also check LIN control unit power and ground circuits. Clear the DTC and retest If the DTC persists, renew the volumetric sensor
B112C-96	Interior Motion Sensor - Component internal failure	<ul style="list-style-type: none"> The central junction box has detected an internal error in the volumetric sensor 	<ul style="list-style-type: none"> Clear the DTC and retest. If the problem persists, renew the volumetric sensor
B113C-11	Hazard Switch Illumination - Circuit short to ground	<ul style="list-style-type: none"> Hazard switch illumination circuit short circuit to ground 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the circuit. Repair as necessary
B113C-12	Hazard Switch Illumination - Circuit short to battery	<ul style="list-style-type: none"> Hazard switch illumination circuit short circuit to power 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the circuit. Repair as necessary
B113C-13	Hazard Switch Illumination - Circuit open	<ul style="list-style-type: none"> Hazard switch illumination circuit open circuit 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the circuit. Repair as necessary
B113E-23	External Boot/Trunk Release Switch - Signal stuck low	<ul style="list-style-type: none"> External luggage compartment lid release switch digital input circuit - Signal stuck low Switch activated for more than one minute 	<ul style="list-style-type: none"> Check the operation of the switch. Refer to the electrical circuit diagrams and check the external luggage compartment lid release switch digital input circuit for short to ground
B1140-11	Engine Crank Authorization - Circuit short to ground	<ul style="list-style-type: none"> Engine crank authorization signal circuit short circuit to ground 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check engine crank authorization signal circuit
B1140-15	Engine Crank Authorization - Circuit short to battery or open	<ul style="list-style-type: none"> Engine crank authorization signal circuit short circuit to power or open circuit 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check engine crank authorization signal circuit
B1145-11	Glove Box Locking Motor - Circuit short to ground	<ul style="list-style-type: none"> Glove box locking motor circuit short circuit to ground 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the circuit

B1145-12	Glove Box Locking Motor - Circuit short to battery	<ul style="list-style-type: none"> Glove box locking motor circuit short circuit to power 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the circuit
B1145-13	Glove Box Locking Motor - Circuit open	<ul style="list-style-type: none"> Glove box locking motor circuit open circuit 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the circuit
B1146-11	Passive Sounder Supply - Circuit short to ground	<ul style="list-style-type: none"> Security passive sounder control circuit short circuit to ground 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the security passive sounder control circuit
B1146-15	Passive Sounder Supply - Circuit short to battery or open	<ul style="list-style-type: none"> Security passive sounder control circuit short circuit to power, open circuit 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the security passive sounder control circuit
B1182-51	Tire Pressure Monitoring System - Not programmed	<ul style="list-style-type: none"> Diagnostic test to verify reception of all tire low pressure sensors has failed 	 <p>NOTE: This DTC is for event information only and does not indicate a fault.</p> <ul style="list-style-type: none"> No action required
B11D1-86	LIN Bus "C" - Signal invalid	<ul style="list-style-type: none"> Signal invalid 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the roof opening panel LIN circuit between the roof opening panel control module, passenger fuse box and the central junction box
B11D1-88	LIN Bus "C" - Bus off	<ul style="list-style-type: none"> Bus off Roof opening panel LIN network short to power, ground 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the roof opening panel LIN circuit between the roof opening panel control module, passenger fuse box and the central junction box
B11D9-92	Vehicle Battery - Performance or incorrect operation	<ul style="list-style-type: none"> Internal electronic failure 	<ul style="list-style-type: none"> Renew the battery monitoring system control module
B11DB-49	Battery Monitoring Module - Internal electronic failure	<ul style="list-style-type: none"> Internal electronic failure 	<ul style="list-style-type: none"> Renew the battery monitoring system control module
B11DB-83	Battery Monitoring Module - Value of signal protection calculation incorrect	<ul style="list-style-type: none"> Value of signal protection calculation incorrect 	<ul style="list-style-type: none"> Clear the DTC and retest. If the problem persists, renew the battery monitoring system control module
B11DB-87	Battery Monitoring Module - Missing message	<ul style="list-style-type: none"> Missing message Battery monitoring system control module connector dis-connected/poor connection Battery monitoring system control module to passenger fuse box LIN circuit - Open circuit Battery monitoring system control module to battery positive monitor circuit open circuit Battery monitoring system control module/passenger fuse box failure 	 <p>NOTE: Fault logging is inhibited by the CCF, but an incorrectly configured CCF could give erroneous DTC logging</p> <ul style="list-style-type: none"> Check the operation of the monitoring system control module. Refer to the electrical circuit diagrams and check the LIN circuit between the monitoring system control module and the central junction box. Should also check LIN control unit power and ground circuits
	Left Front Turn		

B123A-11	Indicator - Circuit short to ground	<ul style="list-style-type: none"> Left front turn signal lamp circuit short to ground 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check left front turn signal lamp circuit
B123A-15	Left Front Turn Indicator - Circuit short to battery or open	<ul style="list-style-type: none"> Left front turn signal lamp circuit short to power or open circuit 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check left front turn signal lamp circuit
B123B-11	Right Front Turn Indicator - Circuit short to ground	<ul style="list-style-type: none"> Right front turn signal lamp circuit short to ground 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check right front turn signal lamp circuit
B123B-15	Right Front Turn Indicator - Circuit short to battery or open	<ul style="list-style-type: none"> Right front turn signal lamp circuit short to power or open circuit 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check right front turn signal lamp circuit
B1247-11	Left Rear Turn Indicator - Circuit short to ground	<ul style="list-style-type: none"> Left rear turn signal lamp circuit short to ground 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check left rear turn signal lamp circuit
B1247-15	Left Rear Turn Indicator - Circuit short to battery or open	<ul style="list-style-type: none"> Left rear turn signal lamp circuit short to power or open circuit 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check left rear turn signal lamp circuit
B1248-11	Right Rear Turn Indicator - Circuit short to ground	<ul style="list-style-type: none"> Right rear turn signal lamp circuit short to ground 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check right rear turn signal lamp circuit
B1248-15	Right Rear Turn Indicator - Circuit short to battery or open	<ul style="list-style-type: none"> Right rear turn signal lamp circuit short to power or open circuit 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check right rear turn signal lamp circuit
B1298-73	Steering Column Adjust Up Switch - Actuator stuck closed	<ul style="list-style-type: none"> Internal switch fault 	<ul style="list-style-type: none"> Check the switch operation. Refer to the electrical circuit diagrams and check the column switch circuit
B1299-73	Steering Column Adjust Down Switch - Actuator stuck closed	<ul style="list-style-type: none"> Internal switch fault 	<ul style="list-style-type: none"> Check the switch operation. Refer to the electrical circuit diagrams and check the column switch circuit
B129A-86	LIN Bus "D" - Signal invalid	<ul style="list-style-type: none"> Signal invalid 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the immobilizer antenna LIN circuit between the central junction box and the immobilizer antenna unit. Check for other immobilizer DTCs
B129A-88	LIN Bus "D" - Bus off	<ul style="list-style-type: none"> Bus off Immobilizer antenna LIN network short to power, ground - this is detected when nothing is read back after a header is transmitted 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the immobilizer antenna LIN circuit between the central junction box and the immobilizer antenna unit. Check for other immobilizer DTCs
B12A1-73	Steering Column Adjust Out Switch - Actuator stuck closed	<ul style="list-style-type: none"> Internal switch fault 	<ul style="list-style-type: none"> Check the switch operation. Refer to the electrical circuit diagrams and check the column switch circuit
B12A2-73	Steering Column Adjust In Switch - Actuator stuck closed	<ul style="list-style-type: none"> Internal switch fault 	<ul style="list-style-type: none"> Check the switch operation. Refer to the electrical circuit diagrams and check the column switch circuit
B12A3-11	Steering Column Adjust Motor Drive A - Circuit short to ground	<ul style="list-style-type: none"> Motor circuit short to ground Motor fault 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the circuit between the steering column adjust motor and the central junction box. If no circuit faults are evident, suspect the steering column adjust motor



