

Wheels and Tires -

Wheels

Wheel type	Wheel size
Alloy wheel	<ul style="list-style-type: none"> • 7.5J x19 EH2+44.5 • 8.5J x20 EH2+47 • 9.5J x21 EH2+49 • 9.5J x22 CH49
Steel (temporary spare) wheel	6.0J x20 CH30

Tire Size

NOTES:



The tire size is displayed on the outer wall of each tire.



All Range Rover tyres are rated as XL (Extra Load) or 'Reinforced'

Wheel size	Tire size
19 inch - Alloy	235/65 R19 109V
20 inch - Alloy	255/55 R20 110W
21 inch - Alloy	275/45 R21 110V
22 inch - Alloy	275/40 R22 108Y
20 inch - Steel Spare	175/80 R20

Tire Pressures - RoW vehicles (Dual Load Conditions)

Loading condition	bar	kPa
Normal operating conditions**:		
Front	2.3	230
Rear	2.5	250
Vehicle loaded to maximum gross vehicle weight:		
Front - 19 inch wheels	2.6	260
Rear - 19 inch wheels	3.1	310
Front - other sizes	2.5	250
Rear - other sizes	3.0	

** Normal operating conditions: Carrying up to 4 passengers and luggage

Tire Pressures – NAS/Gulf/Brazil vehicles (Dual Load Conditions)

Loading condition	bar	kPa
Normal operating conditions**:		
Front	2.3	230
Rear	2.5	250
Vehicle loaded to maximum gross vehicle weight:		
Front	2.5	250
Rear	3.0	300

** Normal operating conditions: Carrying up to 4 passengers and luggage

Tire Pressures – Temporary Spare

Loading condition	bar	kPa
All operating conditions:	4.2	420

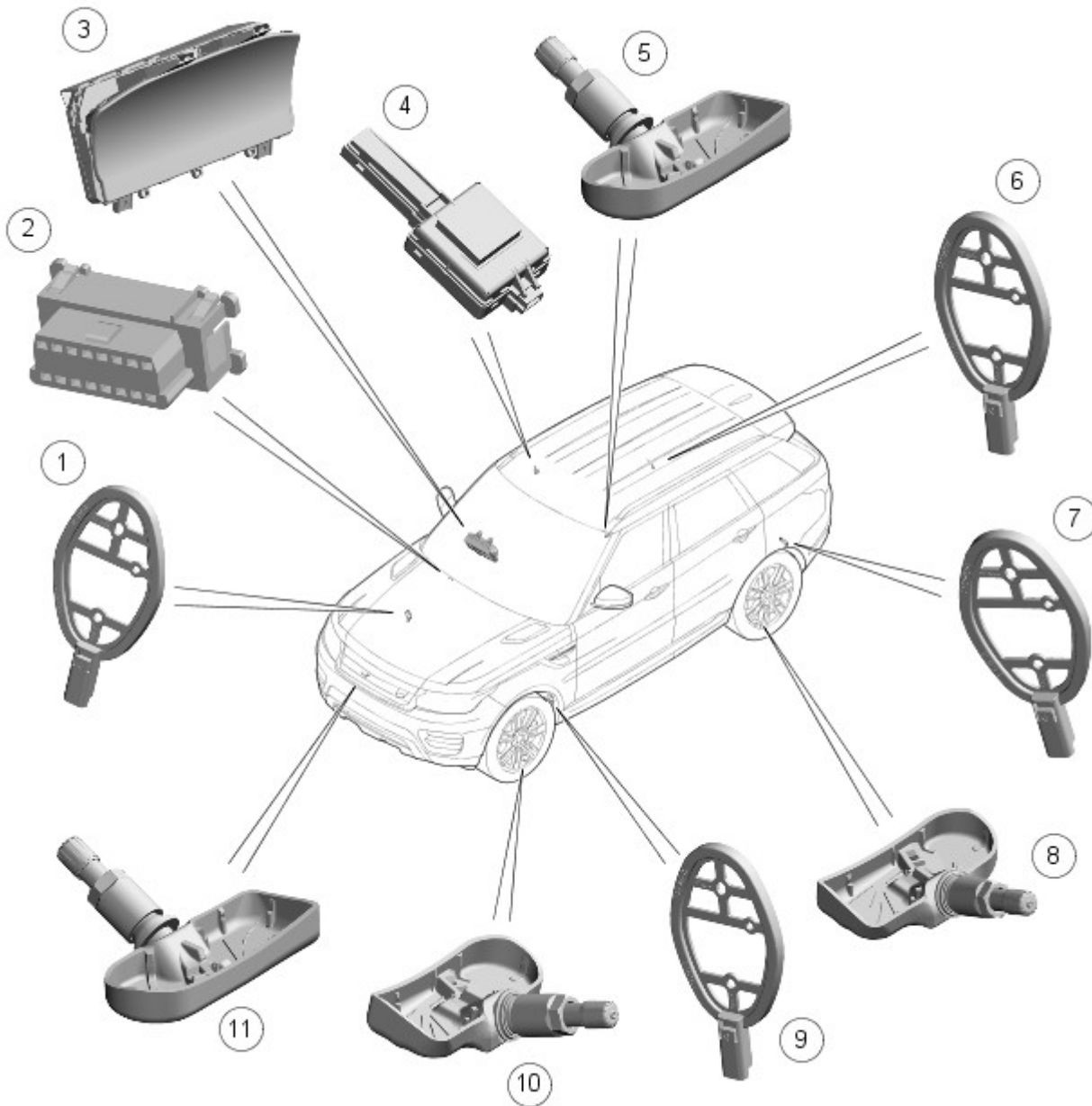
Torque Specifications

Description	Nm	lb-ft
Road wheel nuts	140	103
Tire low pressure sensor	8	6

Wheels and Tires - Tire Pressure Monitoring System (TPMS)

Description and Operation

COMPONENT LOCATION



E151441

Item	Part Number	Description
1	-	Front right initiator
2	-	Diagnostic connector
3	-	Instrument Cluster (IC)
4	-	RF receiver
5	-	Rear right tire pressure sensor
6	-	Rear right initiator
7	-	Rear left initiator
8	-	Rear left tire pressure sensor
9	-	Front left initiator
10	-	Front left tire pressure sensor
11	-	Front right tire pressure sensor

Overview

The purpose of the TPMS (Tire Pressure Monitoring System) 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 and issues warnings to the driver if any of the pressures deviate from defined tolerances.

