Кузов — Ремни безопасности и система SRS

Land Rover Discovery Sport (L550) · Руководство по ремонту
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Ремень безопасности и система пассивной безопасности (SRS)

Seatbelt and Supplemental Restraint System

- Airbag and Safety Belt Pretensioner Supplemental Restraint System
- Front Safety Belt Buckle (G1780743) / Removal and Installation
- Front Safety Belt Retractor (G1780631) / Removal and Installation
- Pedestrian Protection System Pedestrian Impact Sensor (G2158916) / Removal and Installation
- Pedestrian Protection System Pedestrian Protection System Airbag (G2158917) / Removal and Installation
- Pedestrian Protection System / Description and Operation
- Pedestrian Protection System / Diagnosis and Testing
- Rear Center Safety Belt Buckle (G1780795) / Removal and Installation
- Rear Center Safety Belt Retractor (G1808246) / Removal and Installation
- Rear Safety Belt Buckle (G1814165) / Removal and Installation
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- Seatbelt System / Description and Operation
- Seatbelt System / Diagnosis and Testing
- Supplemental Restraint System Airbag Disposal
- Supplemental Restraint System Clockspring (G1785538) / Removal and Installation
- Supplemental Restraint System Driver Airbag Module (G1785722) / Removal and Installation
- Supplemental Restraint System Driver Lower Airbag Module (G1785723) / Removal and Installation
- Supplemental Restraint System Front Door Side Impact Sensor (G1785148) / Removal and Installation
- Supplemental Restraint System Occupant Classification Sensor (G1791885) / Removal and Installation
- Supplemental Restraint System Occupant Detection Sensor (G1791884) / Removal and Installation
- Supplemental Restraint System Side Air Bag Module (G1785147) / Removal and Installation
- Supplemental Restraint System Side Air Curtain Module (G1785537) / Removal and Installation
- Supplemental Restraint System / Description and Operation
- Third Row Safety Belt Buckle (G1815474) / Removal and Installation
- Third Row Safety Belt Retractor (G1815473) / Removal and Installation

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Rear View Mirrors / Diagnosis and TestingAirbag and Safety Belt Pretensioner Supplemental Restraint System

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Подушка безопасности и безопасность преднатяжитель ремня система пассивной безопасности (SRS)

- Airbag and Safety Belt Pretensioner Supplemental Restraint System - Safety Information
- Seat Position Sensor - Notes on Removal / Replacement

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Seatbelt and Supplemental Restraint SystemAirbag and Safety Belt Pretensioner Supplemental Restraint System - Safety Information

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Подушка безопасности и безопасность преднатяжитель ремня система пассивной безопасности (SRS) - безопасность информация

Airbag and Safety Belt Pretensioner Supplemental Restraint System - Safety Information

PRINCIPLES OF OPERATION

For a detailed description of the Supplemental Restraint System, refer to the relevant Description and Operation section in the workshop manual.

REFER to: Airbag Supplemental Restraint System (501-20B Supplemental Restraint System, Description and Operation).

SAFETY INFORMATION

WARNINGS:

- ***TO AVOID ACCIDENTAL DEPLOYMENT AND POSSIBLE PERSONAL INJURY, THE BACKUP POWER SUPPLY MUST BE DEPLETED BEFORE REPAIRING OR REPLACING ANY AIR BAG SUPPLEMENTAL RESTRAINT SYSTEM (SRS) COMPONENTS. TO DEPLETE THE BACKUP POWER SUPPLY ENERGY, DISCONNECT THE BATTERY GROUND CABLE AND WAIT ONE MINUTE.***

  FAILURE TO FOLLOW THIS INSTRUCTION MAY RESULT IN PERSONAL INJURY.

- ***Do not use a multimeter to probe the restraints control module. It is possible for the power from the meter battery to trigger the activation of the airbags. Failure to follow this instruction may result in personal injury.***

NOTES:

- *It is advisable not to use a cellular phone or to have a cellular phone in close proximity when working on the restraints control module or associated systems.*
- *Given the legal implications of a restraints system failure, harness repairs to Air Bag module circuits are not acceptable. Where the text refers to "REPAIR the circuit", this will normally mean the replacement of a harness.*

Power Supply Depletion

Before beginning any work on the SRS system or related components:

1. Remove the ignition key
2. Disconnect the battery leads, ground first
3. Wait 1 minute for the power circuit to discharge

There are comprehensive instructions on the correct procedures for SRS system repairs, refer to the relevant section of the workshop manual

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 the control module or a component is suspect and the vehicle remains under manufacturer warranty, refer to the warranty policy and procedures manual (section B1.2), or determine if any prior approval programme is in operation, prior to the installation of a new module/component*
- *Check and rectify basic faults before beginning diagnostic routines involving pinpoint tests*

1. Verify the customer concern

- Confirm the function of the warning lamp (if the warning lamp is inoperative, system faults will be signalled by an audible chime)

2. Visually inspect for obvious signs of damage and system integrity

Visual Inspection

MECHANICAL	ELECTRICAL

▪ Check for the installation of non-standard accessories which may affect or obstruct the function of the supplemental restraint system ▪ Check the condition of trim, etc at the supplemental restraint system components ▪ Sensor(s) ▪ Pretensioner(s) ▪ Airbag module(s) ▪ Occupant classification sensor control module ▪ Seat position sensor	▪ Fuse(s) ▪ Wiring harness ▪ Battery condition, state of charge ▪ Ensure all electrical connector(s) are engaged correctly on the airbag circuits ▪ Ensure the restraints control module is correctly installed ▪ Warning indicator ▪ Impact sensor(s) ▪ Buckle sensor(s) ▪ Pretensioner(s) ▪ Airbag module(s) ▪ Passenger airbag deactivation switch ▪ Passenger airbag deactivation warning indicator ▪ Occupant classification sensor control module ▪ Seat position sensor ▪ Clockspring

3. If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step.

   Faults in supplemental restraint system harnesses would normally mean replacement of the relevant harness. Supplemental restraint system harness repairs are not recommended

Symptom Chart

SYMPTOM	POSSIBLE CAUSES	ACTION
▪ Deployable device connector and/or wiring harness connector damaged	▪ Wiring harness connector connected/disconnected without first disengaging the connector plunger	

		NOTE: Damage caused by an incorrect removal or installation procedure is not warrantable. ▪ Install a new wiring harness and/or deployable device as necessary

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
6. When installing or checking the supplemental Restraints System (SRS) with AK2 connectors the locking plunger must be engaged

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Airbag and Safety Belt Pretensioner Supplemental Restraint SystemSeat Position Sensor - Notes on Removal / Replacement

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Сиденье положение датчик - Notes on снятие / замена

Seat Position Sensor - Notes on Removal / Replacement

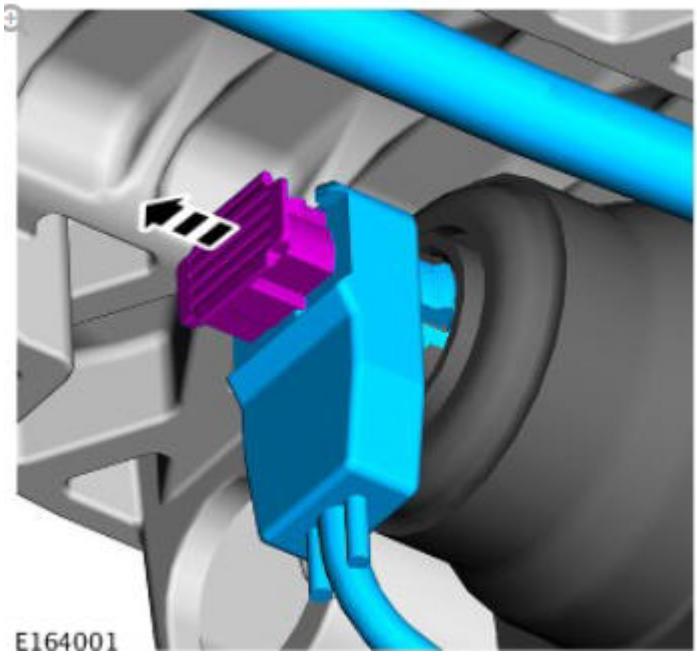
NOTE:

NAS vehicles have a seat position sensor fitted to both the driver and passenger-side seats.

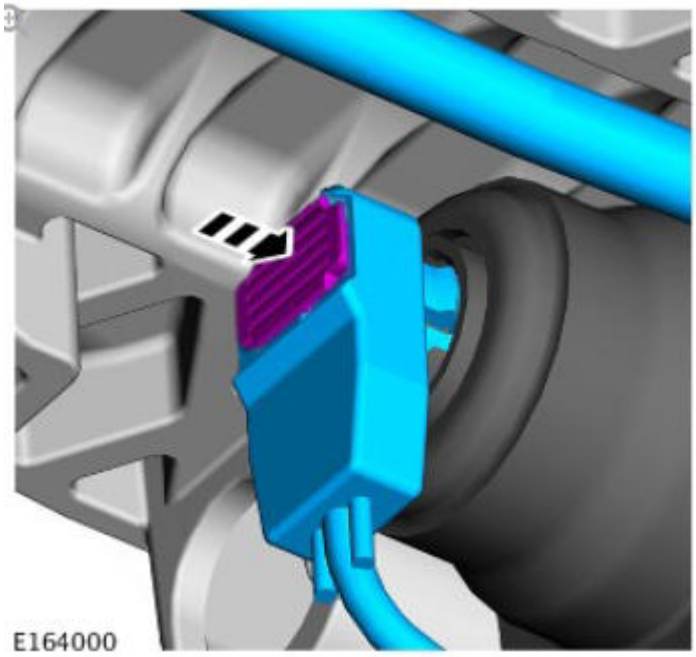
The seat position sensor, a hall-effect sensor, is fitted to the underside of both the driver and passenger-side seats on NAS vehicles. It should be noted that these sensors cannot be re-installed once removed. If any work is undertaken that requires removal of the seat position sensor, a NEW sensor

MUST be fitted. Note that different sensors are fitted to left-side and rightside seats, so care should be taken to ensure the correct replacement parts are installed

SUPPLEMENTAL RESTRAINTS SYSTEM (SRS) AK 2 TYPE CONNECTORS



- Incorrect Position (Disengaged)



- Correct Position (Engaged)

Seatbelt Buckle Pre Tensioner Diagnostics

This procedure should be used to aid diagnosis of the following supplementary restraints system (SRS) - buckle pre tensioner (PBP) fault codes

SRS LIGHT STATUS	DTC
On	B1211-11, B1211-12, B1211-13, B1211-2B
On	B1214-11, B1214-12, B1214-13, B1214-2B

WARNINGS:

- ***Prior to any work on the SRS system the vehicle battery must be disconnected system the vehicle battery must be disconnected***
- ***Please wait for 120 seconds to allow the airbag deployment energy reserve to dissipate***

PINPOINT TEST A : BUCKLE/RETRACTOR PRE TENSIONER DIAGNOSTIC	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
	A1: DIAGNOSTIC PROCEDURE
	1 Check location of harness fly-lead ensuring there is no risk snagging and sufficient strain relief during full seat travel
	2 Disconnect under-seat buckle pre tensioner connectors
	3 Check connector for water ingress or signs of corrosion (white/green residue)
	4 Check for debris in female connector and remove as required
	5 Check for debris in male harness end connector and remove
	6 Check that male connector pins are secure and in good condition
	7 Check that all connector terminals are clean secure and in good condition
	8 Reconnect the connector ▪ An audible click should be heard confirming security

	9 Check actuator harness fly-lead is connected and correctly routed
	10 Reconnect the vehicle battery
	11 Clear the DTC, cycle the ignition state off / on wait 30 seconds and re-test
	12 To confirm repair. Whilst sitting in seat, retest as follows: ▪ **Seat fully up - move fully backwards and forwards** ▪ **Seat fully down - move fully backwards and forwards**
	Is the warning lamp illuminated? **Yes** GO to Pinpoint Test B. **No** No further action required

WARNINGS:

- ***Prior to any work on the SRS system the vehicle battery must be disconnected system the vehicle battery must be disconnected***
- ***Please wait for 120 seconds to allow the airbag deployment energy reserve to dissipate***

PINPOINT TEST B : BUCKLE/RETRACTOR PRE TENSIONER DIAGNOSTIC	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
	B1: DIAGNOSTIC PROCEDURE
	1 Check routing and condition of harness along buckle pre tensioner tube
	2 Ensure harness is in good condition with no damage
	3 Ensure harness is securely routed
	4 Reconnect the vehicle battery
	5 Clear the DTC, cycle the ignition state off/on wait 30 seconds and re-test
	6 To confirm repair. Whilst sitting in seat, retest as follows:

	▪ Seat fully up - move fully backwards and forwards ▪ Seat fully down - move fully backwards and forwards
	Is the warning lamp illuminated? **Yes** GO to Pinpoint Test C. **No** No further action required

WARNINGS:

- ***Prior to any work on the SRS system the vehicle battery must be disconnected system the vehicle battery must be disconnected***
- ***Please wait for 120 seconds to allow the airbag deployment energy reserve to dissipate***

PINPOINT TEST C : BUCKLE/RETRACTOR PRETENSIONER DIAGNOSTIC	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
	C1: DIAGNOSTIC PROCEDURE
	1 Remove seat and check routing and condition of under-seat harness
	2 Ensure harness is in good condition with no damage
	3 Ensure harness is securely routed
	4 Ensure all fir tree clips and cable ties are correctly installed
	5 Reinstall seat
	6 Ensure harness is securely routed
	7 Reconnect the vehicle battery
	8 Clear the DTC, cycle the ignition state off/on wait 30 seconds and re-test
	9 To confirm repair. Whilst sitting in seat, retest as follows: ▪ Seat fully up - move fully backwards and forwards ▪ Seat fully down - move fully backwards and forwards

	Is the warning lamp illuminated? Yes Install new component No No further action required

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 Index - DTC: Restraints Control Module (RCM) (100-00 General Information, Description and Operation).

REFER to: Diagnostic Trouble Code Index - DTC: Occupant Classification Sensor Control Module (OCSCM) (100-00 General Information, Description and Operation).

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Airbag and Safety Belt Pretensioner Supplemental Restraint System - Safety InformationFront Safety Belt Buckle (G1780743) / Removal and Installation

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Передний безопасность замок ремня безопасности / снятие и установка

Front Safety Belt Buckle (G1780743) / Removal and Installation

REMOVAL

WARNINGS:

- ***To avoid accidental deployment and possible personal injury, the backup power supply must be depleted before repairing or replacing any air bag supplemental restraint system (SRS) components. To deplete the backup power supply energy, disconnect the battery ground cable and wait one minute. Failure to follow this instruction may result in personal injury.***
- ***Always wear safety glasses when working on an air bag equipped vehicle and when handling an air bag module. Failure to follow this instruction may result in personal injury.***
- ***To minimize the possibility of injury in the event of premature deployment, always carry a live air bag module with the bag and trim cover pointed away from the body. Failure to follow this instruction may result in personal injury.***
- ***To minimize the possibility of premature deployment, do not use radio key code savers when working on the supplemental restraint system. Failure to follow this instruction may result in personal injury.***
- ***To minimize the possibility of premature deployment, live air bag modules must only be placed on work benches which have been ground bonded and with the trim cover facing up. Failure to follow these instructions may result in personal injury.***
- ***Never probe the electrical connectors of air bag modules or any other supplemental restraint system component. Failure to follow this instruction may result in personal injury.***

NOTES:

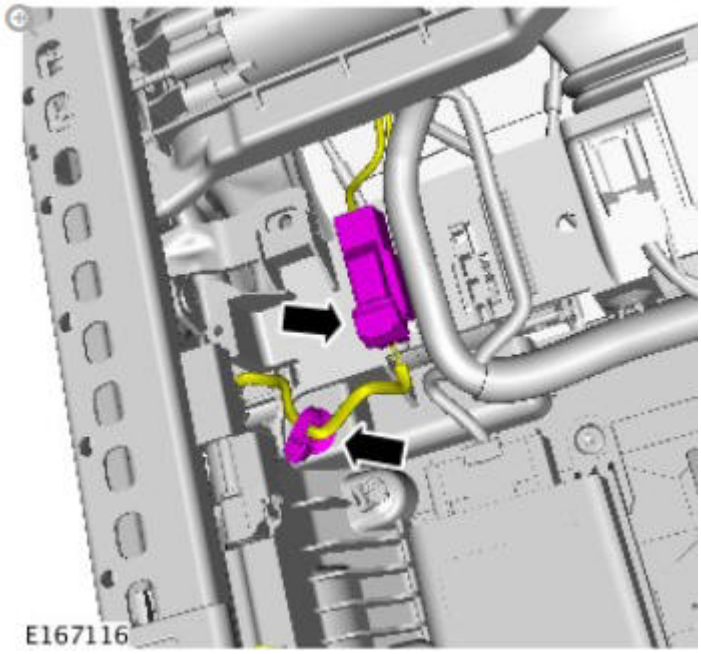
- *Removal steps in this procedure may contain installation details.*

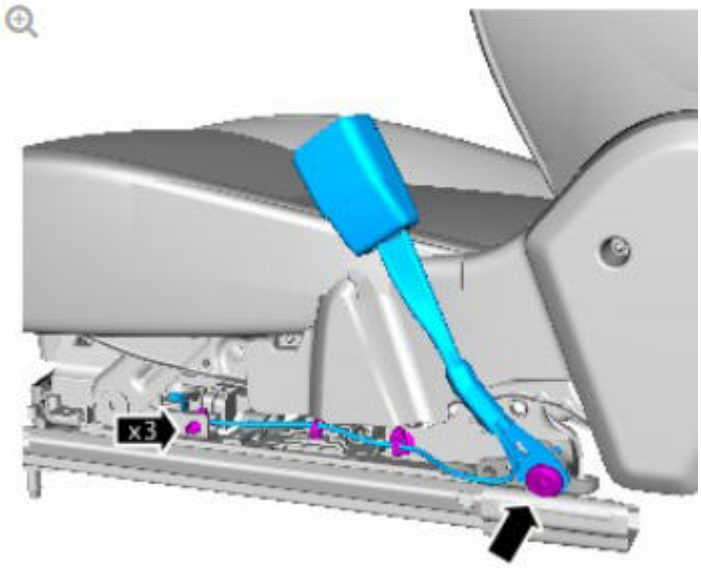
- *Some variation in the illustrations may occur, but the essential information is always correct.*

Make the SRS system safe.

Refer to: Standard Workshop Practices (100-00, Description and Operation).

Refer to: Front Seat - Vehicles With: Power Seats (501-10, Removal and Installation).





Torque: 40 Nm

INSTALLATION

To install, reverse the removal procedure.

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Seat Position Sensor - Notes on Removal / ReplacementFront Safety Belt Retractor (G1780631) / Removal and Installation

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Передний безопасность катушка ремня безопасности / снятие и установка

Front Safety Belt Retractor (G1780631) / Removal and Installation

WARNINGS:

- ***To avoid accidental deployment and possible personal injury, the backup power supply must be depleted before repairing or replacing any air bag supplemental restraint system (SRS) components. To deplete the backup power supply energy, disconnect the battery ground cable and wait one minute. Failure to follow this instruction may result in personal injury.***
- ***Always wear safety glasses when working on an air bag equipped vehicle and when handling an air bag module. Failure to follow this instruction may result in personal injury.***
- ***To minimize the possibility of injury in the event of premature deployment, always carry a live air bag module with the bag and trim cover pointed away from the body. Failure to follow this instruction may result in personal injury.***
- ***To minimize the possibility of premature deployment, do not use radio key code savers when working on the supplemental restraint system. Failure to follow this instruction may result in personal injury.***
- ***To minimize the possibility of premature deployment, live air bag modules must only be placed on work benches which have been ground bonded and with the trim cover facing up. Failure to follow these instructions may result in personal injury.***
- ***Painting over the driver air bag module trim cover or instrument panel could lead to deterioration of the trim cover and air bags. Do not for any reason attempt to paint discolored or damaged air bag module trim covers or instrument panel. Install a new component.***

  Failure to follow this instruction may result in personal injury.

NOTES:

- *Some variation in the illustrations may occur, but the essential information is always correct.*
- *Removal steps in this procedure may contain installation details.*
- *Front seat shown removed for clarity.*

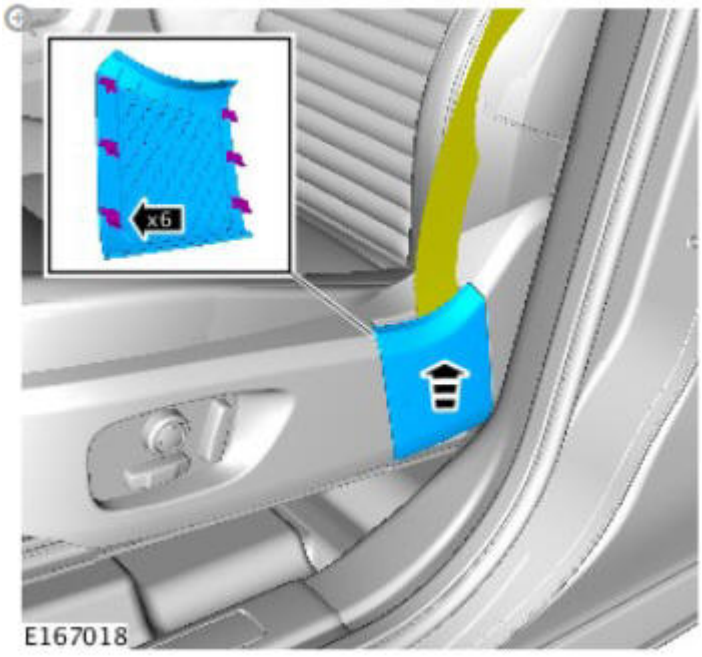
Make the SRS system safe.

Refer to: Standard Workshop Practices (100-00 General Information, Description and Operation).

Disconnect the battery ground cable.

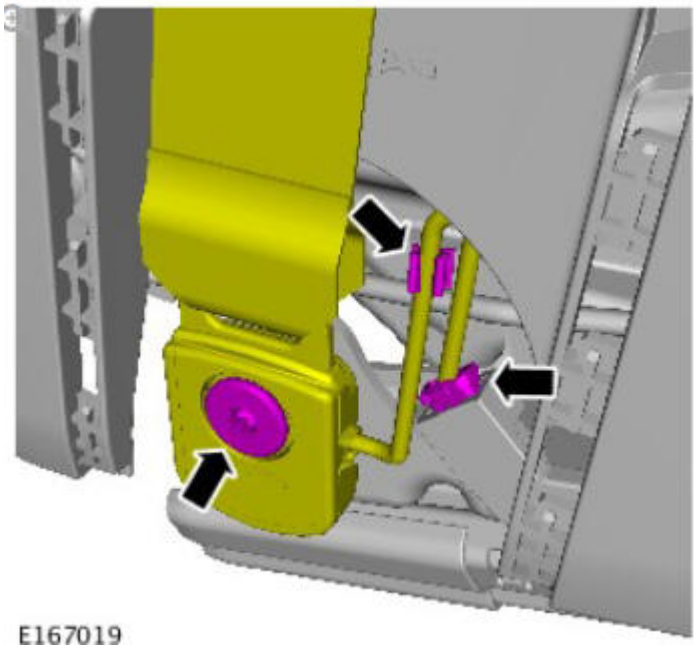
Refer to: Specifications (414-01 Battery, Mounting and Cables, Specifications).





CAUTION:

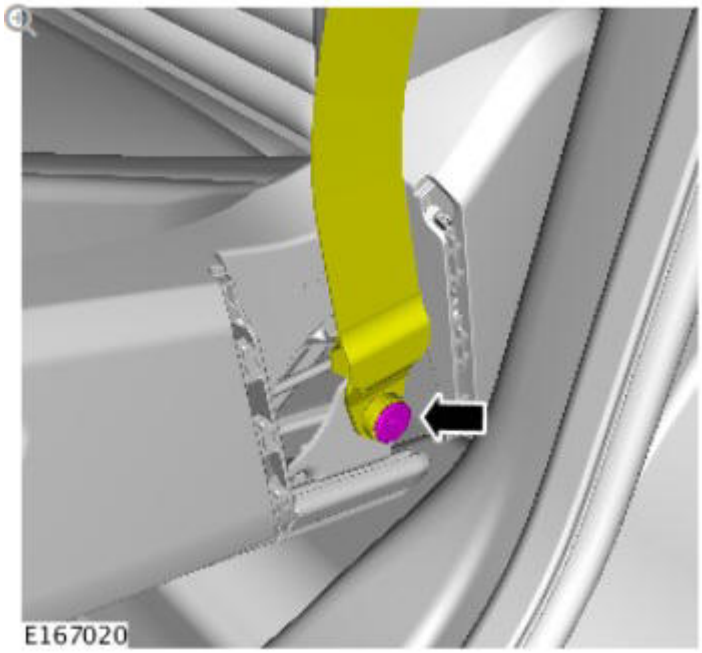
Passengers side only.



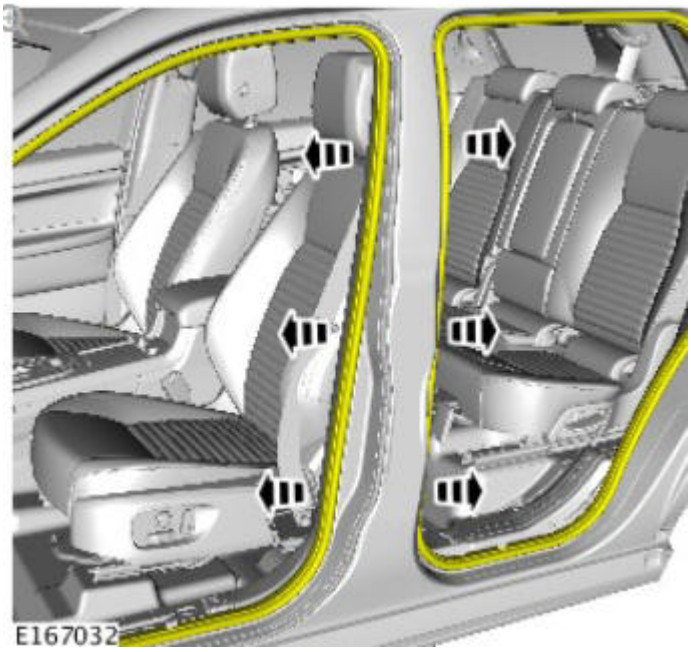
Torque: 40 Nm

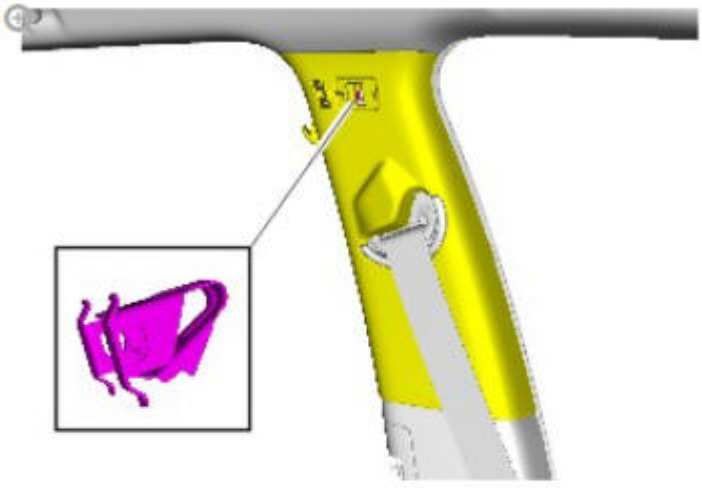
CAUTION:

Drivers side only.

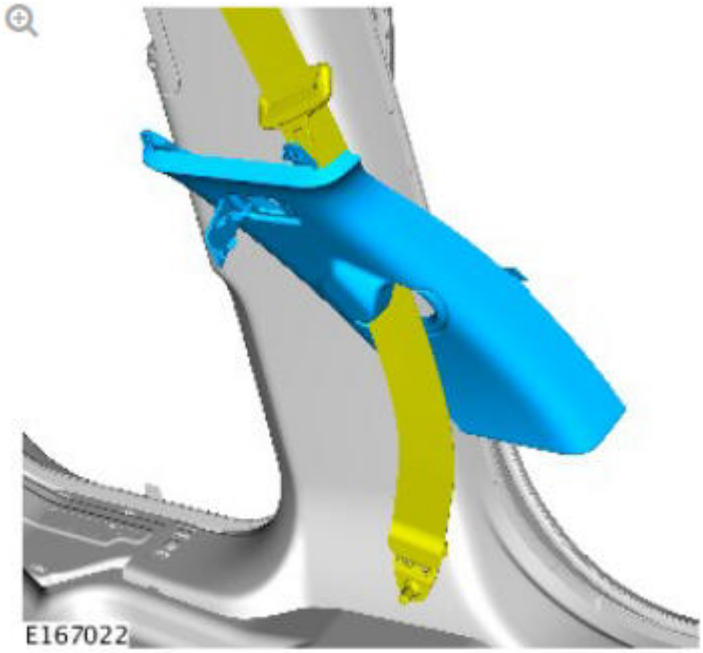


Torque: 40 Nm


E167032

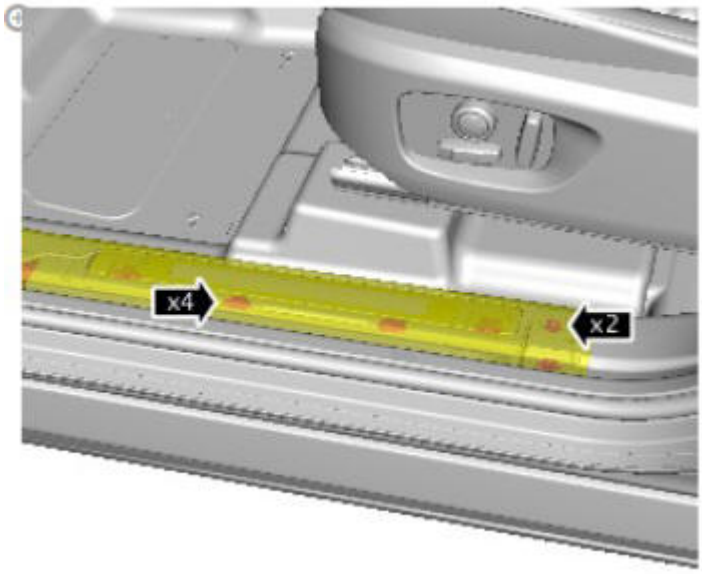



x2
x4



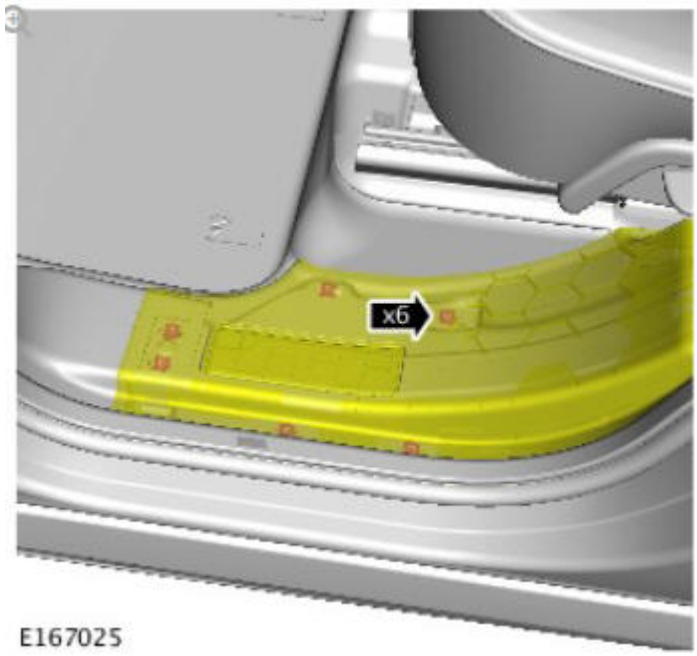
NOTE:

Note the orientation of the clips.



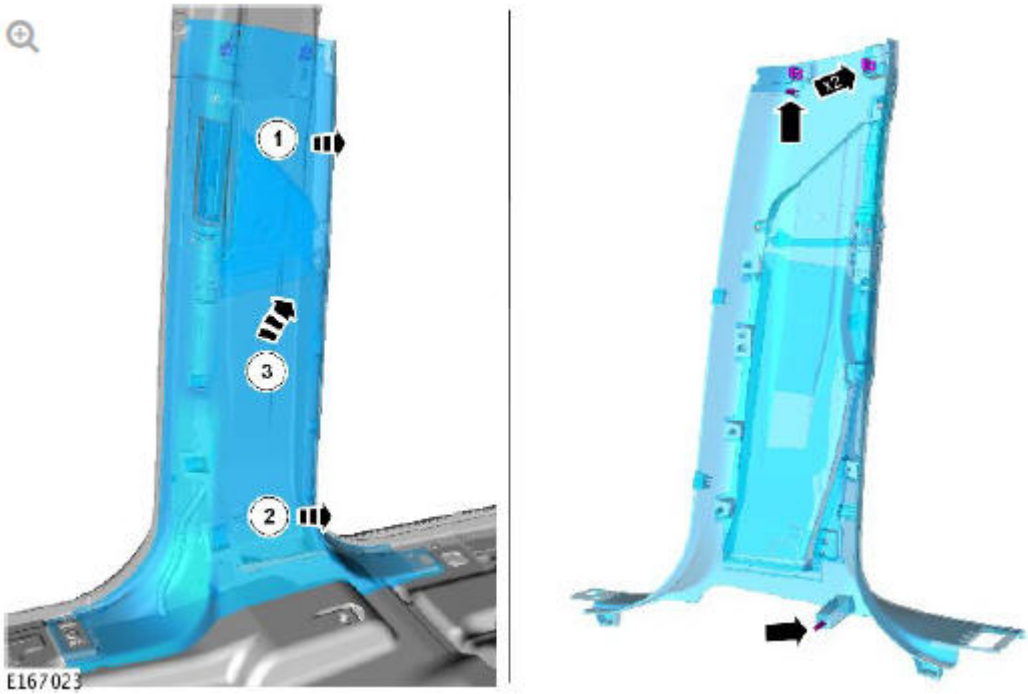
NOTE:

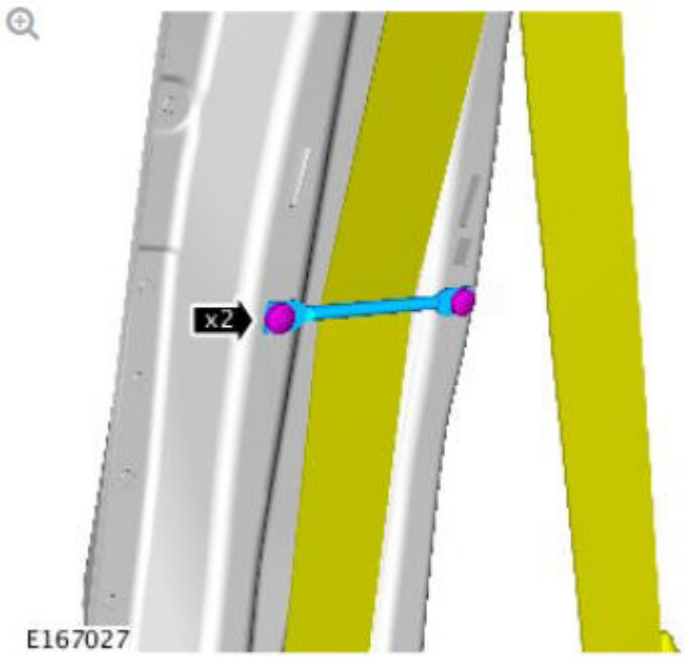
Note the orientation of the clips.



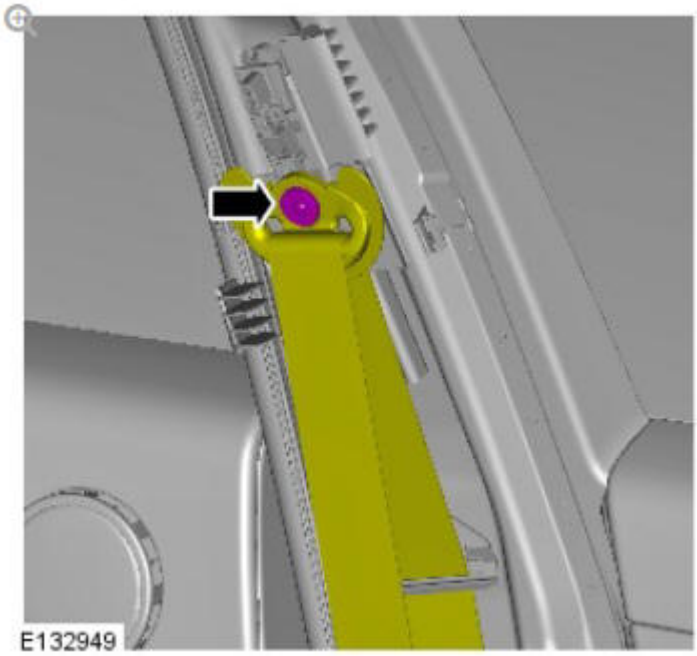
NOTE:

Note the orientation of the component prior to removal.





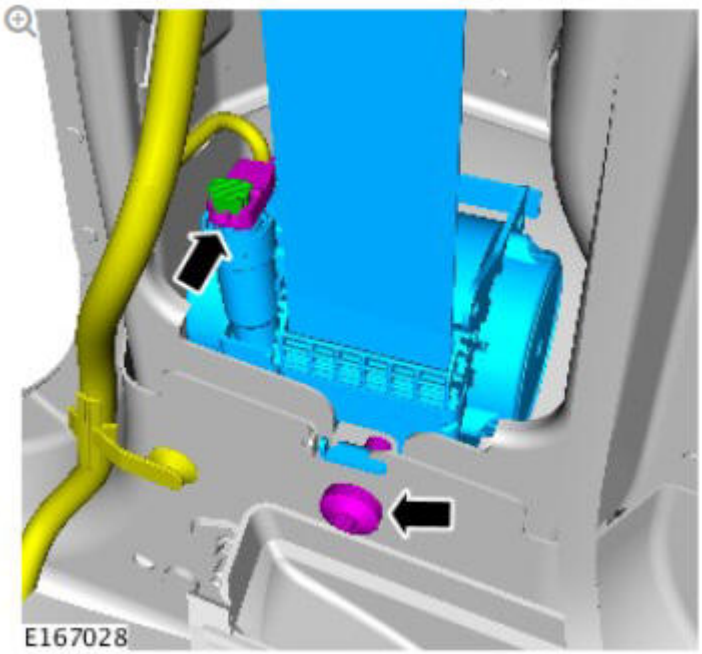
Torque: 7 Nm



Torque: 40 Nm

NOTE:

Note the orientation of the component prior to removal.



Torque: 40 Nm

INSTALLATION

To install, reverse the removal procedure.

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Front Safety Belt Buckle (G1780743) / Removal and InstallationPedestrian Protection System Pedestrian Impact Sensor (G2158916) / Removal and Installation

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Защита пешеходов система Pedestrian удар датчик / снятие и установка

Pedestrian Protection System Pedestrian Impact Sensor (G2158916) / Removal and Installation

REMOVAL

WARNINGS:

- ***Do not probe supplemental restraint system (SRS) electrical connectors.***
- ***To avoid accidental deployment and possible personal injury, the backup power supply must be depleted before repairing or replacing any air bag supplemental restraint system (SRS) components. To deplete the backup power supply energy, disconnect the battery ground cable and wait one minute. Failure to follow this instruction may result in personal injury.***

NOTE:

- *Some variation in the illustrations may occur, but the essential information is always correct.*
- *Some components shown removed for clarity.*

1.Make the SRS system safe.

Refer to: Supplemental Restraint System Health and Safety Precautions (100-00 General Information, Description and Operation).

Disconnect the start up battery ground cable.

Refer to: Battery and Cables (414-01 Battery, Mounting and Cables, Description and Operation).

Raise and support the vehicle on a suitable 2 post lift.

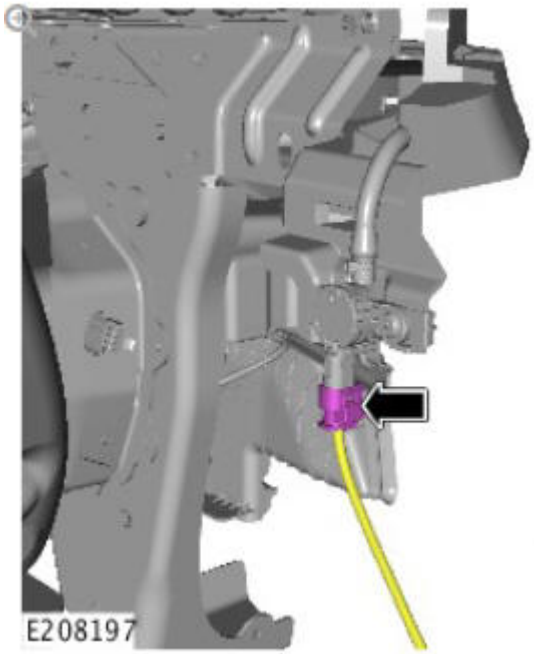
Refer to: Lifting (100-02 Jacking and Lifting, Description and Operation).

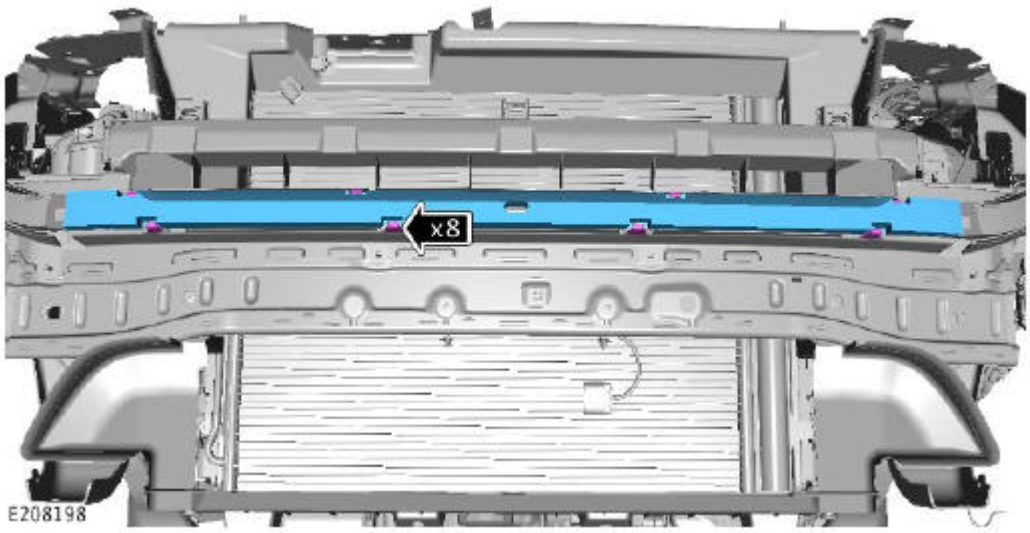
Remove the front bumper.

Refer to: Front Bumper Cover (501-19 Bumpers, Removal and Installation).

NOTE:

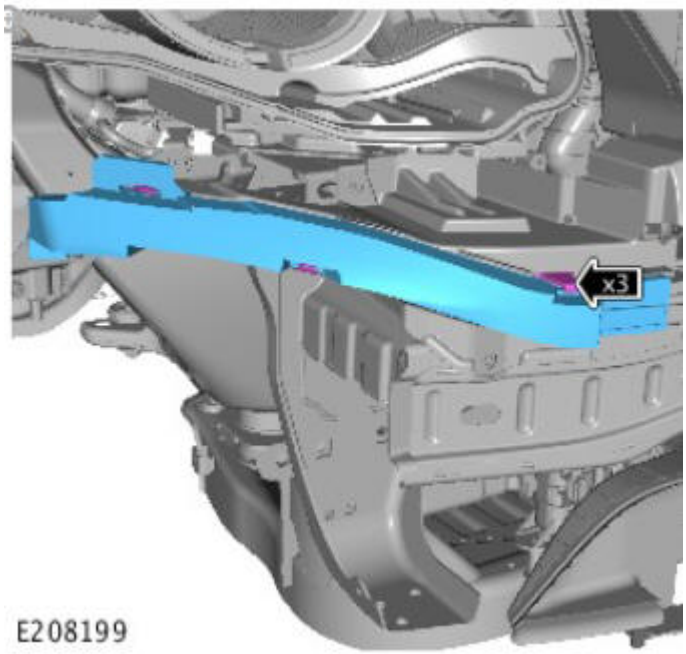
This step must be preformed to the components on both sides of the vehicle.





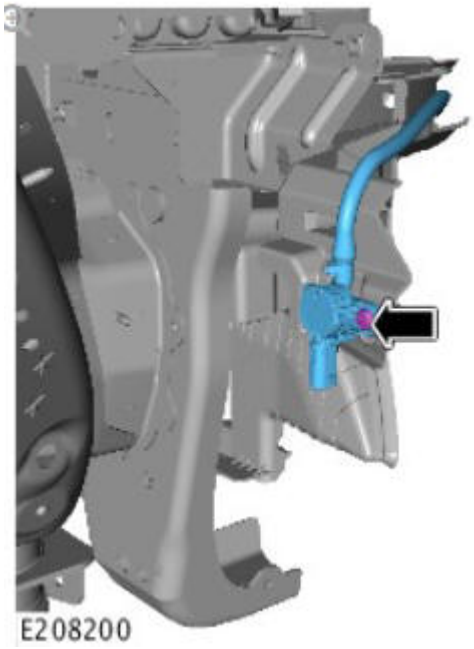
NOTE:

This step must be preformed to the components on both sides of the vehicle.

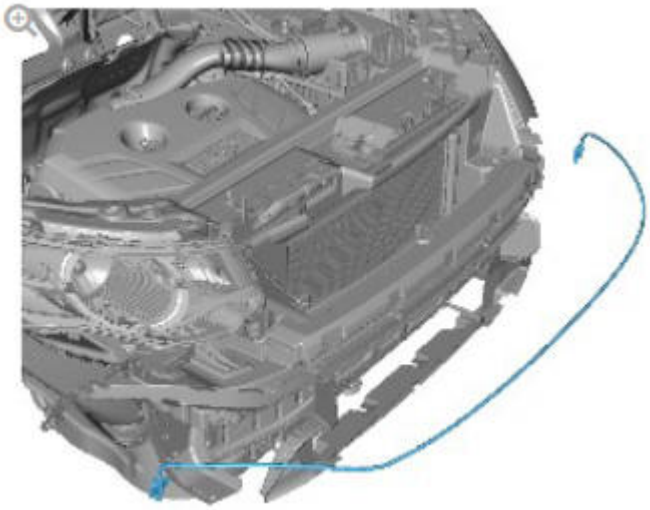


NOTE:

This step must be preformed to the components on both sides of the vehicle.



Torque: 10 Nm



INSTALLATION

To install, reverse the removal procedure.

ne

Front Safety Belt Retractor (G1780631) / Removal and InstallationPedestrian Protection System Pedestrian Protection System Airbag (G2158917) / Removal and Installation

ne

Защита пешеходов система защита пешеходов система подушка безопасности / снятие и установка

Pedestrian Protection System Pedestrian Protection System Airbag (G2158917) / Removal and Installation

REMOVAL

WARNINGS:

- ***Do not probe supplemental restraint system (SRS) electrical connectors.***
- ***To avoid accidental deployment and possible personal injury, the backup power supply must be depleted before repairing or replacing any air bag supplemental restraint system (SRS) components. To deplete the backup power supply energy, disconnect the battery ground cable and wait one minute. Failure to follow this instruction may result in personal injury.***

NOTE:

- *Some variation in the illustrations may occur, but the essential information is always correct.*
- *Some components shown removed for clarity.*

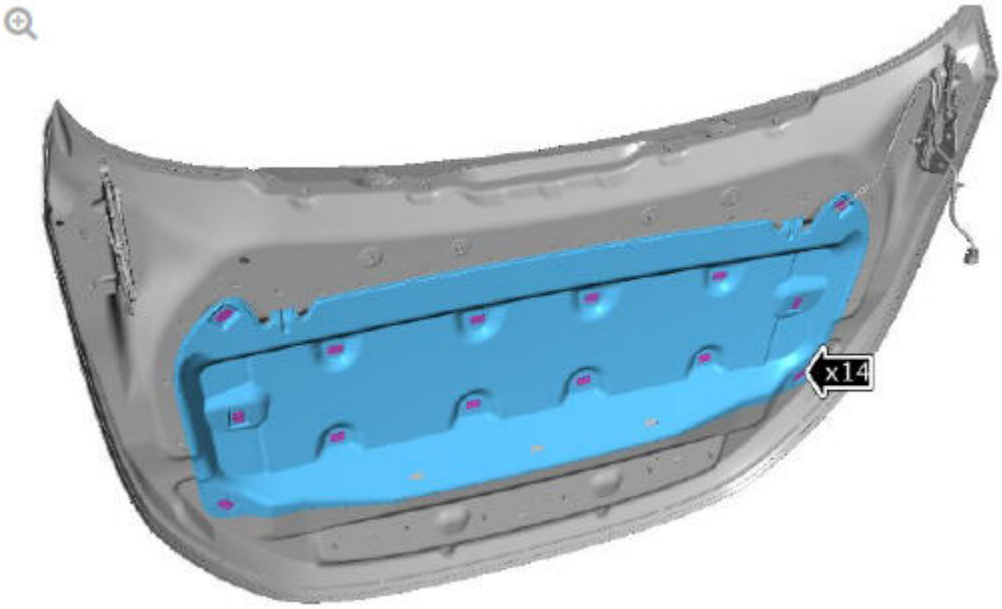
Make the SRS system safe.

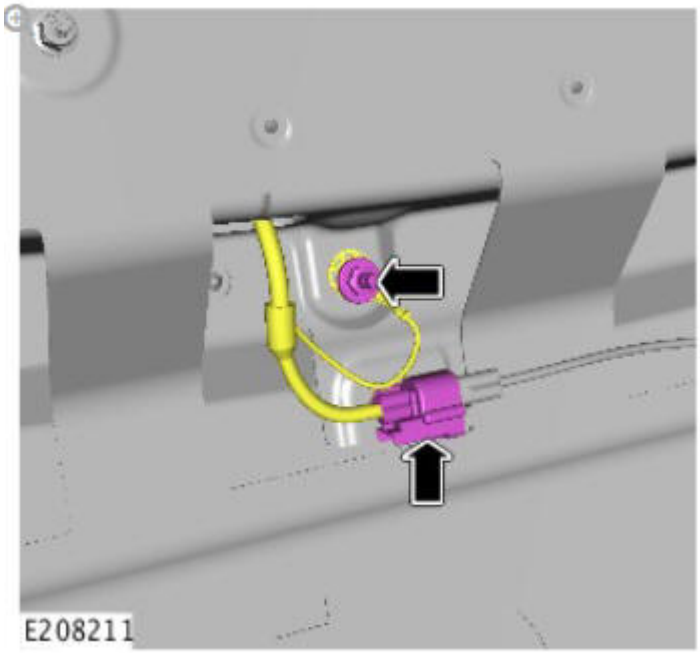
Refer to: Supplemental Restraint System Health and Safety Precautions (100-00 General Information, Description and Operation).

Disconnect the start up battery ground cable.

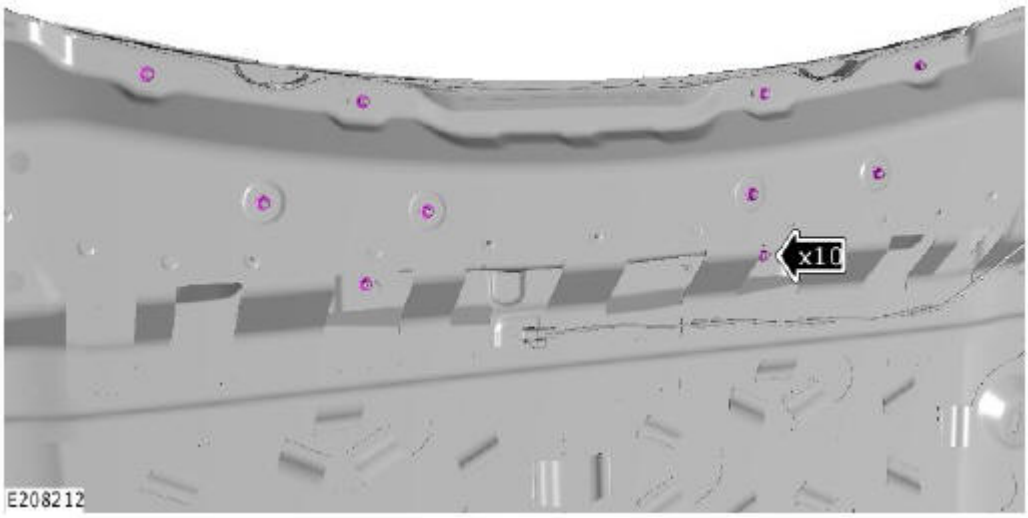
Refer to: Battery and Cables (414-01 Battery, Mounting and Cables, Description and Operation).