B12A3-12	Steering Column Adjust Motor Drive A - Circuit short to battery	<ul style="list-style-type: none"> • Motor circuit short to power • Motor fault 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the circuit between the steering column adjust motor and the central junction box. If no circuit faults are evident, suspect the steering column adjust motor
B12A3-15	Steering Column Adjust Motor Drive A - Circuit short to battery or open	<ul style="list-style-type: none"> • Motor circuit short to power or open circuit • Motor fault 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the circuit between the steering column adjust motor and the central junction box. If no circuit faults are evident, suspect the steering column adjust motor
B12A4-11	Steering Column Adjust Motor Drive B - Circuit short to ground	<ul style="list-style-type: none"> • Motor circuit short to ground • Motor fault 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the circuit between the steering column adjust motor and the central junction box. If no circuit faults are evident, suspect the steering column adjust motor
B12A4-12	Steering Column Adjust Motor Drive B - Circuit short to battery	<ul style="list-style-type: none"> • Motor circuit short to ground • Motor fault 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the circuit between the steering column adjust motor and the central junction box. If no circuit faults are evident, suspect the steering column adjust motor
B12A4-15	Steering Column Adjust Motor Drive B - Circuit short to battery or open	<ul style="list-style-type: none"> • Motor circuit short to power or open circuit • Motor fault 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the circuit between the steering column adjust motor and the central junction box. If no circuit faults are evident, suspect the steering column adjust motor
B12A7-31	Steering Column Tilt Sensor A - No signal	<ul style="list-style-type: none"> • Steering column tilt sensor no signal • Sensor fault 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the circuit between the steering column tilt sensor and the central junction box. If no circuit faults are evident, suspect the steering column tilt sensor
B12A8-31	Steering Column Telescope Sensor A - No signal	<ul style="list-style-type: none"> • Steering column telescope sensor no signal • Sensor fault 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the circuit between the steering column telescope sensor and the central junction box. If no circuit faults are evident, suspect the steering column telescope sensor
B12A9-54	Steering Column Tilt Sensor B - Missing calibration	<ul style="list-style-type: none"> • Steering column tilt sensor missing calibration 	<ul style="list-style-type: none"> • Check for other steering column related DTCs. Calibrate the sensor using the manufacturer approved diagnostic system
B12A9-62	Steering Column Tilt Sensor B - Signal compare failure	<ul style="list-style-type: none"> • Steering column tilt sensor signal compare failure • Harness/connector issue 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the steering tilt sensor, connector and circuits
B12AA-54	Steering Column Telescope Sensor B - Missing calibration	<ul style="list-style-type: none"> • Steering column telescope sensor missing calibration 	<ul style="list-style-type: none"> • Check for other steering column related DTCs. Calibrate the sensor using the manufacturer approved diagnostic system
B12AA-62	Steering Column Telescope Sensor B - Signal compare failure	<ul style="list-style-type: none"> • Steering column telescope sensor signal compare failure • Harness/connector issue 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the steering telescope sensor, connector and circuits
B12C9-86	LIN Bus "E" - Signal invalid	<ul style="list-style-type: none"> • Battery monitoring system signal invalid 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the battery monitoring system LIN circuit between the central junction box and the battery monitoring system control module. Check for other battery monitoring system related DTCs
		<ul style="list-style-type: none"> • Bus off • Battery monitoring system LIN network 	

B12C9-88	LIN Bus "E" - Bus off	short to power, ground - This is detected when nothing is read back after a header is transmitted	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the battery monitoring system LIN circuit between the central junction box and the battery monitoring system control module. Check for other battery monitoring system related DTCs
B12E8-23	Liftgate/Tailgate Control/Release Switch - Signal stuck low	<ul style="list-style-type: none"> Liftgate/tailgate control/release switch signal stuck low 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the circuit
B12EE-11	Tailgate/Trunk Release - Circuit short to ground	<ul style="list-style-type: none"> Tailgate/Trunk release circuit short circuit to ground 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the circuit
B12EF-11	Trailer Fog Lamp - Circuit short to ground	<ul style="list-style-type: none"> Trailer fog lamp circuit short to ground 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the circuit
B12F3-11	Secondary Tailgate Release - Circuit short to ground	<ul style="list-style-type: none"> Secondary tailgate release circuit short circuit to ground 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the circuit
B12F4-12	Vehicle Speed Output - Circuit short to battery	<ul style="list-style-type: none"> Circuit short circuit to power 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the circuit
B12F5-12	Fridge Relay Control - Circuit short to battery	<ul style="list-style-type: none"> Circuit short to power 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the circuit
B12F6-11	Headlamp Power Supply A - Circuit short to ground	<ul style="list-style-type: none"> Circuit short to ground 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the circuit
B12FA-11	Power Steering Solenoid Control A - Circuit short to ground	 NOTE: Circuit reference Solenoid valve + <ul style="list-style-type: none"> Servotronic valve circuit short circuit to ground (customer may complain of heavy steering or variable steering effort required) 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the circuit between the servotronic valve and the central junction box
B12FA-1F	Power Steering Solenoid Control A - Circuit intermittent	 NOTE: Circuit reference Solenoid valve + <ul style="list-style-type: none"> Servotronic valve circuit - Short circuit to ground, short circuit to power, open circuit, high resistance (customer may complain of heavy steering or variable steering effort required) 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the servotronic valve circuit for short circuit to ground, short circuit to power, open circuit, high resistance (note, the fault may be an intermittent one). Repair circuit as required, clear DTC and retest
B12FA-13	Power Steering Solenoid Control A - Circuit open	 NOTE: Circuit reference Solenoid valve + <ul style="list-style-type: none"> Servotronic valve circuit open circuit (customer may complain of heavy steering or variable steering effort required) 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the circuit between the servotronic valve and the central junction box

B12FB-12	Power Steering Solenoid Control B - Circuit short to battery	 <p>NOTE: Circuit reference Solenoid valve -</p> <ul style="list-style-type: none"> Servotronic valve circuit short circuit to power (customer may complain of heavy steering or variable steering effort required) 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the circuit between the servotronic valve and the central junction box
B12FB-14	Power Steering Solenoid Control B - Circuit short to ground or open	 <p>NOTE: Circuit reference Solenoid valve -</p> <ul style="list-style-type: none"> Servotronic valve circuit short circuit to ground, open circuit, high resistance (customer may complain of heavy steering or variable steering effort required) 	 <p>NOTE: This DTC will not be logged during an on demand self-test routine. The DTC is only logged if the fault is noted continuously for over two seconds, during the on demand self-test routine the output from the servotronic valve is only monitored for a one second duration</p> <ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the servotronic valve circuit for short circuit to ground, open circuit, high resistance (note, the fault may be an intermittent one). Repair circuit as required, clear DTC and retest
B12FB-1F	Power Steering Solenoid Control B - Circuit intermittent	 <p>NOTE: Circuit reference Solenoid valve -</p> <ul style="list-style-type: none"> Servotronic valve circuit - Short circuit to ground, short circuit to power, open circuit, high resistance (customer may complain of heavy steering or variable steering effort required) 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the servotronic valve circuit for short circuit to ground, short circuit to power, open circuit, high resistance (note, the fault may be an intermittent one). Repair circuit as required, clear DTC and retest
B130B-11	Right Rear Fog Lamp - Circuit short to ground	<ul style="list-style-type: none"> Circuit short to ground 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the circuit for short to ground
B130B-15	Right Rear Fog Lamp - Circuit short to battery or open	<ul style="list-style-type: none"> Circuit short to power or open 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the circuit for short to power or open circuit
B130E-11	Left Rear Fog Lamp - Circuit short to ground	<ul style="list-style-type: none"> Circuit short to ground 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the circuit for short to ground
B130E-15	Left Rear Fog Lamp - Circuit short to battery or open	<ul style="list-style-type: none"> Circuit short to power or open 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the circuit for short to power or open circuit
B1311-83	Clock Module - Value of signal protection calculation incorrect	<ul style="list-style-type: none"> Value of signal protection calculation incorrect LIN 1 circuit fault 	<ul style="list-style-type: none"> Clear the DTC and retest. Refer to electrical circuit diagrams and check power and ground connections to clock module, check LIN circuit. Rectify any wiring faults. If the problem persists, renew the clock module
B1311-87	Clock Module - Missing message	<ul style="list-style-type: none"> The central junction box has detected that the clock is not responding 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams to locate the fused supply circuit to the analogue clock. With the ignition supply in the OFF state, remove and reinstall the fuse. Clear the DTC and retest. Refer to electrical circuit diagrams and check power and ground connections to clock module, check LIN circuit. Rectify any wiring faults. If the problem persists, renew the clock module
			<ul style="list-style-type: none"> Refer to the electrical circuit diagrams to locate the fused supply circuit to the analogue clock. With the