NOTES:

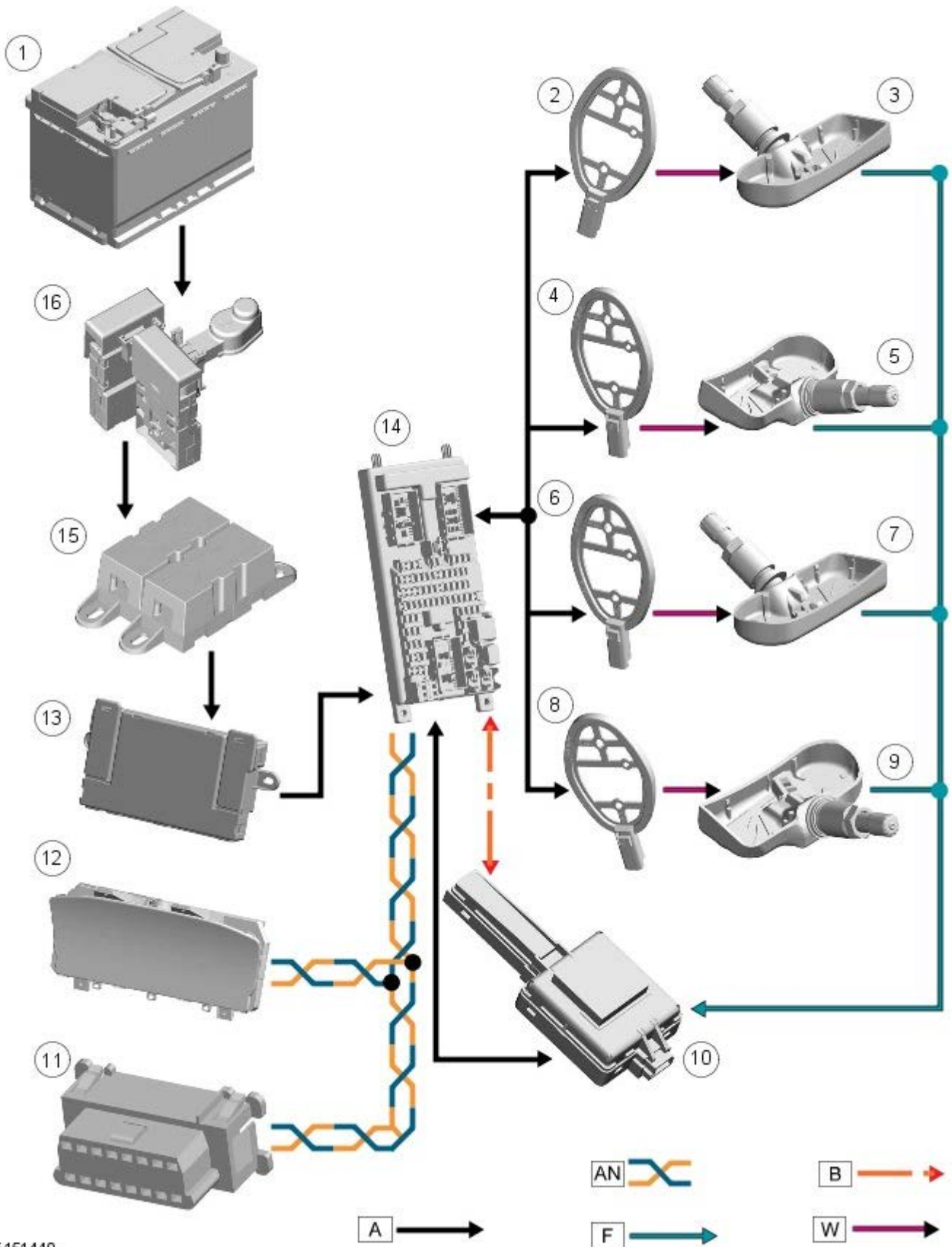
 During a 'blow out' a very rapid reduction in pressure is experienced. The system is not intended to warn the driver of a 'blow out', since it is not possible to give the driver sufficient warning that such an event is occurring, due to its short duration. The design of the TPMS is to assist the driver 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 IC message center and a warning indicator.

Control diagram

 NOTE: A = Hardwired, B = K bus, AN = High speed CAN (Controller Area Network) Powertrain bus, F = RF Transmission, W = LF Transmission.



E151440

Item	Part Number	Description
1	-	Battery
2	-	Front right initiator
3	-	Front right tire pressure sensor
4	-	Front left initiator
5	-	Front left tire pressure sensor
6	-	Rear right initiator
7	-	Rear right tire pressure sensor

8	-	Front right initiator
9	-	Front right tire pressure sensor
10	-	RF receiver
11	-	Diagnostic connector
12	-	Instrument Cluster (IC)
13	-	Battery Junction Box (BJB)
14	-	Central Junction Box (CJB)
15	-	Battery Junction Box 2 (BJB2)
16	-	Megafuse

SYSTEM OPERATION

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.

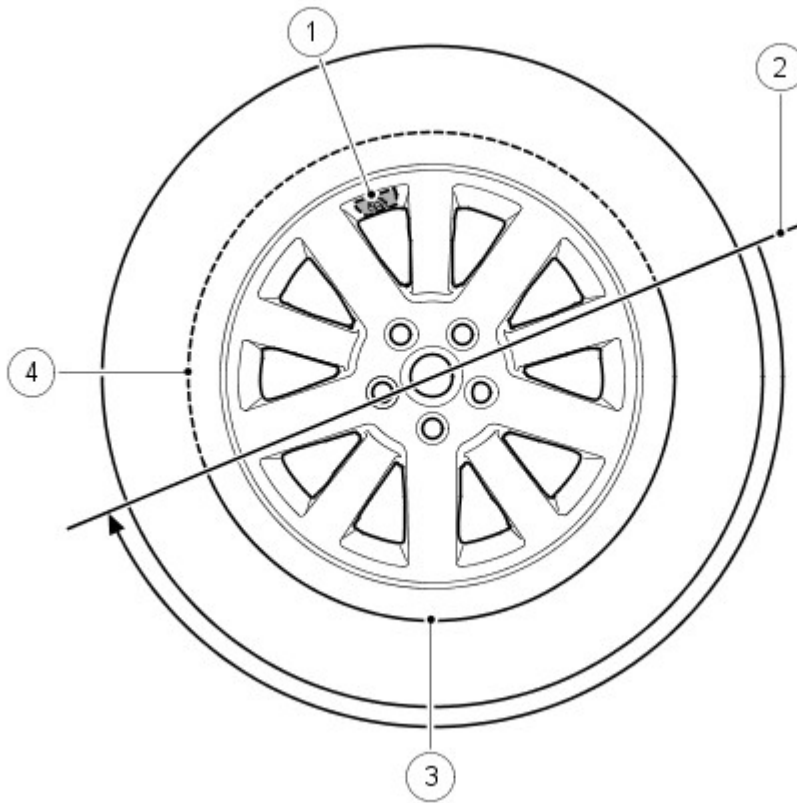
If the tire pressure sensors fitted to the running wheels (not the spare) are changed, the CJB can learn the new sensor identifications automatically. The learn function requires no manual intervention by the driver.