Open the hood.

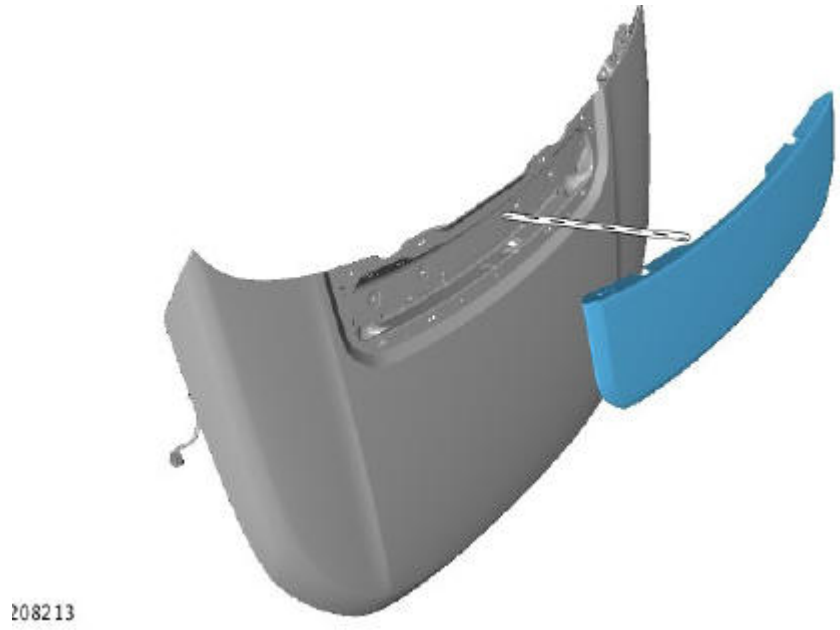




Torque: 10 Nm



Torque: 10 Nm



INSTALLATION

To install, reverse the removal procedure.

If a new component has been installed, configure using Land Rover approved diagnostic equipment.

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Pedestrian Protection System Pedestrian Impact Sensor (G2158916) / Removal and InstallationPedestrian Protection System / Description and Operation

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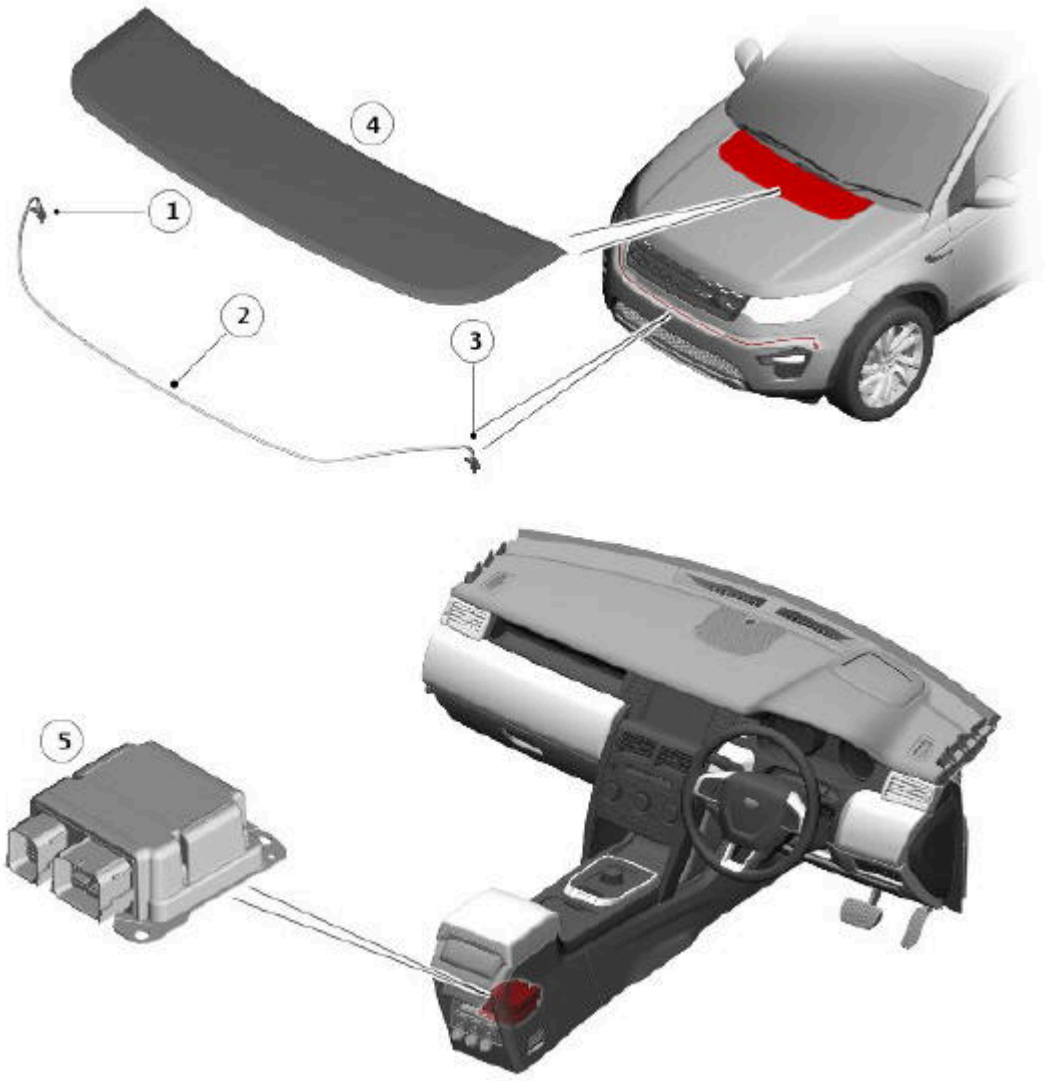
Защита пешеходов система / описание и работа

Pedestrian Protection System / Description and Operation

COMPONENT LOCATION

CAUTION:

Jaguar Land Rover (JLR) is aware that some customers have requested that the pedestrian protection airbag cover be painted in an alternative color. Please note that Retailers are advised that the pedestrian protection airbag should not be painted in alternative colors as this is not an approved condition for the system.



1. Right front pressure sensor
2. Pressure tube
3. Left front pressure sensor
4. Pedestrian protection system airbag
5. Restraints Control Module (RCM)

OVERVIEW

WARNING:

All pyrotechnic devices are dangerous. Before performing any procedures on any pyrotechnic device, read all information contained within the Standard Workshop Practices section of this manual.

CAUTION:

Jaguar Land Rover (JLR) is aware that some customers have requested that the pedestrian protection airbag cover be painted in an alternative color. Please note that Retailers are advised that the pedestrian protection airbag should not be painted in alternative colors as this is not an approved condition for the system.

For additional information, refer to: Supplemental Restraint System Health and Safety Precautions (100-00 General Information, Description and Operation).

The pedestrian protection system is designed to protect pedestrians from impacts with the base of the windscreen using an airbag mounted within a cover at the trailing edge of the hood.

The Pedestrian protection system comprises:

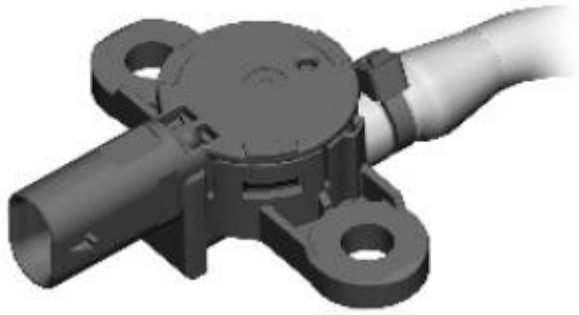
- Two pedestrian protection system pressure sensors.
- A pedestrian protection system pressure tube.
- A pedestrian protection system airbag.
- The Restraints Control Module (RCM).

DESCRIPTION

PRESSURE SENSORS

NOTE:

It is not possible to replace the pressure sensors or pressure tube as individual components, the sensors and tube are supplied as a single component.



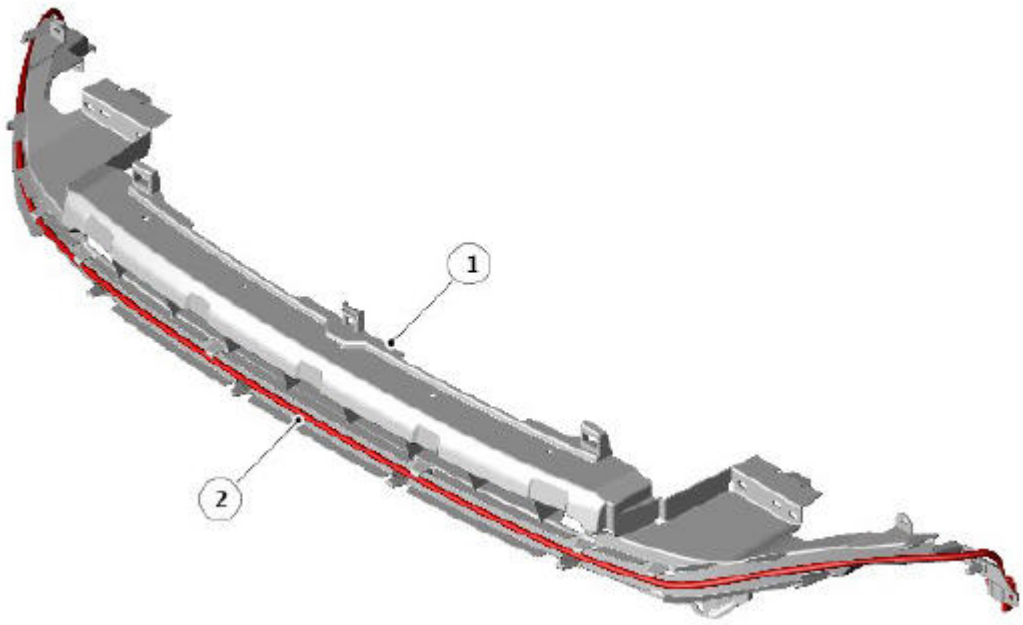
The two pressure sensors are mounted on the right and left hand side of the front bumper. They are connected to each end of pressure tube which is held in position by a 3 piece foam covering mounted on the pedestrian rail.

The pressure sensors have the characteristics as follow:

- Transmission of differential pressure data.
- Transmission of status data during start-up.
- Power-on sensor self-test.
- Parity checksum to ensure safe data transmission.

Each pressure sensor is hardwired to the Restraints Control Module (RCM).

PRESSURE TUBE AND PRESSURE TUBE RAIL



1. Pressure tube rail
2. Pressure tube

The pressure tube has a visible blue mark at it's mid point that indicates the tube is installed symmetrically
The pressure tube rail acts as a reaction surface for the silicon tube, such that the tube is compressed against it during a frontal impact

AIRBAG



The airbag is contained in a housing and cover. The cover is attached to the airbag with two tethers, and is designed to form part of the airbag system.

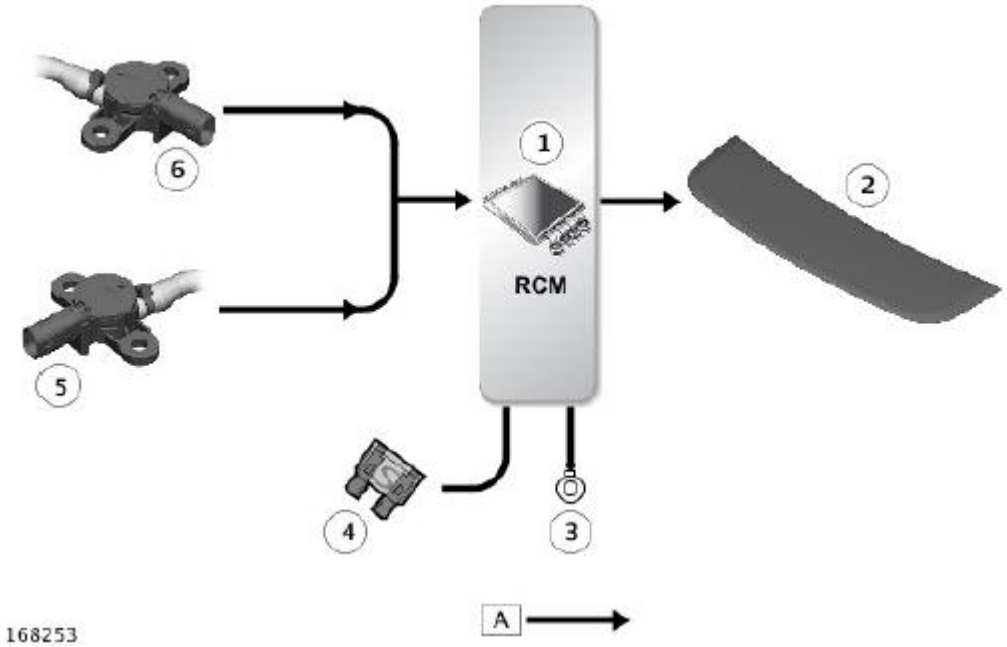
This helps to spread the load across the airbag and thus reduces the airbag volume required. This helps reduce the airbag obscuration of the driver's vision.

OPERATION

The pedestrian protection system is active at vehicle speeds between 25 to 50 km/h (15 to 31 mph). If there is an impact on the front bumper of sufficient force, an airbag of 110 liters is deployed in 50 to 60 milliseconds.

Airbag deployment is triggered by pressure sensors mounted on either side of the front bumper. The pressure sensors are attached to each end of a pressure tube which is mounted on the inside of the front bumper. An impact creates a pressure pulse in the pressure which is detected by the two pressure sensors. The pressure senors transmit a digital status signal to the Restraints Control Module (RCM) which deploys the airbag if the operating parameters are met.

CONTROL DIAGRAM



A = HARDWIRED

1. Restraints Control Module (RCM)
2. Pedestrian protection system airbag
3. Ground
4. Power supply
5. Left front pressure sensor
6. Right front pressure sensor

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Pedestrian Protection System Pedestrian Protection System Airbag (G2158917) / Removal and InstallationPedestrian Protection System / Diagnosis and Testing

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Защита пешеходов система / диагностика и проверка

Pedestrian Protection System / Diagnosis and Testing

PRINCIPLES OF OPERATION

For a detailed description of the Pedestrian Protection System, refer to the relevant Description and Operation section in the workshop manual.

REFER to: Pedestrian Protection System (501-20C Pedestrian Protection System, Description and Operation).

INSPECTION AND VERIFICATION

WARNINGS:

TO AVOID ACCIDENTAL DEPLOYMENT AND POSSIBLE PERSONAL INJURY, THE BACKUP POWER SUPPLY MUST BE DEPLETED BEFORE REPAIRING OR REPLACING ANY PEDESTRIAN PROTECTION SYSTEM COMPONENTS. TO DEPLETE THE BACKUP POWER SUPPLY ENERGY, DISCONNECT THE BATTERY GROUND CABLE AND WAIT TWO MINUTES.

FAILURE TO FOLLOW THIS INSTRUCTION MAY RESULT IN PERSONAL INJURY.

Do not use a multimeter to probe the pedestrian protection system actuators. It is possible for the power from the multimeter battery to trigger the activation of the actuator. Failure to follow this instruction may result in personal injury.

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 the control module or a component is suspect and the vehicle remains under manufacturer warranty, refer to the Warranty Policy and Procedures manual (section B1.2), 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-todate 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.
- *It is advisable not to use a cellular phone or to have a cellular phone in close proximity when working on the pedestrian protection system or components.*
- *Given the legal implications of a restraints system failure, harness repairs to pedestrian protection system circuits are not acceptable.*

  Where the text refers to "REPAIR the circuit", this will normally mean the replacement of a harness.
- *After 5 pedestrian protection system airbag deployment events, a new Restraints Control Module (RCM) and wiring harness must be installed.*

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

Visual Inspection

MECHANICAL	ELECTRICAL
▪ Pedestrian protection system airbag	▪ Fuses
▪ Pedestrian protection system pressure	▪ Wiring harnesses and connectors

sensors ▪ Pedestrian protection system pressure tube ▪ Pedestrian protection system airbag deployment controls	▪ Restraints Control Module (RCM) ▪ Pedestrian protection system pressure sensors ▪ Pedestrian protection system airbag deployment controls

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	MESSAGE	POSSIBLE CAUSES	ACTION
Pedestrian protection system airbag deployed	CHECK PEDESTRIAN SYSTEM	▪ Low speed collision with pedestrian or other object	NOTE: Repairs due to a collision are not warrantable. ▪ Check the vehicle for collision damage. Repair as necessary
Pedestrian protection system airbag not deployed	CHECK PEDESTRIAN SYSTEM	▪ Restraints system fault	▪ Check the vehicle for collision damage. Repair as necessary. Using the manufacturer approved diagnostic system, check the restraints control module for related DTCs and refer to the relevant 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 Index - DTC: Restraints Control Module (RCM) (100-00 General Information, Description and Operation).

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Задний центральный безопасность замок ремня безопасности / снятие и установка

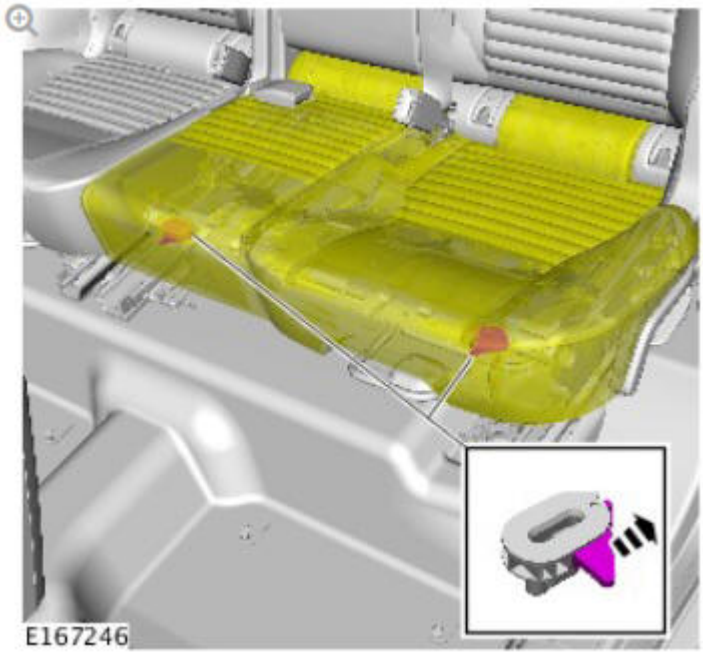
Rear Center Safety Belt Buckle (G1780795) / Removal and Installation

REMOVAL

NOTES:

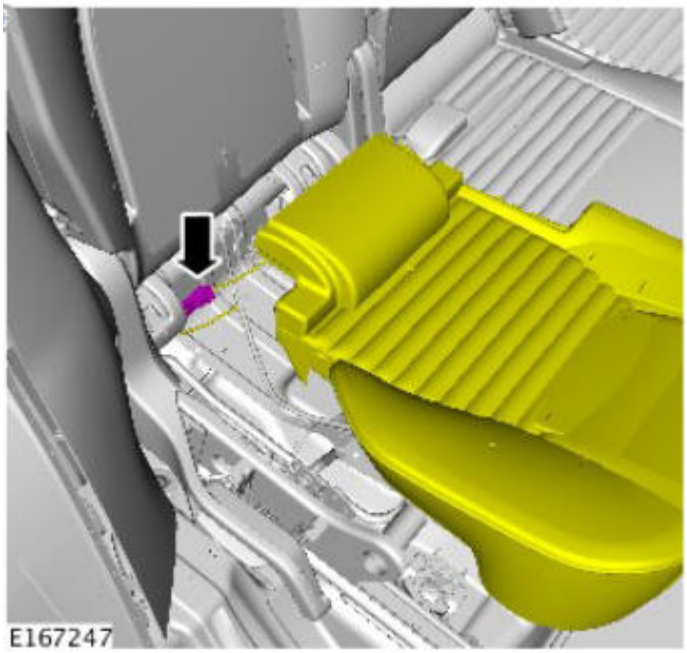
- *Some variation in the illustrations may occur, but the essential information is always correct.*
- *Removal steps in this procedure may contain installation details.*

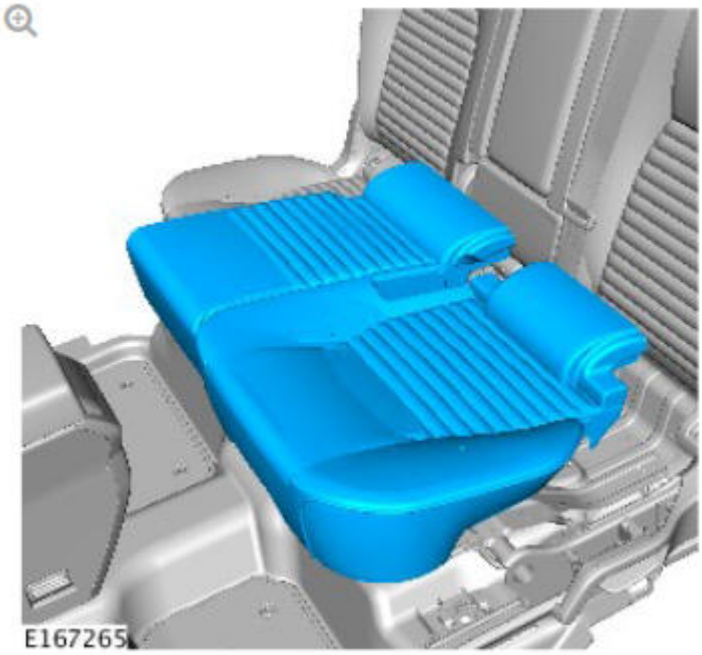
Refer to: Specifications (414-01, Specifications).

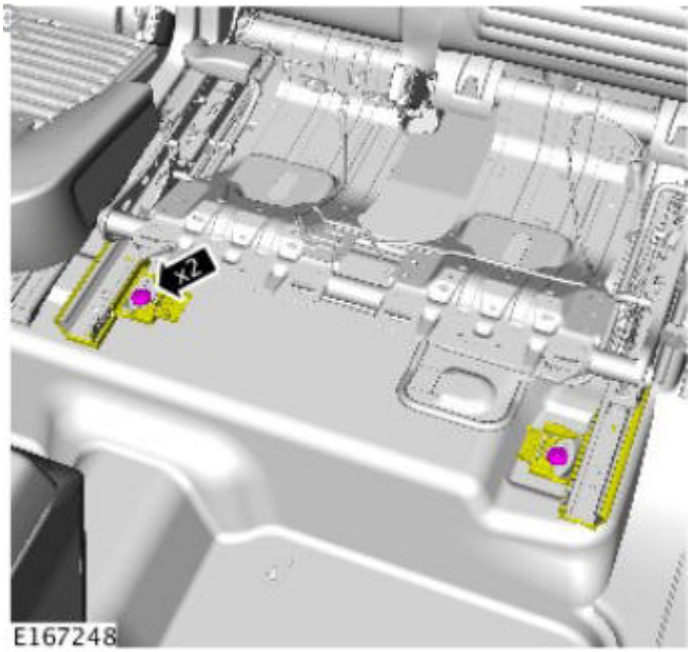


NOTE:

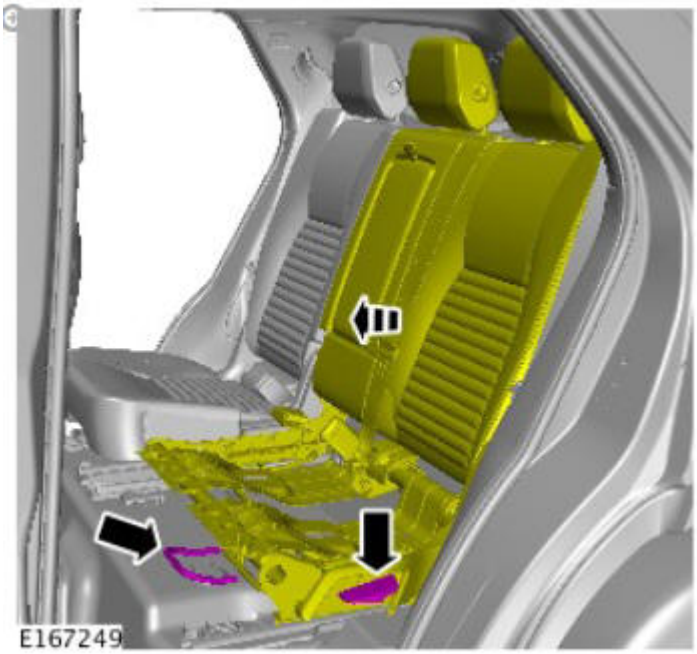
RH illustration shown, LH is similar.

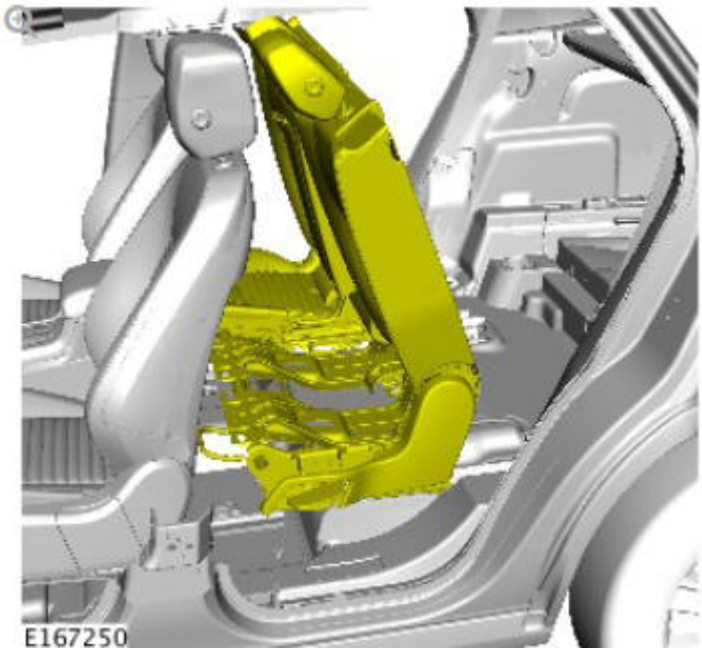

E167247

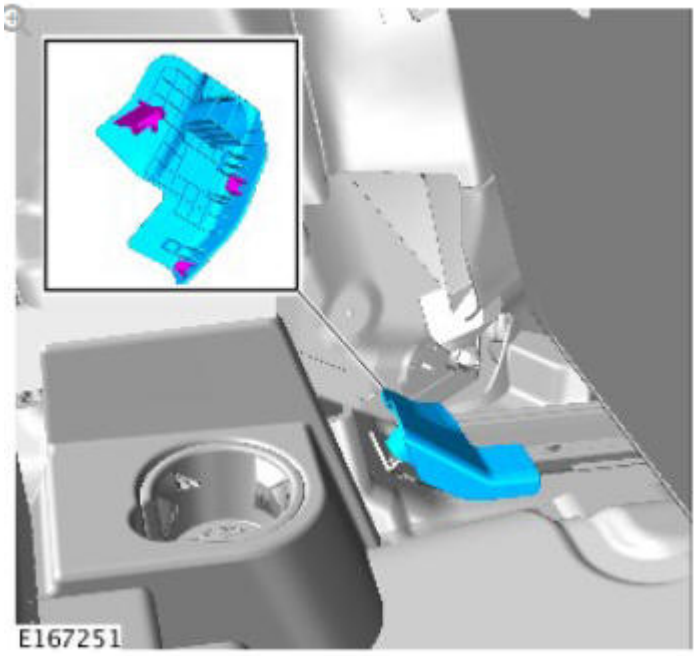

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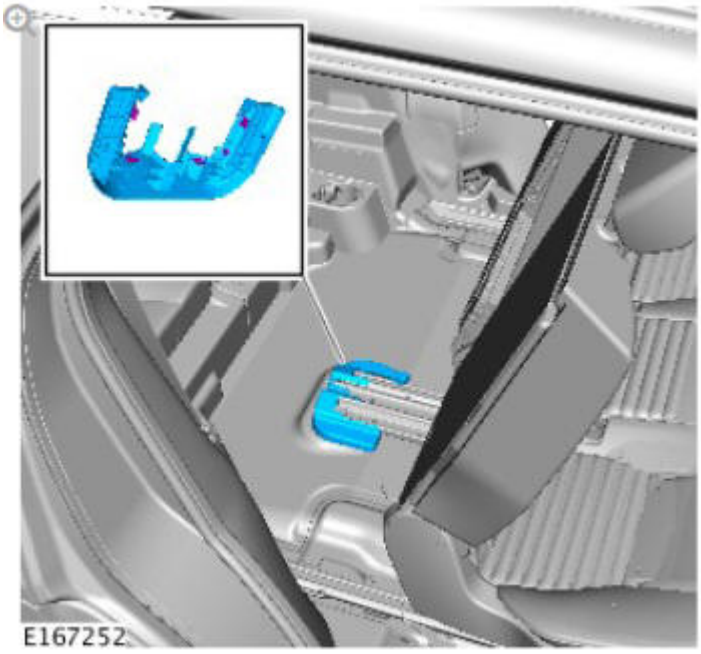


Torque: 40 Nm



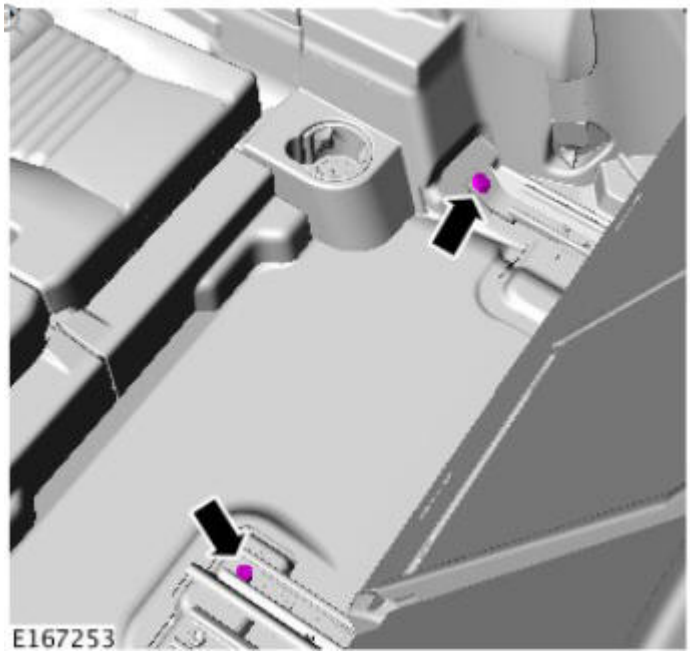

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E167251

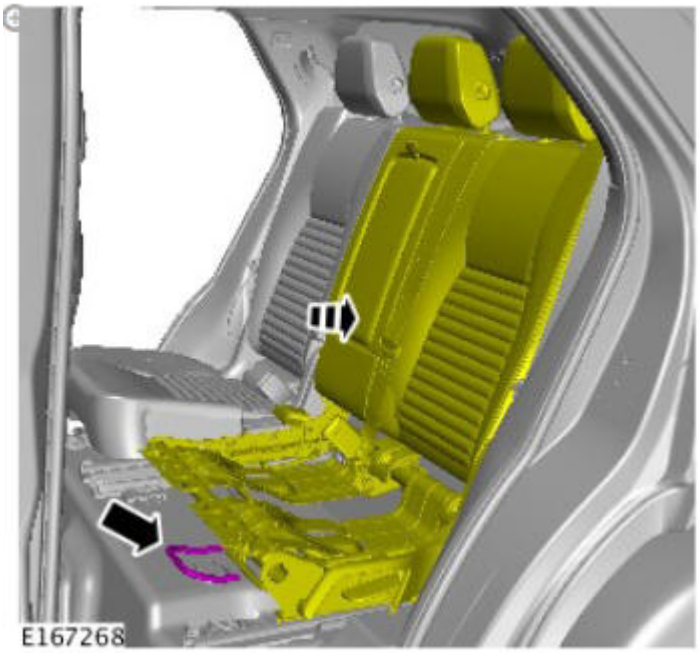


NOTE:

Note the orientation of the component prior to removal.



Torque: 40 Nm

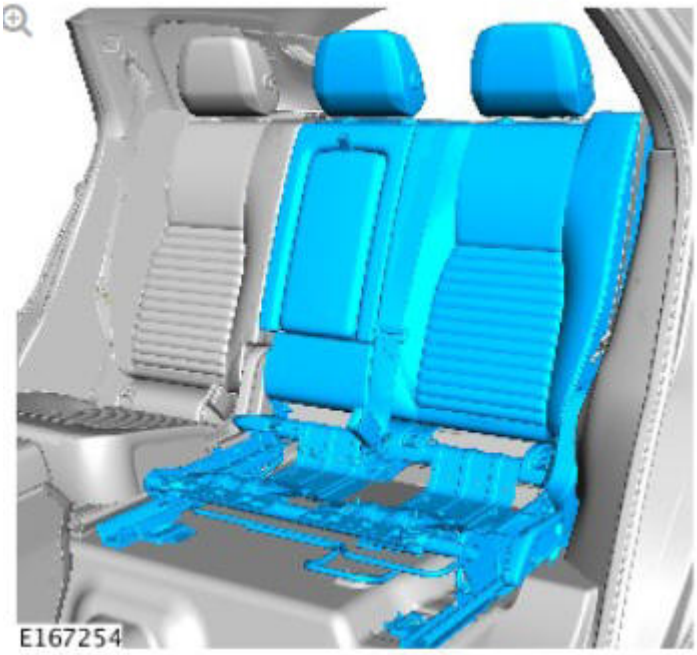


WARNING:

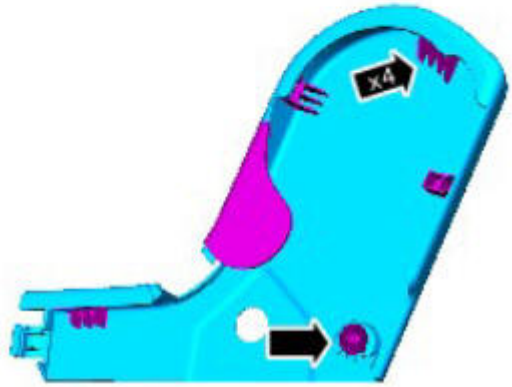
This step requires the aid of another technician.

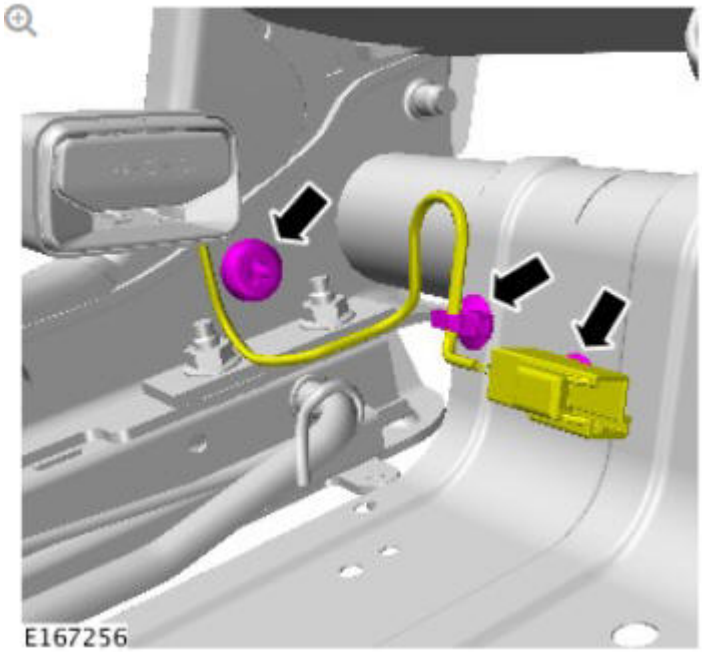
CAUTIONS:

- **Make sure to protect the paintwork.**
- **Protect the surrounding paintwork to avoid damage.**

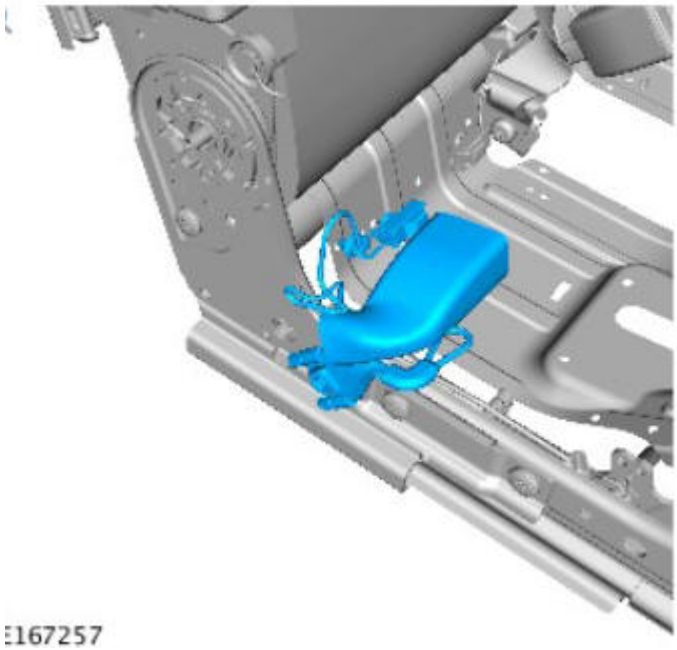








Torque: 40 Nm



E167257

INSTALLATION

To install, reverse the removal procedure.

ne

Pedestrian Protection System / Diagnosis and TestingRear Center Safety Belt Retractor (G1808246) / Removal and Installation

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Задний центральный безопасность катушка ремня безопасности / снятие и установка

Rear Center Safety Belt Retractor (G1808246) / Removal and Installation

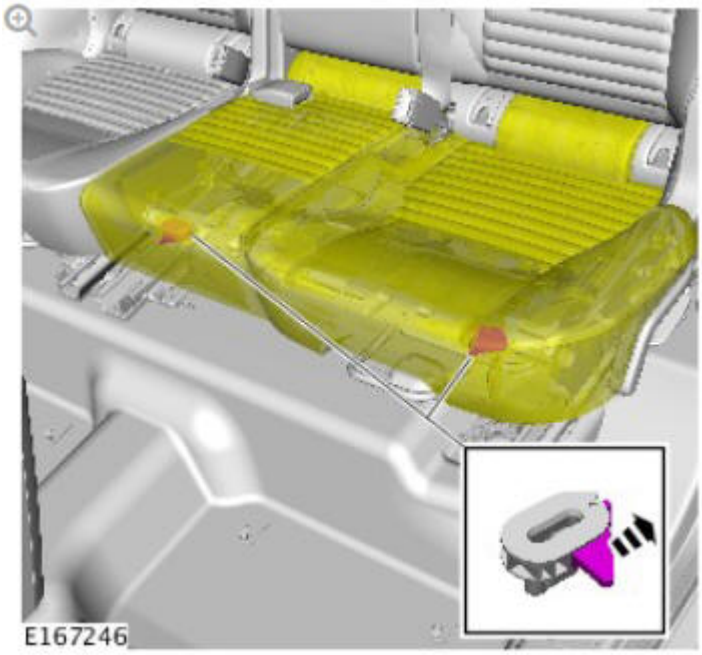
Removal

NOTES:

- *Some variation in the illustrations may occur, but the essential information is always correct.*
- *Removal steps in this procedure may contain installation details.*

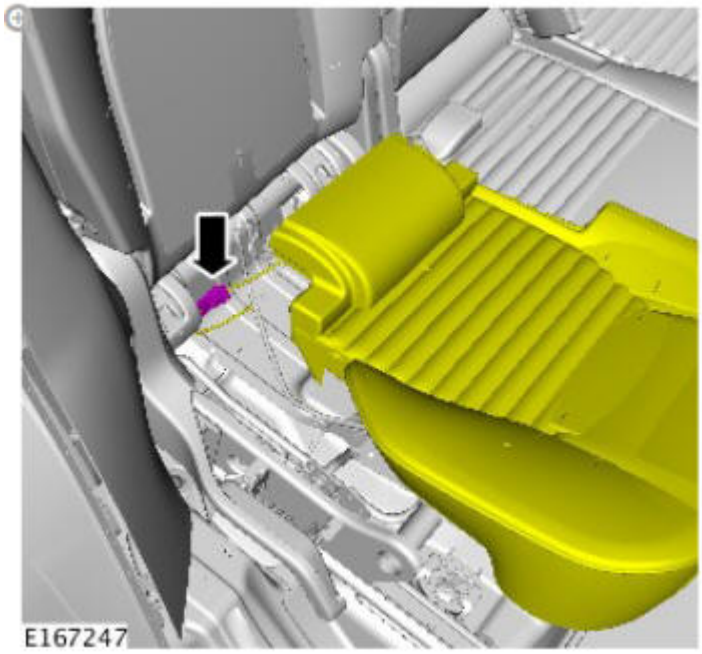
Disconnect the ground cable.

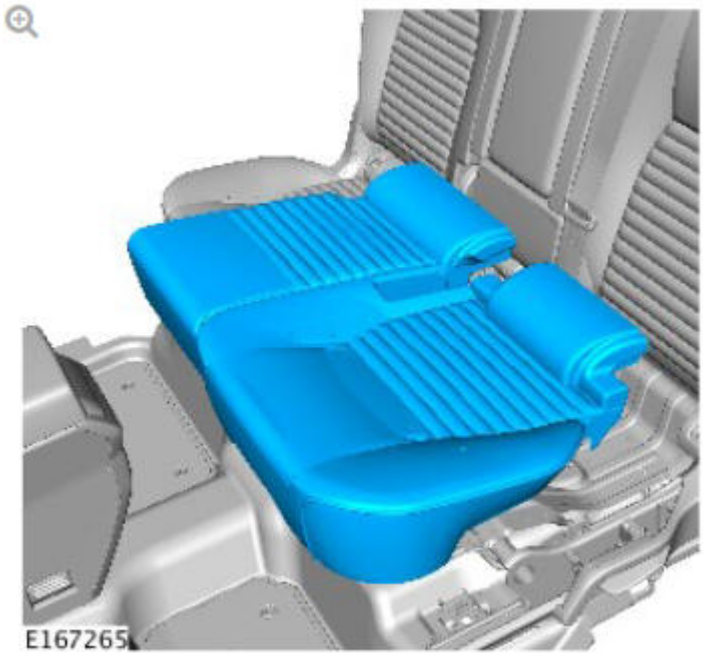
Refer to: Specifications (414-01, Specifications).

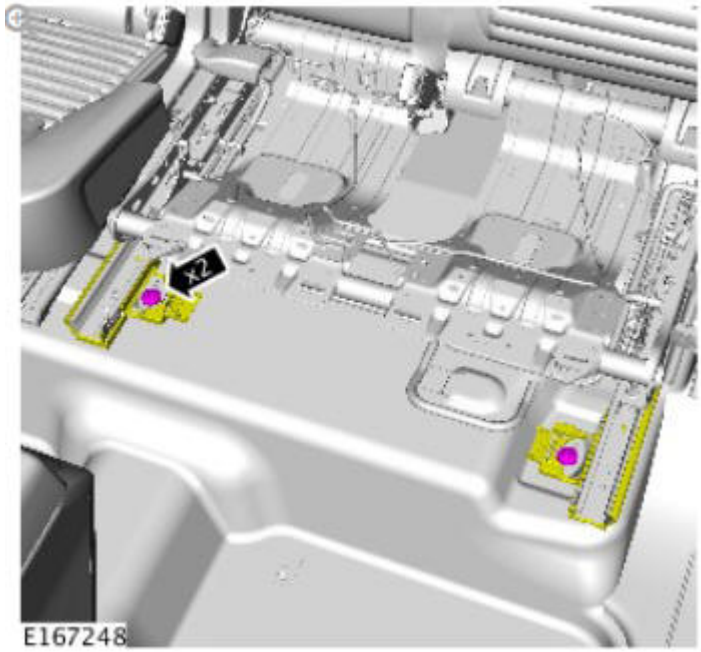


NOTE:

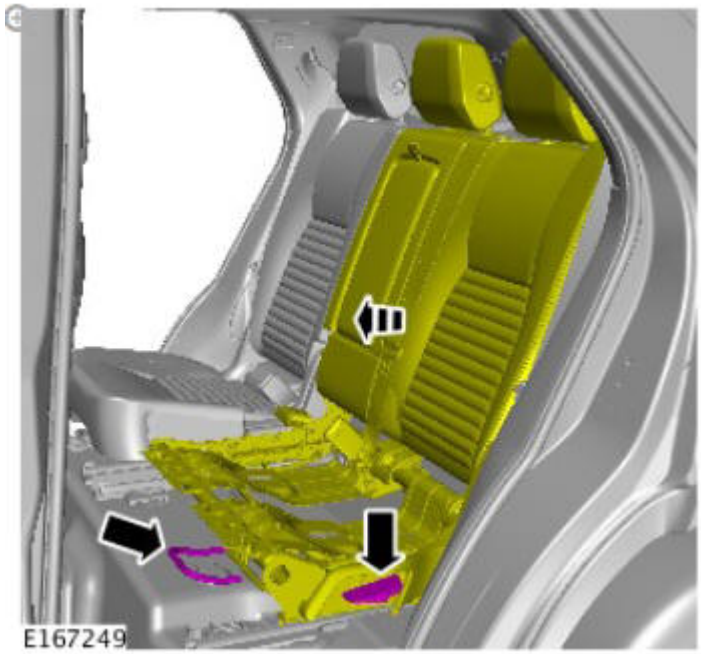
LH illustration shown, RH is similar.