B1311-96	Clock Module - Component internal failure	<ul style="list-style-type: none"> Component internal failure 	<p>ignition supply in the OFF state, remove and reinstall the fuse. The clock hands will now set to the 12 position. Cycle the ignition state to ON (the clock should now have self-adjusted to the time currently set within the central junction box). Record then clear the stored DTC, cycle the ignition state to OFF, return the state to ON, retest, if the DTC returns, renew the analogue clock module</p>
B134D-11	Headlamp Control A - Circuit short to ground	<ul style="list-style-type: none"> Circuit short to ground 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check for short circuit to ground between the central junction box and the headlamp levelling control module (either left or right side control module)
B134D-14	Headlamp Control A - Circuit short to ground or open	<ul style="list-style-type: none"> Circuit short to ground or open 	<ul style="list-style-type: none"> Check for DTC B134D-11 this will confirm circuit short to ground. Refer to the electrical circuit diagrams and check for short circuit to ground between the central junction box and the headlamp levelling control module (either left or right side control module)
B134E-11	Switch Illumination Adjustment Control - Circuit short to ground	<ul style="list-style-type: none"> Circuit short to ground 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the circuit
B134E-12	Switch Illumination Adjustment Control - Circuit short to battery	<ul style="list-style-type: none"> Circuit short to power 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the circuit
B134E-13	Switch Illumination Adjustment Control - Circuit open	<ul style="list-style-type: none"> Circuit open circuit 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the circuit
B134F-11	Headlamp Flash Switch - Circuit short to ground	<ul style="list-style-type: none"> Circuit short to ground 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the circuit
B134F-1E	Headlamp Flash Switch - Circuit resistance out of range	<ul style="list-style-type: none"> Circuit resistance out of range 	<ul style="list-style-type: none"> Check the operation of the switch. Refer to the electrical circuit diagrams and check the circuit
B134F-23	Headlamp Flash Switch - Signal stuck low	<ul style="list-style-type: none"> Circuit signal stuck low Switch activated for more than one minute 	<ul style="list-style-type: none"> Check the operation of the switch. Refer to the electrical circuit diagrams and check the circuit
B136B-11	Suspension Control Module Wake-up Signal - Circuit short to ground	<ul style="list-style-type: none"> Circuit short to ground 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the circuit
B136B-15	Suspension Control Module Wake-up Signal - Circuit short to battery or open	<ul style="list-style-type: none"> Circuit short to power or open circuit 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the circuit
B136D-11	Front Wiper Intermittent Delay Control - Circuit short to ground	<ul style="list-style-type: none"> Circuit short circuit to ground 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the circuit
B136D-15	Front Wiper Intermittent Delay Control - Circuit short to battery or open	<ul style="list-style-type: none"> Circuit short circuit to power or open circuit 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the circuit
B136D-1E	Front Wiper Intermittent Delay Control - Circuit resistance out of range	<ul style="list-style-type: none"> Circuit resistance out of range 	<ul style="list-style-type: none"> Check the operation of the switch. Refer to the electrical circuit diagrams and check the circuit
B1A75-11	Fuel Sender No.1 - Circuit short to ground	<ul style="list-style-type: none"> Active fuel level sensor circuit - Short circuit to ground Fuel level sensor fault 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the active fuel level sensor circuit for short circuit to ground. Repair circuit as required, clear DTC and retest If fault persists, check and install a new active fuel level sensor as required. Clear DTC and retest






B1A75-15	Fuel Sender No.1 - Circuit short to battery or open	<ul style="list-style-type: none"> Active fuel level sensor circuit - Short circuit to power, open circuit, high resistance Fuel level sensor fault 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the active fuel level sensor circuit for short circuit to power, open circuit, high resistance. Repair circuit as required, clear DTC and retest If fault persists, check and install a new active fuel level sensor as required. Clear DTC and retest
B1A75-1C	Fuel Sender No.1 - Circuit voltage out of range	<ul style="list-style-type: none"> Active fuel level sensor circuit - Short circuit to ground, short circuit to power, open circuit, high resistance Fuel level sensor fault 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the active fuel level sensor circuit for short circuit to ground, short circuit to power, open circuit, high resistance. Repair circuit as required, clear DTC and retest Clear DTC and retest. If fault persists, check and install a new active fuel level sensor as required. Clear DTC and retest
B1A76-11	Fuel Sender No.2 - Circuit short to ground	<ul style="list-style-type: none"> Passive fuel level sensor circuit - Short circuit to ground Fuel level sensor fault 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the passive fuel level sensor circuit for short circuit to ground. Repair circuit as required, clear DTC and retest If fault persists, check and install a new passive fuel level sensor as required. Clear DTC and retest
B1A76-15	Fuel Sender No.2 - Circuit short to battery or open	<ul style="list-style-type: none"> Passive fuel level sensor circuit - Short circuit to power, open circuit, high resistance Fuel level sensor fault 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the passive fuel level sensor circuit for short circuit to power, open circuit, high resistance. Repair circuit as required, clear DTC and retest If fault persists, check and install a new passive fuel level sensor as required. Clear DTC and retest
B1A76-1C	Fuel Sender No.2 - Circuit voltage out of range	<ul style="list-style-type: none"> Passive fuel level sensor circuit - Short circuit to ground, short circuit to power, open circuit, high resistance Fuel level sensor fault 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the passive fuel level sensor circuit for short circuit to ground, short circuit to power, open circuit, high resistance. Repair circuit as required, clear DTC and retest Clear DTC and retest. If fault persists, check and install a new passive fuel level sensor as required. Clear DTC and retest
B1A84-51	Car Configuration Data - Not programmed	<ul style="list-style-type: none"> Not programmed 	<ul style="list-style-type: none"> Configure the module using the manufacturer approved diagnostic system
B1A85-96	Ambient Light Sensor - Component internal failure	<ul style="list-style-type: none"> Rain/light sensor obscured Sensor incorrectly installed Component failure 	<ul style="list-style-type: none"> Check the rain/light sensor is not obscured. Check the security and installation of the rain/light sensor. Clear the DTC and retest. If the DTC returns suspect an internal fault
B1A91-31	Speed/Position Sensor A - No signal	<ul style="list-style-type: none"> No signal from sensor (restricted sunroof functionality) Hall sensor A failure 	<ul style="list-style-type: none"> Clear the DTC and retest. If the problem persists, renew the roof opening panel module
B1A92-31	Speed/Position Sensor B - No signal	<ul style="list-style-type: none"> No signal from sensor (restricted sunroof functionality) Hall sensor B failure 	<ul style="list-style-type: none"> Clear the DTC and retest. If the problem persists, renew the roof opening panel module
B1B01-55	Key Transponder - Not configured	<ul style="list-style-type: none"> Not configured 	<ul style="list-style-type: none"> Configure the module using the manufacturers approved diagnostic system
B1B01-64	Key Transponder - Signal plausibility failure	<ul style="list-style-type: none"> Signal plausibility failure 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the power and ground circuits to the central junction box and keyless vehicle module. Check CAN communications between the modules. Re-synchronize ID by re-configuring the keyless vehicle module as a new module