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.



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	Part Number	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.

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 monitors 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.

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.

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 (20% for EU vehicles) the amber warning indicator in the instrument cluster is illuminated and an appropriate message displayed in the message center.

COMPONENT DESCRIPTION

RF Receiver



E149074

The RF (Radio Frequency) receiver is mounted behind the overhead console and connects to the vehicle harness via a three pin plug.

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 K-bus.

Initiator



E149075

The initiators are located at the rear 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, LF (Low Frequency) transmitter. Each initiator provides an auto-location feature to identify tire positions on the vehicle.

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



E149076

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.

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. If the sensors are not sealing, a service kit should be used replacing the nut and rubber sealing washer.

Instrument Cluster Indications



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

The warning indicator and message center are driven by high speed CAN Powertrain messages from the CJB. The warning indicator is illuminated by the cluster software continuously when the tire pressure is low and will flash for 75 seconds in a case of a failure.

For additional information, refer to: [Instrument Cluster](#) (413-01 Instrument Cluster, Description and Operation).

Controller Area Network (CAN)

The CJB sends and receives a number of digital messages via the high speed CAN Powertrain, and medium speed CAN Body bus. 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
Current Tyre Pressures	Instrument Cluster
Recommended Tyre Pressure Data	Instrument Cluster

Diagnostics

The CJB has a diagnostic connection via the high speed CAN Powertrain bus 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 Tire 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 'Tire 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 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 Tire 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.

Wheels and Tires - Tire Pressure Monitoring System (TPMS)

Diagnosis and Testing

Principles of Operation

For a detailed description of the wheels and tires, refer to the relevant description and operation section in the workshop manual.

REFER to: [Tire Pressure Monitoring System \(TPMS\)](#) (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.

1. Verify the customer complaint. As much information as possible should be gathered from the driver to assist in diagnosing the cause(s). Confirm which of the following two warning types (A or B) exist for the tire pressure monitoring system when the ignition status is switched from 'OFF' to 'ON'
 - **(A) Check Tire Pressure Warnings.** A low tire pressure warning will **continuously** illuminate the low tire pressure warning lamp. This warning may be accompanied by a text message such as CHECK TIRE PRESSURE (refer to owner literature). The manufacturer approved diagnostic system does NOT need to be used. Diagnostic trouble codes (DTCs) are not generated with this type of warning. To extinguish this warning it is essential that, with the ignition 'ON', all vehicle tires (including the spare) are to be set to the correct pressure as stated in the vehicle handbook or as indicated on the placard label in the passenger/driver door aperture. **It is not necessary to drive the vehicle to clear 'check tire pressure' warnings - just changing the tire pressure causes the tire low pressure sensor to transmit new data.**

NOTES:



The tire pressures should be set by:

- Using a calibrated tire pressure gauge
- With 'cold' tires (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 does not clear within two minutes, it is likely that the gauge is not correctly calibrated or the tires are 'warm'. Carry out the following steps until the warning has cleared:

- Rotate wheels approximately 180 degrees
- Increase the tire pressures by 3psi
- Wait a further two minutes
- When the tires are at ambient temperature and a **calibrated** gauge is available, reset the tire pressures to the correct pressure



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

- **(B) System Fault Warnings.** When a system fault is detected, the low tire pressure warning lamp will flash for approximately 75 seconds prior to being continuously illuminated. Visually inspect wheel arch tire pressure monitoring system antennas and check for system DTCs. External visual damage to the tire low pressure sensors and air leaks will not cause system fault warnings (note: nut and seal system should be replaced at each tyre change using the available service kit). Check for the presence of tire low pressure sensors on all four wheels (note: a tire low pressure sensor has a metal valve stem rather than a rubber one).

2. Check for diagnostic trouble codes (DTCs) and refer to the DTC index

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: Central Junction Box \(CJB\)](#) (100-00 General Information, Description and Operation).

Pinpoint Tests

PINPOINT TEST A : U201F-11 TIRE PRESSURE MONITORING SYSTEM EXTERNAL RECEIVER DATA LINE CIRCUIT SHORT TO GROUND					
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS				
A1: U201F-11 VERIFY EXTERNAL RECEIVER DATA LINE CIRCUIT SHORT TO GROUND					
	1 Ignition OFF				
	2 Disconnect the tire pressure monitoring system receiver electrical connector, C2875				
	3 Measure the resistance between				
	<table border="1" style="width: 100%;"> <tr> <td style="width: 50%; text-align: center;">C2875, harness side</td> <td style="width: 50%; text-align: center;">Battery</td> </tr> <tr> <td style="text-align: center;">Pin 1</td> <td style="text-align: center;">Negative terminal</td> </tr> </table>	C2875, harness side	Battery	Pin 1	Negative terminal
C2875, harness side	Battery				
Pin 1	Negative terminal				
	Is the resistance less than 5 Ohms?				
	Yes				

	GO to A2.				
No	GO to A3.				
A2: U201F-11 CHECK THE EXTERNAL RECEIVER DATA LINE CIRCUIT FOR SHORT CIRCUIT TO GROUND					
	1 Disconnect the central junction box electrical connector, C0580				
	2 Measure the resistance between				
	<table border="1"> <thead> <tr> <th>C2875, harness side</th> <th>Battery</th> </tr> </thead> <tbody> <tr> <td>Pin 1</td> <td>Negative terminal</td> </tr> </tbody> </table>	C2875, harness side	Battery	Pin 1	Negative terminal
C2875, harness side	Battery				
Pin 1	Negative terminal				
	Is the resistance less than 5 Ohms? Yes REPAIR the short circuit in wiring harness No GO to A4.				
A3: U201F-11 CHECK THE TIRE PRESSURE MONITORING SYSTEM EXTERNAL RECEIVER FOR SHORT CIRCUIT TO GROUND					
	1 Reconnect the tire pressure monitoring system receiver electrical connector, C2875				
	2 Using manufacturer approved diagnostic system run on demand self-test (Ox0202)				
	Is the DTC U201F-11 set? Yes Replace tire pressure monitoring receiver No Investigate possible cause of intermittent failure				
A4: U201F-11 CHECK THE CENTRAL JUNCTION BOX FOR SHORT CIRCUIT TO GROUND					
	1 Reconnect the central junction box electrical connector, C0580				
	2 Reconnect the tire pressure monitoring system receiver electrical connector, C2875				
	3 Using manufacturer approved diagnostic system run on demand self-test (Ox0202)				
	Is the DTC U201F-11 set? Yes Replace central junction box No Investigate possible cause of intermittent failure				