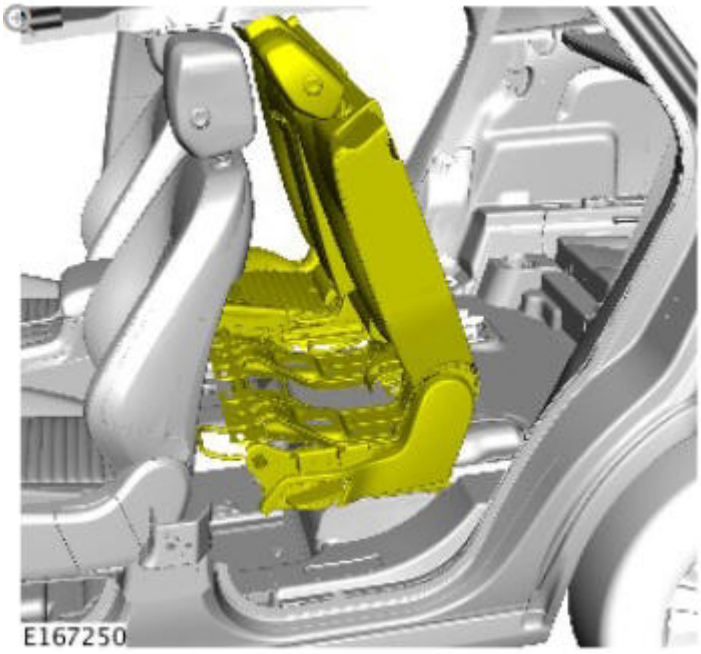


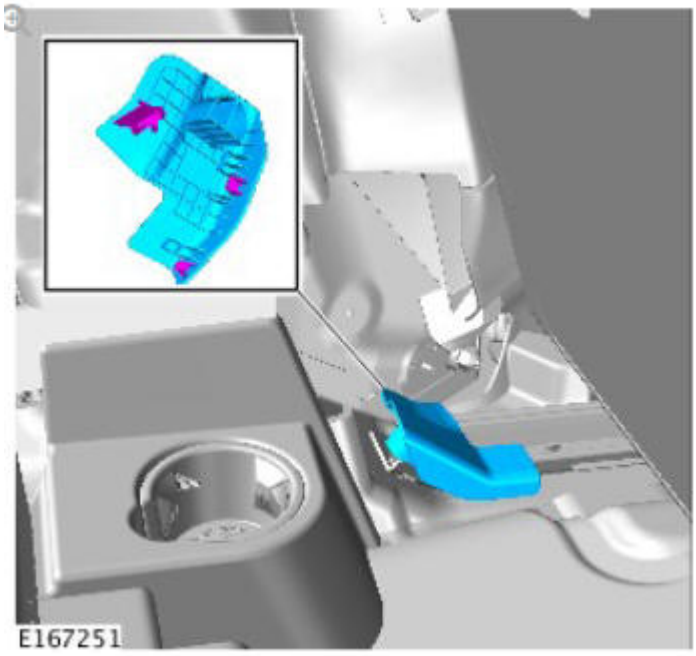


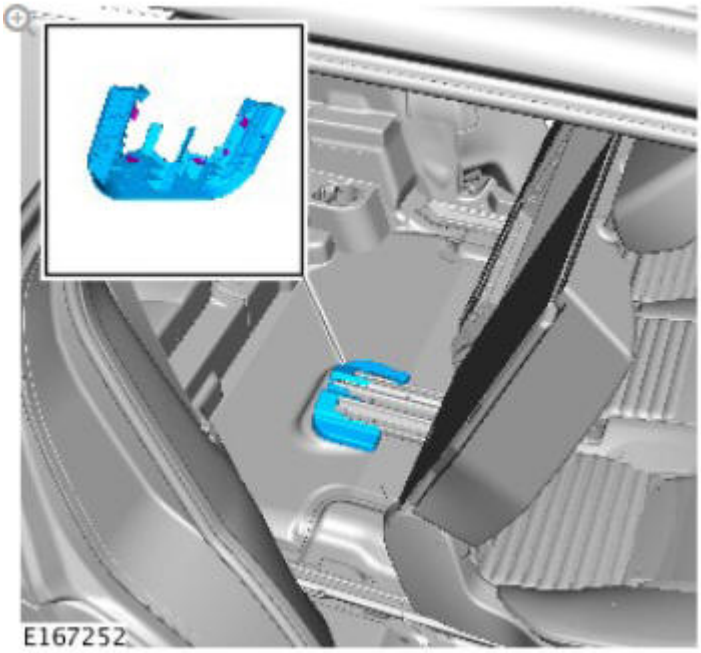


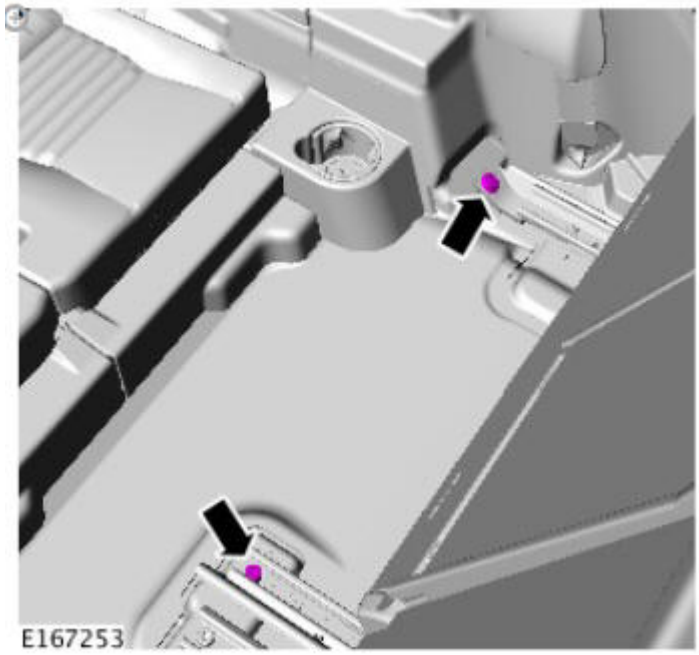
Torque: 40 Nm

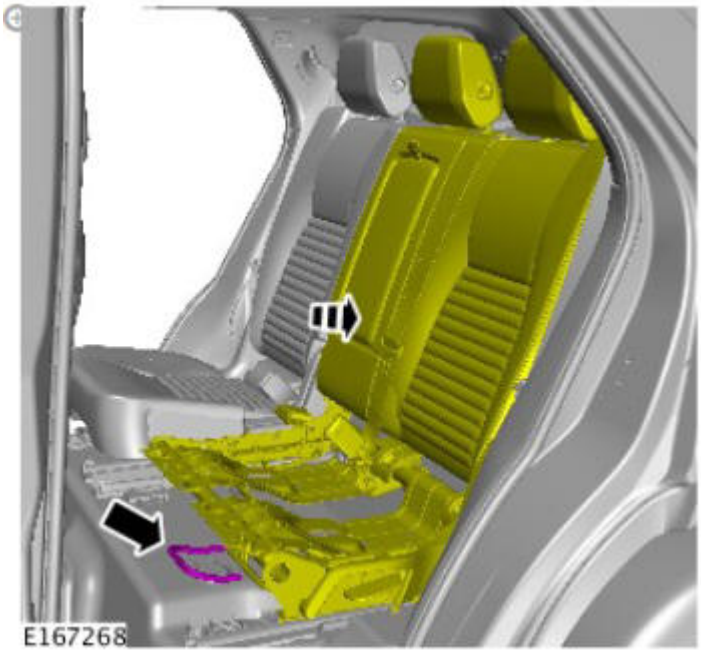

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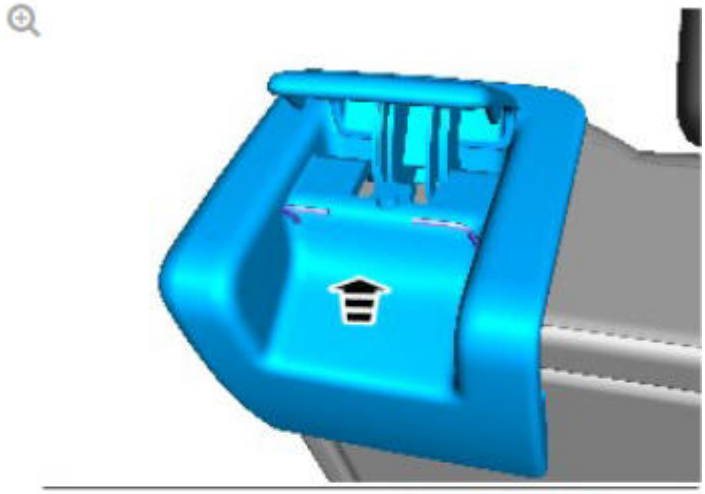
WARNING:

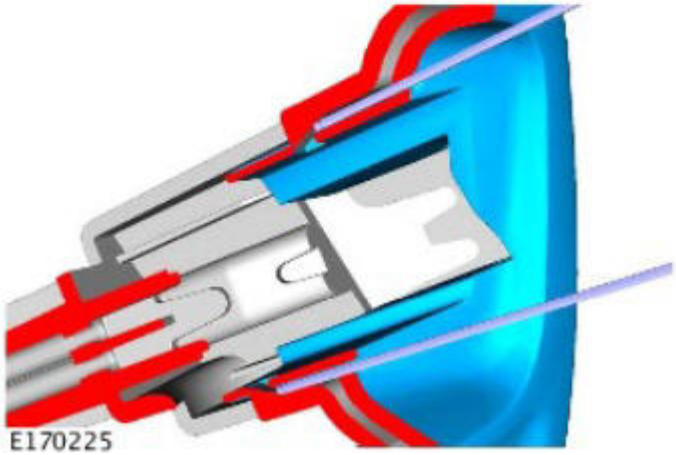
<u>This step requires the aid of another technician.</u>

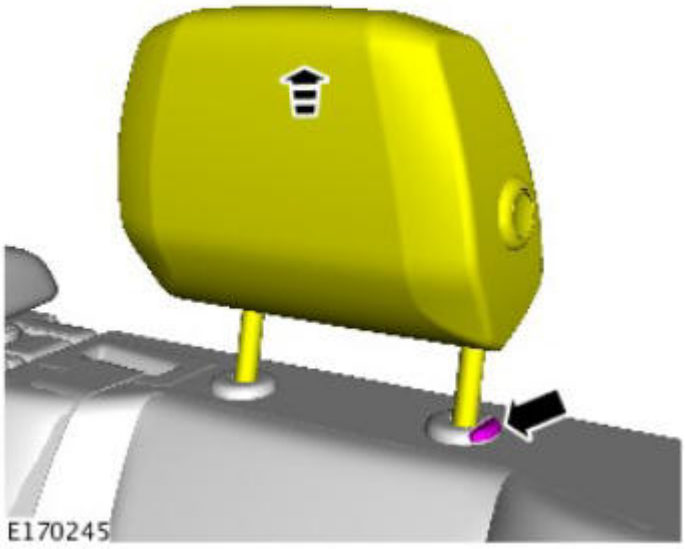
CAUTIONS:

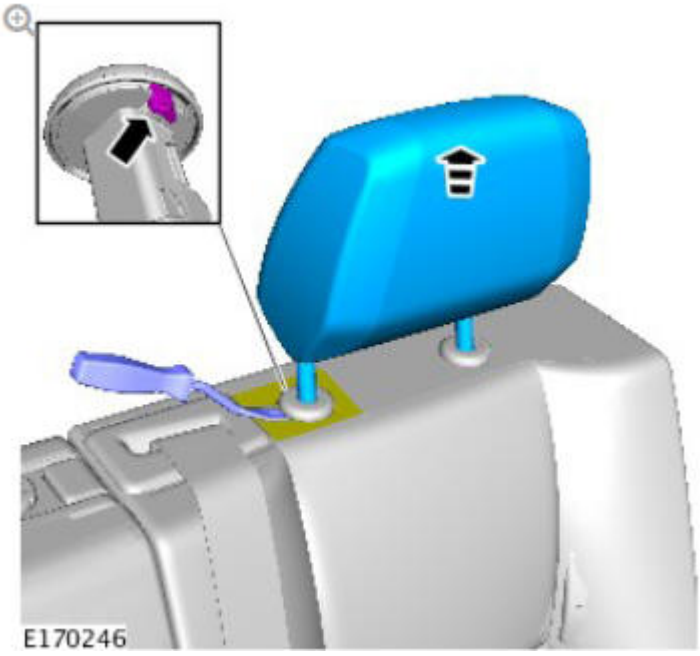
- **<u>Make sure to protect the paintwork.</u>**
- **<u>Protect the surrounding paintwork to avoid damage.</u>**


E167254




E170225

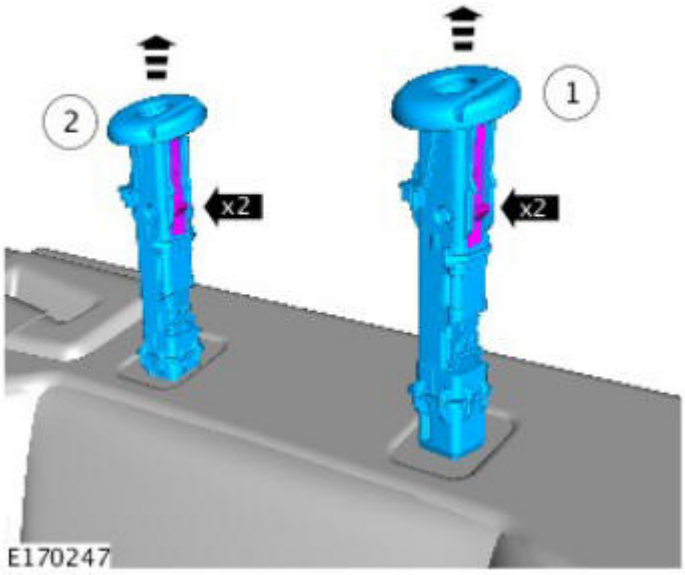


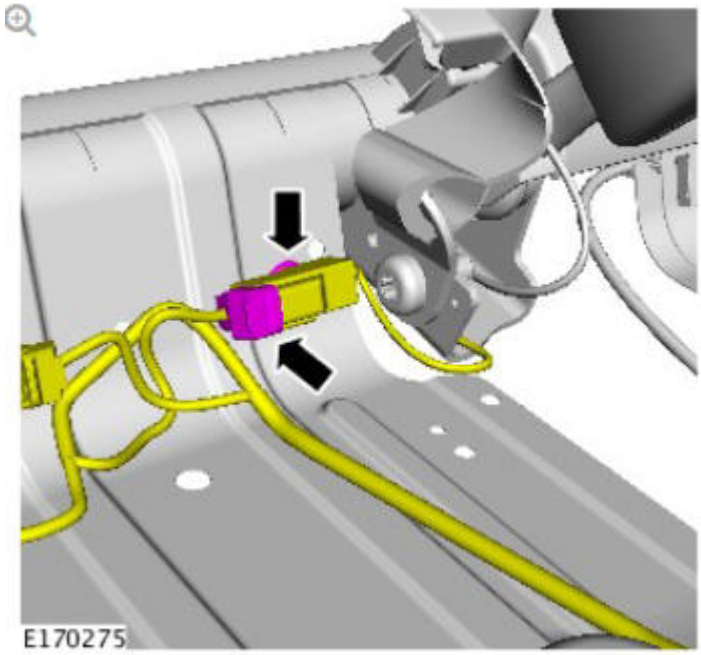


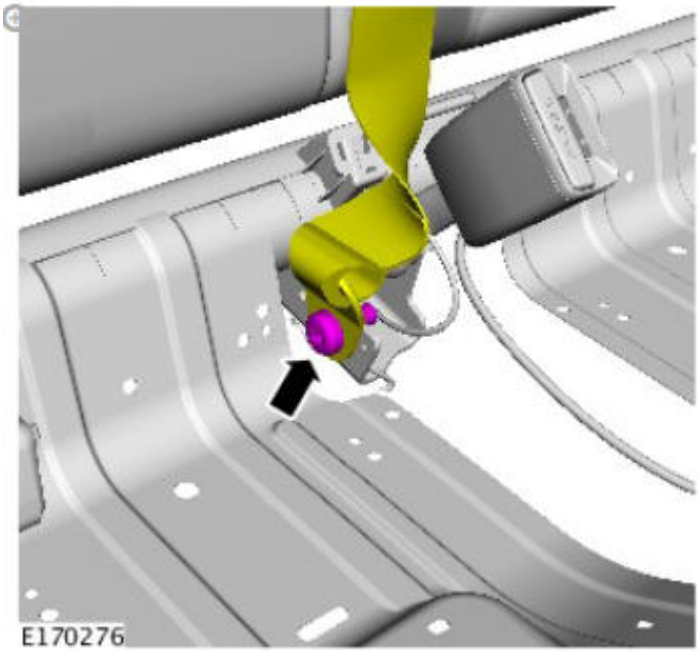
- Using a suitable tool, push in the clip to release the headrest

NOTE:

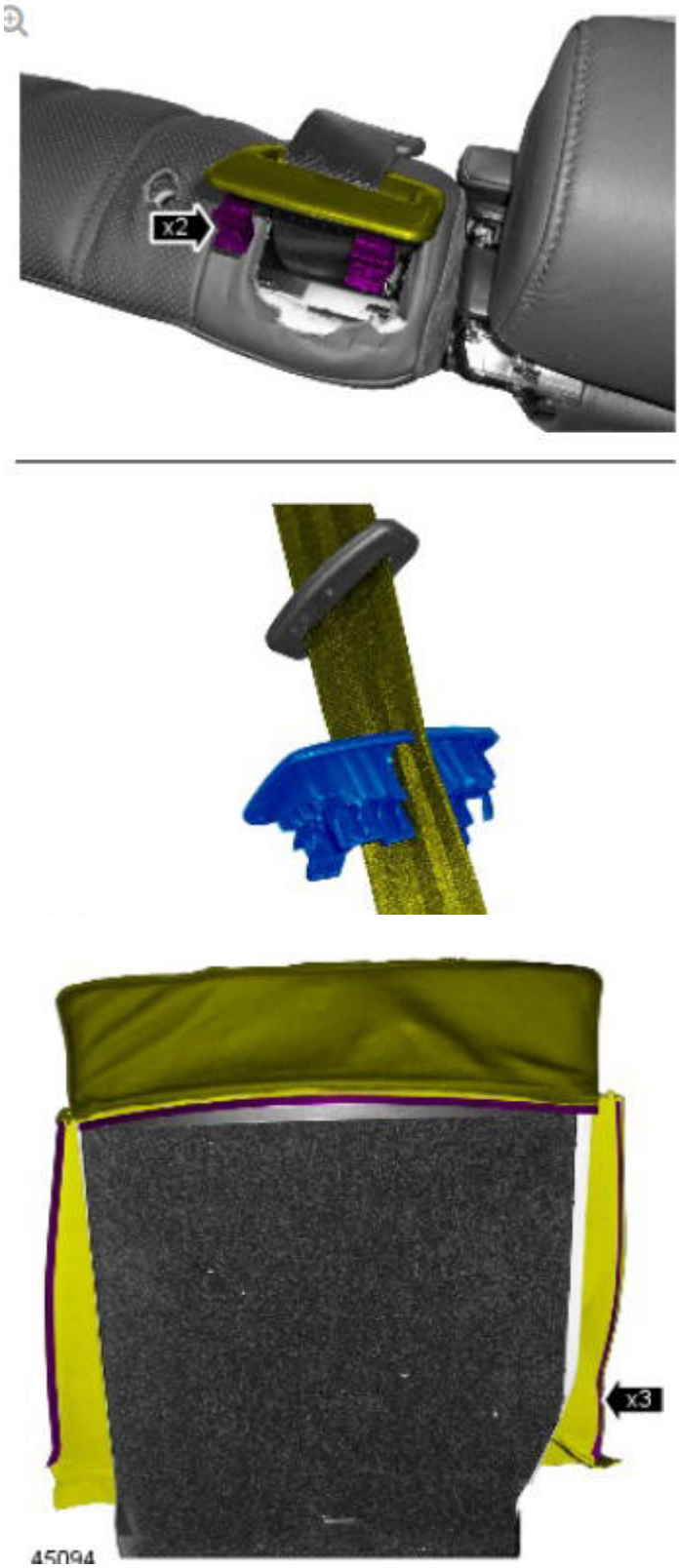
Repeat the procedure for the other side.


2
x2
1
x2
E170247


E170275

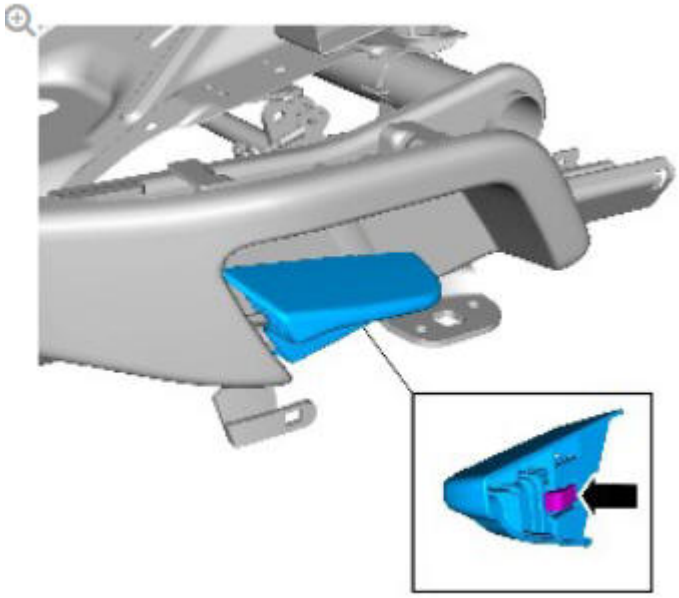

E170276

Torque: 40 Nm



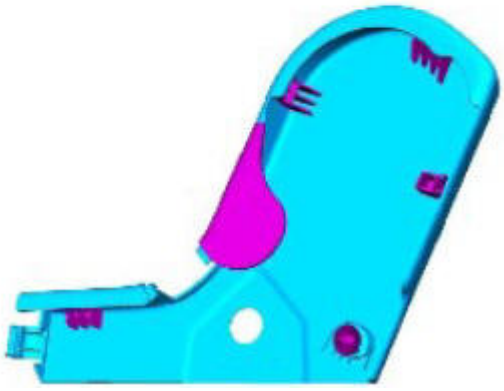
CAUTION:

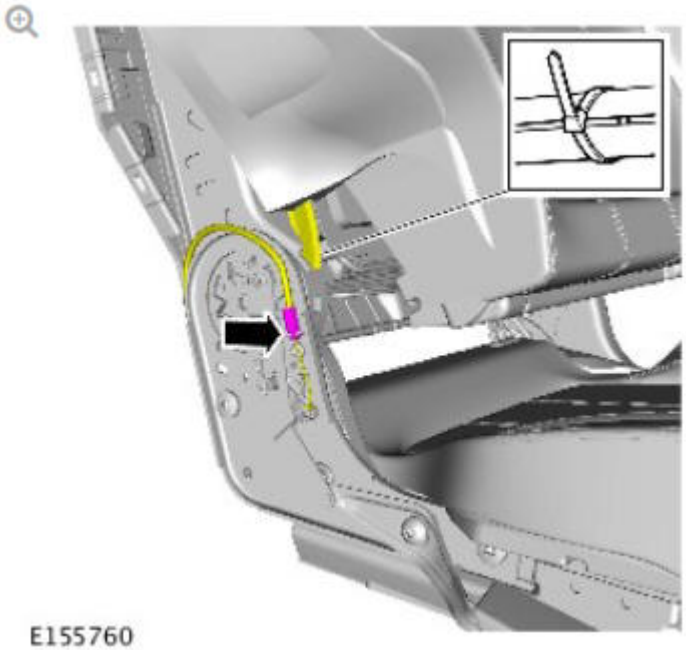
Care must be taken not to damage the component.

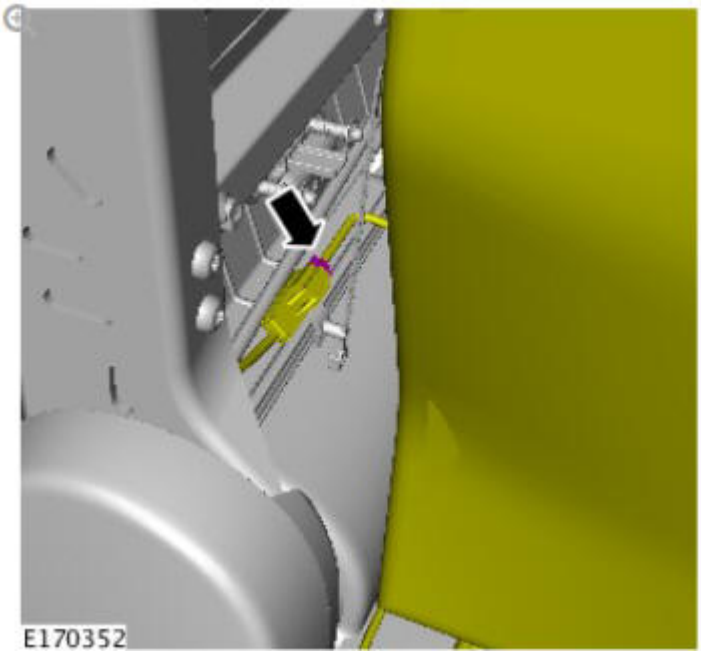


E155756



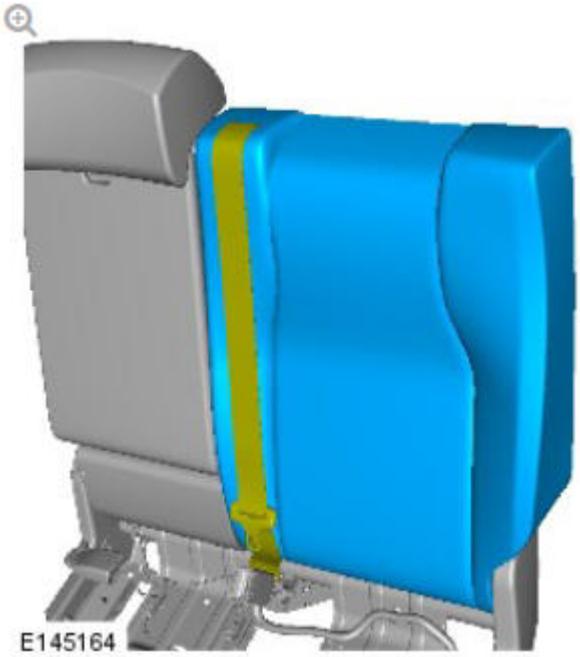


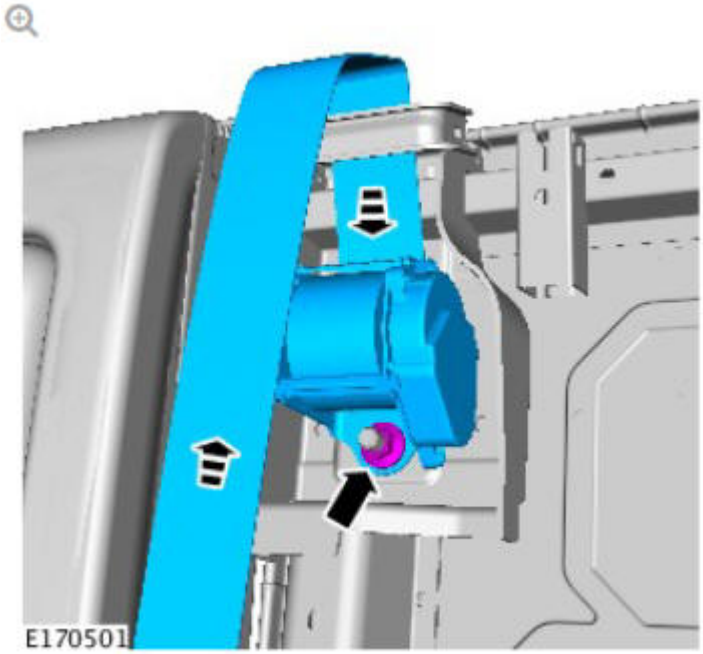




NOTE:

LH shown.





Torque: 40 Nm

INSTALLATION

To install, reverse the removal procedure.

ne

Rear Center Safety Belt Buckle (G1780795) / Removal and InstallationRear Safety Belt Buckle (G1814165) / Removal and Installation

ne

Задний безопасность замок ремня безопасности / снятие и установка

Rear Safety Belt Buckle (G1814165) / Removal and Installation

REMOVAL

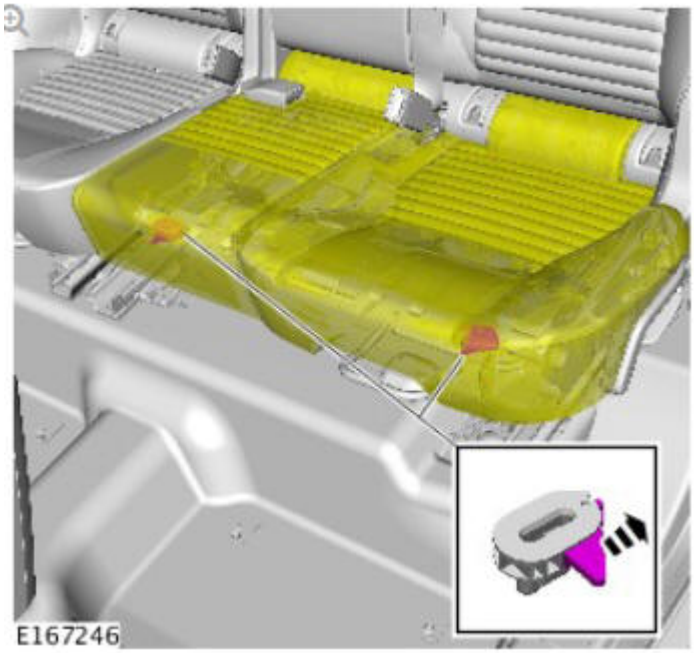
WARNINGS:

- ***To avoid accidental deployment and possible personal injury, the backup power supply must be depleted before repairing or replacing any air bag supplemental restraint system (SRS) components. To deplete the backup power supply energy, disconnect the battery ground cable and wait one minute. Failure to follow this instruction may result in personal injury.***
- ***Always wear safety glasses when working on an air bag equipped vehicle and when handling an air bag module. Failure to follow this instruction may result in personal injury.***
- ***To minimize the possibility of injury in the event of premature deployment, always carry a live air bag module with the bag and trim cover pointed away from the body. Failure to follow this instruction may result in personal injury.***
- ***To minimize the possibility of premature deployment, do not use radio key code savers when working on the supplemental restraint system. Failure to follow this instruction may result in personal injury.***
- ***To minimize the possibility of premature deployment, live air bag modules must only be placed on work benches which have been ground bonded and with the trim cover facing up. Failure to follow these instructions may result in personal injury.***
- ***Never probe the electrical connectors of air bag modules or any other supplemental restraint system component. Failure to follow this instruction may result in personal injury.***

NOTES:

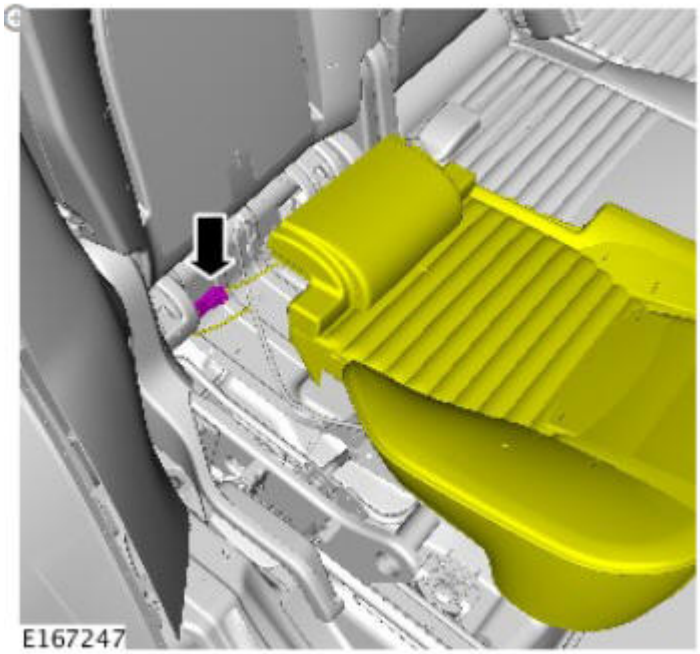
- *Removal steps in this procedure may contain installation details.*
- *Some variation in the illustrations may occur, but the essential information is always correct.*
- *LH illustration shown, RH is similar.*

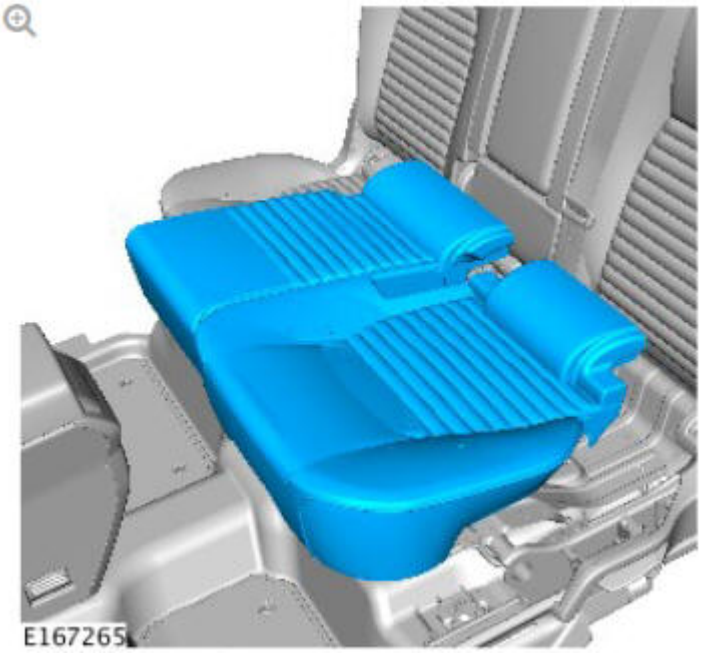
Refer to: Standard Workshop Practices (100-00, Description and Operation).

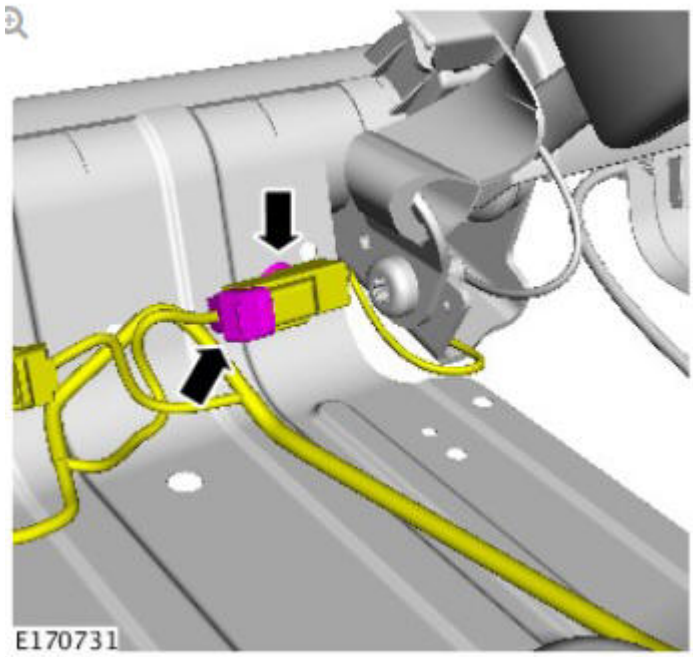


NOTE:

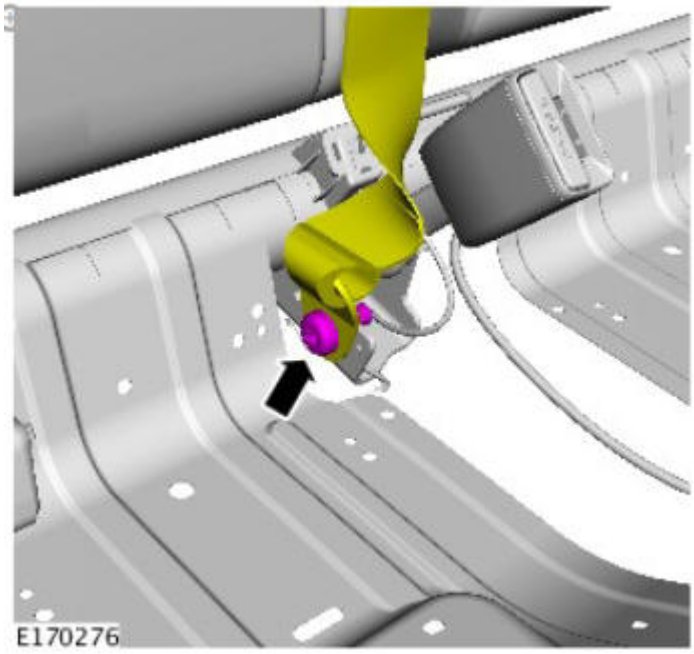
RH illustration shown, LH is similar.


E167247

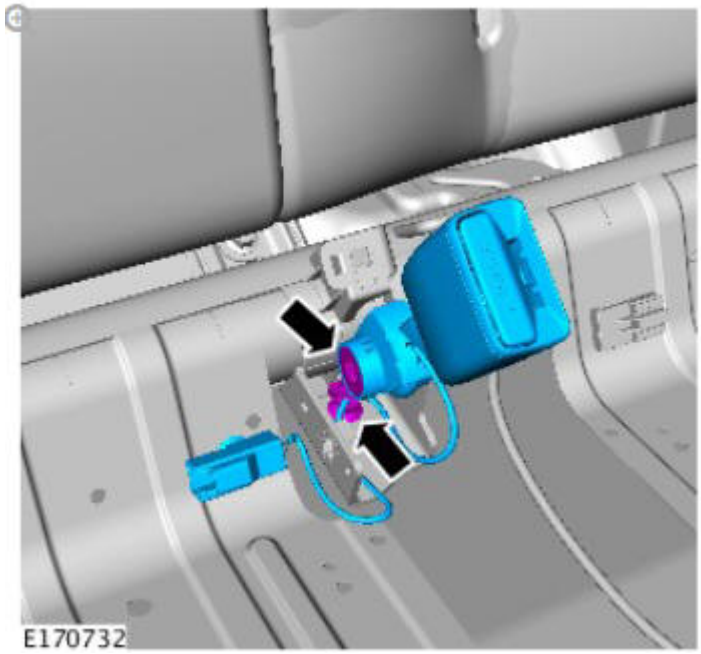

E167265



Torque: 40 Nm



Torque: 40 Nm



Torque: 40 Nm

INSTALLATION

To install, reverse the removal procedure.

ne

Rear Center Safety Belt Retractor (G1808246) / Removal and InstallationRear Safety Belt Retractor (G1809589) / Removal and Installation

ne

Задний безопасность катушка ремня безопасности / снятие и установка

Rear Safety Belt Retractor (G1809589) / Removal and Installation

REMOVAL

WARNINGS:

- ***Always disconnect both battery cables before beginning work on the SRS system. Disconnect the ground cable first. Never reverse connect the battery.***
- ***The SRS electrical connectors are unique. DO NOT force, or attempt to connect electrical connectors to the wrong sockets.***
- ***The correct procedures must always be used when working on SRS components.***
- ***To avoid accidental deployment and possible personal injury, the backup power supply must be depleted before repairing or replacing any air bag supplemental restraint system (SRS) components. To deplete the backup power supply energy, disconnect the battery ground cable and wait one minute. Failure to follow this instruction may result in personal injury.***
- ***Vehicle sensor orientation is critical for correct system operation. If a vehicle equipped with an air bag supplemental restraint system (SRS) is involved in a collision, inspect the sensor mounting bracket and wiring pigtail for deformation. If damaged, replace the sensor whether or not the air bag is deployed.***

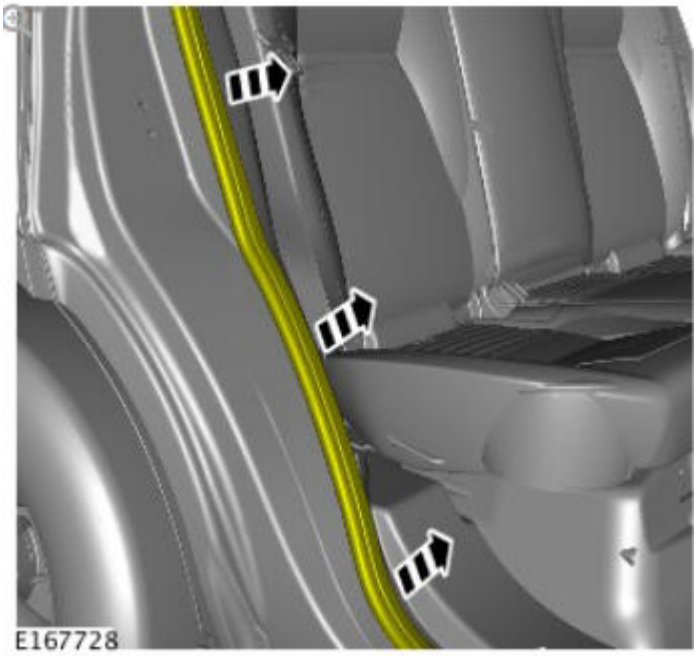
NOTES:

- *Some variation in the illustrations may occur, but the essential information is always correct.*
- *Removal steps in this procedure may contain installation details.*
- *LH illustration shown, RH is similar.*

All vehicles

Refer to: Standard Workshop Practices (100-00, Description and Operation).

Refer to: Specifications (414-01, Specifications).

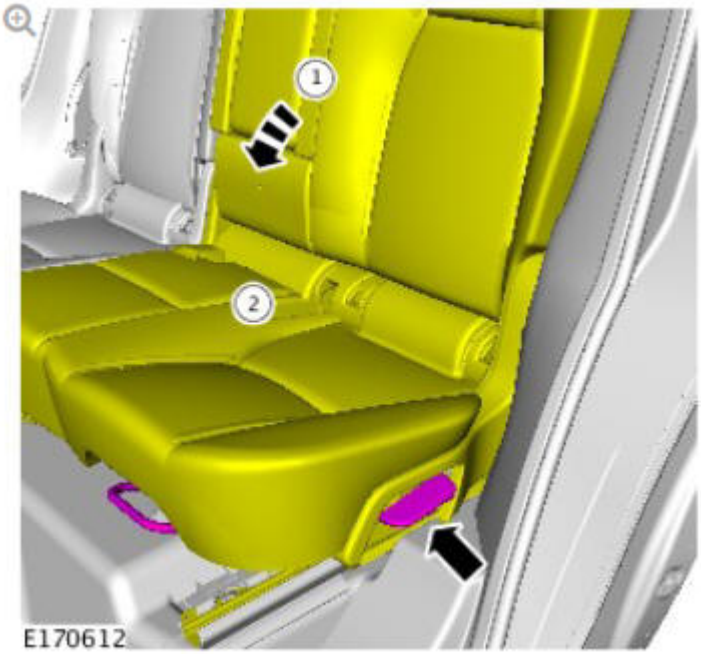


Open the rear door.

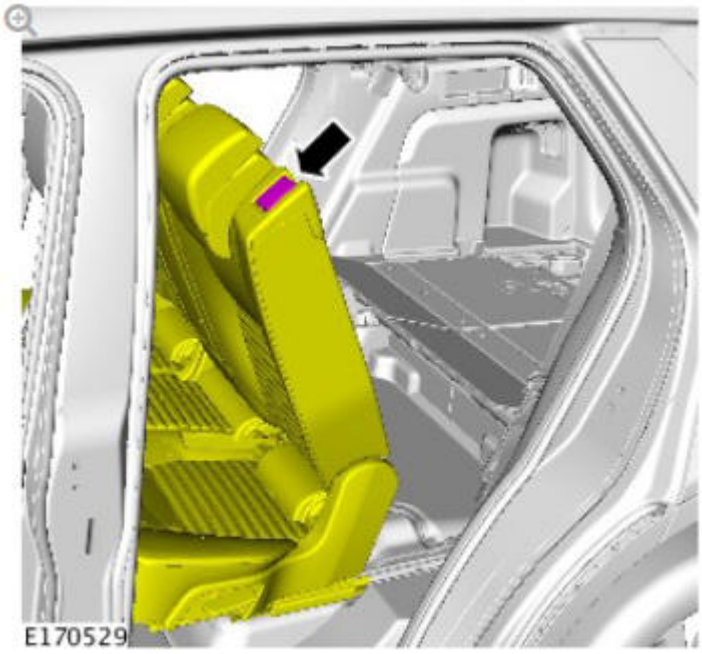
Vehicles without occasional rear seats

NOTE:

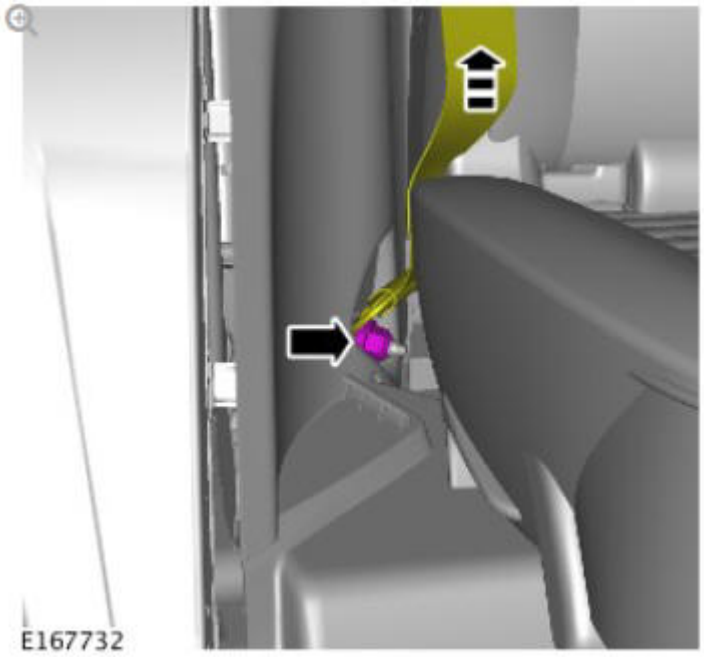
LH illustration shown, RH is similar.



Vehicles with occasional rear seats

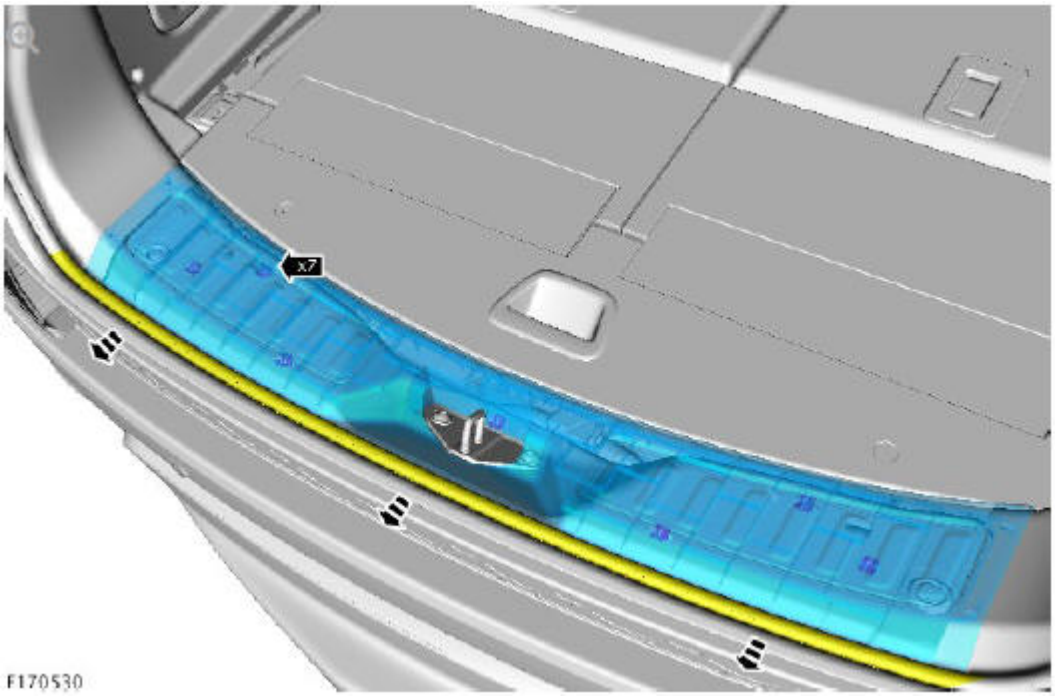


All vehicles

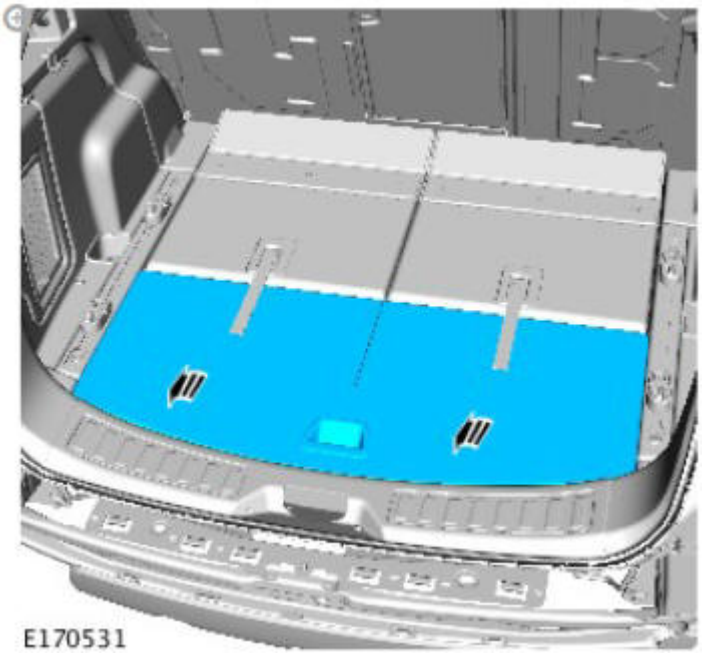


Torque: 40 Nm

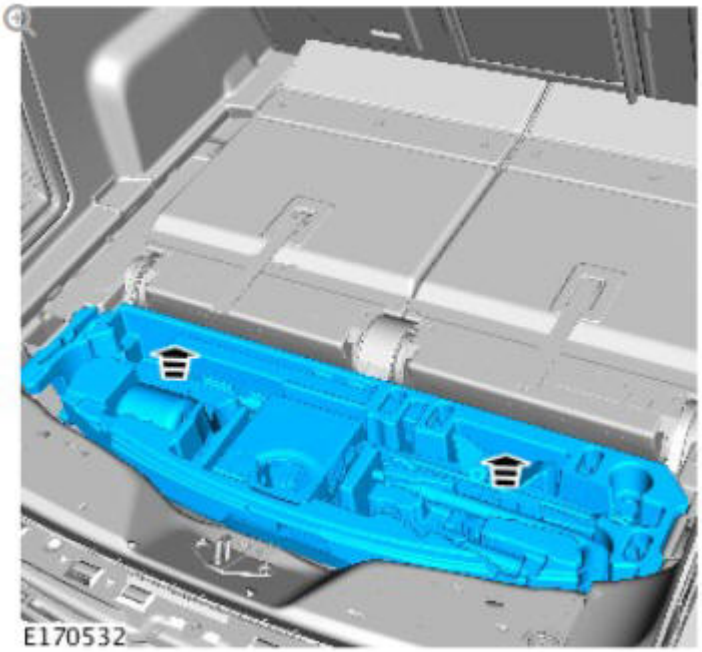
Vehicles with occasional rear seats



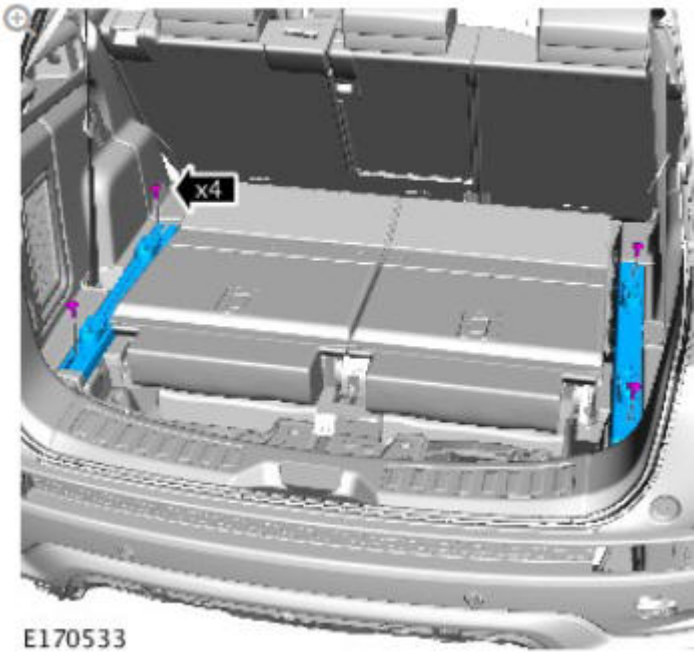
E170530



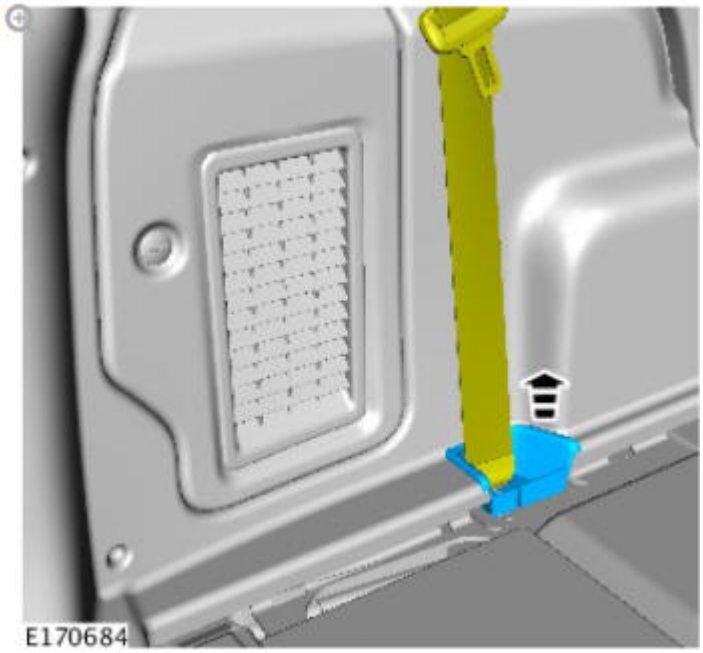
E170531

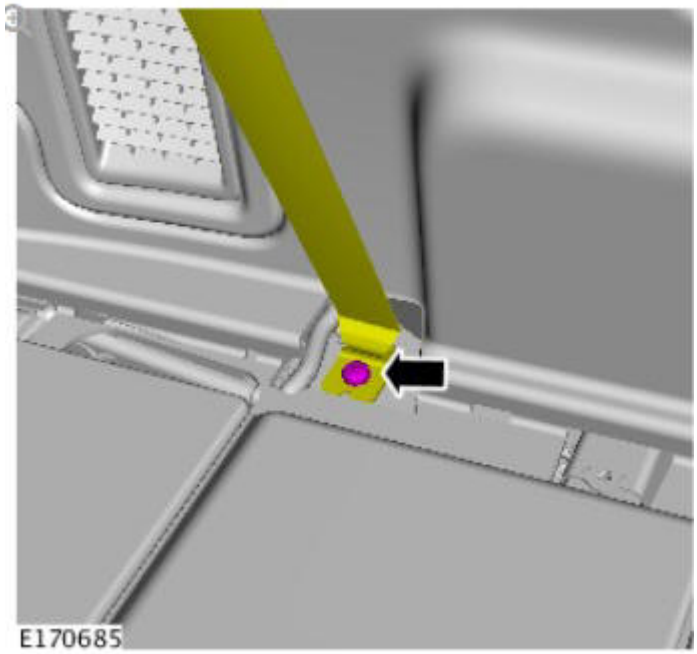


All vehicles



Torque: 25 Nm

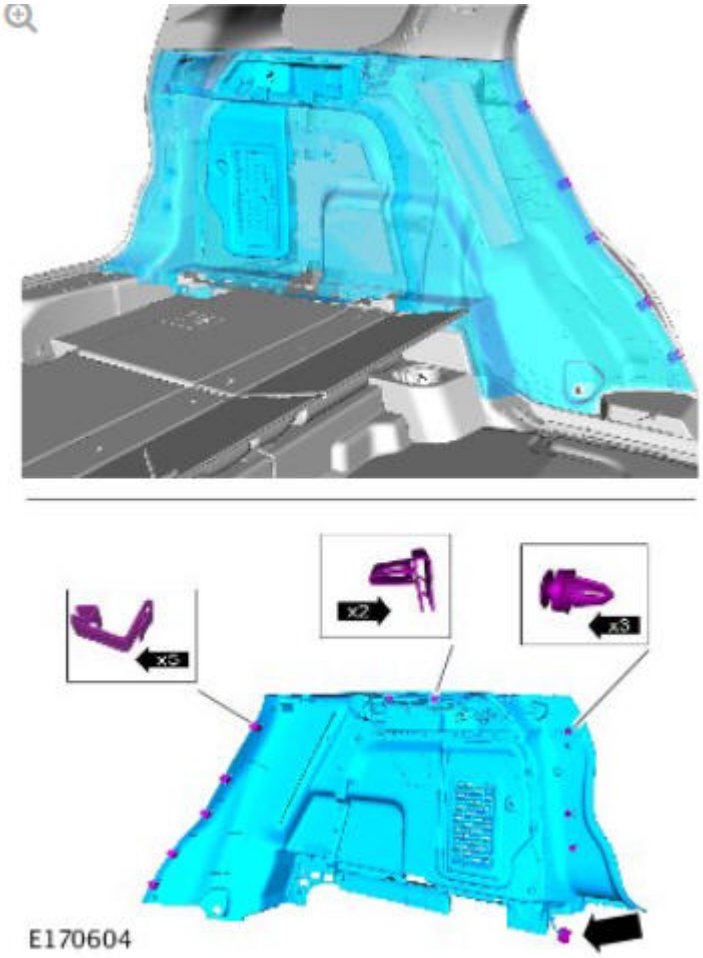




Torque: 40 Nm

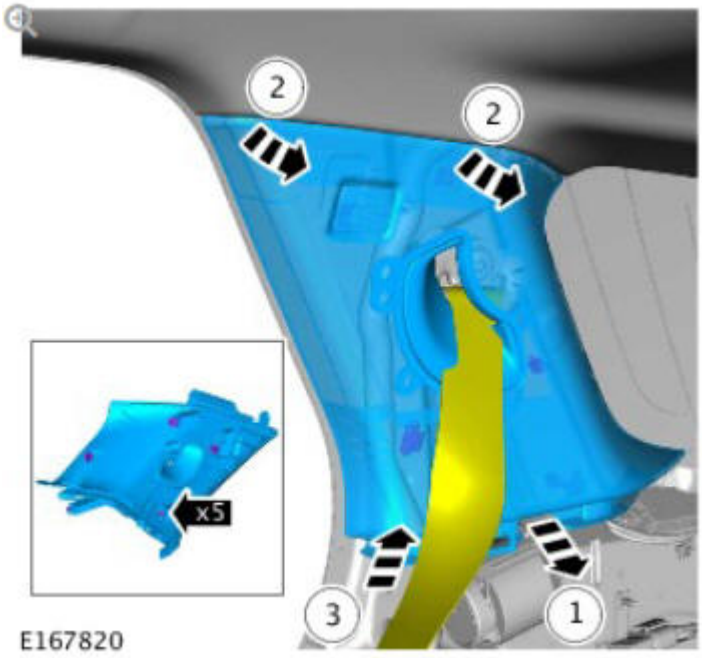
NOTE:

LH illustration shown, RH is similar.



NOTE:

RH illustration shown, LH is similar.