B1B01-81	Key Transponder - Invalid serial data received	<ul style="list-style-type: none"> Invalid serial data received 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the power and ground circuits to the central junction box and keyless vehicle module. Check CAN communications between the modules. Re-synchronize ID by re-configuring the keyless vehicle module as a new module
B1B01-87	Key Transponder - Missing message	<ul style="list-style-type: none"> This DTC could be logged if 'Smart Key Not Found' warning message is displayed, and the start button is pressed without the key in the correct location as defined in the driver handbook No communication from key transponder during alternative (not passive) start event 	<ul style="list-style-type: none"> First confirm that the customer has not performed a start event with the key incorrectly located when the warning message 'Smart Key Not Found' is displayed. Re-synchronize ID by re-configuring the immobilizer antenna unit as a new module. Refer to the electrical circuit diagrams and check the power and ground circuits to the immobilizer antenna unit
B1B33-51	Target ID Transfer - Not programmed	<ul style="list-style-type: none"> Not programmed A new engine control module has been installed Failed communication with engine management system 	<ul style="list-style-type: none"> If necessary, program the relevant module using the manufacturers approved diagnostic system. Clear/ignore DTC
B1B33-64	Target ID Transfer - Signal plausibility failure	<ul style="list-style-type: none"> Signal plausibility failure Failed communication with engine management system 	<ul style="list-style-type: none"> No action necessary, clear/ignore DTC
B1B33-81	Target ID Transfer - Invalid serial data received	<ul style="list-style-type: none"> Invalid serial data received Failed communication with engine management system 	<ul style="list-style-type: none"> No action necessary, clear/ignore DTC
B1B33-87	Target ID Transfer - Missing message	<ul style="list-style-type: none"> Missing message Failed communication with engine control module 	<p> NOTE: Only diagnose this DTC if the Customer is reporting a start related issue</p> <ul style="list-style-type: none"> Clear DTC and retest. If problem persists, carry out CAN network integrity test and on demand self-test using the manufacturer approved diagnostic system. Alternatively, refer to the electrical circuit diagrams and check CAN circuits
B1B56-46	Sunroof Module - Calibration/parameter memory failure	<ul style="list-style-type: none"> Roof opening panel control module - Calibration/parameter memory failure 	<ul style="list-style-type: none"> Clear the DTC and retest. Re-calibrate the roof opening panel using the manufacturers approved diagnostic system. If the problem persists, renew the roof opening panel control module
B1B56-83	Sunroof Module - Value of signal protection calculation incorrect	<ul style="list-style-type: none"> Value of signal protection calculation incorrect 	<ul style="list-style-type: none"> Clear the DTC and retest. If the DTC resets, renew the roof opening panel control module
B1B56-87	Sunroof Module - Missing message	<ul style="list-style-type: none"> Missing message LIN 3 circuit fault 	<p> NOTE: Fault logging is inhibited by the CCF, but an incorrectly configured CCF could give erroneous DTC logging</p> <ul style="list-style-type: none"> Check the operation of the roof opening panel control module. Refer to the electrical circuit diagrams and




			check the LIN circuit between the roof opening panel control module and the central junction box. Check LIN control unit power and ground circuits
B1C37-23	Master Lock Switch Stuck - Signal stuck low	<ul style="list-style-type: none"> • Master central lock switch signal circuit short circuit to ground • Switch activated for more than one minute • Master central lock switch stuck/jammed • Master central lock switch failure 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the master switch lock circuit. Check the switch operation, renew as necessary
B1C43-23	Master Interior Lamp Switch Stuck - Signal stuck low	<ul style="list-style-type: none"> • Interior lamp circuit short to ground • Switch activated for more than one minute • Interior lamp switch fault 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the interior lamp circuit. Check the switch operation, renew as necessary
B1C44-67	Rear Wiper Park Position Switch Stuck - Signal incorrect after event	<ul style="list-style-type: none"> • Rear wiper park position circuit short to power, ground, open circuit • Rear wiper motor park switch fault 	<ul style="list-style-type: none"> • Ensure motor/mechanism is not jammed or seized. Clear the DTC and retest. If the DTC returns refer to the electrical circuit diagrams and check the rear wiper park position circuit. If no circuit fault found suspect an internal fault with the rear wiper motor, check and renew as required
B1C45-67	Front Wiper Park Position Switch Stuck - Signal incorrect after event	<ul style="list-style-type: none"> • Front wiper park position circuit short to power, ground, open circuit • Front wiper motor park switch fault 	<ul style="list-style-type: none"> • Ensure motor/mechanism is not jammed or seized. Clear the DTC and retest. If the DTC returns refer to the electrical circuit diagrams and check the front wiper park position circuit. If no circuit fault found suspect an internal fault with the front wiper motor, check and renew as required
B1C55-12	Horn Relay - Circuit short to battery	<ul style="list-style-type: none"> • Horn relay coil circuit short to power 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the horn relay circuit, repair as necessary
B1C77-11	Rear Wiper Relay - Circuit short to ground	<ul style="list-style-type: none"> • Rear wiper fast relay coil circuit short to ground 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the rear wiper fast relay circuit, repair/renew as necessary
B1C77-12	Rear Wiper Relay - Circuit short to battery	<ul style="list-style-type: none"> • Rear wiper fast relay coil circuit short to power 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the rear wiper fast relay circuit, repair/renew as necessary
B1C77-13	Rear Wiper Relay - Circuit open	<ul style="list-style-type: none"> • Rear wiper fast relay coil open circuit 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the rear wiper fast relay circuit, repair/renew as necessary
B1C82-11	Headlamp Washer Relay A - Circuit short to ground	<ul style="list-style-type: none"> • Headlamp washer relay output circuit short to ground 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the headlamp washer pump relay circuit, repair/renew as necessary
B1C82-12	Headlamp Washer Relay A - Circuit short to battery	<ul style="list-style-type: none"> • Headlamp washer relay output circuit short to power 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the headlamp washer pump relay circuit, repair/renew as necessary
B1C82-13	Headlamp Washer Relay A - Circuit open	<ul style="list-style-type: none"> • Headlamp washer relay output circuit open circuit 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the headlamp washer pump relay circuit, repair/renew as necessary
B1C90-11	Auxiliary Driving Lamps Relay - Circuit		