PINPOINT TEST B : U201F-12 TIRE PRESSURE MONITORING SYSTEM EXTERNAL RECEIVER DATA LINE CIRCUIT SHORT TO POWER

TEST CONDITIONS	DETAILS/RESULTS/ACTIONS				
B1: U201F-12 VERIFY EXTERNAL RECEIVER DATA LINE CIRCUIT SHORT TO POWER					
	1 Ignition OFF				
	2 Disconnect the tire pressure monitoring system receiver electrical connector, C2875				
	3 Measure the resistance between				
	<table border="1"> <thead> <tr> <th>C2875, harness side</th> <th>Battery</th> </tr> </thead> <tbody> <tr> <td>Pin 1</td> <td>Positive terminal</td> </tr> </tbody> </table>	C2875, harness side	Battery	Pin 1	Positive terminal
C2875, harness side	Battery				
Pin 1	Positive terminal				
	Is the resistance less than 5 Ohms? Yes GO to B2. No GO to B3.				
B2: U201F-12 CHECK THE EXTERNAL RECEIVER DATA LINE CIRCUIT FOR SHORT CIRCUIT TO POWER					
	1 Disconnect the central junction box electrical connector, C0580				
	2 Measure the resistance between				
	<table border="1"> <thead> <tr> <th>C2875, harness side</th> <th>Battery</th> </tr> </thead> <tbody> <tr> <td>Pin 1</td> <td>Positive terminal</td> </tr> </tbody> </table>	C2875, harness side	Battery	Pin 1	Positive terminal
C2875, harness side	Battery				
Pin 1	Positive terminal				
	Is the resistance less than 5 Ohms? Yes REPAIR the short circuit in wiring harness No GO to B4.				
B3: U201F-12 CHECK THE TIRE PRESSURE MONITORING SYSTEM EXTERNAL RECEIVER FOR SHORT CIRCUIT TO POWER					
	1 Reconnect the tire pressure monitoring system receiver electrical connector, C2875				
	2 Using manufacturer approved diagnostic system run on demand self-test (Ox0202)				
	Is the DTC U201F-12 set? Yes Replace tire pressure monitoring receiver No Investigate possible cause of intermittent failure				
B4: U201F-12 CHECK THE CENTRAL JUNCTION BOX FOR SHORT CIRCUIT TO POWER					
	1 Reconnect the central junction box electrical connector, C0580				
	2 Reconnect the tire pressure monitoring system receiver electrical connector, C2875				
	3 Using manufacturer approved diagnostic system run on demand self-test (Ox0202)				

	Is the DTC U201F-12 set? Yes Replace central junction box No Investigate possible cause of intermittent failure
--	---


PINPOINT TEST C : U201F-87 TIRE PRESSURE MONITORING SYSTEM EXTERNAL RECEIVER DATA LINE MISSING MESSAGE

TEST CONDITIONS	DETAILS/RESULTS/ACTIONS				
C1: U201F-87 VERIFY EXTERNAL RECEIVER DATA LINE MISSING MESSAGE					
	1 Using manufacturer approved diagnostic system run on demand self-test (0x0202)				
	Is the DTC U201F-87 set? Yes GO to C2. No Investigate possible cause of intermittent failure				
C2: U201F-87 CHECK EXTERNAL RECEIVER DATA LINE CIRCUIT					
	1 Ignition OFF				
	2 Disconnect the tire pressure monitoring system receiver electrical connector, C2875				
	3 Disconnect the central junction box electrical connector, C0580				
	4 Measure the resistance between				
	<table border="1" style="width: 100%;"> <tr> <td style="width: 50%; text-align: center;">C2875, harness side</td> <td style="width: 50%; text-align: center;">C0580, harness side</td> </tr> <tr> <td style="text-align: center;">Pin 1</td> <td style="text-align: center;">Pin 25</td> </tr> </table>	C2875, harness side	C0580, harness side	Pin 1	Pin 25
C2875, harness side	C0580, harness side				
Pin 1	Pin 25				
	Is the resistance less than 5 ohms? Yes GO to C3. No REPAIR the high resistance/open circuit in wiring harness				
C3: U201F-87 CHECK EXTERNAL RECEIVER					
	1 Reconnect the central junction box electrical connector, C0580				
	2 Reconnect the tire pressure monitoring system receiver electrical connector, C2875				
	3 Using manufacturer approved diagnostic system run on demand self-test (0x0202)				
	Is the DTC U201F-87 set? Yes Replace tire pressure monitoring receiver GO to C4. No Investigate possible cause of intermittent failure				
C4: U201F-87 CHECK CENTRAL JUNCTION BOX.					
	1 Using manufacturer approved diagnostic system run on demand self-test (0x0202)				
	Is the DTC U201F-87 set? Yes Replace central junction box No Test is complete. No further action is required				


PINPOINT TEST D : C1A56-93, C1A58-93, C1A60-93, C1A62-93 DEFECTIVE RUNNING TIRE LOW PRESSURE SENSOR OR RECEIVER

TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
D1: C1A56-93, C1A58-93, C1A60-93, C1A62-93 CHECK FOR ADDITIONAL DTCS	
	1 Using manufacturer approved diagnostic system check for additional DTCS C1A56-93, C1A58-93, C1A60-93, C1A62-93, with identical time stamps
	Have all four DTCS logged with identical time stamps in the central junction box? Yes Diagnose and fix DTCS related to the tire pressure monitoring receiver No Using manufacturer approved diagnostic system, perform diagnostic routine to verify reception of all tire low pressure sensors, by carrying out 'TPMS wheel unit & receiver reception test' from set up and configuration application and complete remedial actions

PINPOINT TEST E : C1D18-00 LOCALIZATION FAILURE

TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
E1: C1D18-00 ESTABLISH THE LOCATIONS OF THE TIRE LOW PRESSURE SENSOR LOCALIZATION FAILURES	
	 NOTE: To clear or reset information read in datalogger signal 'unsuccessful wheel position triggering statistic' (0x4149) Use manufacturer approved diagnostic system and carry out 'Reset/ Clear Specified Function' (0x040E) from special applications
	1 Using manufacturer approved diagnostic system read datalogger signal 'unsuccessful wheel position triggering statistic' (0x4149) to establish the locations of the tire low pressure sensor localization failures
	Have the locations of the tire low pressure sensor localization failures been identified? Yes