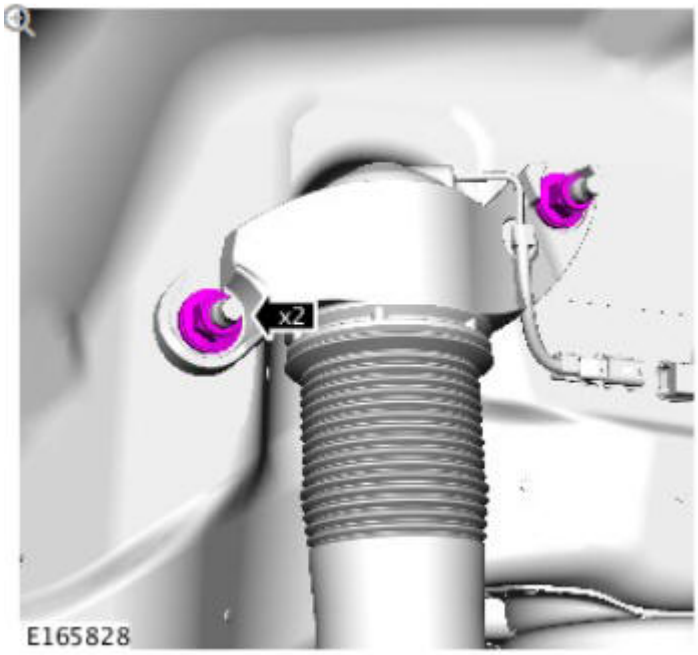
WARNING:

Make sure to support the vehicle with axle stands.

Raise and support the vehicle.

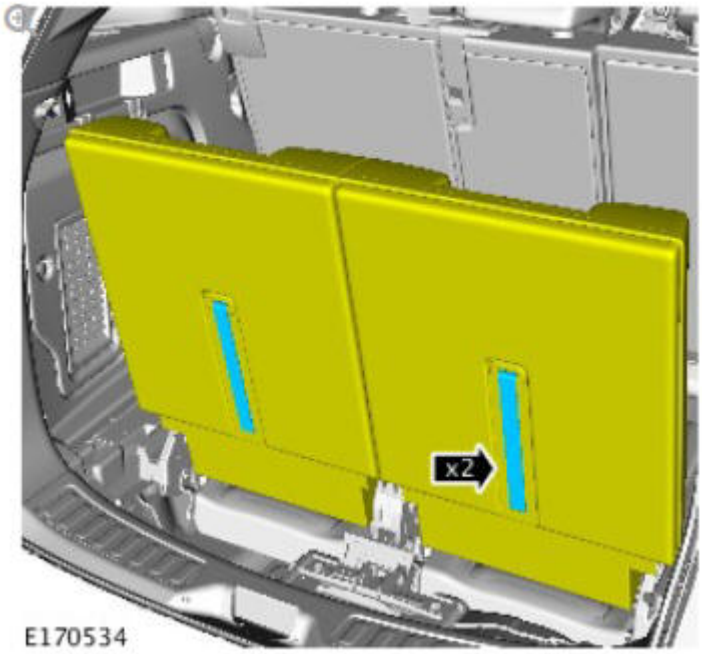
NOTE:

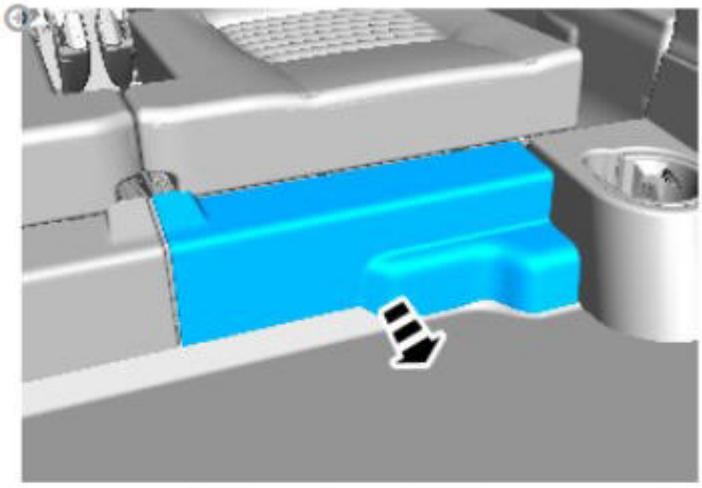
LH illustration shown, RH is similar.

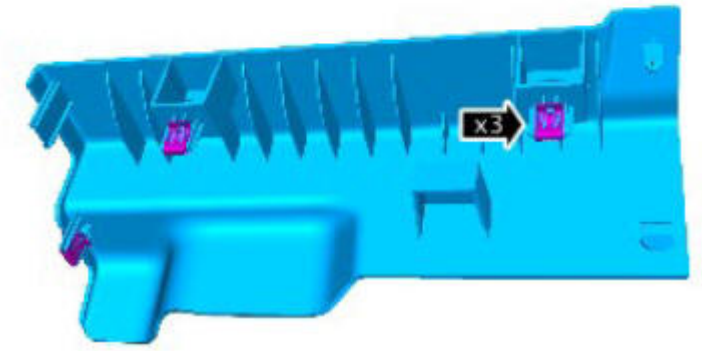


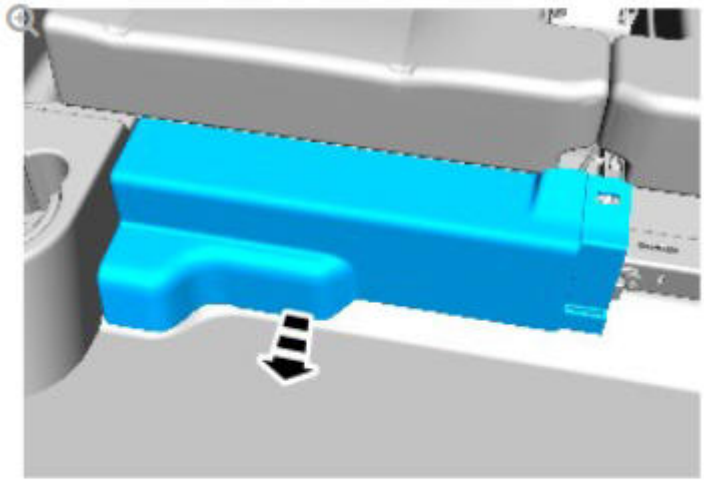
Torque: 80 Nm

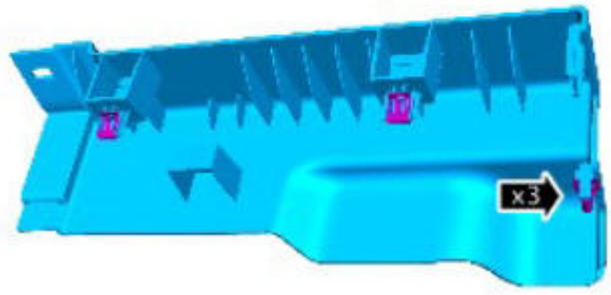
Vehicles with occasional rear seats

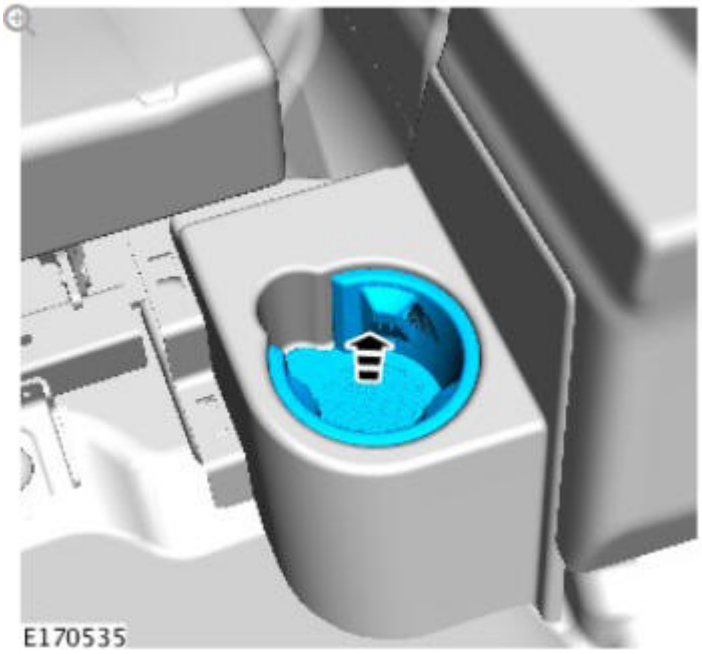


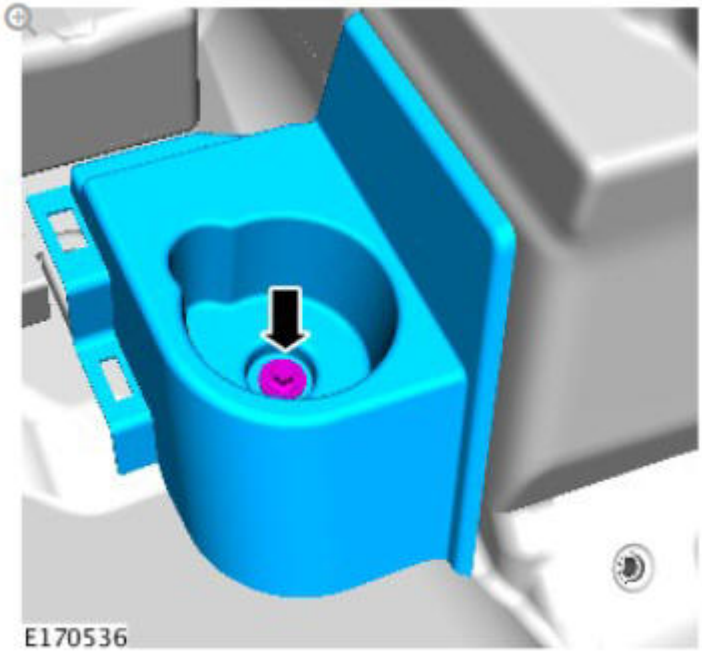



x3

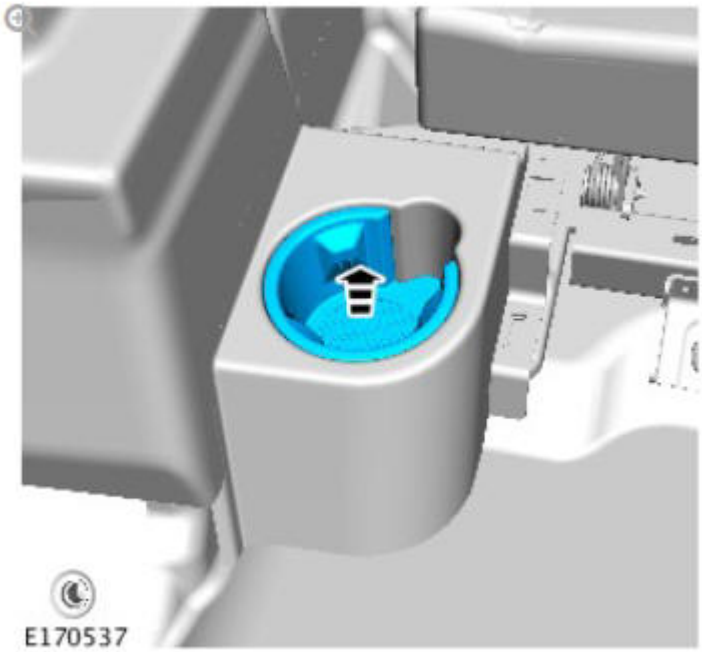


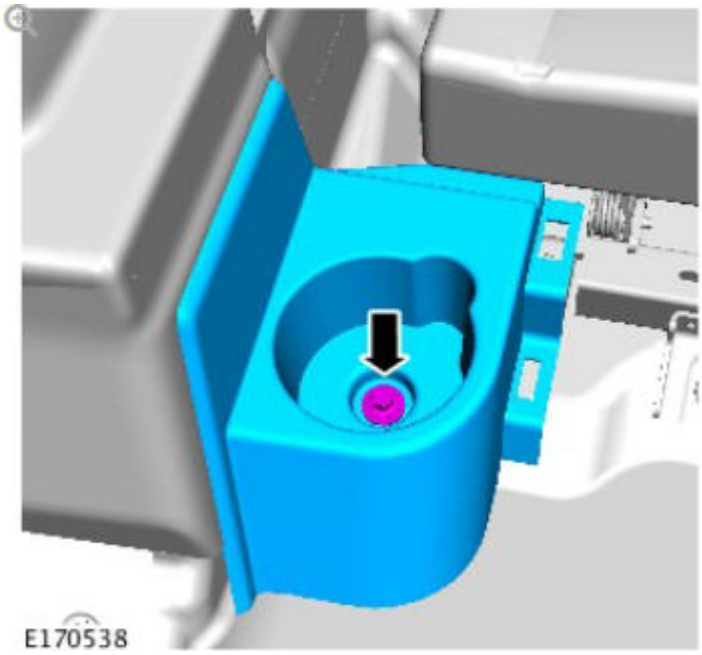

x3



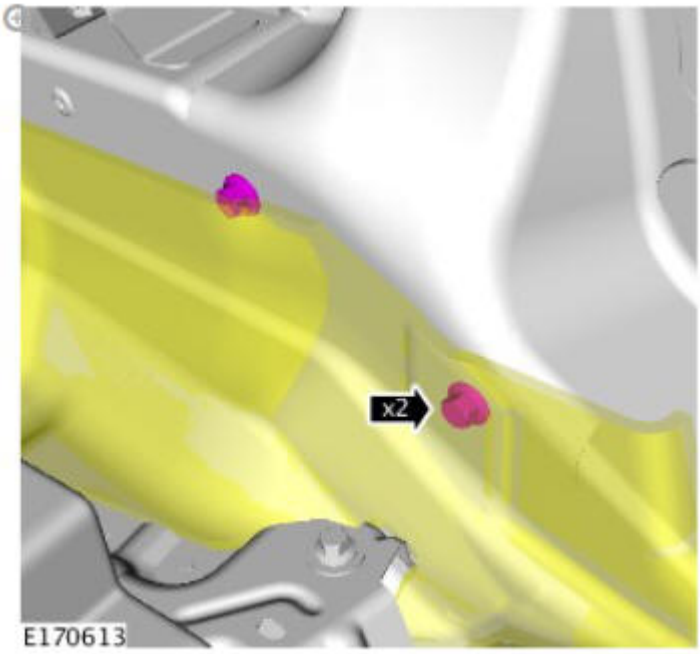


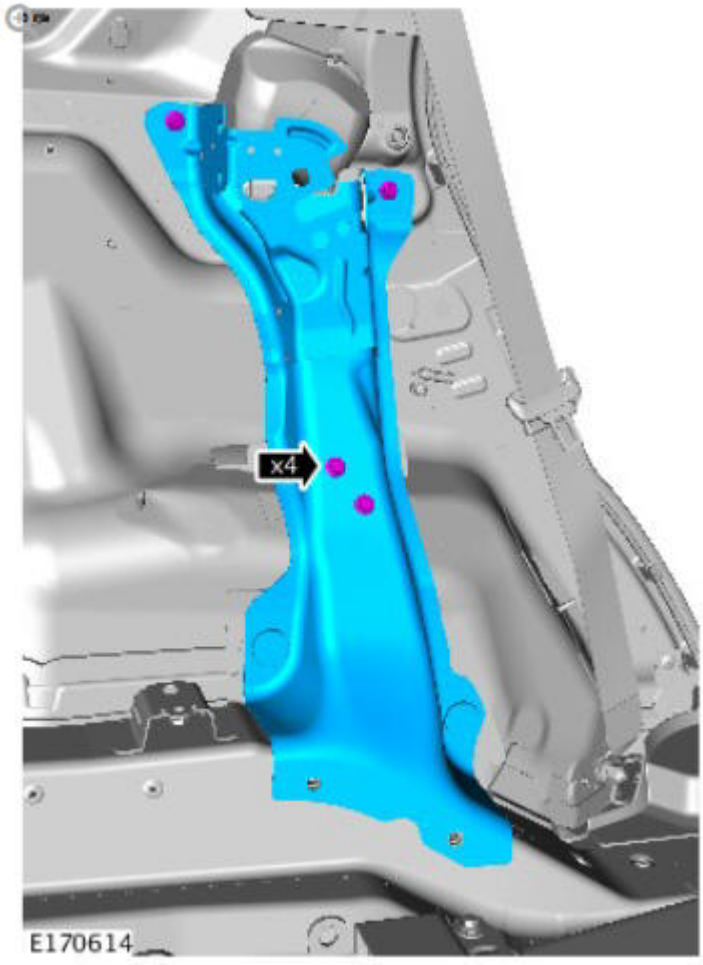
Torque: 10 Nm



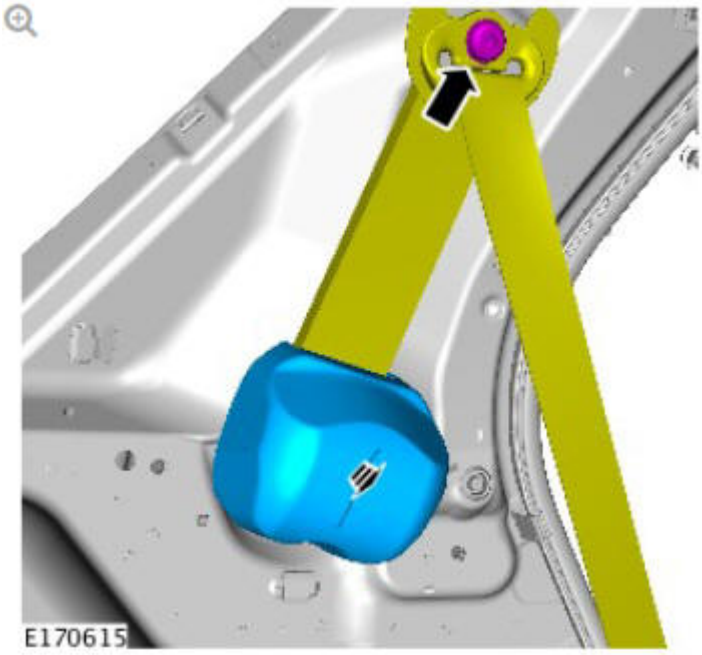


Torque: 10 Nm

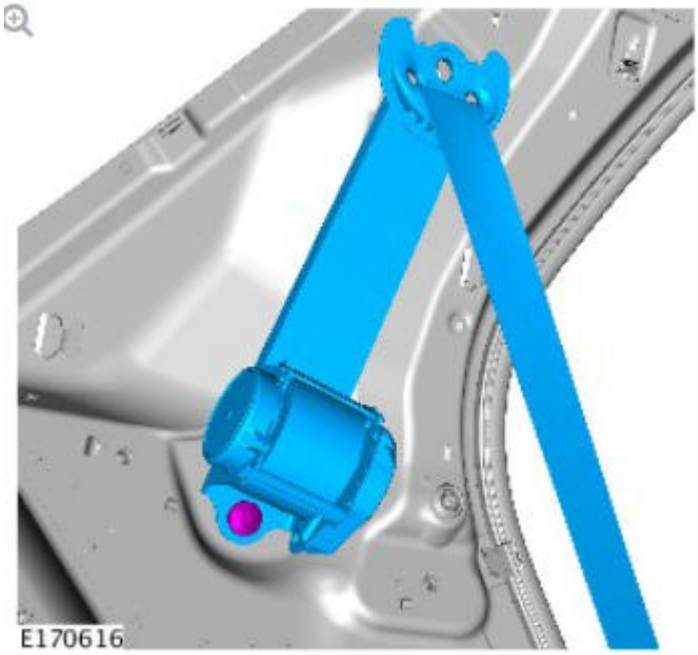




Torque: 25 Nm



Torque: 40 Nm



Torque: 40 Nm

INSTALLATION

To install, reverse the removal procedure.

ne

Rear Safety Belt Buckle (G1814165) / Removal and InstallationSeatbelt System / Description and Operation

ne

Ремень безопасности система / описание и работа

- Seatbelt System - Component Location
- Seatbelt System - Overview
- Seatbelt System - Operation
- Seatbelt System - Input/ Output Diagram

ne

Rear Safety Belt Retractor (G1809589) / Removal and InstallationSeatbelt System - Component Location

ne

Ремень безопасности система - расположение компонентов

Seatbelt System - Component Location

Component Location - Sheet 1 of 3 - 5 Seat Vehicles



1. Front right seatbelt retractor and pretensioner
2. Front right seatbelt
3. Rear right seatbelt
4. Rear right seatbelt retractor
5. Rear seatbelt buckles
6. Rear center seatbelt

7. Rear center seatbelt retractor
8. Rear left seatbelt retractor
9. Rear left seatbelt
10. Front left seatbelt
11. Front left seatbelt retractor and pretensioner
12. Front left seatbelt buckle
13. Front right seatbelt buckle

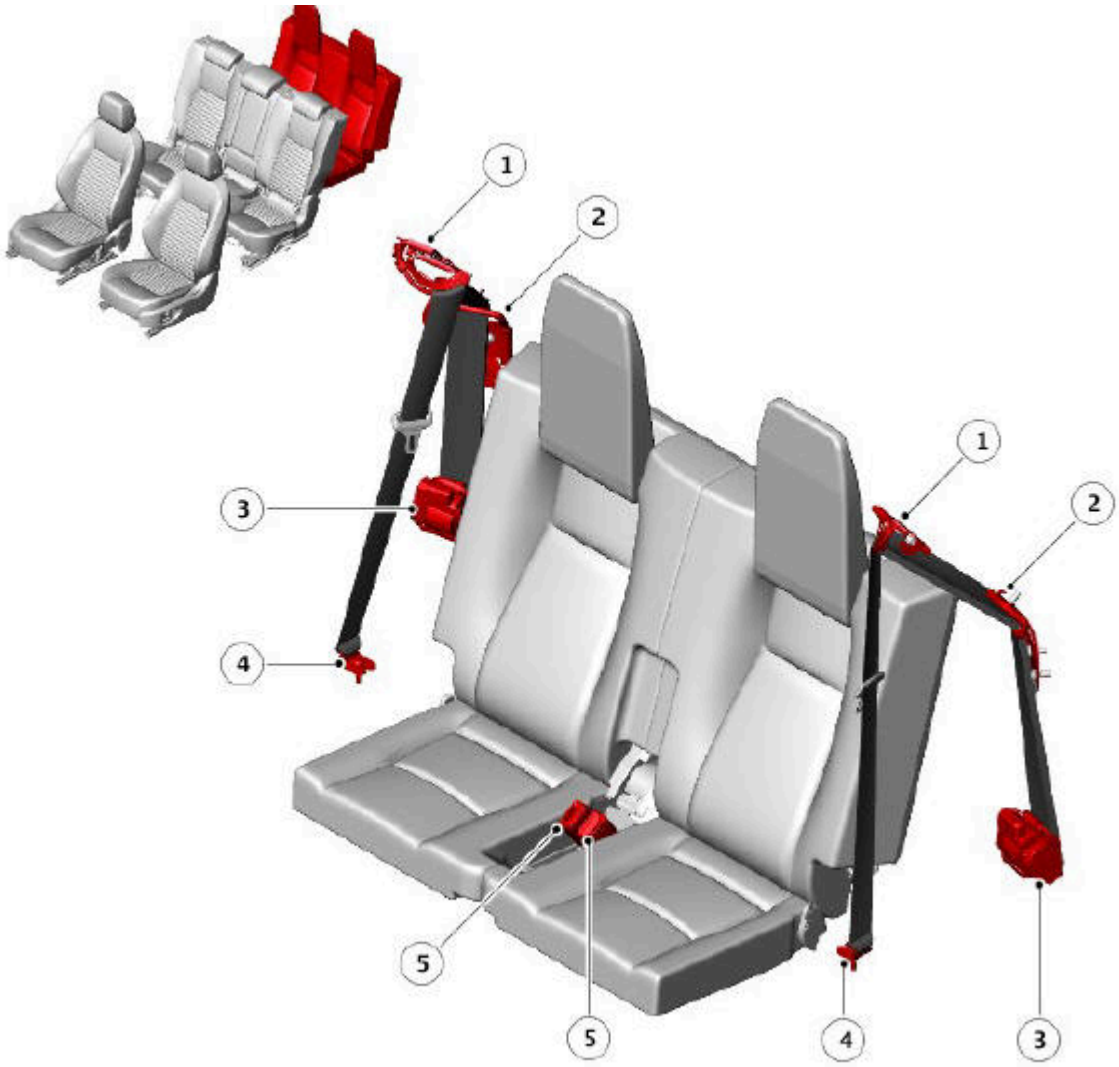
Component Location - Sheet 2 of 3 - 7 Seat Vehicles



1. Front right seatbelt retractor and pretensioner
2. Front right seatbelt
3. Rear right seatbelt buckle
4. Rear right seatbelt
5. Rear right seatbelt retractor
6. Rear center seatbelt buckle
7. Rear center seatbelt
8. Rear center seatbelt retractor
9. Rear left seatbelt retractor
10. Rear left seatbelt
11. Rear left seatbelt buckle
12. Front left seatbelt
13. Front left seatbelt retractor and pretensioner
14. Front left seatbelt buckle

14. Front right seatbelt buckle

Component Location - Sheet 3 of 3 - 7 Seat Vehicles



1. Upper Seatbelt mounting
2. Lower seatbelt mounting
3. Seatbelt retractor
4. Seatbelt anchor
5. Seatbelt buckle
6. Rear center seatbelt

ne

Seatbelt System / Description and OperationSeatbelt System - Overview

ne

Ремень безопасности система - обзор

Seatbelt System - Overview

A 3 point seatbelt is installed in all seating positions. Each seatbelt has emergency locking retractor functionality.

The emergency locking retractor function incorporates a lift shaft locking system with webbing sensor and car sensing activating mechanisms. The webbing sensor activates the locking mechanism if the webbing is subjected to a sharp pull. The car sensor activates the locking system if the vehicle is subjected to sudden deceleration or severe tilt angle.

A pretensioner is incorporated into the retractor of each front seatbelt and each third row seatbelt. The pretensioners, in the retractors are pyrotechnic devices that are controlled by the Restraints Control Module (RCM) in the Supplementary Restraint System (SRS).

For additional information, refer to: Airbag Supplemental Restraint System (501-20B Supplemental Restraint System, Description and Operation).

All row 2 passengers and front passenger emergency locking retractors are enhanced with automatic locking retractors North American Specification (NAS) only.

The automatic locking retractor allows webbing to be extracted to activate a ratchet device. This device allows webbing to be cinched tight to facilitate child seat fitment. With seatbelt webbing tensioned in automatic locking retractor mode the seatbelt is always locked.

A seatbelt warning indicator is installed in the Instrument Cluster (IC) to remind the all seat occupants to fasten their seatbelts. On NAS vehicles, when the ignition mode is accessory/convenience, the warning indicator illuminates if the seatbelt of an occupied front seat is not fastened. The warning indicator remains illuminated until the seatbelt of each occupied front seat is fastened, or the ignition mode is warning indicator is off. In all markets except NAS, a belt minder function provides a more intrusive reminder to fasten the front seatbelts.

DESCRIPTION

SECOND ROW SEATBELTS - 5 SEAT VEHICLES

The retractor of each outboard second row seatbelt is attached to the body immediately behind the C pillar. The webbing runs from the retractor, through an upper mounting on the C pillar, to an anchor point at the front of the related wheel arch.

The retractor for the center second row seatbelt is installed in the top of the seat back. The webbing runs from the retractor, over the top of the seat, to an anchor point at the base of the seat frame.

The buckles for the second row seatbelts are attached to the rear floor.

SECOND ROW SEATBELTS - 7 SEAT VEHICLES

The retractor of each outboard second row seatbelt is attached to the body immediately behind the C pillar. The webbing runs from the retractor, through an upper mounting on the C pillar, to an anchor point at the front of the related wheel arch.

The retractor for the center second row seatbelt is installed in the top of the seat back. The webbing runs from the retractor, over the top of the seat, to an anchor point at the base of the seat frame.

The buckles for the second row seatbelts are attached to the seat frame.

THIRD ROW SEATBELTS

The retractor of each third row seatbelt is attached to the body D the pillar.

The webbing runs from the retractor, through two mountings on the D pillar, to an anchor point on the load space floor.

The buckles for the third row seatbelts are attached to the third row seat frame.

Ремень безопасности система - работа

Seatbelt System - Operation

FRONT BELT MINDER FUNCTION

The belt minder function provides warnings to the driver if the appropriate front seatbelts are not fastened when driving. The belt minder function is controlled by the IC using:

- High Speed (HS) Controller Area Network (CAN) Powertrain bus messages, from the RCM, to monitor the status of the front seatbelts.
- An input from the occupant detection sensor to monitor the status of the front passenger seat Rest Of the World (ROW).
- An input from the Occupant Classification Sensor Control Module (OCSCM) via HS CAN Powertrain bus to monitor the status of the front passenger seat (NAS).

When the ignition is switched to on, the IC illuminates the seatbelt warning indicator until one of the front seatbelts is fastened or the belt minder function is triggered. The belt minder function is triggered when the ignition switch is in accessory/convenience and the following conditions coexist:

- The belt minder function is enabled
- The vehicle is not in reverse
- Vehicle speed is initially set at 20 km/h (12mph) or more, then afterwards from 10 km/h (6mph) or more until ignition - cycled
- The driver seatbelt or, if the front passenger seat is occupied, the front passenger seatbelt, is unfastened.

When the belt minder is triggered, the IC generates the following warnings repeated for 10 seconds for a total of approximately 190 seconds

NOTE:

NOTE: There are slight timing differences between ROW and Federal USA (second is driver only, lights only) vehicles.

- Flashes the seatbelt warning indicator at 2 Hz.

After 10 seconds the seatbelt warning indicator changes from flashing to continuously illuminated for 20 seconds. While the trigger conditions still coexist, the warnings are repeated every 30 seconds until one of the following occurs:

- Approximately 3 minutes has elapsed from when the warnings were first triggered
- The seatbelt of each occupied front seat is fastened
- The ignition mode is position 0.

For non-Federal USA vehicles the belt minder function can be enabled and disabled using the driver seatbelt switch. The belt minder function can also be enabled and disabled using the recommended Land Rover diagnostic tool.

Successful completion of the change is indicated by a single chime and the seatbelt warning indicator flashing five times, at 2 Hz.

SEATBELT WARNING INDICATOR



VISUAL BELTMINDER

A front and rear seat Beltminder system warns the driver when the seatbelt of an occupied seat is not fastened or is unfastened during a journey.

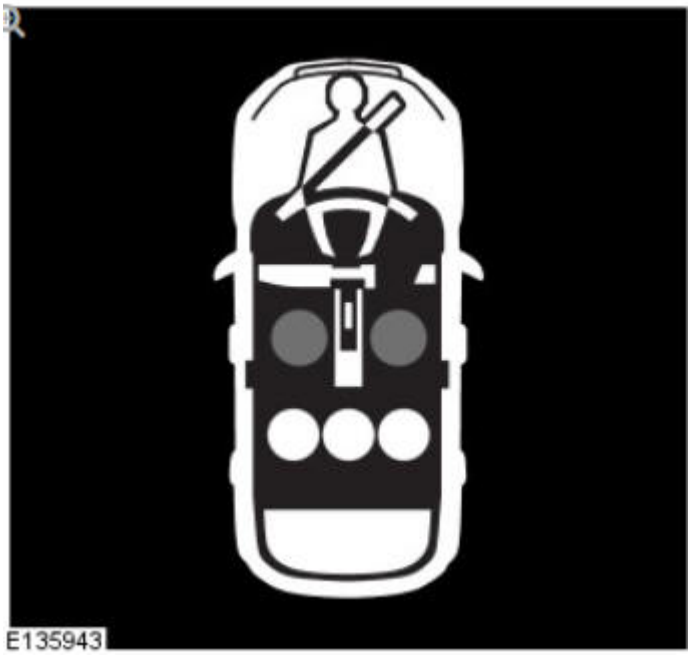


Diagram shows Beltminder located in the middle of the instrument cluster message center.

A graphic in "Visual Beltminder" indicates which seat belts are fastened at the start of a journey and also when a seat belt is fastened or unfastened during a journey. Each seating position is represented by a passenger icon, the color of which indicates the seatbelt status:

- Green - seatbelt in the indicated position is fastened
- Red - seatbelt in the indicated position has been unfastened while the vehicle ignition is on
- Grey - seatbelt not fastened, a red symbol will turn grey after 30 seconds.

NOTE:

NOTE: The indicators will be displayed each time there is a status change, e.g., a seat belt is unfastened or a door is opened and then closed.

In addition, an audible warning will sound under the following conditions:

NOTE:

NOTE: If a heavy object is placed on the front passenger seat, it may activate the Beltminder feature. It is recommended that any objects placed on the front passenger seat are secured using the seatbelt.

- The seatbelt of an occupied front seat is not fastened or is unfastened during a journey
- A rear seatbelt is unfastened.

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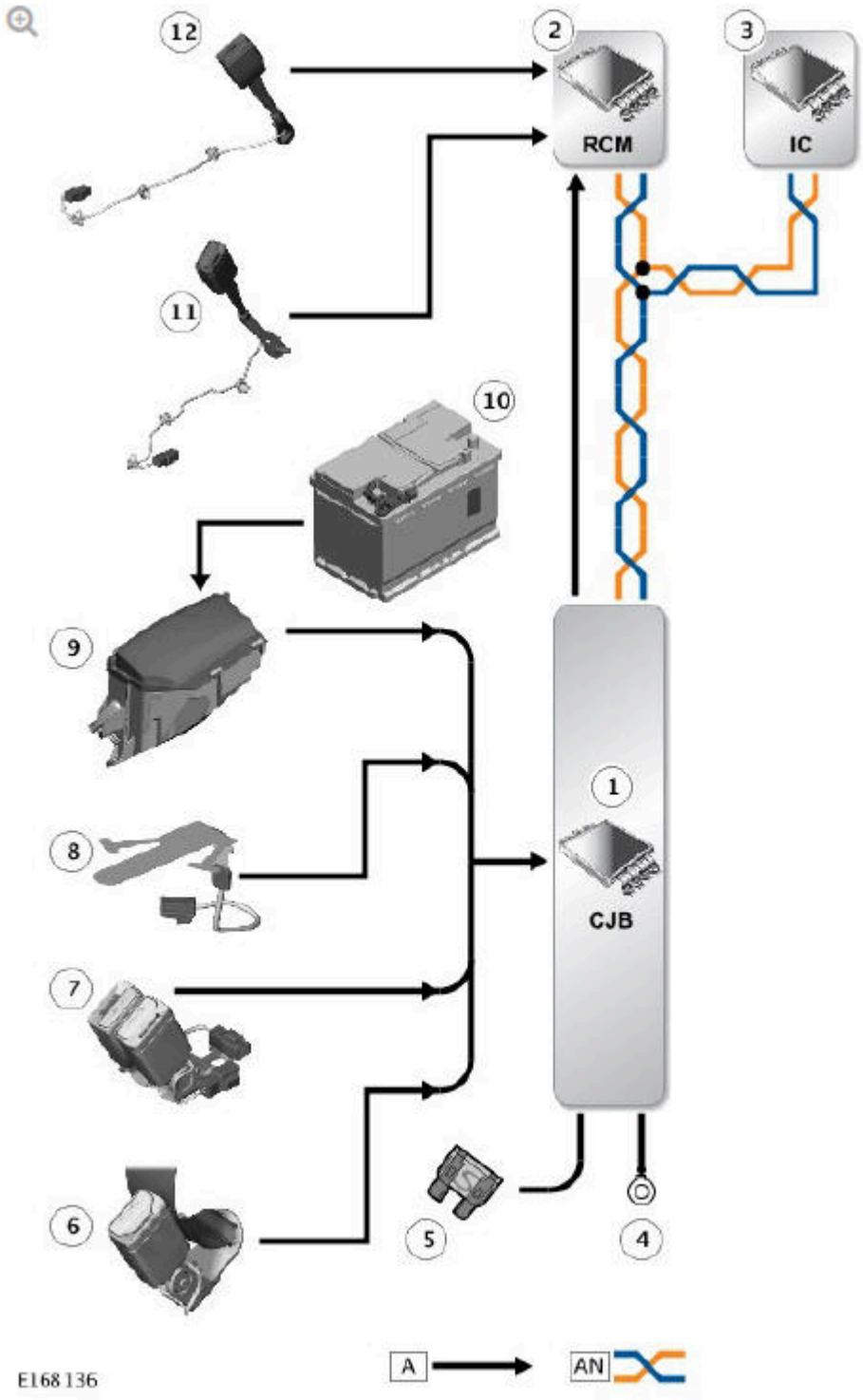
Seatbelt System - OverviewSeatbelt System - Input/ Output Diagram

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Ремень безопасности система - Input / Output Diagram

Seatbelt System - Input/ Output Diagram

INPUT/OUTPUT DIAGRAM - SHEET 1 OF 4 - ROW - 5 SEAT VEHICLES

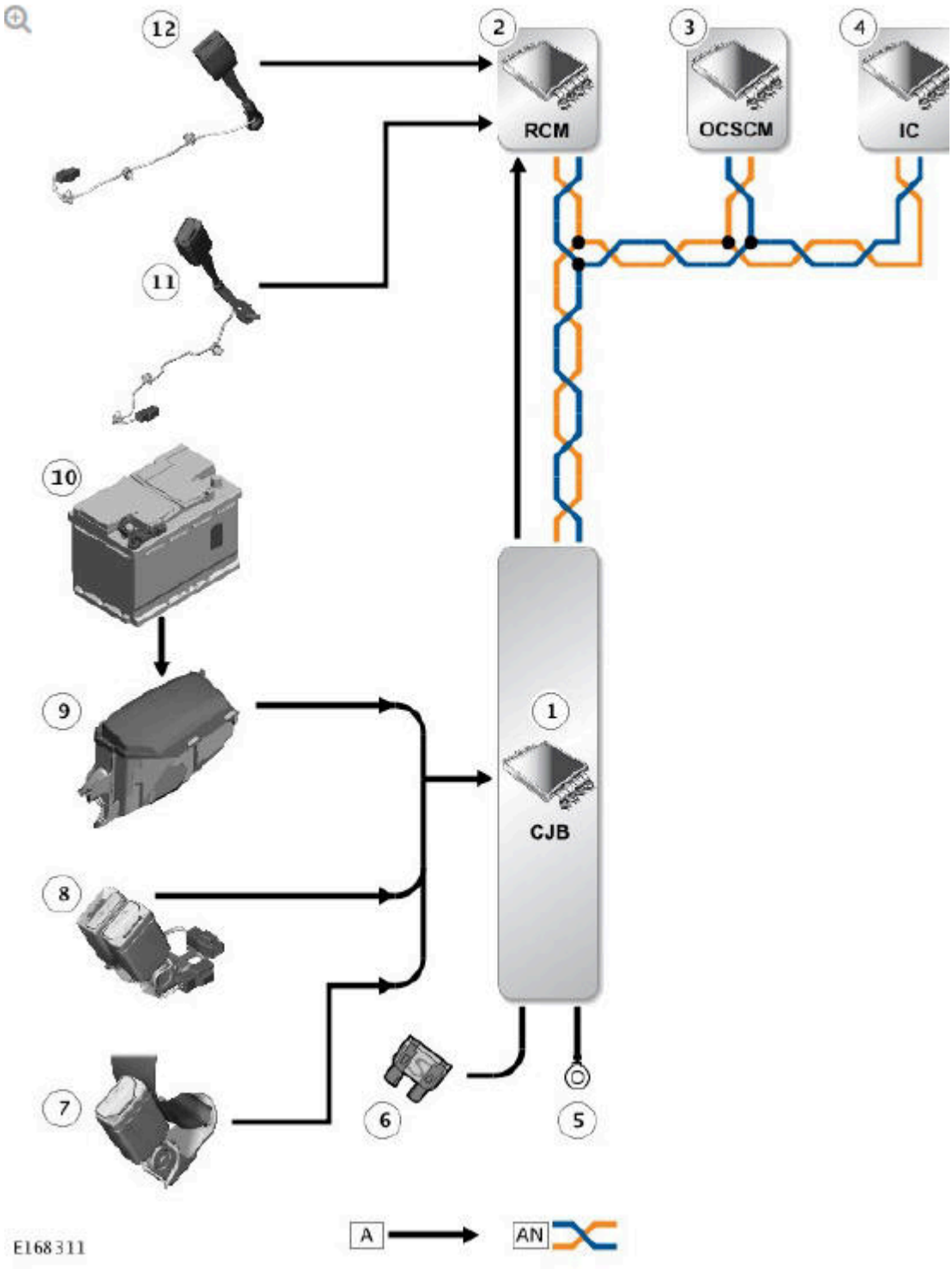


A = HARDWIRED; AN = HIGH SPEED (HS) CONTROLLER AREA NETWORK (CAN) POWERTRAIN BUS.

1. CJB
2. RCM
3. IC
4. Ground
5. Fuse
6. Rear seatbelt buckle
7. Rear seatbelt buckle
8. Occupant detection sensor
9. Battery Junction Box (BJB)

10. Battery
11. Driver seat seatbelt buckle
12. Passenger seat seatbelt buckle

INPUT/OUTPUT DIAGRAM - SHEET 2 OF 4 - NAS - 5 SEAT VEHICLES

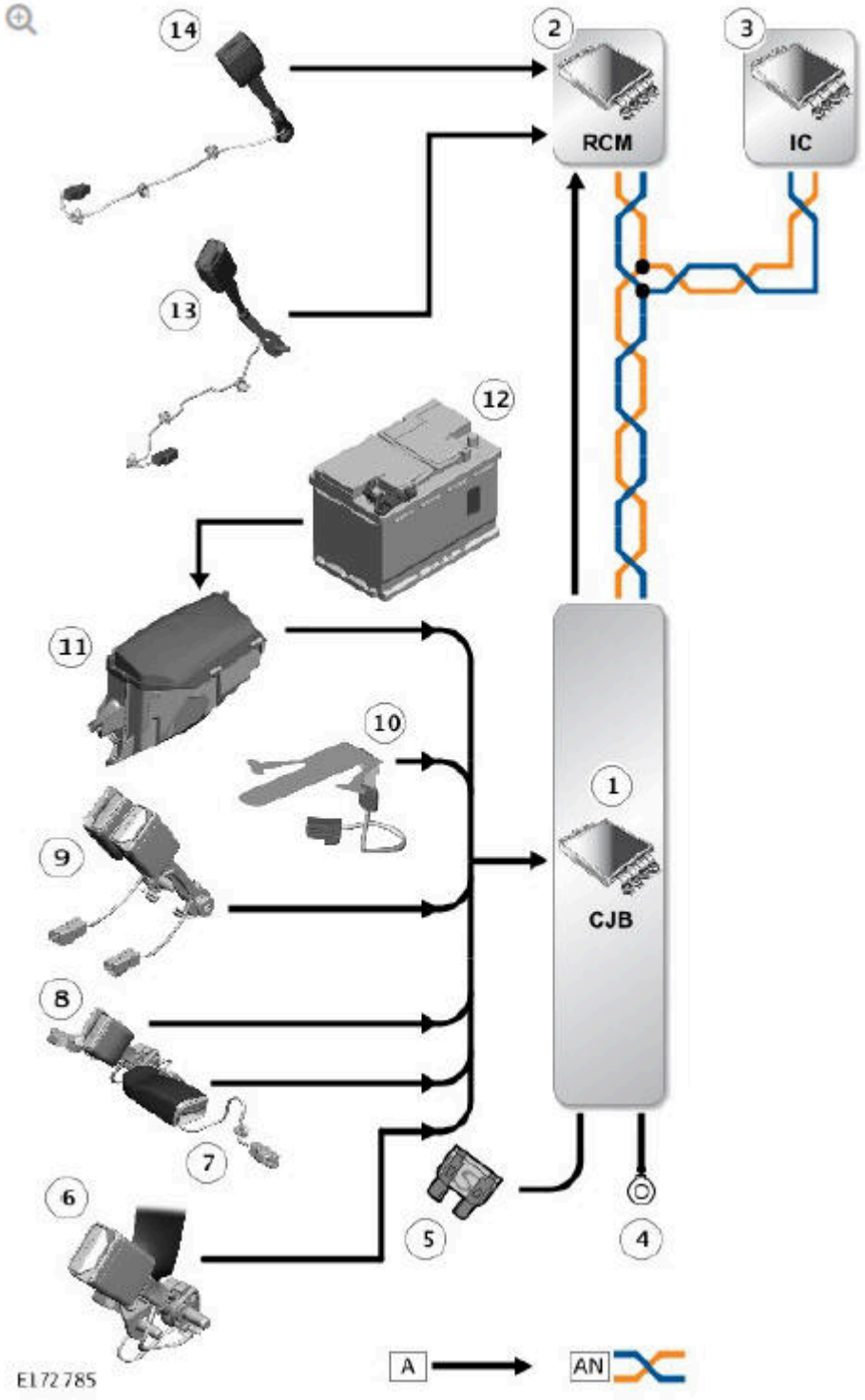


A = HARDWIRED; AN = HIGH SPEED (HS) CONTROLLER AREA NETWORK (CAN) POWERTRAIN BUS.

1. CJB
2. RCM
3. OCSCM
4. IC

5. Ground
6. Fuse
7. Rear seatbelt buckle
8. Rear seatbelt buckle
9. Junction Box (BJB)
10. Battery
11. Driver seat seatbelt buckle
12. Passenger seat seatbelt buckle

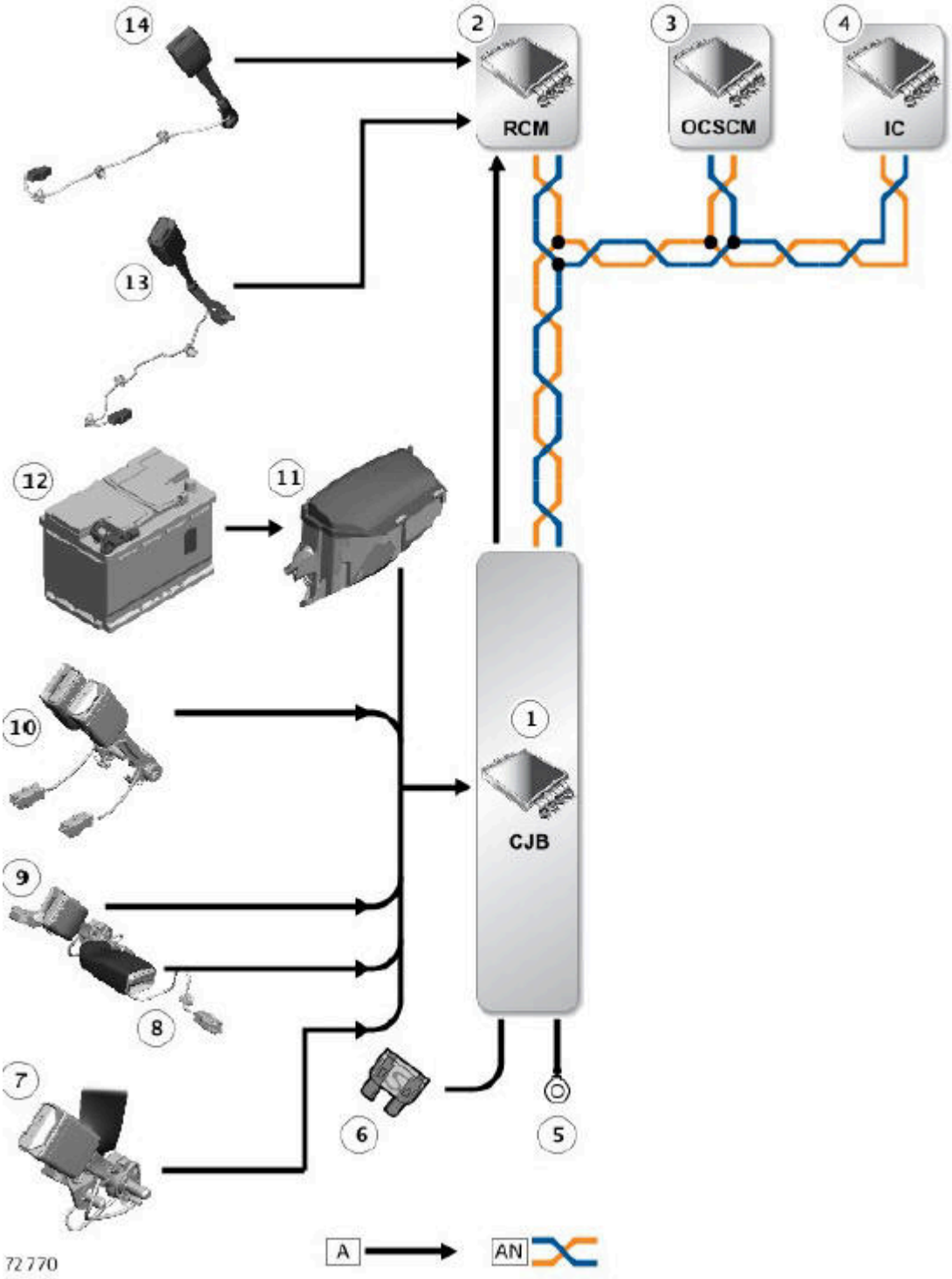
INPUT/OUTPUT DIAGRAM - SHEET 3 OF 4 - ROW - 7 SEAT VEHICLES



A = HARDWIRED; AN = HIGH SPEED (HS) CONTROLLER AREA NETWORK (CAN) POWERTRAIN BUS.

1. CJB
2. RCM
3. IC
4. Ground
5. Fuse
6. Rear left seatbelt buckle
7. Rear center seatbelt buckle
8. Rear right seatbelt buckle
9. Third row seatbelt buckles
10. Occupant detection sensor
11. Junction Box (BJB)
12. Battery
13. Driver seat seatbelt buckle
14. Passenger seat seatbelt buckle

INPUT/OUTPUT DIAGRAM - SHEET 4 OF 4 - NAS - 7 SEAT VEHICLES



A = HARDWIRED; AN = HIGH SPEED (HS) CONTROLLER AREA NETWORK (CAN) POWERTRAIN BUS.

1. CJB
2. RCM
3. OCSCM
4. IC
5. Ground
6. Fuse
7. Rear left seatbelt buckle
8. Rear center seatbelt buckle
9. Rear right seatbelt buckle

10. Third row seatbelt buckles
11. Junction Box (BJB)
12. Battery
13. Driver seat seatbelt buckle
14. Passenger seat seatbelt buckle

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Seatbelt System - OperationSeatbelt System / Diagnosis and Testing

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Ремень безопасности система / диагностика и проверка

Seatbelt System / Diagnosis and Testing

PRINCIPLES OF OPERATION

For a detailed description of the Safety Belt System, refer to the relevant Description and Operation section in the workshop manual. REFER to: Seatbelt System (501-20A Seatbelt System, Description and Operation).

SAFETY INFORMATION

WARNINGS:

- ***TO AVOID ACCIDENTAL DEPLOYMENT AND POSSIBLE PERSONAL INJURY, THE BACKUP POWER SUPPLY MUST BE DEPLETED BEFORE REPAIRING OR REPLACING ANY AIR BAG SUPPLEMENTAL RESTRAINT SYSTEM (SRS) COMPONENTS. TO DEPLETE THE BACKUP POWER SUPPLY ENERGY, DISCONNECT THE BATTERY GROUND CABLE AND WAIT ONE MINUTE.***

  FAILURE TO FOLLOW THIS INSTRUCTION MAY RESULT IN PERSONAL INJURY.

- ***Do not use a multimeter to probe the restraints control module. It is possible for the power from the meter battery to trigger the activation of the airbags. Failure to follow this instruction may result in personal injury.***

NOTES:

- *It is advisable not to use a cellular phone or to have a cellular phone in close proximity when working on the restraints control module or associated systems.*
- *Given the legal implications of a restraints system failure, harness repairs to Air Bag module circuits are not acceptable. Where the text refers to "REPAIR the circuit", this will normally mean the replacement of a harness.*

Power Supply Depletion

Before beginning any work on the SRS system or related components:

1. Set the ignition to off
2. Disconnect the battery leads, ground first
3. Wait 1 minute for the power circuit to discharge

There are comprehensive instructions on the correct procedures for SRS system repairs, refer to the relevant section of the workshop manual.