	short to ground	<ul style="list-style-type: none"> • Circuit short to ground 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the circuit, repair/renew as necessary
B1C90-12	Auxiliary Driving Lamps Relay - Circuit short to battery	<ul style="list-style-type: none"> • Circuit short to power 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the circuit, repair/renew as necessary
B1C90-13	Auxiliary Driving Lamps Relay - Circuit open	<ul style="list-style-type: none"> • Circuit open circuit 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the circuit, repair/renew as necessary
B1C98-11	Left Corner Lamp Circuit - Circuit short to ground	<ul style="list-style-type: none"> • Left-side corner lamp short circuit to ground 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the circuit, repair/renew as necessary
B1C99-11	Right Corner Lamp Circuit - Circuit short to ground	<ul style="list-style-type: none"> • Right-side corner lamp short circuit to ground 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the circuit, repair/renew as necessary
B1D00-11	Left Low Beam - Circuit short to ground	<ul style="list-style-type: none"> • Left low beam circuit short to ground 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check left low beam circuit for short to ground
B1D00-15	Left Low Beam - Circuit short to battery or open	<ul style="list-style-type: none"> • Left low beam circuit short circuit to power or open circuit 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check left low beam circuit for short circuit to power or open circuit
B1D01-11	Right Low Beam - Circuit short to ground	<ul style="list-style-type: none"> • Right low beam circuit short to ground 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check right low beam circuit for short to ground
B1D01-15	Right Low Beam - Circuit short to battery or open	<ul style="list-style-type: none"> • Right low beam circuit short circuit to power or open circuit 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check right low beam circuit for short circuit to power or open circuit
B1D02-11	Left High Beam - Circuit short to ground	<ul style="list-style-type: none"> • Left high beam circuit short to ground 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check left high beam circuit for short to ground
B1D02-15	Left High Beam - Circuit short to battery or open	<ul style="list-style-type: none"> • Left high beam circuit short circuit to power or open circuit 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check left high beam circuit for short circuit to power or open circuit
B1D03-11	Right High Beam - Circuit short to ground	<ul style="list-style-type: none"> • Right high beam circuit short to ground 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check right high beam circuit for short to ground
B1D03-15	Right High Beam - Circuit short to battery or open	<ul style="list-style-type: none"> • Right high beam circuit short circuit to power or open circuit 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check right high beam circuit for short circuit to power or open circuit
B1D08-11	Left Trailer Direction Indicator Circuit - Circuit short to ground	<ul style="list-style-type: none"> • Left trailer turn signal short circuit to ground 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the circuit, repair/renew as necessary. If no fault found with vehicle suspect issue lies with trailer socket connected equipment
B1D09-11	Right Trailer Direction Indicator Circuit - Circuit short to ground	<ul style="list-style-type: none"> • Right trailer turn signal short circuit to ground 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the circuit, repair/renew as necessary. If no fault found with vehicle suspect issue lies with trailer socket connected equipment
B1D13-11	Interior Lights Circuit "A" - Circuit short to ground	<ul style="list-style-type: none"> • Circuit short circuit to ground 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the circuit

B1D13-15	Interior Lights Circuit "A" - Circuit short to battery or open	<ul style="list-style-type: none"> • Circuit short circuit to power or open circuit 	 NOTE: This DTC may be logged under normal operating conditions. No action required if function is correct <ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the circuit
B1D17-83	Battery Backed Sounder - Value of signal protection calculation incorrect	<ul style="list-style-type: none"> • Value of signal protection calculation incorrect 	<ul style="list-style-type: none"> • Clear the DTC and retest. If the problem persists, renew the battery backed sounder
B1D17-87	Battery Backed Sounder - Missing message	<ul style="list-style-type: none"> • Missing message 	 NOTE: Fault logging is inhibited by the CCF, but an incorrectly configured CCF could give erroneous DTC logging <ul style="list-style-type: none"> • Check the operation of the battery backed sounder. Refer to the electrical circuit diagrams and check the LIN circuit between the battery backed sounder and the central junction box. Should also check LIN control unit power and ground circuits
B1D17-96	Battery Backed Sounder - Component internal failure	<ul style="list-style-type: none"> • Component internal failure 	<ul style="list-style-type: none"> • Clear the DTC and retest, if the problem persists renew battery backed sounder
B1D35-23	Hazard Switch Stuck - Signal stuck low	<ul style="list-style-type: none"> • Hazard switch circuit short to ground • Switch activated for more than one minute • Hazard switch fault 	<ul style="list-style-type: none"> • Check the hazard switch operation, refer to the electrical circuit diagrams and check the hazard switch circuit. Repair/renew as necessary
B1D36-11	Turn Indicator Switch - Circuit short to ground	<ul style="list-style-type: none"> • Circuit short circuit to ground 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the circuit, repair/renew as necessary
B1D36-15	Turn Indicator Switch - Circuit short to battery or open	<ul style="list-style-type: none"> • Circuit to power or open circuit 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check the circuit, repair/renew as necessary
B1D36-1E	Turn Indicator Switch - Circuit resistance out of range	<ul style="list-style-type: none"> • Circuit resistance out of range 	<ul style="list-style-type: none"> • Check the switch operation. Refer to the electrical circuit diagrams and check the circuit, repair/renew as necessary
B1D97-96	Tilt Sensor - Component internal failure	<ul style="list-style-type: none"> • Component internal failure 	<ul style="list-style-type: none"> • Clear the DTC and retest, if the problem persists renew the battery backed sounder
C0079-54	Variable Effort Steering - Missing calibration	<ul style="list-style-type: none"> • Missing calibration 	<ul style="list-style-type: none"> • Calibrate/configure the feature using the manufacturers approved diagnostic system
C111A-11	Right Stop Lamp - Circuit short to ground	<ul style="list-style-type: none"> • Right stop lamp circuit short to ground 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check right stop lamp circuit
C111A-15	Right Stop Lamp - Circuit short to battery or open	<ul style="list-style-type: none"> • Right stop lamp circuit short to power or open circuit 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check right stop lamp circuit
C111B-11	Left Stop Lamp - Circuit short to ground	<ul style="list-style-type: none"> • Left stop lamp circuit short to ground 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check left stop lamp circuit
C111B-15	Left Stop Lamp - Circuit short to battery or open	<ul style="list-style-type: none"> • Left stop lamp circuit short to power or open circuit 	<ul style="list-style-type: none"> • Refer to the electrical circuit diagrams and check left stop lamp circuit
	Left Front Tire Pressure Sensor and Transmitter Assembly	<ul style="list-style-type: none"> • Front left tire pressure sensor 	 NOTE: This DTC is for event information only and does not indicate a fault.