	GO to E2.								
No	Investigate possible cause of intermittent failure								
E2: C1D18-00 CHECK FOR ADDITIONAL LF INITIATOR CIRCUIT DTCS									
1	Using manufacturer approved diagnostic system check for additional DTCs C1A57-12, C1A57-14, C1A59-12, C1A59-14, C1A61-12, C1A61-14, C1A63-12, C1A63-14								
	Are any of the following DTCs logged C1A57-12, C1A57-14, C1A59-12, C1A59-14, C1A61-12, C1A61-14, C1A63-12, C1A63-14?								
Yes	Refer to the DTC index. Check for possible causes for each of the logged DTCs and carry out the repair operations specified								
No	GO to E3.								
E3: C1D18-00 CHECK FOR ADDITIONAL TIRE LOW PRESSURE SENSOR DTCS									
1	Using manufacturer approved diagnostic system check for additional DTCs C1A56-93, C1A58-93, C1A60-93, C1A62-93, C1D21-05								
	Are any of the following DTCs logged C1A56-93, C1A58-93, C1A60-93, C1A62-93, C1D21-05?								
Yes	Refer to the DTC index. Check for possible causes for each of the logged DTCs and carry out the repair operations specified								
No	GO to E4.								
E4: C1D18-00 CHECK INITIATORS ARE CORRECTLY INSTALLED									
1	Check for correct installation of initiators for the locations identified. REFER to: (204-04 Wheels and Tires) Tire Pressure Monitoring System (TPMS) Receiver (Removal and Installation), Tire Pressure Monitoring System (TPMS) Front Initiator (Removal and Installation), Tire Low Pressure Sensor (Removal and Installation), Tire Pressure Monitoring System (TPMS) Rear Initiator (Removal and Installation).								
	Are the initiators correctly installed?								
Yes	GO to E5.								
No	Install initiators to the correct locations								
E5: C1D18-00 CHECK FOR SHORT CIRCUIT IN INITIATOR HARNESS									
1	Ignition OFF								
2	Disconnect the central junction box electrical connector, C0584 (front LF initiators)								
3	Disconnect the central junction box electrical connector, C0586 (rear LF initiators)								
4	Measure the resistance of front right initiator								
	<table border="1"> <tr> <td colspan="2" style="text-align: center;">C0584, harness side</td> <td colspan="2" style="text-align: center;">C0584, harness side</td> </tr> <tr> <td>Pin 1</td> <td></td> <td>Pin 2</td> <td></td> </tr> </table>	C0584, harness side		C0584, harness side		Pin 1		Pin 2	
C0584, harness side		C0584, harness side							
Pin 1		Pin 2							
5	Measure the resistance of front left initiator								
	<table border="1"> <tr> <td colspan="2" style="text-align: center;">C0584, harness side</td> <td colspan="2" style="text-align: center;">C0584, harness side</td> </tr> <tr> <td>Pin 14</td> <td></td> <td>Pin 15</td> <td></td> </tr> </table>	C0584, harness side		C0584, harness side		Pin 14		Pin 15	
C0584, harness side		C0584, harness side							
Pin 14		Pin 15							
6	Measure the resistance of rear right initiator								
	<table border="1"> <tr> <td colspan="2" style="text-align: center;">C0586, harness side</td> <td colspan="2" style="text-align: center;">C0586, harness side</td> </tr> <tr> <td>Pin 30</td> <td></td> <td>Pin 31</td> <td></td> </tr> </table>	C0586, harness side		C0586, harness side		Pin 30		Pin 31	
C0586, harness side		C0586, harness side							
Pin 30		Pin 31							
7	Measure the resistance of rear left initiator								
	<table border="1"> <tr> <td colspan="2" style="text-align: center;">C0586, harness side</td> <td colspan="2" style="text-align: center;">C0586, harness side</td> </tr> <tr> <td>Pin 18</td> <td></td> <td>Pin 19</td> <td></td> </tr> </table>	C0586, harness side		C0586, harness side		Pin 18		Pin 19	
C0586, harness side		C0586, harness side							
Pin 18		Pin 19							
	Are any of the initiator resistance measurements less than 1 Ohm?								
Yes	REPAIR the short circuit as required								
No	Install the correct tire low pressure sensor, of correct frequency, in accordance with that defined in the manufacturer approved diagnostic system new tire low pressure sensor application, to the position(s) identified. REFER to: Tire Low Pressure Sensor (204-04 Wheels and Tires, Removal and Installation).								

PINPOINT TEST F : C1D21-05 MISSING, INCOMPATIBLE OR DEFECTIVE RUNNING TIRE LOW PRESSURE SENSOR(S) OR RECEIVER	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
F1: C1D21-05 CHECK FOR CORRECT WHEEL AND TIRE ASSEMBLY AND TIRE LOW PRESSURE SENSORS	
	 NOTE: As a visual check, a tire low pressure sensor has a metal valve stem rather than a rubber one and cannot be installed to a mini or space saver spare wheel
1	Check that all full size running wheel and tire assemblies have tire low pressure sensors installed
	Is a full size wheel and tire assembly with tire low pressure sensor installed to all running wheel positions?

Yes

Using manufacturer approved diagnostic system, perform diagnostic routine to verify reception of all tire low pressure sensors, by carrying out 'TPMS wheel unit & receiver reception test' from set up and configuration application and complete remedial actions

No

If agreed with the customer, install the correct wheel and tire assembly or tire low pressure sensor(s), of correct frequency, in accordance with that defined in the manufacturer approved diagnostic system
new tire low pressure sensor application

(Note: If the datalogger signal 'Number Of Missing Tire Pressure Wheel Units' is 4 and the instrument cluster displays text message 'Tire Pressure Monitoring Unavailable', the system has detected winter tire fitment, as detailed in the owner's manual. Confirm why the vehicle has non-TPMS wheel & tire assemblies fitted before installing tire low pressure sensors, which are not to be claimed under vehicle warranty)

Wheels and Tires - Tire Low Pressure Sensor

Removal and Installation

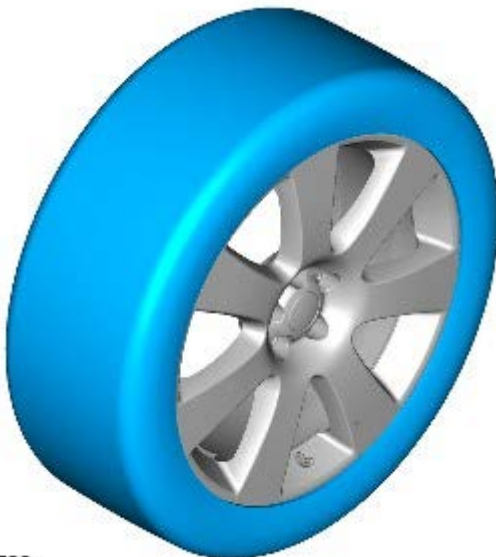
Removal

! **WARNING:** The valve seal and steel washer must be replaced each time a tire is changed to avoid seal failure. The seal and washer must be replaced if the sensor is removed. Removal of the sensor retaining nut must be regarded as sensor removal. The valve cap must always be in place except when inflating, releasing or checking pressure.

△ **NOTE:** If the sensor is replaced on a 'running' wheel, the new sensor identification will be learnt when the vehicle is first driven. If a new sensor is installed to the spare wheel, the identification for that sensor must be programmed into the tire pressure monitoring system (TPMS) module using Land Rover approved diagnostic equipment. The identification code is provided on a label with the complete assembly and is also printed on the casing of each sensor.