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 that has the resolution ability to view 3 decimal places.*

  For example, on the 2 volts range can measure 1mV or 2 K Ohm range can measure 1 Ohm. 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
▪ Check for the installation of non-standard accessories which may affect or obstruct the function of the seatbelt system ▪ Frayed or damaged webbing ▪ Missing or damaged button stop ▪ Pretensioner buckles/stalks	▪ Fuses ▪ Wiring harness fault ▪ Correct engagement of electrical connectors ▪ Loose or corroded connections ▪ Impact sensor(s) ▪ Buckle sensor(s) ▪ Pretensioner(s) ▪ Belt tension sensor(s) ▪ Restraints control module

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 FOR SEATBELT ROWS 1 , 2 AND 3

SYMPTOM	POSSIBLE CAUSES	ACTION
Seatbelt jammed - Webbing tight	▪ Backlock effect-in action (webbing retracted quickly and came to sudden stop) ▪ Seatbelt retractor not installed correctly ▪ Rear centre seatbelt only. Mini-button (webbing travel limit stop) missing and seat squab has been moved causing tight fit ▪ Automatic locking retractor activated (clicking, during retraction only)	▪ GO to Pinpoint Test A. ▪ GO to Pinpoint Test F. ▪ GO to Pinpoint Test H. ▪ See the automatic locking retractor description below
Seatbelt jammed - Webbing loose	▪ Seatbelt webbing trapped in seat ▪ Seatbelt retractor webbing guide loose ▪ Twist in webbing ▪ Interference in webbing routing ▪ D-loop not rotating correctly	▪ GO to Pinpoint Test B. ▪ GO to Pinpoint Test C. ▪ GO to Pinpoint Test D. ▪ GO to Pinpoint Test E. ▪ GO to Pinpoint Test G.
Seatbelt jammed - Intermittent	▪ Seatbelt retractor not installed correctly	▪ GO to Pinpoint Test F.
Seat squab		▪ GO to Pinpoint Test H.

will not fold/jammed	**NOTE:** Rear center seatbelt only ▪ Mini-button (webbing travel limit stop) missing and seat squab has been moved causing excessive tension	
Seatbelt retraction slow	▪ Seatbelt retractor webbing guide loose ▪ Twist in seatbelt webbing ▪ Interference in webbing routing ▪ Seatbelt retractor not installed correctly ▪ D-loop not rotating correctly ▪ Foreign object/debris	▪ GO to Pinpoint Test C. ▪ GO to Pinpoint Test D. ▪ GO to Pinpoint Test E. ▪ GO to Pinpoint Test F. ▪ GO to Pinpoint Test G. ▪ GO to Pinpoint Test E.
Seatbelt will not retract	▪ Seatbelt retractor webbing guide loose ▪ Twist in seatbelt webbing ▪ D-loop not rotating correctly ▪ Interference in webbing routing ▪ Foreign object/debris	▪ GO to Pinpoint Test C. ▪ GO to Pinpoint Test D. ▪ GO to Pinpoint Test G. ▪ GO to Pinpoint Test E. ▪ GO to Pinpoint Test E.
Seatbelt will not extract	▪ Backlock effect-in action (webbing retracted quickly and came to sudden stop) ▪ Seatbelt retractor not installed correctly ▪ Seatbelt retractor webbing guide loose ▪ Twist in seatbelt webbing ▪ D-loop not rotating correctly ▪ Interference in webbing routing ▪ Foreign object/debris ▪ Automatic locking retractor activated (clicking – during retraction only)	▪ GO to Pinpoint Test A. ▪ GO to Pinpoint Test F. ▪ GO to Pinpoint Test C. ▪ GO to Pinpoint Test D. ▪ GO to Pinpoint Test G. ▪ GO to Pinpoint Test E. ▪ GO to Pinpoint Test E. ▪ See the automatic locking retractor description below

Seatbelt noisy during operation	▪ Automatic locking retractor activated (clicking–during retraction only) ▪ Interference in webbing routing (rubbing)	▪ GO to Pinpoint Test B. ▪ GO to Pinpoint Test E.
Seatbelt buckle not latching / jammed	▪ Foreign object/debris	CAUTION: Do not insert any objects or tools into the buckle head ▪ GO to Pinpoint Test I.

INERTIA REEL SEAT BELTS

The vehicle is equipped with (two row one), (three row two), and (two row three (seven seat versions only)) inertia reel seatbelts.

These seatbelts are dual sensitive, which means that they feature:

- Car sense system - A vehicle motion sensor, which locks the seatbelt webbing under braking, cornering, on steep hills and in adverse camber conditions, when parked on a steep incline or driveway or with two wheels on a high curb
- Web sense system - A webbing motion sensor, which locks when the seatbelt webbing is extracted suddenly

SEATBELT LOCKING TEST

With the vehicle stationary and on level ground take firm hold of the seatbelt webbing (on the tongue side of the upper seatbelt anchor) and withdraw sharply, the retractor should lock. Preventing further webbing release (repeat this test 3 times). Any seatbelt retractor which fails to lock must not be used and a new seatbelt must be installed.

AUTOMATIC LOCKING RETRACTORS

Some seatbelts feature an automatic locking retractor function. These can be used to secure a child seat or heavy load.

VEHICLE	SEAT POSITION	MARKET	AUTOMATIC LOCKING RETRACTOR INSTALLED	FROM MODEL YEAR
Discovery Sport (L550)	Driver	All	No	2015
Discovery Sport (L550)	Passenger	ROW	No	2015
Discovery Sport (L550)	Passenger	US	Yes	2015
Discovery Sport (L550)	Row 2	ROW	No	2015
Discovery Sport (L550)	Row 2	US	Yes	2015
Discovery Sport (L550)	Row 3	ROW	No	2015
Discovery Sport (L550)	Row 3	US	Yes	2015
X540	Driver	All	No	2018
X540	Passenger	ROW	No	2018
X540	Passenger	US	Yes	2018
X540	Row 2	ROW	No	2018
X540	Row 2	US	Yes	2018

Automatic Locking Retractor Activation and Deactivation

ACTIVATION	DEACTIVATION
NOTE: When automatic locking retractor is activated, no further webbing can be drawn from the seatbelt retractor, prior to disengagement of the automatic locking. This can be mistaken as a jammed seatbelt retractor	Automatic locking retractor is deactivated by allowing the webbing to retract until the clicking stops (close to park position)
Activated by total extraction of the webbing	
When activated the automatic locking retractor is identified by a clicking noise during webbing retraction	When deactivated the automatic locking retractor seatbelt changes state, from a **static** seatbelt to an **automatic** seatbelt

DIAGNOSTIC GUIDE INERTIA REEL SEATBELTS

PINPOINT TEST A : BACKLOCK	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
	A1: BACKLOCK
	1 Visually inspect the condition of the suspect seatbelt
	2 Draw a maximum of 20mm of the webbing from the seatbelt retractor with moderate force. Then release the webbing
	3 Check for correct operation twice
	Does the webbing move freely then retract correctly? **Yes** No further action required **No** For first row seatbelt GO to Pinpoint Test C. For second and third row seatbelts GO to Pinpoint Test B.

PINPOINT TEST B : WEBBING - TRAPPED IN SEAT	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
	B1: WEBBING - TRAPPED IN SEAT
	1 Visually inspect the condition of the suspect seatbelt
	2 Lift the seat base or release the seat backrest as required
	3 Free the trapped webbing, allow the webbing to retract **Note: If the automatic locking retractor is activated, allow the webbing to retract until the clicking stops**
	4 Check for correct operation **twice**
	Does the webbing move freely then retract correctly?
	Yes No further action required **No** GO to Pinpoint Test C.

PINPOINT TEST C : SEATBELT RETRACTOR - WEBBING GUIDE LOOSE	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
C1: SEATBELT RETRACTOR - WEBBING GUIDE LOOSE	
	1 Refer to 501-20 removal and installation section of the workshop manual, remove any trim panels required to expose the D loop (anchor point) and seatbelt retractor
	2 Check the webbing is not trapped or twisted and is centrally located on the seatbelt retractor spindle
	3 Attempt to withdraw the webbing from the seatbelt retractor **NOTE: If the seatbelt webbing is jammed, the automatic locking retractor could be engaged**
	4 To release the automatic locking retractor, manually wind the webbing onto the spindle until the automatic locking retractor deactivates (clicking stops)
	5 Fully extract webbing
	6 Confirm webbing guide location is correct , Confirm the fixing lugs are correctly located in the retractor frame
	7 Allow webbing to retract
	8 Check for correct operation **twice**
	Does the webbing move freely then retract correctly? **Yes** Refer to the 501-20 removal and installation section of the workshop manual, reinstall any trim panels, ensure there are no obstructions and the webbing does not catch or rub. No further action required **No** GO to Pinpoint Test D.

PINPOINT TEST D : TWIST IN WEBBING	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
D1: TWIST IN WEBBING	
	1 Refer to section 501-20 removal and installation section of the workshop manual, remove any trim panels required to expose the D

	loop (anchor point)
	2 Twist the webbing back the correct way in the loop
	3 Pass the twist through the pillar loop or escutcheon as required
	4 Check for correct operation **twice**
	Does the webbing move freely then retract correctly? **Yes** Refer to the 501-20 removal and installation section of the workshop manual, reinstall any trim panels, ensure there are no obstructions and the webbing does not catch or rub. No further action required **No** GO to Pinpoint Test E.

PINPOINT TEST E : INTERFERENCE - WEBBING ROUTING	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
E1: INTERFERENCE - WEBBING ROUTING	
	1 Refer to the 501-20 removal and installation section of the workshop manual, remove any trim panels required to expose the D loop (anchor point)
	2 Remove obstructions and foreign objects ensure the webbing does not catch or rub
	3 Confirm the seatbelt does not contact the wiring harness
	4 Check for correct operation **twice**
	Does the webbing move freely then retract correctly? **Yes** Refer to the 501-20 removal and installation section of the workshop manual, reinstall any trim panels, ensure there are no obstructions and the webbing does not catch or rub. No further action required **No** GO to Pinpoint Test F.

PINPOINT TEST F : SEATBELT RETRACTOR - INCORRECT INSTALLATION	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
F1: SEATBELT RETRACTOR - INCORRECT INSTALLATION	
	1 Refer to the 501-20 removal and installation section of the workshop manual, remove any trim panels required to expose the D loop (anchor point) and the seatbelt retractor
	2 Refer to the 501-20 removal and installation section of the workshop manual, correctly reinstall the seatbelt retractor ensure that the locating "T bar" and "anti rotation pins" are correctly located
	3 Check for correct operation **twice**
	Does the webbing move freely then retract correctly? **Yes** Refer to the 501-20 removal and installation section of the workshop manual, reinstall any trim panels, ensure there are no obstructions and the webbing does not catch or rub. No further action required **No** Replace as required. Refer to the warranty policy and procedures manual, or determine if any prior approval program is in operation, prior to the installation of a new module/component

PINPOINT TEST G : D-LOOP NOT ROTATING CORRECTLY	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
	G1: D-LOOP NOT ROTATING CORRECTLY
	1 Refer to the 501-20 removal and installation section of the workshop manual, remove any trim panels required to expose the D loop (anchor point) and the seatbelt retractor
	2 Ensure there are no obstructions and the webbing does not catch or rub, the D loop (anchor point) rotates correctly and if installed the confirm the height adjuster operates correctly
	3 Check for correct operation **twice**
	Does the webbing move freely then retract correctly? **Yes** Refer to the 501-20 removal and installation section of the workshop manual, reinstall any trim panels, ensure there are no obstructions and the webbing does not catch or rub. No further action required **No** Replace as required. Refer to the warranty policy and procedures manual, or determine if any prior approval program is in operation, prior to the installation of a new module/component

NOTE:

This test applies to the rear center seatbelt retractor installed in the seat back

PINPOINT TEST H : MINI BUTTON - MISSING/DAMAGED	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
H1: MINI BUTTON - MISSING/DAMAGED	
	1 Refer to the 501-20 removal and installation section of the workshop manual, remove the seat cushion and the plastic escutcheon at the top of the seat back (where the webbing exits to expose the lower anchor fixing point of the center seatbelt)
	2 Remove the lower anchorage of the seatbelt
	3 With the seat back correctly latched, allow up to 20mm webbing to retract, then extract the webbing
	Is the mini-button (webbing travel limit stop) correctly installed to the webbing and in good condition? **Yes** Feed the mini-button back through the plastic escutcheon if required. Correctly reinstall the escutcheon to the seat back, extract the webbing then allow to retract, ensure the mini-button comes to rest outside the escutcheon stop **No** Replace as required. Refer to the warranty policy and procedures manual, or determine if any prior approval program is in operation, prior to the installation of a new module/component

CAUTION:

<u>Do not insert any objects or tools into the buckle head</u>

PINPOINT TEST I : SEATBELT BUCKLE - NOT LATCHING/JAMMED	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
I1: SEATBELT BUCKLE - NOT LATCHING/JAMMED	
	1 Visually inspect the buckle head for evidence of damage. If damaged replace as required
	2 Depress the buckle release (red button) and **(Using a torch)** carry out visual inspection for any evidence of debris/material or foreign objects in the buckle head
	3 If required remove the pretensioner from the vehicle. Remove the seat. Remove the pretensioner from the seat frame

	4 **Do not insert any objects or tools buckle head** With the buckle removed invert and attempt to shake out any debris
	5 Attempt to latch the tongue in the buckle
	Does the seatbelt buckle operate correctly **Yes** Reinstall any components, no further action required **No** Replace the pretensioner, Refer to section 501 20

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 Index - DTC: Restraints Control Module (RCM) (100-00 General Information, Description and Operation).

Seatbelt system specifications

Torque Specifications

ITEM	NM	LB-FT	LB-IN
Front seatbelt upper anchor bolt	40	30	-
Front seatbelt retractor retaining bolt	40	30	-
Front seatbelt buckle retaining bolt	40	30	-
Rear seatbelt retractor retaining bolt	40	30	-
Rear seatbelt buckle retaining bolt	40	30	-
Rear centre seatbelt retractor retaining bolt	40	30	-

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Seatbelt System - Input/ Output DiagramSupplemental Restraint System Airbag Disposal

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Система пассивной безопасности (SRS) подушка безопасности утилизация

Supplemental Restraint System Airbag Disposal

SPECIAL TOOL(S)



E84527

LRT-86-007-02

Air Bag Bracket



E84528

LRT-86-007-05

Air Bag Bracket



LRT-86-007-08

Air Bag Bracket Nut



LRT-86-003

Air Bag Deployment Kit



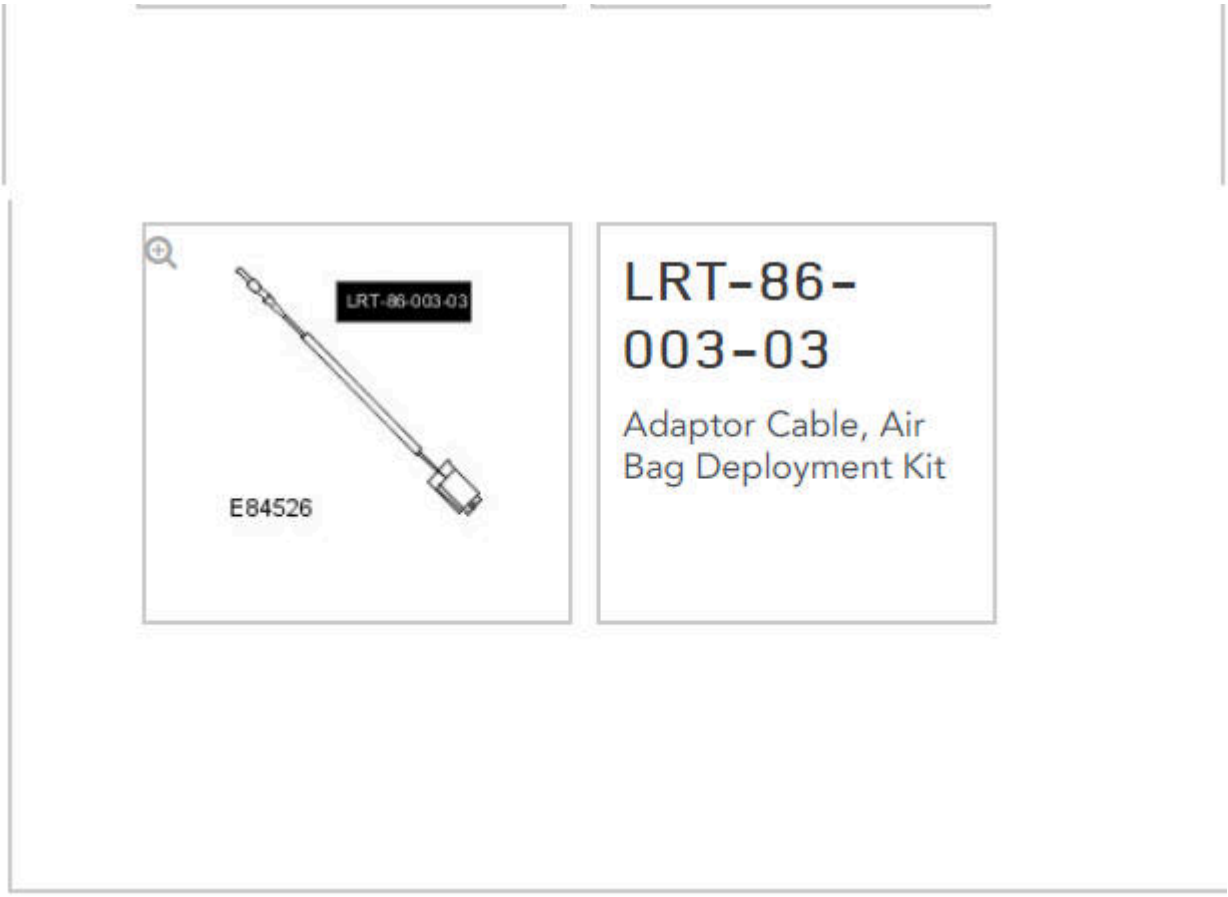
LRT-86-003-05

Adaptor Cable, Air Bag Deployment Kit



LRT-86-003-08

Adaptor Cable, Air Bag Deployment Kit



- Deployed Air Bag
- Disposal of the Driver Air Bag Module , Passenger Air Bag Module , Side Air Bagmodules and Driver Lower Air Bag Module
- Disposal of the Safety Belt Pretensioner

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Seatbelt System / Diagnosis and TestingDeployed Air Bag

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Deployed воздух подушка

Deployed Air Bag

WARNING:

Always wear safety glasses when repairing an air bag supplemental restraint system (SRS) vehicle and when handling an air bag module. Failure to follow this instruction may result in personal injury.

Deployed air bag modules are to be disposed of as special waste and must comply with local environmental requirements, if in doubt, contact the Authority for disposal requirements

WARNING:

The storage, transportation, disposal, and/or recycling of air bag module components must be carried out in accordance with all applicable federal, state and local regulations including, but not limited to, those governing building and fire codes, environmental protection, occupational health and safety, and transportation.

Air bag modules removed and deployed by Land Rover service are to be returned to the importer for disposal.

UNDEPLOYED AIR BAG - INOPERATIVE

WARNINGS:

- ***Carry a live air bag module with the air bag and trim cover or deployment door pointed away from your body. This will reduce the risk of injury in the event of an accidental deployment. Failure to follow this instruction may result in personal injury.***
- ***All inoperative air bag modules should be placed on the Mandatory Return List. All discoloured or damaged air bag modules must be treated the same as any inoperative live air bag being returned. Failure to follow this instruction may result in personal injury.***

Remove the inoperative driver air bag module or passenger air bag module. For additional information, refer to: Driver Airbag Module (501-20B Supplemental Restraint System, Removal and Installation),

Passenger Airbag Module (501-20B Supplemental Restraint System, Removal and Installation), Driver Lower Airbag Module (501-20B Supplemental Restraint System, Removal and Installation), Side Air Bag Module (501-20B Supplemental Restraint System, Removal and Installation), Side Air Curtain Module (501-20B Supplemental Restraint System, Removal and Installation), Front Safety Belt Buckle (501-20A Seatbelt System, Removal and Installation).

UNDEPLOYED AIR BAG - PREPARATION OF VEHICLE FOR DISPOSAL

NOTE:

Remote Deployment

WARNINGS:

- ***Always wear safety glasses when repairing an air bag supplemental restraint system (SRS) vehicle and when handling an air bag module. Failure to follow this instruction may result in personal injury.***
- ***Carry a live air bag module with the air bag and trim cover or deployment door pointed away from your body. This will reduce the risk of injury in the event of an accidental deployment. Failure to follow this instruction may result in personal injury.***
- ***Before proceeding, make sure precautions have been taken to warn personnel of a possible loud noise upon activation. Do not allow anybody to approach closer to SRS device than 15 Metres (50 Feet). Failure to follow this instruction may result in personal injury.***
- ***Do not place the driver or passenger air bag module with the trim cover or deployment door facing down, as the forces of the deploying air bag module can cause it to ricochet and cause personal injury. Failure to follow this instruction may result in personal injury.***

1. Remove any loose debris from around air bag module. Make sure that no flammable liquids are present.
2. Disconnect the battery ground cable.
3. Disconnect the air bag module electrical connector.
4. Connect the special tool adaptor lead to the air bag module.
5. Connect the special tool lead to the air bag deployment tool adaptor lead. Pass the special tool lead through the window, close all doors, leave the window with the special tool lead open.
6. Connect the special tool to a 12V battery.

WARNING:

Make sure all personnel are a minimum of 15 Metres (50 Feet) away from the SRS component. Failure to follow this instruction may result in personal injury.

WARNING:

Do not handle the deployed air bag module immediately after activation - it may be hot. Allow the air bag module to cool. Cooling air bag modules should be continuously monitored to make sure the heat does not create a fire with spilled liquids or other debris. Failure to follow this instruction may result in personal injury.

Deploy the air bag module by operating both of the switches on the special tool. If deployment does not occur, disconnect the special tool from the battery and seek advice from Land Rover.

8. Repeat the procedure for all of the air bag modules in the vehicle.
9. The vehicle can now be disposed of in the normal manner with the air bag modules installed.

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Supplemental Restraint System Airbag DisposalDisposal of the Driver Air Bag Module , Passenger Air Bag Module , Side Air Bagmodules and Driver Lower Air Bag Module

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Утилизация водитель воздух подушка модуль , пассажир воздух подушка модуль , боковой воздух Bagmodules и водитель нижний воздух подушка модуль

Disposal of the Driver Air Bag Module , Passenger Air Bag Module , Side Air Bagmodules and Driver Lower Air Bag Module

NOTE:

Equipment required: Air bag deployment tools, LRT-86-003, LRT-86- 007/02, LRT-86-007/05, LRT-86-007/08, LRT-86-003/05 and LRT-86- 003/08, Battery (12V), Safety goggles to BS2092 grade 2, Rubber gloves to PrEN 374 class 2, Ear protectors that have been measured to BS.EN 24869, Particulate respirator to EN 149 grade FFP2S, Suitable vice.

1. Using a suitable vice, secure the special tool bracket.
2. Secure the air bag module to the special tool bracket.

WARNING:

Power must not be connected during this step. Failure to follow this instruction may result in personal injury.

CAUTION:

Make sure the connector is not in contact with the inflator or it will be damaged during the test.

3. Connect the special tool adaptor lead to the air bag module.
4. Make sure the special tool battery connections are 15 Metres (50 Feet) away from the air bag module.
5. Remove any loose parts from around the air bag module. Make sure that no flammable liquids are present.
6. Connect the special tool to a 12V battery.

WARNING:

Before proceeding, make sure precautions have been taken to warn personnel of a possible loud noise upon activation.

Do not allow anybody to approach closer to the restraint device than 15 Metres (50 Feet). Failure to follow this instruction may result in personal injury.

WARNING:

Do not handle the deployed air bag module immediately after activation - it may be hot. Allow the air bag module to cool. Cooling air bag modules should be continuously monitored to make sure the heat does not create a fire with spilled liquids or other debris. Failure to follow this instruction may result in personal injury.

7. Deploy the air bag module by operating both of the switches on the special tool. If deployment does not occur, disconnect the special tool from the battery and seek advice from Land Rover.
8. Allow the air bag module to cool.
9. Remove the air bag module from the special tool bracket and seal it in a plastic bag, ready for disposal.
10. In the event of any problems or queries arising from this procedure, contact Land Rover.

DISPOSAL OF THE FRONT SIDE CURTAIN AIR BAG MODULE AND SIDE CURTAIN AIR BAG MODULES

NOTE:

Equipment required: Air bag deployment tools LRT-86-003 and LRT- 86-003/08, Battery (12V), Safety goggles to BS2092 grade 2, Rubber gloves to PrEN 374 class 2, Ear protectors that have been measured to BS.EN 24869, Particulate respirator to EN 149 grade FFP2S.

1. Using a suitable vice, secure the special tool bracket.
2. Secure the air bag module to the special tool bracket.

WARNING:

Power must not be connected during this step. Failure to follow this instruction may result in personal injury.

CAUTION:

Make sure the connector is not in contact with the inflator or it will be damaged during the test.

Connect the special tool adaptor lead to the air bag module.

4. Make sure the special tool battery connections are 15 Metres (50 Feet) away from the air bag module.
5. Remove any loose parts from around the air bag module. Make sure that no flammable liquids are present.

WARNING:

Before proceeding, make sure precautions have been taken to warn personnel of a possible loud noise upon activation.

Do not allow anybody to approach closer to the restraint device than 15 Metres (50 Feet). Failure to follow this instruction may result in personal injury.

6. Connect the special tool to a 12V battery.

WARNING:

Do not handle the deployed air bag module immediately after activation - it may be hot. Allow the air bag module to cool. Cooling air bag modules should be continuously monitored to make sure the heat does not create a fire with spilled liquids or other debris. Failure to follow this instruction may result in personal injury.

Deploy the air bag module by operating both of the switches on the special tool. If deployment does not occur, disconnect the special tool from the battery and seek advice from Land Rover.

8. Allow the air bag module to cool.
9. Remove the air bag module from the special tool bracket and seal in a plastic bag, ready for disposal.
10. In the event of any problems or queries arising from this procedure, contact Land Rover.

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Deployed Air BagDisposal of the Safety Belt Pretensioner

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Утилизация безопасность преднатяжитель ремня

Disposal of the Safety Belt Pretensioner

NOTE:

Equipment required: Air bag deployment tools LRT-86-003, LRT-86- 003/08 and LRT-86-007/02 , Battery (12V), Safety goggles to BS2092 grade 2, Rubber gloves to PrEN 374 class 2, Ear protectors that have been measured to BS.EN 24869, Particulate respirator to EN 149 grade FFP2S.

1. Using a suitable vice, secure the special tool bracket.
2. Secure the safety belt pretensioner to the special tool bracket.

WARNING:

Power must not be connected during this step. Failure to follow this instruction may result in personal injury.

CAUTION:

Make sure the connector is not in contact with the inflator or it will be damaged during the test.

Connect the special tool adaptor lead to the safety belt pretensioner.

4. Make sure the special tool battery connections are 15 Metres (50 Feet) away from the safety belt pretensioner.
5. Remove any loose parts from around the safety belt pretensioner.

   Make sure that no flammable liquids are present.

WARNING:

Before proceeding, make sure precautions have been taken to warn personnel of a possible loud noise upon activation.

Do not allow anybody to approach closer to the restraint device than 15 Metres (50 Feet). Failure to follow this instruction may result in personal injury.

6. Connect the special tool to a 12V battery.

WARNING:

Do not handle the deployed device immediately after activation - it may be hot. Allow the unit to cool for at least 20 minutes. Cooling modules should be continuously monitored to make sure heat does not create a fire with spilled liquids or other debris. Failure to follow this instruction may result in personal injury.

7. Deploy the safety belt pretensioner by operating both of the switches on the special tool. If deployment does not occur, disconnect the battery from the special tool and seek advice from Land Rover.
8. Allow the safety belt pretensioner to cool for at least 20 minutes.

   Cooling SRS modules should be continuously monitored to make sure the heat does not generate a fire with spilt liquids or other debris.

9. Remove the safety belt pretensioner from the air bag deployment tool bracket and seal in a plastic bag, ready for disposal.
10. In the event of any problems or queries arising from this procedure, contact Land Rover.

Supplemental Restraint System 'C' Pillar Side Impact Sensor (G1785149) / Removal and Installation

REMOVAL

WARNINGS:

- ***Do not probe supplemental restraint system (SRS) electrical connectors.***
- ***To avoid accidental deployment and possible personal injury, the backup power supply must be depleted before repairing or replacing any air bag supplementary restraints system (SRS) components. To deplete the backup power supply energy, disconnect the battery ground cable and wait for one minute.***

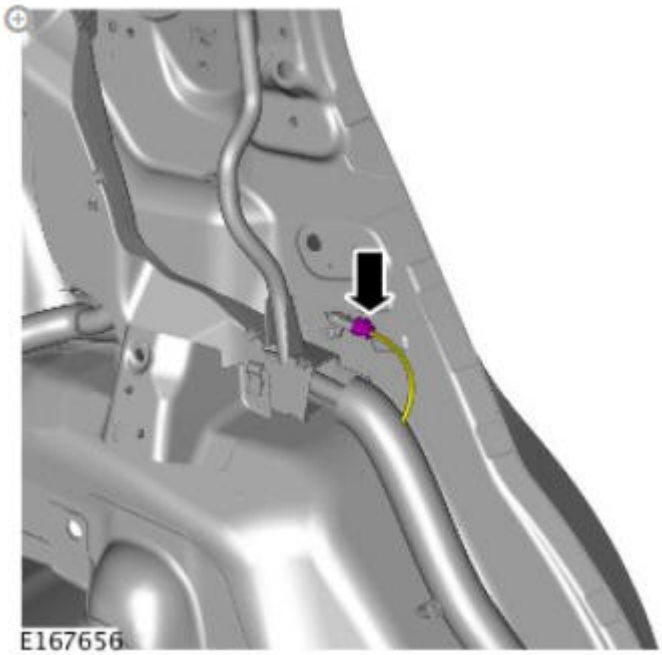
  Failure to follow this instruction may result in personal injury.

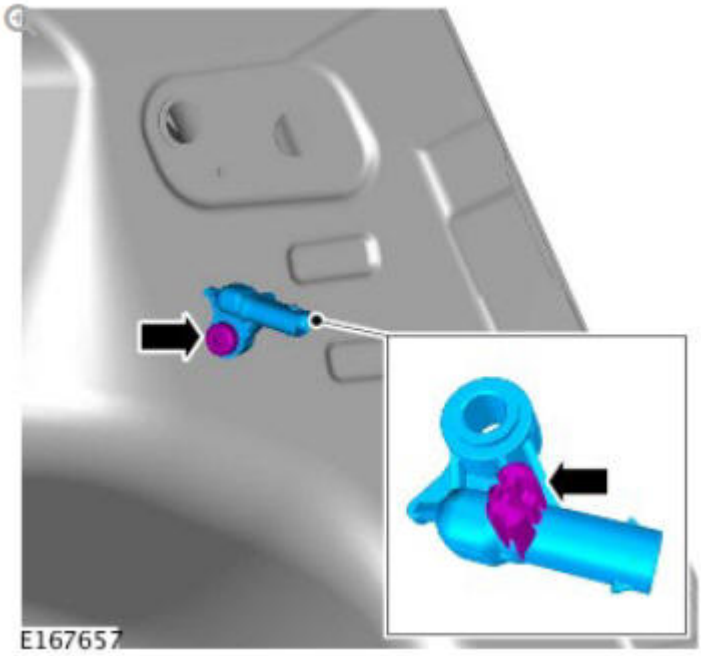
NOTES:

- *Removal steps in this procedure may contain installation details.*
- *LH illustration shown, RH is similar.*

Refer to: Standard Workshop Practices (100-00 General Information, Description and Operation).

Refer to: Loadspace Trim Panel (501-05 Interior Trim and Ornamentation, Removal and Installation).





Torque: 11 Nm

INSTALLATION

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

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Disposal of the Driver Air Bag Module , Passenger Air Bag Module , Side Air Bagmodules and Driver Lower Air Bag ModuleSupplemental Restraint System Clockspring (G1785538) / Removal and Installation

ne

Система пассивной безопасности (SRS) подрулевой шлейф / снятие и установка

Supplemental Restraint System Clockspring (G1785538) / Removal and Installation

REMOVAL

CAUTIONS:

- **Make sure that the road wheels are in the straight ahead position.**
- **Use a suitable trim tool.**

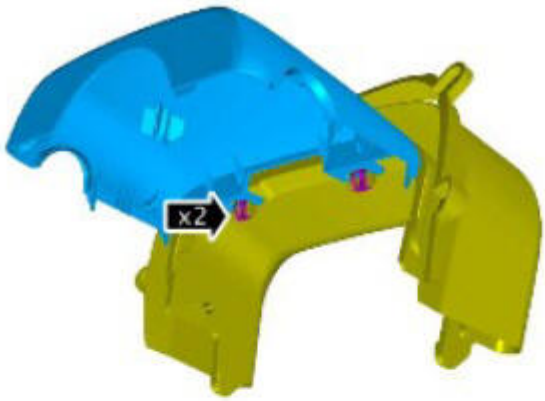
NOTE:

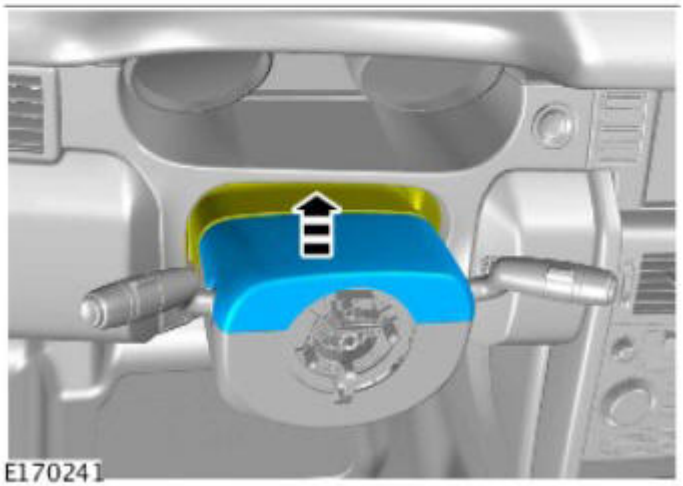
Removal steps in this procedure may contain installation details.

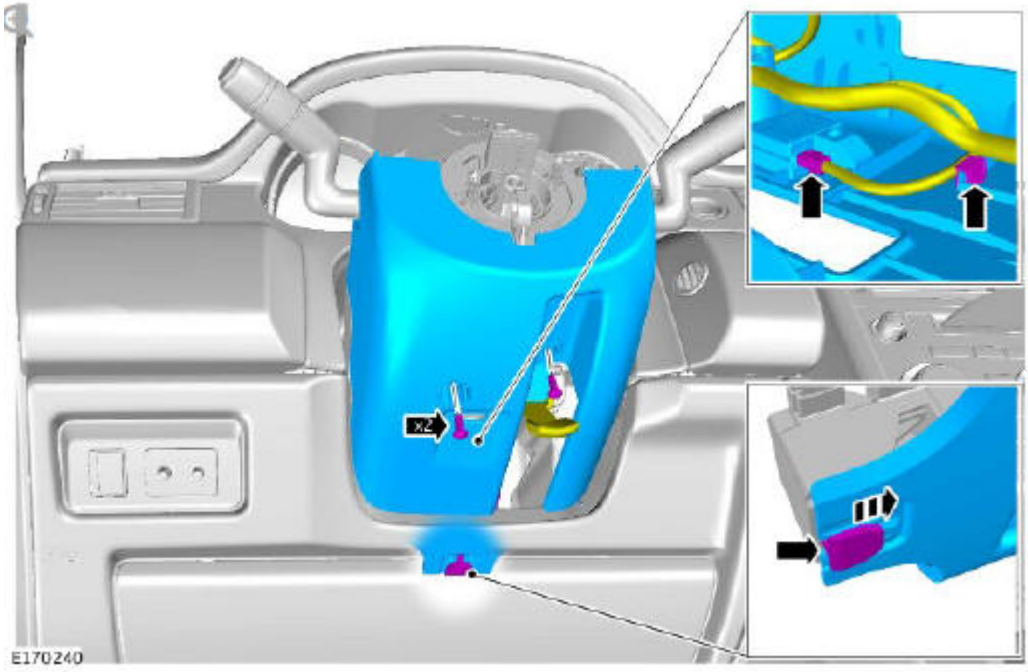
Make the SRS system safe.

Refer to: Standard Workshop Practices (100-00, Description and Operation).

Refer to: Steering Wheel (211-04, Removal and Installation).

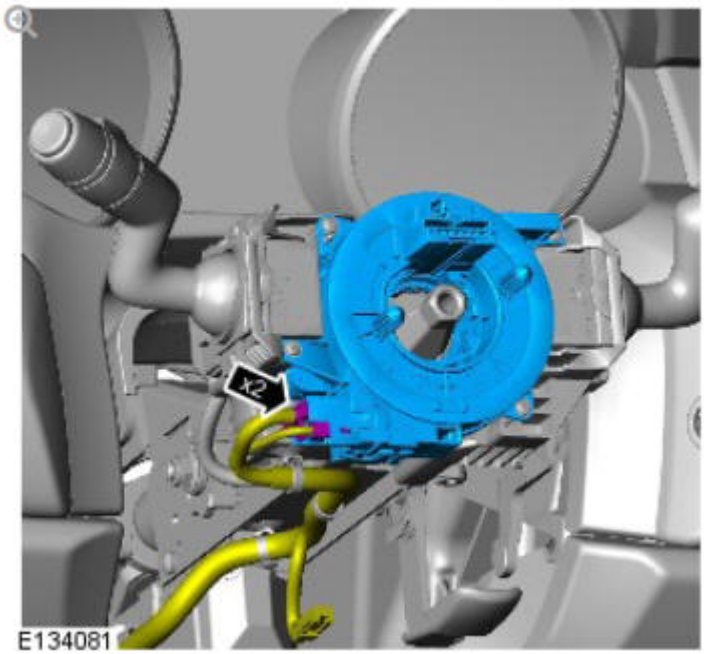




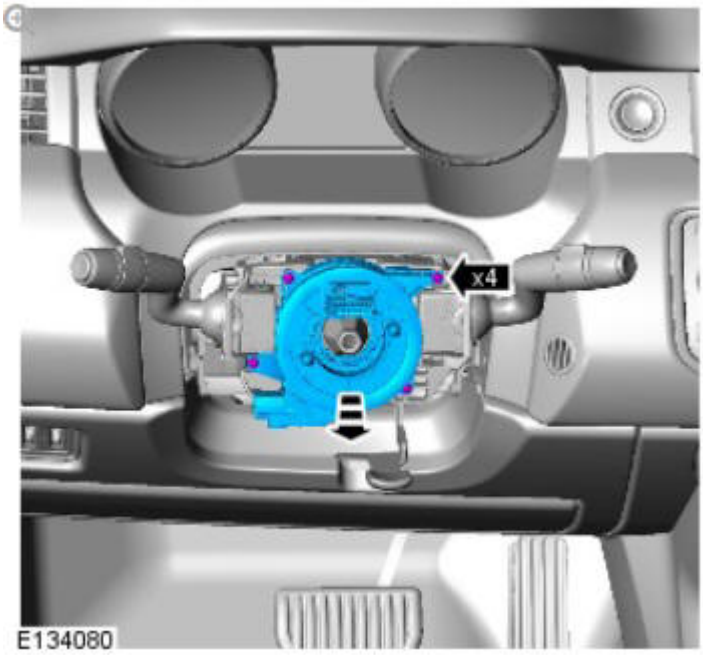


CAUTION:

Make sure that the clockspring rotor does not rotate.



Secure with adhesive tape.



INSTALLATION

CAUTION:

<u>If a new component has been installed, configure using Land Rover approved diagnostic equipment.</u>

To install, reverse the removal procedure.

If a new component is installed, the soft lock stop reset routine should be completed on the power steering system, using the approved diagnostic tool.

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Disposal of the Safety Belt PretensionerSupplemental Restraint System Driver Airbag Module (G1785722) / Removal and Installation

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Система пассивной безопасности (SRS) водитель модуль подушки безопасности / снятие и установка

Supplemental Restraint System Driver Airbag Module (G1785722) / Removal and Installation

REMOVAL

WARNINGS:

- ***Do not probe supplemental restraint system (SRS) electrical connectors.***
- ***To avoid accidental deployment and possible personal injury, the backup power supply must be depleted before repairing or replacing any air bag supplemental restraint system (SRS) components. To deplete the backup power supply energy, disconnect the battery ground cable and wait one minute. Failure to follow this instruction may result in personal injury.***

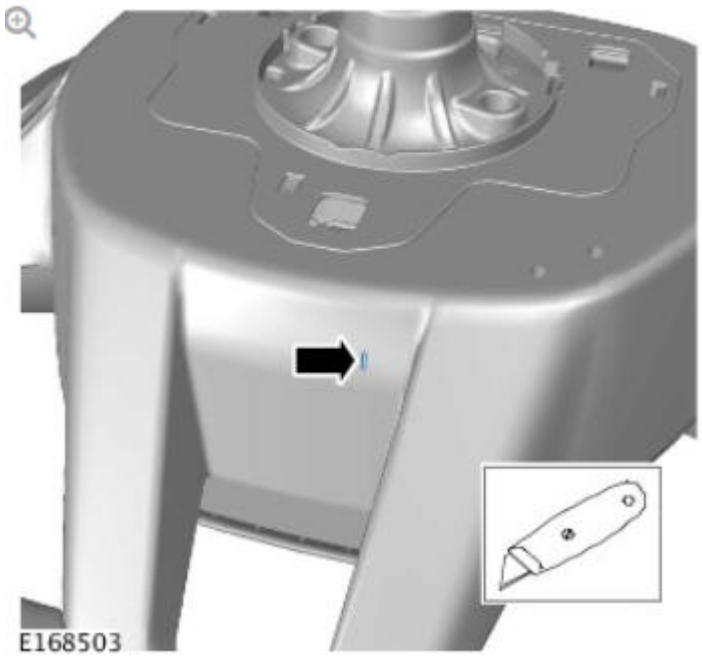
All vehicles

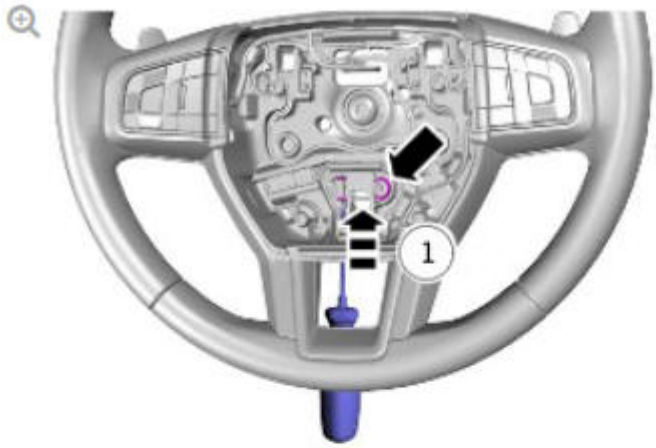
Make the SRS system safe.

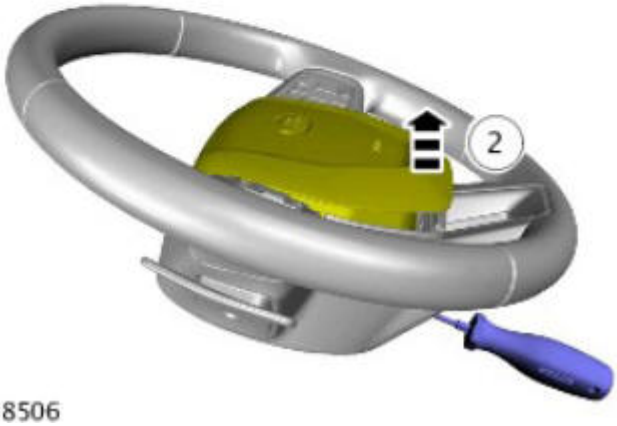
Refer to: Standard Workshop Practices (100-00, Description and Operation).

Disconnect the battery ground cable.

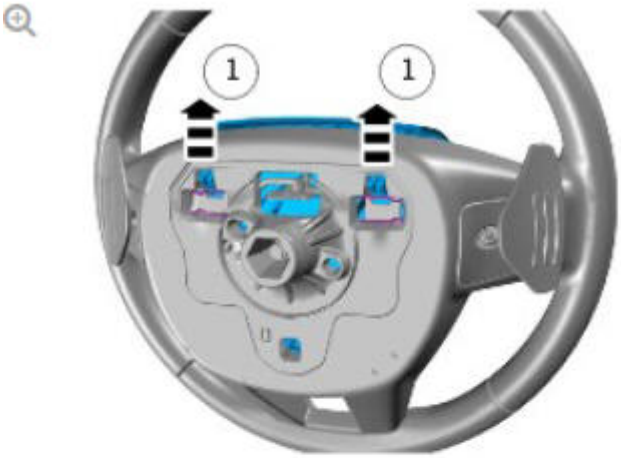
Refer to: Specifications (414-01, Specifications).







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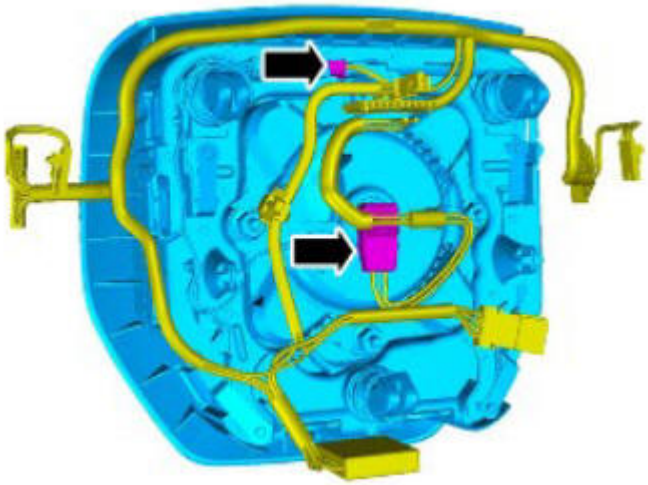




Non NAS vehicles

CAUTION:

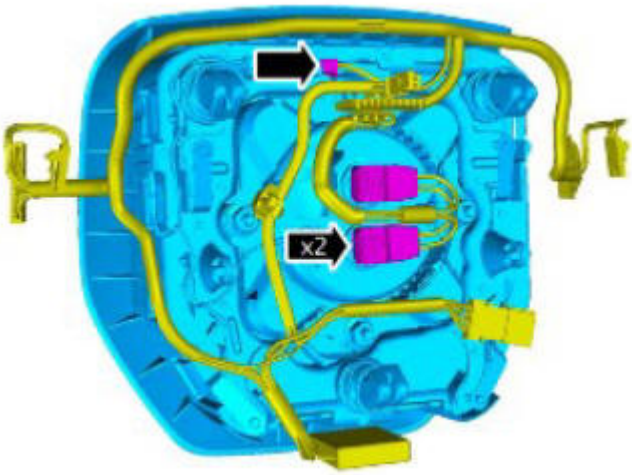
Take extra care not to damage the wiring harnesses.



NAS vehicles

CAUTION:

Take extra care not to damage the wiring harnesses.

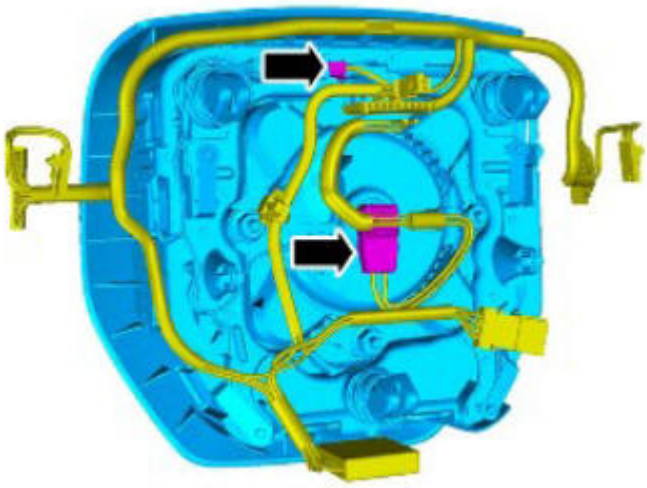


INSTALLATION

Non NAS vehicles

CAUTION:

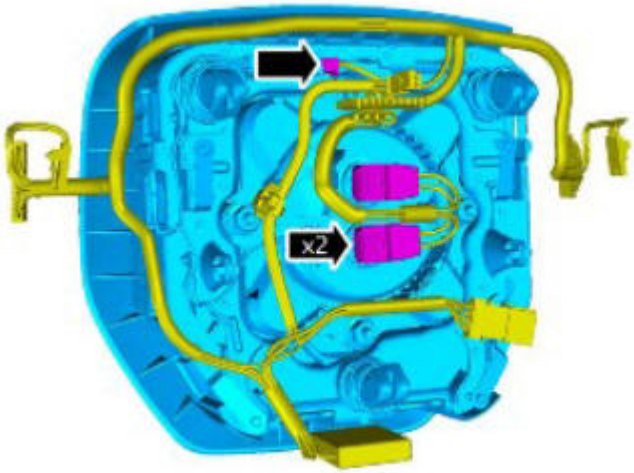
Take extra care not to damage the wiring harnesses.



NAS vehicles

CAUTION:

Take extra care not to damage the wiring harnesses.

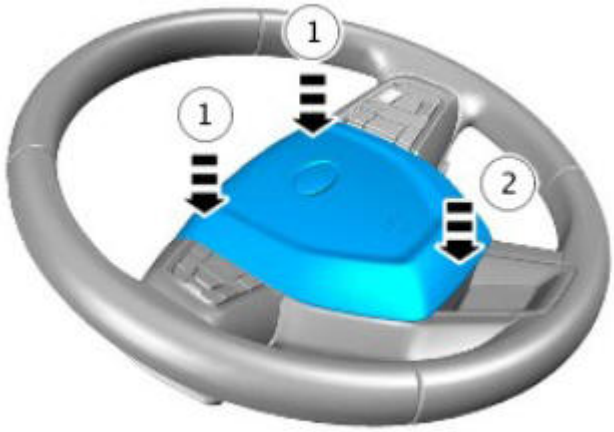


WARNING:

Driver air bag module installation can be confirmed by hearing 3 audible clicks, 1 for each clip.

CAUTION:

Take extra care not to damage the wiring harnesses.



If a new component has been installed, configure using Land Rover approved diagnostic equipment.

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Supplemental Restraint System Clockspring (G1785538) / Removal and InstallationSupplemental Restraint System Driver Lower Airbag Module (G1785723) / Removal and Installation

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Система пассивной безопасности (SRS) водитель нижний модуль подушки безопасности / снятие и установка

Supplemental Restraint System Driver Lower Airbag Module (G1785723) / Removal and Installation

REMOVAL

WARNINGS:

- ***Do not probe supplemental restraint system (SRS) electrical connectors.***
- ***To avoid accidental deployment and possible personal injury, the backup power supply must be depleted before repairing or replacing any air bag supplemental restraint system (SRS) components. To deplete the backup power supply energy, disconnect the battery ground cable and wait one minute. Failure to follow this instruction may result in personal injury.***

CAUTION:

Use a suitable trim tool

NOTE:

Removal steps in this procedure may contain installation details.

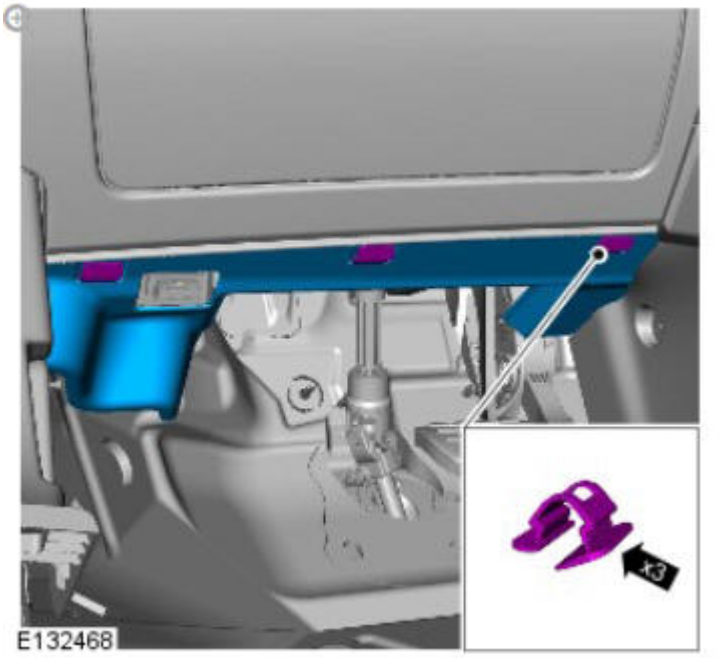
Make the SRS system safe.

Refer to: Standard Workshop Practices (100-00, Description and Operation).

Disconnect the battery ground cable.

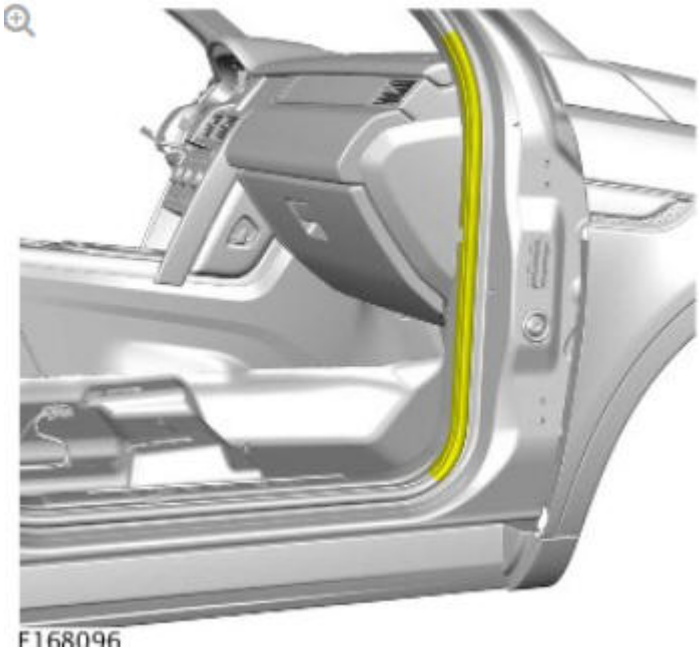
Refer to: Specifications (414-01, Specifications).