C1A56-16	- Circuit voltage below threshold	internal battery voltage low	<ul style="list-style-type: none"> No action required
C1A56-86	Left Front Tire Pressure Sensor and Transmitter Assembly - Signal invalid	<ul style="list-style-type: none"> Front left tire pressure sensor failure <ul style="list-style-type: none"> Pressure, temperature or acceleration signal(s) out of range 	 NOTE: This DTC is for event information only and does not indicate a fault. <ul style="list-style-type: none"> No action required
C1A56-93	Left Front Tire Pressure Sensor and Transmitter Assembly - No operation	<ul style="list-style-type: none"> Front left tire pressure sensor not installed Front left tire pressure sensor internal failure, tire pressure monitoring system RF receiver internal failure or interference 	 NOTE: Tire pressure sensor wheel position information may be incorrect if the wheels have been swapped during or after the failure event. <ul style="list-style-type: none"> Check that a front left tire pressure sensor is installed Using the manufacturer approved diagnostic system, perform routine - Tire Pressure Monitoring Tire Pressure Sensor Test. If fewer than 4 sensors fail, install new sensors as necessary. If all 4 sensors fail: <ul style="list-style-type: none"> Check that the correct RF receiver is installed (by part number) Review potential sources of electrical interference (power adaptors, laptop/navigation screens, etc)
C1A57-12	Left Front Initiator - Circuit short to battery	<ul style="list-style-type: none"> Tire pressure monitoring system front left initiator circuit short circuit to power 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the tire pressure monitoring system front left initiator circuit for short circuit to power
C1A57-14	Left Front Initiator - Circuit short to ground or open	<ul style="list-style-type: none"> Tire pressure monitoring system front left initiator circuit short circuit to ground, open circuit, high resistance 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the tire pressure monitoring system front left initiator circuit for short circuit to ground, open circuit, high resistance
C1A58-16	Right Front Tire Pressure Sensor and Transmitter Assembly - Circuit voltage below threshold	<ul style="list-style-type: none"> Front right tire pressure sensor internal battery voltage low 	 NOTE: This DTC is for event information only and does not indicate a fault. <ul style="list-style-type: none"> No action required
C1A58-86	Right Front Tire Pressure Sensor and Transmitter Assembly - Signal invalid	<ul style="list-style-type: none"> Front right tire pressure sensor failure <ul style="list-style-type: none"> Pressure, temperature or acceleration signal(s) out of range 	 NOTE: This DTC is for event information only and does not indicate a fault. <ul style="list-style-type: none"> No action required
C1A58-93	Right Front Tire Pressure Sensor and Transmitter Assembly - No operation	<ul style="list-style-type: none"> Front right tire pressure sensor not installed Front right tire pressure sensor internal failure, tire pressure monitoring system RF receiver internal failure or interference 	 NOTE: Tire pressure sensor wheel position information may be incorrect if the wheels have been swapped during or after the failure event. <ul style="list-style-type: none"> Check that a front right tire pressure sensor is installed Using the manufacturer approved diagnostic system, perform routine - Tire Pressure Monitoring Tire Pressure Sensor Test. If fewer than 4 sensors fail, install new sensors as necessary. If all 4 sensors fail: <ul style="list-style-type: none"> Check that the correct RF receiver is installed (by part number) Review potential sources of electrical interference (power adaptors, laptop/navigation screens, etc)
	Right Front Initiator -	<ul style="list-style-type: none"> Tire pressure monitoring system 	





C1A59-12	Circuit short to battery	front right initiator circuit short circuit to power	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the tire pressure monitoring system front right initiator circuit for short circuit to power
C1A59-14	Right Front Initiator - Circuit short to ground or open	<ul style="list-style-type: none"> Tire pressure monitoring system front right initiator circuit short circuit to ground, open circuit, high resistance 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the tire pressure monitoring system front right initiator circuit for short circuit to ground, open circuit, high resistance
C1A60-16	Left Rear Tire Pressure Sensor and Transmitter Assembly - Circuit voltage below threshold	<ul style="list-style-type: none"> Rear left tire pressure sensor internal battery voltage low 	 NOTE: This DTC is for event information only and does not indicate a fault. <ul style="list-style-type: none"> No action required
C1A60-86	Left Rear Tire Pressure Sensor and Transmitter Assembly - Signal invalid	<ul style="list-style-type: none"> Rear left tire pressure sensor failure <ul style="list-style-type: none"> Pressure, temperature or acceleration signal(s) out of range 	 NOTE: This DTC is for event information only and does not indicate a fault. <ul style="list-style-type: none"> No action required
C1A60-93	Left Rear Tire Pressure Sensor and Transmitter Assembly - No operation	<ul style="list-style-type: none"> Rear left tire pressure sensor not installed Rear left tire pressure sensor internal failure, tire pressure monitoring system RF receiver internal failure or interference 	 NOTE: Tire pressure sensor wheel position information may be incorrect if the wheels have been swapped during or after the failure event. <ul style="list-style-type: none"> Check that a rear left tire pressure sensor is installed Using the manufacturer approved diagnostic system, perform routine - Tire Pressure Monitoring Tire Pressure Sensor Test. If fewer than 4 sensors fail, install new sensors as necessary. If all 4 sensors fail: <ul style="list-style-type: none"> Check that the correct RF receiver is installed (by part number) Review potential sources of electrical interference (power adaptors, laptop/navigation screens, etc)
C1A61-12	Left Rear Initiator - Circuit short to battery	<ul style="list-style-type: none"> Tire pressure monitoring system rear left initiator circuit short circuit to power 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the tire pressure monitoring system rear left initiator circuit for short circuit to power
C1A61-14	Left Rear Initiator - Circuit short to ground or open	<ul style="list-style-type: none"> Tire pressure monitoring system rear left initiator circuit short circuit to ground, open circuit, high resistance 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the tire pressure monitoring system rear left initiator circuit for short circuit to ground, open circuit, high resistance
C1A62-16	Right Rear Tire Pressure Sensor and Transmitter Assembly - Circuit voltage below threshold	<ul style="list-style-type: none"> Rear right tire pressure sensor internal battery voltage low 	 NOTE: This DTC is for event information only and does not indicate a fault. <ul style="list-style-type: none"> No action required
C1A62-86	Right Rear Tire Pressure Sensor and Transmitter Assembly - Signal invalid	<ul style="list-style-type: none"> Rear right tire pressure sensor failure <ul style="list-style-type: none"> Pressure, temperature or acceleration signal(s) out of range 	 NOTE: This DTC is for event information only and does not indicate a fault. <ul style="list-style-type: none"> No action required



C1A62-93	Right Rear Tire Pressure Sensor and Transmitter Assembly - No operation	<ul style="list-style-type: none"> Rear right tire pressure sensor not installed Rear right tire pressure sensor internal failure, tire pressure monitoring system RF receiver internal failure or interference 	 <p>NOTE: Tire pressure sensor wheel position information may be incorrect if the wheels have been swapped during or after the failure event.</p> <ul style="list-style-type: none"> Check that a rear right tire pressure sensor is installed Using the manufacturer approved diagnostic system, perform routine - Tire Pressure Monitoring Tire Pressure Sensor Test. If fewer than 4 sensors fail, install new sensors as necessary. If all 4 sensors fail: <ul style="list-style-type: none"> Check that the correct RF receiver is installed (by part number) Review potential sources of electrical interference (power adaptors, laptop/navigation screens, etc)
C1A63-12	Right Rear Initiator - Circuit short to battery	<ul style="list-style-type: none"> Tire pressure monitoring system rear right initiator circuit short circuit to power 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the tire pressure monitoring system rear right initiator circuit for short circuit to power
C1A63-14	Right Rear Initiator - Circuit short to ground or open	<ul style="list-style-type: none"> Tire pressure monitoring system rear right initiator circuit short circuit to ground, open circuit, high resistance 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the tire pressure monitoring system rear right initiator circuit for short circuit to ground, open circuit, high resistance
C1D18-00	Wheel Localization Failed - No sub type information	<ul style="list-style-type: none"> Two or more tire pressure sensor faults Two or more initiator faults Two or more initiators incorrectly installed 	 <p>NOTE: If additional tire pressure monitoring system related DTCs are also set, perform the relevant corrective action(s) first.</p> <ul style="list-style-type: none"> Refer to pinpoint test D in the tire pressure monitoring system diagnosis and testing section of the workshop manual (see section 204-04) and proceed as directed
C1D21-05	Wheel Module - System programming failures	<ul style="list-style-type: none"> Tire pressure sensor(s) removed Incorrect tire pressure sensor(s) fitted (type, frequency, part number) Tire pressure sensor(s) damaged Tire pressure sensor RF receiver interference 	 <p>NOTE: Tire pressure sensor wheel position information may be incorrect if the wheels have been swapped during or after the failure event.</p> <ul style="list-style-type: none"> Complete a visual inspection to ensure tire pressure sensors are fitted Using the manufacturer approved diagnostic system check datalogger signal 0x4127 - Number of Tire pressure sensors failed If all 4 sensors fail <ul style="list-style-type: none"> Check that the RF receiver is correct part number Review potential electrical interference to RF receiver, e.g. charging units, power adaptors, laptop/navigation screens, etc. If 1-3 sensors fail <ul style="list-style-type: none"> Identify faulty sensors by using the manufacturer approved diagnostic system and running application - Tire Pressure Monitoring Wheel Sensor Test Replace faulty sensors
P0230-12	Fuel Pump Primary Circuit - Circuit short to battery	<ul style="list-style-type: none"> Circuit short circuit to power 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the circuit
U0001-88	High Speed CAN Communication Bus - Bus off	<ul style="list-style-type: none"> Bus off 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the power and ground connections to the module. Using the manufacturer approved diagnostic system, complete a CAN network integrity test. Refer to the electrical circuit diagrams and check the CAN network
U0004-00	High Speed CAN Communication Bus		<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the power and ground connections to the module. Using the manufacturer approved diagnostic system,