- !** **WARNING:** Make sure to support the vehicle with axle stands.
Raise and support the vehicle.
- For additional information, refer to: [Wheel and Tire - TDV6 3.0L Diesel /TDV8 4.4L Diesel/V6 S/C 3.0L Petrol /V8 S/C 5.0L Petrol](#) (204-04 Wheels and Tires, Removal and Installation).

- !** **CAUTION:** To avoid damage to the tire low pressure sensor, release the tire bead from the rim, 180 degrees from the valve.

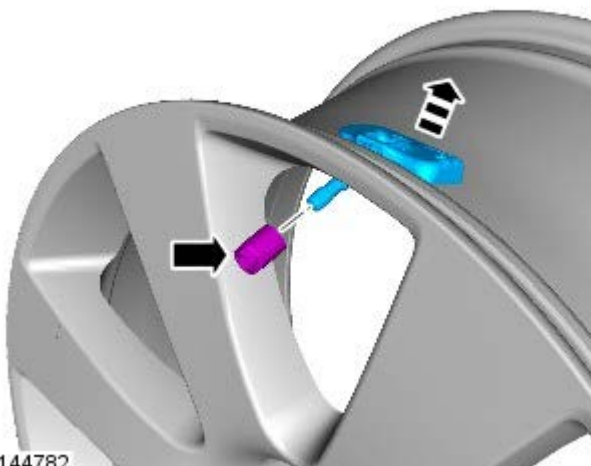


E144783

- CAUTIONS:**

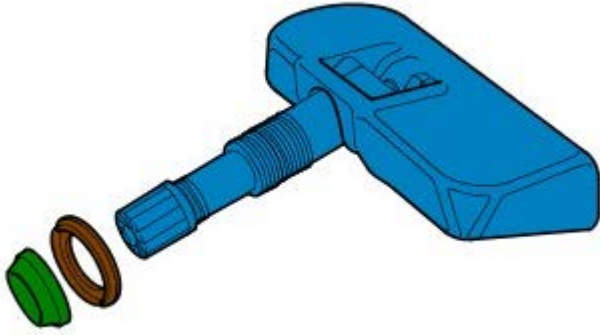
! Do not push on the valve.

! If the tire low pressure sensor is to be re-installed, a new washer, seal and nut must be installed.



E144782

- If necessary, install a new seal and washer.
 - Remove and discard the sealing washer.
 - Install a new washer and seal, making sure the valve remains pressed fully onto its seat.



E51447

Installation

1. CAUTIONS:



Do not use compressed air to clean the sensor. Do not clean the sensor with solvents or cleaning agents of any type, use a clean dry cloth.



Make sure that the mating faces are clean and free of foreign material.

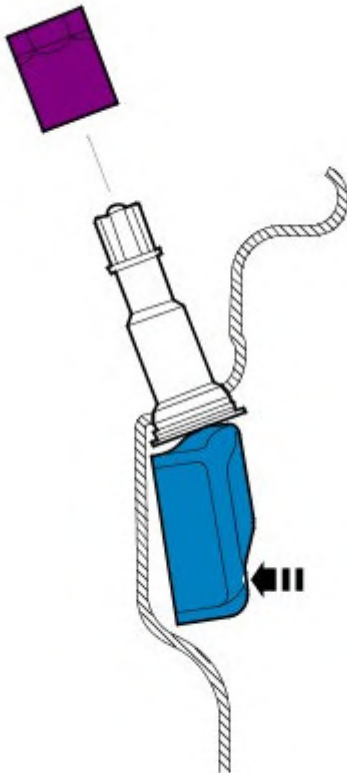


2. CAUTION: Do not apply any lubricant to the new valve.



NOTE: If the sensor is replaced on a 'running' wheel, the new sensor identification will be learnt when the vehicle is first driven. If a new sensor is fitted to the spare wheel the identification for that sensor must be programmed into the Tire Pressure Monitoring System (TPMS) module using T4. The identification code is provided on a label with the complete assembly and is also printed on the casing of each sensor.

TORQUE: 8 Nm



E51449

3. Install the tire and balance the wheel.

4. For additional information, refer to: [Wheel and Tire - TDV6 3.0L Diesel /TDV8 4.4L Diesel/V6 S/C 3.0L Petrol /V8 S/C 5.0L Petrol](#) (204-04 Wheels and Tires, Removal and Installation).

Wheels and Tires - Tire Pressure Monitoring System (TPMS) Front Initiator

Removal and Installation

Removal


NOTES:

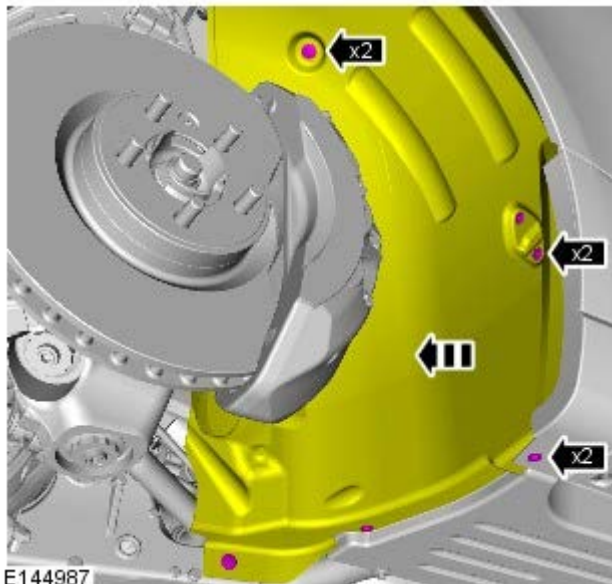


Removal steps in this procedure may contain installation details.

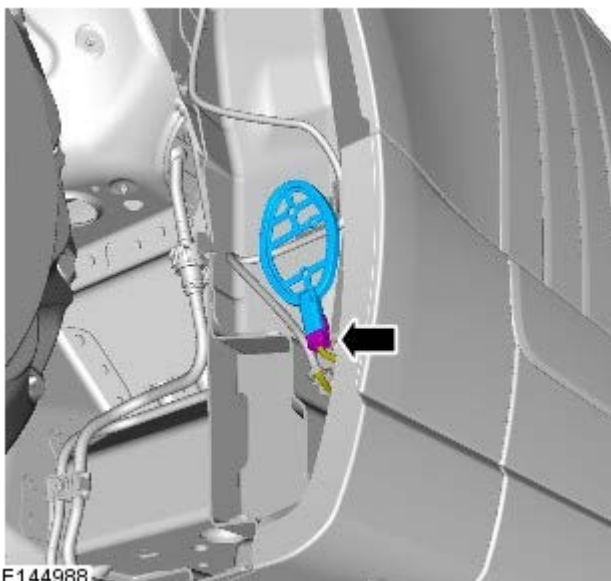


LH illustration shown, RH is similar.