Refer to: Floor Console Upper Section (501-12, Removal and Installation).



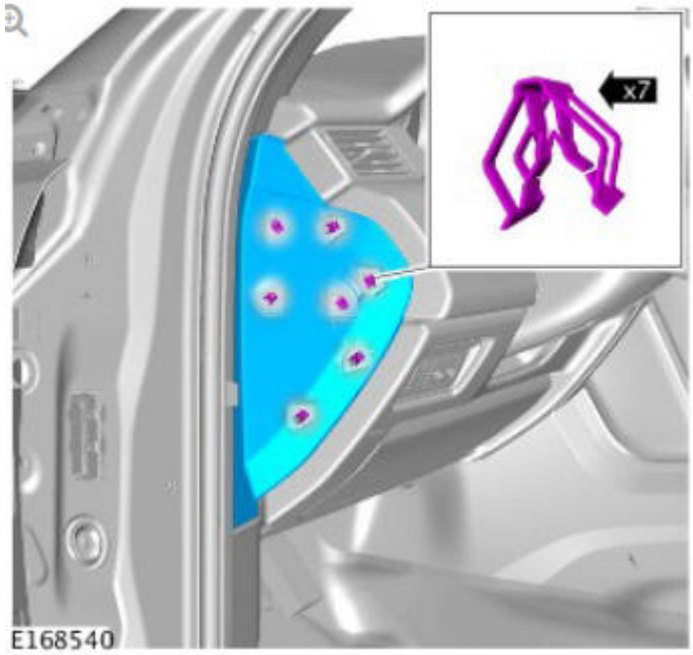
NOTE:

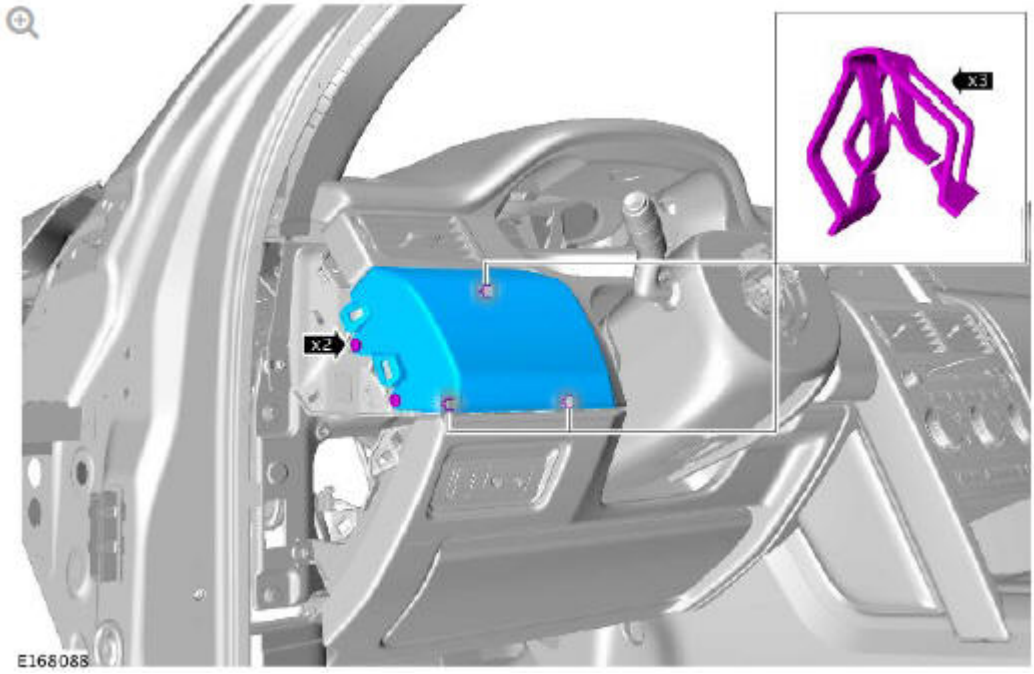
Repeat the step for the other side.



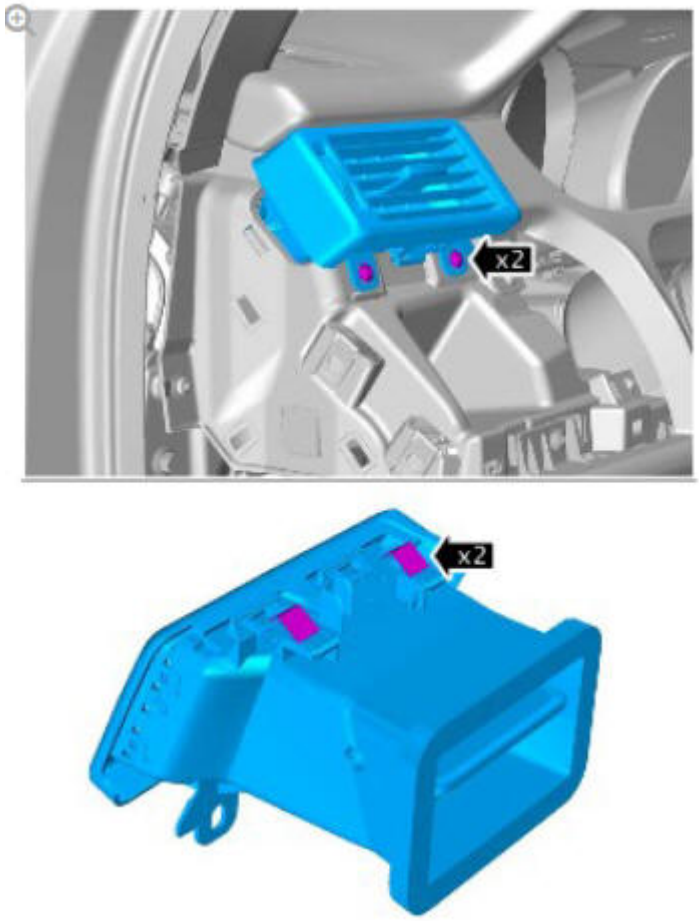
NOTE:

Repeat the step for the other side.





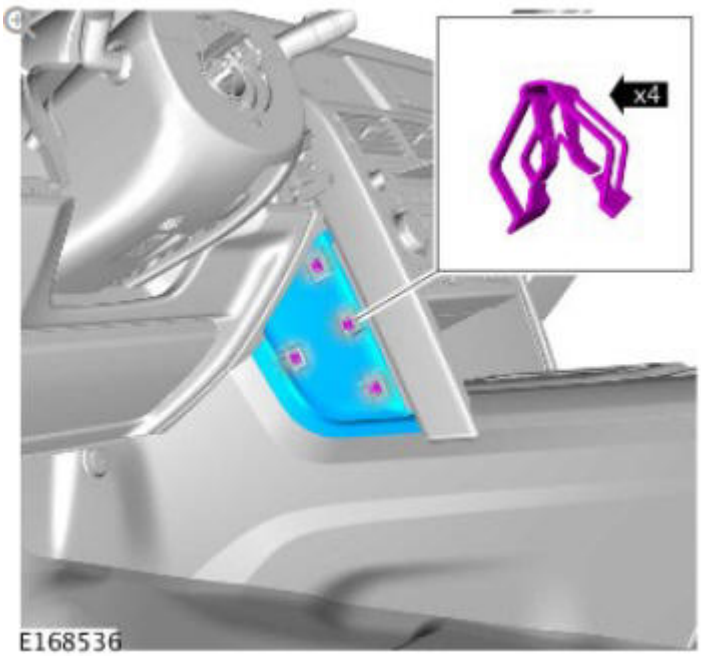
Torque: 1.5 Nm



Torque: 1.5 Nm

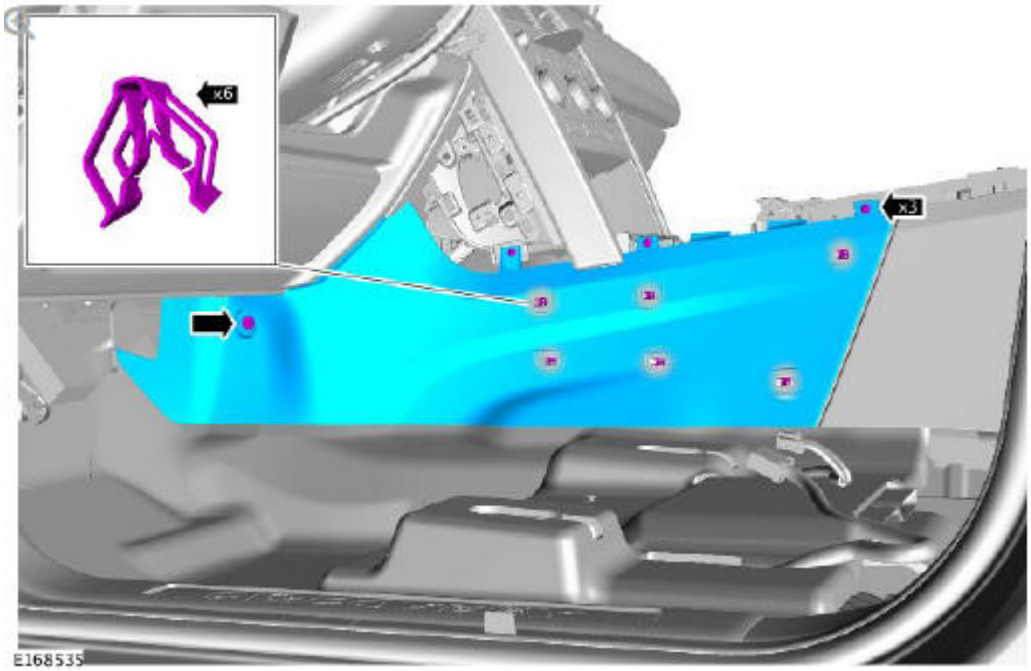
NOTE:

Repeat the step for the other side.



NOTE:

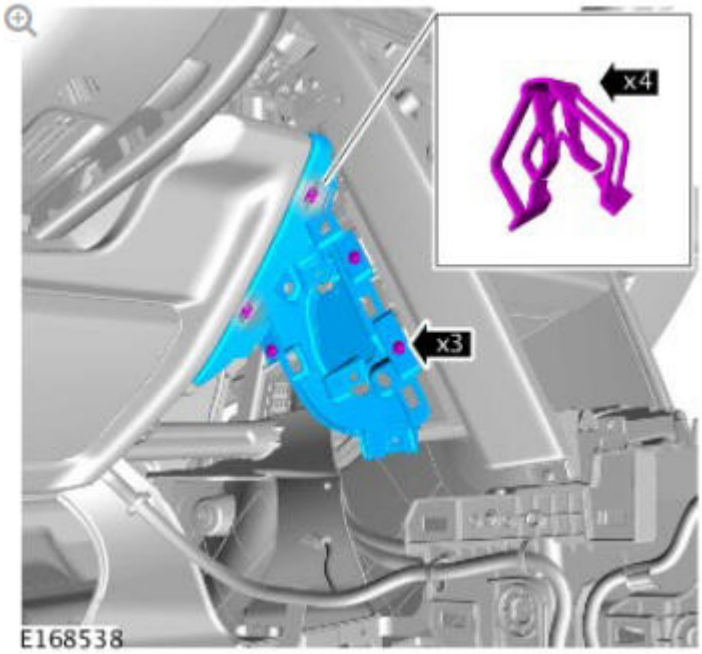
Repeat the step for the other side.



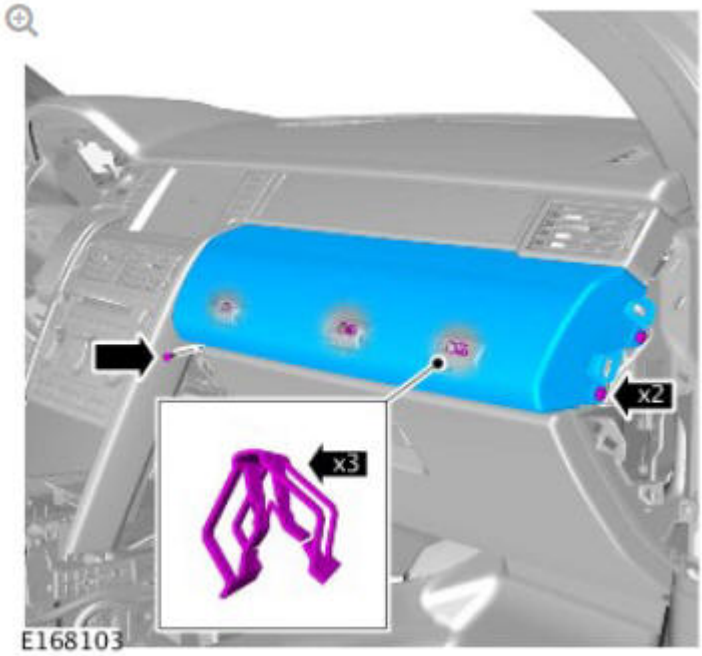
Torque: 1.5 Nm

NOTE:

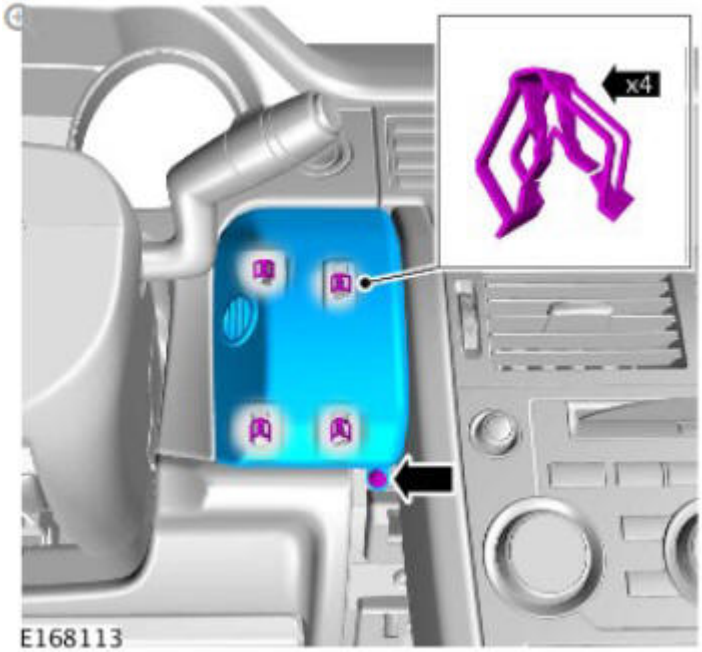
Repeat the step for the other side.



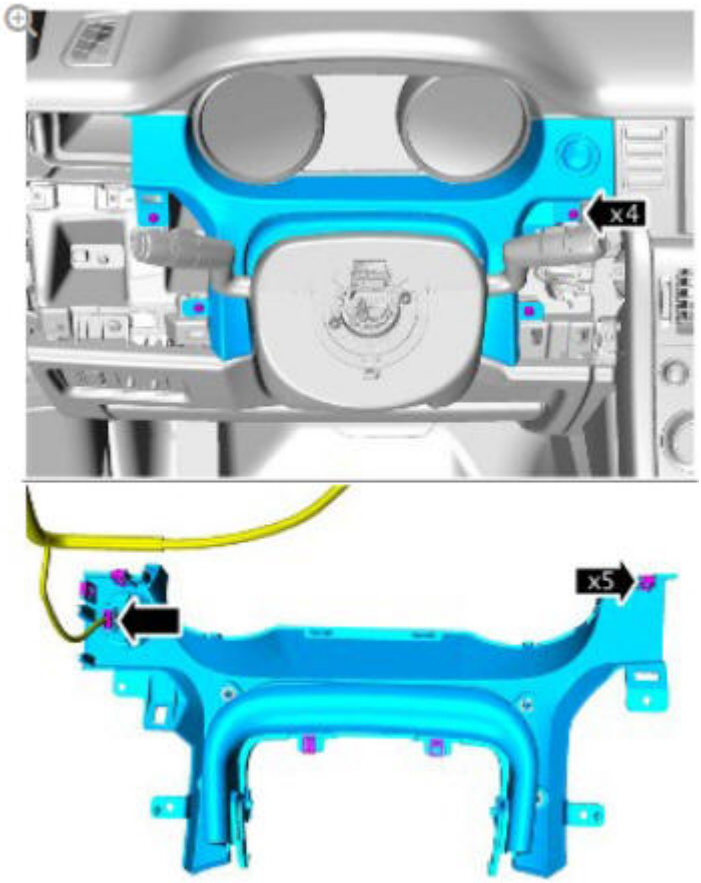
Torque: 1.5 Nm



Torque: 6 Nm



Torque: 1.5 Nm



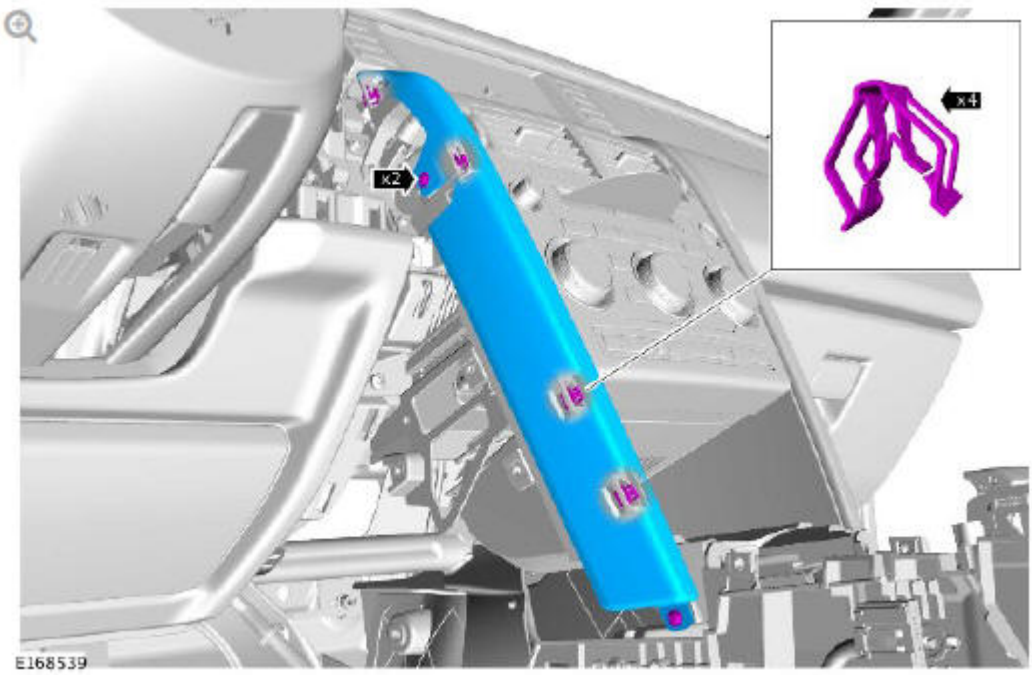
Torque: 1.5 Nm

CAUTION:

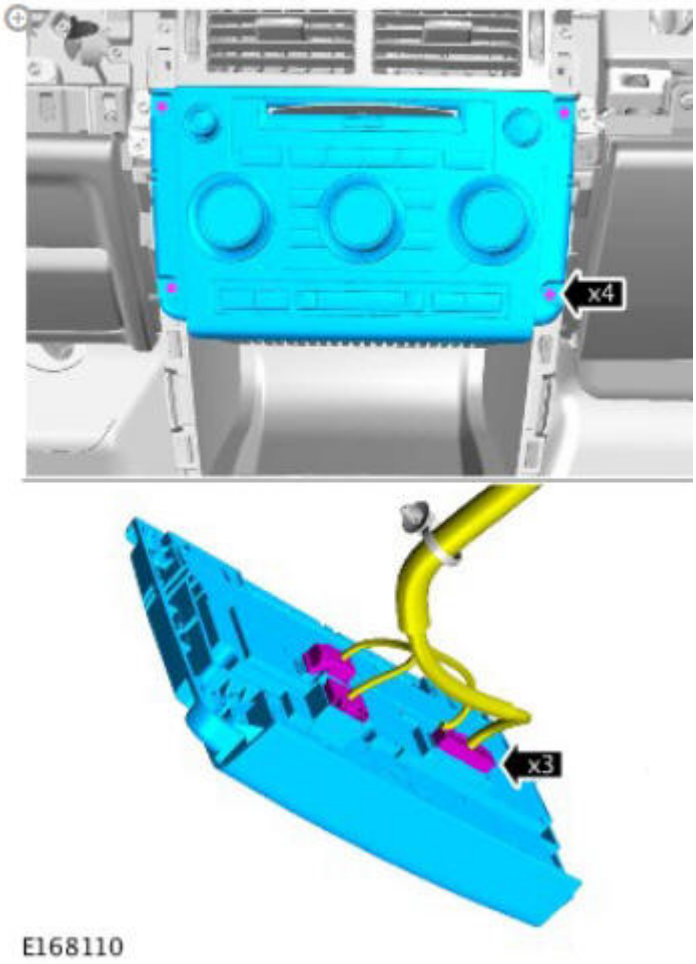
Extreme care must be taken when removing and installing the trim. Excessive force may result in damage to the component.

NOTE:

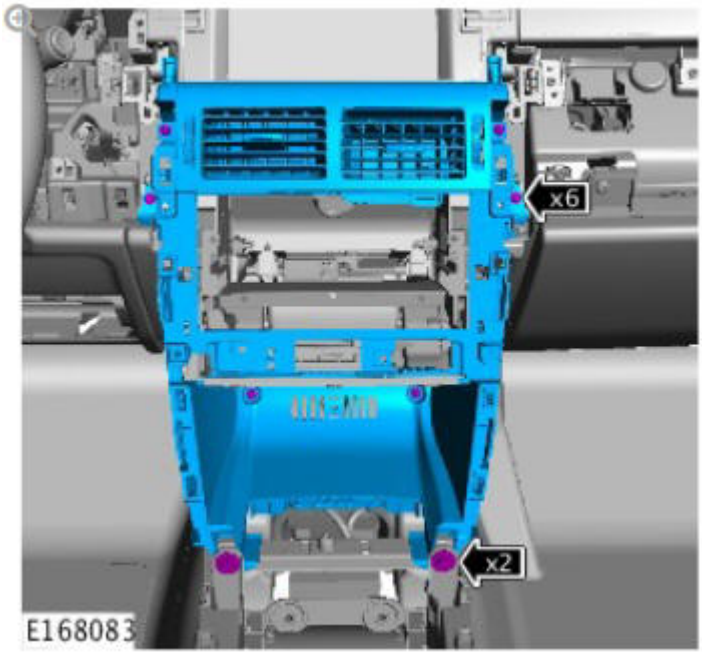
Repeat the step for the other side.



Torque: 1.5 Nm



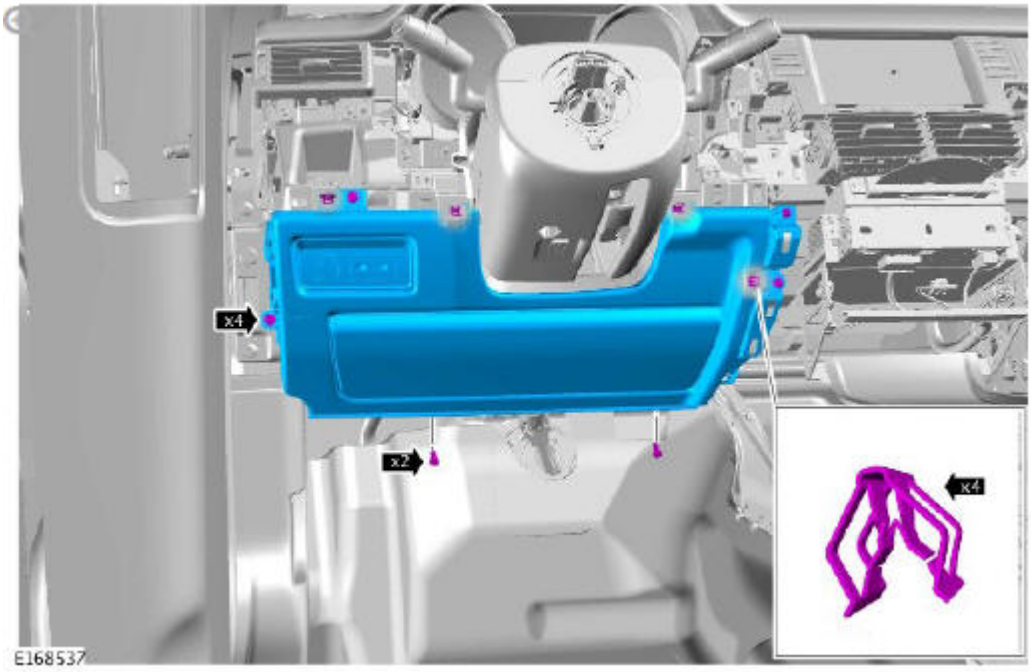
Torque: 1.5 Nm



Torque:

Screws 6 Nm

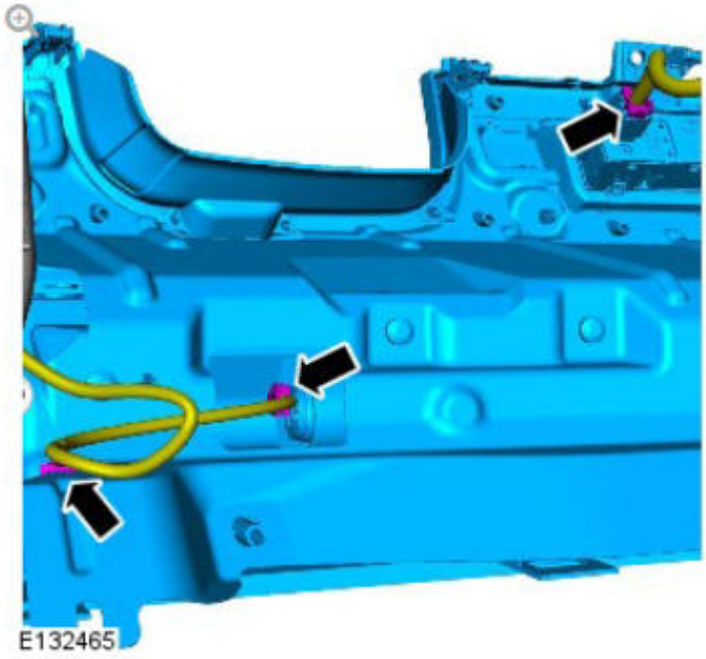
M6 bolts 10 Nm



Torque:

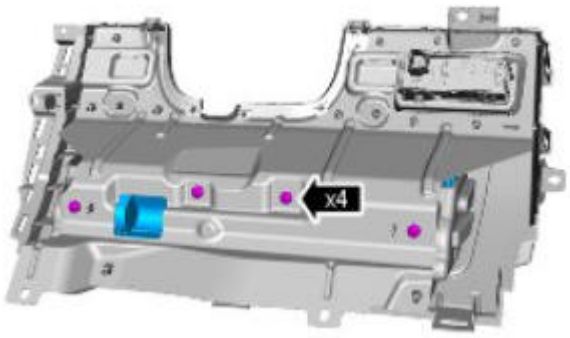
M5 bolt 1.5 Nm

Screw 1.1 Nm



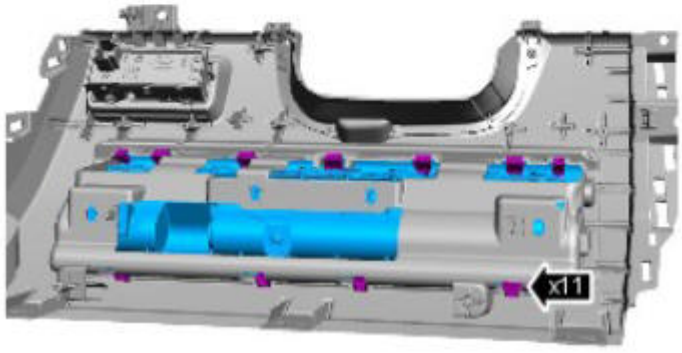
NOTE:

Do not disassemble further if the component is removed for access only.



Torque: 6 Nm





INSTALLATION

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

ne

Supplemental Restraint System Driver Airbag Module (G1785722) / Removal and InstallationSupplemental Restraint System Front Door Side Impact Sensor (G1785148) / Removal and Installation

ne

Система пассивной безопасности (SRS) передний дверь боковой удар датчик / снятие и установка

REMOVAL

WARNINGS:

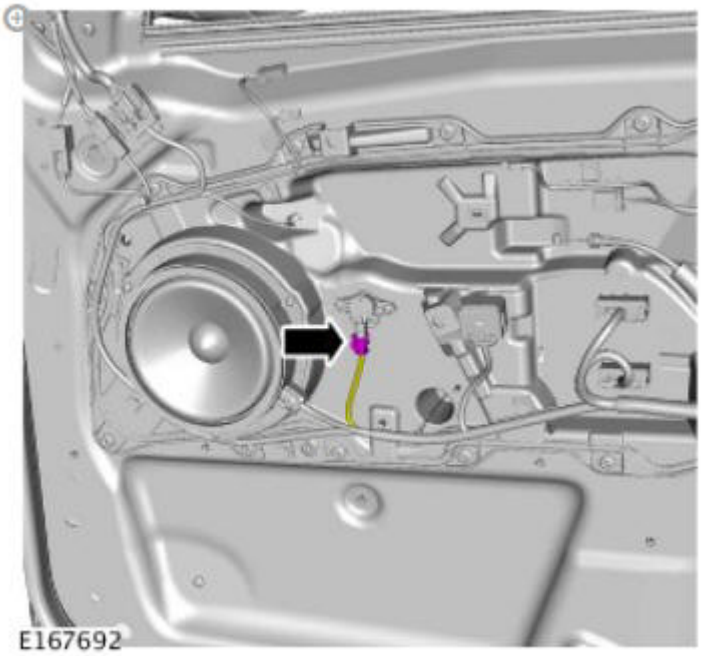
- ***Do not probe supplemental restraint system (SRS) electrical connectors.***
- ***To avoid accidental deployment and possible personal injury, the backup power supply must be depleted before repairing or replacing any air bag supplemental restraint system (SRS) components. To deplete the backup power supply energy, disconnect the battery ground cable and wait one minute. Failure to follow this instruction may result in personal injury.***

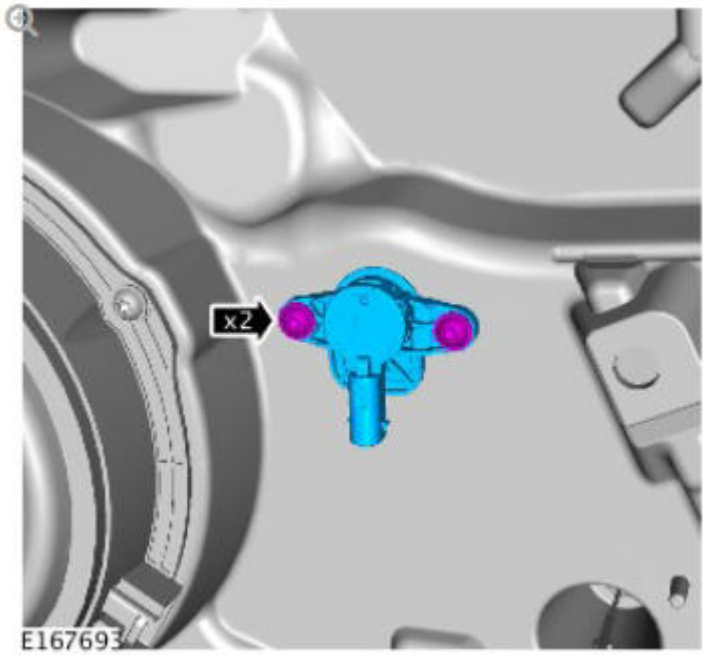
NOTES:

- *Removal steps in this procedure may contain installation details.*
- *RH illustration shown, LH is similar.*

Refer to: Standard Workshop Practices (100-00, Description and Operation).

Refer to: Front Door Trim Panel (501-05, Removal and Installation).





Torque: 2 Nm

INSTALLATION

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

Supplemental restraint system front impact severity sensor (G1785539) removal and installation

REMOVAL

NOTE:

Removal steps in this procedure may contain installation details.

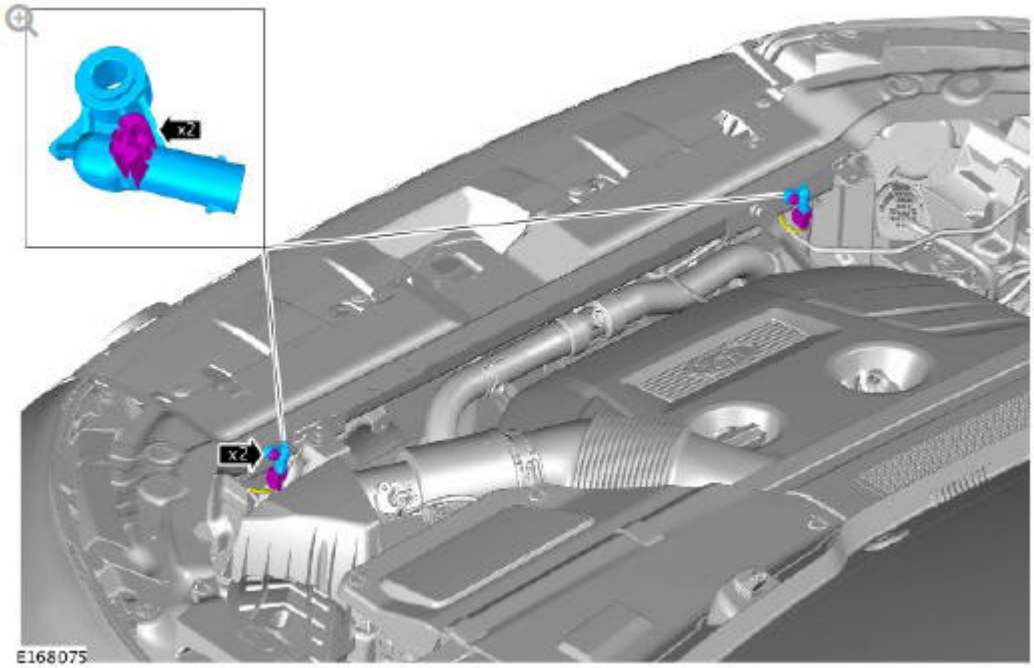
WARNING:

To avoid accidental deployment and possible personal injury, the backup power supply must be depleted before repairing or replacing any air bag supplemental restraint system (SRS) components. To deplete the backup power supply energy, disconnect the battery ground cable and wait one minute.

Failure to follow this instruction may result in personal injury.

Make the SRS system safe.

Refer to: Standard Workshop Practices (100-00 General Information, Description and Operation).



Torque: 11 Nm

INSTALLATION

To install, reverse the removal procedure.

If a new component has been installed, configure using Land Rover approved diagnostic equipment.

ne

Supplemental Restraint System Driver Lower Airbag Module (G1785723) / Removal and InstallationSupplemental Restraint System Occupant Classification Sensor (G1791885) / Removal and Installation

ne

Система пассивной безопасности (SRS) распознавание пассажира датчик / снятие и установка

Supplemental Restraint System Occupant Classification Sensor (G1791885) / Removal and Installation

REMOVAL

WARNINGS:

- ***To avoid accidental deployment and possible personal injury, the backup power supply must be depleted before repairing or replacing any air bag supplemental restraint system (SRS) components. To deplete the backup power supply energy, disconnect the battery ground cable and wait one minute. Failure to follow this instruction may result in personal injury.***
- ***Always wear safety glasses when working on an air bag equipped vehicle and when handling an air bag module. Failure to follow this instruction may result in personal injury.***
- ***To minimize the possibility of injury in the event of premature deployment, always carry a live air bag module with the bag and trim cover pointed away from the body. Failure to follow this instruction may result in personal injury.***

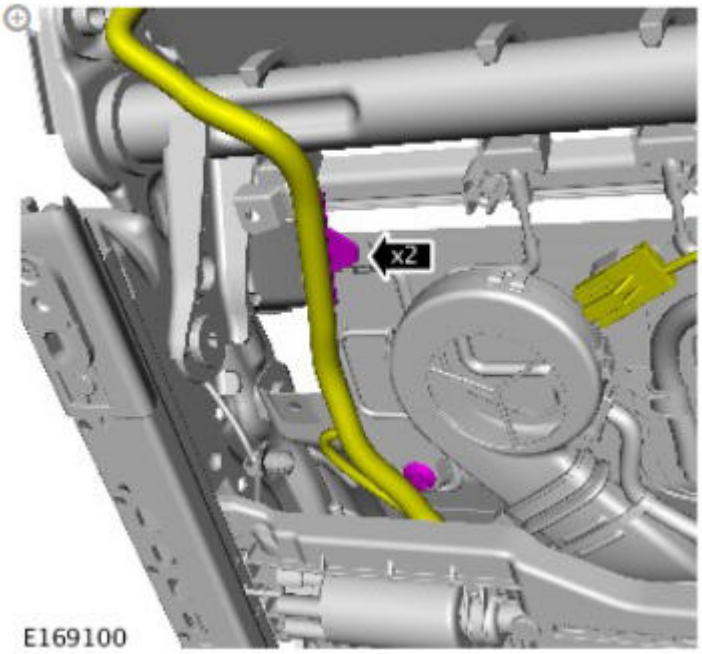
- ***To minimize the possibility of premature deployment, do not use radio key code savers when working on the supplemental restraint system. Failure to follow this instruction may result in personal injury.***
- ***To minimize the possibility of premature deployment, live air bag modules must only be placed on work benches which have been ground bonded and with the trim cover facing up. Failure to follow these instructions may result in personal injury.***
- ***Never probe the electrical connectors of air bag modules or any other supplemental restraint system component. Failure to follow this instruction may result in personal injury.***
- ***Painting over the driver air bag module trim cover or instrument panel could lead to deterioration of the trim cover and air bags. Do not for any reason attempt to paint discolored or damaged air bag module trim covers or instrument panel. Install a new component.***

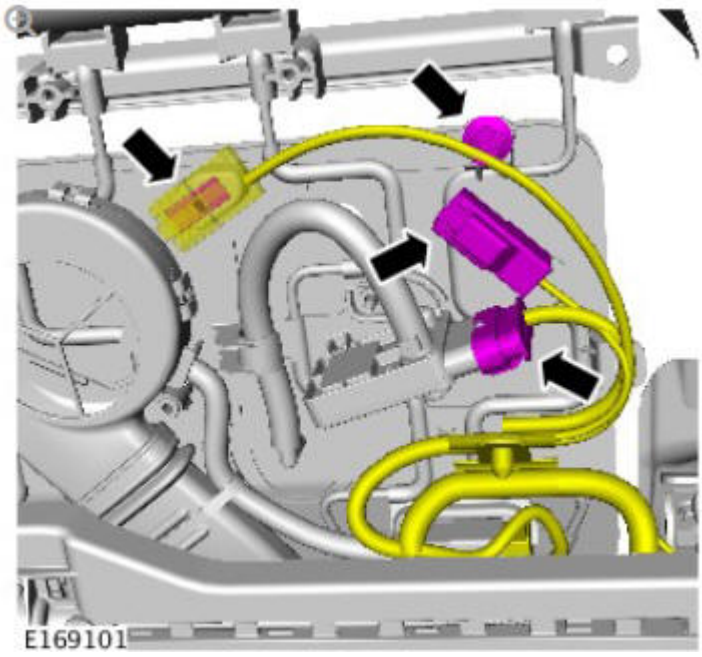
  Failure to follow this instruction may result in personal injury.

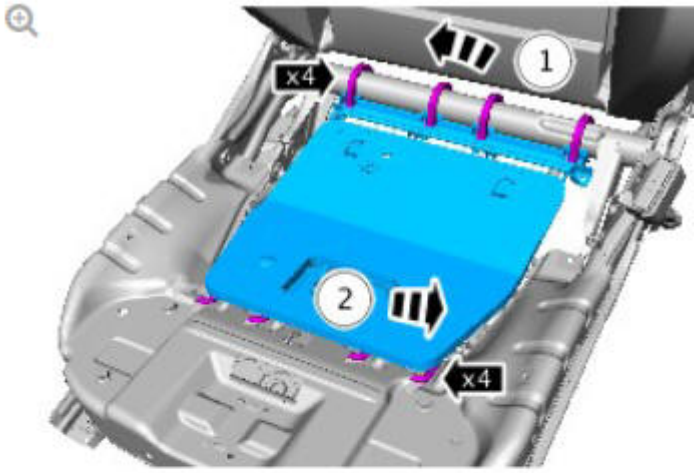
NOTES:

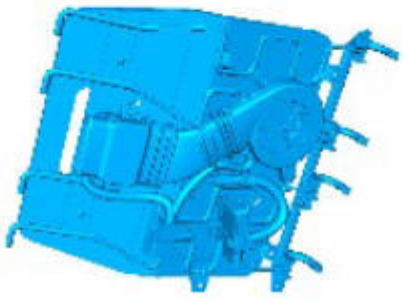
- *Some variation in the illustrations may occur, but the essential information is always correct.*
- *Removal steps in this procedure may contain installation details.*

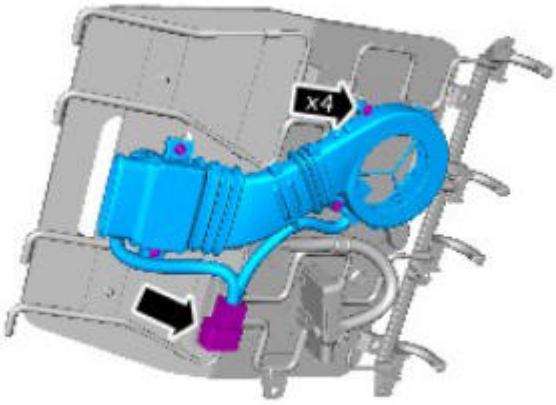
Refer to: Front Seat Cushion Cover - Vehicles With: Power Seats (501-10, Removal and Installation).

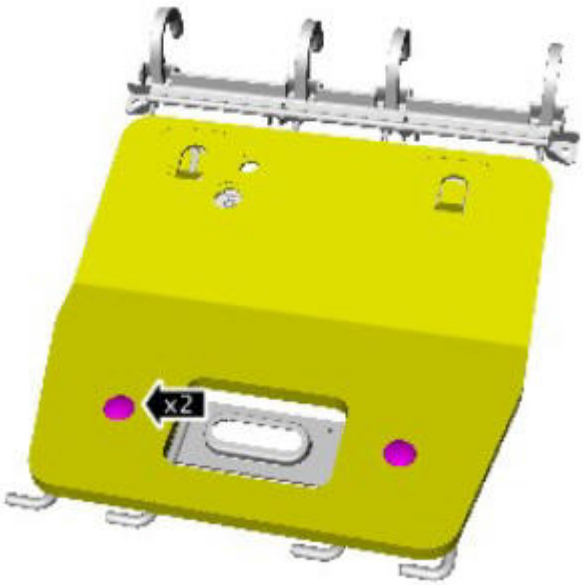



E169101


x4
1
2
x4

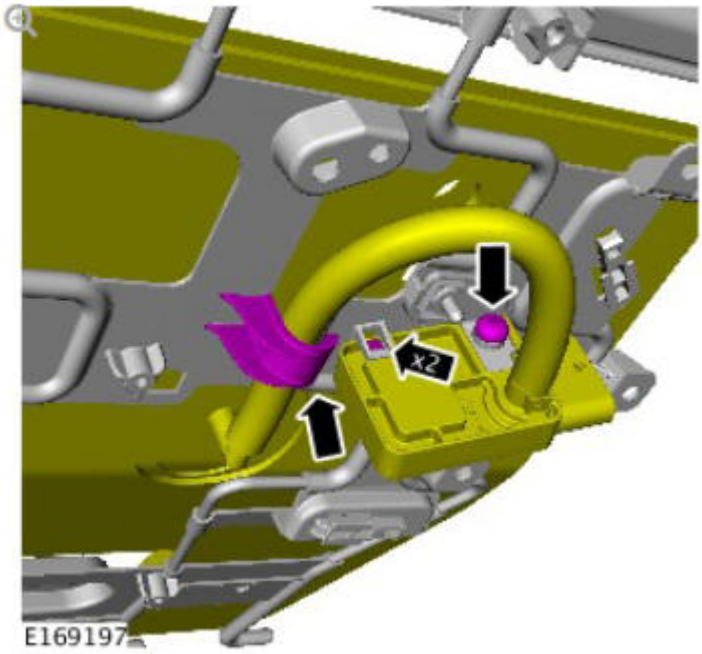




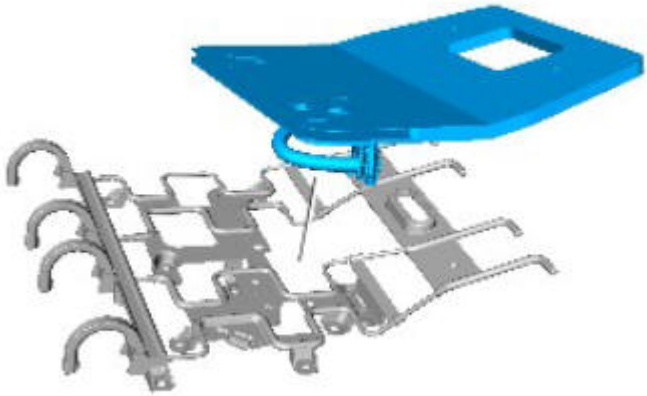


CAUTIONS:

- **Note the installed position of the component(s) prior to removal.**
- **It is essential that the sensor is installed in the correct orientation as shown.**
- **It is essential that the hose is installed in the correct orientation as shown.**



Torque: 5 Nm





E144197

INSTALLATION

CAUTION:

The front passenger seat occupant classification sensor is available only as a service kit. No attempt should be made to replace individual components. Failure to follow this instruction may result in personal injury.



E169199

To install, reverse the removal procedure.

CAUTION:

Make sure that the front seats are empty during this process.

- If a new service kit is installed, configure the occupant classification sensor using the approved Land Rover diagnostic tool and clear any DTCs.
- If a repair has been carried out, reset the occupant classification sensor using the approved Land Rover diagnostic tool and clear any DTCs.

ne

Supplemental Restraint System Front Door Side Impact Sensor (G1785148) / Removal and InstallationSupplemental Restraint System Occupant Detection Sensor (G1791884) / Removal and Installation

ne

Система пассивной безопасности (SRS) пассажир обнаружение датчик / снятие и установка

Supplemental Restraint System Occupant Detection Sensor (G1791884) / Removal and Installation

REMOVAL

WARNINGS:

- ***To avoid accidental deployment and possible personal injury, the backup power supply must be depleted before repairing or replacing any air bag supplemental restraint system (SRS) components. To deplete the backup power supply energy, disconnect the battery ground cable and wait one minute. Failure to follow this instruction may result in personal injury.***
- ***Always wear safety glasses when working on an air bag equipped vehicle and when handling an air bag module. Failure to follow this instruction may result in personal injury.***
- ***To minimize the possibility of injury in the event of premature deployment, always carry a live air bag module with the bag and trim cover pointed away from the body. Failure to follow this instruction may result in personal injury.***
- ***To minimize the possibility of premature deployment, do not use radio key code savers when working on the supplemental restraint system. Failure to follow this instruction may result in personal injury.***
- ***To minimize the possibility of premature deployment, live air bag modules must only be placed on work benches which have been ground bonded and with the trim cover facing up. Failure to follow these instructions may result in personal injury.***
- ***Never probe the electrical connectors of air bag modules or any other supplemental restraint system component. Failure to follow this instruction may result in personal injury.***
- ***Painting over the driver air bag module trim cover or instrument panel could lead to deterioration of the trim cover and air bags. Do not for any reason attempt to paint discolored or damaged air bag module trim covers or instrument panel. Install a new component.***

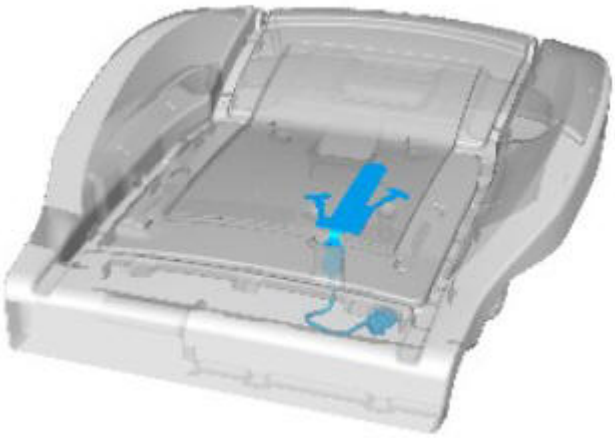
  Failure to follow this instruction may result in personal injury

NOTES:

- *Some variation in the illustrations may occur, but the essential information is always correct.*
- *Removal steps in this procedure may contain installation details.*

Refer to: Front Seat Cushion Cover - Vehicles With: Power Seats (501-10, Removal and Installation).





INSTALLATION

To install, reverse the removal procedure.

Supplemental restraint system passenger airbag module (G1785724) removal and installation

REMOVAL

WARNINGS:

- ***Do not probe supplemental restraint system (SRS) electrical connectors.***
- ***To avoid accidental deployment and possible personal injury, the backup power supply must be depleted before repairing or replacing any air bag supplemental restraint system (SRS) components. To deplete the backup power supply energy, disconnect the battery ground cable and wait one minute. Failure to follow this instruction may result in personal injury.***

NOTES:

- *Removal steps in this procedure may contain installation details.*
- *Left hand drive illustration(s) shown, Right hand drive is similar.*

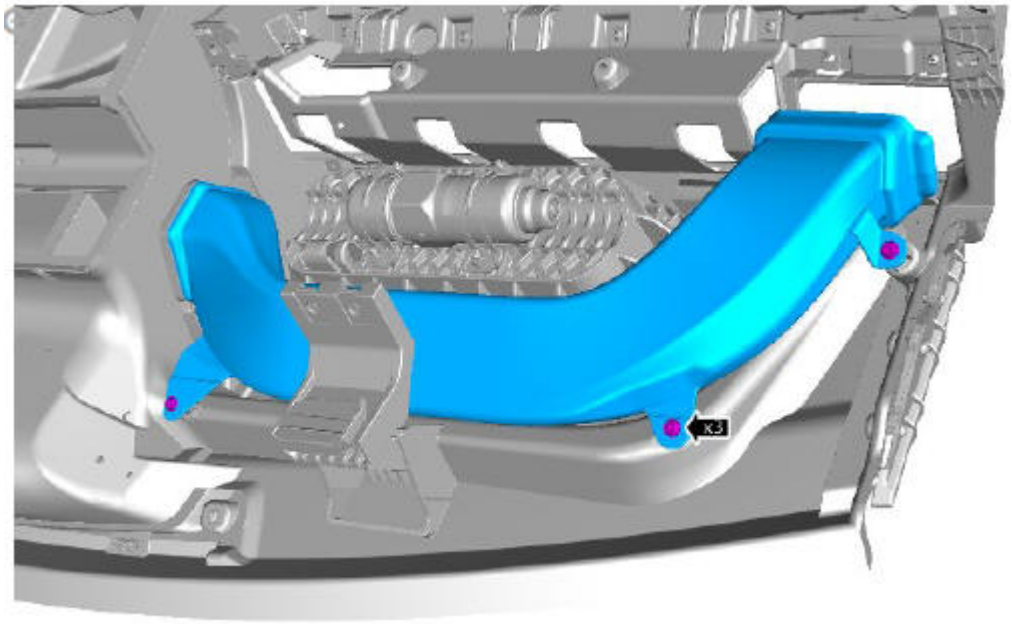
Make the SRS system safe.

Refer to: Standard Workshop Practices (100-00, Description and Operation).

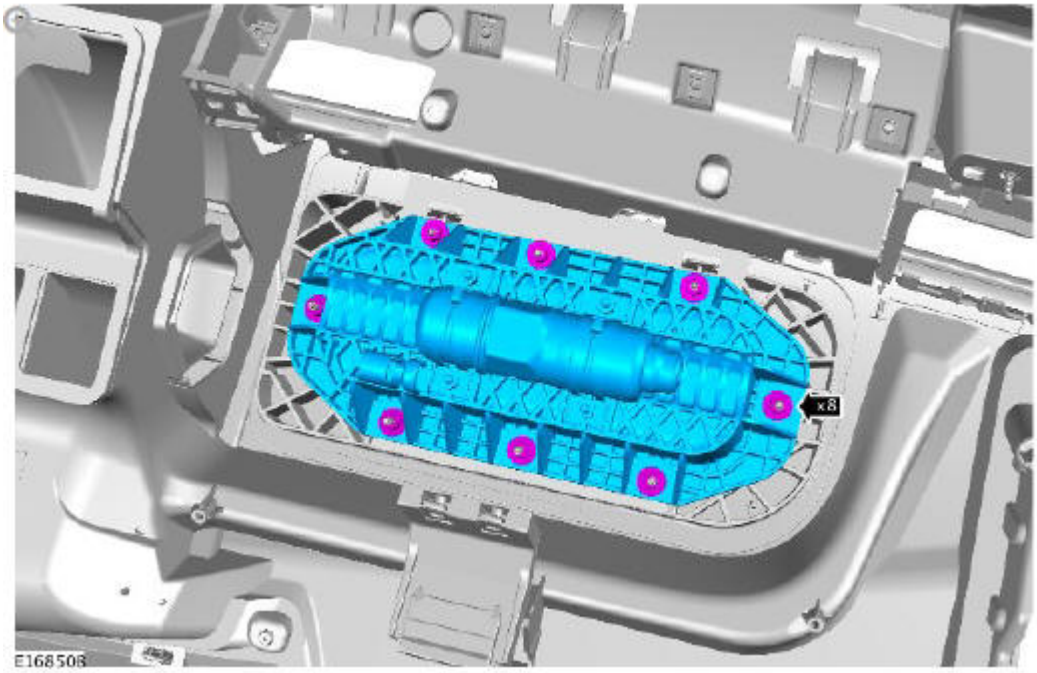
Disconnect the battery ground cable.