	(+) Low - No sub type information	<ul style="list-style-type: none"> High speed CAN communication Bus (+) short to ground 	complete a CAN network integrity test. Refer to the electrical circuit diagrams and check the CAN network
U0005-00	High Speed CAN Communication Bus (+) High - No sub type information	<ul style="list-style-type: none"> High speed CAN communication Bus (+) short to power 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the power and ground connections to the module. Using the manufacturer approved diagnostic system, complete a CAN network integrity test. Refer to the electrical circuit diagrams and check the CAN network
U0008-00	High Speed CAN Communication Bus (-) High - No sub type information	<ul style="list-style-type: none"> High speed CAN communication Bus (-) short to power 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the power and ground connections to the module. Using the manufacturer approved diagnostic system, complete a CAN network integrity test. Refer to the electrical circuit diagrams and check the CAN network
U0009-00	High Speed CAN Communication Bus (-) shorted to Bus (+) - No sub type information	<ul style="list-style-type: none"> High speed CAN communication Bus (-) shorted to (+) 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the power and ground connections to the module. Using the manufacturer approved diagnostic system, complete a CAN network integrity test. Refer to the electrical circuit diagrams and check the CAN network
U0010-88	Medium Speed CAN Communication Bus - Bus off	<ul style="list-style-type: none"> Bus off 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the power and ground connections to the module. Using the manufacturer approved diagnostic system, complete a CAN network integrity test. Refer to the electrical circuit diagrams and check the CAN network
U0013-00	Medium Speed CAN Communication Bus (+) Low - No sub type information	<ul style="list-style-type: none"> Medium speed CAN communication Bus (+) short to ground 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the power and ground connections to the module. Using the manufacturer approved diagnostic system, complete a CAN network integrity test. Refer to the electrical circuit diagrams and check the CAN network
U0014-00	Medium Speed CAN Communication Bus (+) High - No sub type information	<ul style="list-style-type: none"> Medium speed CAN communication Bus (+) short to power 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the power and ground connections to the module. Using the manufacturer approved diagnostic system, complete a CAN network integrity test. Refer to the electrical circuit diagrams and check the CAN network
U0017-00	Medium Speed CAN Communication Bus (-) High - No sub type information	<ul style="list-style-type: none"> Medium speed CAN communication Bus (-) short to power 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the power and ground connections to the module. Using the manufacturer approved diagnostic system, complete a CAN network integrity test. Refer to the electrical circuit diagrams and check the CAN network
U0018-00	Medium Speed CAN Communication Bus (-) shorted to Bus (+) - No sub type information	<ul style="list-style-type: none"> Medium speed CAN communication Bus (-) shorted to (+) 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the power and ground connections to the module. Using the manufacturer approved diagnostic system, complete a CAN network integrity test. Refer to the electrical circuit diagrams and check the CAN network
U0100-00	Lost Communication With ECM/PCM "A" - No sub type information	<ul style="list-style-type: none"> No sub type information 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the power and ground connections to the module. Using the manufacturer approved diagnostic system, complete a CAN network integrity test. Refer to the electrical circuit diagrams and check the CAN network between the engine control module and central junction box
U0101-00	Lost Communication With Transmission Control Module - No sub type information	<ul style="list-style-type: none"> No sub type information 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the power and ground connections to the module. Using the manufacturer approved diagnostic system, complete a CAN network integrity test. Refer to the electrical circuit diagrams and check the CAN network between the transmission control module and central junction box

U0102-00	Lost Communication With Transfer Case Control Module - No sub type information	<ul style="list-style-type: none"> No sub type information 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the power and ground connections to the module. Using the manufacturer approved diagnostic system, complete a CAN network integrity test. Refer to the electrical circuit diagrams and check the CAN network between the transfer case control module and central junction box
U0103-00	Lost Communication With Gear Shift Control Module A - No sub type information	<ul style="list-style-type: none"> Loss of CAN communications with transmission control switch 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the power and ground connections to the transmission control switch. Using the manufacturer approved diagnostic system, complete a CAN network integrity test. Refer to the electrical circuit diagrams and check the CAN network between the transmission control switch and the central junction box
U0121-00	Lost Communication With Anti-Lock Brake System (ABS) Control Module - No sub type information	<ul style="list-style-type: none"> No sub type information 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the power and ground connections to the module. Using the manufacturer approved diagnostic system, complete a CAN network integrity test. Refer to the electrical circuit diagrams and check the CAN network between the anti-lock braking system module and central junction box
U0126-00	Lost Communication With Steering Angle Sensor Module - No sub type information	<ul style="list-style-type: none"> No sub type information 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the power and ground connections to the module. Using the manufacturer approved diagnostic system, complete a CAN network integrity test. Refer to the electrical circuit diagrams and check the CAN network between the steering angle sensor module and central junction box
U0128-00	Lost Communication With Park Brake Control Module - No sub type information	<ul style="list-style-type: none"> No sub type information 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the power and ground connections to the module. Using the manufacturer approved diagnostic system, complete a CAN network integrity test. Refer to the electrical circuit diagrams and check the CAN network between the electric park brake control module and central junction box
U0132-00	Lost Communication With Suspension Control Module "A" - No sub type information	<ul style="list-style-type: none"> No sub type information 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the power and ground connections to the module. Using the manufacturer approved diagnostic system, complete a CAN network integrity test. Refer to the electrical circuit diagrams and check the CAN network between the suspension control module and central junction box
U0138-00	Lost Communication with All Terrain Control Module - No sub type information	<ul style="list-style-type: none"> No sub type information 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the power and ground connections to the module. Using the manufacturer approved diagnostic system, complete a CAN network integrity test. Refer to the electrical circuit diagrams and check the CAN network between the terrain response switchpack and central junction box
U0139-00	Lost Communication With Suspension Control Module "B" - No sub type information	<ul style="list-style-type: none"> No sub type information 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the power and ground connections to the module. Using the manufacturer approved diagnostic system, complete a CAN network integrity test. Refer to the electrical circuit diagrams and check the CAN network between the suspension control module and central junction box
U0151-00	Lost Communication With Restraints		<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the power and ground connections to the module. Using the manufacturer approved diagnostic system, complete a CAN network integrity test. Refer to the