-  **WARNING:** Make sure to support the vehicle with axle stands.
Raise and support the vehicle.
- Refer to: [Wheel and Tire - TDV6 3.0L Diesel /TDV8 4.4L Diesel/V6 S/C 3.0L Petrol /V8 S/C 5.0L Petrol](#) (204-04 Wheels and Tires, Removal and Installation).
-



4.



Installation

- To install, reverse the removal procedure.
- If a new component has been installed, configure using Land Rover

approved diagnostic equipment.

Wheels and Tires - Tire Pressure Monitoring System (TPMS) Rear Initiator

Removal and Installation

Removal


NOTES:

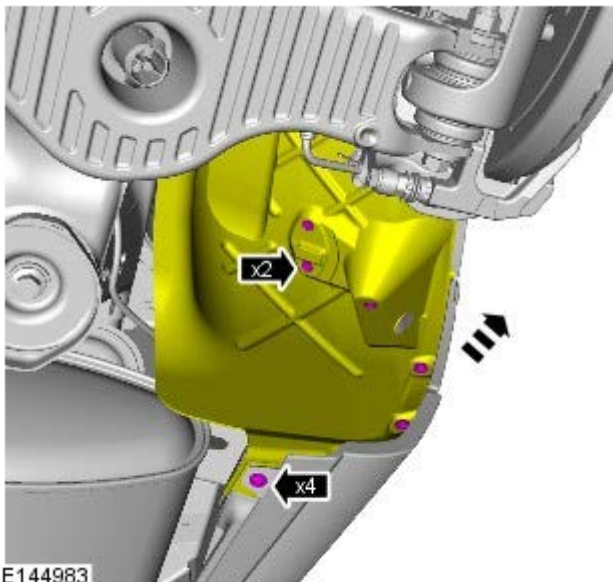


Removal steps in this procedure may contain installation details.



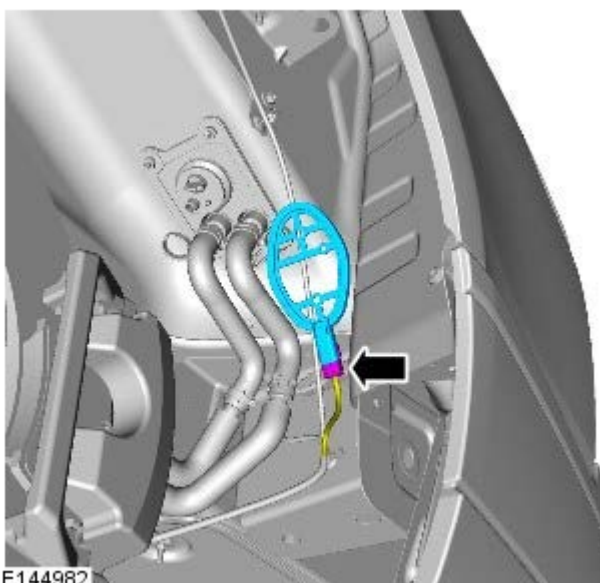
LH illustration shown, RH is similar.

1.  **WARNING:** Make sure to support the vehicle with axle stands.
Raise and support the vehicle.
2. Refer to: [Wheel and Tire - TDV6 3.0L Diesel /TDV8 4.4L Diesel/V6 S/C 3.0L Petrol /V8 S/C 5.0L Petrol](#) (204-04 Wheels and Tires, Removal and Installation).
- 3.



E144983

4.



E144982

Installation

1. To install, reverse the removal procedure.
2. If a new component has been installed, configure using Land Rover

approved diagnostic equipment.

Wheels and Tires - Tire Pressure Monitoring System (TPMS) Receiver

Removal and Installation

Removal



NOTE: Removal steps in this procedure may contain installation details.

1. Refer to: [Overhead Console](#) (501-12 Instrument Panel and Console, Removal and Installation).



2. NOTE: Repeat the procedure for the other side.

Refer to: [A-Pillar Trim Panel](#) (501-05 Interior Trim and Ornamentation, Removal and Installation).



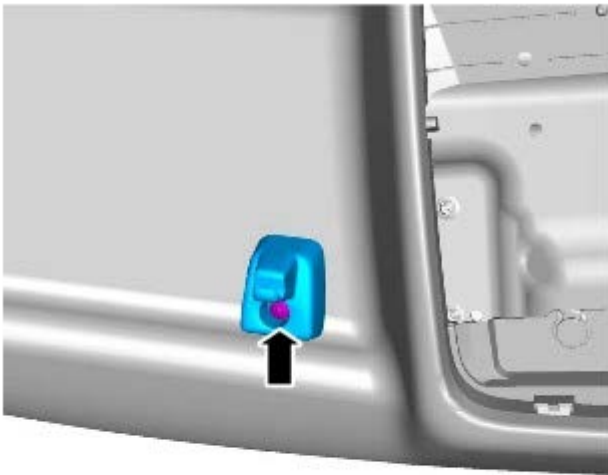
3. NOTE: Repeat the procedure for the other side.

Refer to: [Sun Visor](#) (501-05 Interior Trim and Ornamentation, Removal and Installation).