Refer to: Specifications (414-01, Specifications).

Refer to: Instrument Panel Upper Section (501-12, Removal and Installation).



Torque: 1.5 Nm



Torque: 4.5 Nm

INSTALLATION

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

Supplemental Restraint System Restraints Control Module (G1785536) / Removal and Installation

REMOVAL

WARNING:

Do not probe supplemental restraint system (SRS) electrical connectors.

NOTES:

- *New restraints control module (RCM) must be installed every time if any supplementary restraint system (SRS) component has been deployed.*
- *Removal steps in this procedure may contain installation details.*

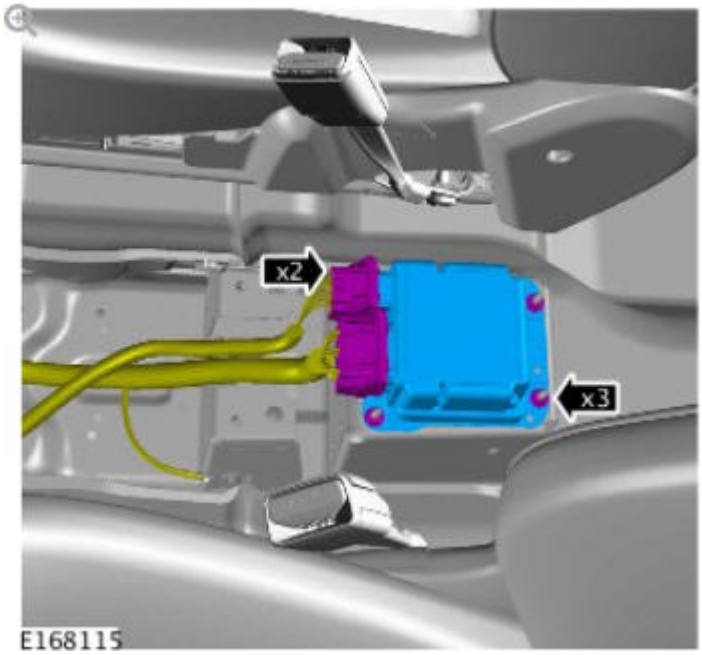
Make the SRS system safe.

Refer to: Standard Workshop Practices (100-00, Description and Operation).

Disconnect the battery ground cable.

Refer to: Specifications (414-01, Specifications).

Refer to: Floor Console (501-12, Removal and Installation).



Torque: 10 Nm

INSTALLATION

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

ne

Supplemental Restraint System Occupant Classification Sensor (G1791885) / Removal and InstallationSupplemental Restraint System Side Air Bag Module (G1785147) / Removal and Installation

ne

Система пассивной безопасности (SRS) боковой воздух подушка модуль / снятие и установка

Supplemental Restraint System Side Air Bag Module (G1785147) / Removal and Installation

REMOVAL

WARNING:

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

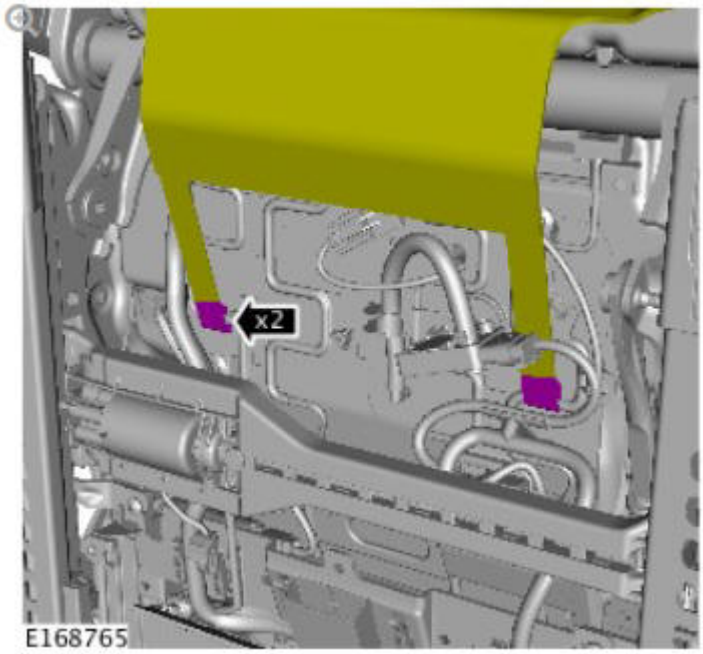
NOTE:

Removal steps in this procedure may contain installation details.

Make the SRS system safe.

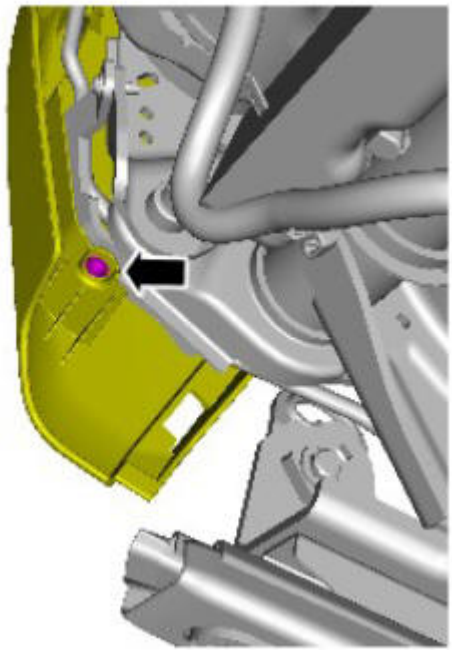
Refer to: Standard Workshop Practices (100-00, Description and Operation).

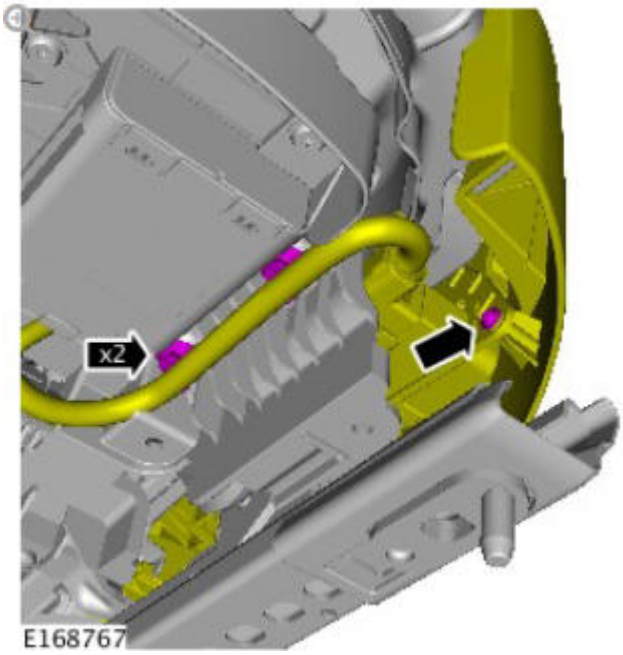
Refer to: Front Seat - Vehicles With: Power Seats (501-10, Removal and Installation).

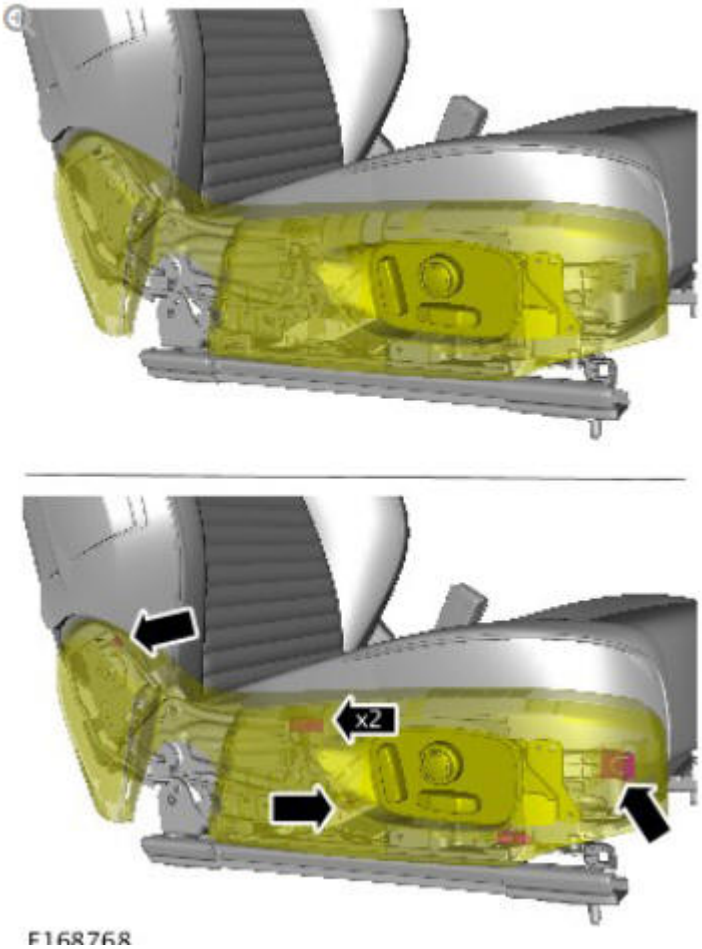


NOTE:

LH illustration shown, RH is similar.

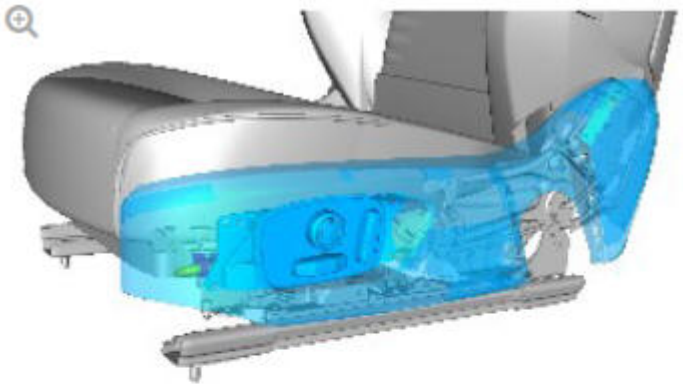


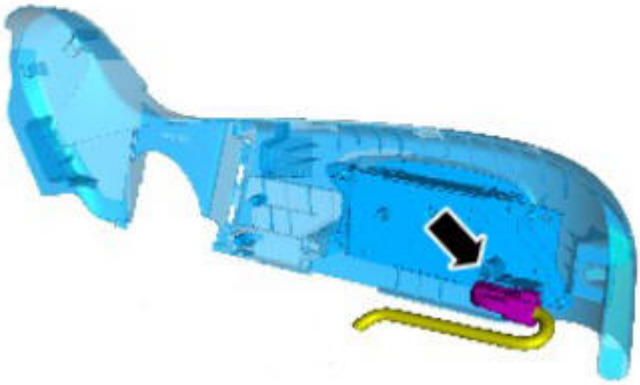


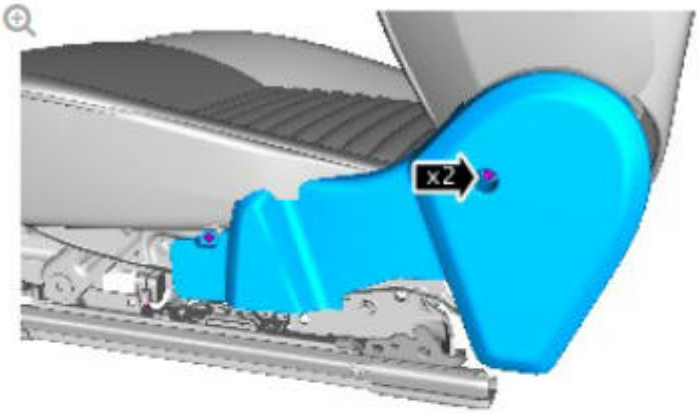


NOTE:

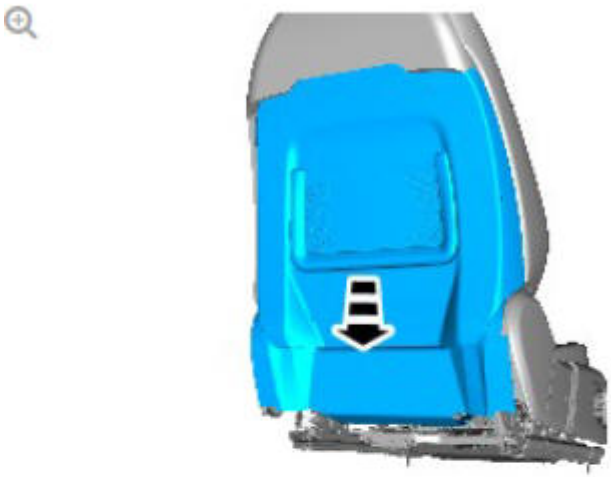
LH illustration shown, RH is similar.

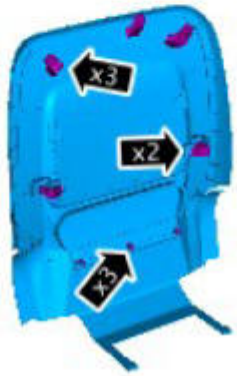


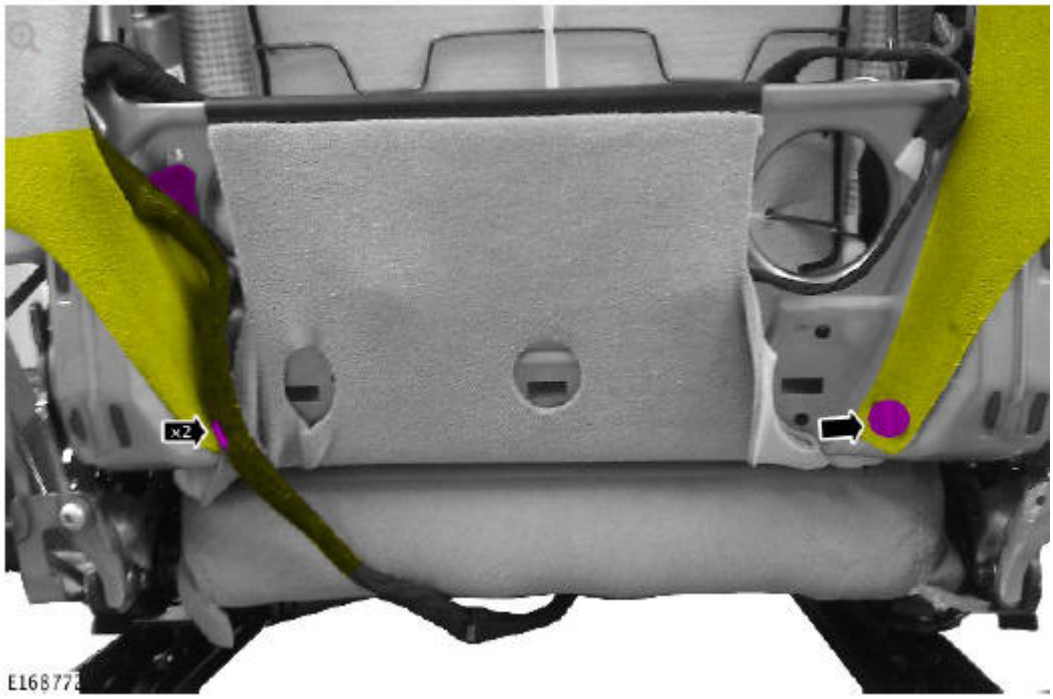


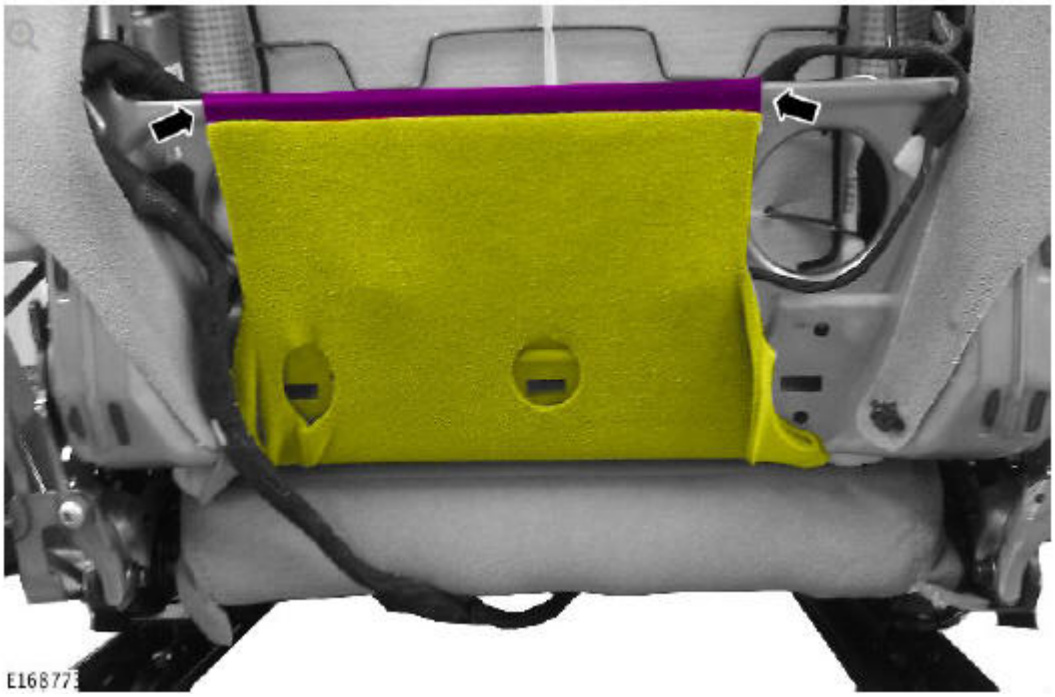

x2

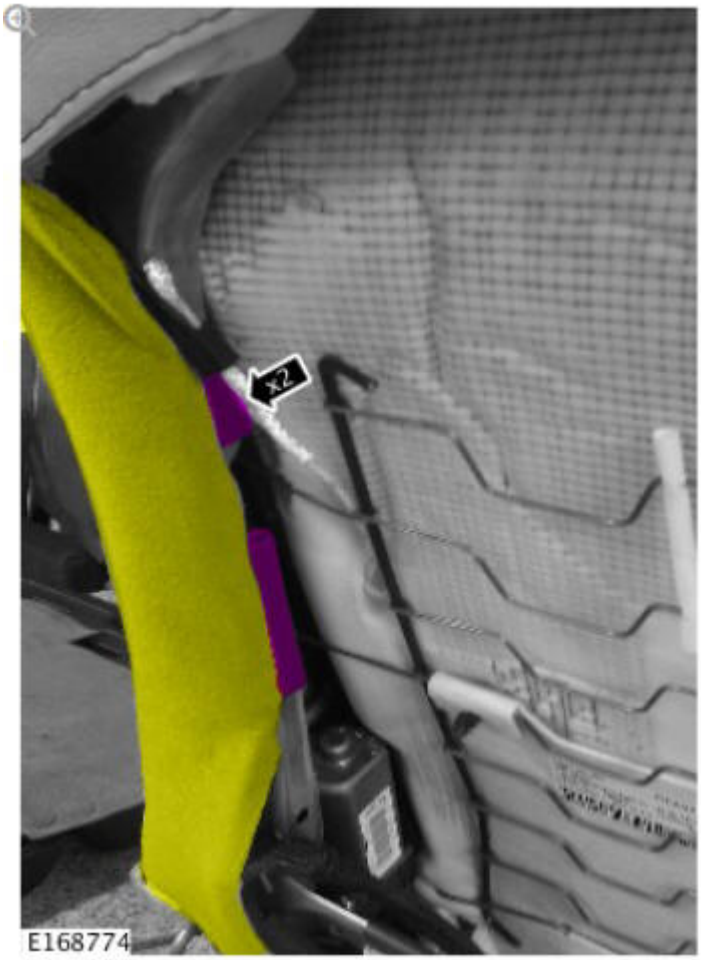

x2
x2

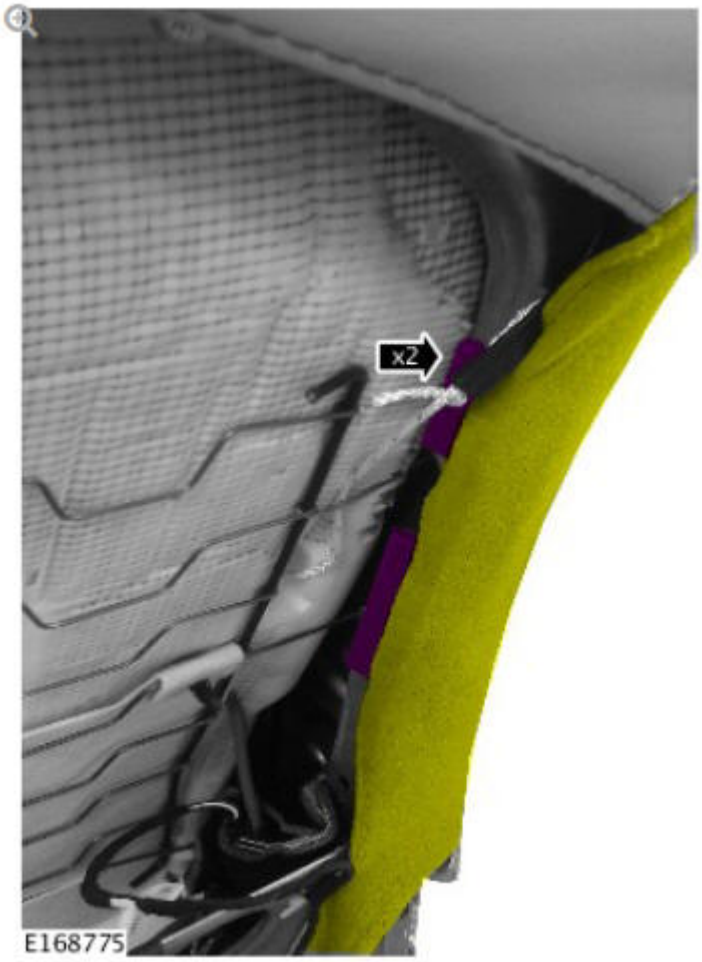


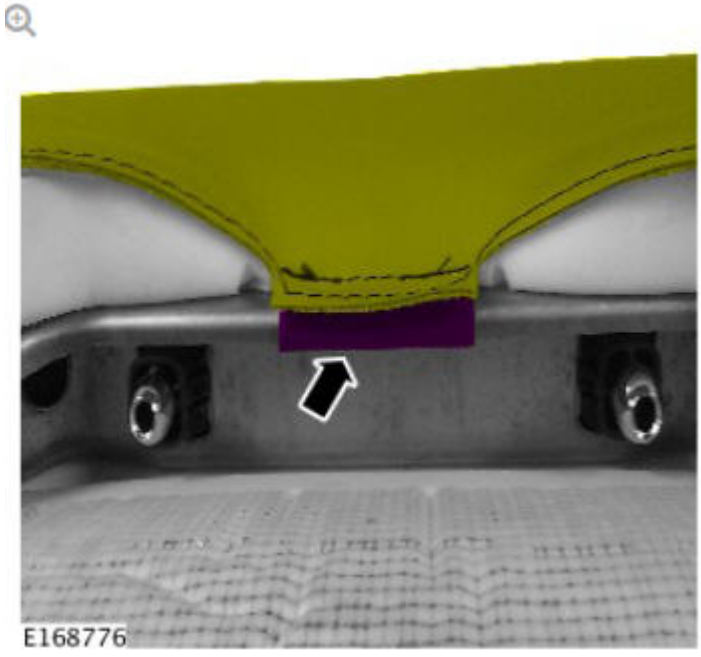

x3
x2
x3


x2
E168772


E168773


x2
E168774



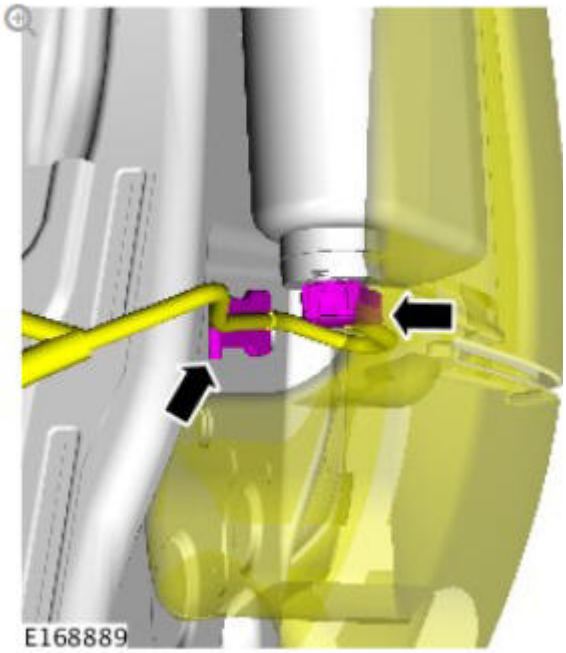


WARNINGS:

- ***Do not probe supplemental restraint system (SRS) electrical connectors.***
- ***The SRS electrical connectors are unique. DO NOT force, or attempt to connect electrical connectors to the wrong sockets.***

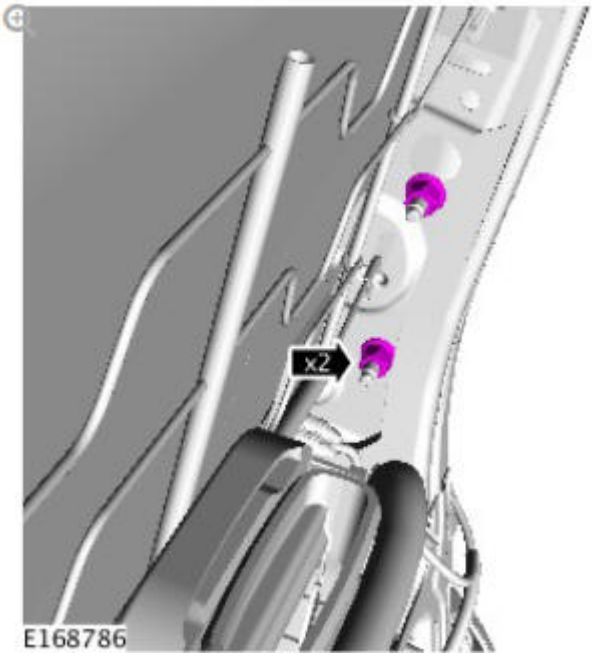
NOTE:

RH illustration shown, LH is similar.



NOTE:

RH illustration shown, LH is similar.



Torque: 9 Nm

WARNING:

Make sure that the air bag is correctly installed in to the fabric chute. Failure to follow this instruction may result in incorrect operation of the air bag.

CAUTION:

Note the installed position of the component(s) prior to removal.



INSTALLATION

To install, reverse the removal procedure.

ne

Supplemental Restraint System Occupant Detection Sensor (G1791884) / Removal and InstallationSupplemental Restraint System Side Air Curtain Module (G1785537) / Removal and Installation

ne

Система пассивной безопасности (SRS) боковой воздух Curtain модуль / снятие и установка

Supplemental Restraint System Side Air Curtain Module (G1785537) / Removal and Installation

REMOVAL

CAUTION:

Do not allow the side air curtain module to twist. Failure to follow this instruction may result in damage to the component.

NOTES:

- *Removal steps in this procedure may contain installation details.*
- *Right illustration shown, left is similar.*

All vehicles

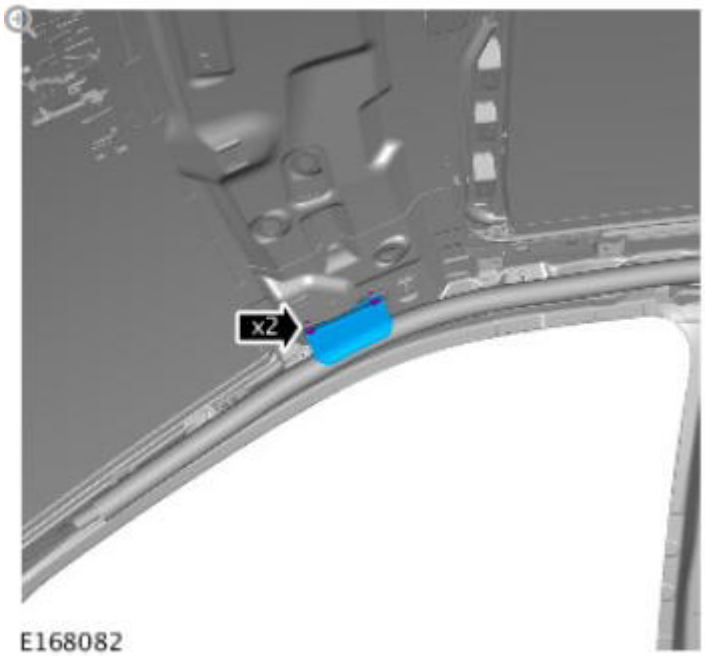
Disconnect the battery ground cable.

Refer to: Specifications (414-01, Specifications).

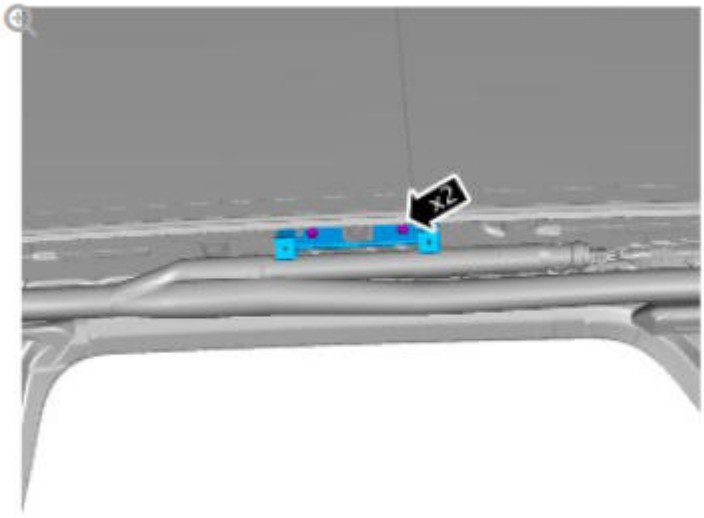
Make the supplemental restraint system (SRS) system safe.

Refer to: Standard Workshop Practices (100-00, Description and Operation).

Refer to: Headliner (501-05, Removal and Installation).



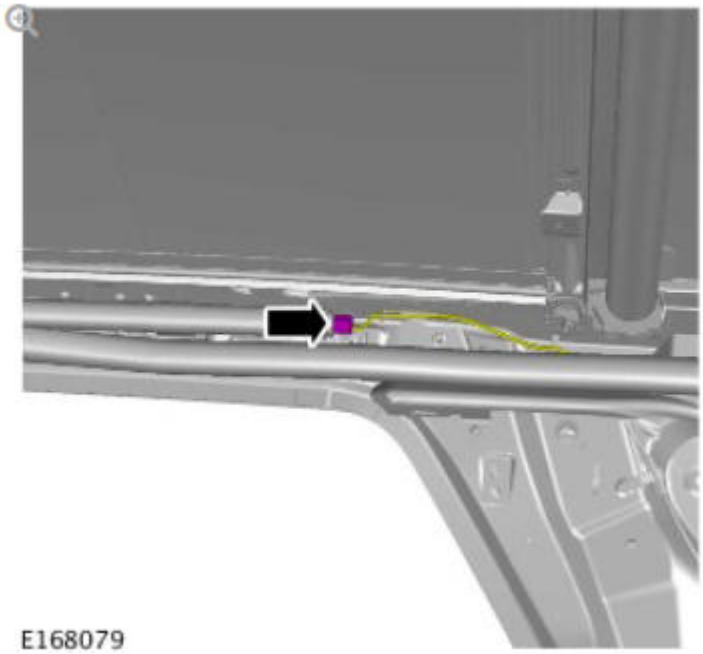
Torque: 10 Nm



Torque: 10 Nm

CAUTION:

Take extra care not to damage the wiring harnesses.



CAUTION:

Take extra care not to damage the component.

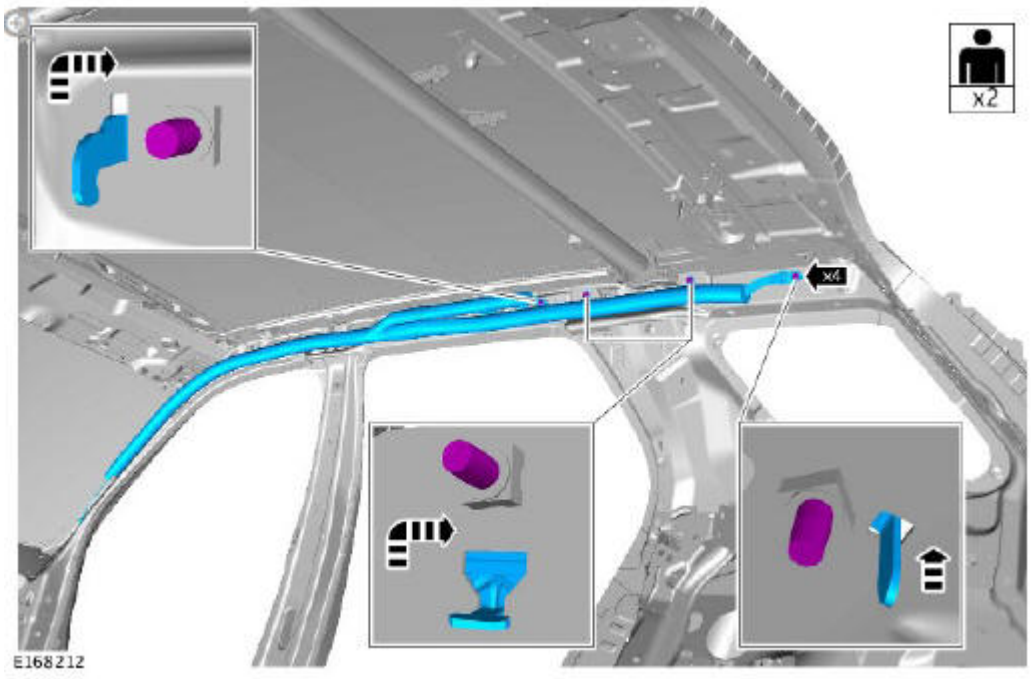


Torque: 10 Nm

Vehicles without occasional rear seats

WARNING:

This step requires the aid of another technician.

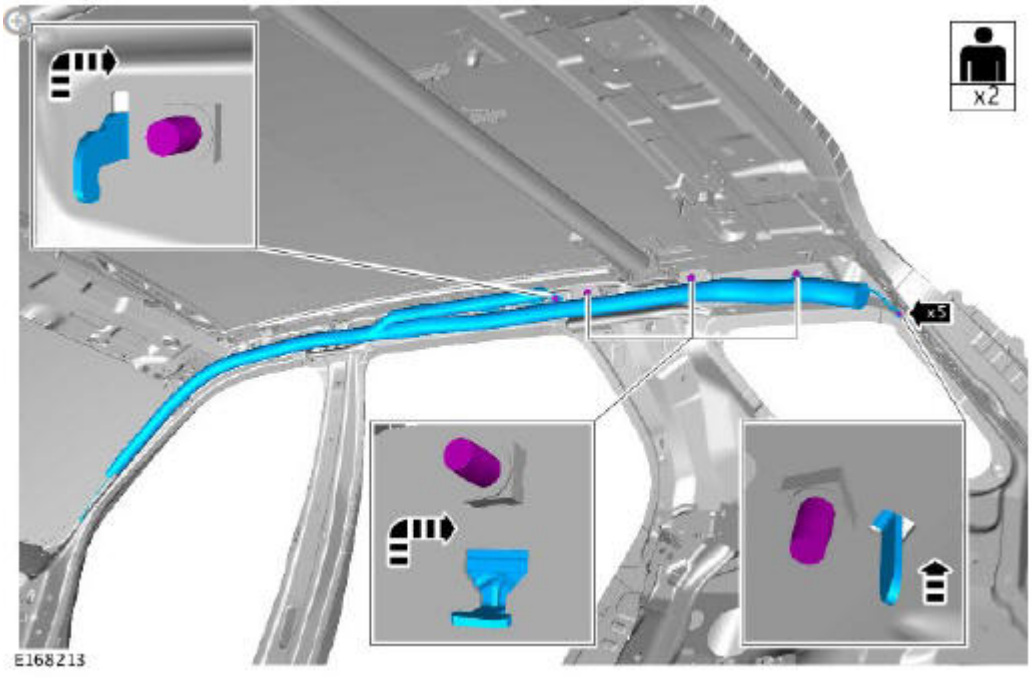


Torque: 10 Nm

Vehicles with occasional rear seats

WARNING:

<u>This step requires the aid of another technician.</u>



Torque: 10 Nm

INSTALLATION

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

Supplemental Restraint System Side Air Bag Module (G1785147) / Removal and InstallationSupplemental Restraint System / Description and Operation

ne

Система пассивной безопасности (SRS) / описание и работа

Supplemental Restraint System / Description and Operation

- Supplemental Restraint System - Component Location
- Occupant Monitoring
- Passenger Airbag Deactivation Indicator
- Load Limiter Actuator (Nas Passenger Seatbelt Only)

ne

Supplemental Restraint System Side Air Curtain Module (G1785537) / Removal and InstallationSupplemental Restraint System - Component Location

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Система пассивной безопасности (SRS) - расположение компонентов

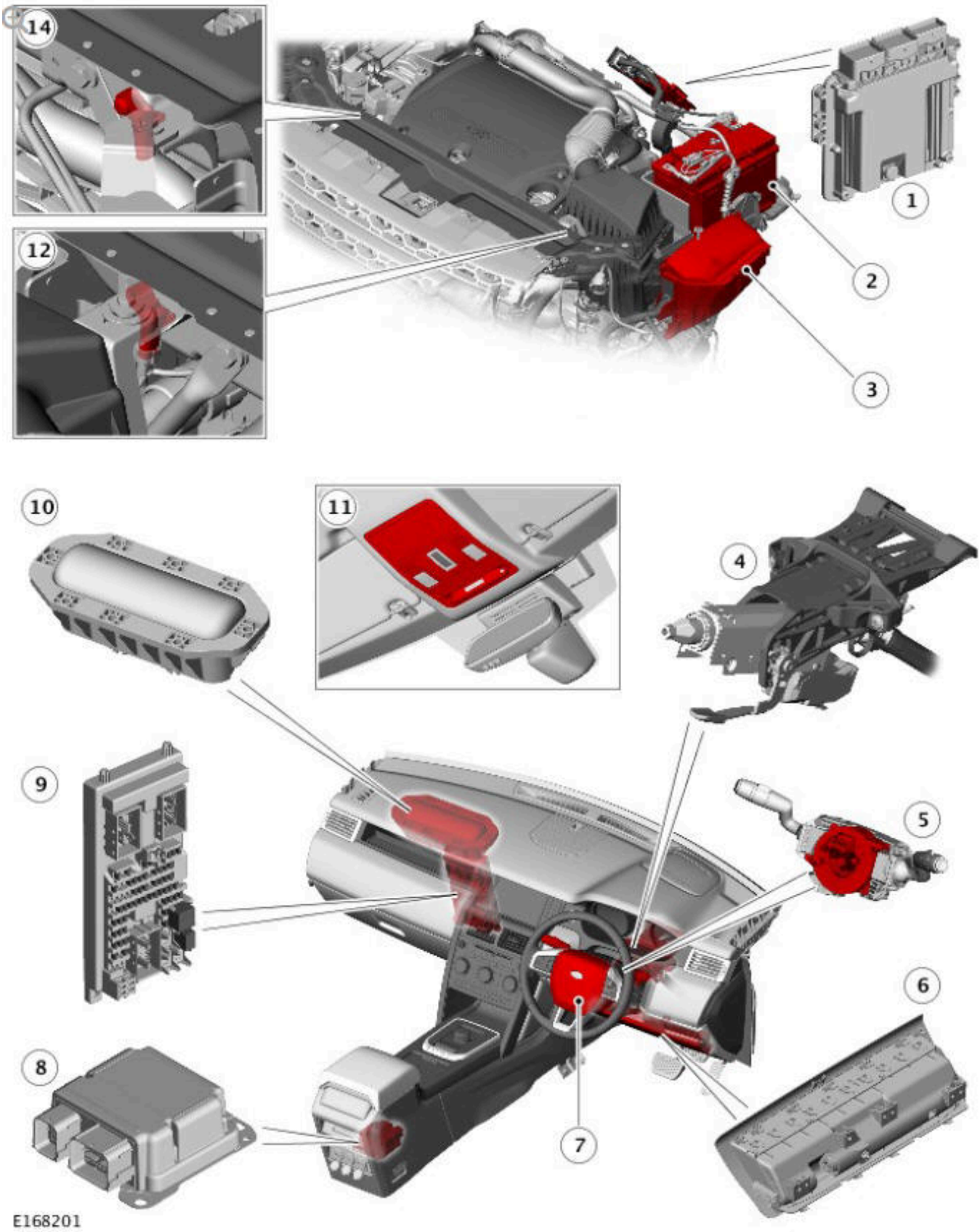
Supplemental Restraint System - Component Location

Component location

NOTE:

Right Hand Drive (RHD) installation shown, Left Hand Drive (LHD) installation similar

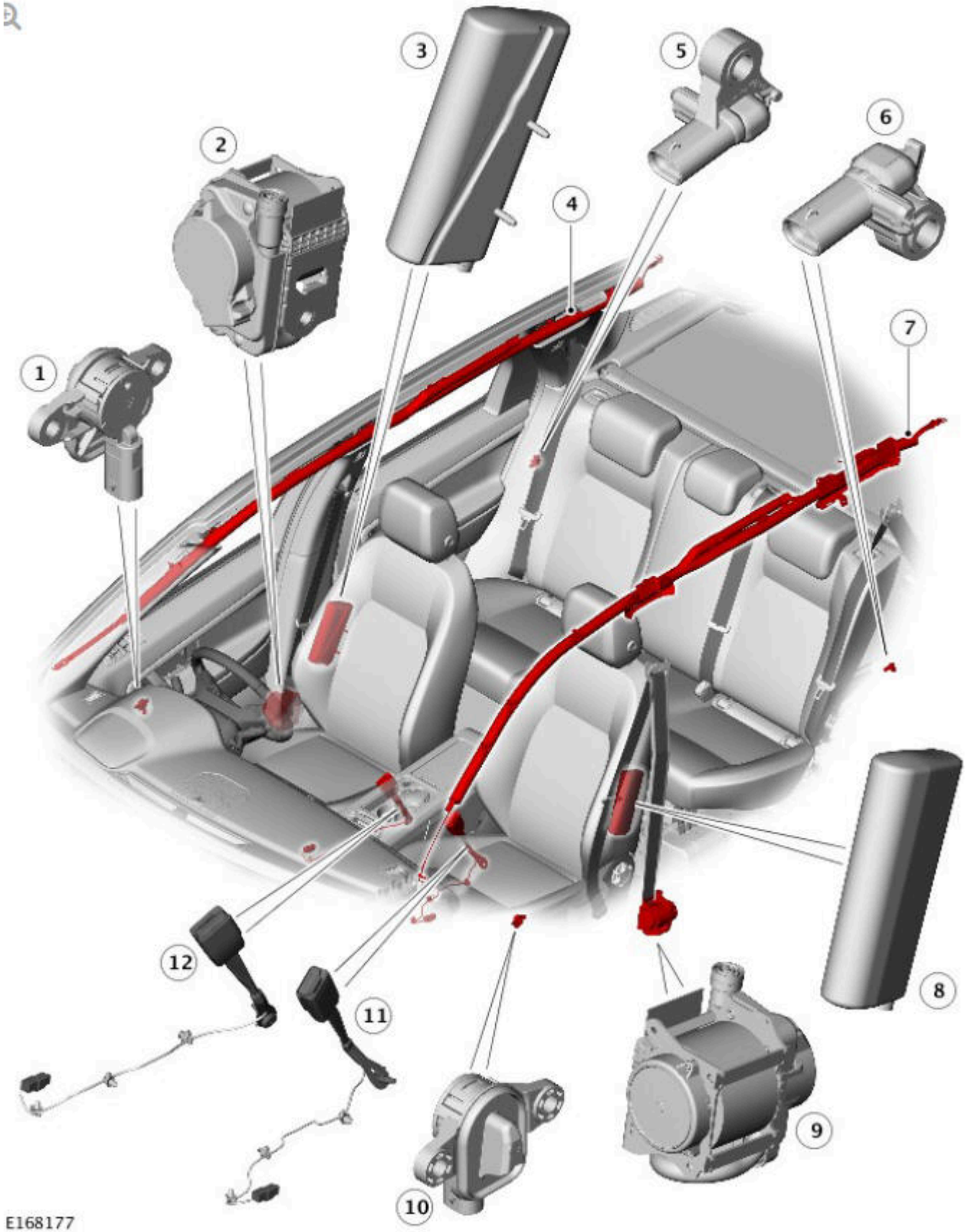
Location 1 of 2



1. Engine Control Module (ECM)
2. Battery
3. Battery Junction Box (BJB)
4. Steering column collapse actuator
5. Clockspring (CLKSPG)

6. Driver lower airbag
7. Driver airbag
8. Restraints Control Module (RCM)
9. Central Junction Box (CJB)
10. Passenger airbag
11. Passenger airbag deactivation indicator
12. Right front impact sensor
13. Left front impact sensor

Location 2 of 2



1. Right impact pressure sensor
2. Driver seatbelt retractor and pretensioner
3. Driver side airbag
4. Right side air curtain
5. Right rear side impact sensor

6. Left rear side impact sensor
7. Left side air curtain
8. Passenger side airbag
9. Passenger seatbelt retractor and pretensioner
10. Left impact pressure sensor
11. Left front seatbelt buckle
12. Right front seatbelt buckle

OVERVIEW

The Supplemental Restraint System (SRS) provides additional protection for vehicle occupants in certain impact conditions by selective activation of driver and passenger airbags, side airbags, side air curtains and seatbelt pretensioners. Operation of the system is controlled by a Restraints Control Module (RCM).

The RCM receives inputs from various sensors around the vehicle to determine which devices, if any, should be activated during an accident. The inputs include those from an occupant classification system for the front passenger seat (North American Specification (NAS) vehicles only), front and side impact sensors and side impact pressure sensors.

On all except NAS, Australia and Japan market vehicles, the passenger airbag can be enabled and disabled using the vehicle set-up menu in the Instrument Cluster (IC).

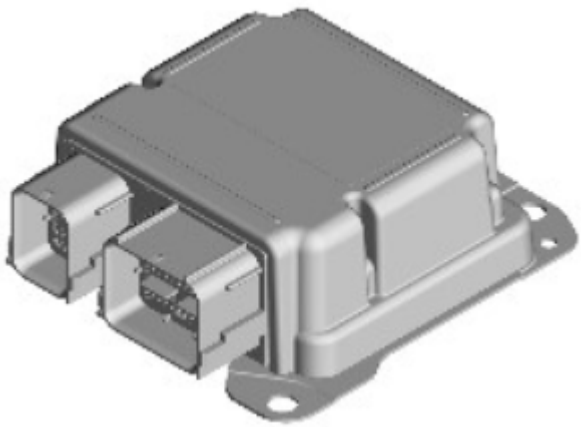
For additional information, refer to: Instrument Cluster (413-01 Instrument Cluster, Description and Operation).

The activation status of the passenger airbag is given by an indicator in the front overhead console. The status of the SRS is given by an airbag warning indicator in the IC.

The airbags and air curtains feature hybrid inflators, which use a selfcontained pyrotechnic device to heat a cylinder of compressed inert gas within the inflator. Above a calibrated pressure, the cylinder bursts and releases the gas into the airbag. The benefits of hybrid inflators are a cooler inflation gas, resulting in lower airbag surface temperatures, and elimination of the post-deployment effluent associated with solid pyrotechnic inflators.

DESCRIPTION

RESTRAINTS CONTROL MODULE (RCM)



The Restraints Control Module (RCM) is installed on top of the floor tunnel, under the floor console, and controls operation of the Supplemental Restraint System (SRS). The main functions of the RCM include:

- Crash detection and recording.
- Airbags, pedestrian protection system and seatbelt pretensioners firing.

- Self-test and system monitoring, with status indication via the airbag warning indicator, and non-volatile storage of fault information.
- Supply of yaw rate and lateral acceleration data for the Anti-lock Brake System (ABS) control module.

The RCM determines which elements of the SRS are to be deployed by using two internal areas:

- Crash severity evaluation.
- Deployment handler.

Crash severity evaluation uses data from the RCM internal accelerometer, the front impact sensors and the seatbelt buckle switches. Based on this data, the RCM decides which level of airbag module deployment is required and forwards the information to the second area, the deployment handler.

The deployment handler evaluates the status of the seat position sensors, seatbelt buckle switches and, on North American Specification (NAS) vehicles, the occupant classification system, before a final decision is made about which restraints should be deployed.

Data from the side impact and pressure sensors is used by the RCM in conjunction with acceleration data from the RCM internal accelerometer to make a deployment decision. The RCM processes the acceleration data and, subject to an impact being of high enough severity, decides whether the side airbag and air curtain should be deployed.

Yaw rate and lateral acceleration data for the ABS control module is derived from the internal accelerometer and transmitted on the High Speed (HS) Controller Area Network (CAN) chassis and powertrain buses.

On board testing of the airbags, pedestrian protection system and pretensioner firing circuits, the warning indicator circuits and the RCM status is performed by the RCM, together with the storing of fault codes. The impact and pressure sensors perform basic self-tests.

The RCM drives the airbag warning indicator via a High Speed (HS) Controller Area Network (CAN) signal. If the warning indicator fails, a fault code is recorded and a warning tone is sounded in place of the indicator if a further fault occurs. In the event of a crash, the RCM records certain data which can be accessed via the diagnostic connector.

A sensor in the RCM provides confirmation of an impact to verify if airbags, pedestrian protection system and pretensioner activation is necessary. A roll-over sensor monitors the lateral attitude of the vehicle. Various firing strategies are employed by the RCM to ensure that during an accident only the appropriate airbags, pedestrian protection system and pretensioners are fired. The firing strategy used also depends on the inputs from the seatbelt buckle switches and, on NAS vehicles, the occupant classification system.

An energy reserve in the RCM ensures there is always a minimum of 150 milliseconds of stored energy available if the power supply from the ignition circuit is disrupted during a crash. The stored energy is sufficient to produce firing signals for the driver airbag, the passenger airbag and the seatbelt pretensioners.

When the ignition is switched on the RCM performs a self-test and then performs cyclical monitoring of the system. If a fault is detected the RCM stores a related fault code and illuminates the airbag warning indicator. The faults can be retrieved by Land Rover approved diagnostic equipment. If a fault that could cause a false fire signal is detected, the RCM disables the respective firing circuit, and keeps it disabled during a crash event.

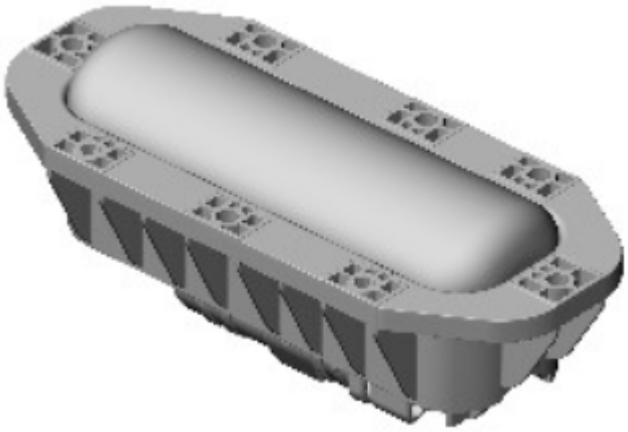
DRIVER AIRBAG



The driver airbag forms the center pad of the steering wheel. It provides head and chest protection for the driver when deployed during a frontal impact.

Lines, molded into the inner surface of the airbag cover, provide weak points that split open in a controlled manner when the airbag deploys. The driver airbag has a single stage inflator for Rest of World (ROW) and dual stage for North American Specification (NAS) markets.

PASSENGER AIRBAG



The passenger airbag is located in the instrument panel, behind the upper glovebox. It provides head and chest protection when deployed during a frontal impact.

The top of the passenger airbag is attached to a channel chute underneath the top pad of the instrument panel. Doors in the top of the channel chute are forced open, and split the top pad, when the airbag deploys.