	Control Module - No sub type information	<ul style="list-style-type: none"> No sub type information 	electrical circuit diagrams and check the CAN network between the restraints control module and central junction box
U0155-00	Lost Communication With Instrument Panel Cluster (IPC) Control Module - No sub type information	<ul style="list-style-type: none"> No sub type information 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the power and ground connections to the module. Using the manufacturer approved diagnostic system, complete a CAN network integrity test. Refer to the electrical circuit diagrams and check the CAN network between the instrument cluster and central junction box
U0164-00	Lost Communication With HVAC Control Module - No sub type information	<ul style="list-style-type: none"> No sub type information 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the power and ground connections to the module. Using the manufacturer approved diagnostic system, complete a CAN network integrity test. Refer to the electrical circuit diagrams and check the CAN network between the automatic temperature control module and central junction box
U0184-00	Lost Communication With Radio - No sub type information	<ul style="list-style-type: none"> No sub type information 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the power and ground connections to the module. Using the manufacturer approved diagnostic system, complete a CAN network integrity test. Refer to the electrical circuit diagrams and check the CAN network between the radio control module and central junction box
U0199-00	Lost communication with Driver Door Module (DDM) - No sub type information	<ul style="list-style-type: none"> No sub type information 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the power and ground connections to the module. Using the manufacturer approved diagnostic system, complete a CAN network integrity test. Refer to the electrical circuit diagrams and check the CAN network between the driver door module and central junction box
U0200-00	Lost Communication With "Door Control Module "B" - No sub type information	<ul style="list-style-type: none"> No sub type information 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the power and ground connections to the module. Using the manufacturer approved diagnostic system, complete a CAN network integrity test. Refer to the electrical circuit diagrams and check the CAN network between the passenger door module and central junction box
U0208-00	Lost Communication With "Seat Control Module "A" - No sub type information	<ul style="list-style-type: none"> No sub type information 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the power and ground connections to the module. Using the manufacturer approved diagnostic system, complete a CAN network integrity test. Refer to the electrical circuit diagrams and check the CAN network between the driver seat module and central junction box
U0214-00	Lost Communication With Remote Function Actuation - No sub type information	<ul style="list-style-type: none"> No sub type information 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the power and ground connections to the module. Using the manufacturer approved diagnostic system, complete a CAN network integrity test. Refer to the electrical circuit diagrams and check the CAN network between the keyless vehicle module and central junction box
U0241-00	Lost Communication With Headlamp Control Module "A" - No sub type information	<ul style="list-style-type: none"> No sub type information 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the power and ground connections to the module. Using the manufacturer approved diagnostic system, complete a CAN network integrity test. Refer to the electrical circuit diagrams and check the CAN network between the headlamp leveling control module and central junction box

U0242-00	Lost Communication With Headlamp Control Module "B" - No sub type information	<ul style="list-style-type: none"> No sub type information 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the power and ground connections to the module. Using the manufacturer approved diagnostic system, complete a CAN network integrity test. Refer to the electrical circuit diagrams and check the CAN network between the auto high beam control module and central junction box
U1000-00	Solid State Driver Protection Active - Driver Disabled - No sub type information	<ul style="list-style-type: none"> Central junction box output circuit - Short circuit to ground, short circuit to power 	 <p>NOTE: The relevant output is disabled while this DTC is set. Do not clear the DTC until the fault has been rectified</p> <ul style="list-style-type: none"> Using the manufacturer approved diagnostic system, check for other central junction box short circuit to ground and/or short circuit to power DTCs and refer to the relevant DTC index for corrective actions Once circuit faults have been rectified, clear DTC and retest
U200E-11	Control Module Output Power B - Circuit short to ground	<ul style="list-style-type: none"> Circuit short to ground 	<ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the circuit, repair as necessary
U2010-11	Switch Illumination - Circuit short to ground	<ul style="list-style-type: none"> Switch illumination circuit short to ground 	<ul style="list-style-type: none"> Refer to electrical circuit diagrams and check the switch illumination circuit
U2017-51	Control Module Software #2 - Not programmed	<ul style="list-style-type: none"> Not programmed 	<ul style="list-style-type: none"> Configure the module using the manufacturers approved diagnostic system
U201B-54	Control Module Calibration Data #2 - Missing calibration	<ul style="list-style-type: none"> Missing calibration 	<ul style="list-style-type: none"> Configure the module using the manufacturers approved diagnostic system by running the relevant configuration and set up application for calibrating the steering column
U201F-04	External Receiver - System internal failures	<ul style="list-style-type: none"> Tire pressure monitoring system RF receiver power or ground circuit open circuit, high resistance Tire pressure monitoring system RF receiver internal failure 	 <p>NOTE: Ignore all other tire pressure monitoring system related DTCs if this DTC is set.</p> <ul style="list-style-type: none"> Refer to the electrical circuit diagrams and check the tire pressure monitoring system RF receiver power and ground circuits for open circuit, high resistance Using the manufacturer approved diagnostic system, clear the DTCs and retest. If the fault persists, install a new tire pressure monitoring system RF receiver
U201F-11	External Receiver - Circuit short to ground	<ul style="list-style-type: none"> Tire pressure monitoring system RF receiver LIN circuit short circuit to ground Tire pressure monitoring system RF receiver internal failure Central junction box internal failure 	 <p>NOTE: Ignore all other tire pressure monitoring system related DTCs if this DTC is set.</p> <ul style="list-style-type: none"> Refer to pinpoint test A in the tire pressure monitoring system diagnosis and testing section of the workshop manual (see section 204-04) and proceed as directed
U201F-12	External Receiver - Circuit short to battery	<ul style="list-style-type: none"> Tire pressure monitoring system RF receiver LIN circuit short circuit to power Tire pressure monitoring system RF receiver internal failure Central junction box internal failure 	 <p>NOTE: Ignore all other tire pressure monitoring system related DTCs if this DTC is set.</p> <ul style="list-style-type: none"> Refer to pinpoint test B in the tire pressure monitoring system diagnosis and testing section of the workshop manual (see section 204-04) and proceed as directed

U201F-87	External Receiver - Missing message	<ul style="list-style-type: none"> • Tire pressure monitoring system RF receiver power or ground circuit open circuit, high resistance • Tire pressure monitoring system RF receiver LIN circuit open circuit, high resistance • Tire pressure monitoring system RF receiver internal failure • Central junction box internal failure 	 <p>NOTE: Ignore all other tire pressure monitoring system related DTCs if this DTC is set.</p> <ul style="list-style-type: none"> • Refer to pinpoint test C in the tire pressure monitoring system diagnosis and testing section of the workshop manual (see section 204-04) and proceed as directed
U2101-00	Control Module Configuration Incompatible - No sub type information	<ul style="list-style-type: none"> • Car configuration file incorrect 	<ul style="list-style-type: none"> • Check and amend the car configuration file as required using the manufacturer approved diagnostic system
U2104-23	Trip Meter Reset Button - Signal stuck low	<ul style="list-style-type: none"> • Signal stuck low • Switch activated for more than one minute • Switch failure 	<ul style="list-style-type: none"> • Check the operation of the switch. Refer to the electrical circuit diagrams and check the switch circuit. Clear the DTC and retest. If the DTC persists, renew the switch
U2300-64	Central Configuration - Signal plausibility failure	<ul style="list-style-type: none"> • Tire pressure monitoring system configuration data is invalid caused by incorrect car / local configuration file(s) 	<ul style="list-style-type: none"> • Using the manufacturer approved diagnostic system check and amend the car / local configuration file(s)
U3000-49	Control Module - Internal electronic failure	<ul style="list-style-type: none"> • Central junction box - Internal failure 	 <p>NOTE: The relevant output is disabled while this DTC is set</p> <ul style="list-style-type: none"> • Using the manufacturer approved diagnostic system, check for other central junction box short circuit to ground and/or short circuit to power DTCs and refer to the relevant DTC index for corrective actions • Install a new central junction box as required. Clear DTCs and retest
U3001-54	Control Module Improper Shutdown - Missing calibration	<ul style="list-style-type: none"> • Missing calibration • EEPROM hasn't stored the final axis position of the steering column telescope/tilt position 	<ul style="list-style-type: none"> • Check for other steering column telescope/tilt DTCs. Clear the DTC and operate the steering column through the complete telescope and tilt functions ranges. If the DTC returns, configure the steering column module using the manufacturers approved diagnostic system by running the relevant configuration and set up application