4. NOTE: Repeat the step for the other side.

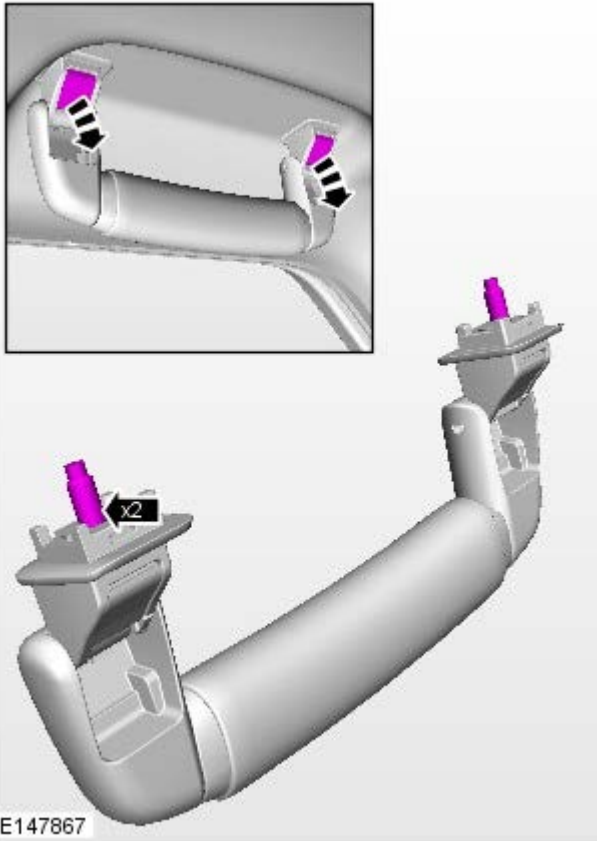
Torque: 6 Nm



E156547





5. NOTE: Repeat the step for the other side.



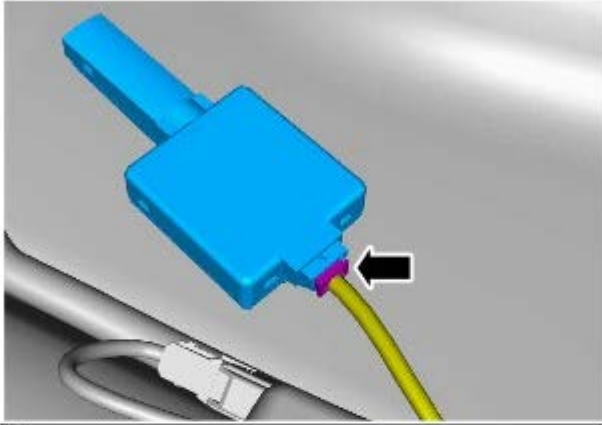
E147867

6. CAUTIONS:


-  Lower the front section of the headliner to aid access.
 -  Make sure damage is not caused to the headliner.
- Release the headlining.

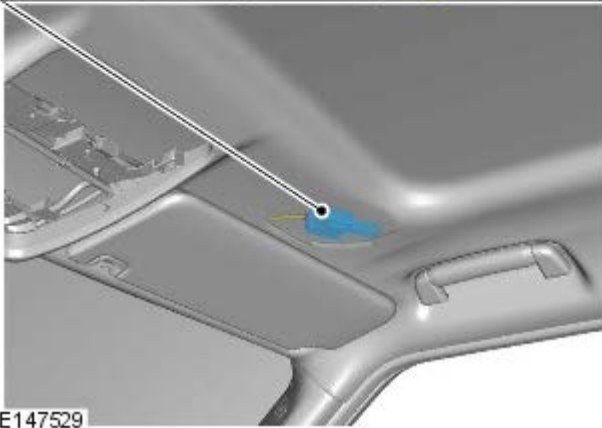


E147866



7.  CAUTION: Detach the receiver from the headliner by releasing the velcro.

 NOTE: Make sure that this component is installed to the noted removal position.



E147529

Installation

1. To install, reverse the removal procedure.
2. If a new component has been installed, configure using Land Rover approved diagnostic equipment.

Wheels and Tires - Wheel and Tire TDV6 3.0L Diesel /TDV8 4.4L Diesel/V6 S/C 3.0L Petrol /V8 S/C 5.0L Petrol

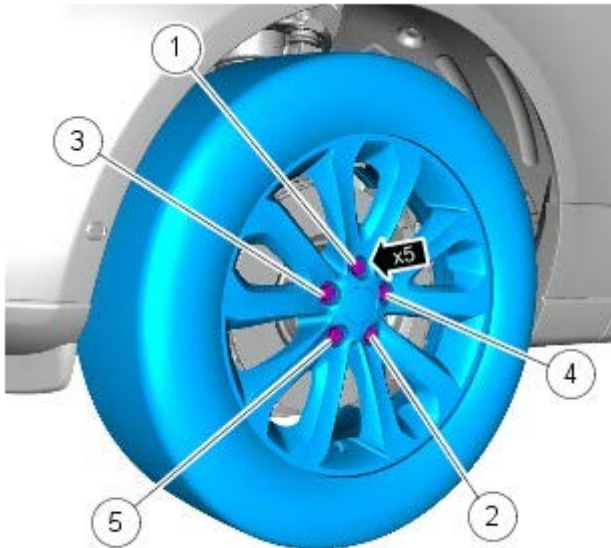
Removal and Installation

Removal



NOTE: Removal steps in this procedure may contain installation details.

- WARNING:** Make sure to support the vehicle with axle stands.
 Raise and support the vehicle.



E142105

- WARNING:** The wheel and tyre assembly will be heavy.

NOTES:



Make sure that the component is installed to the position noted on removal.



Left-hand shown, right-hand similar.

Stage 1 : 4 Nm
 Stage 2 : 70 Nm
 Stage 3 : 140 Nm

Installation

- CAUTION:** Apply a small amount of grease to the hub spigot and associated wheel spigot bore before installation. Make sure the grease does not come into contact with the vehicles braking components, or wheel studs threads. Failure to follow these may result in personal injury.

To install, reverse the removal procedure.

- NOTE:** Make sure that the component is installed to the position noted on removal.
- Retighten wheel fixings using the tightening sequence and torque as per the illustration.

Wheels and Tires - Wheel and Tire SDV6 3.0L Diesel - Hybrid Electric Vehicle

Removal and Installation

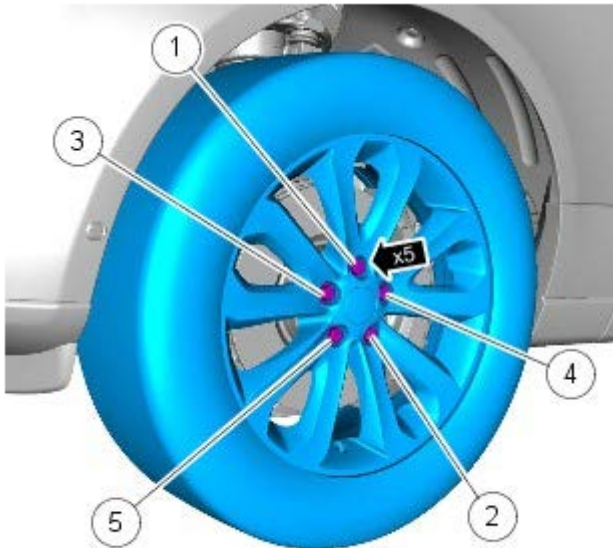
Removal



NOTE: Removal steps in this procedure may contain installation details.

All vehicles

- WARNING:** Make sure to support the vehicle with axle stands.
Raise and support the vehicle.



E142105

- WARNING:** The wheel and tyre assembly will be heavy.

NOTES:



Make sure that the component is installed to the position noted on removal.



Left-hand shown, right-hand similar.



Note the position of the component before removal.

Torque:

Stage 1: 4 Nm

Stage 2: 70 Nm

Stage 3: 140 Nm

Hybrid vehicles only

- CAUTION:** The aero wheels installed on hybrid electric vehicles are sided. Please note the side labelled on the inside the wheel.



NOTE: Make sure that the component is installed to the noted removal position.



E160422

Installation

- CAUTION:** Apply a small amount of grease to the hub and wheel mating surfaces before installation. Make sure the grease does not come into contact with the vehicles braking components and the wheel stud threads. Failure to follow these instructions may result in personal injury.

To install, reverse the removal procedure.