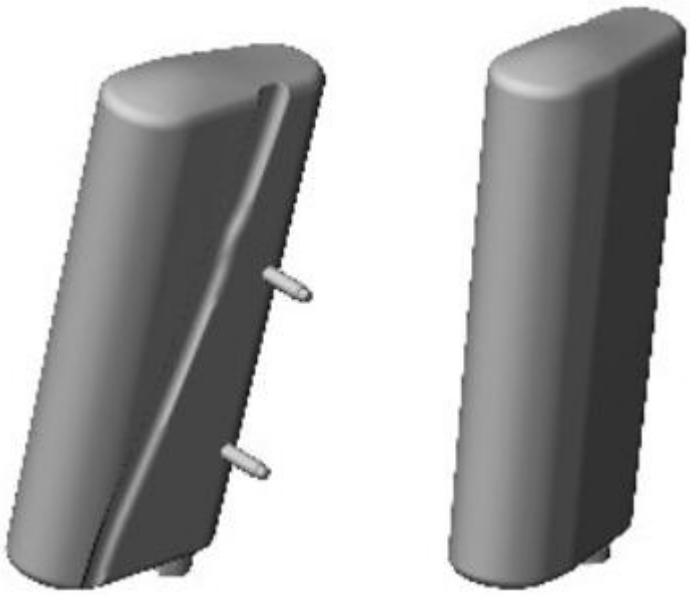
The passenger airbag has a single stage inflator for ROW and dual stage for NAS markets.

DRIVER LOWER AIRBAG



The driver lower airbag has a single stage inflator. The module has an integral door and is attached to the lower trim panel beneath the steering column. Weak points in the door break in a control manner to allow the door to hinge downward when the airbag deploys.

SIDE AIRBAG



The side airbags are attached to the outside of each front seat backrest frame, under the backrest cover. They provide protection for the thorax, rib and pelvis when deployed during a side impact.

The side airbags are handed and each consists of a folded airbag and an inflator in a soft cover/wrapper. When the airbag deploys it fills within a deployment chute integrated into the seat trim, and splits open the airbag deployment seam in the backrest cover.

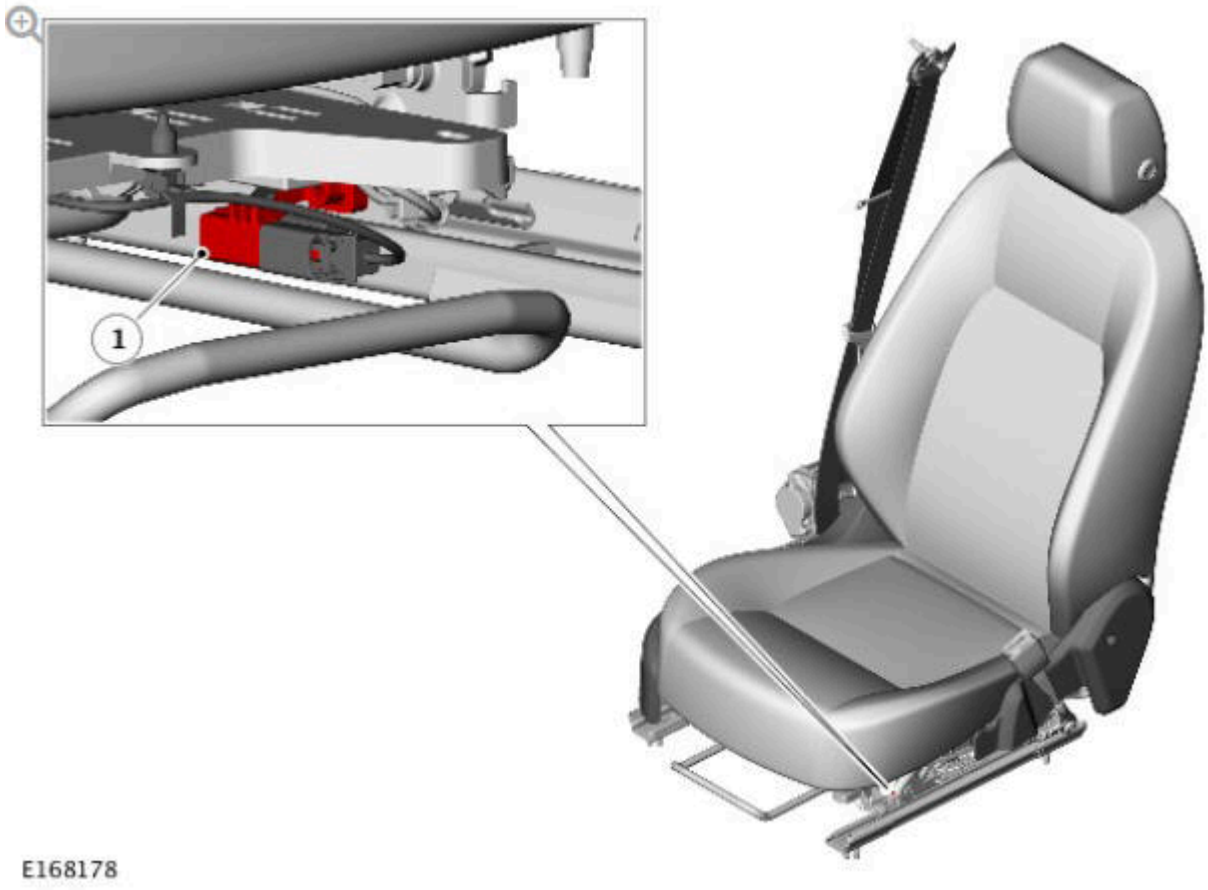
SIDE AIR CURTAINS



The side air curtains are installed along both sides of the car, under the edges of the headliner. They provide head protection and roll-over ejection protection for outer seat occupants, in both the front and rear of the vehicle, when deployed during a side impact.

The front and rear ends of the side air curtains are anchored to the body, to maintain tension across their lower edges of the air curtains when they deploy. Their deployment area extends between the A and C pillar trims, passing over the upper B pillar trim.

DRIVER SEAT POSITION SENSOR



1. Driver seat position sensor

The driver seat position sensor, a 'Hall effect' type, is fitted to the underside of the driver's seat. The sensor is actuated by the target bracket attached to the seat slide. The disturbance caused when the target bracket passes the sensor creates an output signal for the Restraint Control Module (RCM). On receipt of this signal, which indicates when the seat is forward of a defined point in its travel, the RCM disables the second stage output of the driver airbag.

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Supplemental Restraint System / Description and OperationOccupant Monitoring

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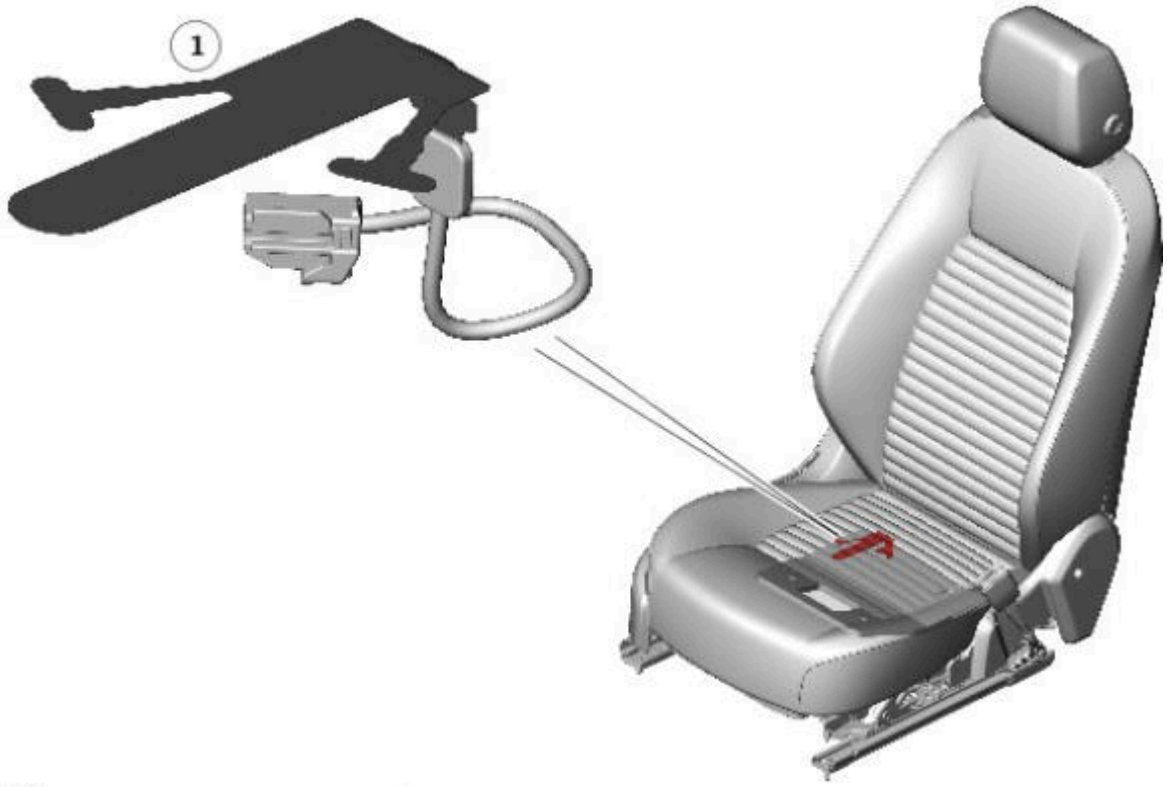
Пассажир контроль

Occupant Monitoring

There are two types of occupant monitoring:

- In all markets except North American Specification (NAS), vehicles have an occupant detection sensor.
- In NAS markets, vehicles have an occupant classification sensing.

Occupant Detection Sensor



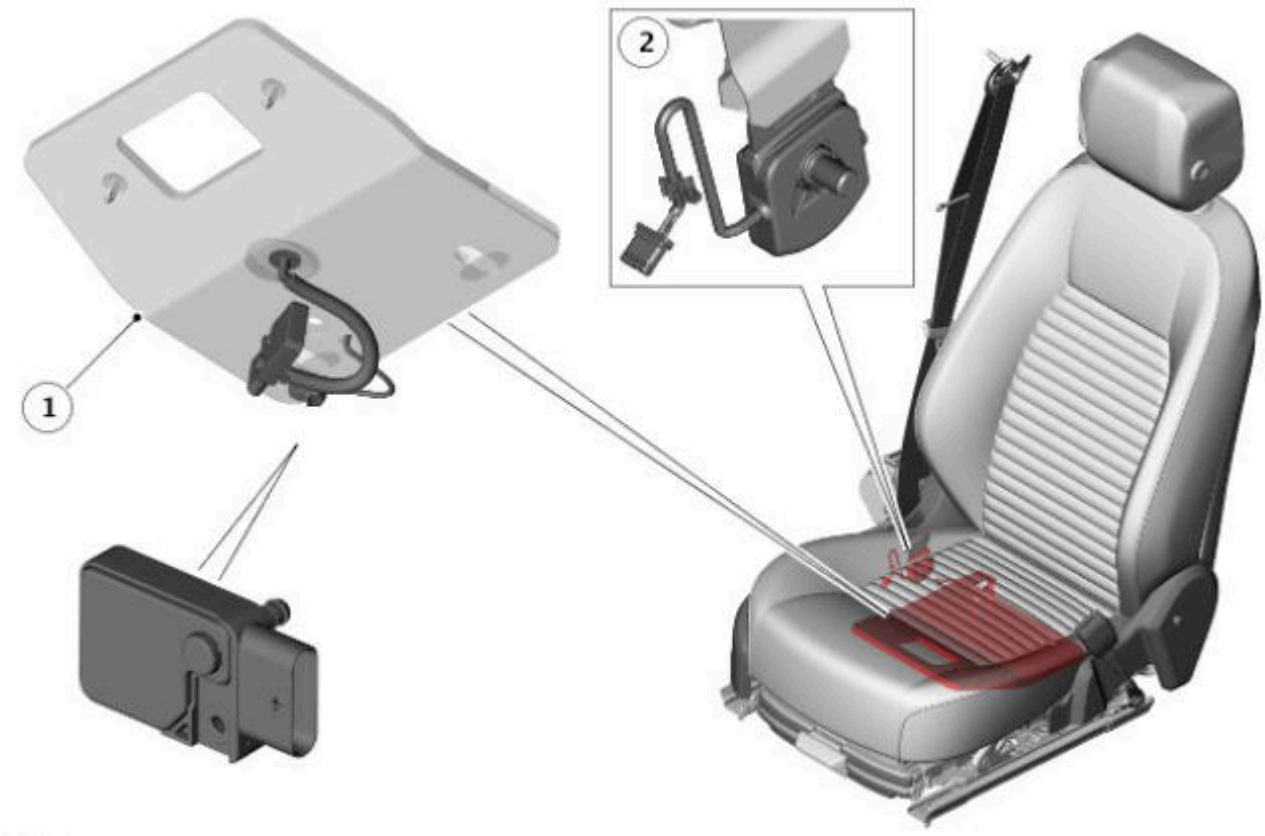
1. Occupant detection sensor

The occupant detection sensor is installed in the cushion of the front passenger seat, between the foam padding and the cover. The sensor consists of a foil contact circuit, embedded in a plastic sheet. Weight on the sensor reduces the resistance of the circuit, which is detected by the Central Junction Box (CJB).

The occupant detection sensor has no interface with the SRS. It only provides an input to the CJB for the seatbelt reminder function.

For additional information, refer to: Seatbelt System (501-20A Seatbelt System, Description and Operation).

Occupant Classification Sensing



1. Occupant Classification Sensor Control Module (OCSCM)
2. Seatbelt tension sensor

In North American Specification (NAS) markets where safety belt use is infrequent, additional technology is used to classify the occupant of the front passenger seat. The occupant classification sensing system provides seat load data to the Restraints Control Module (RCM).

The occupant classification system consists of:

- The OCSCM (Occupant Classification Sensor Control Module), installed under the front passenger seat.
- A pressure pad, installed under the cushion of the front passenger seat, which is connected to the OCSCM.
- A seatbelt tension sensor, integrated into the anchor point of the front passenger seatbelt.

The pressure pad is a silicone filled bladder. Any load on the pressure pad is detected by the OCSCM. The seatbelt tension sensor is a strain gauge which measures the load applied by the seatbelt anchor to the anchor bolt.

The sensor is located in the lower seatbelt anchor point.

CAUTION:

The occupant classification sensor control module, hose and pressure pad form a sealed assembly and must not be disassembled. The assembly can only be replaced as part of the occupant classification sensing service kit. The service kit includes the seat cushion pad, because the assembly is specifically calibrated to the pad, and each pad has a unique calibration.

The OCSCM supplies a reference voltage to the seatbelt tension sensor and, from the return signal, measures the load acting on the seatbelt anchor. The measurement is used to produce a correction factor for the load acting on the pressure pad. The tightness of the seatbelt affects the load acting on the pressure pad, so without the correction factor the OCSCM cannot derive an accurate occupancy status.

The OCSCM translates the load readings into a seat occupancy status and transmits the result to the RCM, on the High Speed (HS) Controller Area Network (CAN) powertrain bus.

The RCM monitors and processes the data from the OCSCM before making an airbag deployment decision. The system is designed to take account of several variables in addition to weight, including: inclination of the vehicle and exact position and structure of the weight on the seat.

This protects against inadvertent airbag deployment, for example, if the seat were occupied by an infant in a booster seat, or an unrestrained but very lightweight adult, in both these cases the airbag would be disabled.

The occupant classification sensing system forms part of a strategy to control passenger airbag deployment depending on the occupancy scenario.

The occupant classification sensing has four possible states:

- Seat Empty: the passenger airbag, passenger side airbag and passenger seatbelt pretensioner operation is disabled; the passenger airbag deactivation warning indicator is not illuminated.
- Occupied Inhibit: when the seat is occupied by a small person, the passenger airbag, passenger side airbag and passenger seatbelt pretensioner operation is disabled; the passenger airbag deactivation warning indicator is illuminated.
- Occupied Allow: when the seat is occupied by a large person; the passenger airbag and passenger side airbag operation is enabled, the passenger airbag deactivation warning indicator is not illuminated.

  Passenger seatbelt pretensioner operation status depends on the seatbelt buckle status:

  - Active for buckled.
  - Inactive for unbuckled.
- Error: if a system fault is detected; the passenger airbag is enabled to deploy at 'stage-1' only, refer to airbag Dual Stage Inflators below.

  Passenger-side airbag operation is also enabled; the passenger airbag deactivation indicator is not illuminated. Passenger seatbelt and pretensioner operation status depends on the seatbelt buckle status:

  - Active for buckled.
  - Inactive for unbuckled.

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Supplemental Restraint System - Component LocationPassenger Airbag Deactivation Indicator

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Пассажир подушка безопасности Deactivation Indicator

Passenger Airbag Deactivation Indicator



1. Passenger airbag deactivation warning indicator

The Passenger Airbag Deactivation (PAD) warning indicator is installed in the front overhead console. When appropriate, the indicator illuminates to advise front seat occupants that the passenger airbag is disabled. Operation of the indicator is controlled by the Restraints Control Module (RCM) connecting/disconnecting a ground signal from the indicator. The RCM illuminates the indicator when:

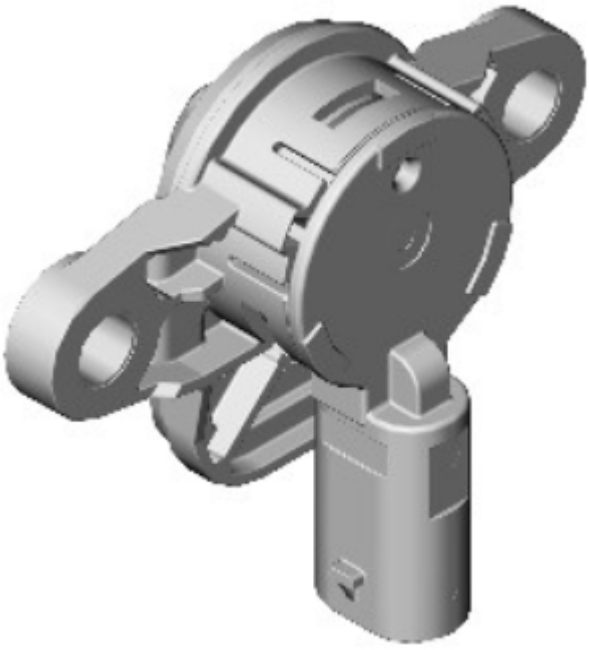
- There is a fault with the passenger airbag firing circuits.
- The passenger airbag is disabled in the Instrument Cluster (IC) set-up menu and the front passenger seat is occupied (all except NAS, Australia and Japan).
- Required by the occupant classification system (NAS only).

AIRBAG WARNING INDICATOR



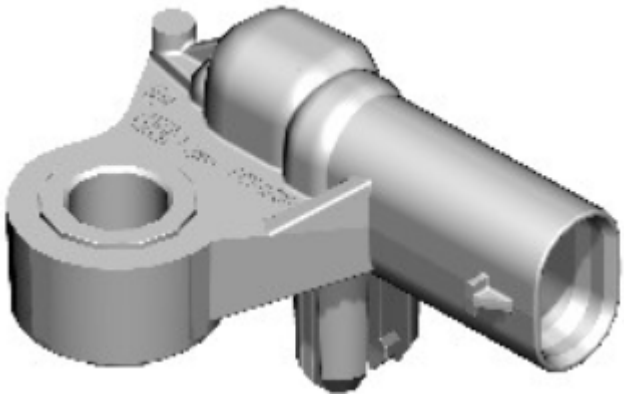
Operation of the airbag warning indicator in the Instrument Cluster (IC) is controlled by a High Speed (HS) Controller Area Network (CAN) powertrain bus systems message from the Restraints Control Module (RCM). The RCM sends the signal to illuminate the airbag warning indicator if a fault is detected, and for approximately 6 seconds during the bulb check at the beginning of each ignition cycle.

IMPACT PRESSURE SENSOR



An impact pressure sensor is installed in each front door, attached to the door closing panels. The pressure sensors allow the Restrains Control Module (RCM) to detect any sudden pressure pulse that occurs in the front door during a side impact.

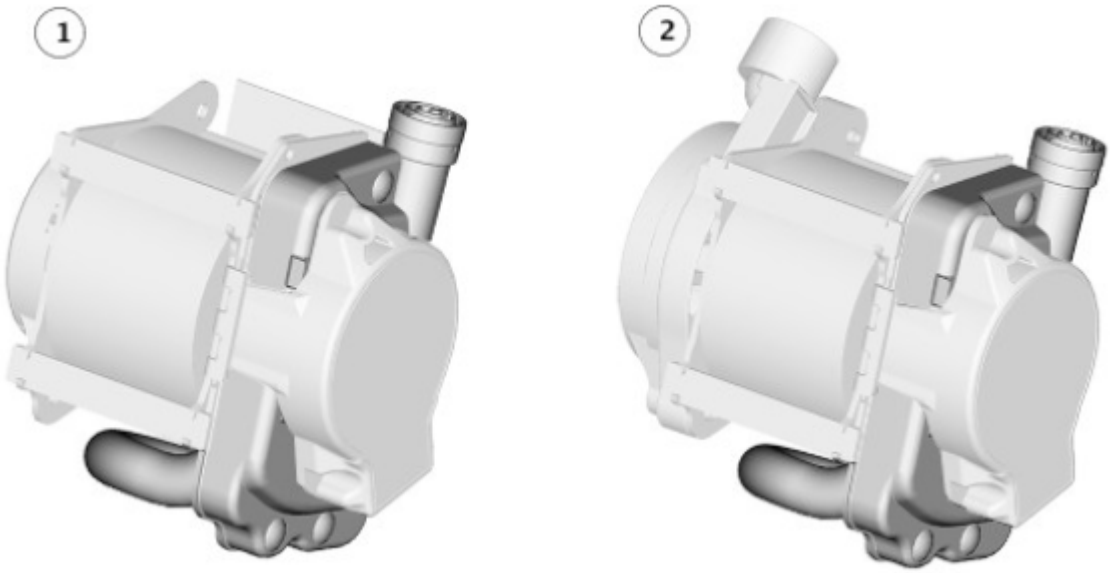
IMPACT SENSOR



Impact sensors are installed in the front and both sides of the vehicle. The two front impact sensors are attached to the front end carrier, behind the inboard edge of each headlamp. The side impact sensors are attached to the base of each C/D pillar and to the inner panel of each rear quarter wheel housing, adjacent to the rear door latch strikers.

The impact sensors are accelerometers that allow the Restraints Control Module (RCM) to detect the sudden vehicle acceleration that occurs during an impact.

PRETENSIONERS



1. Seatbelt retractor and pretensioner (all except North American Specification (NAS) passenger seatbelt)
2. Seatbelt retractor, pretensioner and load limiter (NAS passenger seatbelt only)

A pyrotechnic pretensioner is integrated into each seatbelt retractor. The pretensioners are used to tighten the seatbelts during a collision to ensure the occupants are securely held in their seats.

When operated by the Restraints Control Module (RCM), the pretensioners rotate the spool holding the end of the webbing to tighten the seatbelt.

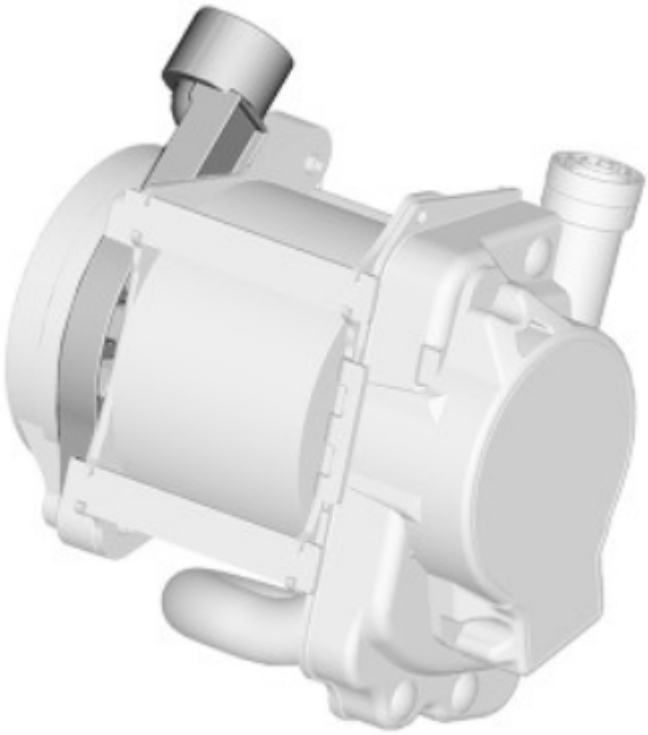
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Occupant MonitoringLoad Limiter Actuator (Nas Passenger Seatbelt Only)

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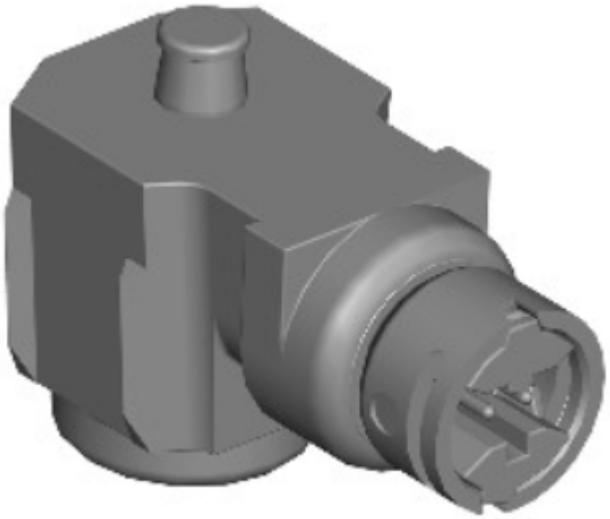
Load Limiter привод (Nas пассажир ремень безопасности только)

Load Limiter Actuator (Nas Passenger Seatbelt Only)



On North American Specification (NAS) vehicles, a pyrotechnic load limiter actuator is incorporated into the retractor of the passenger seatbelt to provide an adaptive load limiter. The adaptive load limiter has two different load limits, the standard load limit and a lower load limit. The lower load limit is designed to reduce the chest loading for smaller seat occupants during an impact, and is engaged when the Restraints Control Module (RCM) fires the load limiter actuator.

STEERING COLUMN COLLAPSE ACTUATOR (NAS MARKET)



A steering column collapse actuator is installed to provide increased energy absorption, if a crash situation occurs.

For additional information, refer to: Steering Column (211-04 Steering Column, Description and Operation)..

OPERATION

In a collision, the force of the impact is measured by the impact sensors, impact pressure sensors and the Restraints Control Module (RCM). The RCM evaluates the readings to determine the impact point on the vehicle and whether the readings exceed the limits for firing any of the airbags and pretensioners. During a collision, the RCM only fires the airbags, air curtains and pretensioners if the safing function confirms that the data from the impact sensor(s) indicates an impact limit has been exceeded.

The RCM incorporates the following impact thresholds to cater for different accident scenarios:

- Front impact, pretensioners.
- Front impact, driver and passenger airbags stage 1, belt unfastened.
- Front impact, driver and passenger airbags stage 1, belt unfastened.
- Front impact, driver and passenger airbags stage 2, belt unfastened.
- Front impact, driver and passenger airbags stage 2, belt fastened.
- Rear impact.
- Driver side impact.
- Passenger side impact.

FIRING STRATEGIES

The seatbelt pretensioners are fired when the pretensioner impact limit is exceeded. The RCM only fires the pretensioners if the related seatbelt is fastened.

The driver and passenger airbags are only fired in a frontal impact.

On North American Specification (NAS) vehicles, the passenger airbag is disabled unless the front passenger seat is occupied by a large person. In all markets except NAS, Australia and Japan, the passenger airbag can be selected off in the vehicle Set-up menu of the Instrument Cluster (IC).

If there is a fault with a seatbelt buckle switch, the RCM assumes the related seatbelt is fastened for the pretensioner firing strategy and unfastened for the driver and passenger airbag firing strategies. If there is a fault with the occupant classification sensor, the RCM disables the passenger airbag. If there is a fault with the passenger airbag deactivation switch, the RCM disables the passenger airbag.

If a side impact limit is exceeded, the RCM fires the side airbag and the side head airbag on that side of the vehicle. If the side impact limit on the front passenger side of the vehicle is exceeded, the RCM also evaluates the input from the occupant classification sensor, and fires the side airbag only if the front passenger seat is occupied by a large person (NAS only).

If multiple impacts occur during a crash event, after responding to the primary impact the RCM will output the appropriate fire signals in response to any further impacts if unfired units are available.

Front and Rear Impact Firing Strategy (All Except NAS)

SEATBELT STATUS		STRATEGY		
DRIVER	FRONT PASSENGER	APPLICABLE PRETENSIONER	DRIVER AIRBAG	PASSENGER AIRBAG
Fastened	-	Fired at pretensioner threshold	Fired at belt fastened threshold	-
Unfastened	-	Not fired	Fired at belt unfastened threshold	-
-	Fastened	Fired at pretensioner threshold	-	Fired at belt fastened threshold
-	Unfastened	Not fired	-	Fired at belt unfastened threshold

Front and Rear Impact Firing Strategy (NAS)

STEATBELT STATUS			STRATEGY		
DRIVER	PASSENGER	PASSENGER SEAT CLASSIFICATION	APPLICABLE PRETENSIONER	DRIVER AIRBAG	PASSENGER AIRBAG
Fastened	-	-	Fired at pretensioner threshold	Fired at belt fastened threshold	-
Unfastened	-	-	Not fired	Fired at belt unfastened threshold	-
-	Fastened	Occupied allow	Fired at pretensioner threshold	-	Fired at belt fastened threshold
-	Fastened	Occupied inhibit or empty	Fired at pretensioner	-	Not fired

			threshold		
-	Unfastened	Occupied allow	Not fired	-	Fired at belt unfastened threshold
-	Unfastened	Occupied inhibit or empty	Not fired	-	Not fired

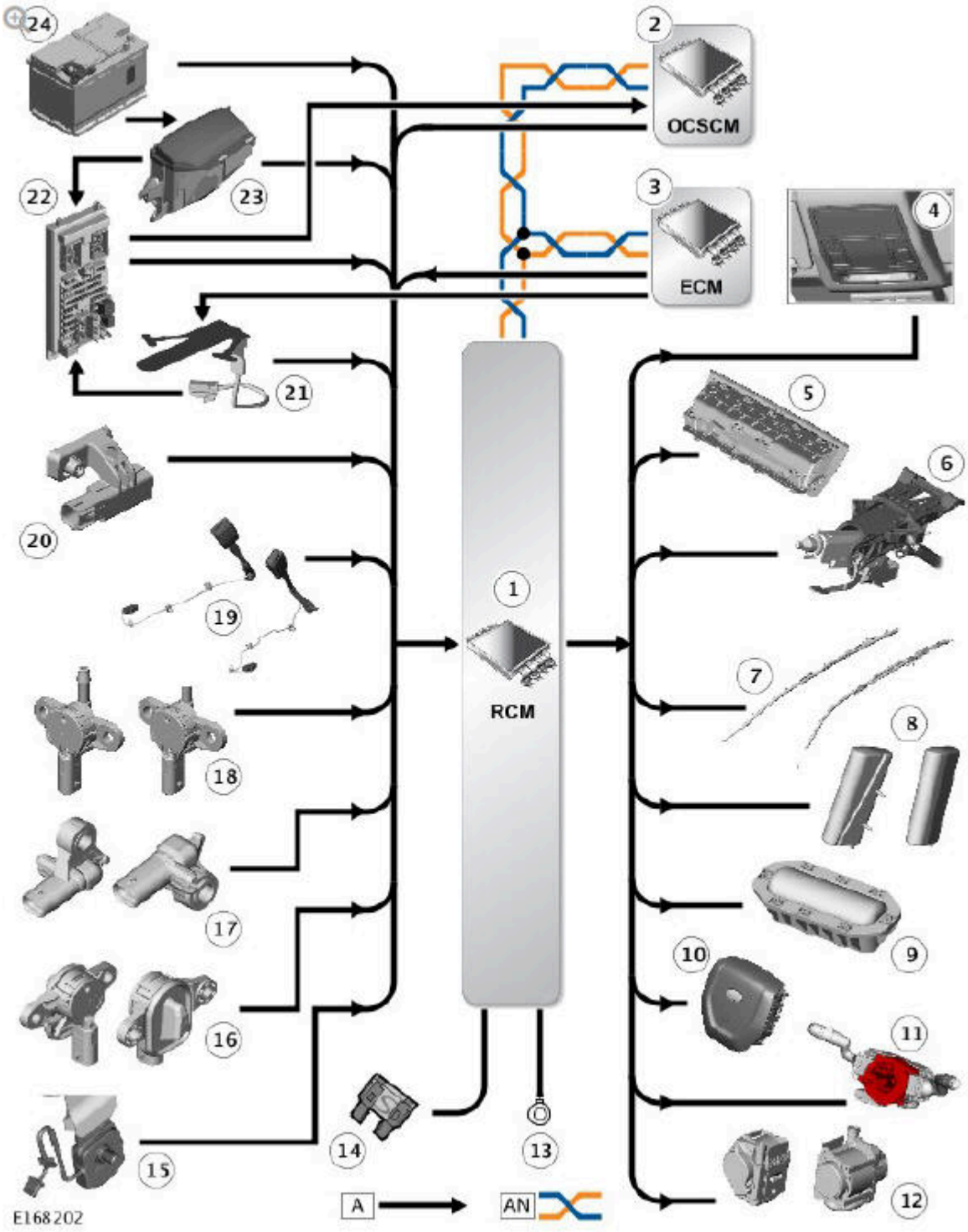
CRASH SIGNAL

When the Restraints Control Module (RCM) outputs any of the fire signals it also outputs a crash signal to the Central Junction Box (CJB) and the Engine Control Module (ECM) on the High Speed (HS) Controller Area Network (CAN) powertrain bus systems. The crash signal is also hardwired to the ECM and the CJB. On receipt of the crash signal, the ECM cuts the power supply to the fuel pump relay and the CJB goes into crash mode. In the crash mode, the CJB:

- Activates all of the unlock signals of the vehicle locking system, even if the vehicle is already unlocked.
- Ignores all locking/superlocking inputs until it receives an unlock input, when it returns the locking system to normal operation.
- Activates the interior lamps. The interior lamps remain on permanently until they are manually switched off at the lamp unit, or the CJB crash mode is switched off and they return to normal operation.
- Disables the rear window child lock input until the crash mode is switched off.
- Activates the hazard flashers. The hazard flashers remain on until cancelled by the hazard warning switch or the crash mode is switched off.

The CJB crash mode is switched off by a valid locking and unlocking cycle of the locking system.

CONTROL DIAGRAM



1. Restraints Control Module (RCM)
2. Occupant Classification Sensor Control Module (OCSCM)
3. Engine Control Module (ECM)
4. Passenger airbag deactivation indicator
5. Driver lower airbag
6. Steering column collapse actuator
7. Side air curtains
8. Side airbags
9. Passenger airbag
10. Driver airbag
11. Clockspring (CLKSPG)

12. Pretensioners
13. Ground
14. Power supply
15. Seatbelt tension sensor
16. Impact pressure sensor
17. Side impact sensors
18. Pedestrian Protection System Control Module (PPSCM)
19. Seatbelt buckle
20. Driver seat position sensor
21. Occupant detection sensor
22. Central Junction Box (CJB)
23. Battery Junction Box (BJB)
24. Battery

Supplemental restraint system specifications

ITEM	NM	LB-FT	LB-IN
Front door side impact sensor bolts	2	-	18
C-pillar side impact sensor bolts	11	8	-
Driver lower airbag bolts	6	-	53
Front impact sensor bolts	11	8	-
Passenger airbag nuts	4.5	-	40
Restraints control module (RCM) nuts	10	7	-
Side airbag nuts	7	-	62
Side air curtain bracket bolts	10	7	-
Side air curtain bolts	10	7	-
Occupant classification sensor control module (OCSCM) bolt	5	-	44

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Passenger Airbag Deactivation IndicatorThird Row Safety Belt Buckle (G1815474) / Removal and Installation

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Третий ряд безопасность замок ремня безопасности / снятие и установка

Third Row Safety Belt Buckle (G1815474) / Removal and Installation

REMOVAL

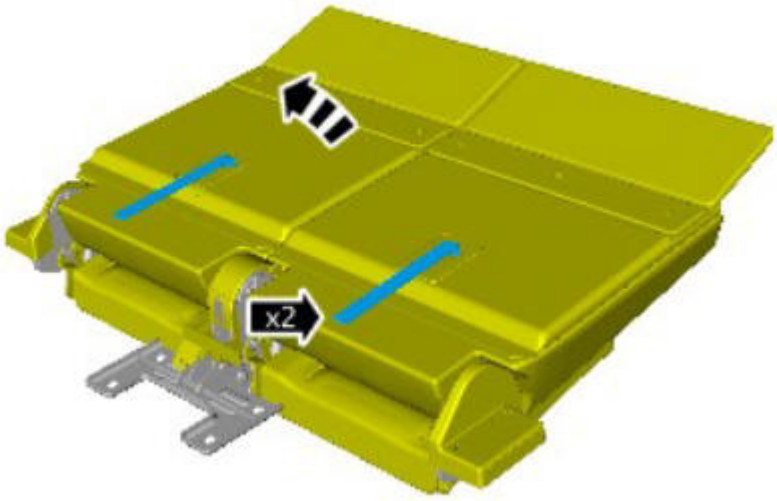
WARNINGS:

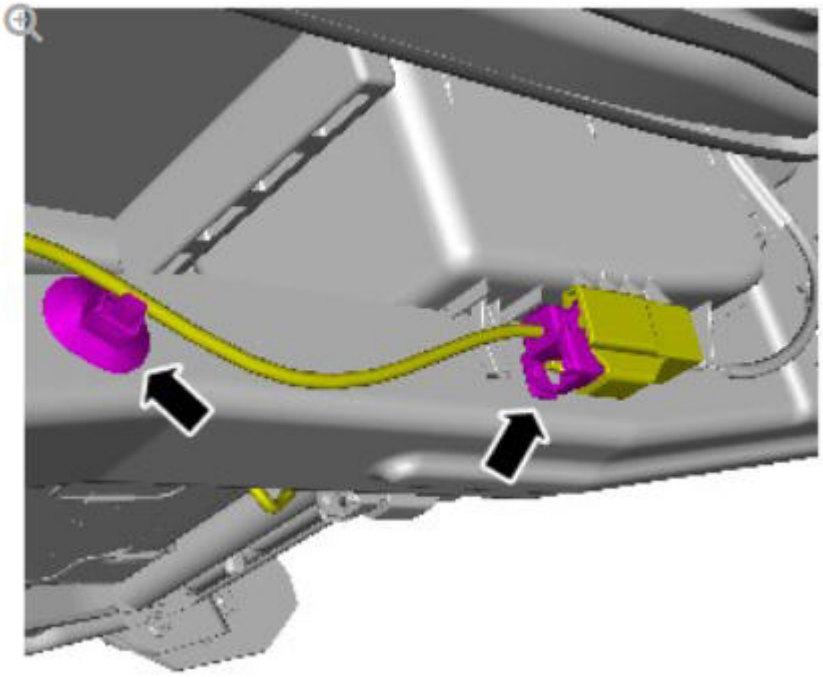
- ***To avoid accidental deployment and possible personal injury, the backup power supply must be depleted before repairing or replacing any air bag supplemental restraint system (SRS) components. To deplete the backup power supply energy, disconnect the battery ground cable and wait one minute. Failure to follow this instruction may result in personal injury.***
- ***Always wear safety glasses when working on an air bag equipped vehicle and when handling an air bag module. Failure to follow this instruction may result in personal injury.***
- ***To minimize the possibility of premature deployment, do not use radio key code savers when working on the supplemental restraint system. Failure to follow this instruction may result in personal injury.***
- ***To minimize the possibility of injury in the event of premature deployment, always carry a live air bag module with the bag and trim cover pointed away from the body. Failure to follow this instruction may result in personal injury.***
- ***To minimize the possibility of premature deployment, live air bag modules must only be placed on work benches which have been ground bonded and with the trim cover facing up. Failure to follow these instructions may result in personal injury.***
- ***Never probe the electrical connectors of air bag modules or any other supplemental restraint system component. Failure to follow this instruction may result in personal injury.***

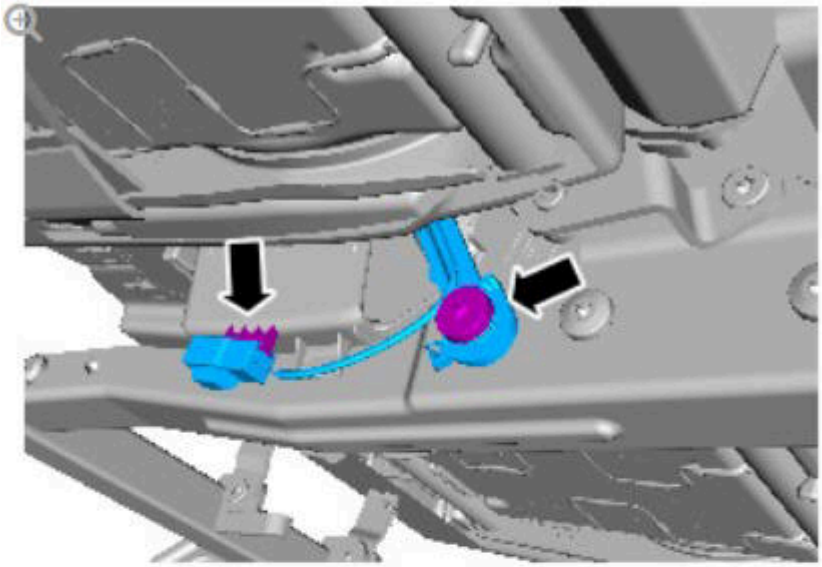
NOTES:

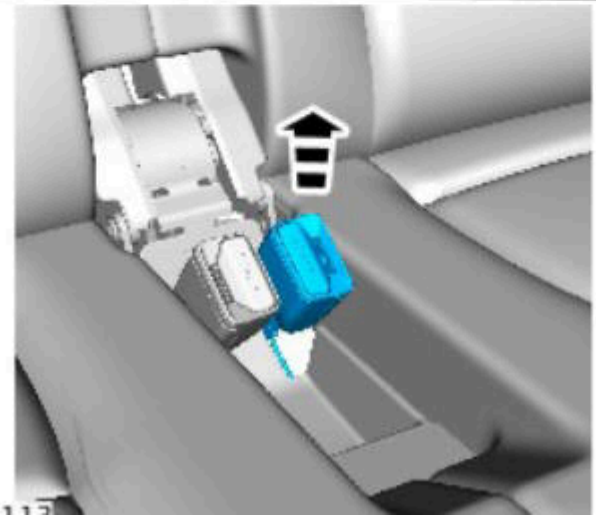
- *Some variation in the illustrations may occur, but the essential information is always correct.*
- *Removal steps in this procedure may contain installation details.*

Refer to: Third Row Seat (501-10, Removal and Installation).









Torque: 40 Nm

INSTALLATION

To install, reverse the removal procedure.

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Load Limiter Actuator (Nas Passenger Seatbelt Only)Third Row Safety Belt Retractor (G1815473) / Removal and Installation

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Третий ряд безопасность катушка ремня безопасности / снятие и установка

Third Row Safety Belt Retractor (G1815473) / Removal and Installation

REMOVAL

WARNINGS:

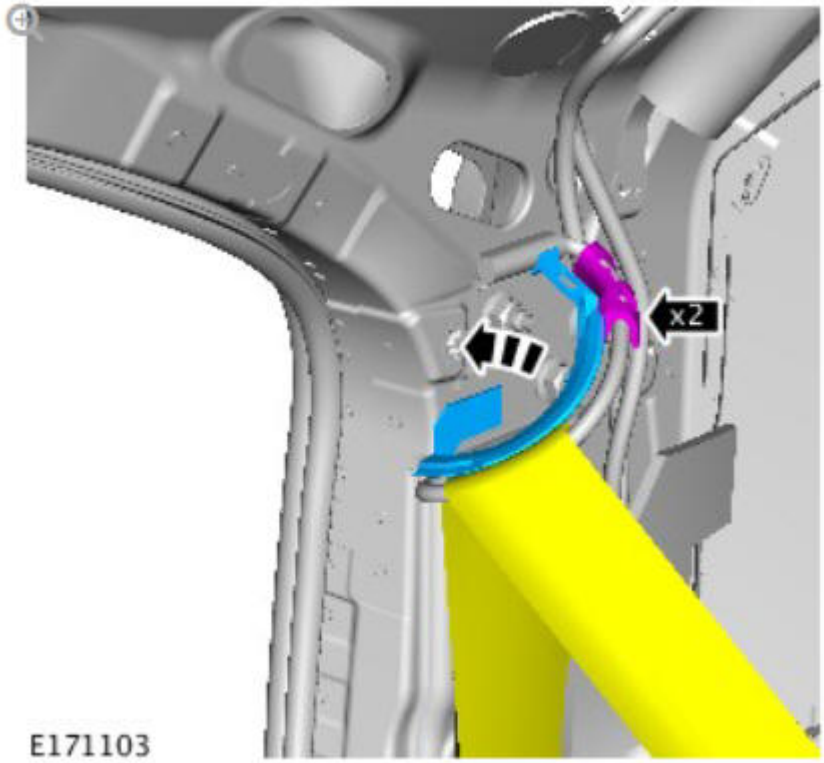
- ***To avoid accidental deployment and possible personal injury, the backup power supply must be depleted before repairing or replacing any air bag supplemental restraint system (SRS) components. To deplete the backup power supply energy, disconnect the battery ground cable and wait one minute. Failure to follow this instruction may result in personal injury.***
- ***Always wear safety glasses when working on an air bag equipped vehicle and when handling an air bag module. Failure to follow this instruction may result in personal injury.***
- ***To minimize the possibility of injury in the event of premature deployment, always carry a live air bag module with the bag and trim cover pointed away from the body. Failure to follow this instruction may result in personal injury.***
- ***To minimize the possibility of premature deployment, do not use radio key code savers when working on the supplemental restraint system. Failure to follow this instruction may result in personal injury.***
- ***To minimize the possibility of premature deployment, live air bag modules must only be placed on work benches which have been ground bonded and with the trim cover facing up. Failure to follow these instructions may result in personal injury.***
- ***Never probe the electrical connectors of air bag modules or any other supplemental restraint system component. Failure to follow this instruction may result in personal injury.***

NOTES:

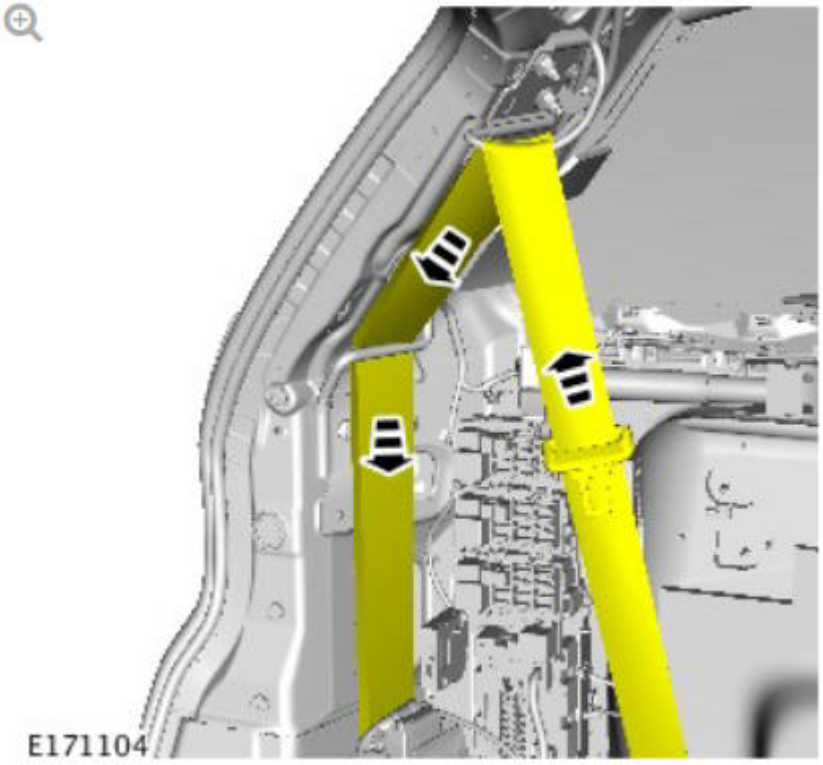
- *Removal steps in this procedure may contain installation details.*
- *Some variation in the illustrations may occur, but the essential information is always correct.*
- *LH illustration shown, RH is similar.*

Refer to: Standard Workshop Practices (100-00, Description and Operation).

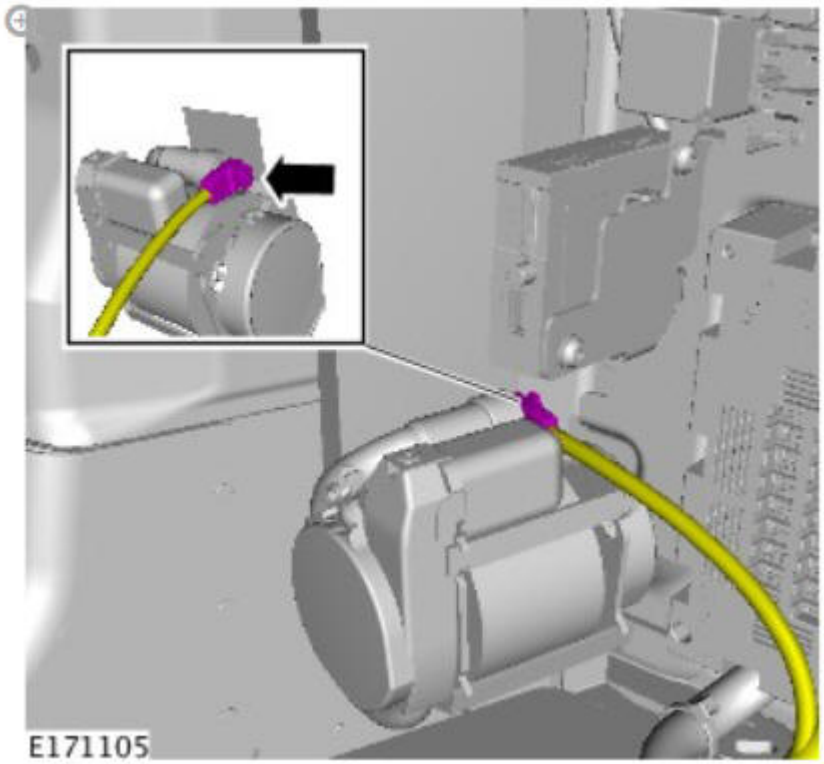
Refer to: D-Pillar Trim Panel (501-05, Removal and Installation).

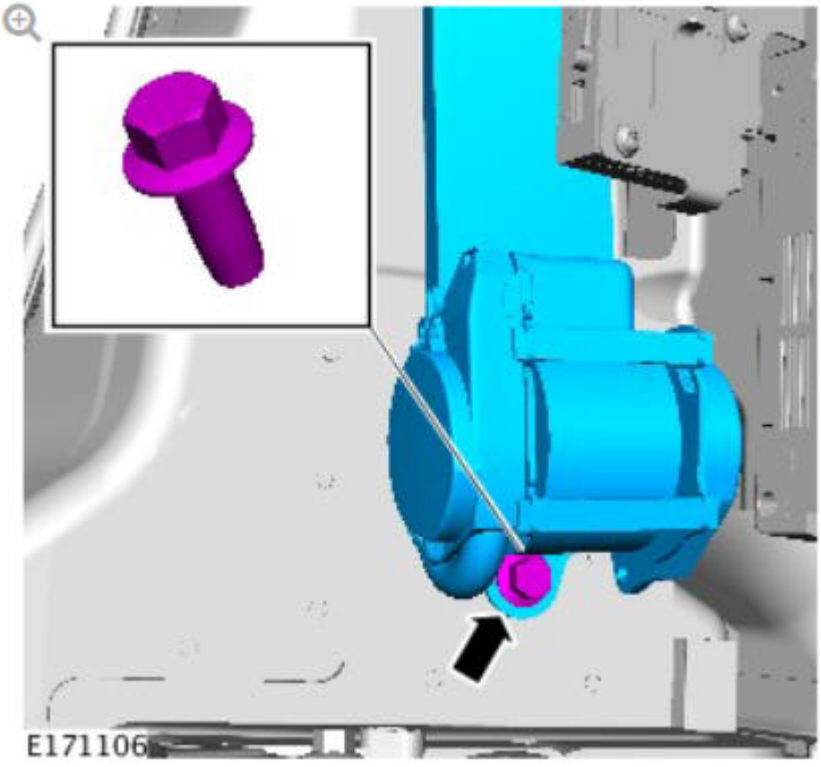


E171103



E171104





Torque: 40 Nm

INSTALLATION

To install, reverse the removal procedure.

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Third Row Safety Belt Buckle (G1815474) / Removal and InstallationSeating

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